Mobile Practices

A perspective on classification of mobility hubs

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Abstract

In this study, four different mobility hubs in Aalborg Municipality have been explored, to investigate how mobile situations are unfolded according to different mobile practices. The aim has been to uncover if different mobile practices were present at different classifications of mobility hubs, and how the understanding of these mobile practices can be used in relation to classifying mobility hubs.

The study has been carried out in a qualitative approach and takes a point of departure in phenomenology as the philosophy of science approach. The main data collection method of this study has been observation, which has been conducted at the four different hubs. The collected data from the observations have been analyzed according to Staging Mobilities by Ole B. Jensen, to understand and uncover the occurring mobile practices.

The discovered mobile practices at the different hubs are generally influenced by efficiency and social avoidance. Here it has been revealed how people queue in a "perforated snake" with distance to each other, and how 'desire lines' are created to go the most direct path. These general mobile practices that determine how the mobile situations play out are found similar in all four classifications of the mobility hubs.

This report concludes that there are no coherency in the unfolded mobile practice and the classification of the particular hub, as similar mobile practices were discovered at the different hubs. Hence, it can be concluded that mobile practices should not be a determining factor in relation to the classification of hubs.

Preface

This master's thesis has been conducted by two students in the 4th semester of the master's program *Mobilities and Urban Studies* at Aalborg University. This thesis constitute a documentation in form of this report prepared between February and May 2022.

The purpose of this study is to gain knowledge about different mobile practices at mobility hubs, in order to understand how these mobile practices can be included in a classification of mobility hubs. The output of this research is to challenge the way municipalities, among others, are working with and are planning mobility hubs. Therefore, it intends to inform professionals within the field of mobility and urban planning, as well as non-professionals with an interest in mobility hubs.

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Aalborg University, 25 May 2022

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By signing this document, each member of the group confirms participation on equal terms in the process of writing the project. Thus, each member of the group is responsible for the all contents in the project.

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Introduction 1

The aim of this report is to investigate mobility hubs through a mobilities perspective and illuminate the mobile practices that take place and shape the way which people are mobile at a given mobility hub. The background for this project revolves around the contemporary need to be mobile [Sheller and Urry, 2006], however, this report takes its point of departure on three main problematic topics concerning the societal development in mobility and transportation. The three topics will be presented shortly, and include *sustainability, mobility poverty, and congestion.* These topics emphasize a need to alternate the current situation and development into a more sustainable manner, in this relation the report's focus on mobility hubs and the associated mobile practices is particularly relevant, as it can facilitate a change in the current structure.

Urban Creators [2018] assess mobility hubs as being important for the future, as they can ensure a *"coherent transport system and efficient mobility" [Urban Creators, 2018, p. 6, translated from danish]* by connection various transport corridors. Thus, Urban Creators argues for mobility hubs as having an important strategical role in facilitating switches between numerous different transport modes. A mobility hub is not limited to only supporting public transport, but could just as well consider carpooling and micro-mobility. However, of course, public transport, e.g. train and bus, obviously has an important role in relation to mobility hubs, as various other transportation modes can be combined with public transport.

> *"As mobilities are understood beyond the instrumental we may also start asking about the sites that hosts mobile practices. [...] what types of cultural practices and social interaction take place in these spaces become of relevance".*
>
> - [Jensen, 2009, p. xvi]

The above statement makes the case for studying sites that facilitate transportation systems to understand mobilities, which goes beyond a simple understanding of travel and cost. Thus, this report takes its point of departure in the relevance of these mobile sites, and the desire to explore the social and behavioral processes that prevails in these mobility sites.

"Civil engineers are not social or behavioral scientists, yet designing transportation systems to accommodate growth in mobility while keeping congestion to a minimum (the traditional goal) requires at least some understanding of social and behavioral processes."

- [Hanson, 2015, p. 5]

The above statement suggests there is a mismatch between the field of transportation systems, including mobility hubs, and those designing transportation systems in the real world, thus, suggesting the field calls for an understanding of transportation systems through a lens of social and behavioral science. This report aims at contributing to the understanding of mobility hubs by introducing the mobility turn approach and aims at illuminating the mobile practices that stage the mobility of a mobility hub. This gives insight into an understanding from the user perspective, which enables a development that includes the user, and the potential to design transportation systems based on the contemporary practice of the user. Thus, promoting sustainable mobility and combating the three mentioned problematic topics, will be unfolded in the following.

In 2015 the 193 members of the UN signed The Paris Agreement, which obligated the members to limit the global temperature increase to under 2 °C in this century, by reducing the global greenhouse gas emission [United Nations, 2015, 2022]. Furthermore, the European Commission articulated an ambition to reach zero-net of greenhouse gas emissions by 2050. In this ambition, an intermediate target was formulated, which obligated the European Commission and its members to reduce the greenhouse gas emissions by 55% in 2030 compared to the level of 1990 [European Commission, 2020]. Globally, transport is a significant consumer of non-renewable energy resources and thus a major source of greenhouse gas emissions. In addition, the transport sector is the most dependent sector on fossil energy. Thus, the transport sector has a significant impact on the serious environmental problems the world faces both globally and locally [Høyer, 2000]. In Europe, the transport sector accounts for up to 30% of total CO_2 emissions, of which 72% comes from road transport. In an effort to reduce CO_2 emissions, the EU has set a target of reducing emissions from transport by 60% by 2050 compared to 1990 levels. Since 1990, it has succeeded in reducing emissions in other sectors such as agriculture, residential, industry, and energy consumption. However, as an increasing number of people become more mobile, CO_2 emissions from transport also increase, and are thus the sector that has not managed to reduce the CO_2 emissions compared to the level of 1990. CO_2 emissions from passenger transport vary considerably depending on the means of transportation, with passenger cars being the biggest polluters and thus accounting for 60.7% of the total CO_2 emissions from road transport in Europe [European Parliament, 2019].

CO_2 emissions from the transport sector are thus a major problem for the climate. If you look at Denmark nationally, CO_2 emissions from the transport sector make up 25% of Denmark's total CO_2 emissions. This results in local and environmental problems such as air pollution from traffic that causes major health problems and nitrogen that settles in nature, which destroys nitrogen-sensitive natural areas [Danish Energy Agency, 2020]. Therefore, it is necessary to develop the transport sector in a sustainable manner. Mobility hubs can be assessed as an element that can contribute to developing the transport sector in a more sustainable manner, as they can provide a basis for public transportation.

However, as suggested earlier, the current development does not necessarily involve a user perspective. This user perspective can be argued to be important in relation to designing transportation systems that support the users and their usages. Thus, the overall focus of this report is mobility hubs, as it can be assessed as a key aspect in creating a more sustainable transport sector. Mobility hubs do not only support environmental sustainability, but do also affect the social aspects of sustainability, as the access to mobility can be deemed as an important factor in supporting modern life, or as Sheller and Urry [2006] frame it *"obligatory for the sustaining of families, friendship, workgroups, businesses, and leisure organizations" [Sheller and Urry, 2006, p. 217].* Thus, implying the importance of having access to a suitable range of mobility to participate and be included in the rest of the society and its activities. However, in 2021 approximately 21% of the families living in the rural area of Denmark did not have access to a car for personal use [Statistics Denmark, 2022], which makes mobility hubs essential for sustaining their life, as public transportation can be deemed as one of their main options for being mobile and moving around, on a scale ranging wider than their ability to walk and bike. Hence, if no suitable mobility options are available, it can be argued to some extent, that one is excluded from the rest of the society and its activities, as mobility can be assessed as *"obligatory"* for being included in the society and maintaining a modern life [Sheller and Urry, 2006]. Hence, mobility hubs can be assessed as processes that can "switch on" places and areas, by enabling access, and thus facilitating an opportunity for inclusion of the society [Jensen, 2013].

This importance and need to be mobile can also be observed over the last 30 years in Denmark, where the number of cars on the roads has increased by approximately 1 million. Furthermore, the projections show that the need for transport will continue to increase in the coming years. As the cities have a limited road area and there is an increasing number of cars on the road network, this helps to create high congestion in the cities, which reduces the mobility of citizens despite short distances and makes trips longer time-wise [Kommunernes Landsforening, 2022]. Congestion does not only cause negative effects on an individual scale, according to The Danish Road Directorate [2019], Denmark suffered a macroeconomic loss of 20 billion DKK in 2016 due to congestion. In order to meet the problems of congestion, noise, and air pollution in cities, an expansion of, among other things, public transport, bicycle infrastructure, shared (electric) cars, and carpooling as well as increased combination possibilities between modes of transport, can be part of the solution [Kommunernes Landsforening, 2022]. The number of vehicles on the roads continues to rise, as does the proportion of cars in the household. This makes a case for increasing pressure on the overall road network as well as the limited road network in the cities, causing even bigger problems with congestion in the future [Green Transition Denmark, 2021]. Furthermore, cars are taking up spaces in the urban area, which potentially could have been used for different activities, by expanding the public transportation system a lesser need for cars is potentially needed, hence, less space is occupied in the urban area by cars. According to Gehl [2010] the world has faced a *"car invasion"*, where cities have been planned for facilitating cars and not people, however, Gehl [2010] argues for cities for people and not cars. This makes a case for mobility hubs as an important factor in the development of cities that prioritize and focus on people, as mobility hubs' potential can create a basis for less car dependency, thus, creating a basis for cities to facilitate more than just cars.

By considering the outlined topics above, this report pursues an understanding of how mobile situations are played out at mobility hubs, which calls for analyzing and assessing mobility hubs through Jensen [2013]'s staging mobilities approach. Thus, the aim of this report is to understand the mobile practices that take place at mobility hubs, thus understanding behavioral aspects of mobility on a sociological level. This calls for a qualitative approach, hence observing will be included to consider the performed mobility at various mobility hubs. The final outcome of this report is to explore how the classification of mobility hubs can be influenced by comprehension of mobile practices. In the following chapter the report's research question, which comprehends this, will be presented.

Research Question 2

It is argued by Gebhardt et al. [2016] and Ambrosino et al. [2016] among others, that very little academic research has been done within the field of mobility hubs and multimodality, and how these work according to a mobility perspective. Thus, the report assesses a knowledge gap in relation to the ongoing mobilities that take place at different mobility hubs. As described in Chapter 1, the report aims at exploring the contemporary mobilities at mobility hubs. Hence, the report attempts to uncover a social aspect of transportation, by understanding the underlying mobile practices that occur at different mobility hubs with the use of a qualitative approach. The goal of this understanding is to provide insight into mobility hubs and the differences and similarities in the mobile practices at those. This insight can be utilized in the planning aspects of mobility hubs, such as designing and classification. Mobile practices is referring to how mobile situations are performed and acted out in the situation.

The study in this report takes its point of departure in mobility hubs at Aalborg Municipality, where a classification consisting of four classifications of mobility hubs is used. The classification itself is mainly built on the assumption of the network the mobility hub is a part of, and what function it has to provide here [Aalborg Municipality, 2022a]. The investigation of this report will be based on one mobility hub from each of the four classifications. The classification consists of destination-, network-, suburban- and park and ride hub. The selected mobility hubs are chosen with input from Aalborg Municipality and based on which mobility hubs were less influenced by road work. The mobility hubs are respectively Campus Forum, Lindholm Station, Storvorde Rødhøjvej, and park and ride Th. Sauers Vej. The purpose of exploring all of the classifications is to uncover the tendencies that might be different or similar so that the gathered knowledge can be incorporated into the further planning of mobility hubs. The classifications will be further elaborated in Chapter 5.

The mentioned considerations in this chapter and Chapter 1 lead to the following research question, that will provide guidance and direction for the rest of the report.

How can the understanding of mobile practices be used in relation to the classification of mobility hubs?

What this research question suggests is that there are mobile practices that affect and determine the way people are mobile, use a space, and move around. Thus, it can be argued that these mobile practices constitute and are unfolded in different mobile situations at the mobility hubs. To understand these mobile practices, this study will explore the different mobile situations, as this is where the various mobile practices are expressed. This

means that mobile situations at mobility hubs occur based on a set of practices, which this research question seeks to explore. The aim of this research question is to comprehend how the various mobile practices can contribute to the general classification of mobility hubs, and to what extent and in which way the use of the mobility hubs differs from one another. This is done in order to contribute to the future planning of mobility hubs. Thus, the study of these mobile practices calls for an understanding of how mobile situations can be assessed, as it is here the mobile practices appear. Hence, this report put forward two subquestion in order to investigate and understand the mobile practices to enable comprehension of the mobile practices.

The subquestions contain aspects of the main research question, and attempt to divide mobilities by what Jensen [2013] coins as 'from above' and 'from below', by introducing a perspective on respectively the physical and social world. Thus, the knowledge gathered with the subquestion embraced directly into exploring the part of the research question concerning mobile practices, as it is needed to comprehend these in order to understand how they can influence the classification of mobility hubs.

SQ1: How are the different mobility hubs planned and designed in order to facilitate mobile situations?

The first subquestion considers the built environment and does not include the ongoing human activities taking place in the mobile situation. Thus, instead, it aims at providing an insight into the scene in which the mobile situation can happen. Furthermore, it provides comprehension of how the design is intended to facilitate mobile situations.

SQ2: How do mobile situations unfold at the different mobility hubs?

The aim of the second subquestion is to include the human activities that take place in the built environment explored in subquestion one. This is done as it can be argued that different mobile situations consist of different mobile practices, which do not necessarily align with how the space is intended. Thus, it is necessary to understand and investigate how the mobile situations are acted out and performed by the users in the situation, and not just how according to the intended practice. This emphasizes that the performed situations take place in relation to the associated mobile practices, which this subquestion attempts to comprehend.

In the following Chapter 3 a presentation of Staging Mobilities by Jensen [2013] will be unfolded, which provides a theoretical frame in which the research question aspects of mobile situations and the associated mobile practices can be understood and analyzed. Afterward, a presentation of the report's research design and philosophy of science will follow in Chapter 4, as well as a description of the used methods for data collection, which provides an empirical foundation for answering the report's research question, and its associated subquestions.

Staging Mobilities as a Theoretical Framework 3

The aim of this chapter is to present a theoretical framework, that creates a basis for investigating and illuminating the research question introduced in Chapter 2. The research question makes a case for a framework that seeks to understand more than just the physical movement that occurs within the mobility hubs. The theoretical approach in this report is contradictory to the conventional transport geography, where movement and traffic mainly are understood through a 'predict and provide' manner. Hence, the human itself is not deemed as a factor in understanding and making sense of movement in a broad term.

> *"Transport studies have too often thought of time in transit as 'dead time' in which nothing happens– a problem that can be solved technically. Mobility studies have begun to take the actual fact of movement seriously."*
>
> - [Cresswell, 2010, p. 18]

Instead, this report takes its point of departure in the mobility turn introduced by Urry [2000], where movement is perceived as more than from A to B, i.e. a mobility hub is more than just a place and space that facilitate flows from A to B [Sheller and Urry, 2006]. The present mobile society can be argued to be composed of two different societal scales, one considers the macro-scale of movement, idea exchanges, capital flows, etc. Whereas the other considers the micro-scale mobility where the everyday mobility is appraised [Sheller and Urry, 2006]. This approach creates a premise for focusing on the embedded communication and movement patterns that are performed on a daily basis at different mobility hubs and influenced by mobile practices. The focus will especially be on the micro-scale aspects of mobilities. This creates a point of departure in which contemporary mobile situations can be studied, thus creating a background for answering the report's research question considering mobile practices at mobility hubs. To study the contemporary mobile situations Jensen [2013] introduce "Staging Mobilities", which explore 'mobilities in situ' i.e. how everyday mobile situations are performed and acted out. Thus, seeking to understand the sociological aspect of movement, by attempting to make sense of the mobile situation [Jensen, 2013]. This framework will be the theoretical core of this report, as it creates a basis in which mobile practices can be analyzed and understood.

> *"Mobility do not 'just happen' or simply 'take place'. According to the Staging Mobilities framework, we should think of mobilities as being carefully and meticulously designed and planned 'from above', as one might say. However, they are equally importantly acted out, performed, and lived 'from below'. Mobilities are staged and people performing mobilities are engaged in social interactions of staging mobilities. Staging Mobilities is therefore a process of creating lived mobility practices and the material preconditions to these."*
>
> - [Jensen, 2013, p. 5]

The above statement suggests, that mobilities are not just coincidences that accrue, but are instead affected and steered by what Jensen [2013] coins as 'from above' and 'from below'. To conceptualize 'from above', Jensen [2013] introduce the concept of 'the river', which considers mobility from a bird's eye perspective. In this term, the urban environment is, metaphorically speaking, considered as a riverbed, which *"shaping the flows of people as water in a 'river'" [Jensen, 2014, p. 50]*. Thus, this perspective is assessing the overall movement of people and compresses these into homogenized flows of various traffic. This notion of the river must be assessed in the context of the urban environment, as the riverbed can be considered to be made up of these elements. Hence, an element, such as bushes, may interrupt and reorder the flow, just like a rock in a running river. Conversely, Jensen [2013] also introduce 'the ballet' to conceptualize 'from below'. This metaphor zooms to a perspective at an eye-level, and attempts to illuminate *"gazes, and embodied negotiations and interactions that take place ever so swiftly as people move" [Jensen, 2013, p. 146]*. Thus, the metaphor of the ballet refers to the various "dances" that take place in mobile situations.

Furthermore, 'from above' can be deemed through the metaphor of scenography, where the physical elements, such as the infrastructure and design, etc, construct a scene in which the mobile situation can take place. Differently, 'from below' can be deemed as the choreography of the play, which consists of the embodied performances and social interactions, that take place in a given situation [Jensen, 2013].

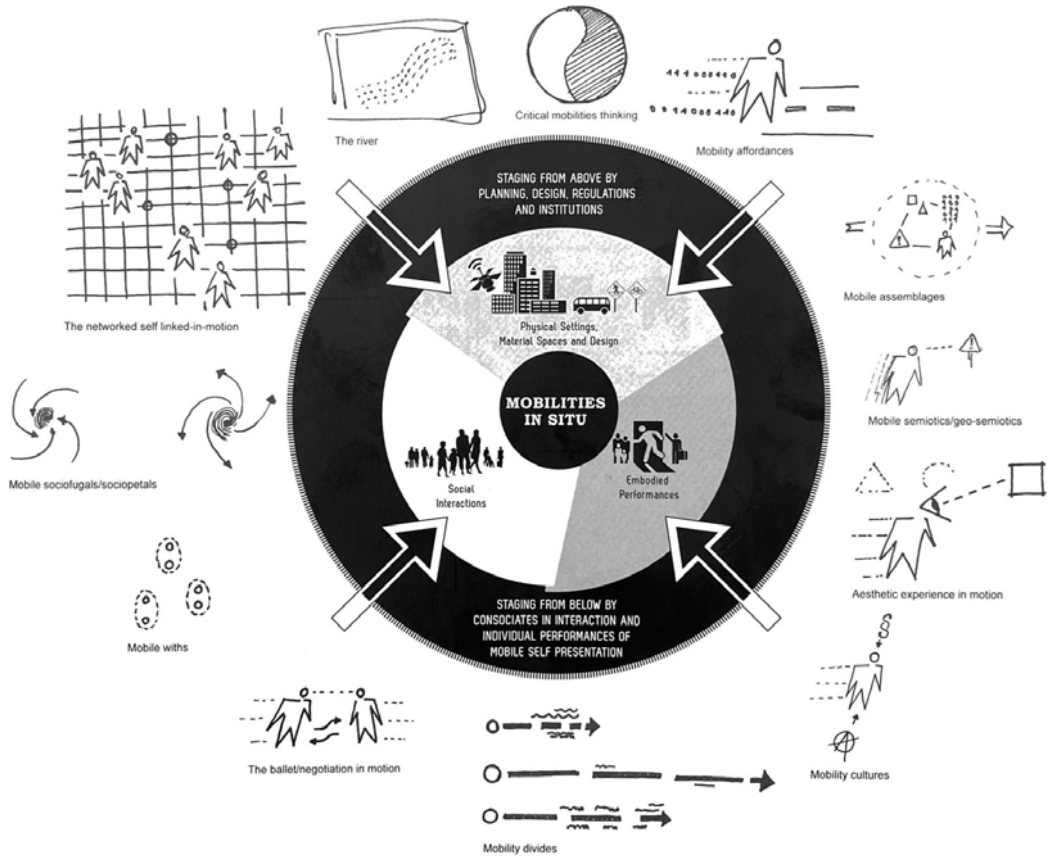

Figure 3.1. The staging mobilities model with diagrams [Jensen, 2014, p. 53].

Staging mobilities is developed to be an analytical framework that explores contemporary and everyday mobility, and the choices and situations it entails. Thus, the use of staging mobilities must be on a basis of a heuristic approach, and not on the notion of what Camerer and Fehr [2006] coins as 'economic man', as this approach contemplates that all individual decisions are based on being fully rational. However, this might not be the case as some taken decisions in mobile situations might not be the most optimal, but they enable one to somehow reach the goal [Jensen, 2013; Camerer and Fehr, 2006]. Besides dividing 'from above' and 'from below', Jensen [2013] also consider three key dimensions that incoherency constitutes the mobile situation, shown as 'mobilities in situ' on Figure 3.1. In addition, the figure also consists of different diagrams that surround staging mobilities. These diagrams should be assessed as a helping hand to operationalize the framework. In the following sections, the three dimensions inside staging mobilities will be presented, where the relevant diagrams will be included to interpret and create a frame in which the report's research question can be examined. Thus, the elements 'from above' and the behavior 'from below' in conjunction produce the mobile practices of a mobility hub, and can be argued to be demonstrated through the unfolding of mobile situations.

3.1 Physical settings, material spaces, and design

The physical settings, material spaces, and design create the urban environment which is full of signs, paths, roads, physical elements, etc., that mobility flow through inevitably

the means of transportation [Jensen, 2013]. This landscape is the planned environment, which is *"marked and defined by decisions taken elsewhere: in planning departments, architectural offices, and city governments. Design contributes to 'staging mobilities from above'"* [Jensen and Lanng, 2016, p. 2]. Thus, mobility is affected by a set of rules and the design of the space that has been decided elsewhere. It is important to emphasize that the physical settings, material spaces, and design should not be deemed as a static background, but instead deemed as dynamic, because by nature the urban environment is made by humans, thus affecting mobility considerably. Jensen [2013] introduce the term "mobile biotope", to explain how mobile practices are an important factor in creating comfortable and livable places and sites, and that mobile practices might be a decisive factor in succeeding.

The physical settings affect mobility in a variety of ways. One way is in form of the semiotic properties, which create a material landscape that afford a certain mobile practice. For instance, a traffic light helps to organize who moves and who stops at specific times, and signs help to control the direction of the mobility flow. Thus, the notion of semiotic deals with the material space of a place, and its signs and symbols understood in the broadest possible sense, as it can be argued, that the whole environment is read by a user to comprehend a mobile situation. Hence, a specific design, e.g. dark tunnel or large window facades, is a sign in itself that affects the mobile practice, by how the situation is read and perceived according to the mobile culture. The semiotics is thus a dimension that operates 'from above', in the sense of the material and the settings. However, it is also indeed a dimension that is staged 'from below' both according to how the design is read, but also due to the fact that people themselves become "signs" and "symbols", which Jensen [2013] coins as "mobile body semiotics", which will be elaborated on later when the embodied performances are unfolded in Section 3.3 [Jensen, 2013].

Jensen [2013] introduces the metaphors of 'sociopetal' and 'sociofugal', which describe how sites can act as either a centripetal force or a centrifugal force in relation to activities and people, i.e. how space can respectively "draw in" or "push away". This concept can be understood on different scales, for, on one hand, a space or site in itself can act as a 'sociopetal' that attracts people and activities. For instance, a cozy square in an urban area might attract people that need a break from shopping or just a place to hang out. On the other hand, a specific element in a space or a site can also act as a 'sociopetal', for instance, a bridge for pedestrians to cross a busy road. However, the last example emphasizes that it is not just black or white, as a space can also act as both, the aforementioned bridge also push people away and spreads them out to the rest of the society. Similarly, it is not necessarily bad nor good that a space is characterized as one or the other, as both concepts have a role to play in society.

The physical settings of a place can completely interrupt flows e.g. a fence, thus, limiting the space in which the mobility can flow, and attempting to steer it in a direction wanted 'from above'. The material space and physical settings can exclude or include people, e.g. which kind of road curbs are used, and how do these afford the mobility of specific groups? This is what Jensen [2013] coins as "critical mobilities thinking", where the dark sides and potentials of mobility are considered through the way in which the urban environment is staged 'from above' by architects, planners, politicians, etc. Furthermore, Jensen [2013]

use the term "mobile assemblages" to illuminate how the technical world and non-human agents afford or restrict the contemporary mobility, e.g. the hydraulic of the bus, which allows it to get lower for easier access for the passengers.

The notion of "mobility affordance" can be used to describe the essence 'from above', as it explores which kind of mobility the environment affords, both in terms of the physical setting and material space, but also in relation to the technological dimension. It explores the relation between the moving body, the material, and the technology, and how this relation opens up to different mobile practices [Jensen, 2013]. Obviously, a shopping mall affords one kind of mobile practice through the urban environment, whereas a parking garage supports a totally different mobile practice, even though the buildings from an outside view, to some extent, can be described as big concrete boxes. Still, the material spaces are different, hence the two spaces afford different mobile practices. Using the notion of Castells [1996]'s 'space of flow' and 'space of place', the urban environment can be assessed in relation to what the space is intended to facilitate. On one hand, a mobility hub should facilitate the effectiveness and flow of a 'space of flow', however, it can be questioned whether that is all a mobility hub should facilitate. Because, on the other hand, a mobility hub can also be assessed as a 'space of place' that attracts people, and as a place where people meet and want to spend time while waiting.

It is not only the settings determined 'from above' that stage the mobile situation, it is just as much the social interactions and embodied performances that happen 'from below', or as framed by Jensen and Lanng [2016]: *"a large number of decisions and choices are also made by you, 'staged from below', either in a non-reflexive, routine manner or in deliberate and conscious accord with your values and perception of self" [Jensen and Lanng, 2016, p. 2].* These dimensions will be elaborated on in the following Section 3.2 and 3.3.

3.2 Social interactions

SocialInteractions The next dimension of staging mobilities that will be covered, is the social interactions, which are crucial in understanding how mobility plays out in the situation. Only occasionally, does one experience being mobile and completely alone, especially in a dense urban area, which is why this lonely type of travel *"carries its own strange magic" [Jensen, 2013, p. 81].* Typically, contemporary mobility results in various social encounters as we move around and engage with other people, whether it is on one's weekly running trip or on the way to work [Jensen, 2013].

A way to understand and illuminate these social interactions is through what Jensen [2013] coins as 'mobile with'. This concept considers how mobility happens in groups, or through Jensen [2013]'s word *"a group of two [. . .] copresently moving together" [Jensen, 2013, p. 81].* However, it is important to emphasize the understanding of the group, as it should not only be deemed as a voluntary and organized group but just as well when people "randomly" form a group, whether it is due to going along the same path, waiting for the same traffic light to switch or the same bus to arrive. Hence, 'mobile with' groups are forming all over society, especially in populated areas. Some are dissolved just as swiftly as they were formed, while other groups keep moving along, and continuously recruit and dispel members on the move. Thus, the formed 'mobile with' groups do not necessarily

have any deeper interactions. Jensen [2013] coin these swiftly dissolved mobile situations as "temporary congregations".

The social encounters that happen while being mobile, whether it is a 'mobile with' group or just randomly passed by somebody, often entail a form of communication. Jensen [2013]'s notion of "negotiation in motion" unfolds how what seems like random encounters, in fact, accommodate a complex process of negotiations between the mobile bodies. These negotiations are often non-verbal and are instead composed in a mobile space of body language, norms, power, and value. The interactions are interfered with by the material environment, but equally also through how people are making sense of the mobile situation. This emphasizes that mobile interactions are constantly happening, and are thus an important factor in understanding how mobility is staged 'from below'. However, the mobile situation is not solely created through interactions in a space of materiality but is also determined by the embodied performance, which will be elaborated on in the next section.

3.3 Embodied performances

When studying mobile situations one is looking at more than just the physical moment of bodies, but also the performance of the situation including perceptions and practices.

> *"Looking at the embodied movements of humans we are not only studying moving animals, so to speak, but also the creation of cultural significance and social practices".*
>
> - [Jensen, 2013, p. 94]

Mobile situations are not only acted out as a physical movement corresponding to the material design but are also highly determined by mobile decisions taken by the subject, which are influenced by the embedded mobile practices. This can create a basis for a mismatch between the rational design intended 'from above', and how the mobility is actually performed 'from below', as there in reality might be another mobile practice, than the one designed for [Jensen, 2013]. For instance, 'desire lines' can be a direct counterweight to the intended planning. It is a concept that describes paths chosen 'from below', and these may occur in places that are not necessarily designed for walking, i.e. cutting edges along a paved path [Cresswell, 2014].

The mobile situations are performed 'from below' based on a set of mobile practices. These practices can be performed in an unreflective manner, as they become embedded into the embodied practices, though it can also be a conscious choice based on the mobile subject's perception. These factors determine how a mobile situation plays out, and this practice is affected by what Jensen [2013] coins as "mobile culture", which is a set of practice and normative principles. There are different codes, for different mobile situations and means of transportation, e.g. walking-codes and cycling-codes. These codes are obviously affected by legal matters, as the official laws and sanctions affect the culture in which we move, these are highly determined 'from above'. However, the mobile practices are also highly affected by embodied codes and norms within the society, i.e. aspects 'from below'. These

codes can vary from more global mobility norms to more local ones. Thus, mobility can be assessed as something that produces meaning and creates cultures and is not solely a physical movement.

As mentioned in Section 3.1, the mobile subject itself becomes a sign in mobile situations, which Jensen [2013] coins as "mobile body semiotics". The gestures of the moving body can be interpreted as intentions and norms, which can be assessed as a sign or symbols, that affect and are linked to mobile practices. For example, when reaching your hand out to signal you will turn when biking. However, these embodied signs can be more or less visible, i.e. a small shift in your body, to signal you go past somebody, is a less visible sign, but still an important mobile practice to not bump into somebody else. Though, these types of signs are not as clear as the physical signs, which generally have one particular meaning. The body semiotics is on the other hand often performed in motion and represent a mobile practice and culture, why it easy can be overlooked. For instance, in the before-mentioned example of two people passing each other, if the other person does not read the body semiotic, and ends up doing the same shift, the two will end up doing the classic little dance on the sidewalk. Since the mobile body semiotic have an underlying basis in practice and culture, it can also be misread. Either because the moment happens swift and indistinctly, or simply due to different perceptions and representations of the sender and reader. This has taken a point of departure on a bodily scale, however, the mobile situation can also be affected by elements happening further away from the mobile subject. For instance, speeding cars may cause a particular mobile practice among people along the road. Thus, the mobilities situations are affected and influenced by embodied performances and mobile practices [Jensen, 2013].

3.4 Summary of mobile practices

Staging Mobilities as a framework to understand and comprehend mobile situations has now been described. The very focus of this project is to explore mobile practices, which can be deemed as an aspect that controls and govern mobile situations. However, this report does not consider the mobile practices in the broadest possible manner, but only the site-specific practices that happen at the mobility hubs, and thus not the whole journey from one leaves the home and back again.

> *"Practice may be staged 'from above' by means of the layout and design of the bike paths, the traffic light system, and the general rules for traffic. The subject [...] is moreover also engaged in a practice of staging as she or he 'performs' mobilities."*
>
> - [Jensen, 2014, p. 15]

The above statement proclaims that these mobile practices can be assessed to take place in the space between the physical- and social world, i.e. 'from above' and 'from below'. As the one creates the scene, the other determines the acted performances. It is especially through the described diagrams that the mobile practices can be analyzed. Thus, it is in this span that the projects attempt to understand and analyze which mobile practices

that prevail at the four different mobility hubs, which will be done based on the empirical work, that will be described in Chapter 4.

The theoretical framework has now been presented, which forms the basis for analyzing the mobile practices. Thus, providing a frame in which the report's research question can be answered. In the following chapter, the methodology of the report will be presented.

Methodology 4

This chapter outlines the methodological framework of this study by describing how the research question will be answered. Firstly, the research design is illustratively presented which describes the structure of the study in relation to how theory and methods are used and contribute to the following chapters. Secondly, the data collecting methods are presented and described in relation to this study. In order to understand mobile situations at the four mobility hubs, methods such as desk research, expert interview, and observations with two different approaches have been used. The main data collection method is observations of embodied performances and social interactions, which relates to the theoretical framework 'from below' of Staging Mobilities.

4.1 Research Design

This section unfolds how the theoretical framework and data collection methods are implemented in this study. This is illustrated in Figure 4.1, showing the research design. The research design shows how the elements of theory and methods are implemented in the following two chapters and discussion, which are all used for answering the research question and subquestions.

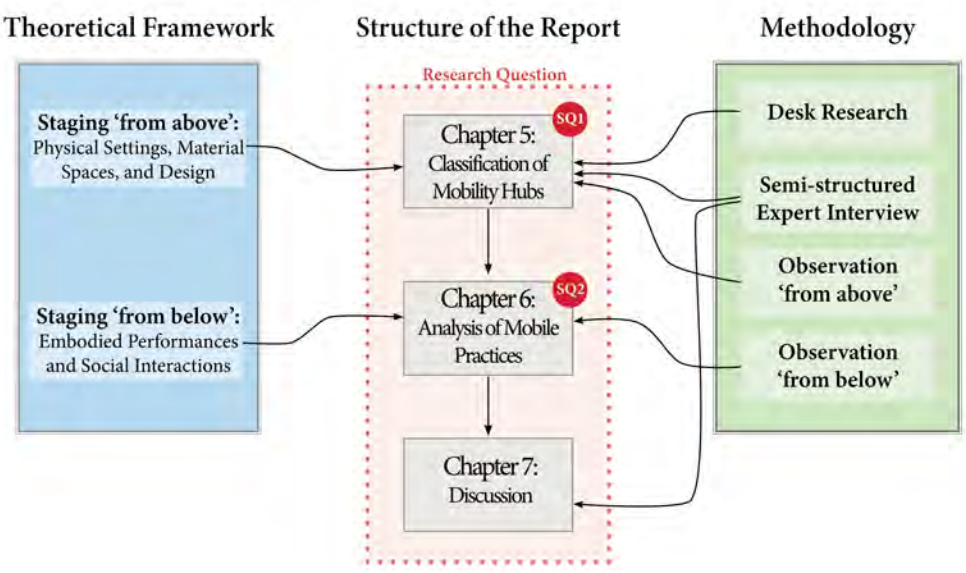

Figure 4.1. Research design showing how theory and methods are used in the following chapters.

The research question seeks to investigate the mobile practices that unfold at four different mobility hubs and understand how these mobile practices can be used in relation to the classification of mobility hubs 2. This is done based on the theoretical framework on Staging Mobilities, and the idea that mobile situations take place from a 'from above' and a 'from below' perspective (see Chapter 3). Thus, this is a study with a qualitative research approach, where the methods used are exclusively qualitative. Observation is the primary method used in this study, as it is mobile practices that are to be investigated. However, to understand the mobile practices, it is ideal to understand what physical setting they take place in, as well as how these four classifications are different regarding the built environment.

Accordingly, the four chosen mobility hubs, their classification, and the physical setting are described in Chapter 5. This chapter relates to subquestion one considers the built environment, and thus, does not include the human activities on-site. Therefore, the chapter seeks to describe, how the four mobility hubs are physically structured 'from above', and what mobilities they afford. This has been investigated through three methodological tools. The first is desk research, to gain insight into the historical background of the mobility hubs and the purpose of these when they were planned. The second is the semi-structured interview with two representatives from Aalborg Municipality, to gain knowledge about the entire classification of mobility hubs and the physical work with them. The last and third method of this chapter, is the observation of the physical setting at the four mobility hubs, in order to achieve insight into the mobility hubs on-site.

This leads to an analysis, that seeks to answer subquestion two and relates to the 'from below' part of the Staging Mobilities theory, where the mobile practices are to be analyzed. Here, only observation is used, with a focus on the embodied performances and social interactions that occur at the four mobility hubs.

To answer the research question the considerations from Chapter 5 and Chapter 6 will be included into a discussion in Chapter 7 as shown on Figure 4.1. This will explore how mobile practices can contribute to a classification of mobility hubs, and to what extent these findings can be incorporated into the further planning of mobility hubs. The whole research design suggests how each of the different parts of the report embrace answering the research question. Thus, this research design can as well be considered as a reading guide for the report, where the connections between each chapter are highlighted.

4.2 Considerations of Philosophy of Science

The main focus of this study is to study mobile practices that happen at four different types of mobility hubs. Therefore, the data collection is only based on qualitative methods, and the main research method is observations, in order to study the social interactions and embodied performances that occur at the chosen mobility hubs. This study takes a point of departure in an approach based on phenomenology, thus this is the "lens" through which this study looks at the world.

The phenomenon this project consider is the mobility hub itself. Phenomenology considers a practical and everyday involvement, where the focus is on the practice that takes place, as well as the relationship to the environment, which contains both physical things and

human existences. Hence, this study considers the contemporary mobility taking place, and it is through this activity that the mobility hub makes sense [Simonsen and Hansen, 2004]. The focus of this study is to understand the phenomenon of a mobility hub, through the physical environment and the mobile situations taking place, as this creates the mobile practices thus making sense of the mobility hub. Thus, this approach helps to understand the phenomenon through how people act in a setting [Ravitch and Mittenfelner, 2021].

Phenomenology combines the observed mobile practices with the applied theoretical approach. Thus, this philosophy of science contributes to an understanding of how social practices and interactions have a significant bodily dimension. Therefore, this position in philosophy of science is seeking to describe what is happening [Jacobsen, 1999]. Working with phenomenology as the chosen philosophy of science, knowledge is gathered through observation of actions and meanings. Phenomenology follows three basic rules regarding scientific methods:

1. Rule of brackets: Personal prejudices and before-knowledge have to be put aside. The rule means that the researcher must put brackets around all personal knowledge of the phenomena of research.
2. Rule of descriptions: Descriptions always come before explanations! The rule means that the researcher must wait with explanations and instead describe what one experiences as detailed as possible.
3. Rule of equalities: All experiences and observations shall be treated equally by the researcher! When all experiences and observations are collected equally, it is possible to interpret them all without prejudices.

[Jacobsen, 1999]

In conducting this study, all rules have been applied accordingly. Already known knowledge was put aside before studying the mobile practices at the four mobility hubs, in order to avoid a biased result - observed, before it was interpreted. Secondly, it was important to write the observations down at first, before starting to explain what was happening and why that is. This was done by describing exactly what was observed and not expecting anything, in as much detail as possible. After doing so, it was possible to start discovering and explaining the mobile practices. Lastly, all the observations should be treated equally to process them without prejudices.

By considering the above statements, it can be argued that phenomenology is relevant in relation to this study, where the mobile practices 'from below' unfold in the physical settings 'from above', as mentioned in the theoretical framework of 'Staging Mobilities' (see Chapter 3). The structure of the analysis 'from below' is to interpret the journey of the users at the four mobility hubs, which indicates the phenomenon that is studied. To investigate this, qualitative methodological approaches are used to collect relevant data. The aim is to get a direct interpretation of reality as it appears to the involved users at the mobility hubs, including the cultural and social context. The following sections will describe the chosen methods and their relation to this study.

4.3 Data Collection Methods

This section describes each of the methods that are used for this study. These data collection methods are all qualitative methods for achieving insight into the everyday mobilities that unfolds at the four selected mobility hubs in Aalborg Municipality.

4.3.1 Desk Research

In this study, desk research refers to secondary data that cannot be collected by fieldwork. It is thus everything from published research reports, academic articles, official documents, books, and other important sources that relates to the topic of this study. This type of external data can be found on the Internet, among other places, but can also be found in libraries or internally at, for example, companies or municipalities [Hague, 2014].

Desk research is also called *secondary research*, which is a research method that involves the collection of already existing data. This pre-existing data is collected and summarized, after which it is compared to increase the overall quality of the study in question. The purpose of secondary research is thus to achieve a broader understanding of the field of study. Secondary research data is based on data that already exists, whereas primary research is data that is collected firsthand. Thus, primary data is the raw data that is collected at the four mobility hubs [Travis, 2016].

In relation to this study, it is especially important to examine and gain insight into the historical development of the four mobility hubs, as well as to understand the choices made in connection with the development and origin of the sites. The main aim of the desk research is to give insight into the mobility hubs physical planning, which contributes to Chapter 5 describing the four classifications by Aalborg Municipality as well as the physical setting of the chosen mobility hubs.

4.3.2 Semi-structured Expert Interview

In order to gain knowledge about different types of mobility hubs in and around Aalborg, as well as the municipality's work with these, an expert interview was conducted with two representatives from Aalborg Municipality. The interview was held on Thursday, March 10, 2022, with Mette Olesen (mobility planner) and Jeppe Astrup Andersen (traffic planner) from Aalborg Municipality. They have both been working with mobility hubs for several years, and are a part of the work behind Aalborg Municipality's classification of mobility hubs, which was briefly introduced in Chapter 2 and that will be further elaborated in Chapter 5.

The research tool for conducting this in-depth expert interview is the interview guide (see Appendix A). The interview guide is semi-structured based on three main themes, that were set up prior to the interview, as well as related questions (so-called 'topical probes') under each theme. The topical probes are potential follow-up questions, that are not put as direct questions unless it is not addressed during the interview. However, since it is a semi-structured interview, it is important to secure that the interview is open to a more free dialogue. Thus, the themes were used as a guideline for the interview, so that the desired information and knowledge for the study were ensured [Hennink et al., 2020].

The chosen themes for the interview are the following:

- The general work with mobility hubs
- Aalborg Municipality's specific classification of mobility hubs
- The future work with mobility hubs

The three themes are related to Aalborg Municipality's work with the development of mobility hubs in the municipality and their classification of these. The interview guide can be read in Appendix A, which shows the three main themes as well as the associated questions. The purpose of the interview was to gain more insight into how they work with mobility hubs are seen from the municipality's perspective, how they are working with it in practice, and what the aim is with developing and working with mobility hubs in the future.

By having a semi-structured interview, it was possible to add more or other questions along the way, and thus make it a more fluid conversation, where other aspects of the topic can also be achieved. In addition, this type of interview also allows Mette Olesen and Jeppe Astrup Andersen to provide a broader perspective on the topic and the background of their statements. This will not be possible, for example, with a structured interview, which is usually very closed and limited to specific questions.

4.3.3 Observations 'From Above'

As described in Boniolo [2000] there is a distinction between whether one perceives physical elements as something just "being there", or if it is perceived as a physical element of meaning and function. In addition, Boniolo [2000] argues that in order to secure the same perception of the physical space, an applied theorization is required. In this study, the staging mobilities framework is applied to the observational data collection and is thereby the base of this observation approach (see Chapter 3).

The qualitative experiences of places assure a broader perspective, whereas this method of observations 'from above' included both taking pictures of the structure at the four mobility hubs, as well as taking notes regarding the experience of the place. Observation through photographs is crucial both to support and position the sites of this study. These photographs can facilitate how the sites are visually reported, however, the subjective experiences add other aspects of a place. The human capacity to observe and process the experience cannot be reduced to photographs, whereas the human senses play a significant role [Wolfe, 2016].

The best way to experience and understand urban sites is to immerse oneself in the surroundings and record what is experienced - in this case by taking photos and writing notes. The observations 'from above' were done at the park and ride hub and destination hub on March 22, and the network hub and suburban hub on March 23. The aim of doing this observation is to gain insight into the four mobility hubs regarding the physical construction and facilities [Wolfe, 2016].

As mentioned, the physical settings and material space at the four mobility hubs are examined through observation at the sites. The observations were made outside the rush hour so that the place was as little affected as possible by the number of people and

their commissioning of the place and its functions. In this way, the mobility hubs 'from above' are examined based on the theoretical framework, which indicates the setting of the mobility hubs; physical elements, and material spaces, e.g. signs, paths, the height of road curbs, and waiting facilities. Thus, the observation has focused on the material elements and the design of the mobility hubs to collect data about the intended mobility affordances and practices. Therefore, by studying the physical setting you get the layout of the specific site you are studying. Observing the physical setting is important to situate the intended activities that can take place in that location. First, the mobility hub itself was observed in order to get an understanding of the intended mobility of people. Observing in this way helps to understand the place and locations of intended activities or behavior within this place. While observing the place, it is possible to locate potential activity patterns in the place and the intended flow of people, as well as how the design of the place either facilitates or hinders mobility. Thus, it was essential to understand the physical place itself, before starting to observe how people use the place [Hennink et al., 2020]. Observing the physical setting is one level of observing staging mobilities, whereas the second level is observing how the mobile situation is acted out by people. This is introduced in the following section.

4.3.4 Observations 'From Below'

The first observation ('from above') focuses on the physical setting of the four mobility hubs, whereas this observation approach focus on 'from below' aspect of staging mobilities, and concentrates on the embodied performances and social interactions of the users in different situations, i.e. the practices they are involved in. This observation is included to gain more in-depth knowledge about the complexity of lived experiences and about the use of different physical elements on site. The observations were made to get an understanding of how people act in the site-specific context at the four mobility hubs through the users' interaction with the material and social environment, e.g. how are people waiting, entering the bus, and walking along [Brinkmann and Tanggaard, 2010].

The empirical material that is obtained by these observations 'from below' entitle a study of the mobile practices that take place in the material world. Therefore, the usage of the material space is an important aspect of understanding the embodied performances and social interactions [Brinkmann and Tanggaard, 2010]. The tools used for this observation are field notes and video material (videotapes and photographs) of the mobile situation that is observed in different time slots. The date and time of day the four mobility hubs were observed 'from below' can be seen in Table 4.1.

	Date	**Morning**	**Afternoon**
Destination hub, AAU	Monday, April 11	07:00-09:00	14:30-16:30
Network hub, Lindholm St.	Tuesday, April 12	07:00-09:00	14:30-16:30
Park and Ride hub	Tuesday, April 19	06:30-08:30	15:00-17:00
Suburban hub, Storvorde	Thursday, April 21	06:30-08:30	15:00-17:00

Table 4.1. Table showing the date and time of day the observations 'from below' were made.

The four mobility hubs were observed in the rush hour both morning and afternoon. This is due to the fact that the purpose was to get knowledge about the everyday mobility situation at these mobility hubs, as well as to get as much data as possible, which can be assumed to

occur in the rush hour to and from the mobility hubs. As mentioned in the theory chapter, sites can act as 'sociopetal' and 'sociofugal' in relation to the activity of people, thus, how sites "draw in" or "push away". Therefore, it was necessary to understand the mobility hub as having different functions and thereby facilitating people at different hours. Based on Aalborg Municipality [2022a], park and ride hubs mostly facilitate people commuting out of Aalborg city, thus, it can be argued that people would tend to use the park and ride hub a bit earlier than people inside the Aalborg area. In addition, the suburban hub in Storvorde is located at a distance from Aalborg city, whereas it takes approximately 34 minutes by bus to Aalborg Station [Rejseplanen, 2022]. Therefore, it was chosen to observe the two mobility hubs half an hour earlier, and half an hour later than the network and destination hub, since these are located closer to Aalborg city and might facilitate local people.

The focus of this methodological approach is to observe any action and thus consider it as a phenomenon of interest. The observation is performed by using our senses and thus observing things that are happening. Therefore, it is essential to be situated at the mobility hub where the everyday mobility takes place, in order to be able to identify important aspects and actions [Brinkmann and Tanggaard, 2010].

As mentioned in the theoretical framework of this study, mobilities staged 'from below' includes the overall aspect of embodied performances and social interactions. Therefore, the observation 'from below' focuses on these two aspects that also include multiple variables described as the diagrams presented in Figure 3.1 in the theory chapter. However, the observations were also made with an open-minded approach, in order to include any other activities happening on each mobility hub and are therefore open to other mobile practices than those related to the above-mentioned diagrams. Thus, the observations 'from below' are about the phenomena that occur in relation to human activities at the mobility hubs. All the information that is gathered by this approach becomes the data for this study and the purpose is to create a basis for understanding mobile practices, thus answering the research question.

The observations were made as naturalistic observations. This means that subjects are observed in a natural environment without making any attempt to control or manipulate the situation. Even though it is not intended, the act of live observation can disturb the behavior and actions of the subjects. Therefore, it is necessary to be aware of the distance between the observer and what is observed, as well as how the observer is presented on site. To prevent as much influence as possible, the observations were made at a passive distance away from the main actions, however, still in a position with an overview of the area and the possibility to observe the actions and behavior in detail. However, the observation was not only made static, but instead the observant was dynamic and moved around to receive multiple perspectives and cover the whole mobility hub [Bordens and Abbott, 2022].

4.4 Analytical Framework

In summary, it can be said that the starting point for this study is the theoretical framework around "Staging Mobilities", which provides knowledge that mobile situations must be explored from two different perspectives: 'from above' and 'from below'. Therefore, it

is first and foremost chosen that the four mobility hubs should be examined both 'from above' and 'from below'. An overview of the methods and how they have been used in this study can be seen in Figure 4.2 below.

Method	What is the aim?	What was done?	Where is it used?
Desk Research	To gain insight into the historical development of the four mobility hubs, understand the choices made in connection with the development of the sites. Achieve a broader understanding of the field of study.	Searching data from published research reports, academic articles, official documents, books, and other important sources that relate to the topic of this study.	Contributes to Chapter 5 and the description of the classified hubs 'from above'.
Semi-structured Expert Interview	Gain knowledge about different types of mobility hubs in and around Aalborg, as well as the municipality's work with these. In addition, to gain more insight into how the municipality is working with mobility hubs in practice, and what the aim is with developing and working with mobility hubs in the future.	Conducted with a semi-structured interview guide based on three main themes, that were set up prior to the interview, as well as related questions.	Contributes to Chapter 5 and the description of the classified hubs 'from above'. In addition, the result of the interview is included in the discussion of how the different mobile practices can contribute to the classification of mobility hubs.
Observations 'from above'	Gain insight into the four mobility hubs regarding the physical setting and material space.	Immerse oneself in the surroundings, and record what is experienced - in this case by taking photos and writing notes. What physical elements are observed? • Signs • Paths • Roads • Shelter • Lampposts • Trash cans • Road curbs • Parking facilities • Waiting facilities • etc.	Contributes to Chapter 5 and the description of the classified hubs 'from above'.
Observations 'from below'	Get an understanding of how people act in the site-specific context at the four mobility hubs through the users' interaction with the material and social environment.	Observations of the users' mobile practices at the four mobility hubs, for instance: • How are people arriving at the hub? • How are people waiting? • How are people entering their means of transport? • How are people exiting their means of transport? • How are people leaving the hub? • How are people interacting with other people and the material space? • etc.	Contributes to the analysis chapter of the mobile practices at the hubs 'from below'.

Figure 4.2. An overview of the methods and how they are included in this study.

The 'from above' perspective indicates the physical setting, material space, and design. With this perspective in mind, the first thing that was important to do, was to understand the idea behind these places, with which desk research has been used to gain knowledge about the mobility hubs historical development, location, as well as their purpose, and

function as a mobility hub today. Secondly, it has also been important for the study to carry out some field observations of the physical environment at the four mobility hubs, so that insight could be gained into how the mobility hubs form the site “here and now”. As mentioned, some of the elements that were focused on, were things like waiting facilities, parking facilities, signs, paths, and the height of road curbs. To avoid unnecessary influence from people who use the place, these observations were made outside the rush hour. In this way, the mobility hubs were viewed in a more neutral and "raw" situation. To document the mobility hubs as a physical location, images were taken and notes were written down during the field observations. This will later be used to analyze the sites in relation to how they are designed versus what mobility they require based on this.

Afterward, there is the second perspective that is about looking at the mobility hubs 'from below'. As described in the theory chapter, this perspective deals with the mobile practices that take place at the mobility hubs. This refers to both social interactions and embodied performances that occur between the users or for the individual on-site. To investigate this aspect, observation has also been used as a methodological approach. However, the observation differs from "observations 'from above'", as these observations focus on the use of the four mobility hubs. Hence, the focus is on the people who are at the site and how their behavior unfolds e.g. where people walk, how they interact with others, how they move along, how they use the facilities, how people wait, etc. In order to be able to use these observations of mobile practices, pictures have been taken, video material has been recorded, and what has been observed has been written down in detail. The observations 'from below' were made in two time periods: morning and afternoon. This is due to gaining insight into the use of the mobility hubs, both when people are going from there and getting back there, as part of their everyday rhythm.

In addition, it should also be mentioned that the expert interview with Aalborg Municipality was conducted as an initial interview, which was to form knowledge about the municipality's work with mobility hubs and their entire classification strategy. It is also their classification of mobility hubs in the municipality that has formed the basis for the choice of the four types of mobility hubs that this study deals with. This is due to being able to contribute to the discussion of differences and similarities between the chosen mobility hubs and how our study can contribute insight into the classification of mobility hubs.

Classification of Mobility Hubs in Aalborg Municipality

5

This chapter seeks to answer the first subquestion of this research, regarding what mobilities the physical setting, material space, and design afford at the four chosen mobility hubs. Therefore, this chapter is describing the four chosen mobility hubs in relation to how they are physically constructed and what facilities the mobility hubs offer that could afford mobile activities. These four descriptions of the mobility hubs are based on a literature review, the expert interview with Aalborg Municipality, and observations 'from above' conducted in the field. The four mobility hubs were selected based on the classifications made by Aalborg Municipality. As mentioned in Chapter 2, this research is based on one mobility hub from each of the four classifications. Aalborg Municipality state that the idea of classifying mobility hubs is as follows:

> *"You have to take something and make it tangible so you can work with it. As soon as you limit reality and put something on a form - there are a lot of negative things about it. But you have to have a common language, and the most important thing is to allow it to develop and the world to change. In such a large administration, one simply has to conceptualize what we are talking about."*
>
> - [Aalborg Municipality, 2022a, translated from danish]

This citation from the interview with Aalborg Municipality argues that in order to plan and work with mobility hubs, one would have to make it tangible to work with. Therefore, the municipality took great inspiration from Urban Creators who have worked with classifying mobility hubs in greater Copenhagen [Urban Creators, 2018]. Hence, Aalborg Municipality developed four classifications of mobility hubs in the municipality, described in the following.

Destination Hubs

Destination hubs are described by a public transport connection that serves essential destinations, a large residential, a workplace area, or an urban community. Hence, there are no or few other public transport options. However, there is an aim to create good conditions for pedestrians and cyclists. The focus of the surroundings of this type of mobility hub is to connect the mobility hub with important functions and create urban spaces with opportunities for living [Aalborg Municipality, 2022b].

Network Hubs
The network hubs are categorized by multiple public transport connections that meet. Since the network hubs are served by various modes of public transport, the modal shift should be easy and intuitive. In addition, these mobility hubs should also include a good connection to the additional infrastructure as well as facilitation that support the journey both to and from the mobility hub. Moreover, the network hubs should facilitate good conditions for bicycle parking, as well as locate important destinations at the mobility hubs. Thus, some of the individual network hubs can be considered as destination hubs [Aalborg Municipality, 2022b].

Suburban Hubs
Suburban hubs are defined as being located on the main network of public transport or in connection with village clusters. The primary function of this type of mobility hub is to facilitate carpooling to and from the upland village. In addition, the suburban hub aims at being the link between the public transport network and the surrounding rural areas. There is also a focus on ensuring good conditions for cyclists, pedestrians, and parking for motorists who arrive at the mobility hubs to continue driving with carpooling or with public transport. Furthermore, this type of mobility hub also facilitates the "plus tour"-concept, which makes it possible to get the last distance to and from destinations out in the surrounding rural area [Aalborg Municipality, 2022b].

Park and Ride Hubs
This type of mobility hub is characterized by the car being the main means of transportation. The park and ride hubs are located with good access to the overall road network, with good accessibility by bicycle and public transport. At the edge of Aalborg city, the park and ride hubs are partly facilitating carpooling out of the city, as well as facilitating the modal shift from car to public transport or bicycle into the city center. In the catchment area of Aalborg, the primary function of these mobility hubs is to facilitate carpooling [Aalborg Municipality, 2022b]. Thus, the park and ride hubs are supporting the shift from car to more sustainable mobility when commuting, as well as supporting that one can co-operate to a greater extent when commuting [Aalborg Municipality, 2022a].

In the following sections, each of the four chosen mobility hubs will be presented and described in relation to the 'from above' perspective as described in the theoretical framework in Chapter 3. The four chosen mobility hubs can be seen in Figure 5.1.

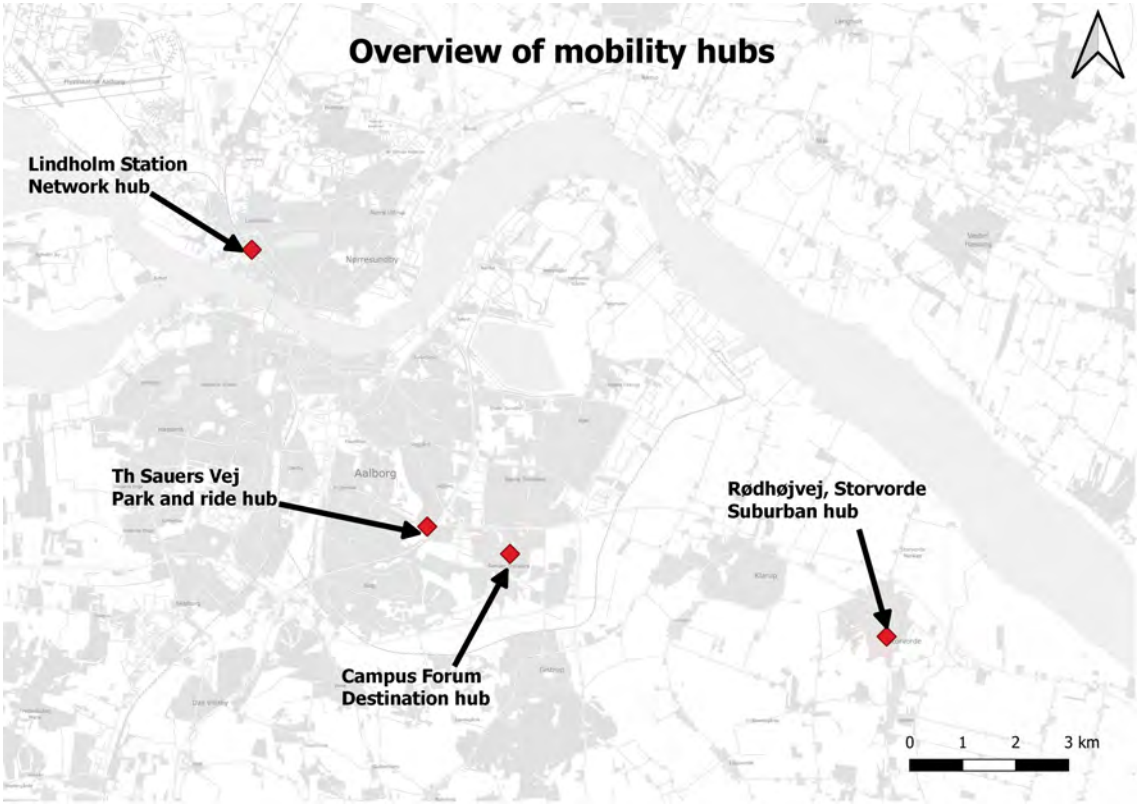

Figure 5.1. Overview of the four selected mobility hubs.

The first mobility hub is the destination hub, which is chosen to be the mobility hub located in the university area, just next to the university campus in Aalborg East. Secondly, the network hub will be described. The network hub is chosen to be at Lindholm Station since it offers various public transport options, as well as facilitates micro-mobility. Thirdly, the chosen suburban hub is located in Storvorde, which is a satellite city to Aalborg. Lastly, the fourth mobility hub, which is the park and ride hub, is located on Th. Sauers Vej, just next to the motorway of E45, is defined as a carpooling hub.

5.1 Destination Hub - Campus Forum

The destination hub at the bus stop "Campus Forum" is located in the university area in Aalborg East. Aalborg University was founded in 1974 and the purpose was to build a new urban area with the university functions. Around the turn of the millennium, a so-called "urban band" was introduced east-west through the area, which is supported by the bus route where the destination hub is located. The destination hub was thus established to ensure efficient public transport coverage to and from the area [Aalborg Municipality, 2019].

Furthermore, the destination hub has the purpose of securing the development opportunities for Aalborg University and thus creating an attractive focal point for city life. In addition, the mobility hub will be part of the new high-class bus connection Bus-Rapid-Transit (BRT). Today, the area is characterized by open parking areas, and the destination hub has a central location throughout the campus area. With the new BRT

connection to this mobility hub, it is desired to improve access conditions to the university campus so that a central meeting place can be created in this area [Aalborg Municipality, 2019].

The mobility hub is categorized as a destination hub by Aalborg Municipality, and in general, the main focus of this type of mobility hub is to support the adjacent destination with a flow of people, and not to facilitate and support different public transport connections and switches between those.

> *"[...] you have a public transport stop that serves an important destination, that has no other options for public transport. So there is no point in facilitating either a switch in public transport or a switch from public transport to the car."*
> - [Aalborg Municipality, 2022a, translated from danish]

A destination hub does not necessarily have to include traditional public transport options, like bus or train, in which Aalborg Municipality states: *"[...] It could just as well be micro-mobility"* [Aalborg Municipality, 2022a, translated from danish]. Thus, this type of mobility hub can consist of facilitating various modes of transport, thus, it is not the connections or transport options that determine whether it is a destination hub or not, but rather if the surroundings are of particular interest, e.g. a university. However, this destination hub mainly consists of a single bus stop and does not contain any particular elements with affordance toward micro-mobility.

As Aalborg University is still in increasing development, there is a vision to concentrate the university's activities, and thus create a more cohesive district with this destination hub as both a mobility hub but also as a focal point for an attractive urban environment. The urban space is to be arranged according to the "shared-space" principle, in that there is a large flow of different types of transport modes that pass the area around the destination hub on a daily basis. The road is thus a prioritized main direction for buses and cyclists, as well as vulnerable road users moving east-west in the area around campus. Since the surrounding area of the destination hub is prioritizing buses and cyclists, the campus area seeks to support more sustainable mobility and at the same time create a framework for an attractive and safe urban environment. There is thus an overall focus on the destination hub and the surrounding area having a functional "fusion" [Aalborg Municipality, 2019].

Buses	Routes
City bus 2	Storvorde/Klarup/Gistrup - Universitetet - Aalborg St. - Nytorv - Væddeløbsbanen
City bus 5	Skelagergårdene - Grønlands Torv - AAU Busterminal
Bus 54	Aalborg - Terndrup - Hadsund
Bus 954X	Aalborg - AAU Busterminal - Terndrup - Hadsund - Mariager

Table 5.1. The table shows an overview of the public transport connections to the destination hub at Campus Forum. The public transport connections can be found at Rejseplanen [2022].

From Aalborg Station, it takes approximately 15-20 minutes by bus to the destination hub at Campus Forum. The table indicates which buses are connected to the destination hub, and thus which connections are going to and from the mobility hub at Aalborg University.

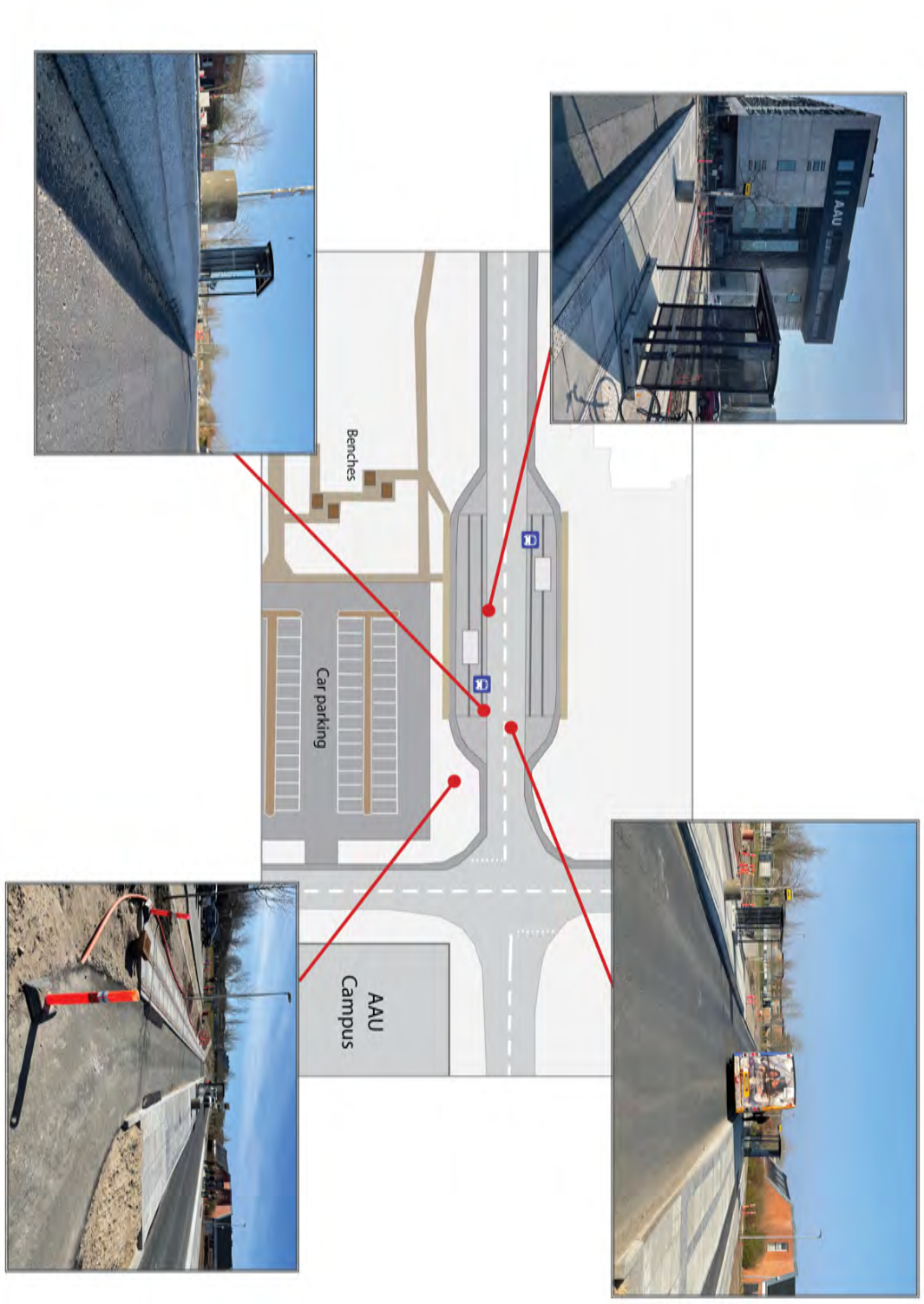

Figure 5.2. Overview of the destination hub Campus Forum.

Today, the destination hub is designed with parallel platforms that are raised from the ground. The height is there to fit with the direct entrance of the upcoming BRT system. This design creates a steep curb, as shown in Figure 5.2, which complicates crossing the road as a pedestrian. Though Figure 5.2 reveals that the sidewalk and curbs flatten out at both ends of the platforms, thus, the flow of pedestrians is intended to go along the platform before leaving the platform by either crossing the road or the bike lane, from a planning perspective. However, this design with steep curbs does not directly prevent movement but rather indicates mobility affordances that prioritize the presence of the upcoming BRT system at the platforms themselves, thus, pushing the flow of pedestrians further away from where the design better afford walking. This design does not necessarily afford the most direct path for pedestrians based on their origin and destination.

Looking further at Figure 5.2 with a perspective 'from above', different planned paths can be observed. Thus, the material environment of the space seeks to constrain and control the flow of people through specific paths, as these marked paths are made of paving stones. Whereas the area around the paths and mobility hub are made of dirt and grass, which from a planning perspective might not be designed for facilitating a flow of people. However, these elements do not completely interrupt a flow of people as e.g. a fence would, but the affordances of the design and physical settings indeed attempt to affect the flow towards particular paths.

From the interview with Aalborg Municipality, it is expressed, that it is important to *"Understand where am I now?"* [Aalborg Municipality, 2022a, translated from danish] when arriving at a mobility hub. In the case of this destination hub, the buildings of the university become a sign that creates a basis for understanding where you arrived, as the surrounding build environment phrase AAU, as shown on Figure 5.2. However, it requires that the passenger is familiar with Aalborg University to interpret the signing.

5.2 Network Hub - Lindholm Station

In 1879, the first railway bridge was opened over the Limfjord, with which a railway connection was created between Nørrejyske Ø and the rest of Jutland [Søeborg, 2017]. As a result of the increasing traffic across the Limfjord, a desire arose to establish a stop for trains and buses as well as parking for both cars and bicycles [Aalborg Municipality, 2002]. Thus, Lindholm Station was opened in December 2002, a little north of the former Nørresundby Station which was closed in 1972 [Søeborg, 2017]. The purpose of Lindholm Station was to establish a local railway station located centrally in a residential and commercial area, at the same time as there are good opportunities for traffic flow and good parking conditions [Aalborg Municipality, 2002].

Lindholm Station was to be designed so that it should be possible to get there by foot, bicycle, bus, or car, and thus connect to the local railway towards Skørping. The purpose of Lindholm Station is described in the local plan as: *"The new Lindholm Station will be a central mobility hub for public transport in the Lindholm area, as a switch between train, bus, bicycle, and car will be established. When Aalborg Nærbane is put into operation, Lindholm Station will be served by regional buses and city buses."* [Aalborg Municipality, 2002, p. 11, translated from danish].

The local plan for the area also states that *"Passage over the track will be constructed at a level. It is later possible to make a tunnel under the railway track with associated ramps and elevators."* [Aalborg Municipality, 2002, p. 7, translated from danish]. This means that the track passage can eventually be transformed into a safer passage for pedestrians. In connection with the construction of a new railway to Aalborg Airport in 2020, the existing platform crossing was closed and replaced by a temporary footbridge over the track [Banedanmark, 2020], as shown in Figure 5.3. In 2021, the footbridge was equipped with a lift, so e.g. people with walking difficulties, passengers with prams, heavy luggage, or bikes easier can cross the rail tracks [Banedanmark, 2020]. Besides serving as an opportunity for crossing the rail tracks for passengers, the footbridge also serves as both a 'sociopetal' and 'sociofugal' element on a greater scale, as it also creates an opportunity for those not using the mobility hub, since the rail tracks can be assessed as a barrier cutting through the city with only a few places to cross. Hence, the footbridge attracts people from both sides of the rail tracks and then distributes them back out into the society again. Thus, the design and material environment of the network hub facilitates and afford a flow of people through the mobility hub, that is not part of the public transport system. Furthermore, as shown in Figure 5.3, the network hub contains a parcel locker terminal, where it is possible to pick up parcels, which attribute with an activity that does not necessarily have to happen in relation to the other activities on the mobility hub.

Today Aalborg Municipality categorizes the mobility hub as a network hub, which according to the municipality *"network hubs should mainly support switches within the public transport"* [Aalborg Municipality, 2022a, translated from danish]. Thus, the place is not directly intended to facilitate other activities than switching within the public transport. However, this can be argued to include facilities to create a meaningful waiting time, which potentially also can be utilized by those who are not a part of the public transport. For a network hub to support switches between public transport options, it obviously needs more than one connection running through it.

Trains	**Route**
Re75	Skagen - Skørping
Re76	Hirtshals - Skørping
InterCity(Lyn)	CPH Airport - AAL Airport
Buses (north*)	**Routes**
City bus 13	Gug Øst - Uttrup Nord
Buses (south)**	**Routes**
City bus 6	Lindholm - Universitetet
City bus 12	Universitetet - AAL Airport - Aabybro
Bus 70	Aalborg - Aabybro - Fjerritslev
Bus 71	Aalborg - Løkken - Hjørring
Bus 200	Aalborg - Aabybro - Blokhus

Table 5.2. The table shows an overview of the public transport connections to the network hub at Lindholm Station. *relates to the connections to be found north of the train tracks. **relates to the connections to be found south of the train tracks. The public transport connections can be found at Rejseplanen [2022].

Lindholm Station is connected by both city buses and regional buses in a northbound and southbound direction. With the city bus, you can get to Aalborg Station in about 14 minutes and Aalborg Airport in about 5 minutes.

In addition, Lindholm Station is connected to both regional trains and InterCity(Lyn) trains. The regional trains run between Skagen/Hirtshals and Skørping, whereas the InterCity(Lyn) trains run a longer distance between Aalborg Airport and Copenhagen Airport in Kastrup. By taking the train from Lindholm Station you can get to Aalborg Station in about 7 minutes and to Aalborg Airport in about 4 minutes.

To support these switches between the different public transport options, Aalborg Municipality expresses that *"People should be able to travel simple and easy, and understand what opportunities one have from a mobility hub to travel further"* [Aalborg Municipality, 2022a, translated from danish]. At Lindholm Station, some signs tell where you can go with the busses, and where the busses are stopping at the mobility hub. However, these signs are at the edges of the network hub and are pointing away from the middle of the mobility hub. Hence, they are not placed in such a way that passengers easily notice them, as shown in Figure 5.3.

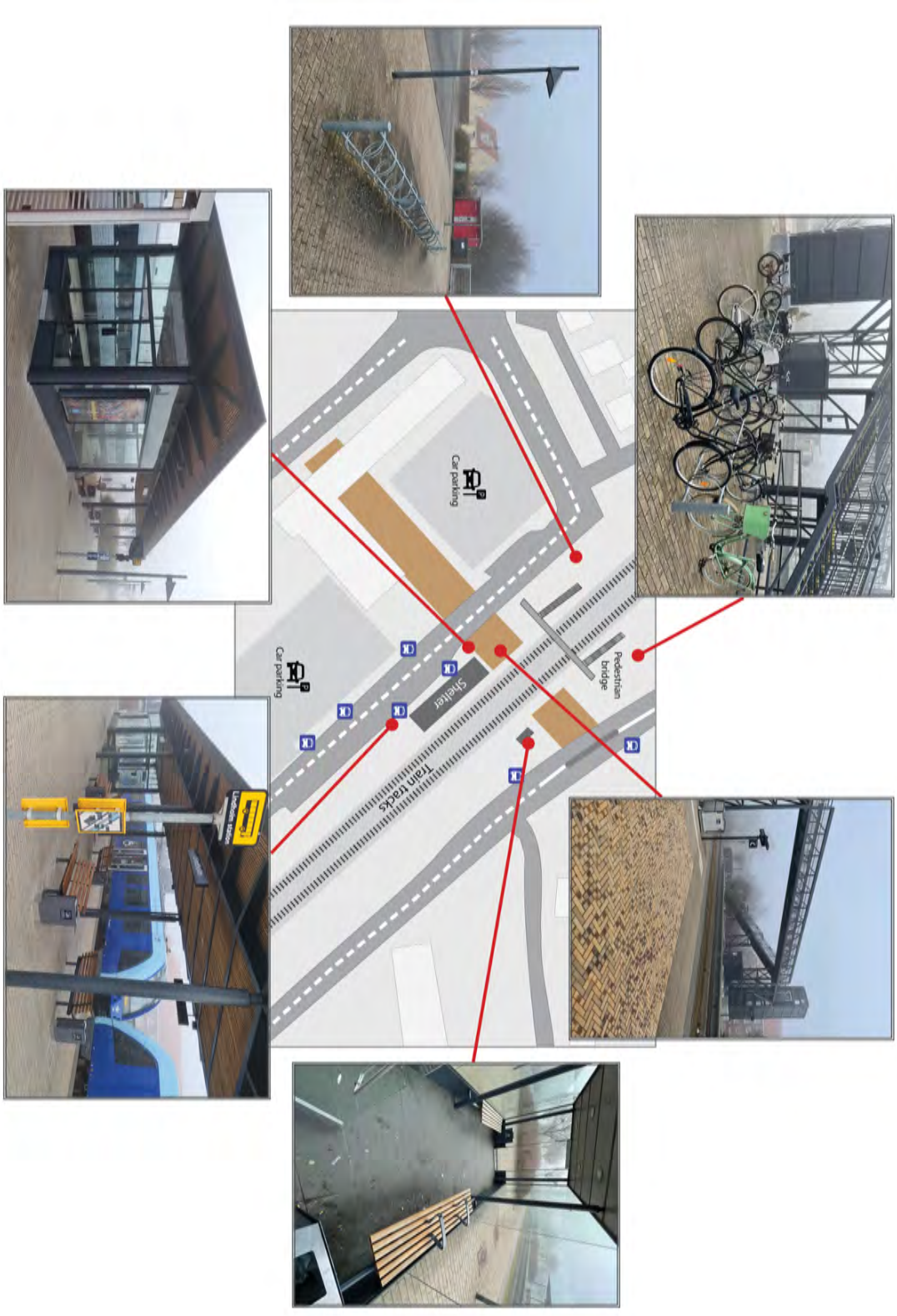

Figure 5.3. Overview of the network hub Lindholm Station.

As shown in Figure 5.3 Lindholm Station contains various waiting facilities. Some are completely indoor, thus protection from rain, wind, and sun, whereas others are outside with only protection from rain and sun or no protection against the weather at all. These various waiting facilities both contain places for sitting, i.e. benches, but also room for waiting standing. Thus, it can be argued, that the material environment and physical setting afford different mobile practices, as the space facilitates different mobile situations, i.e. people involved in public transport, or simply just crossing the railway. Most of the time tables at the network hub consist of real-time data and therefore show the time until arrival.

5.3 Suburban Hub - Rødhøjvej, Storvorde

The suburban hub is located in Storvorde, which is a former station town and today is referred to as a so-called satellite city to Aalborg [Merrilees et al., 2013]. Historically, Storvorde started as a small collection of houses and farms and later became a village. In 1883, the railway between Aalborg and Hadsund opened, where Storvorde became a station town, which made the town grow rapidly. The railway was in use until 1969. From Storvorde there is about 14 km to Aalborg, and thus good connections for people who have their everyday life in Aalborg, but who want to live a little away from the city. This is also in line with the fact that there has been an increasing trend in newcomers to Storvorde, where families with children, in particular, have moved here. Storvorde has one primary school and two kindergartens. Therefore, it is ideal for especially workers and students to have good connections to the larger service cities [Aalborg Municipality, 2016].

The suburban hub selected for this study is located on Rødtoftevej, which is a part of the center area in Storvorde. In this area, there are, among other things, grocery stores, a pharmacy, a bank, a citizen service center, and a medical practice. Therefore, the mobility hub is located in an area with several facilities and services [Aalborg Municipality, 2016].

Buses	**Routes**
City bus 2	Storvorde - Universitetet - Aalborg St. - Nytorv - Væddeløbsbanen

Table 5.3. The table shows an overview of the public transport connections to the suburban hub in Storvorde. The public transport connection can be found at Rejseplanen [2022].

From the selected suburban hub in Storvorde, the only bus connection is line 2, which runs between Storvorde and the stop called "Væddeløbsbanen" in Aalborg Vestby. By bus, it takes about 34 minutes to Aalborg Station.

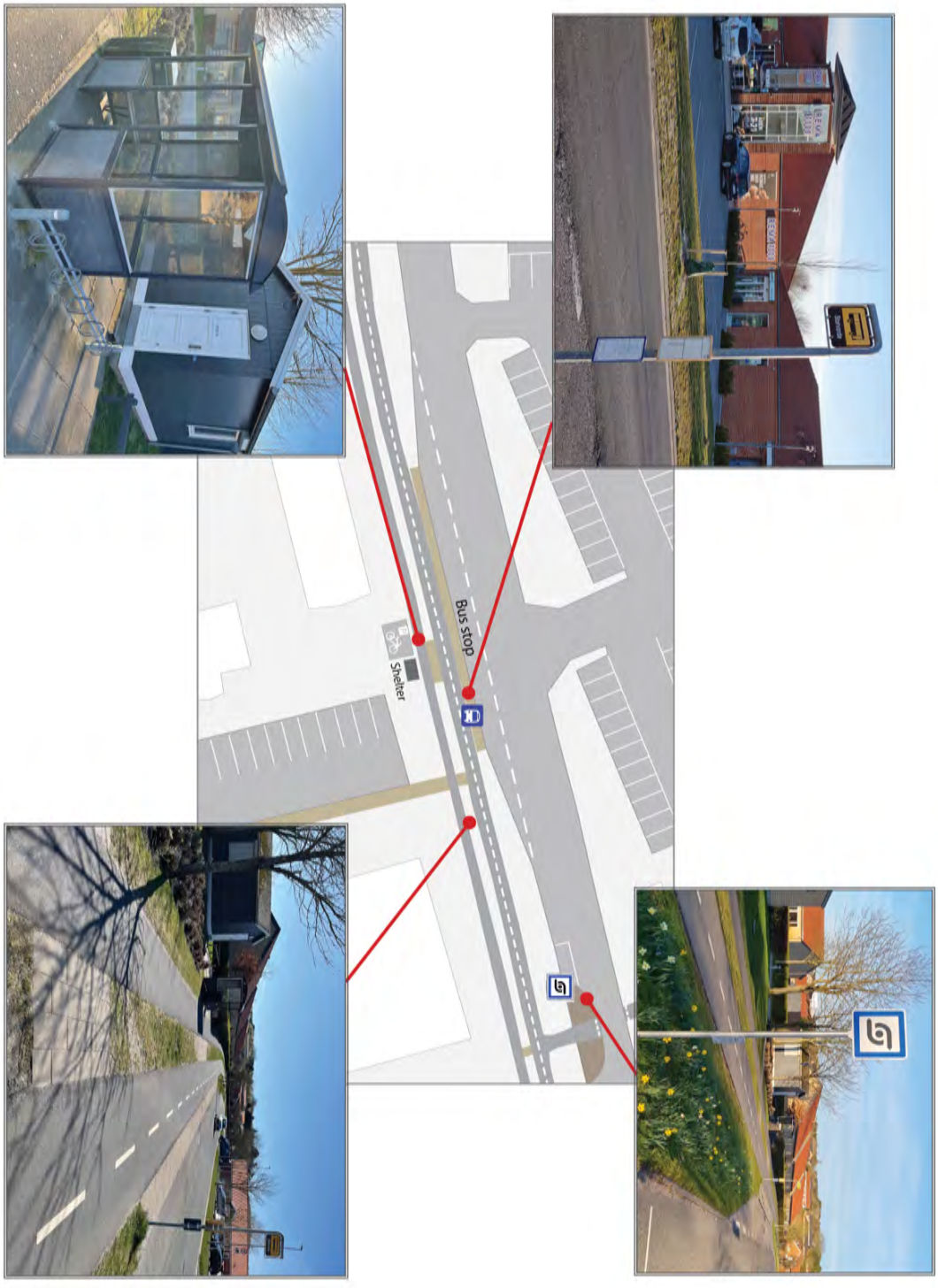

Figure 5.4. Overview of the suburban hub Rødhøjvej, Storvorde.

As seen in Figure 5.4, the suburban hub in Storvorde is primarily facilitating a city bus going in one direction. However, there is a sign for "plus tour" located in the near area, whereas the mobility hub also offers the possibility to get a ride on the last or first distance of one's journey. Moreover, there is a small bus shelter, making it possible to wait on the bus in every sort of weather. The benches in the bus shelter are pointing toward each other, which indicates that people have to sit looking at each other. In addition, the suburban hub has an area for bicycle parking, and there is a connection to a bicycle path going in both directions. This might impact how people are orientated when crossing this path in order to get on the bus, however, there are planned two crossings with flagstones, making it possible for people to cross the grass between the sidewalk and bicycle path. On the other side of the road, there is a grocery shop and a parking area, making it possible to drive to or from the suburban hub.

5.4 Park and Ride Hub - Th. Sauers Vej

According to Aalborg Municipality's assessment, a park and ride hub should primarily support carpooling, and the mobility hub is characterized by the car being the primary means of transportation to or from the mobility hub. To support this carpooling the park and ride hub offers free parking, and with the location of this mobility hub just by the motorway junction E45, it carries out an optimal location for carpooling and joint commute from Aalborg, thus, this type of mobility hub can be argued to support a sustainable direction in the transport sector, while also creating a basis for less congestion on the roads. Furthermore, the park and ride hub also offers bicycle parking facilities, thus the coupling between car and bicycle is supported. These considerations can be observed on Figure 5.5 [Aalborg Municipality, 2013, 2022b]. In addition, the place also supports the parking capacity when there are special events in the nearby sports and cultural center, Gigantium [The Danish Road Directorate, 2021].

In general, Aalborg Municipality assesses *"A park and ride hub is to a lesser extent a meeting place. It has to be a bit more efficient."* [Aalborg Municipality, 2022a, translated from danish]. This can also be recognized in the design and planning of this mobility hub, as it is placed right next to 'busy' roads with no kind of protection between the mobility hub and the roads. Furthermore, the physical setting of the park and ride hub is mostly filled with asphalt and parking spots for cars, as shown in Figure 5.5. Thus, the design mainly affords a mobile practice that focuses on car usage and efficiency in relation to carpooling. It can be argued, that the design of the space focuses on a 'space of flow' rather than a 'space of place'.

Buses	**Routes**
City bus 2	Storvorde - Universitetet - Aalborg St. - Nytorv - Væddeløbsbanen
City bus 5	Skelagergårdene - Grønlands Torv - AAU Busterminal

Table 5.4. The table shows an overview of the public transport connections to the park and ride hub. The public transport connections can be found at Rejseplanen [2022].

The park and ride hub has no direct connection on-site, to public transport. However, there is a path that leads down to the bus stop at Bertil Ohlins Vej. Here there are two city bus connections, wherewith city bus 2 you can be in Aalborg city center in about 12-13 minutes. In addition, city bus 5 runs east-west between Nørre Tranders and Hasseris, and thus does not run into the city center, but can facilitate other destinations. Even though the bus connection is relatively close to the park and ride hub, there is no signing or information on the site itself that points at the possible public transport options or informs where one can go. Thus, the connection between the park and ride hub and other public transport options are not incorporated into the design and material environment. Hence, this lack of the material environment in form of signing emphasizes the intended focus 'from above' towards a mobile practice of car usage.

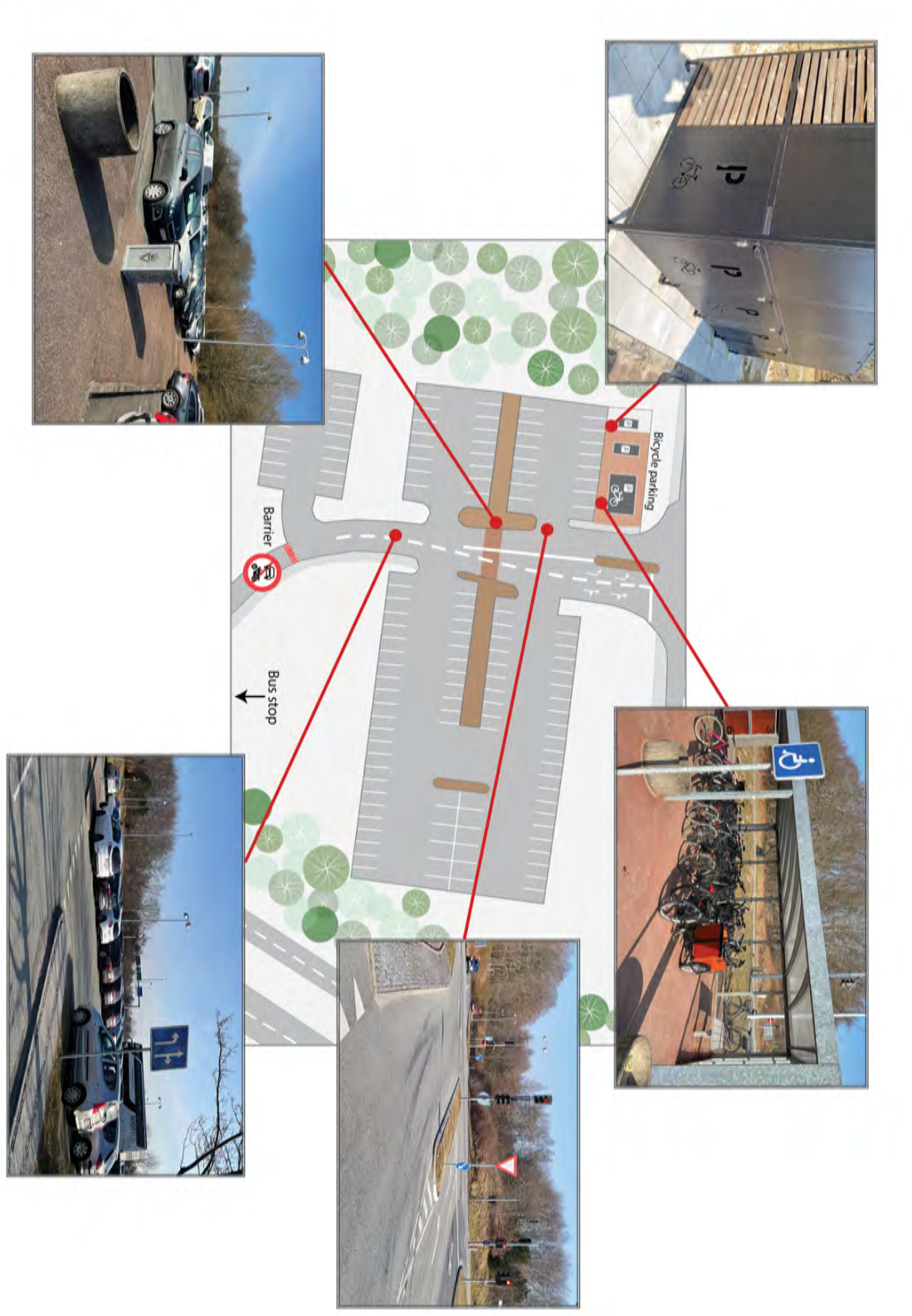

Figure 5.5. Overview of the park and ride hub Th. Sauers Vej.

As mentioned in Section 5.1, Aalborg Municipality assesses it to be important that one know where they are when arriving at a mobility hub. However, there are no elements present at this park and ride hub that reveals where you are, or any unique elements that locate the mobility hub in the society. Thus, the design of the place is generic, which emphasizes the focus on a place of flow. However, it can be argued to what extent a park and ride hub like this, has to reveal where you are, as it is mostly intended for carpooling where you arrive by your own car, thus, the user has taken an active choice to arrive at this mobility hub, which indicates that the user is familiar with the location of the park and ride hub.

The four classifications of mobility hubs have been presented and described according to the physical setting they are planned 'from above', as well as which mobility the individual mobility hub affords. These descriptions seek to add some knowledge about the mobility hub's setting, in order to understand the mobile practices that can be observed at the mobility hubs 'from below'. This will be analyzed in Chapter 6, in order to gain knowledge about whether these mobile practices are different in relation to the mobility hub's classification and physical frame.

Analysis of Mobile Practices 6

The goal of this chapter is to explore the mobile practices that occur on the four described mobilty hubs 'from above' in Chapter 5. This is done through analyzing the observation data collected as mentioned in Chapter 4. The structure of this chapter is divided into four parts, where each of them investigates different parts of the journey. Thus, the mobile practices are not investigated as one overall practice but are instead considered as multiply practices that relate to different parts of the general journey. Hence, the journey of using a mobility hub can be considered a phenomenon, but all the parts of this journey can likewise be deemed as phenomenons, and it is these phenomenons that take place at the mobility hub itself that this report aims at understanding. So, the aim is to explore the different small bites of the journey that takes place at the mobility hub. First, the chapter considers the mobile practices regarding arriving at the mobility hub, secondly, time spent waiting at the mobility hub, thirdly, boarding the transport options, and fourthly, exiting and leaving the mobility hub. However, this should not be understood as the report aims at finding four different mobile practices, as different mobile situations can be identified under each of the four categories of the journey, thus, making the case for different mobile practices associated with the exact mobile situation, and not necessarily the journey as a whole.

6.1 Arriving at the mobility hub

This section takes its point of departure in mobile practices related to the part of the journey that concerns arrival at the mobility hub, not understood as arrival with public transport but when one is starting one's journey from a mobility hub. Various trends were discovered.

For the people who arrived just in time for the departure from the mobility hub, their mobile practice could especially be said to be governed by routine. This was especially observed at the destination hub, where people came running to the mobility hub, and as they saw the bus was far enough away, they walked the rest of the way to the bus stop. It can be argued, that the users of this destination hub at Aalborg University might use the bus every day, and thus knows when it departs in relation to when they should go to the mobility hub. In addition, their embodied performance through body language tends to be directed towards the bus in order to follow it and its speed. Additionally, it can be argued that there is a desire to avoid the waiting time, and thus minimize "dead time", in which it can be argued that the user's view is controlled by the conventional transport perspective. This can also be said to relate to 'mobile culture' according to the fact that

it must be efficient to get away from the mobility hub, and that the time is not desired to be spent on the mobility hub itself. A similar mobile practice has also been discovered in people's use of technology at the network hub. Here, several people arrive a few minutes before departure and either fill up money on their "Rejsekort" or check-in immediately on the platform. One of the observations of this can be seen in Figure 6.1, where a person fills up money on one's "Rejsekort" as the first thing when the person arrives. That way, one is ready to enter directly into the train when it arrives, thereby achieving a more fluid and efficient journey.

Figure 6.1. A person filling up money on a "Rejsekort".

It is thus a repeating mobile practice that can be deduced from the observations 'from below', that the majority arrive at the departure time to avoid a long waiting time. However, a large number of people also went to the mobility hubs with a longer time period before departure, whereas they have a longer time to spend at the mobility hub, which does not give them as fluent and efficient a journey as the above mentioned mobile practices.

With regard to the general tendency to be routine during one's mobile practice at the mobility hubs, it was also observed that the majority knew exactly where their means of transportation departed from. This was expressed through e.g. the information and signage at the time of arrival, where no tendency has been observed for people to use the signage at the mobility hubs - at least not according to finding their way to the place of their departure. Therefore, semiotics is not used at the hubs to make sense of the mobile situation. This may be due to the fact that people generally have a good knowledge of the mobility hubs and therefore act routinely, which was observed by the user's embodied performance that was determined towards the point of departure. However, there were a few individual cases where, for example, a young person at Lindholm Station asks another person at the mobility hub for help in finding out which side one's train departs from. In this way, through social interactions, knowledge is gained about where to get on the right route. As mentioned in Section 5.2, the network hub did not have visible signs guiding

you on-site, whereas people might find it easier and faster to just ask other people on-site for help, rather than using the signage.

But how are people moving to the mobility hubs? Based on the observations most people on the mobility hubs - besides the park and ride hub - arrive as a pedestrian, where there is a tendency for people to aim at the most direct and straight path towards the mobility hub and the place where one has to change means of transportation. This is seen, for example, by a person arriving on one's electric scooter and driving up the sidewalk and onto the platform at the network hub on Lindholm Station, even though the physical environment affords otherwise and it is illegal to drive here. On the one hand, this again says something about wanting to move on a direct and straight path to the mobility hub. On the other hand, it also says something about the mobility hub being used as a 'space of flow', that you have to get through quickly and your 'first/last mile' distance must be made more efficient. Moving in a direct line towards one's goal then also results in people in the fewest cases orienting themselves when crossing bike paths or roads. In any case, there is no direct stop, and it mostly happens in a fluid motion with no or only a few orientating towards the expected direction of cyclists or cars. Therefore, one's embodied performance does not indicate being aware of traffic going in the wrong direction e.g. wrong-way drivers.

The so-called 'desire line' phenomenon has been observed multiple times, where people do not move where it is physically planned but cross where it gives people the most direct and short line to their aim. Two examples of this can be seen in Figure 6.2. The first picture shows a user arriving at the destination hub, and crossing the platform where one needs to stand and wait for the bus. Thus, the physical setting does not have any impact on the person's movement through the site. Even though the physical setting does not afford people crossing there, due to the curbstone being unusually tall. This is also mentioned in Section 5.1 describing the 'from above' perspective of the destination hub. The second picture in Figure 6.2 shows an observation at the suburban hub, where a person is headed to enter the bus, which has already arrived and chose to cross the grass area instead of using the planned path indicated with tiles. It is also obvious that this crossing is an ongoing movement since the grass has been stepped down, which has created a visible 'desire line' path in the grass. These two examples of 'desire line' embodied performances indicate a movement based on a non-reflexive and routine manner.

Figure 6.2. A person crossing the road to the bus stop platform at the destination hub, and another person crossing the grass at the suburban hub, rather than using the planned path. The so-called 'desire line' phenomenon.

In relation to 'desire lines', it was observed at the suburban hub in Storvorde, that people walked along the bike path and to the bus stop, and thus did not use the planned sidewalk. However, it can also be said here that the sidewalk is established with asphalt, which is why the cycle path and the sidewalk are laid with the same material and are therefore not clearly separated (see Section 5.3). This relates to the diagram of 'aesthetic experience in motion' since you are in movement and thus do not perceive the differences in the planned material.

Another example of 'desire lines' observed at the suburban hub, though with a conscious and deliberate embodied performance, is that a young person saw that the bus had arrived, although the timetable first indicated that it would leave two minutes after the person arrived at the bus stop. So because the person might have felt that one was late, thus chose to cross some clipped shrubs, instead of walking along the planned path around them. The example can be seen in Figure 6.3.

Figure 6.3. A young person crossing some clipped shrubs. The so-called 'desire line' phenomenon observed at the suburban hub in Storvorde.

This indicates a mobile practice that prioritizes reaching the means of transportation in an unreasonable manner, rather than using the physical environment as it has been planned.

The above-mentioned mobile practices have been observed as actions that recur at the four mobility hubs. However, some individual mobile practices have also been observed which differ from the others according to the user's arrival at the mobility hub. At the suburban hub in Storvorde, it was observed that elderly people usually are saying "good morning" and greeting those they meet on their way to the bus stop. There has thus been a tendency for a lot more social interactions to occur between the users at the suburban hub than observed at the other three mobility hubs. This may be due to the fact that the suburban hub is located in a small town, where there is a completely different approach to each other in this local community. It should be pointed out, however, that these greetings were given from users at an elder age. When, for example, a young person arrived at the mobility hub, one could observe that an elderly person - who had said good morning to everyone else - sought the girl's eye contact. But the elderly person did not achieve any eye contact and thus did not say good morning to the girl. This can thus say something about the fact that it is not a natural norm among young people to greet unfamiliar people.

In addition, the park and ride hub also differs slightly in this context of arriving, as the actual function of the mobility hub varies from the other three. Here it is the cars that are dominating as a means of transportation, where people primarily arrive by car, to take another car on their further journey. When people are dropped off or arrive at the mobility hub, and have to continue with another car, there is a clear tendency to place themselves out to the driveway and make themselves visible for easy pick-up, and if you have to pick someone up who has not yet arrived, you park in a stall and let the car idle to keep it warm. The mobility hub can to some extent be deemed as a 'space of flow', where it is about streamlining the shift and moving forward quickly. This can be put into perspective with a "McDonald's drive-in" metaphor, where the park and ride hub is more about driving in and dropping a person off, and then driving straight out of the mobility hub again.

As mentioned, several people were arriving at the mobility hub just in time for departure. However, there was also a significant part of people that arrived within 10 minutes of the departure. This makes the case for the next section of the analysis, where the time spent while waiting at the mobility hubs will be studied.

6.2 Time spent waiting at the mobility hub

In this section, the part of the journey that takes place when waiting at the different mobility hubs will be explored. This is done in order to give an insight into how people are utilizing the facilities and the waiting time, thus exploring the mobile practices that occur when people spend time at the mobility hub.

The first ongoing mobile practice, that most people tend to do when arriving, is to interact with the timetable or time screen, this has been observed at all mobility hubs, except the park and ride facility as it does not contain this kind of information. This can be argued to be due to the fact, that most people consider public transportation time, according to the conventional perspective where it is deemed as dead time, which is also mentioned in

Section 6.1. Thus, the semiotics of the place, in form of information of the time, creates a mobility affordance, that actually defines the mobile practice of the users, as it acts as a mobile 'sociopetal' that draws people in, and spreads information out to them. Though, the amount of information on the signs produces different mobile practices. If the sign only contains a traditional timetable, then people tend to use their phone to make sense of the mobile situation, i.e. to see the time, and then comprehend the dead time they have to wait, this can be seen in Figure 6.4. Thus, the semiotics of the sign in itself does not afford any mobilities, but the conjunction with the mobile practice creates a sense of the mobile situation.

Figure 6.4. Person looking at the time table with one's phone.

If the sign contains information about real-time, as the network hub, then another semiotic is present, in this case, the mobile practice does not necessarily include the utilization of a phone, as it is possible to make sense of the mobile situation just based on the semiotic. However, this mobile practice regarding orientating oneself on the timetable is only observed when there are none or very few people already waiting at the mobility hub.

If it is the case, that there are already a number of people waiting at the mobility hub, then another mobile practice is observed. Instead of using the semiotic of the information on the timetable to make sense of the mobile situations, people instead seem to interpret the other waiting people as mobile body semiotics, symbolizing that the bus or train is soon to arrive. Hence, the newly arrived person does not pay attention to the physical semiotic of the mobility hub. Instead, the person takes a place in what can be assessed as the waiting queue. From a first glance, the formed queue line may seem like something that happened by chance and without any deeper meaning, but a closer observation reveals more than just the embodied movements yet also the creation of social- and cultural practices. Besides the point about people acting as mobile body semiotics, a particular pattern regarding where you position yourself when waiting for your transport option has been discovered. Here it is interesting to assess the queue people are shaping, and especially the gaps that are formed in the line.

Figure 6.5. Shows the "perforated snake" at respectively the network hub and destination hub.

Figure 6.5 reveals how people are spacing themselves out when waiting for the bus at the destination hub, though, this tendency has been observed within all four mobility hubs. Thus, it can be argued the mobile practice is opposed to gathering as close to the stop sign as possible, people rather utilize a bigger area surrounding the stop sign while waiting for their respective transport options. This is also true for the park and ride, however, there are non-stop signs to surround around, but people still tend to keep a distance from each other. Figure 6.5 shows a mobile situation, where people has arrived at different time, thus, the line they create extends over several meters, and could easily be more compressed thus taking less space. However, it can be argued that the mobile practice insists that, if possible, one should keep a distance from others, hence launching a "perforated snake" of humans along the sidewalk. However, this human snake will not continue endless, as it has been discovered, that there is a form of invisible marker that determines how far people are willing to wait away from the bus stop itself. When the "perforated snake" reaches 4-5 waiting people, the subsequent people arriving instead fill the gaps of the snake, hence, the waiting queue becomes more compressed. This can be seen in Figure 6.6, where the same mobile situation from Figure 6.5 is shown just a few minutes later when more people have arrived. Thus, at first, it can be assumed, that people prefer to obtain a certain personal space and distance from others, however, another mobile practice kicks in when the distance to the stop becomes too long, thus, compromising with the preferred mobile practice.

Figure 6.6. Shows how the gap starts to get filled.

If the aforementioned snake is perceived as the line of the queue for people that will enter the bus, it can be argued, that those coming late skip a part of the queue, by positioning themselves closer to the bus stop where the boarding happens. Thus, this mobile practice is opposed to the general norm and culture of the society, where one does not normally skip parts of the queue but instead positions themselves in the back of the queue. If the mobile practice regarding shaping the snake utilized this norm and culture, the snake would instead become way longer, or people would have to be more mobile and aware, so they could move closer and close the gaps as people arrived at the stations. However, the mobile practice at the mobility hubs accepts that there is no regulated queue when waiting for the bus, so one's position in the queue is not necessarily determined by the time of arriving. This consideration is especially applicable to mobility hubs with bus stops. The observation reveals a different practice at the train part of the network hub, here the "perforated snake" extends significantly longer. This might be due to the fact, that the waiting platform offers more space, and the fact, that the train has multiply entrances, so the invisible marker that determines how far one is willing to wait away from the stop sign, might instead be determined by the entrances to the train, thus it is extended to a larger area. Likewise, a similar tendency was observed at the park and ride, where there is not any fixed position to enter your ride, thus expanding the invisible marker. Hence, the observation of the passengers did not discover the same gap filling, however, similar mobile practices likely appear if a greater number of passengers shows up.

A common mobile practice that has been observed at all mobility hubs, is that people attempt to avoid social interactions. This is reflected in the observed embodied performance. As seen in Figure 6.5 and Figure 6.6, all the individual waiting people are somehow pointing in the same or different direction, thus avoiding facing each other. This can be argued to be a practice that roots in the general culture of the society, where it can be deemed that people tend to mind their own business, and prefer to have their social space. This creates an interesting mobile situation, where it can be argued, that the group of people forms a 'mobile with' group towards a temporary congregation, as they are waiting together, thus, creating the mobile situation incoherency. However, the people are attempting to keep what Jensen [2013]'s coins as the ballet as far from one as reasonable. The embodied performance is often characterized by being pointed toward the direction one's transport option arrives from, thus, establishing a position where one doesn't get surprised when their transport option arrives. Hence, emphasizing that the mobile practice, at the mobility hubs, is affected by a wish to be efficient, similar to what is also discovered in Section 6.1. This suggests that most users perceive a mobility hub as a 'space of flow' rather than a 'space of place', thus prioritizing the flow away from the mobility hub. Furthermore, this suggests that one does not want to create a mobile situation, where the rest of the passengers have to wait for you, this will also be explored further in Section 6.3.

Until now it has been explored how a number of people are forming mobile situations and the mobile practices that influence the act of these situations. Though, mobile situations where only one or very few people are present have also been observed, which stage another ballet. When forming the aforementioned "perforated snake", people tend to be relatively stationary, and contradictory, when there are only 1 or 2 people they tend to be more mobile. This motion has been observed as small walking trips either back and forth, or in

small circles. These trips were often observed as taking place over a distance of around 5 meters. Thus, suggesting the mobile practice in these situations allow one to occupy more space, than the body itself requires but adds additional personal space. However, the same mobile practice regarding avoiding social interactions was still present, as the walking trips steered clear of other persons, and stopped as soon as more people were arriving. Furthermore, the embodied performance of the walking person avoided social interactions as well, since the faced direction of the person always was looking to the sides or out on the horizon, thus minimizing the contact with the other few waiting people.

It has been explored how people are forming lines or walking when waiting, but the material environment of the mobility hubs (described in Chapter 5) also produces another aspect of waiting through the kind of mobile affordances the physical facilities allow, which will be studied in the following. The first material space that will be explored is the use of bus shelters, all of the four mobility hubs contain a form of shelter. However, at the park and ride hub the shelter was only observed for bike parking, thus not creating a basis for a mobile practice that utilize the shelter for other activities, hence the following considerations will not apply to the park and ride hub. Certain mobile practices determine the use of benches in the sheltered area, primarily it has been discovered that only a single person or organized 'mobile with' groups are entitled to use the bench at a time. Thus, it was never observed that two strangers took a seat next to each other, hence, it can be argued that the mobile practice regarding occupying benches is governed by the proverb *first come first served*, and is limited to the first to come. Likewise, it can be argued that the bus shelters can somehow be assessed as a place, that only facilitate a single entity, meaning that if a person was standing or sitting inside the shelter, most people opted to wait outside the shelter, as they might have deemed it as already occupied. It was first, just like with the "perforated snake", when a number of people were waiting, that people intruded on the occupied space of the bus shelter. It is important to mention, that the observations were done at a time of dry weather, rain might have caused a different mobile practice, where people shared the space of the bus shelter from the beginning. The bench is not necessarily reserved for a person who wishes to sit on it, as it is discovered that people tend to stand in front of the benches, which blocks others from accessing it. Thus, the mobile practice point toward a social acceptance of not utilizing the planned environment and even preventing other from doing it as well, hence people can act as a mobility affordance that prevents others to be mobile to some extent.

Figure 6.7. Shows a person standing in front of the bench while a person is sitting on it.

Figure 6.7 shows the aforementioned denied access to the bench, the person standing in front of the bench was standing there at first, afterwards, the two other persons arrived, however, the first person kept one's position, thus blocking the seating so both of the last people coming could not fit on the bench. Remaining at benches, a temporality in the mobile practice was discovered at the network hub. The benches were not used in the morning hours but were used greatly in the observation done later on the day. Furthermore, the mobile practice regarding the use of benches seems to be governed by a wish to keep track of one's transport option, as it was never observed, that people opted for benches facing away from the direction their transport option will stop, i.e. none of the train passengers at the network hub opted for benches facing away from the railway.

The mobility hubs also consist of other elements that afford a rest while waiting, as it was observed how people used different elements to lean against. These physical elements include the bus shelter itself, lamppost, poles, and signs, elements that are not necessarily planned 'from above' to afford this kind of mobile situation. However, the mobile practice 'from below' enables utilization of the material space, extending beyond just shedding light, giving information and preventing access for cars, etc. Figure 6.8 shows examples of how the material space is used for rest.

Figure 6.8. Shows how people are utilizing the material space for resting at respectively the park and ride hub and the network hub.

This mobile practice of utilizing the physical settings for rest, was not only present when the benches or sheltered area was occupied, as this practice was also observed even when these elements were vacant. Thus, it can be assumed that this mobile practice is affected by people's perception of time. Supposedly, people consider the effort to sit down and get back up is not worth the limited waiting time, instead they perceive the leaning against elements, as more optimal for the limited mobile situation. The bus shelter forms a basis for another mobile practice, that may not have been planned for, as it has been discovered how the reflection in the glass of the advertisement has been used as a mirror to style one's hair. Thus, the planned semiotic of the advertisement is changed into another meaning.

Two very different mobile practices have been discovered regarding smoking cigarettes at the mobility hubs. On one hand, a mobile practice where the smoking person shows consideration for others has been observed. In these mobile situations, the person steps away from the area of the mobility hub, so the person is not surrounded by other people when smoking, and therefore won't harass others with the smoke. Conversely, it has also been observed that the smoking person is not so thoughtful of other persons, and they instead just smoke in the middle of the mobility hub, or the sheltered area. When this mobile practice is performed it may affect the mobile practice of others, if they do not wish to be close to the smoke. Figure 6.9 also reveals how this mobile practice disregards the rules determined 'from above', thus instead applying a norm that is it acceptable to smoke at the place.

Figure 6.9. Smoking at a restricted area for smoking.

The mobile practices regarding the time spent waiting at the different mobility hubs have now been illuminated, which brings the journey into the next stage, where the person transit from waiting to boarding. This will be explored in the following section.

6.3 Boarding at the mobility hub

This section aims to discover the part of the journey where the mobile situation transit from waiting to time for departure, i.e. when e.g. the bus, train, or carpooling car arrives. Thus, exploring the mobile practices that determine and affect the way people get ready and board their respective transport options. When people become aware of their transport option, either by seeing or hearing it, several specific embodied performances start to take place. The first mobile practice that usually arises for people waiting for a bus, is that they pack their telephone away, if it has been present, afterward they find their "Rejsekort", so they are ready to board the bus as soon as it arrives. Furthermore, people get up, step out to the edge of the sidewalk and get closer to the bus stop, where the bus is expected to stop. The embodied performances of these tree mobile practices may well play out as a fluid motion, where they happen in conjunction with each other. They have just been split into three separate mobile practices for sake of understanding. This means that the before mentioned snake of people waiting now gets even more compressed, as the bus stop act as a 'sociopetal' and draws people closer, this can be observed in Figure 6.10 where people gather in front of the bus. Hence, it is here the order in which people board the bus is determined to some extent, as also explained in Section 6.2. Though, the order is only determined when the queue doesn't extend across the door of the bus.

Figure 6.10. Queue to enter the bus.

Figure 6.10 reveals a situation where the queue of people extends across the bus, thus creating two separate flows of people, that collide in a ballet at the door of the bus. Now all of a sudden there is not a straight queue line, that defines when it's one's turn, as you usually know from other places in society. Thus, other mobile practices are kicking in to make sense of the mobile situation, and determine the queue order. These mobile practices consist of small embodied performances typically without verbal communication. The embodied performance appears in a form of a dance, where one either holds back for the other or squeezes in front of them. Here a coherence arises because when one of the two participants in the ballet either holds back or squeezes in, the other participant tends to do the opposite. Thus, the ballet is fluid and efficient, but still consists of stop and go. It was never observed that two were holding back for each other, or attempted to squeeze in at the same time thus almost collapsing into each other. An additional embodied performance that has been discovered to facilitate this ballet and emphasize that one is holding back, is a remarkable gesture done with the hand. It can be considered an almost world-renowned gesture, where one participant stretches the hand in direction of the entrance to the bus, thus indicating the other participant of the ballet may squeeze in first. Hence, it can be argued that the mobile practices regarding boarding the transport option are not determined by a race mentality, where it is about boarding first, as there was not observed anybody who strove to do so.

The mobile practices unfold slightly different regarding people waiting to board a train, as the mobile situation is acted out in a slightly different urban environment, but somehow still governed by the same principles. In these mobile situations, people tend to have checked in on the platform before boarding the train. Hence, the mobile practice regarding getting ready to board does not contain the element of finding one's "Rejsekort", thus, the mobile assemblages of the train part of the network hub afford a different mobile practice through a technical element that enables one to check-in beforehand. A train stop does not contain the same 'sociopetal' force, as the bus stop, that draws people in, as the train

contains multiple entrances, and it is not as obvious where the train exactly stops. Hence, the "perforated snake" of waiting people do not get compressed to the same extent but is instead distributed to the different doors.

The ballet that takes place when entering the train, is not determined by the aforementioned hold back and squeeze in technique, but is instead governed by another mobile practice. First, the material space offered by the train differs from a bus, as passengers have to exit and enter at the same door, thus, creating a mobile practice that can be assessed as first out, then in. Here a stagnate ballet of those waiting to board the train takes place, where their embodied performance simply consists of making room and looking at the flow coming out of the train. Afterward, it is their turn to flow into the train. If the queue goes across the door of the train, arises a mobile situation where the ballet can be deemed to be a diagonal dance, as the door affords two people to enter at almost the same time. However, at the time of observation, it was primarily observed that the queue stretched along the train and not across the door.

A different set of mobile practices was discovered at the park and ride hub, where people don't gather up as their transport option arrives, since it is different vehicles people are waiting for, thus, not creating a mobile situation where the whole mobility hub is pulled in at once, instead the park and ride hub consists of many pickups. When a person is waiting and spot their carpooling car, they exhibit a similar mobile practice as at the rest of the mobility hubs, where their embodied performances open up, thus showing they are ready to be picked up and then the car can stop right in front of them. However, another mobile situation was also observed regarding being picked up at the park and ride hub, here the carpooling car stops away from the waiting person. In this case, an embodied performance was discovered among the waiting persons, most tend to almost start running toward the car. This might indicate, that the mobile practice in this regard is affected by a desire to not waste the other person's time. Hence, the embodied performance of running shows that one is hurrying as much as possible. However, this also indicates that most users perceive the park and ride hub as a 'space of flow', which is governed by the dead time perspective, thus, a space that one must get away from as soon as possible.

All of the mentioned mobile practices regarding boarding one's transport option described in this section can also be caused by what can be called a false alarm. This means that these mobile practices can be triggered by other elements than the actual transport option a person is waiting for. Thus, if a person e.g. hears something that might sound like a bus or train, then the set of associated mobile practices might already start, however, they will often stop before performing fully out, as the person realizes the false alarm. The part of the journey regarding departure from the mobility hubs has now been explored, but the journey also includes an arrival, which will be explored in the following section.

6.4 Exiting and leaving the mobility hub

This section will analyze the part of the journey related to people stepping out of their means of transportation and creating a flow away from the mobility hubs. This is done to get some insight into how people are using the mobility hub when their aim is not a change in means of transportation but getting to a destination and the associated mobile

practices for this.

The first ongoing mobile practice that has been discovered is that people are standing up in the bus, ready to exit at the mobility hubs. This indicates that people are targeted and are somehow busy moving away from the mobility hub. At least it indicates that they do not need unnecessary time on the bus or at the mobility hub itself. Moreover, people do not seem to use the platform or the area of the mobility hub, when they are getting off a bus. Thus, the mobility hub seems to only be used for stays during people's waiting time.

Another mobile practice that was discovered when people are exiting a bus, was their choice of door exit. People's further journey from the mobility hubs did not seem to have any influence on their preferred exit position from the bus, i.e. there were crossings of people when they exited the bus, due to their diagonal movement out of the bus. For example, one from the center door went in a right direction towards the back of the bus, while one from the back door went in a left direction towards the front of the bus. The embodied performance indicated that it is typically the one who most recently got off the bus who makes a short stop so the other person can pass. The stop is seen in that one does a half stop in the step the person is about to take, thereby lowering the speed of movement to the point where the other can pass without collisions.

A third mobile practice that appeared when people were moving away from the mobility hub, is that people who are coming by bus or train, tend to have a fluid 'walking-code', which afford that they can be in movement and doing other things meanwhile. For example, when they are exiting a bus or train and are moving, they are putting on their bag or placing their "Rejsekort" back into their wallet. Thus, their attention is not required to do stuff while walking away from the mobility hub. An example of this mobile practice can be seen in Figure 6.11.

Figure 6.11. Two people crossing the bicycle path while packing down their "Rejsekort" at the destination hub.

Since these people are packing their thing down as they move away from the mobility hub, it indicates some aspects of being mobile in a routine manner. In addition, it has been discovered that people's embodied performance while e.g. exiting a bus, their body

language is pointing directly towards the direction that they are aiming at. They are almost walking obliquely out of the bus towards the headed direction. To a lesser extent, it was observed that you get off the bus to make a stop and orientate yourself, as most people already knew which direction to go. In addition, it is the front person who orientates and acts as a 'mobile body semiotic', thereby leading the group over the crossing and thus symbolizing a "green light" to cross, without the others having to orientate, because you trust there is a free lane when the first person crosses. This indicates aspects of the phenomenon called the "Lemming Effect", which describes how a great number of people perform a certain behavior for no other reason than due to their peers doing so.

In regard to orientation, it was also observed that people - while moving - are looking to the one side where one might expect cyclists. No one was observed to stop and orient themselves. Therefore, they do not seem to look after "wrong drivers" on a bicycle, which can indicate a 'mobile culture' that describes the norm of bicyclists only driving on the right side of the road, and if they do not it is the cyclist's responsibility to be aware of others.

Thus it can be said that the concept of 'mobility aesthetics' is in play, since people do not seem to be sensing the mobility hubs, but are exiting the area in a direct flow. This can be due to the fact that a "normal practice" would be to get off a platform and away from the means of transportation, in order to let other people enter it. It is thus an effect that makes people get out of the area in a quick flow. The mobile situation when getting off the bus is briefly and dissolved quickly, and people are not moving in a planned 'mobile with' group, but rather temporary congregations that are leaving the area together and are headed toward the same destination. For example, a group of people, who did not seem to know each other, went toward the pedestrian bridge at the network hub, since this is the only way to cross the train tracks. Based on these mobile practices, it can be argued that the mobility hubs work as 'space of flow' rather than 'space of place'.

The phenomenon of 'desire lines' was also observed when people were leaving the mobility hubs. For instance, it was observed at the destination hub, that people crossed some road work, instead of going all the way around as it has been physically planned. This mobile practice might also have some aspects of the above-mentioned "Lemming Effect" since it was observed that other people followed the flow across the road work all aiming for the university. An example of this trend can be seen in Figure 6.12.

Figure 6.12. Several people headed away from the mobility hub and crossing the road work. The phenomenon of "Lemming Effect" observed at the destination hub.

Only very few people were observed to follow the planned setting around the road work. Furthermore, people are crossing the bicycle lane in a direct line toward their aim destination, and not how the physical planned environment 'from above' afford one to walk (see Section 5.1). This may indicate that the physical setting does not create a barrier for the 'mobility affordances', which makes the flow random and not specified.

Another mobile practice that was discovered during the flow away from the mobility hub, was the aspect of temporality. Two people were walking along with the planned setting, however, with less speed than a person from behind. The person with a higher speed than the two people chose to cross the corner of a turn in order to overtake them. Based on the observation it can be argued, that mobile practices that afford a faster speed are present in people walking alone, while the mobile practices regarding speed among organized 'mobile with' groups tend to be slower. This can be assumed to relate to their perception of time, which suggests that if one is alone, the journey must be completed as fast as possible, whereas groups do not have the same efficient thoughts on the perception of time, as the time spent on the journey are done in company with others.

In general, the observations indicated that the majority of users exiting the mobility hubs, do know the area and where they are headed. This is seen through the above-mentioned embodied performances which seem to be based on routine. Moreover, the mobile practices also seem to have some aspects of being based on norms, since people follow the flow away from the mobility hubs. It has not been discovered that people were going against the flow or stopping it e.g. you know the area, where you have to orientate, and where to step over a curbstone for instance.

The park and ride hub stands out in relation to people's mobile practice when leaving the mobility hub. Here, a tendency was observed that you are dropped off just next to your own car, thus having an easy and short transfer from one car to another. This can be seen in Figure 6.13.

Figure 6.13. A person is dropped off just next to one's own car at the park and ride hub.

The park and ride hub is the only mobility hub where a shift between two means of transportation has been dominating the observations. In relation to exiting the mobility hub, it can be said that the mobility hub itself functions primarily as a mobility hub of modal shifts. This can both be from one car to another or from a car to a bicycle. This mobility hub is very dominant in being a 'space of flow', where people are changing vehicles or other means of transportation – either individually or together with others. The park and ride hub stands out in relation to people's mobile practice when leaving the mobility hub. Here, a tendency was observed that you are dropped off just next to your own car, thus having an easy and short transfer from one car to another. This differs from a traditional mobility stop, where you mostly are entering and exiting at the same spot. In addition, it was observed that one does not put on one's jacket or bag, since there is a short distance to one's car.

6.5 General tendencies of the mobile practices

The observed mobile practices have now been presented and analyzed. It can be argued that the underlying aspects of the discovered mobile practices greatly can be attributed to perspectives of efficiency and social- avoidance and distance. A common general mobile practice was observed in the movement to and from the mobility hub, where it was revealed how this happened in an efficient and smooth movement, which also made 'desire lines' arise, where the chosen path by the users differs from the planned path.

In addition, mobile practices were discovered where the users of the mobility hubs avoided social contact and distance from others. This could be seen through their embodied performances as well as their positioning according to others. This trend was observed by users standing in a row with approximately the same distance between them. However, without there being too great a distance to their ascent, hence the metaphor about the "perforated snake". Likewise, was it discovered that the mobile practices and culture of the mobility hubs determined only a single entity can utilize the sheltered areas at bus

stops at a time, and multiply entities were only present if the mobility hub was crowded.

Furthermore, mobile practices regarding the use of the facilities at the mobility hubs, especially benches, were also discovered. The mobile practices at the four mobility hubs generally opted for not using the benches, people instead rather stood up walked in small circles, or leaned against physical elements. This chapter has explored the occurring mobile practices at the four different mobility hubs, thus exploring subquestion two of the research question regarding mobile practices. This knowledge will be carried into the next chapter, where it will be discussed how this understanding can be related to the classification of mobility hubs.

Discussion of Mobile Practices

7

The aim of this chapter is to facilitate a discussion where the comprehension of mobile practices is related to Aalborg Municipality's approach to classifying mobility hubs. This is done in order to illuminate the part of the report's research question regarding how the understanding of mobile practices can influence the classifications, including to what extent this knowledge can contribute to classifying mobility hubs. Elements from Chapter 5 regarding the mobility hubs 'from above' will also be included, in order to illuminate the physical environment's contribution to the classification. Likewise, it will be elaborated on which perspective the classification can be complied with and perceived. Furthermore, the general tendencies discovered in Chapter 6 will be presented in relation to how these can affect the future planning of mobility hubs in a more general term.

Understanding of mobile practices

First, it will be reflected in the understanding of the phenomenon of mobility hubs through this study's notion of mobile practices. Because, has the study's understanding of mobile practices through observation of mobile situations, given the necessary comprehension of mobile practices to answer the research question? It can be argued, that this study has uncovered how the mobile practices are expressed through their creation in the mobile situations. However, this study has not uncovered all of the underlying reasons and incentives for the particular mobile practice but has instead just revealed the occurring mobile practices that are applying to the way people utilize mobility hubs. Even though similar mobile practices have been discovered at the different mobility hubs, there may well be different underlying intentions and thoughts from each of the individual users, although the particular mobile practice is demonstrated in the same way. For instance, the chosen direct path in form of 'desire lines' is present at all mobility hubs, but for some, it might be a conscious choice to take this exact path, whereas others do not necessarily sense it in the same manner. Thus, it has not been explored how the individual interprets the mobile situation, and whether conscious choices regarding mobile practices are made in this relation.

However, it can be argued that the observation of the mobile situations gives an insight into what sorts of meanings take place in the mobility hub, thus creating the basis of the phenomenon. This is done as, *"At a micro-scale, (...), bodily mobilities are a key constituent in the production of senses of place"[Cresswell, 2014, p. 84]*, which emphasizes that the mobile situation is a key element when assessing the mobility hub as a phenomenon, and the associated mobile practices. If the mobile situation was the foregrounded phenomenon, then it can be argued that the underlying intentions and

thoughts on the mobile practices, and not just the unfolding of these, are relevant to understanding and interpreting the mobile situation.

The notion and understanding of mobile practices in this study are based on how they are demonstrated through the observed mobile situations. This approach to the phenomenon of mobility hubs based on the demonstrated mobile practices may well investigate the aim of the research question, as it shows whether the use of mobile practices creates a basis for different mobile situations and the unfolding of these at the different mobility hubs. Thus, this approach has given a basis for assessing whether the demonstration of mobile practices should have an impact on the classification. Hence, this study has rather investigated whether mobile practices lead to similar mobile situations, rather than the underlying intentions of these mobile situations and whether the users perceive the different mobility hubs as similar. Therefore, this approach can well be used in a context from a planning perspective, as this notion of mobile practices highlight the actual use. Thus, it has been investigated whether the unfolded mobile practice that is demonstrated through the mobile situations can be considered in a classification, thus this study has not investigated whether the perception of mobility hubs affects the use and whether this aspect should have a role in relation to classification. With these considerations in mind, it will not be discussed to what extent the discovered knowledge about mobile practices should have a determining role in relation to classification.

Determining elements of classification

In Chapter 6 the mobile practices that affect the journey through a mobility hub have been explored. Here it was highlighted that these mobile practices are quite similar at all four mobility hubs and that it is to some extent the same underlying aspects that determine these practices. Where especially efficiency and social distance are major factors. When these mobile practices are compared with the physical settings described in Chapter 5, it can be argued that the settings 'from above' are slightly different, but somehow still consist of similar elements e.g. bus shelters, sidewalks, roads, etc. However, the physical settings of the park and ride hub differ from the rest, as it facilitates a different set of transport modes. Even though these mobility hubs are different 'from above', it is still a similar mobile practice that occurs, which makes a case for the classification of mobility hubs does not affect the mobile practices that unfold at the mobility hubs. Thus, it can be discussed whether mobile practices should be included in the classification of mobility hubs.

As mentioned, the observed use of the four mobility hubs has been similar, hence, a classification based on the mobile practices will most likely result in a classification consisting of only one class, where the determining factor is efficiency through the mobility hub, and as little social contact as possible. Thus, such an approach to the classification would heavily be based on the diagram of the river, rather than the ballet, where the developing focus should be on providing easy and safe access to and from the mobility hub. Based on the discovered mobile practices in this study, it can be assumed that the design focus should not be on the aesthetic, as people tend not to experience the aesthetics when in this form of motion, as their primary goal is to utilize the river that the mobility hub facilitate, i.e. the person's focus is on efficiently get away from the mobility hub.

However, it can be argued that the discovered mobile practices can well be considered in the actual planning of the mobility hubs, which applies to all four classifications, thus not arguing the classification should be influenced by the mobile practices, but rather the mobility hubs can be designed to better facilitate the discovered practices. E.g. it has been discovered that people tend to walk the straight path, even if the pavement does not support this line, thus the development of mobility hubs can utilize this knowledge to plan the paths in a straighter line, so the 'desire lines' actually match up with the planned environment. Furthermore, it was discovered how the mobile practices affected the use of sheltered areas, where mostly only a single entity has the right to the area. Thus, in the future a design consisting of more, but smaller, sheltered areas, will probably create greater willingness to use the facilities, as each person can have their own personal space. The mobile practices do not consider the four classifications of mobility hubs as separate and different entities, hence these recommendations should be deemed as applicable for all of the mobility hubs, thus, the mobile practices can not be used to separate the mobility hubs and come up with different development focuses. Hence, emphasizing that mobile practices should not be considered a decisive factor in the classification of mobility hubs.

> *"What we have tried to do with the classification, is to highlight what types of modal shift the mobility hubs offer, and how these shifts are relevant in different geographies".*
> - [Aalborg Municipality, 2022a, translated from danish]

Thus, the above statement suggests that the current approach to the classification from Aalborg Municipality's side is based on the mobilities affordances of a mobility hub, i.e. what types of mobilities are present, and not based on how the mobile situations are acted out, i.e. the mobile practices. Hence, the classification of mobility hubs attempts to divide the mobility hubs into entities based on a network approach, where it is divided in relation to the type of mobility it affords. It can be assumed that this has followed a mindset of if the same physical settings and mobile affordance is present, then likewise the different entities will have a similar mobile practice. The report contributes with a discovery of this mindset is applicable to some extent, however, it is not only applicable if the same physical setting is present, but instead, the function of the mobility hub contributes to similar mobile practices. Here the function of the mobility hub should be deemed and understood as facilitating a flow, which all mobility hubs can be assessed to do so in form of offering some sort of transportation options. Thus, the network of the mobility hub itself does not influence the mobile practices that occur in the mobile situations, however, the network mindset has a function in relation to Aalborg Municipality's classification of mobility hubs, as this is a way in which the perception of the mobility hubs can be divided, and thus, determine what kind of mobilities it should facilitate.

A mobility hub's position in the overall transport network does influence what function the mobility hub should consist of, thus undeniably having an effect on the planning of the mobility hub, as the functions in form of the transport options available have an impact on the space required of the mobility hub. *"You will have to have more area needed at a park and ride hub, than at a destination hub" [Aalborg Municipality, 2022a, translated from danish].* Thus, this form of classification is indeed needed from a planning perspective, as

the different classifications require different areas, which emphasizes the network approach to classification. However, no coherency was discovered between the available space of a mobility hub and the mobile practices that unfolded within it, i.e. the mobile situations were acted out and performed in a similar manner 'from below'. For example, a similar "perforated snake" was discovered in all four mobility hubs, as described in Chapter 6. Hence, the approach to the classification can be assessed to be based on a 'from above' perspective, where it is the planned general network structures that are important, thus, it can be argued that the current approach to the classification is greatly done in order to tie the municipality together in terms of mobility, and not to determine the social behavior at the individual mobility hub, in term of governing the occurring mobile practice. Thus, the classification of mobility hubs is not for the individual user, but rather for the transport structure of a whole, to ensure a structure of comprehensive mobility to different parts of the municipality.

More than just a modal shift

In the conducted interview with Aalborg Municipality, an aspiration on how *"a mobility hub could facilitate more than just a modal shift"* [Aalborg Municipality, 2022a, translated from danish] was expressed. In this regard it was especially in relation to mobility hubs facilitating meeting places of the cities, thus it can be argued that the municipality desire to carry the understanding of mobility hubs into a direction toward a 'space of place', and not solely a 'space of flow'. However, based on the discoveries in this study, it has been revealed how the current mobile practices in the four classifications are more aligned with a 'space of flow', where the focus is on moving through the space rather than staying in the space. Likewise, has e.g. the aspect of the "perforated snake" and single entity usage of facilities that was described in Chapter 6, unveiled how the contemporary mobile practices are based on an elusive approach to other people, which is contradictory to mobile practices that embrace meetings and social interactions between one and another. Mobile practices that are characterized by this can be assumed significant in relation to creating a lively mobility hub with an imprint of 'space of place' that facilitates meeting places in the cities.

To get closer to this approach, it is indeed needed to change the contemporary mobile practices, so it instead braces a more social approach. To change the very mobile practices of these using the transport part of the mobility hubs can be assessed as whole sociological research in itself, thus, the matter will not be discussed further in this report. Instead, the report will briefly touch on how new mobile practices can be introduced to mobility hubs. This can be done by to a larger degree co-locating the mobility hubs with different activities of the city. For instance, planning a playground as a part or right next to a mobility hub, may facilitate mobile practices that differ. As it can be argued that the playground facilitates another activity, where people are there for a longer time, and the playground can also be assumed to introduce sounds to the silent space of the waiting passengers. Potential, this thinking of co-locating mobility hubs with other activities, may affect and influence the mobile practices of those using the transport part of the mobility hubs, as it can cause incentives for them to change their practices, e.g. the aforementioned playground may cause a family to arrive at the mobility hub earlier than usual if their kid can use a climbing stand. Hence, the new facility introduces a meaningful waiting time for the family. Thus, this can provide a basis for more ballets at the mobility hub, rather

than just the river flowing through it.

However, it can be questioned whether all mobility hubs should be deemed as spaces that facilitate more than just transportation since there are many mobility hubs and arguably not all of them should necessarily focus on facilitating the meetings of the city. As too many meeting places might stretch, the activities too wide causing less lively spaces, whereas focusing on a number of mobility hubs compress the meetings and activities to these, thus making them more lively. Hence, it can be argued that this element can contribute to the classification of mobility hubs, not necessarily as a main mobility mobility hub classification, but to some extent as a sub-classification. Here a designation of mobility hubs, where the focus should be on co-locating and lively activities can be implemented. Thus, the classification is not done from a mobile practices perspective, but rather from the aspiration of getting more out of the mobility hub, which potential can influence the present mobile practices, and thereby, make them stand out by containing different mobile practices.

Conclusion 8

Following the analysis of mobile practices and a discussion about to what extent these should be deemed as a determining factor in the classification of mobility hubs, the report arrives at the following conclusion, where a final conclusion will be made in relation to the main research question and its associated subquestions. To recap on the study's research question, presented in Chapter 2, it will once again be mentioned.

How can the understanding of mobile practices be used in relation to the classification of mobility hubs?

As indicated in the research question this study finds a duality of objectives within the understanding of mobile practices. Thus, the study framed two subquestions to comprehend the mobile practices from two different perspectives, one based on the intended planning, and another based on the actual use of the mobility hubs.

Within the first subquestion regarding *the planning and design of the different mobility hubs in order to facilitate mobile situations*, it can be concluded that the different mobility hubs are planned with different modal opportunities, e.g. bus, train, or carpooling. However, the different mobility hubs are somehow still similar in their physical expression, as they to some extent are the same elements that create the material environment. This includes sheltered areas, benches, roads, paths, etc. As well as an intended direction of the flow has been planned through the layout. Hence, it can be concluded that the planned environment and design create a basis for mobile situations associated with waiting, flows, boarding, and disembarking.

The second subquestion refers to *how mobile situations unfold*, thus revealing the demonstration of different mobile practices. The observed demonstrations of mobile practices through mobile situations have been made into an illustration, to give a brief overview of some of the common observations and tendencies, here it can be concluded that the mobile situations unfold in a similar manner regarding the classification of the mobility hubs, thus, revealing a similar demonstration of mobile practices. However, it is important to state that this study has not examined the underlying intentions of the mobile practices, but only the execution. Hence, this study can not conclude whether the set of mobile situations occurring on the journey is experienced and felt alike by the user.

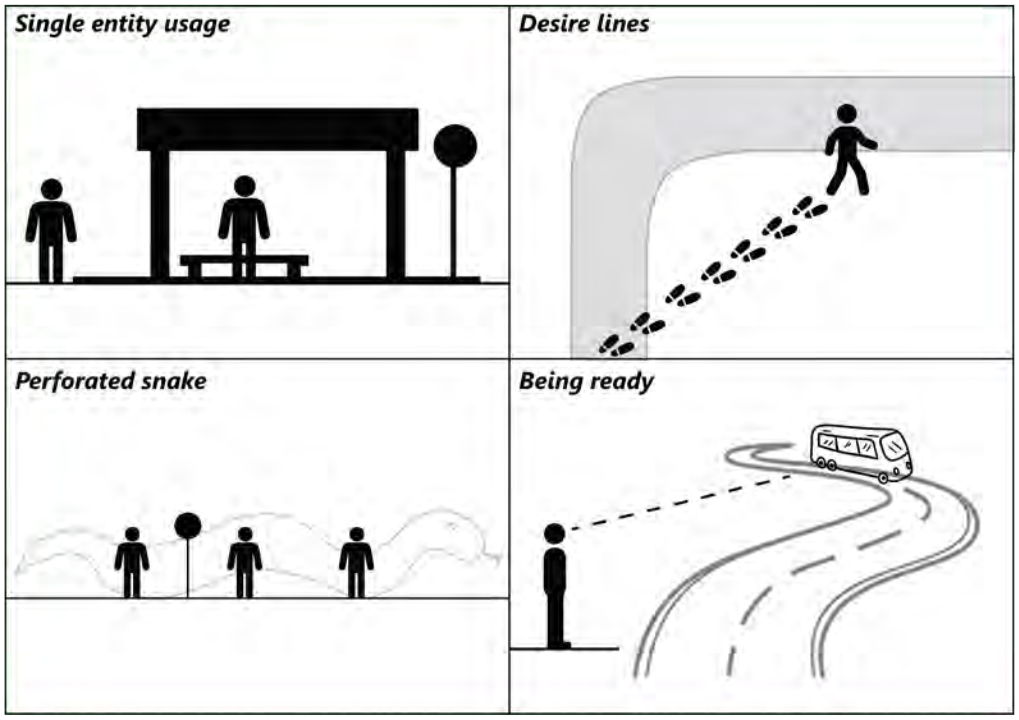

Figure 8.1. Illustration of the observed mobile practices at the four mobility hubs.

Something that is similar to most of the discovered mobile situations and the associated mobile practices is that they can be related to efficiency and social distance. Figure 8.1 illustrate four of these mobile practices. Single entity usage refers to how the mobile practices state that only a single entity can use a sheltered area at once, and only if the mobility hub starts to be crowded more will enter the shelter. However, it is important to state, that this discovery was done on a sunny day, hence raining and snow might cause different mobile practices regarding this. 'Desire lines' refer to how people tend to take the most direct path, even though it is not aligned with the planned path. The "perforated snake" refers to how mobile practices regarding social distance were discovered, here it was observed how people usually waited in a queue with several meters distance between. However, this trend has an invisible marker, so when the queue is extended to 4-5 people from the bus stop, the next one arriving will fill up the space of the "perforated snake". Thus, this mobile practice also entails that it is not the time spent waiting at the mobility hub, that determines the time you board the bus or train, but instead the distance to the door. Being ready refers to how people are on the look for their transport option, so they can be ready to board as soon as it arrives. These four examples are unfolded in a similar manner at all observed mobility hubs.

In relation to the main research question, this study finds that the discovered mobile practices do not contribute to an understanding of the different classifications. The demonstration of the mobile practices through the observed mobile situations was assessed to be similar at the different mobility hubs, hence the classification does not influence how the mobile practices are expressed and unfolded. Thus, it can be concluded that mobile practices should not be deemed as a decisive factor in determining the classification of mobility hubs.

The aspiration by Aalborg Municipality on creating mobility hubs that facilitates more than just modal shifts can be deemed as an element that can contribute to the classification of mobility hubs. This is done by introducing a designation of mobility hubs, where the focus should be on co-locating with other activities, so the mobility hub can facilitate more than just the river of passengers passing through it. Thus, this might cause the mobile practices at these mobility hubs to differ from other mobility hubs, as it potentially introduces new mobile practices, that to some extent might be influenced by other incentives than efficiency and social distance.

Post-Research Reflections 9

This chapter seeks to unfold some main considerations during this study, which will be based on the limitations of the findings and the conclusion of this research. The first section reflects upon the chosen data collection methods used for this study, and the second section considers some examples of future research, that could follow this study. These are based on assumptions concerning what this study could contribute to within the field of mobility and urban studies.

9.1 Method Reflection

This section reflects upon the chosen methods and approaches described in the methodology (Chapter 4). The reflection is based on four concepts: *validity*, *reliability*, *representativity*, and *transferability*. These concepts are essential to reflect upon in order to ensure the quality of the empirical data [Creswell, 2009; Scotland, 2012]. In addition, it will create awareness of the limitations of the research in regard to reflecting on further research needed to accommodate the limitations.

As described in the methodology chapter, this is a study with a qualitative research approach, where the methods used for data collection are exclusively qualitative. In addition, the study includes only a small number of mobility hubs in Aalborg Municipality. This is done to be able to get more in-depth empirical data on each of the four chosen mobility hubs, and this qualitative approach enables the study to make sense of the mobile situation. The time frame for this study did not allow for the collection of data at more mobility hubs. If the study also included some quantitative methods, such as a perspective on the actual number of times the mobile practices occurred, with a wider variety in mobility hubs and time periods of data collection, it might provide more reliability following a higher transferability of the collected data. Likewise, would a higher number of observed mobility hubs have given a more certain data basis, but it can be assumed, that the observations would have been similar to the data already collected.

As mentioned, the observations have been done in a time frame, thus meaning that not necessarily all mobile situations that occur over the day and year have been noted. Moreover, the representative of this study can be argued to some degree to be viable, as different times of the day have been observed to embrace the general tendencies of the mobility hubs. However, there might be outliers that are not observed within the chosen time frames. Likewise, the choice of four mobility hubs contributes to strengthening the representative, as it illuminates different kinds of mobility hubs. In addition, the observational field notes can to some degree reflect some bias and assumptions by the researcher, however, it was a main focus of the data collection to only describe what was

observed and not include any assumptions. This awareness was done in order to raise the validity and reliability of the data.

Another aspect that might influence the validity of the data is the way in which the researcher affects how people behave at the mobility hubs due to being there. Direct observation with field notes and recordings, may cause people to change their actions or placement on-site, which might differ from their natural activity [Ravitch and Mittenfelner, 2021].

The validity is to some extent high, based on the understanding of mobile practices demonstrated through mobile situations that have been observed. Therefore, the choice of methodological approach is valid in relation to the conclusion of the research question in this study. Furthermore, it can be argued that if the study was to be repeated with the same theoretical and methodological approach, one would end up with the same conclusion if the research is done in a comparable setting. However, the results may vary from this study's result, if the study is repeated under different conditions. It can be assumed that the weather can cause different mobile practices than those discovered in this study, however, it can be assumed that the new mobile practices somehow will be similar to other mobile practices under the same conditions. E.g. a different mobile practices can be expected when raining, but still be similar on the different mobility hubs, but different to the mobile practices on a sunny day. Accordingly, a similar conclusion in relation to mobile practices as a determining factor for classifications can as well be expected under different conditions, as similar mobile practices are expected in all mobility hubs, based on the experience from this study.

The transferability regarding mobile practices in relation to classification can be deemed as the experiences and outcome of this study, producing a basis for how classifications as a planning tool affect the unfolded mobile practices at the site itself. Here it can be assumed that similar tendencies can be revealed in other planning areas, where spaces are divided among different classifications. Here it can be expected that the mobile practices and mobile situations are not necessarily divided accordingly to the classifications.

9.2 Further Research

This study contributes to a useful understanding of how mobile practices are unfolded at different mobility hubs. However, the research field of mobility is about more than just how the mobile practices are demonstrated, thus, it can be argued that more research is needed to fully understand the mobility at mobility hubs, and how more people can be attracted to those. This section aims at presenting different studies that can be done in order to further elaborate on which elements a classification should include.

Firstly, the study of this report can be done on a larger scale, both where more mobility hubs are considered, but also where a large scale than just the mobility hub is observed. In this regard, the whole journey and the associated mobile practices can be discovered, and not just those accruing at the mobility hub. In this regard it can also be included where people are coming from, and where they are going, to explore whether these aspects differ based on the classification. When looking at the journey as a whole an aspect of safety is also obvious, to see whether different mobile practices occur based on how people perceive

safety on and around the mobility hub.

Another further study that can be conducted, is to explore more than just the demonstration of mobile practices, but also investigate the underlying intentions, to determine whether this differs between the classifications, and thus, should have a role in the classification. A similar perspective can also be, to explore the society's perception of the four different classifications. Here it would also be interesting to explore those that do not use the mobility hubs, which differs from this report's study as it solely deals with aspects occurring at the mobility hub. Besides exploring the different perceptions of the mobility hubs, it would also be interesting to differ the perception among socio-economic factors to explore how the different mobility hubs are perceived by different groups within the society. Because, it can be assumed that some mobility hubs are perceived negatively by some groups within the society, while not by others.

In addition, to explore the perception of the mobility hub, it can be argued that it is necessary to also investigate the perception of the mobility hubs place in the network and the general transport options. Since it can be assumed that it is not sufficient just to make a great mobility hub to get more people to use it and its modal options. Hence, it is indeed also necessary to understand how people perceive the journey as a whole, to understand if they perceive it as a real alternative to the current transport situation.

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Interview Guide A

Introduction: *Introducing ourselves and introductory points related to the purpose of the interview and what the research are focusing on. In addition, we ask about permission to audio-record the interview for data processing, and if we can use their statements for the research.*

The general work with mobility hubs (opening questions)

1. What is your general definition of a hub?
2. What is the purpose behind making a classification of hubs from Aalborg Municipality's side?
3. How were the definitions of the four different types of hubs created?
   - When was the classification made?
4. How does the classification of hubs contribute to the practical work with mobility, the offering of a public transport network and the general development in the municipality?
5. Is the work with the classifications widespread throughout the municipality, or is it "just" you that are working with them?
   - If the classification is not widespread, is there a desire for it to be so?
6. Does Aalborg Municipality have different strategic plans for the different hubs?

Aalborg Municipality's specific classification of hubs

1. What kind of needs should the different classifications cover, and what should the individual hubs be able to offer and contribute with in relation to a societal context?
2. How have the specific hubs been designated for each classification?
   - How is a hub classified in practice? (a tool / parameters on which hubs are measured to classify it)
   - Has the classification been based on a "top down" or "bottom up" approach, i.e., are the "unofficial" hubs simply made into hubs, or has it been more determined from the top that there should be a hub here?
3. Are there any critical elements that need to be present for a site to be included in your classification of hubs; e.g. public transport, benches, signs, X number of passengers, etc.?
   - Are there any "soft" parameters in the classification? (or is that the intention in the long run?)
   - How does your classification relate to the access of the hub?
4. How do the different classifications contribute to the overall mobility network?
5. How are the different classifications prioritized - are some more important than others?

6. Why are four classifications chosen, and not fewer or more?
   - Is this the final classification and division - will it be continuously updated?
7. What negative effects are there or can there be, by making a classification and designation of hubs?

The future work with hubs (closing questions)

1. How do you want the classifications to contribute in the future?
   - Is there a goal that the work with the classifications should contribute to tying hubs (and thus mobility) better together in Aalborg Municipality - and how?
2. What should happen to the hubs that are not included in the classification?
   - Will there not be given priority to development around hubs that are not designated in the classification?
3. Are there any other parameters you want the classification to include in the future?
4. Is there a desire or strategic plan on the part of Aalborg Municipality that there should be a certain number of each hub, and do you want to develop ("unclassified") hubs so that they are "upgraded" to a classification?
   - Does the classification help to politically determine where the development should take place?
   - How much is it inside the political agenda?