HANGING BY A THREAD

DESIGNING URBAN MOBILITIES

TITLE PAGE

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ABSTRACT

In this project, we investigate the relationship between three rural villages in Aalborg Municipality: Kongerslev, Nørre Kongerslev, and Komdrup, and examine how the concept of a village cluster might be used to address challenges related to mobility and the future resilience of village community life. A village cluster is briefly defined as a network of villages with a common place identity that relies on the strengths of individual villages to address shared challenges through civic engagement (Laursen et al. 2015). Collaboration in a village cluster has the potential to sustain a wider range of functions of local community life and business not feasible in each individual village. With regards to mobility, this requires facilitating the external mobility to the regional city network as well as the internal mobility between the villages.

Our aim is to address these challenges through the creation of a mobility hub in the main village, Kongerslev, which aims to support and facilitate daily life in Village Cluster 9293. To accomplish this aim, we initially gain an in-depth understanding of the social, technical, and aesthetic dimensions of infrastructures and places in the village cluster. This includes a consideration of the future of rural mobilities. We also conducted a survey which was used to develop relevant personas for analysis and design evaluation. Together with the findings from our analysis and survey, these inform our design parameters, and lead to our strategy and design proposal.

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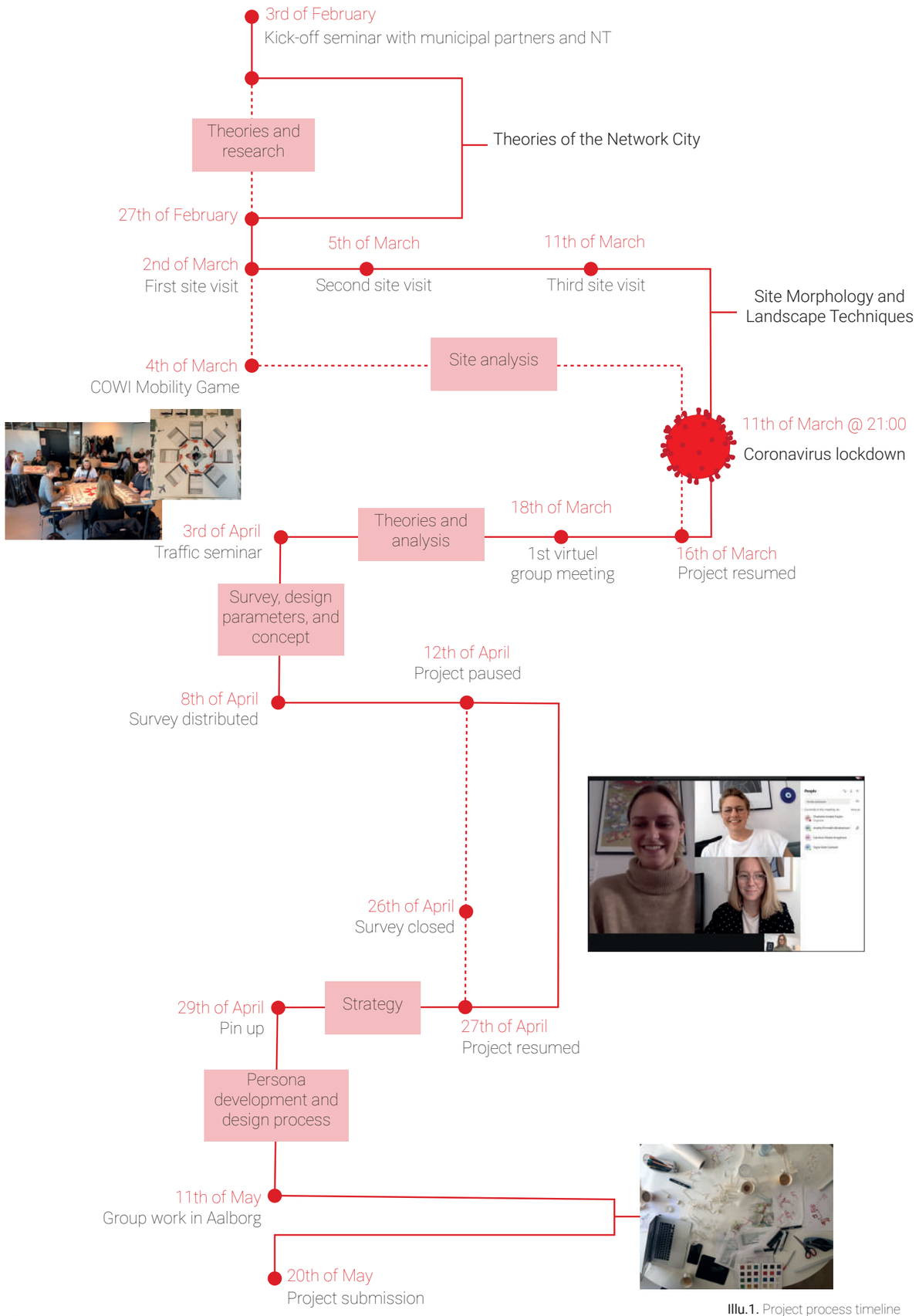


Illu.1. Project process timeline

PREFACE

There is no doubt that this semester project has been under more tumultuous circumstances than usual as a result of the disturbances caused by the novel coronavirus pandemic. The world as we knew it has been turned upside down for the foreseeable future and we have had to adapt. The project has very much been stop-and-go as is evident from the project process timeline shown to the left, and collaboration has been constrained by the limits of video conferencing technology. Nonetheless, we have tried to keep our focus and a positive attitude.

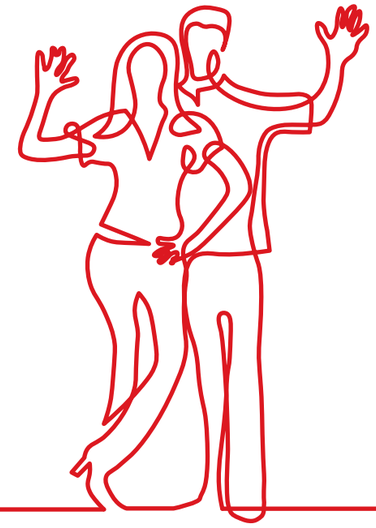
In the face of this adversity, we would like to direct a thanks to the people who contributed with their time and effort, and who gave us valuable feedback and insights which informed and heightened the quality of this project. Thank you to our supervisors, Niels Agerholm and Ole B. Jensen, for always being quick to respond to our emails and willing to provide guidance over video calls, and a special thanks to the many people in Kongerslev, Nr. Kongerslev, and Komdrup who responded to our survey. That so many were so generous with their time and insights is evidence of the strong local engagement and interest in the topic of rural mobilities. Your responses deepened our understanding of where you live, and what that experience is like from the insider perspective. We hope that this material can inspire thoughts and debate about the future of mobilities and public space design in Village Cluster 9293.

REPORT STRUCTURE

We start this project report by introducing the challenge of designing rural mobilities in the context of a village cluster and our motivation for having chosen to work with this issue. This ends with the formulation of a problem statement which defines the scope of this project. Next, we introduce our project site, Village Cluster 9293, covering the strategic context, history, demography, and political plans. In the subsequent section, we present our theoretical framework related to village clusters (Laursen et al. 2015, 2017; Realdania 2019), public domain (Hajer and Reijndorp 2001), and rural mobilities (Vestergaard 2016).

The theoretical underpinnings are then used to analyze the social, technical, and aesthetic dimensions of the site and context which guides the location selection for the future mobility hub. Additionally, findings from our survey are applied in the development of personas (Vallet et al. 2019; Vianna et. al 2011) which combined with our analyses inform the design parameters and overall strategy. This leads to the presentation and analysis of our strategy and design proposal. Finally, the project report concludes with reflections on the design, chosen theories and methods, and the project work process.

01 INTRODUCTION



MOTIVATION

Urbanization has been a global megatrend since the age of Industrialization. In Denmark, the proportion of rural dwellers plunged from 80% in 1801, to 50% in the early 20th century, less than 30% after WWII, and hitting 20% in 1970. Today, only slightly more than 10% of the Danish population live in rural districts. Since the 1970's, the proportion of the population living in the Greater Copenhagen Region and in cities with a population above 50.000 inhabitants has increased the most, while stagnation or decline is the general trend for towns with a population below 1.000 inhabitants. The most prominent decline is in towns below 250 inhabitants (DBS 2019b).

The continual social and economic restructuring from an agrarian society to a production society, and most recently into a knowledge society, has drastically changed the Danish economic geography and settlement patterns over the course of only a few generations. Urbanization causes a drain of people, jobs, capital, and services from the periphery, favoring the largest cities and their proximate hinterlands. This increases the physical and social decline in peripheral Denmark - especially in 'The Rotten Banana'. It is both true and a stereotype that the inhabitants here on average are more likely to be older, male, with lower levels of education, and lower income. Other disparities such as health inequality, lower housing prices, and a higher rate of unemployment puts a strain on the funding of public services in these areas. Some might argue that the future of rural Denmark is hanging by a thread.

If rural decline results in the loss of a critical mass, important meeting places such as local schools, sports facilities, and businesses might eventually close leading to a further loss of social capital. The concept of a village cluster, where villages that are in geographic proximity and share a place identity collaborate, emerged as a framework in the mid-2010's to counter decline and develop strategically (Laursen et al. 2015). The idea is that by collaborating in a network structure, meeting places and functions which are no longer feasible in each individual village, might be shared across the cluster. An important prerequisite for a well-functioning village cluster is internal mobility besides the external regional mobility required for work, education etc. As such, the village cluster is to be understood as inherently multiscalar: each individual village, the village cluster, and the cluster as a node in a regional network.

For those that do not have access to a motorized vehicle or a driver's license due to reasons of age, health or economy rural mobility is particularly challenging. If the bus only departs every or every second hour or not at all on evenings and weekends, where many of the activities that could be shared across a village cluster take place, collaboration is inhibited. Alternatives to the classic modes of both private and public transportation are needed if rural village communities are to thrive, especially with regards to first and last mile solutions.

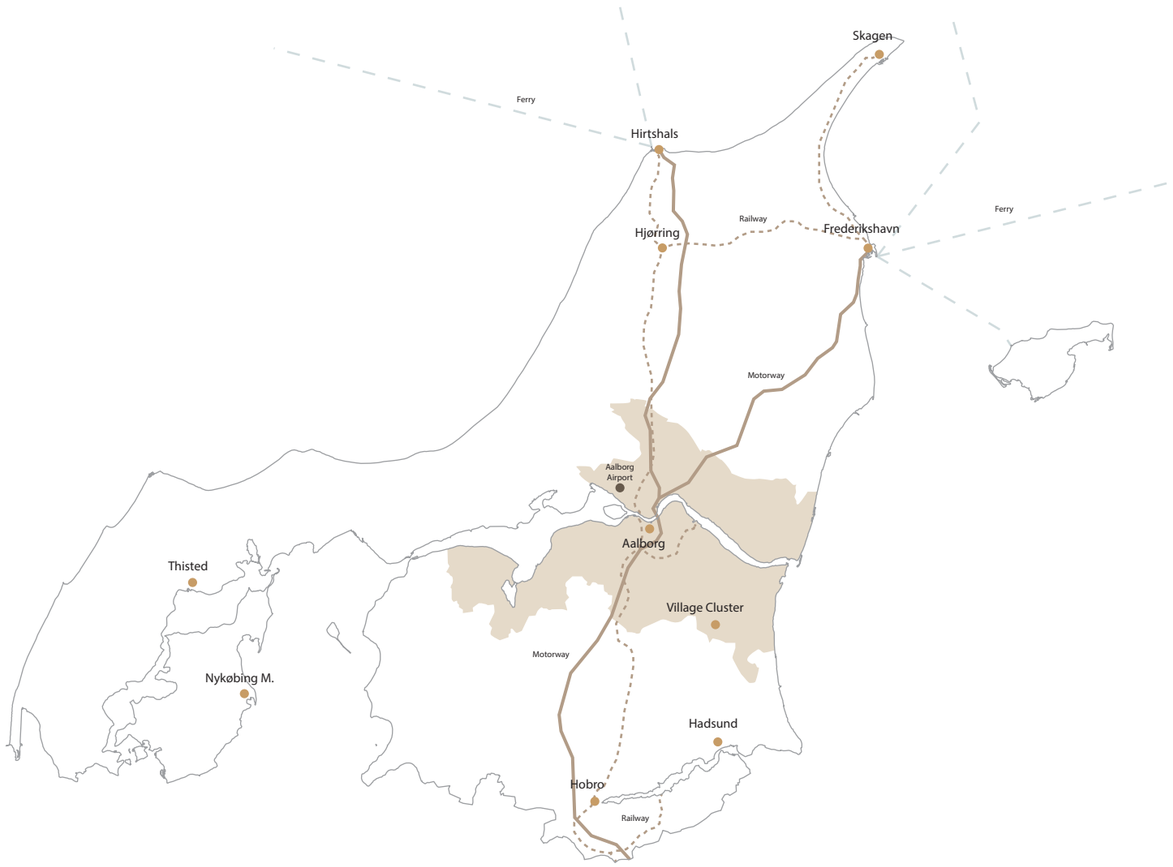
For this project, we want to explore how the concept of a village cluster can be combined with new ways of thinking and designing rural mobilities to support and facilitate life in rural villages as a part of a wider regional network. Our interest in these challenges, stems from a belief that even though the majority of the population live in or around cities and larger towns, society as a whole should accommodate for a wide range of settlement and lifestyle choices making our society more pluralistic and inclusive. Also, we wish to pay special attention to the potential for improvement of the mobilities for those with low motility and modes of mobility that do not require car ownership. We investigate these themes and challenges with a point of departure in Village Cluster 9293 in Aalborg Municipality consisting of the main town Kongerslev, and the villages Nr. Kongerslev, and Komdrup. We wish to unite the emphasis on meeting places in the village cluster concept with the rethinking and redesign of mobilities as a facilitator for daily life in Village Cluster 9293. Furthermore, we are inspired by the Northern Jutland Traffic Company's new 'Knudepunkt' concept, where different modes of mobility meet in a central location enabling a smoother transition between them. By combining these, we see a potential for embedding mobilities, which are often thought of in only functionalistic ways, in the social realities and practices of Village Cluster 9293. This leads to the following problem statement:

"How can the re-design of a mobility hub facilitate and support daily life in Village Cluster 9293?"

In the upcoming section we introduce Village Cluster 9293 before expanding on the theoretical underpinnings related to the village cluster concept, rural mobilities, and the use of personas as a method for mobilities design.

STRATEGIC CONTEXT

The strategic context shows that Village Cluster 9293 is disconnected from the main infrastructural veins in Northern Jutland. The illustrations below also show that Aalborg plays a central role in connecting the Northern part of Denmark to the rest of Jutland, since all the infrastructure goes through here. The village cluster is only connected to Aalborg and the main infrastructure through main roads and local roads, which causes longer travel time for the citizens of the village cluster.



Illu.2. The Northern Jutland Region

Illu.3. Aalborg Municipality

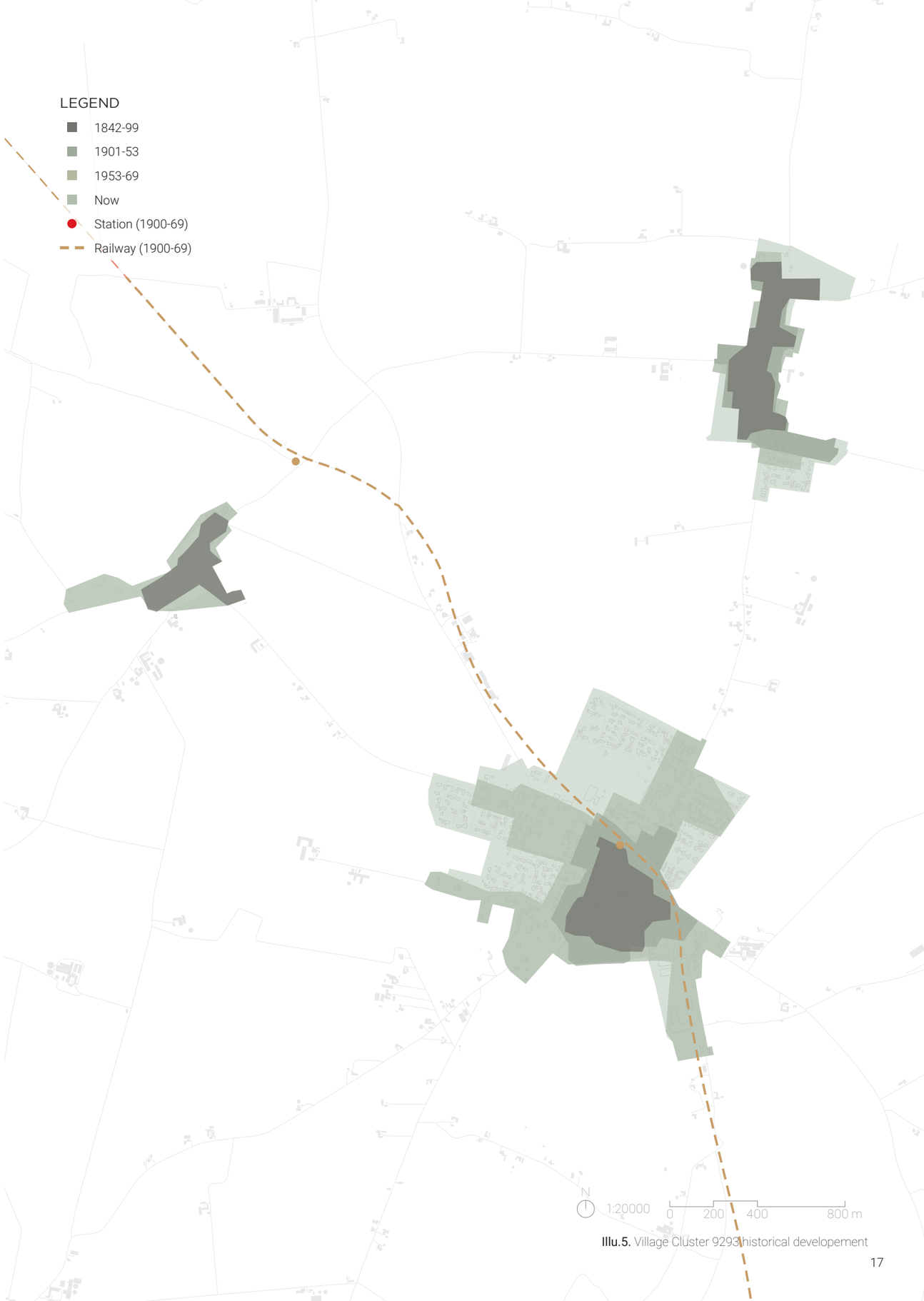
Illu.4. Village Cluster 9293

HISTORY

The single greatest impact on development in Village Cluster 9293 was the opening of the Aalborg-Hadsund railway which operated from 1900 until 1969. This was the time where the village cluster was a rural district under the name Kongerslev-Komdrup (Nordjyske 24.10.2004).

The railway had stations both in Kongerslev and outside Komdrup. Kongerslev benefited from the stations and became a 'station town'. As seen in illustration 5., the railway was of great importance to Kongerslev which experienced development both in terms of the settlement and business. After the construction of the railway, both cement mills and limestone mills were opened in the town. The location close to Lille Vildmose became especially important during WWII when peat transport was at its highest (Jernbaner-nordjylland.dk n/a, a). Komdrup and Nr. Kongerslev have over time developed along the crossroads which is a typical development pattern of Danish villages (Denstoredanske.dk 26.04.2017).

When the Aalborg-Hadsund railway closed in 1969, the station building was demolished in the same year. Today there are only a few stations left and the railway line is preserved as a popular path connection (Jernbaner-nordjylland.dk, b). In 1970, the rural districts were merged into the municipality of Sejlflod which was headquartered in Storvorde. It ended in 2007 when the municipality became subordinate to Aalborg Municipality (Nielsen 2017).



Illu.5. Village Cluster 9293 historical developement

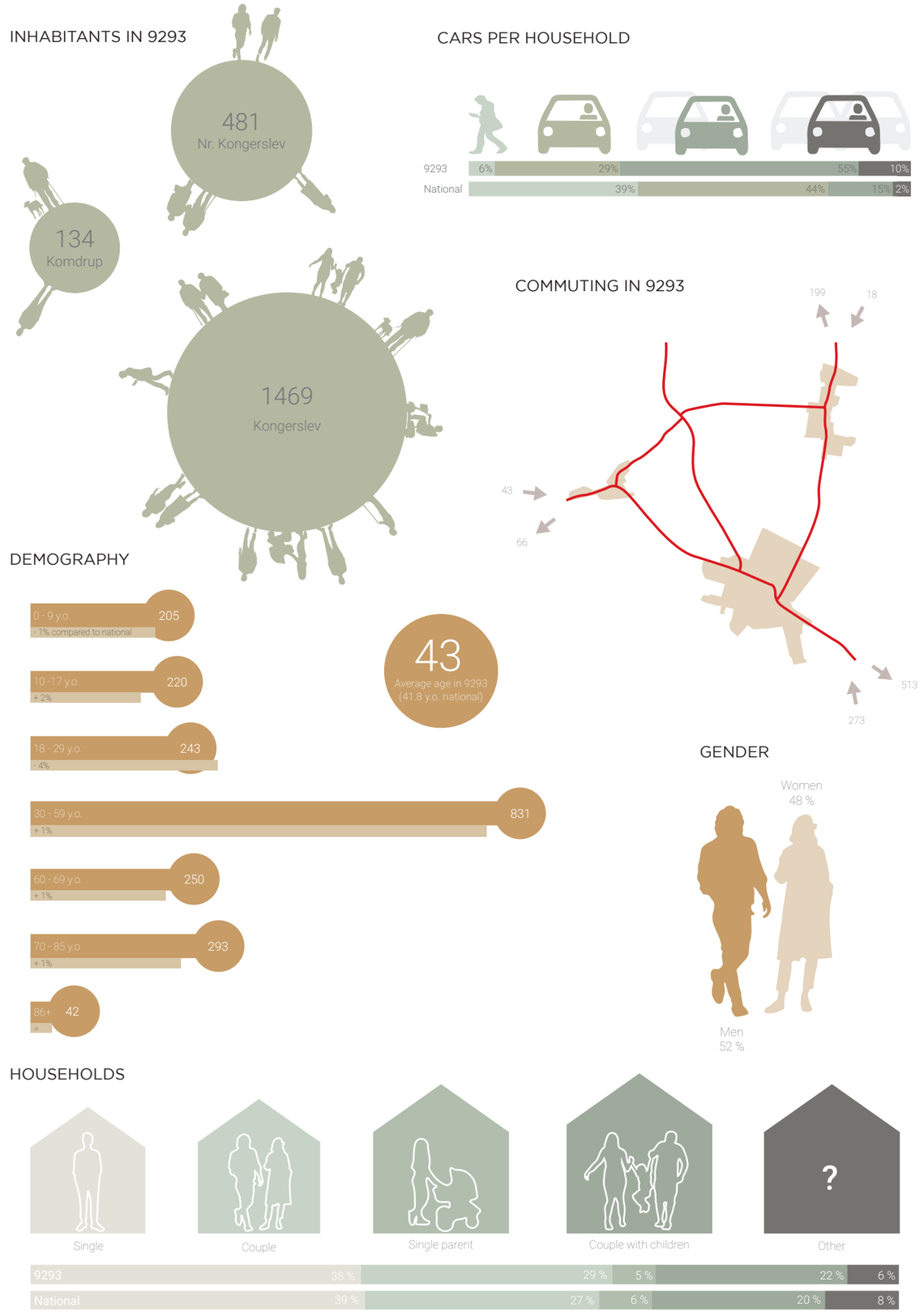
STATISTICS

As seen in the illustrations to the right, it is clear that Kongerslev parish is the most populous in the village cluster with its 1469 citizens, then Nr. Kongerslev, and the smallest parish is Komdrup (DBS 2020a). There is an almost equal number of women and men in the cluster and an average age of 43 years (ibid.). The majority of households in the village cluster are couples both with and without children, although the largest individual group is single households which accounts for 38 % (DBS 2020c).

Compared with national numbers it's interesting to look at the percentage of men and couples with and without children as it's slightly higher than the national average. That might be because women to a greater extent tend to seek higher education, which is not possible in the village cluster. This i s also shown in the demographic, as the population group from 18 to 29 years, where it is most common to study, is smaller than the national average. Outside the Danish cities and larger towns, the housing prices are lower, and the nature experience is rich, which might attract couples with children or planning to start a family in the near future.

Generally, there is a higher number of commuters that are commuting out from the smaller villages in the rural parts of Denmark, and the village cluster is no exception. There is a registration of a total of 778 commuters that are commuting from and 334 commuting to the village cluster (DBS 2020b). This implies that there is a need for mobility out of the village cluster for jobs and education, but also states that there at commuters going to the cluster with the same purpose. That might also be the reason why such a big part of the households in Kongerslev have access to cars, and the limited public transportation options support the argument for having even two or more.

A Danish survey found that the people who travel the most by car are people between 30-59 years old. It also found that the young and elderly are the groups who drive the least (DTU Transport 2014). In the village cluster, the largest age group is between 30-59 years (DBS 2020a). Therefore, we can expect that the preferred and most frequently used mode of transport in the village cluster will be the car.



Illu.6. Statistics

POLITICS AND PLANS

It is often seen that there is a lack of mobilities in rural parts of Danish municipalities. Mobility and public transport are often problematic both in rural towns and in major cities; in the countryside, there are not enough mobility opportunities while in the cities, too much traffic causes congestion. Aalborg Municipality is an example of a municipality with this type of challenge: one major city with congestion, and a rural hinterland with few mobility opportunities. Mobility 2040 (illu. 7) is a political plan with initiatives that aim for a boost of mobilities across the municipality and should secure good and easy access to everyday activities for all individuals (Aalborg Municipality 2019b).

Because of the lack of mobility choices in rural areas, the car has naturally become the preferred means of transportation. Here the plan aims to: create fair mobility for all, connect the smaller towns, enhance the connections to cititesand larger towns, and establish mobility hubs (illu. 8) (ibid.). For Village Cluster 9293, this should have a positive effect on mobility since both the internal and external mobility is in focus.

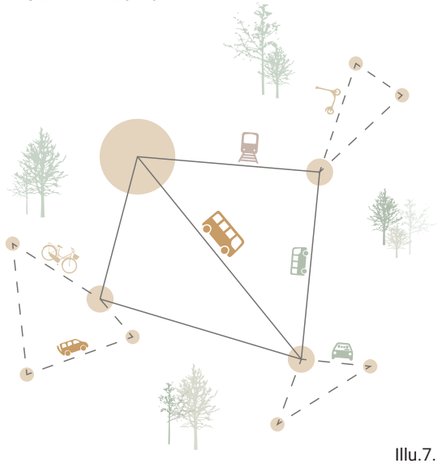
The overall vision is that every small town in Aalborg Municipality can in some way be connected to the grid of Nordjyllands Trafikselskab (NT 2020). This connection could be made with village busses, carpooling, NT Plustur, bicycle lanes, sharing scheme for e-bikes, and good parking facilities for cars and bikes. The aim to connect all smaller towns and villages is realized through the planned establishment of mobility hubs in the larger towns and villages, one being located in Kongerslev (Aalborg Municipality 03.02.2020), which then connect to local nodes (illu. 9) in the smaller towns and villages such as Nr. Kongerslev and Komdrup.

These mobility hubs and local nodes should also be designed as inviting meeting places. A pilot project has already started to define this type of meeting place. 'Samråd 9293', a forum for local citizens, has initiated the brainstorm. The mobility hub and the two nodes should be local meeting points with a bench, activities, e-bikes and e-scooters, and a sign that identifies the local node (Aalborg Municipality 03.02.2020).

The strategic aims in Mobility 2040 connects with the vision of NT. NT has designed a sign for the region of Northern Jutland: 'Knudepunktet' - the point where different modes of transportation meet. In addition to this, NT has also created the NT Ribbon (illu.10) which is a design manual for the region's hubs and nodes. The main focus is recognizability, flexibility, and sustainability. NT have over the years been examining their terminal designs and why these appear both unsafe, dirty, and unpleasant today (Passagerpulsen 2019).This has led them to a future design which has been made in collaboration with C. F. Møller Architects (NT 2020).The design is divided into different zones and elements where the elements are add-ons to a mobility hub or local node.

All these projects, plans, and designs have come before our work and have laid the foundation for an understanding of how the village cluster model can be combined with strategic mobility planning and design in the regional context. We keep this knowledge and inspiration in mind as we proceed.

MOBILITY 2040



Illu.7.

MOBILITY HUB

Illu.8.

LOCAL NODE

Illu.9.

NT RIBBON

Illu.10.

02 THEORIES AND METHOD

VILLAGE CLUSTERS

In the face of a decline in population, jobs, and services, many rural villages are struggling to maintain the critical mass required for the retaining of existing functions and activities. If important functions or activities are lost, it can threaten the sense of local community and identity, further exacerbating the decline trends.

The village cluster concept and framework emerged in the mid-2010's as a strategic tool to address the challenges of declining villages and rural districts through village collaboration and citizen involvement (Laursen et al 2015, 2017; Realdania 2019). The definition of a cluster comes from cluster theory which focuses on networks and collaboration (Laursen et al. 2015: Atherton and Johnston 2008). This is combined with a focus on place identity, social community, and social capital as well as literature about meeting places to inform the village cluster framework (ibid., p. 6). A village cluster is defined by Laursen et al (ibid., p. 8) as:

"A number of villages in relative proximity who have a form of shared place identity and social community, and which collaborate in a number ways in a network structure which is not solely part of the municipal organization where they rely on each other's strengths and the citizens' skills, knowledge and experience to develop the individual village beyond its own potentials as well as the entire cluster" (translated from Danish)

The village cluster model relies heavily on citizen engagement and sees citizens as a resource in the planning process alongside the traditional actors. The smaller a community is, the more dependent it is on civil society, and volunteers and associations have great influence on the local development (Laursen et al. 2017). Agger calls this type of model with more dynamic collaborations a supplement to the traditional representative democracy (ibid.: Agger et al. 2010).

This type of strategic planning is a form of 'turn around' planning where the purpose is to redefine and adapt the roles of villages within a system of villages by using community collaboration as a tool for strategic consensus-building (Laursen 2017: Møller 2016, p. 28; Healey 1996, p. 230). In a relational understanding of place, places define themselves in relation to other places as units in a system, and places should be understood as dynamic rather than static (ibid.: Ringgaard 2010, p. 85, 89; Allen et al. 1998; Cresswell 2004; Healey 2000).

OPPORTUNITIES

Given that the size of municipalities substantially increased with the structural reform of 2007, many villages have found themselves becoming even smaller fish in an even bigger pond. The cluster model can be a way to plan more systematically in a rural context (ibid., p. 66) which has been received positively by planners:

"You could plan in a different scale - perhaps a cluster scale - see things in a context (...) And ideally it would mean that you planned for a number of local areas (...) instead of planning for individual villages (...) thereby working more focused" (translated from Danish)
- Karl Johan Legaard Jensen, Chief of Viborg Municipality Planning Department (ibid., p. 65)

In a best-case scenario, the village cluster model can enable a strategic and holistic planning approach with a forum for collaboration as well as ensure the critical mass required for functions and activities that support and facilitate social life and community of rural villages. However, the successfulness of the model is not guaranteed.

BARRIERS

Although it is intended as a tool for rural development, a risk of the village cluster framework is an actual or perceived legitimation of municipal austerity measures which might lead to a lack of support and thus effect in the local community (Laursen et al. 2015., p .6). Other factors are deterministic for the degree of success in a potential village cluster such as the shared place identity and the organizational structure (ibid., p. 28).

The collaboration should focus on concrete places and events; the meeting places which are essential for a well-functioning village life. If collaboration is only strategic and abstract, it can undermine the legitimacy of the efforts. Collaboration in a village cluster will often require changes in meeting places such as closing or combining, and this can easily be a cause of friction.

MEETING PLACES

Meeting places are divided into three categories (ibid., pp.13-14):

1. Formal (schools, sports facilities, churches)
2. Informal (e.g. the local supermarket)
3. Third (e.g. the summer party, local pub etc.)

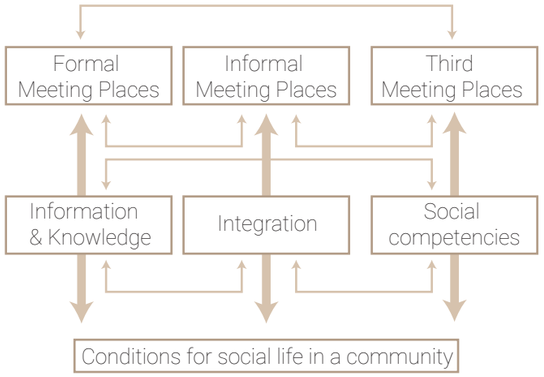
Generally, the loss of meeting places changes the self-perception, social life, and place identity of villages leading to an overall loss of social capital. More specifically, a loss of formal meeting places changes the conditions of everyday life (e.g. having to commute to school or sports) while the loss of informal meeting places impacts the ability to integrate new social knowledge in daily life (illu.11).

A meeting place is defined in accordance with four elements (ibid.: Johansen 2008): situation/action, interaction, place, and learning outcome (illu. 12). Leaning on the Goffmanian dramaturgical terminology for the description of human social interaction, each of the meeting places are staged in certain ways:

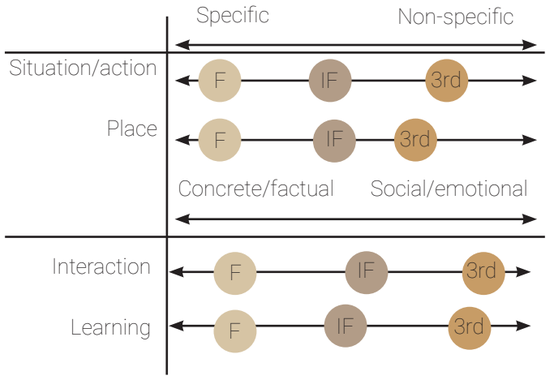
1. In a formal meeting place, the situation/action is predetermined (e.g. a parent-teacher meeting), everyone in the interaction has an assigned role (e.g. parent, teacher, or child), it occurs at a specific place (e.g. the school), and there is a specific learning outcome (e.g. the academic and social development of the child).

2. In an informal meeting place (e.g. the line in the supermarket), the situation/action and the interaction have a ritualistic character. Their learning outcomes are non-specific with emotional and social aspects (e.g. conversations about the weather or the upcoming Midsummer bonfire).

3. With regards to third meeting places (e.g. the annual summer barbeque or local pub), the situation/action and place are less important since the focus is the social interaction and the outcome is the building and maintaining of social relations (ibid., pp.13-14).



Illu.11. The role of meeting places (Laursen et al. 2015, p. 14)



Illu.12. The characteristics of meeting places

PUBLIC DOMAIN AND MOBILE AGORAS

In connection to the categorization of meeting places, it is obvious to mention the notion of public domain; a guiding ideal where a public space become more than a meeting place, but also a room for the exchange of ideas and meanings:

"We define 'public domain' as those places where an exchange between different social groups is possible and also actually occurs."
(Hajer and Reijndorp 2001, p. 11)

Not all public spaces are public domain. A public space becomes a public domain when the individual encounters The Other, as well as the meanings and opinions of others (ibid.). The public domain is therefore important for the development of social intelligence and forming own opinions.

"It is in this confrontation with other opinions that we develop our own ideas. 'Judging' is not simply the application of received norms. It is something that is based on becoming aware of one's own values and the decision to uphold these, or indeed to adapt them."
(ibid., p. 12)

The public domain is not to be understood as a political correction. It rather aims to be a public space where there is room to unfold and form ideas, to expand the mental horizon and discover other individuals, and where there is an exchange between different social groups (ibid.). When talking about public domains, the functions are to some extent irrelevant because the exchange between social groups is shaped by the cultural norms. Thus public domains are not exclusive to cities and large towns, but also exist in the periphery and rural areas (ibid.).

The cultural significance in relation to the rapid development of technology in urban society leads us to form 'mobile agoras'. There is a need to expand the vocabulary even further, when designing meeting places, such as public domains. The portable mobile devices that the individual has added to the urban society, creates an addition to the public domains; mobile agoras.

"The presence of digital, networked technologies alters the ways we should think of proximity and connectivity"
(Jensen 2020, p. 99)

The way individuals assemble in the public has reached a new, digital level, also defined as mobile agoras (Jensen 2020). Due to these mobile agoras, the entire city can become a political space through the connections on digital platforms and social media. The relations and the political space are no longer dependent on face-to-face interactions, when it is possible to be online and connected with only one touch (or click).

RURAL MOBILITY

In an urban context, the complexity of mobilities arises from a wealth of opportunities. By opening a travel app, one is presented with a multitude of options: should you walk, bike, take the bus, the metro, the tram or any combination of these to reach your desired destination? In a rural context, complexity arises from a lack of opportunities and an increased need for coordination. We argue that this actually makes rural mobilities more complex.

If you miss the bus, another one won't arrive for at least an hour, and public transport is scarcely available at nighttime or on weekends, limiting opportunities for typical social activities. Having a car is necessary to many but not available to all, and carpooling or getting rides requires planning. There is not much room for flexibility or spontaneity, and the conditions for soft traffic users is precarious. Especially children, teenagers, elderly, and low-income earners are limited in their mobility choices.

CAR DEPENDENCY

As the smaller towns and rural areas have lost their significance as places of employment, they have become functional suburbs and are highly dependent on good transport infrastructure to commute to jobs, education, public services, activities, and shopping opportunities in cities and larger towns. Due to the low population density and the difficulties of funding public services in the periphery, it can be prohibitively expensive to provide adequate public transport for rural towns and villages. This leads to a high car dependency making Vestergaard (2016, p. 118) describe a driver's license as 'ticket to freedom' in a rural context. The rate of car access is greatest in villages and areas below 2 000 inhabitants with a total of 77.3% of families having access to one and 28.3% having access to more than one car. This is compared to a national average of 61.3% and 17.2% respectively (DBS 2019). Existing inequalities of motility, the individual mobility potential (Vestergaard 2016: Kaufman 2002), are exacerbated in a rural context.

BARRIERS TO BIKING

Denmark is one of the countries in the world where people bike the most with two thirds owning a bike (DTU 2019). Albeit, there is a stagnation or even decline in those that choose to bike, particularly in the rural areas and smaller towns. In a survey of people outside of the largest cities even though 9/10 have access to a functioning bike. Four main reasons for not choosing the bike were identified:

1. Long transport distances: one third of the people surveyed had a distance greater than 15 km to education or work and a third needed the car for work. Also, life changes such as having children or health problems decreased the use of a bike.

2. Inconvenient and impractical: the extra time spent on biking or in public transit made many prefer the car. Needing to transport children or do shopping were additional factors.

3. Safety concerns: the lack of bike paths and lighting, the presence of heavy traffic, and poor quality of the roads in rural districts were obstacles.

4. The car becomes necessary: the car enables greater mobility and requires less time and effort. When having switched from bike to car, switching back was generally not considered.

There is evidence to suggest that the adaptation of e-bikes, currently used by 8% of cyclists, increases the bike usage and mobility range for all types of journeys. E-bikes lessen typical barriers to cycling such as effort, time, and distance. They are also chosen for the health benefit of exercise, particularly among elderly and women. Other benefits were increased overall wellbeing and a more social lifestyle. A barrier to adaptation is the cost of obtaining and maintaining the bike but 10% of all cyclists have considered making the switch. The problems of inadequate infrastructure persist, but otherwise only great distances or bad weather can displace the e-bike as the preferred mode of daily transport for its users (The Danish Road Directorate 2019a).

DISSATISFACTION WITH PUBLIC TRANSPORT

Due to a combination of rural decline, urban agglomeration, and increased car access, public transportation in rural districts is strained. This leads to a diminishing of available services and an increase in price, which in turn makes it a less attractive mobility choice. Young people (18-29 y.o.), those without a car or drivers' license, and singles with or without children are the least satisfied with their mobility options, and also depend the most on public transport. The lack of adequate public transport prevents many from having as active and social lives, as they would prefer (Passagerpulsen 2019).

To improve satisfaction with public transport, and to make it a relevant alternative for rural mobilities, Passagerpulsen recommends (ibid., p. 7):

1. Better dialogue between providers of public transport and their users, especially young people who rarely have alternatives, including finding alternatives when services shut down.

2. Develop alternative mobility solutions and consider children, elderly, and the disabled.

3. Consider price and differential pricing of alternative services to not make it a barrier.

4. Optimize time ables according to user schedules and combination journeys.

MOBILITY AS A SERVICE?

Traditionally, transportation agencies have mostly thought of mobilities in supply-oriented terms and with a sharp divide between private and public modes of transport. However, times are changing driven by technological development as well as public demand and dissatisfaction with services, which are only able to fulfill the mobility requirements of one in four (Passagerpulsen 2016). In the Northern Jutland Region, the distance to public transport is the greatest (ibid., p. 9), making innovation of first and last mile solutions a logical path forward. If combination journeys are to become more common, it requires for example better facilities for parking or bringing bicycles, and better transparency and information on pricing, routes, delays etc.

Over the last decade, as smartphones have become ubiquitous, technological development has enabled the emergence of Mobility on Demand (MoD). MoD are market based mobilities services ranging from ride services to car sharing schemes, e-bikes, e-scooters, and so forth.

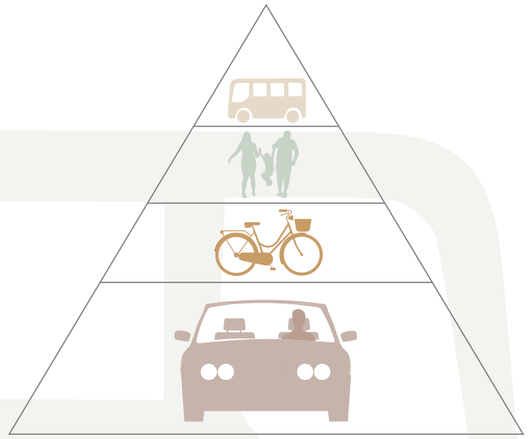
Another flexible and demand oriented approach is termed Mobility as a Service (MaaS), where many modes of mobility are offered by one or more suppliers in the same interface and bundled into a subscription package (e.g. Swedish UbiGo). However, there are many institutional barriers to the success of this type of service such as the rate of adaptation and finding the right business model for mutually beneficial public-private partnerships (Karlson et al 2017). MaaS is not likely to be profitable in a rural context, thus requiring public financing, but it might increase use and user satisfaction without increasing cost compared to traditional services.

In the Northern Jutland Region, measures such as Plustur and Flextrafik are examples of MaaS solutions in rural districts. Plustur is a service from one's address to a bus stop or train station and vice versa, whereas

Flextrafik is from home to destination and vice versa. According to Passagerpulsen (2019), the awareness of these services is high but a perception of them as reserved for those with special needs, time-consuming and bureaucratic to use, and expensive are barriers to adaptation. With regards to car sharing schemes, many are unwilling to drive with a stranger or did not find it relevant (ibid.). User involvement is essential to develop relevant solutions.

CONCLUSION

A distinct rural mobility hierarchy emerges with the car as the preferred and dominant mode of transport (illu. 13). Only those who have no other option, resort to public transportation which is viewed as inadequate, time-consuming, and expensive. Walking or biking is only for shorter trips in the local area and leisure. Innovation and information of mobility services in collaboration with users is required to offer non-car alternatives that are attractive and relevant to rural inhabitants.



Illu.13. The rural mobilities hierarchy. The majority of journeys are made by car and only those who are not able to drive resort to public transportation which is viewed as inadequate and time-consuming. Shorter trips within the local area might be by walking or biking.

PERSONAS AS A METHOD

In a design process, it can be difficult to design for several points of view and there will always be a risk as a designer to mainly design based on own experiences and interests. To use personas is an admission of the fact that people are different and have different needs, desires, and expectations that you as a designer should be sensitive to in your design. Personas are a powerful tool for communication both in design teams but also when presenting future design to citizens and clients. Personas force designers to consider social and political aspects of design, thereby uncovering unexpected drivers and barriers (Vallet et. al 2019).

WHAT ARE PERSONAS AND WHY SHOULD WE USE THEM?

Personas are fictional characters based on observed behavior among users of a specific place or product. They are archetypes and represent motivations, desires, expectations, and needs. It is a way of gathering similarities in the population in comprehensive groups (Vianna et. al 2011).

It is a research-based approach designed to gain a better understanding of the user(s). Personas can be used at several different stages of a design process but are particularly useful for generating and validating ideas, as they align user information and thereby make parameters such as expectations and needs of the citizens easier to work with as design parameters (ibid.).

Personas have been used by architects and planners to locate and integrate future needs into the design of the built environment with a variation in the size of target groups. The citizens are often invited to join the design process through public meetings, consultation events, special interest forums, exhibitions, and interactive websites. However, these methods all tend to attract the same kind of citizens, and thus not all members of a community are engaged with the design process. Personas, on the other hand, may offer a way of considering the needs of citizens who do not typically participate in the more traditional methods of stakeholder engagement (Sinddall 2011).

By using personas, design solutions can be directed toward the users, by shaping and supporting the decision-making throughout the project.

CREATING PERSONAS FOR DESIGN THINKING

In this project, we will create specific personas for Village Cluster 9293, based on our preliminary analysis, acquired knowledge about the citizens through social media, and a survey. They will be developed through the following stages:

1. Identification of representative citizens through research and analysis
2. Persona creation
3. Persona development

Often, validation of personas is also performed, either by reaching back to respondents or by comparing with personas from other projects for example 'The Four Traveller Personas' (Vallet et al. 2019) or 'Rural Life Modes' (Vestergaard 2016: Højrup 1983). However, we don't cover this aspect in our project.

RESEARCH AND ANALYSIS

The first step in the process of developing a persona is research. It is important to know who the citizens are and learn as much as possible about their everyday life. The most common way to do this is through observations and interviews, trying to gain an understanding of different population groups' needs and desires (InnovationTraining.org n/a).

In our project, we will use 9293-based statistics to gain a general understanding of the demography in Village Cluster 9293 regarding age, gender, and civil status, and use these as a starting point for creating our personas to make them more representative. By looking at social media such as the Facebook pages 'Kongerslev og omegn forum', 'Byens Opslagstavle 9293', and 'Kongerslev Borgerforening' we will personalize the characters based on the interests and activities expressed on these online fora. To get an even more in-depth understanding of the people living in the village cluster, we will use a more interactive approach to gathering data, by distributing a survey to the citizens via social media. We want to gain insight into who they are, how they practice their daily mobilities, how they feel about the village cluster, and what activities they participate in.

We will analyze this data and locate points of interests and patterns which are synthesized and used to create the different personas.

PERSONA CREATION

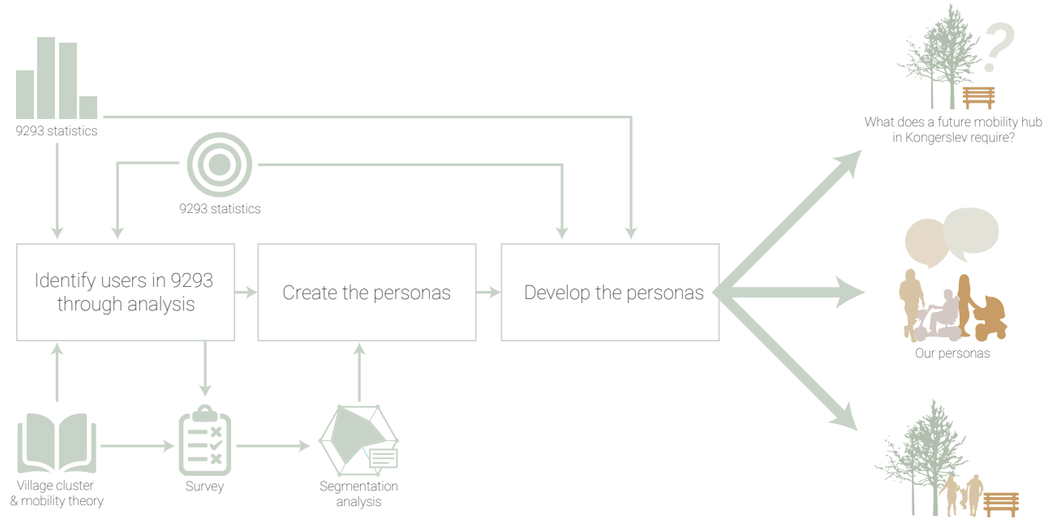
Supported by statistics and analysis of the activities in the village cluster, we will use the answers from our survey to create the different personas. To do this, we intend to do a segmentation analysis of our survey data. A segmentation analysis is a combination of different statistical methods to sort a population group into several smaller, representative groups with multiple common characteristics. This is an explorative kind of factor analysis, which locates patterns in big data sets by generating matrices of independent variables.
To simplify, a segmentation analysis is a systematic subdivision of a group.

PERSONA DEVELOPMENT

After using the segmentation analysis to create smaller groups with common characteristics, the personas are shaped by using our knowledge from previous analysis like the activity analysis and facts about the village cluster to personalize the groups, by forming them into archetypes. This should result in specific descriptions of each persona including details about education, lifestyle, interests, values, goals, needs, and desires related to mobility and everyday life. We intend to give each persona a name and make them as realistic and representative for the citizens in the Village Cluster as possible.

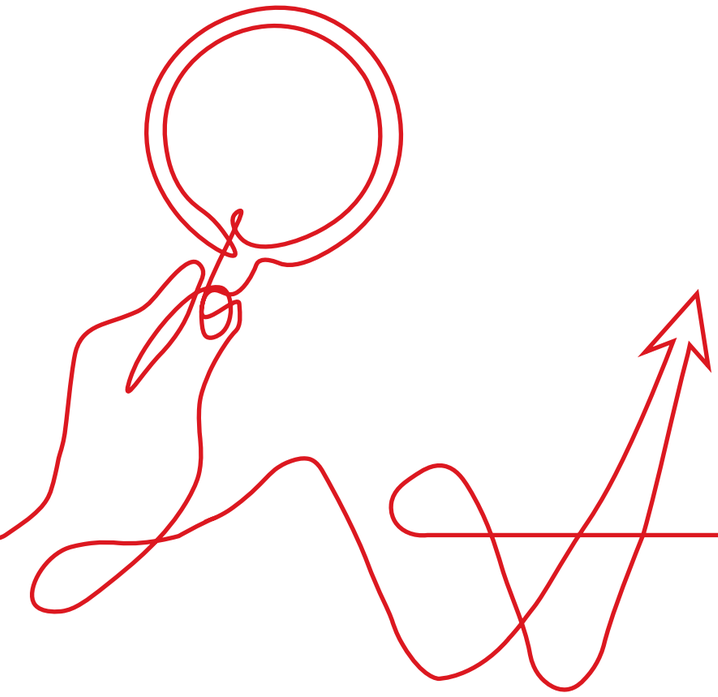
We want our personas to include the following:

1. A name; helps to humanize the persona and makes it easier for the team to refer to when designing for and with the persona.
2. An illustration; in the early design process, the team members might not remember the names, and the personas might be difficult to remember and distinguish between. An image makes it easier to remember the characters and adds even more personality to the persona before reading about it. An image can also be used as an illustrative tool to target the analysis and design through renders and so on.
3. A role; of the persona in the village cluster. It could be a local worker, commuter, school child, or senior citizen. A role makes the persona relatable and adding commonly known professions to the persona is an implicit way of telling the story about their everyday life.
4. A description; of the persona. What is their lifestyle, interest, values, goals, needs, and desires related to mobility and everyday life?
5. A goal or a statement; like "I just want to be home for dinner", which should be a phrase used to describe e.g. the main purpose of the persona's mobility practice.



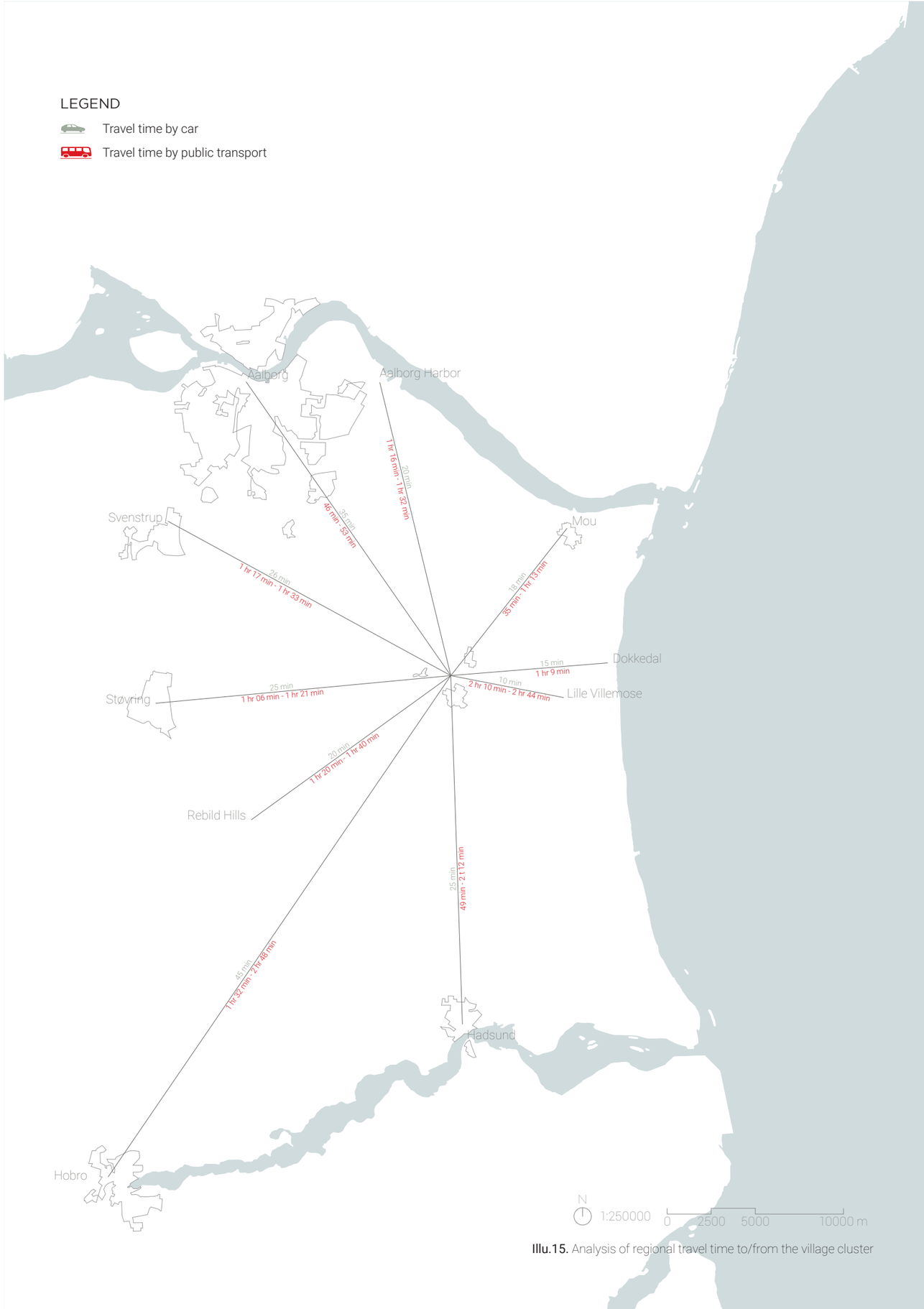
Illu.14. Developing and using personas for design and analysis

03 ANALYSIS



REGIONAL TRAFFIC

Within a 45 minutes car ride you can reach multiple destinations from Village Cluster 9293. Unfortunately, you're not as well connected if you're only able to travel by public transport as only one bus line (55) runs continuously on weekdays from 5 am to 7 pm, and to a limited extent from 7 pm to 11 pm, and on weekends from 9 am to 10 pm. This line goes toward Aalborg which means that if you're going to cities like Støvring and Svenstrup, you have to take to bus to Aalborg station first, and then change to other public transport connections. For the remaining destinations, you need to use up to four different bus lines to reach your end destination which also results in remarkably extended travel time with public transportation compared to driving.

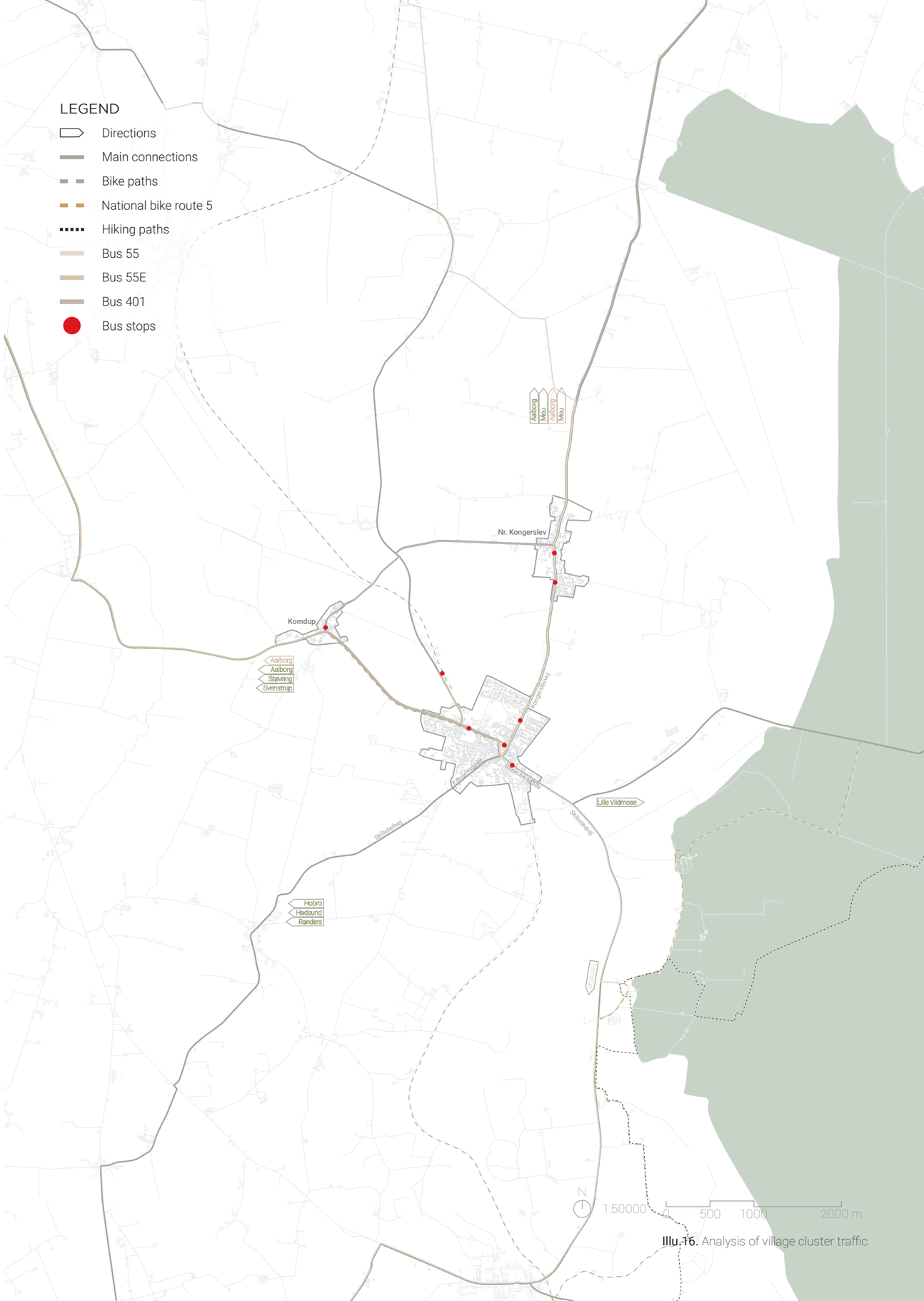


Illu.15. Analysis of regional travel time to/from the village cluster

LOCAL TRAFFIC

Three major roads connect Village Cluster 9293. These are highly trafficked roads, both between the town and villages, and by connecting to larger towns outside the cluster. From the north, Skibstedvej and Lundensvej is entering Kongerslev as they turn into Kongensgade and Danmarksgade, where Kongerslevvej continues to Nr. Kongerslev, and Komdrupvej to Komdrup. There is no bike path between Nr. Kongerslev and Komdrup.

In the village cluster there are three bus lines, all stopping in Kongerslev. Only line 55 is in full service, as 55E only goes from Aalborg to Kongerslev in the morning, and back again around at 2 pm from Monday to Thursday and 12.30 pm on Fridays, and 401 also only includes one bus going to Mou School in the morning, and three going back to Kongerslev in the afternoon.

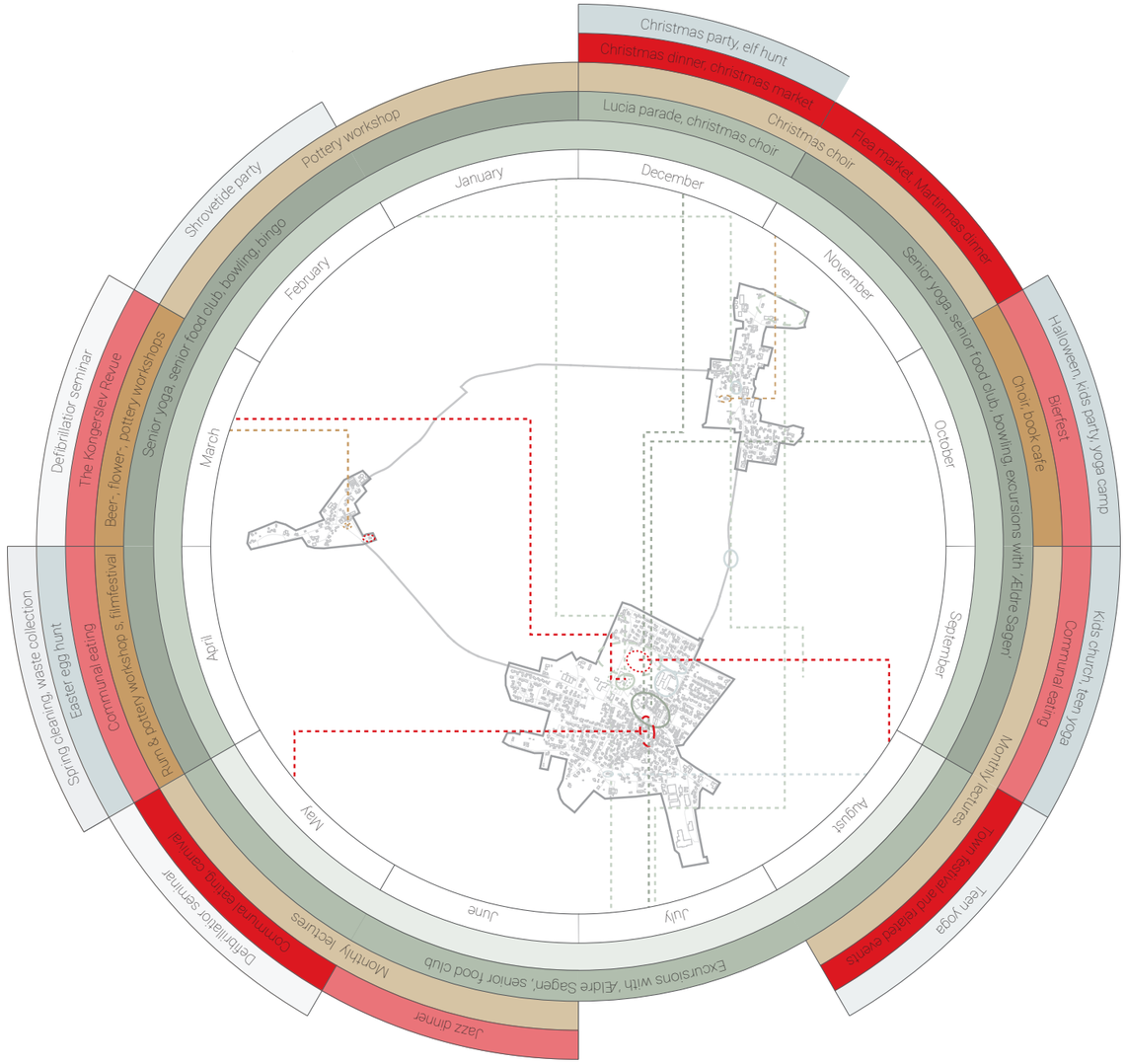


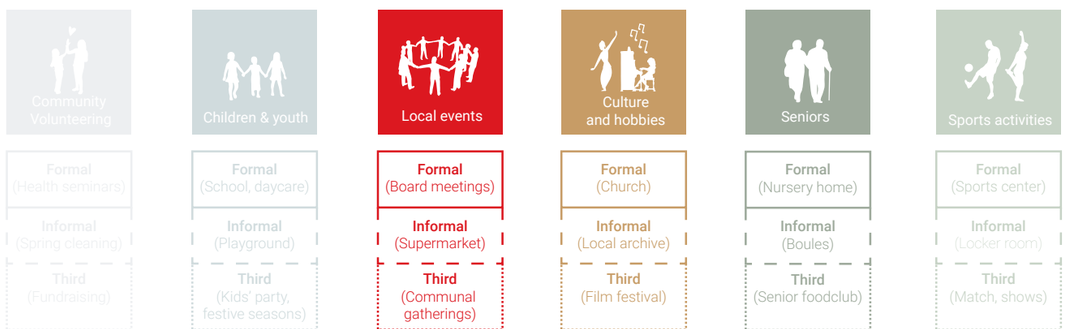
Illu.16. Analysis of village cluster traffic

THE RHYTHM OF THE VILLAGES

A lot of activities are happening in Village Cluster 9293 all throughout the year with peak seasons in spring and autumn, and fewer activities in January and July. All year round, there are sports and senior activities to do in the village cluster, contrary to these, community volunteering is only in the spring months as this is mainly events linked to spring cleaning and educational seminars. In the community, there are multiple opportunities to attend local events such as parties and communal eating to get close to your neighbors, and to create a valuable community within the cluster.

By looking at where these events are hosted, we see a concentration of both functions and events in the center of Kongerslev, the most populous town in Village Cluster 9293.





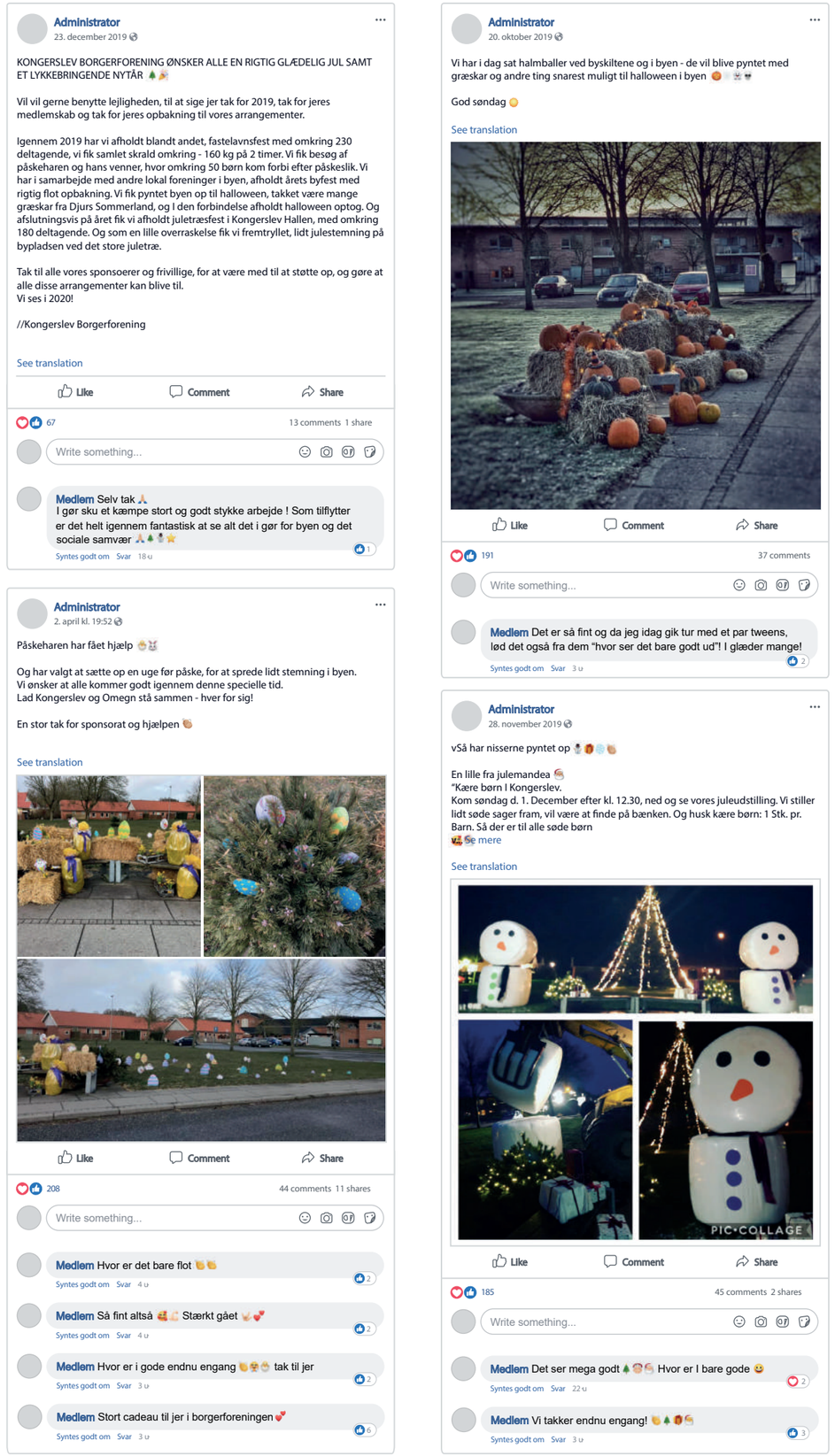
Illu.17. Activities in the village cluster

MOBILE AGORA 9293

All year round, several activities are happening in Village Cluster 9293. Most of these events are communicated through Facebook groups like ‘Kongerslev Borgerforening’, ‘Kongerslev og omegn forum’, and ‘Byens Opslagstavle 9293’. These virtual communities are used both to inform about and facilitate events, to support local enthusiasts with cheerful comments and kind emojis, and also to voice opinions about various issues and occurrences. These Facebook groups function as the villages’ public domain, or more accurately their mobile agora.

The group administrators are putting a lot of work into posting and promoting everything from annual communal parties to seasonal decorations and discounts in the supermarket, and locals are thrilled to keep up with the news and give the facilitator at virtual pat on the back. Especially the seasonal decorations in Kongerslev for Christmas, Halloween, and Easter are spreading joy and excitement.

Most of the events are happening around Jernbanegade, in the area which the inhabitants call ‘The Square’ for a lack of a better term. Here there is space but no sense of place. Since a lot of the events, and especially the decorations, are centered around ‘The Square’ and Jernbanegade, it has the potential to become a physical public domain.



Illu.18. Posts from local citizen Facebook groups

FUNCTIONS

IMPORTANT STREETS

A. Jernbanegade

B. Danmarksgade

C. Kongensgade

IMPORTANT FUNCTIONS

1. Kongerslev Sports Center

2. Kongerslev School

3. Nursing home

4. 'The Square'

5. Senior housing

6. Kongerslev Home Appliances

7. FGU second hand shop

8. Kongerslev Inn

9. Supermarket

10. Kongerslev Pizzaria

11. Church charity second hand

12. Kindergarden

Illu.19. Images from Kongerslev

LEGEND

IMPORTANT STREETS

- A Jernbanegade
- B Danmarksgade
- C Kongensgade

IMPORTANT FUNCTIONS

- 1 Sports center
- 2 School
- 3 Nursing home
- 4 'The Square'
- 5 Senior housing
- 6 Home appliances shop
- 7 FGU second hand
- 8 Inn
- 9 Supermarket
- 10 Pizzaria
- 11 Church charity second hand
- 12 Kindergarten
- Busstop
- Paths
- Area of interest
- Bus 55
- Bus 55E
- Bus 401

N

1:5000

0 50 100 200 m

Illu.20. Important streets and functions in Kongerslev

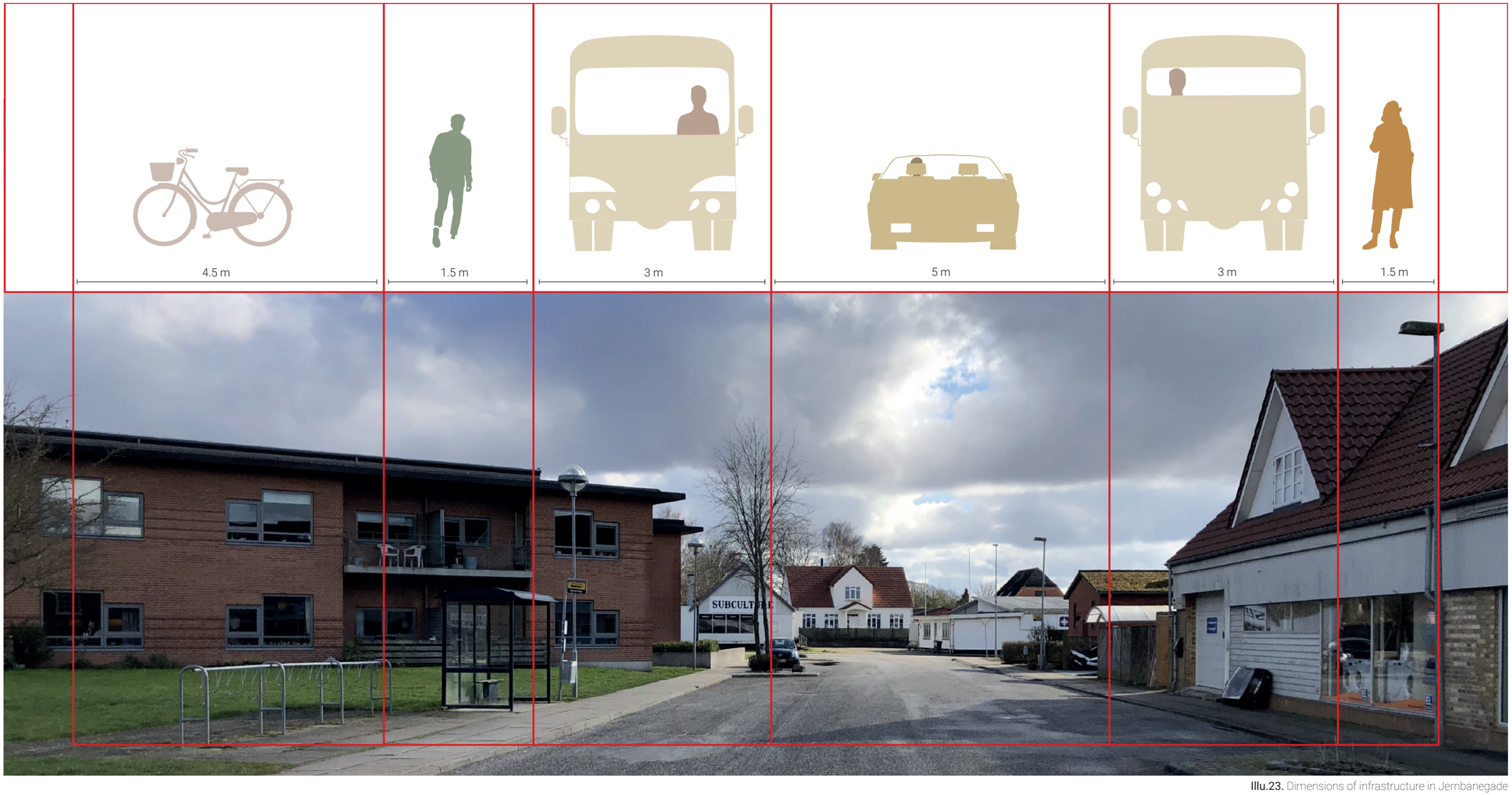
SITE SELECTION

Illu.21. The choice of the specific area for the mobility hub is based on the previous analyses. The many central functions in Kongerslev made it obvious to consider a mobility hub near its center. Jernbanegade is already known today as the town's central bus stop, which makes it possible to build on the village cluster's history and experience. Therefore, the mobility hub will be located along Jernbanegade, where the open area can provide space for a future meeting place for Kongerslev and the rest of Village Cluster 9293.

Illu.22. Site seletion

DIMENSIONS OF INFRASTRUCTURE

Jernbanegade is more narrow towards the western end of the street (8 m) but closer to the eastern end, near the bus stops, the road widens out (11 m), allowing room for a bus at each stop with space enough for a car to pass in the middle. Walking from west to east, there is only pavement on the northern side of the street until reaching the home appliances shop. The rest of the street has pavement on the northern side. See appendix I and II for the standard dimensions in mobilities design as specificed by the Danish Road Directorate.

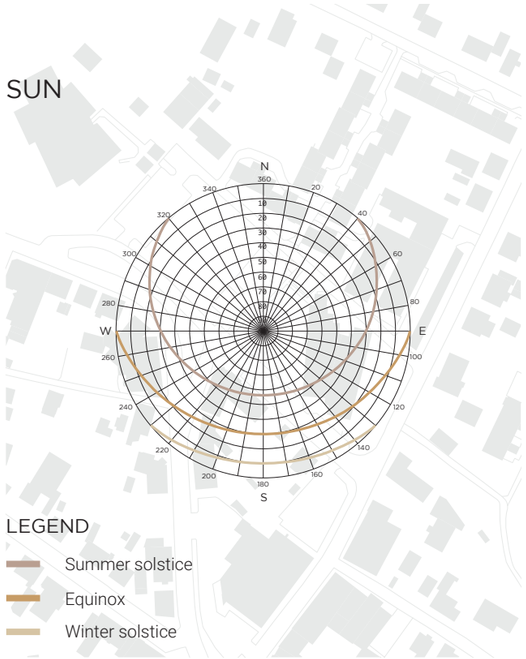


Illu.23. Dimensions of infrastructure in Jernbanegade

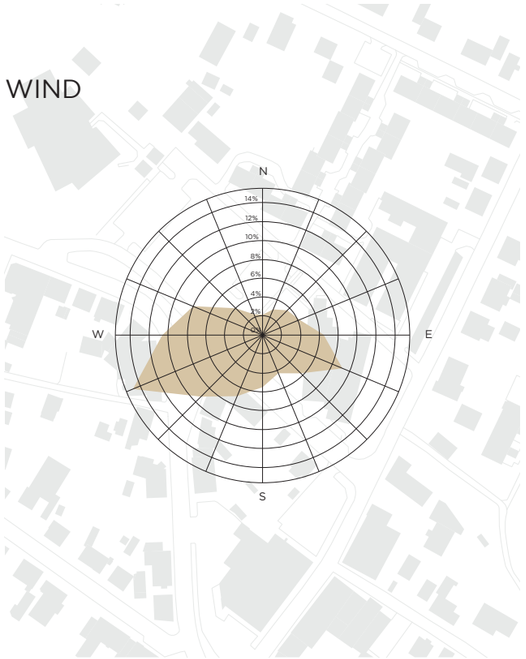
MICROCLIMATE

Jernbanegade forms a W/SE oriented curve and on the northern side of the street, there is a large open space consisting of two parking lots and two green lawns. Towards the western end, only the nursing home provides shelter. This means that our area of interest is very windy, as the SW/W dominated wind is channeled from both Danmarksgade and the huge open landscape leading to the sports center.

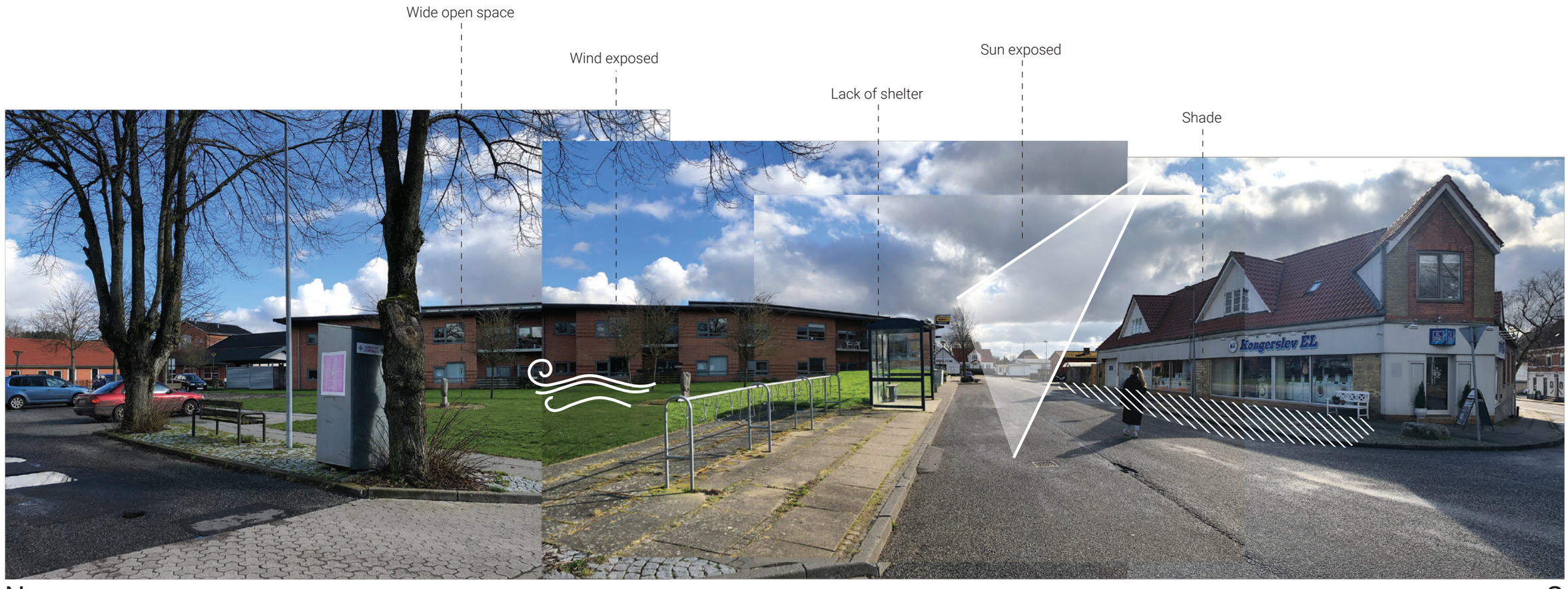
The lack of shelter extends to rain and sun, and the only shelter is the bus stop. Due to all of the open space, the northern side of the street is particularly exposed to the sun, while the buildings on the southern side makes that side of the pavement shady most of the day.



Illu.24. Sun diagram



Illu.25. Wind diagram



Illu.26. Microclimate analysis

GENIUS LOCI

Investigating Genius Loci, also called the character of the place, is a method to capture the qualities and characteristics of a place. In order to do so, the method is divided in five categories: the use of the place, the scale and structure of the place, the temporality of the place, the furnishing of the place, and the sense of the place.

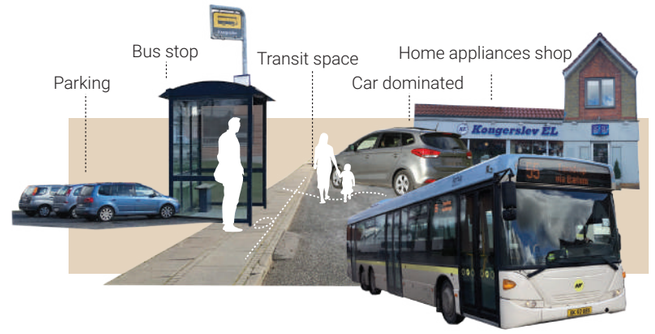
To capture the Genius Loci, pictures and observations have been put together and illustrated as collages for each of the different categories (Dansk Byplanlaboratorium 2015). For Kongerslev, the temporality of the place has already been covered in the 'History' section previously in the report, and there are no apparent historical traces, except for the street name: Jernbanegade.

Jernbanegade is the street in Kongerslev where the busses meet. The surrounding area is dominated by huge parking spaces with a few parked cars and a large green lawn, 'The Square'. A home appliances shop is located on the street, but only attracts even more cars since it's not a place for light shopping.

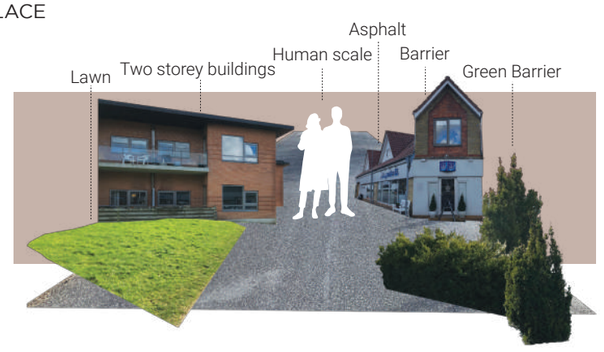
The area is surrounded by one- and to two-storey buildings, which combined with the broad road and the empty spaces creates clash of scales. The greenery in the area is a barrier separating Jernbanegade and the main road, Danmarksgade. Benches are sporadically placed in the area, but even so they're not inviting you to stay. The area has a clear sense of only being for transit.

While there are a lot of things that can be mentioned, these are not things which give the area a particular sense of the place, and there is no identity to be captured.

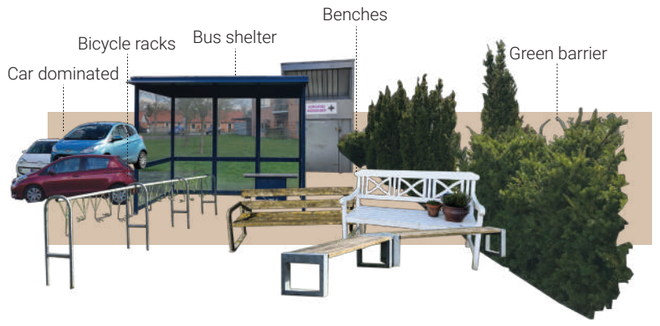
THE USE OF THE PLACE



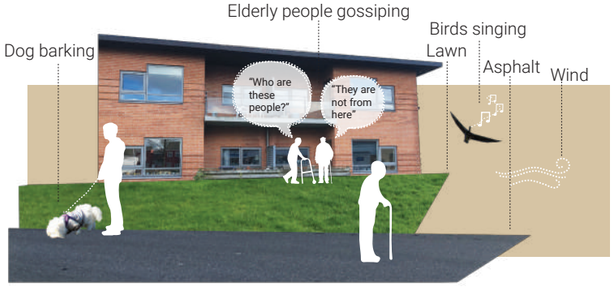
THE SCALE AND STRUCTURE OF THE PLACE



THE "FURNISHING" OF THE PLACE



THE SENSE OF THE PLACE



Illu.27. Genius Loci collages

ANALYSIS SUMMARY

In our analysis section, we initially investigated the different mobilities options in the village cluster both for external and internal mobility. Here we identified challenges which are common for rural areas as already described in the introductory and theoretical sections. With regards to external mobility, it most often takes three to four times as long, if not more, to get to nearby destinations in the region with public transport compared to driving. This is problematic since commuting for jobs and education is necessary in rural areas. Therefore, we conclude that current public transport is time-consuming and inflexible.

When looking at internal mobility, we concluded that non-car physical infrastructure is inadequate. More specifically, we identified a disconnect in the old railway bike path through Kongerslev and the lack of a safe bike connection between Komdrup and Nr. Kongerslev which could also connect to the old railway bike path. Additionally, nearby national bike route 5 presents an opportunity for linking the existing cycling infrastructure to national cycling tourism.

Then we proceeded to examine the activities, meeting places, and social life of the village cluster, both in the physical and digital spaces. We found that most important meeting places and activities were centered in Kongerslev. Generally, there were many different activities and events throughout the year, and the mobile agoras for the village cluster, their local Facebook groups, were active and had a high rate of membership relative to the number of inhabitants. This demonstrates the significance of the social capital of existing activities and functions.

Since Kongerslev is the largest town with the most activities in the cluster, we choose to focus our attention here. We selected the area in the town center close to the bus stop on Jernbanegade as our site for the establishment of a mobility hub. The creation of a mobility hub in Kongerslev and local nodes in Nr. Kongerslev and Komdrup can be used as a strategic tool to improve village cluster mobilities.

In analyzing our site in Kongerslev, we covered the infrastructural dimensions, the microclimatic conditions, and the genius loci. We concluded that the site is generally very open and lacks both functions, shelter, and identity. We keep these conclusions in mind, and will return to them in section '05 Design Process'.

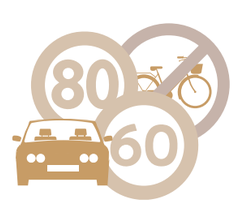
Having concluded our analyses, we felt the need to further explore the mobilities and social life in the village cluster from the insider perspective. For this reason, we chose to conduct a survey covering these aspect. In the upcoming section, we will present the findings from this survey, as well as the segments and personas which are based on these findings.

RURAL DECLINE

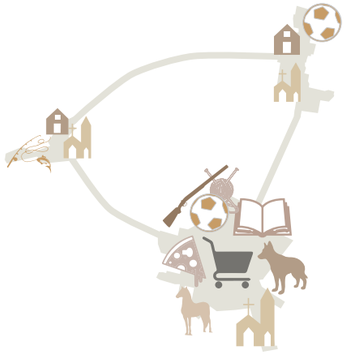
COMMUTING IS NECESSARY

PUBLIC TRANSPORT IS TIME-CONSUMING AND INFLEXIBLE

NON-CAR PHYSICAL INFRASTRUCTURE IS INADEQUATE



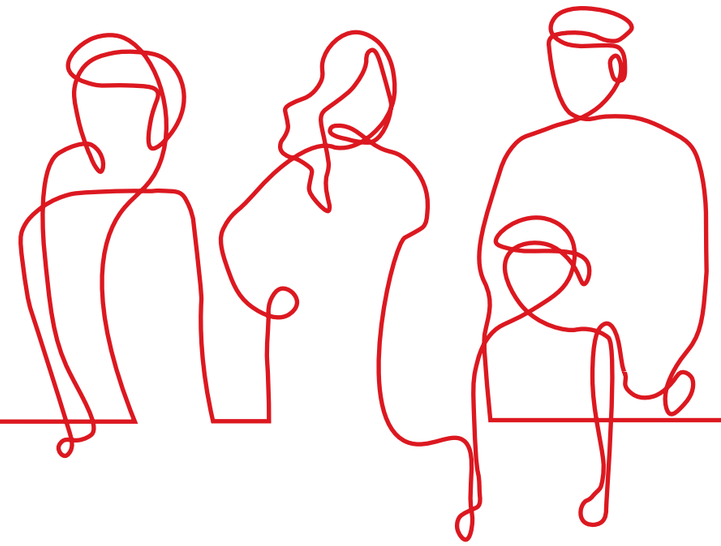
SOCIAL CAPITAL OF EXISTING ACTIVITIES AND FUNCTIONS



VILLAGE CLUSTER MOBILITIES POTENTIAL

Illu.28. Analysis summary

04 SURVEY AND PERSONAS



SURVEY STATISTICS

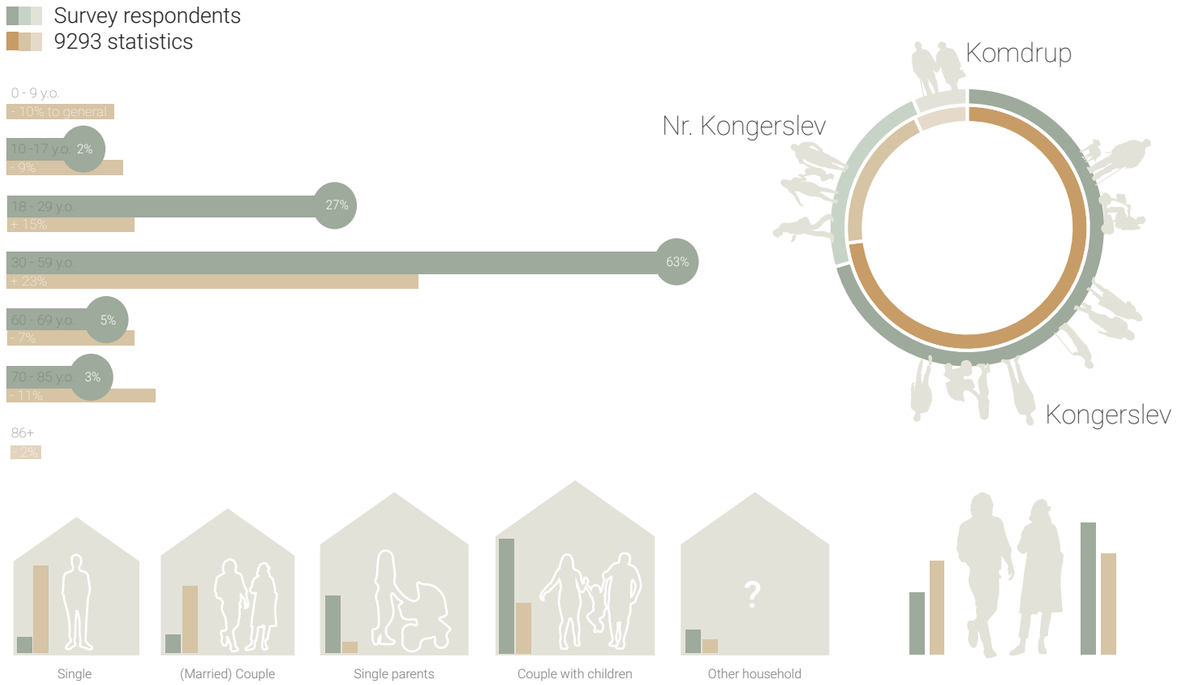
When ending our survey, we had 94 complete responses (see appendix III). With a population group slightly above 2000 inhabitants, this gives us a 10 % margin of error (given that the confidence level is 95 % as the market standard) which is acceptable in a project like this.

The diagrams below try to specify which part of our population group is represented in our survey. Due to the circumstances our survey was only distributed through Facebook, and thereby we didn't get any answers from people in the age group 0-9 y.o., and older than 86 y.o., as they probably aren't capable of using a computer, or not interested in, or old enough to have a Facebook account. The age group from 18-59 y.o. is highly represented, which might link to the general information flow on the Facebook groups that to a higher degree interests this part of the population. Women in general and households with children were also much more likely to answer our survey, which might both relate to the mix of followers in these Facebook groups, but also to the topic which parents might find more interesting, as public facilities and transportation are essential for some families when doing their everyday logistic puzzles.

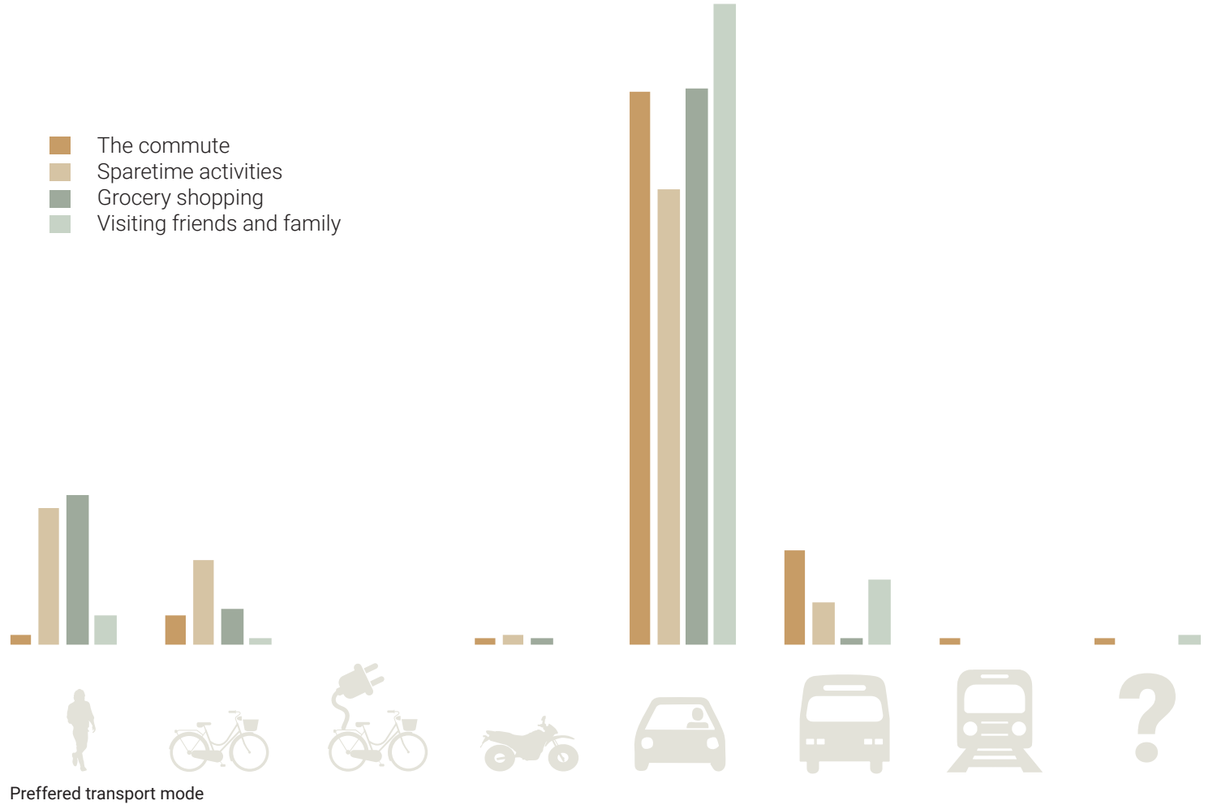
An almost even percentage of the population in Komdrup, Nr. Kongerslev og Kongerslev were represented, with a little more from Nr. Kongerslev, which again could relate to the topic and the need for an added focus on public transportation, especially in Komdrup and Nr. Kongerslev.

As mentioned in 'Statistics', car access is much more common in the village cluster, and it's also very clear from our survey that the car is the preferred mode of transportation. Journeys by foot are not common, but when they occur, it's in combination with spare time activities and grocery shopping, which is also the case for bike rides. Busses is mostly used for the daily journeys and visiting friends, while almost no one uses the train. Train rides from the village cluster is also quite difficult as the main possibility to connect with the train is by taking the bus to Aalborg, and changing at the main station, even though your end destination might be south of Aalborg. Therefore, many get a car instead. Both Hadsund, Hobro, and Aalborg are within 50 km, which is the length of the daily journey for the majority of the respondents.

Overall, the respondents are glad to live in the village cluster and think that there is an active community in the cluster. Many are active in the local community, mainly as participants or volunteers, but it's not common to attend activities outside their home village. That might be because the majority of activities is happening in Kongerslev, and therefore it's only the respondents from Nr. Kongerslev and Komdrup who attend activities in other villages besides their own, or that corporation in the cluster is not common.

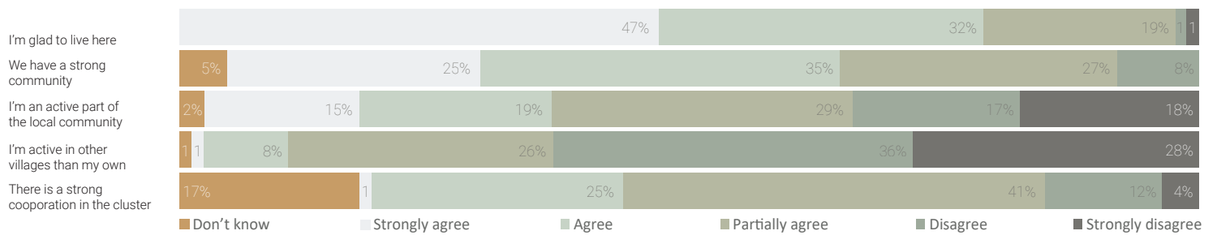


Illu.29. Survey respondents compared with 9293 statistics

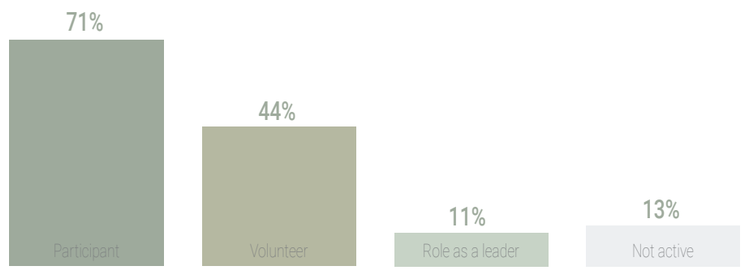


Preffered transport mode

Length of commute (each way)



Perception of the village cluster



Participation in communities activities

Illu.30. Survey statistics

SURVEY RESPONDENTS

One of the aims of our survey was to find out about the attitudes, motivations, and perceptions of the village cluster inhabitants. To capture the broad spectrum of opinions and expressions, we gave them the opportunity to answer these questions in their own words. We then grouped similar words and phrases and put them into word clouds to present simplified versions of the respondents answers as seen on the following pages (see appendix IV).

Throughout the survey, the respondents were asked about their attitude towards different mobility forms, besides personal car use, such as public transport, carpooling, carsharing, e-bikes, and e-scooters or similar micromobilities. Across the board, those who were most positively inclined were students, pensioners, and those outside of the workforce, whilst those who commuted to jobs and had children were more sceptical. What we can conclude from this is that those with the greatest mobility needs, and the most resources, prefer the private car to all other mobility forms, and don't think that alternatives are relevant or attractive to them. However, there was a general attitude that frequent and high quality public transport was necessary and important, particularly with reference to education beyond primary school. The amount of time spent on commuting with bus, the low frequency, the scheduling, and the price were mentioned as barriers. Out of the alternative mobility forms, the attitudes towards e-bikes were the most positive, while attitudes towards carsharing and especially e-scooters were predominantly negative. Independence, flexibility, time, safety, and comfort were prioritised by most of our respondents irregardless of age, gender, and occupation.

When asked about their motivation to live in a rural area, calm, nature, community, cheap houses, and being local to the area were the most common factors. Perceived threats to a rural lifestyle can overall be described as rural decline, and throughout the survey, many expressed the sentiment, that Aalborg Municipality didn't prioritise rural development. Even though our survey is not completely representative, knowing more about the concerns and thoughts of the village cluster inhabitants can qualify our design choices: we can address the local problems and get a sense of how different initiatives might be received.

Illu.31. Survey respondents motivations for living in a rural area

Illu.32. Survey respondents motivations for living in a rural area perceptions of threats towards a rural lifestyle

SEGMENTATION ANALYSIS

In our survey we had a section with 24 different statements in relation to six parameters; information, safety, comfort, facilities, distance, and aesthetics. Each respondent had the opportunity to agree or disagree with these statements on a scale from strongly agree to strongly disagree. When processing the data, we converted this to a 1-5 scale, where 5 equals highly agree and 1 strongly disagree. To each parameter were four statements, and we used the mean score on each parameter to create the foundation of our segmentation analysis.

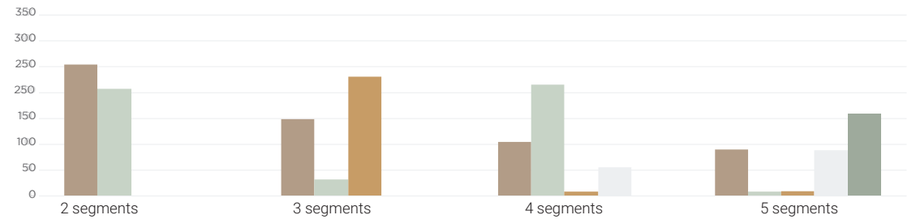
As mentioned in the section 'Personas used as a method', segmentation analysis is an explorative kind of factor analysis, which locates patterns in big data sets by generating matrices of independent variables. In this case, we experimented with different kinds of subdivisions of both two, three, four, and five different groups.

Segmentation analysis is designed to divide the survey respondents into segments based on different parameters. In brief, this is done by repeated iterations in order to bring the groups of respondents closer together into a smaller number of groups until the desired number of segments is achieved.

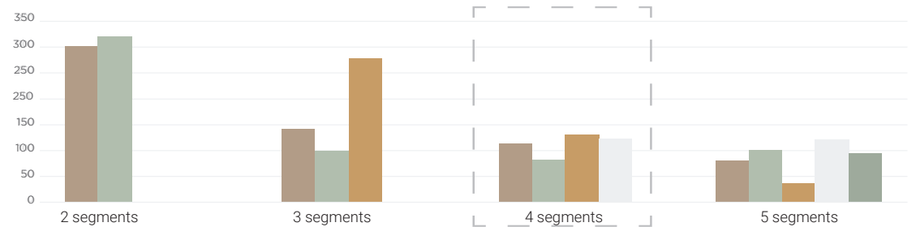
When evaluating the different numbers of segments, we used the sum of squared error (SSE) to determine which segments would represent our respondents the best. If a respondent matches the segment perfectly on every parameter, the SSE equals zero and there is a perfect match. Albeit, this is very unlikely to occur, especially since we have so many different parameters. Instead, we search for divisions of segments with relatively low SSE when selecting our final segments. More segments equal lower total SSE because when there are more different segments to relate to, more respondents will be closer to the perfect match. As seen in illustration 27, dividing the sample into 3, 4, and 5 segments results in very low SSE values.

In theory this is good, but most often it also indicates that not many respondents match this division, and that is the reason the SSE is low. It can therefore be beneficial to search for a division of segments where each segment has approximately the same SSE, as it makes the segments more equal in number of respondents per segment.
In the case shown below, the segments with significantly low SSE only covers three to nine respondents, and therefore we decided to try to incorporate a seventh parameter. We tried both with age and gender. We ended up with an average age between 41 and 43, and thereby eliminated this relation. Due to an overrepresentation of female respondents, we also excluded gender as a factor. Instead we added the use of public transportation which our respondents answered at another point in our survey. This resulting segmentation is shown in illu. 34.

Again, the division with five segments had a segment only including eight respondents, but in the one with four segments the respondents are more equally divided, and thereby creates a more general and accurate picture of the inhabitants of the village cluster. Therefore, we decided to continue the development of our personas based on these four segments including the parameters information, safety, comfort, facilities, distance, aesthetics, and use of public transportation. By turning these segments into radar diagrams, we began to analyze the data further.

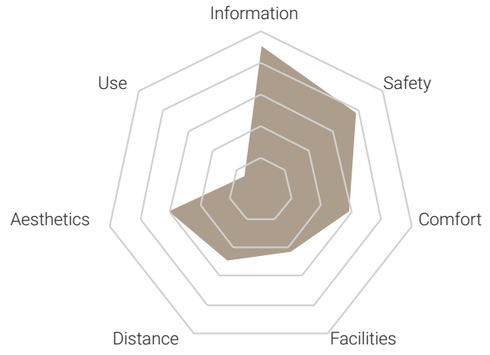


Illu.33. SSE per segment (based on parameters)



Illu.34. SSE per segment (based on parameters and use of public transport)

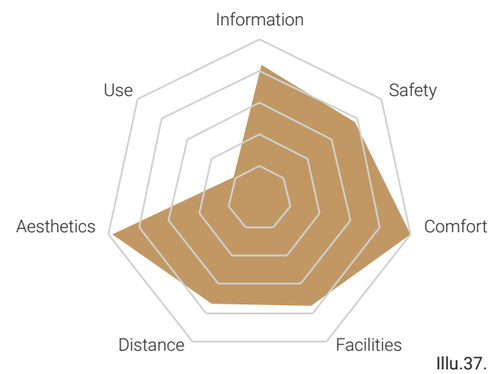
SEGMENTS



Illu.35.

SEGMENT 1 - THE PARENT

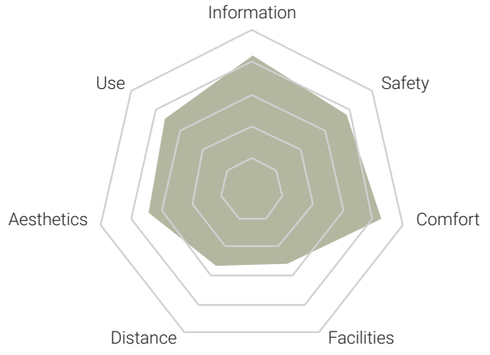
This segment rarely uses public transport themselves, but very much prioritizes good information, safety, and to a lesser extent aesthetics and comfort. The high emphasis on information and safety without actually using public transport leads us to characterize this segment as 'The Parent'. Parents with children who commute by bus want to know when their children get home, if there are delays, that their children are safely getting to and from the bus stop, and that it's safe to wait for the bus.



Illu.37.

SEGMENT 3 - THE OCCASIONAL PASSENGER

This segment only occasionnally uses public transport but scores higher on all parameters, even higher than Segment 2 - The Commuter which uses public transport much more. We characterize this segment as 'The Occasional Passenger'. 'The Occasional Passenger' especially prioritizes aesthetics, comfort, and information, but distance and facilities are also relatively important. This segment is more likely to be an elderly person; they need comfortable seating and can't walk too far.



Illu.36.

SEGMENT 2 - THE COMMUTER

This segment has the highest score on almost all parameters, except for distance and facilities. Segment 2 also uses public transport to a much greater extent than all other segments, and because they use it frequently, they prioritize comfort, information, and aesthetics. We characterize this segment as 'The Commuter', more likely to be a young person commuting for education or someone who for various reasons does not have access to a car.

Illu.38.

SEGMENT 4 - THE INVETERATE MOTORIST

This segment doesn't really prioritize anything very much, but this is probably a reflection of the fact that they never use public transport. This is 'The Inveterate Motorist', they always drive their car everywhere, and public transport isn't even an option they consider. Nevertheless, they do think that there should be adequate information, seating areas, and that bus stops should be nice and clean in general.

PERSONAS

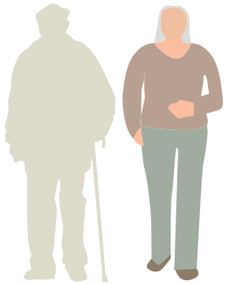
We have developed four personas based on our four segments combined with statements and other findings from the survey. In the development of our personas, we have strived to represent different genders, age groups, and lifestyles as were expressed in the survey.

Personas are a representation of individuals, however mobilities are often negotiated at the household level, rather than being based on the choices and preferences of individual household members. Therefore, we have placed each of our personas in a household unit. This is also to more accurately represent what impacts and motivates the individual mobilities choices.

THE NUCLEAR FAMILY

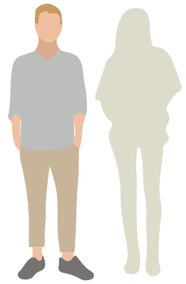
Illu.39.

THE ELDERLY COUPLE

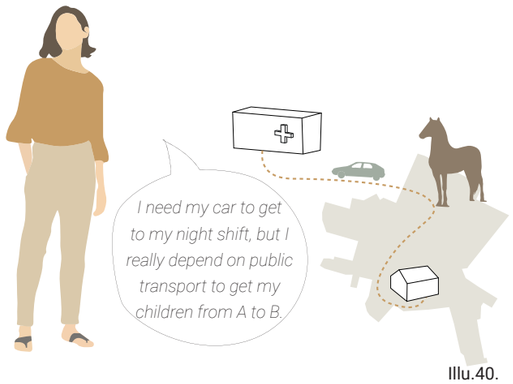


Illu.42.

THE YOUNG COUPLE

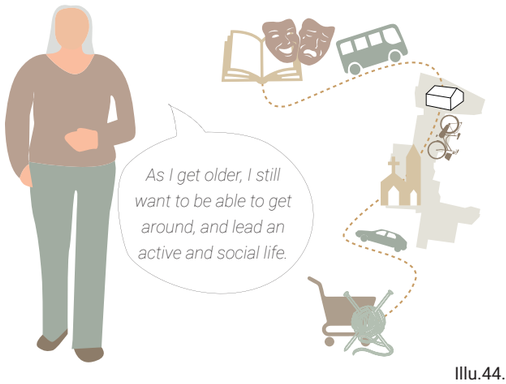


Illu.43.

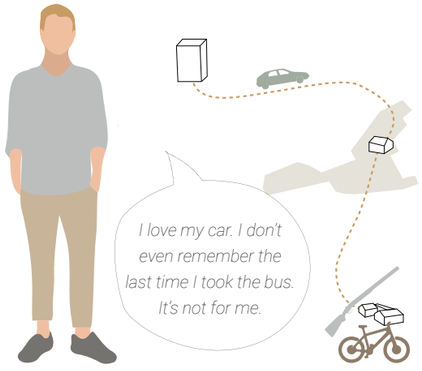


Illu.40.

Illu.41.



Illu.44.



Illu.45.

THE PARENT - TINA

Tina is a 43-year-old nurse and works at Aalborg University Hospital South. With her irregular working hours, she needs a car to commute. She cannot always drive the children to/from school and activities, and she depends on them taking public transport. Tina likes to be informed and follows the updates on the travel app to know that her children get where they need to go. She prefers that her children send a text when they get home, but they don't always remember.

When her children were younger, the family participated more in the local activities, but they generally still show up to all the major events. Tina also likes to horseback ride every other Tuesday with her neighbor, if her work schedule allows. Tina didn't have prior attachment to the area but lives here because they found an attractive house at a good price, and at a reasonable distance to her job in Aalborg.

THE COMMUTER - MADS

Mads has just turned 18 and attends Aalborg Technical High School. This means that he takes the bus on a daily basis from Kongerslev to Aalborg and back. When he was younger, he played soccer at KIF but since he was 15, he has played for AAB Talent in Aalborg, and on most weekdays, he stays late in Aalborg for soccer practice. Therefore, he often needs to be able to take the bus home late on weeknights and for matches on weekends.

Aalborg became particularly interesting to Mads when he recently turned 18, and the best thing is to go out with his friends to Jomfru Ane Street on a Friday night, but it really sucks that he always has to sleep at a friend's house or wait for the morning bus to get home, unless he can convince his parents to come and pick him up in the middle of the night. Even though he has a drivers' license, he rarely has access to a car.

THE OCCASIONAL PASSENGER - KIRSTEN

Kirsten is a 70-year-old retired teacher from the former Nr. Kongerslev School. She is from Nr. Kongerslev and has watched many functions disappear over time, which makes her worry about the future of her village. Kirsten is fond of her bike because it keeps her active, and she prefers to bike to church council meetings in Nr. Kongerslev and the women's café in Kongerslev, although it is getting harder to make the trip as she is getting older.

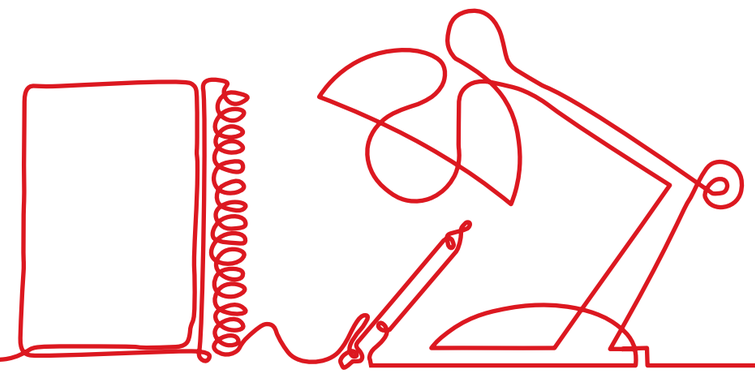
When she and her husband go with their theatre friends to Aalborg to see a show or to have dinner, they take the bus so they can have a glass of wine and they don't have to drive back tired in the dark. For this reason, it's important for her that there are busses at night and on weekends. Her husband has a bad hip and is the primary driver of their car. Kirsten mostly uses the car for grocery shopping and visiting friends and family.

THE INVETERATE MOTORIST - ANDERS

Anders is 28 years old and works in IT Service at a big office building in Aalborg. He likes the regular working hours, helping others, and was always fond of computers. Anders is a family man and grew up in the area where his parents and some old friends still live, which impacted the decision to buy a house in Komdrup with his girlfriend. Anders doesn't even consider public transport to be an option but generally cares that the bus stops are nice and clean.

In his free time, Anders likes to do sports and is an avid user of the local mountain bike track. When he was younger, he competed in sports shooting. Now, he teaches the youth and sits in the board of Kongerslev Sports Center. His girlfriend is not local and doesn't really participate in the local activities because she doesn't know that many people in the area. Anders hopes this will change when they have children.

05 DESIGN PROCESS



DESIGN PARAMETERS

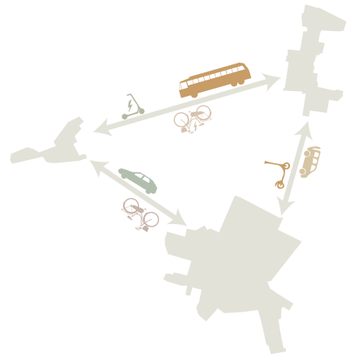
We divide our design parameters into three categories which go back to the theoretical framework around village clusters from a mobilities perspective: 1) internal mobility, 2) external mobility, and 3) local meeting place, while the specific design parameters are derived from our analysis and survey.

For internal mobility, it's important to support different needs for transportation since people have different preferences and levels of motility. The individual wishes must however be combined with sound reasoning about which initiatives are feasible. If more people are to choose non-car alternatives for short distance journeys, it's necessary to improve the physical infrastructure by connecting existing structures. This will link existing activities in the cluster which then has the potential to support daily life and activities. Connecting existing structures, linking existing activities, and supporting daily life are also the parameters linked to external mobility, although these are considered at a regional scale including links to Aalborg and other larger towns for work and education as well as the potential link to nearby national bike routes.

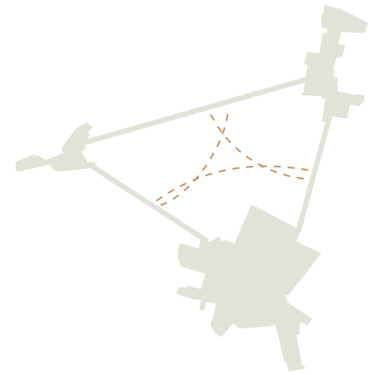
The analysis of our chosen site for the mobility hub in Kongerslev showed that there is a lack of shelter, activities, identity, and information. In spite of a central location, the site is currently not used. Therefore, we aim to transform the site into a mobility hub which is also an attractive local meeting place where there is opportunity for new activities, central information is readily available, and human comfort is supported. In redesigning these facilities, we also want to challenge the ubiquitous nature of traditional mobilities design. We want to enhance local identity through design but in a way which balances the specific with the generic.

INTERNAL MOBILITY

SUPPORT DIFFERENT NEEDS FOR TRANSPORTATION



CONNECT EXISTING STRUCTURES



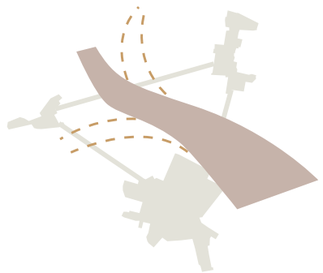
SUPPORT DAILY LIFE

LINK TO EXCISTING ACTIVITIES

Illu.46. Internal mobility

EXTERNAL MOBILITY

CONNECT EXISTING STRUCTURES



SUPPORT DAILY LIFE

LINK EXCISTING ACTIVITIES

Illu.47. External mobility

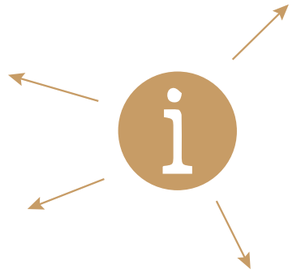
LOCAL MEETING PLACE

SUPPORT HUMAN COMFORT

ENHANCE LOCAL IDENTITY

CREATE OPPORTUNITY FOR NEW ACTIVITIES

PROVIDE CENTRAL INFORMATION

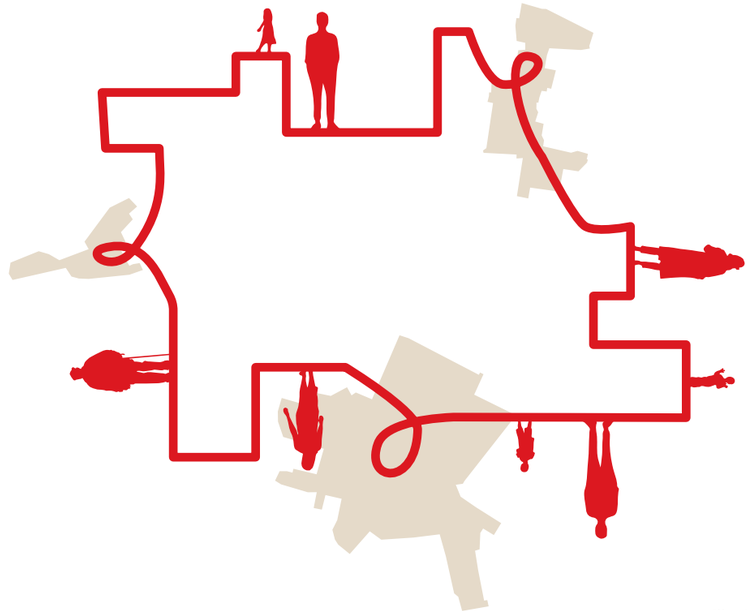


Illu.48. Local meeting places

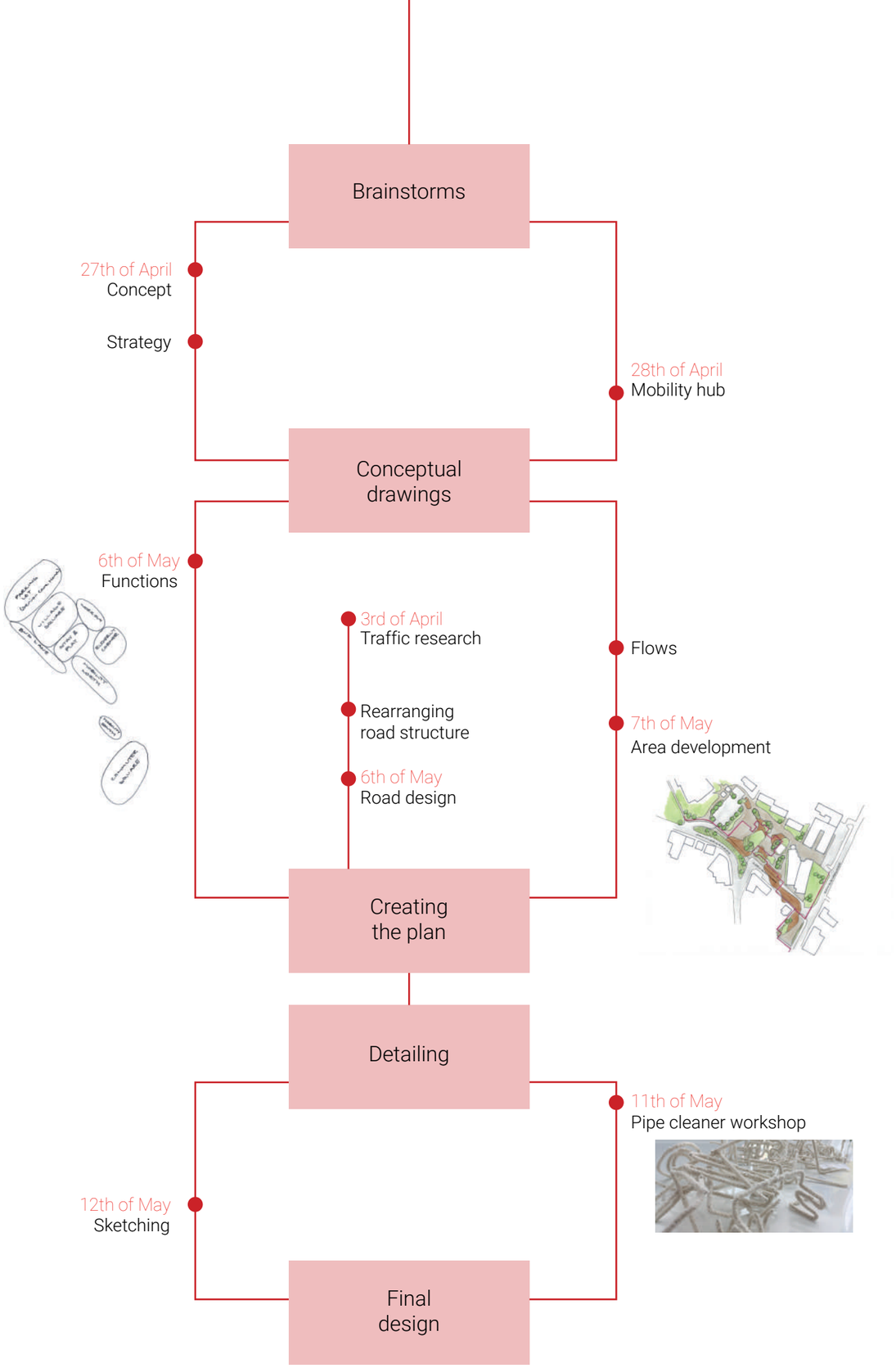
CONCEPT

As mentioned in our motivation, the future of rural districts can be said to be hanging by a thread. We choose to reclaim this negatively laden phrase by turning it into a bold concept, where a red structure links and shapes functions while creating a shared visual identity across Village Cluster 9293. At a strategic level, internal and external connections in the village cluster are to be improved, and functions should be linked and supported. We accomplish this by upgrading the existing mobility infrastructure but also through an identity enhancing visual design element present both in the mobility hub in Kongerslev and the local nodes in Nr. Kongerslev and Komdrup. In this way, the existing mobility infrastructure gets an upgrade both in terms of functions and appearance.

For our design proposal, we focus on Kongerslev, where the local community, their mobility, and the village identity is supported by a centrally placed mobility hub and public space. Here, we transform the nondescript central square into an attractive informal meeting place for local events and activities. The added and existing functions are emerging from and hanging on to the red structure, or hanging by a thread, so to speak.



Illu.49. Concept diagram



Illu.50. Design process diagram

DESIGN PROCESS

Throughout the project, this process has been investigative and experimental, which has resulted in an exciting development and a lot of design material. The process in this section is simplified to better convey the final design proposal. Appendix V-XII thus serves as a supplement to this review.

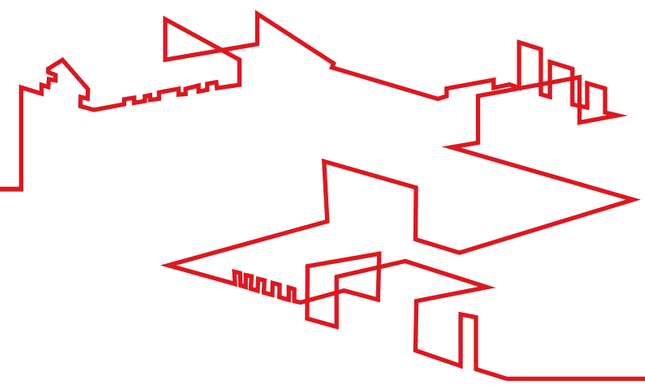
The process was kick-started by using brainstorms to start the creative process. Based on the analyses of the project area, a basis and direction for further work was developed. Also, the choice of the scales was chosen early in the process, to give a clear image of the project and its possible development throughout the project period.

The focus on a design concept was early in the process but has also had a natural development in connection with the experimental course 'Site Morphology and Landscape Techniques'. This course unfolded the opportunities to challenge the traditional mindset, and simultaneously helped to clarify the work on the project, especially regarding scales.

Strategy and plan have been processed differently, but with a great deal of coherence. This made it possible to include both scales under the same design concept. In continuation of the interaction with the two scales, it was possible to detail structure, mobility, functions, and visual identity. All elements are brought into play in the two scales, what differs is the degree of detail.

The final part of the design process emphasized the detail of the interconnected structure of the mobility hub. Form and function have gone hand in hand. To strengthen and link both at a cluster level as well as at a regional level, it has been possible to develop Mobility Hub 9293, through the design of the red structure.

06 PRESENTATION



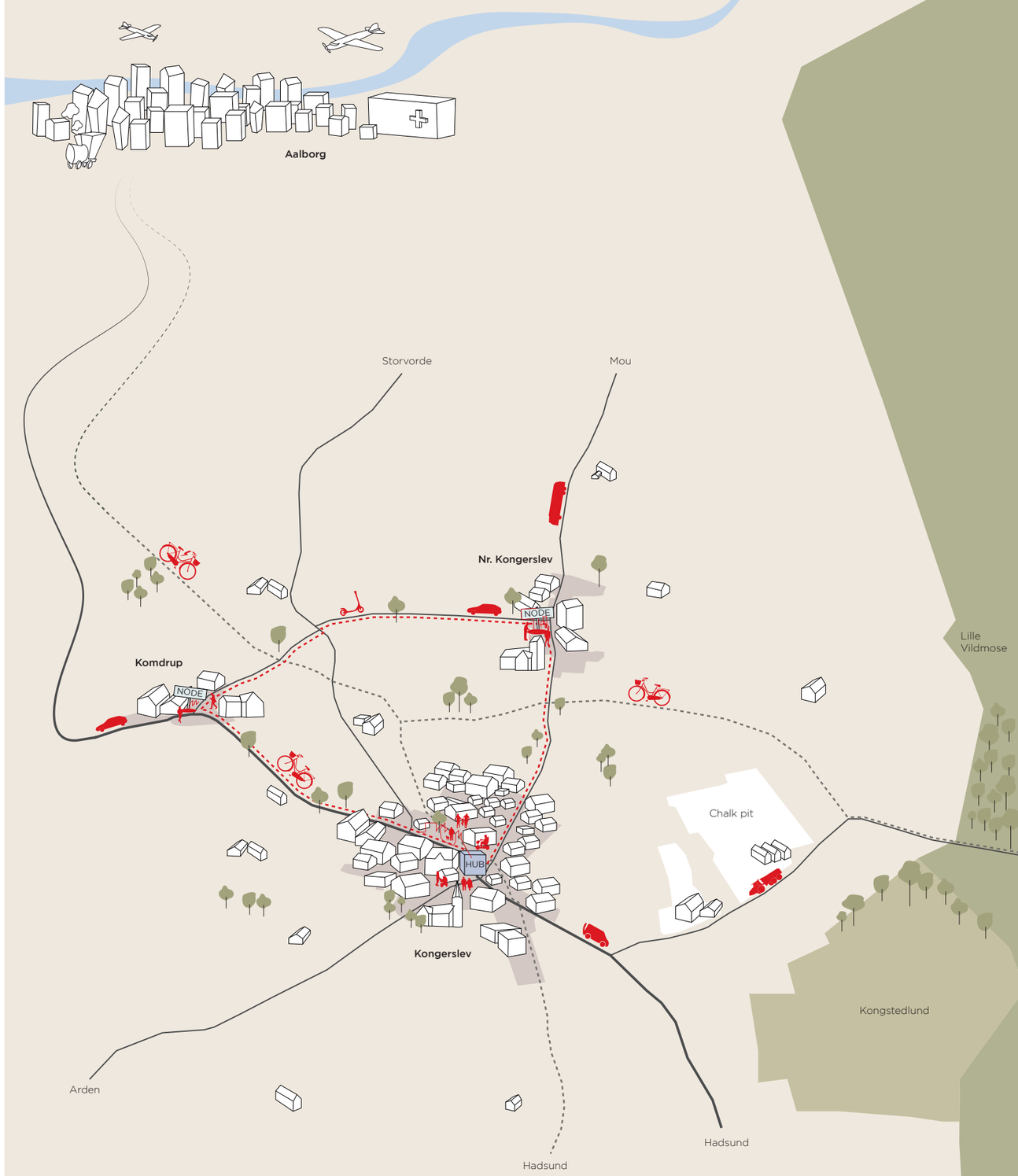
STRATEGY

The strategic plan aims to enhance the qualities of the village cluster. The small distances, great local community, and strong unity makes it possible to create more opportunities for future mobility. Leaning upon already existing structures and connections, the strategy plan connects the cluster on a local level, as well as enhancing the regional connections.

Through Kongerslev it will be possible to connect Hadsund to Aalborg via the existing pathway system. This route takes the traveler through Kongerslev and into the very center of the Village Cluster. From this center, there will be an additional connection to the national park Lille Vildmose, which further on will connect to the East Coast Route, the national bike route 5. In addition, the strategy plan connects all three villages with bike lanes, which enables the villagers to move safely, when moving between the villages on bikes, scooters, etc. (see appendix XIV for a count).

Both the external and the internal mobility will be connected in the local meeting places, which in Nr. Kongerslev and Komdrup is called local nodes, and in Kongerslev, a mobility hub. These meeting places can bring people together and also move them around.

The nodes and the hub will act as local centers, both for the mobility and the local community. The mobility hub in Kongerslev has the means and the capacity to function as both an external and internal connector, and at the same time be a local meeting place. The local nodes are also meeting places, but function mostly as an internal connector between the villages. The functions and design differs from each place, except for the connective red structure, which binds the villages together with a shared visual identity.



Illu.51. Strategy

ANALYSIS OF STRATEGY

1. CREATING A MOBILITY HUB WITH ADDED VALUE

The aim is to create a mobility hub which not only supports different needs for transportation but also serves as a local meeting place which enhances local identity, provides opportunity for new activities, and supports human comfort. The hub will be a place where central information is provided, not just about public transport and other mobilities, but also about upcoming community events, and informal and social information is acquired through interaction between people. Overall, the aim of the hub is to support daily life in the village cluster.

2. IMPROVING LOCAL NODES

To create a shared visual identity, the local nodes in Nr. Kongerslev and Komdrup will have some of the same design elements as the mobility hub in Kongerslev, but with fewer functions and at scale which fits each location. A shared visual identity enhances local identity while supporting different needs for transportation. The local nodes focus more exclusively on mobilities design, and also here it is important to provide central information and support human comfort. The local nodes facilitate movement within and out of the cluster, thus supporting daily life.

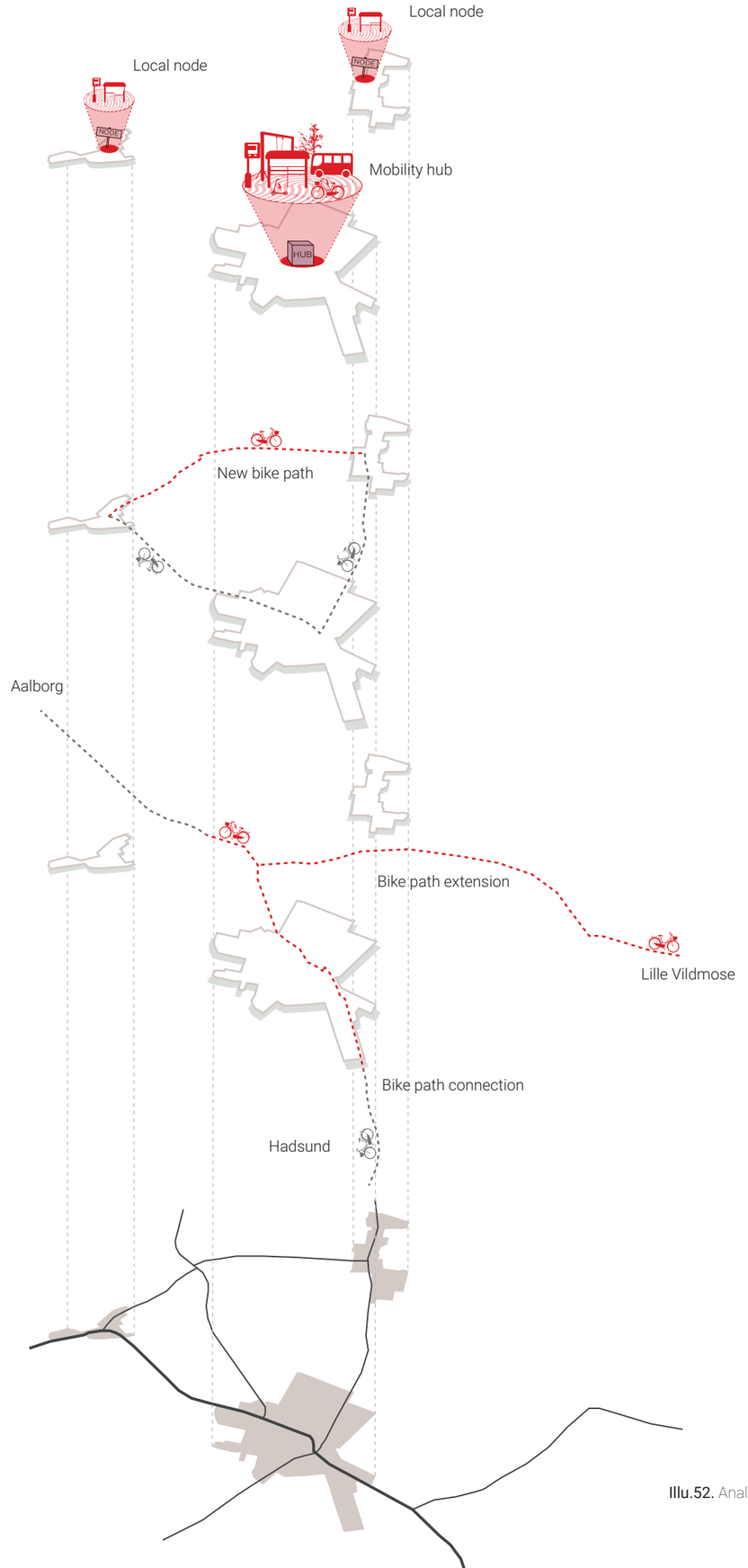
3. A NEW BIKE PATH FOR THE CLUSTER

The missing link for soft traffic between Komdrup and Nørre Kongerslev is established. This also links the two villages to the old railway bike path towards Aalborg, thus connecting existing structures. Improving both internal and external mobility for cyclists supports different needs for transportation, links existing activities, and is a way to support daily life mobilities.

4. LINKING AND EXTENDING THE OLD RAILWAY BIKE PATH

The bike path along the former Aalborg-Hadsund railway is currently disconnected through the village cluster. Today, it ends just south of Kongerslev, and starts again northwest of Komdrup. This means that cyclists have to bike on the rural roads, where they are exposed to traffic. We reestablish the link, making it possible to go safely by bike from Aalborg to Hadsund. This is essential if e-bikes are to be used for commuting, thus this infrastructure upgrade supports different needs for transportation and facilitates daily life.

The bike path is not only connected, it is also expanded to the west, providing a safe bike route into Lille Vildmose, and eventually joining with National Bike Route 5 - The East Coast Route (Sønderborg-Skagen). Not only is this a way to connect existing structures, it is also an opportunity for new activities and an increase in bicycle tourism in the area. Tourists on Route 5 can take this new path all the way to Aalborg, where they can continue on National Bike Route 12 - The Limfjord Route. There is a potential for economic activities related to bicycle tourism which can benefit the village cluster. See appendix XIII for a map of the routes, and how we want to link them.

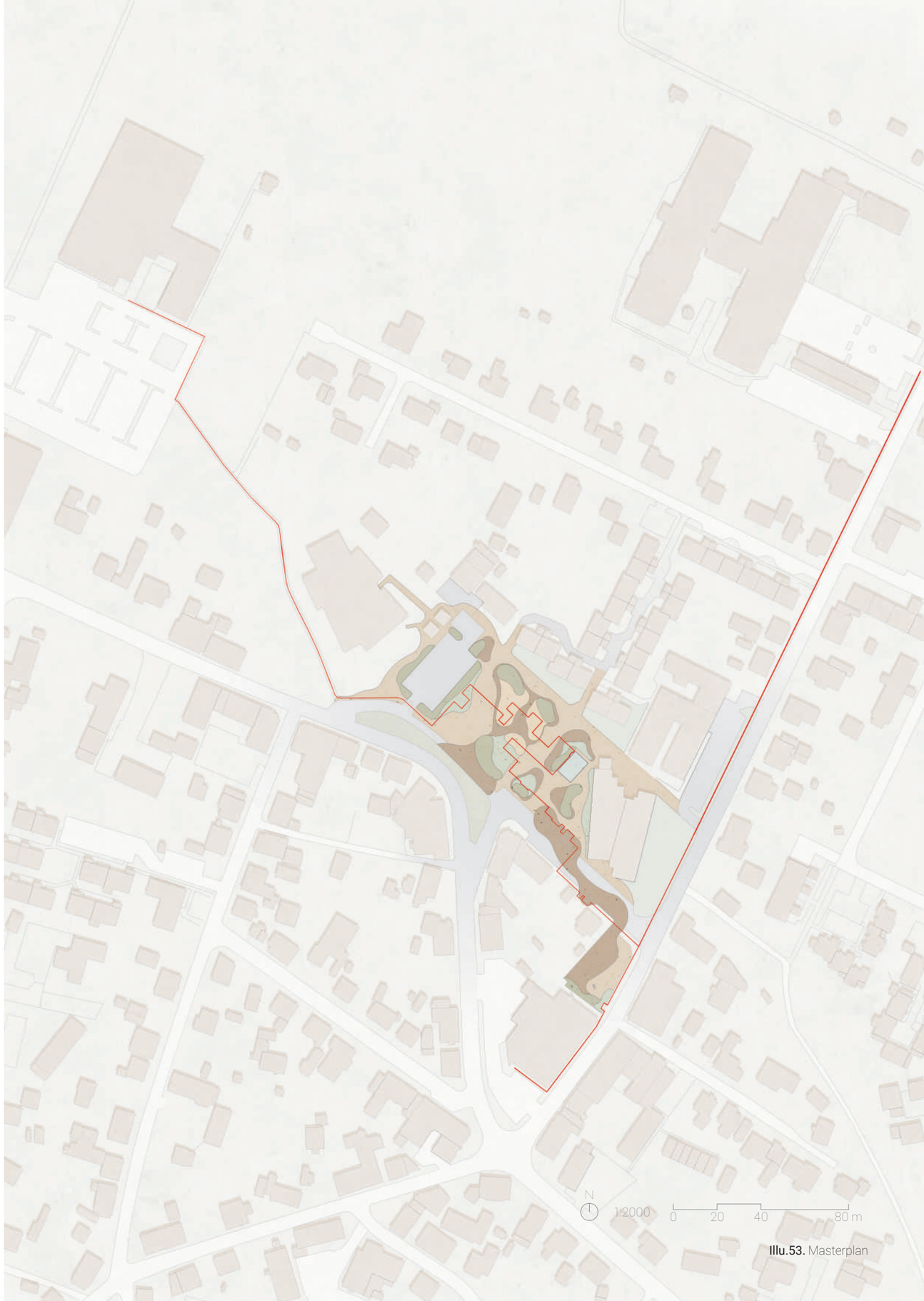


Illu.52. Analysis of strategy

MASTERPLAN

What was once an open and empty area lacking in both functions and identity is now transformed into an attractive urban space and mobility hub. Many rural areas can be said to be ‘hanging by a thread’, and the choice of a red structure as the signifying element of our design is a conscious effort to reclaim a negatively laden term both linguistically and by turning it into a strong, identity enhancing design.

In most places, the red structure is only a line in the pavement, but it also pops up out of the ground and shapes the artefacts on the site, as such there is a direct link between form and function. The red lines in the pavement reach out to some of the most important meeting places in Kongerslev; the sports center and the school. It serves as a wayfinding element into the redefined center of Kongerslev both in the sense of a town center and a mobility hub. See appendix XV-XX for technical specifications.



Illu.53. Masterplan

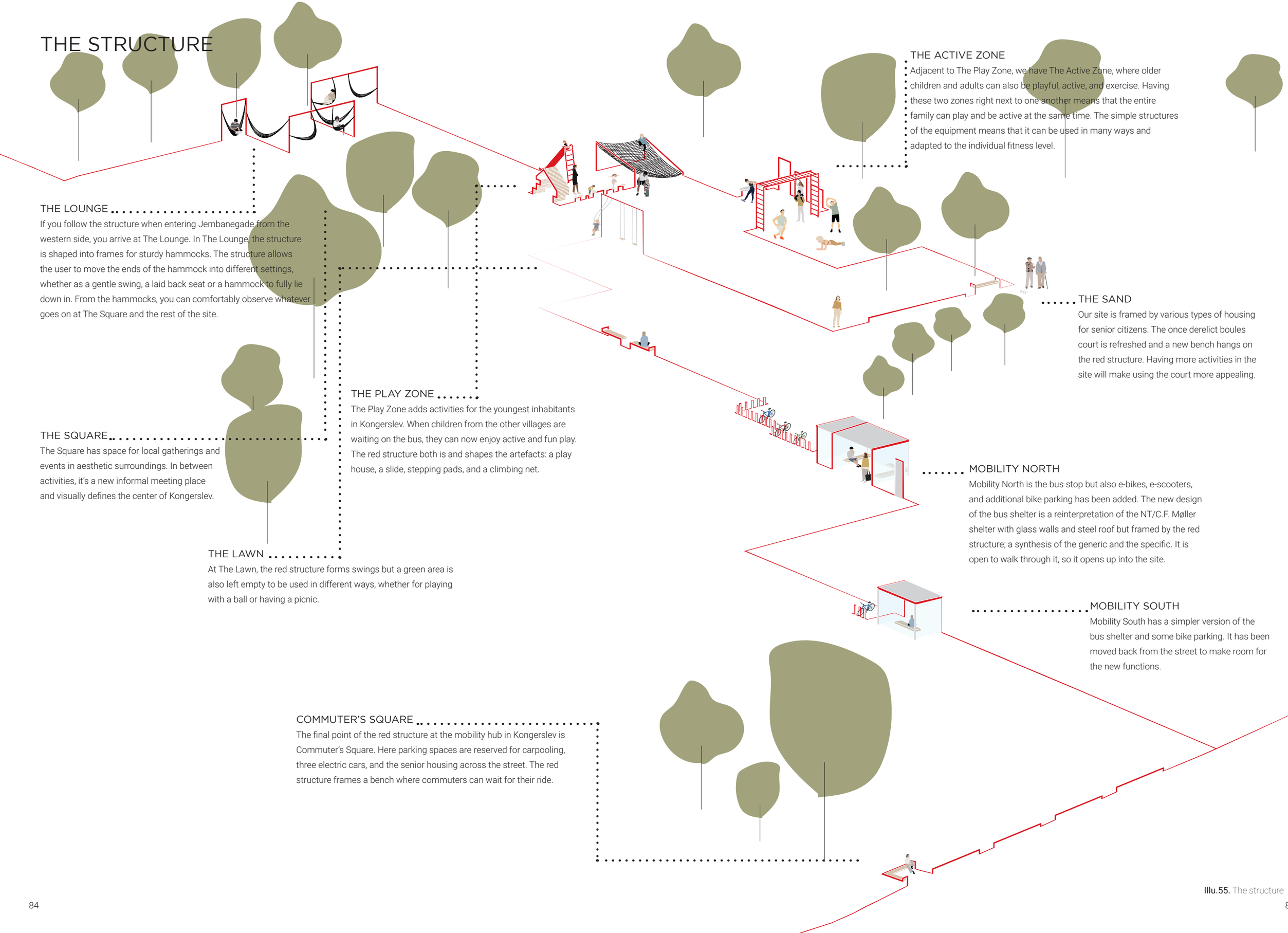
PLAN

The changing ground surface material in our design defines different spatial experiences and shapes a natural path through the site without explicitly determining where one can and can't walk. There is no longer the feeling of not being allowed to cross or stay in the site. The light ground surface material are concrete tiles which are placed in the areas where it is natural to cross the site. The smooth and hard surface invites this faster pace. The darker ground surface material is made from recycled rock material. The many small fragments adds texture, which makes both pedestrians and motorists slow their pace. This is also placed closest to Jernbanegade, in some places together with greenery, to act as a barrier so children won't as easily run out onto the street for example. Greenery is also used to give privacy to the residents whose houses face the site.

The different zones and the forms and functions of the structure is elaborated on the next page.

Illu.54. Plan

THE STRUCTURE



THE LOUNGE

If you follow the structure when entering Jernbanegade from the western side, you arrive at The Lounge. In The Lounge, the structure is shaped into frames for sturdy hammocks. The structure allows the user to move the ends of the hammock into different settings, whether as a gentle swing, a laid back seat or a hammock to fully lie down in. From the hammocks, you can comfortably observe whatever goes on at The Square and the rest of the site.

THE SQUARE

The Square has space for local gatherings and events in aesthetic surroundings. In between activities, it's a new informal meeting place and visually defines the center of Kongerslev.

THE PLAY ZONE

The Play Zone adds activities for the youngest inhabitants in Kongerslev. When children from the other villages are waiting on the bus, they can now enjoy active and fun play. The red structure both is and shapes the artefacts: a play house, a slide, stepping pads, and a climbing net.

THE LAWN

At The Lawn, the red structure forms swings but a green area is also left empty to be used in different ways, whether for playing with a ball or having a picnic.

THE ACTIVE ZONE

Adjacent to The Play Zone, we have The Active Zone, where older children and adults can also be playful, active, and exercise. Having these two zones right next to one another means that the entire family can play and be active at the same time. The simple structures of the equipment means that it can be used in many ways and adapted to the individual fitness level.

THE SAND

Our site is framed by various types of housing for senior citizens. The once derelict boules court is refreshed and a new bench hangs on the red structure. Having more activities in the site will make using the court more appealing.

MOBILITY NORTH

Mobility North is the bus stop but also e-bikes, e-scooters, and additional bike parking has been added. The new design of the bus shelter is a reinterpretation of the NT/C.F. Møller shelter with glass walls and steel roof but framed by the red structure; a synthesis of the generic and the specific. It is open to walk through it, so it opens up into the site.

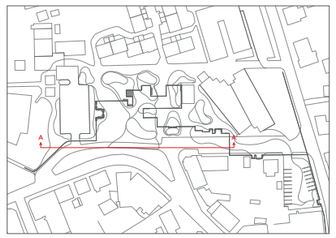
MOBILITY SOUTH

Mobility South has a simpler version of the bus shelter and some bike parking. It has been moved back from the street to make room for the new functions.

COMMUTER'S SQUARE

The final point of the red structure at the mobility hub in Kongerslev is Commuter's Square. Here parking spaces are reserved for carpooling, three electric cars, and the senior housing across the street. The red structure frames a bench where commuters can wait for their ride.

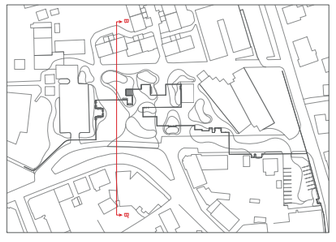
Illu.55. The structure



SECTION AA’

In Section AA’, the spatial characteristics of the zones in their context become apparent. The zones emerge as both aesthetically and functionally distinct spaces where the objects are in relation to one another. This makes the spaces feel more intimate. Since the site is such an open and flat area, it was important for us to break this vertical monotony and create spaces with opportunity for new activities and comfortable stay, but without blocking the view of the bus stop. The site is still open and with good visibility, but now there are objects and spaces which capture the eye and the imagination.

Illu.56. Section AA’



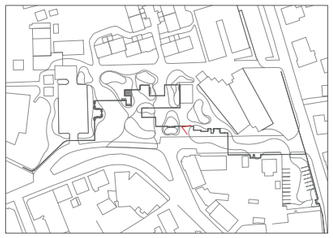
SECTION BB’

The red structure with its shapes and functions is in relation to the surrounding built environment and it’s kept in simple and low geometric shapes to keep a harmonic visual appearance because the bold red color is a strong visual statement in itself. The three mobility zones, Mobility North, Mobility South, and Commuter’s Square are visually connected by the ground surface material as well as the red structure.

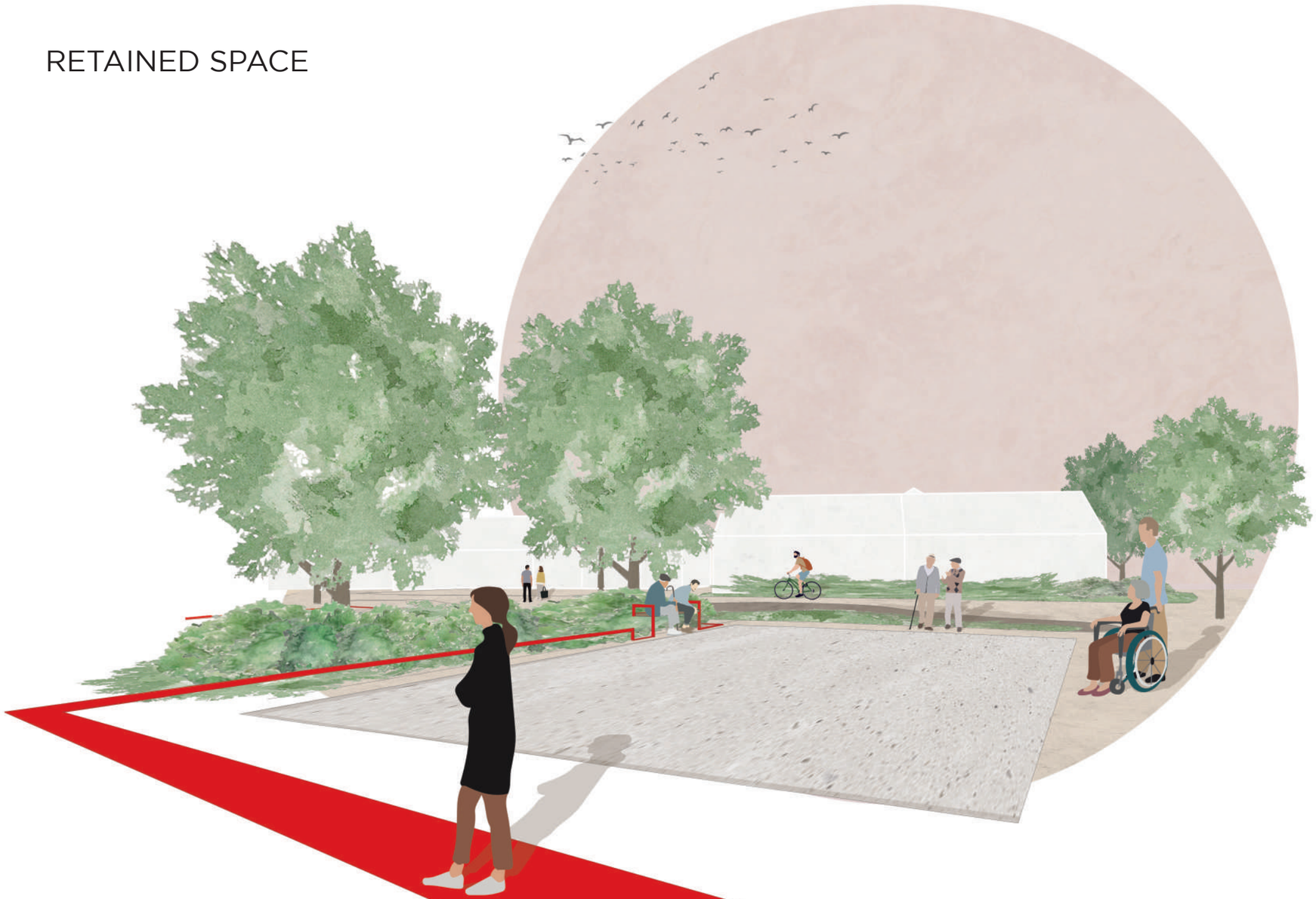
Illu.57. Section BB’

MOBILITY SPACE

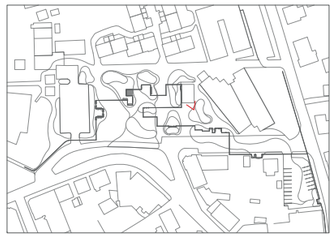
Illu.58. Mobility view



RETAINED SPACE

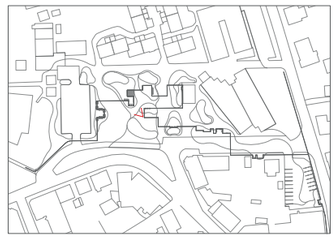


Illu.59. Boules view



COMMUNITY SPACE

Illu.60. Activity view



ANALYSIS OF MASTERPLAN

The areas seen on the plan below indicate different zones in the hub (illu. 61). All the zones are bound together by the red structure.

The red structure is made of a red continuous line which moves out from and into the pavement throughout the area. When the structure is up from the pavement, it shapes, among other things, spaces for activity, play, and stay. Above ground, the structure is made from powder-coated galvanized steel pipes, with an outer diameter of 60mm. Benches and other wood elements on the structure are Danish larch, which is particularly suitable for outdoor use (bolius.dk 10.02.2017).

The design of the mobility hub is structured based on possible movement patterns throughout the area. Jernbanegade is also designed based on the desired traffic flow, where heavy traffic is to be minimized. Besides from the buses, cars can drive through Jernbanegade from Kongensgade. However, cars can't enter from the opposite direction. Thereby, car traffic is mainly unidirectional to promote a quiet and local meeting place, which prioritizes soft traffic. Also, the diagram (illu. 63) shows that a possible fire lane was kept in the northern part of the mobility hub.

ZONES

LEGEND

- Existing parking
- The Lounge
- The Square
- The Play Zone
- The Active Zone
- The Lawn
- The Sand
- Mobility South
- Mobility North
- Commuter Square

Illu.61. Zones

RED STRUCTURE

Illu.62. Red structure

Illu.63. Galvanized steel pipe

Illu.64. Danish larch

FLOW

LEGEND

- Bus flow
- Bus flow - one direction
- Car flow
- Car flow - one direction
- Soft flow
- Fire lane

Illu.65. Flow

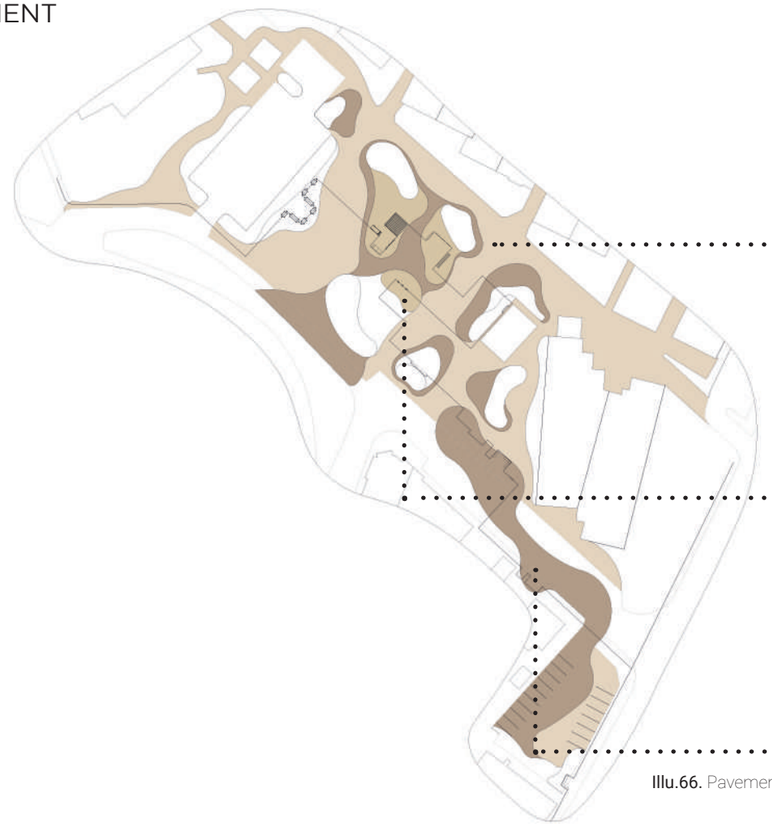
Pavement and tones in the pavement are chosen with the desire to create a historic, safe, and warm community space (illu. 66). The pavement is designed and planned based on the desire to break up the surface horizontally. There are three types of pavement in the area:

1. Concrete tiles of different sizes laid in a pattern. Sizes of 500mm x 200/350/375mm, in a warm concrete mix of white concrete from Aalborg Portland and red sand for Central Jutland (danskbeton.dk 08.2017).
2. For the second hard pavement, reusable tiles are used in warm shades (pov.international 29.10.2017). These will bring the history and the rustic look into the area while slowing down on certain areas.
3. Eventually, fall zones for activity elements and swings are paved with a neutral rubber coating.

The green structure is broadly categorized by two different terms: lawns and dense beds. The dense beds consist of existing trees, new oak trees, silvergrass (Miscanthus flo. 'Giganteus'), and fly woodbine (Lonicera xylosteum). Fly woodbine thrives in wooded and shady areas and is good for planting under the tree crowns (hededanmark.dk 2019). The beds are designed to both break up the areas with vertical elements and to create shelter from the wind.

Lighting in the area is important for safety and security. The area must be well lit at night, so the villagers can feel safe. Near the zones, light poles with spots in brown powder coating are installed. The masts can have a height between 3-5 m and have 2-4 spots mounted on the mast, depending on the desired effect. In addition to this, uplights are placed by the trees to give a safe and relaxed spatial feeling.

PAVEMENT



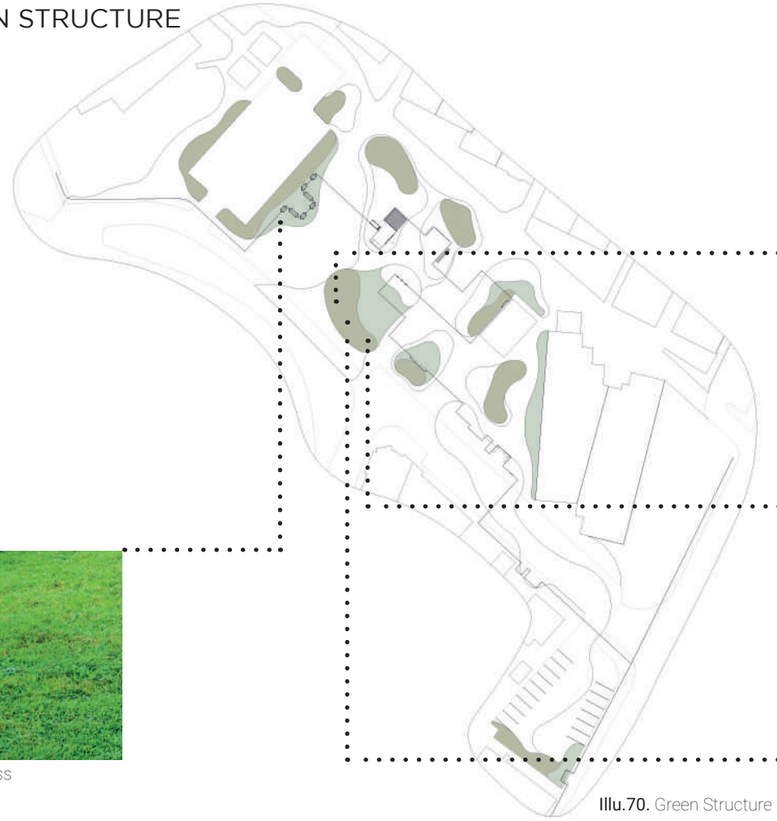
Illu.67. Concrete tiles

Illu.68. Rubber pavement

Illu.69. Reused tiles

Illu.66. Pavement

GREEN STRUCTURE



Illu.71. Oak

Illu.72. Fly woodbine

Illu.74. Grass

Illu.73. Silvergrass

Illu.70. Green Structure

LIGHTING

Illu.76.

Illu.77.

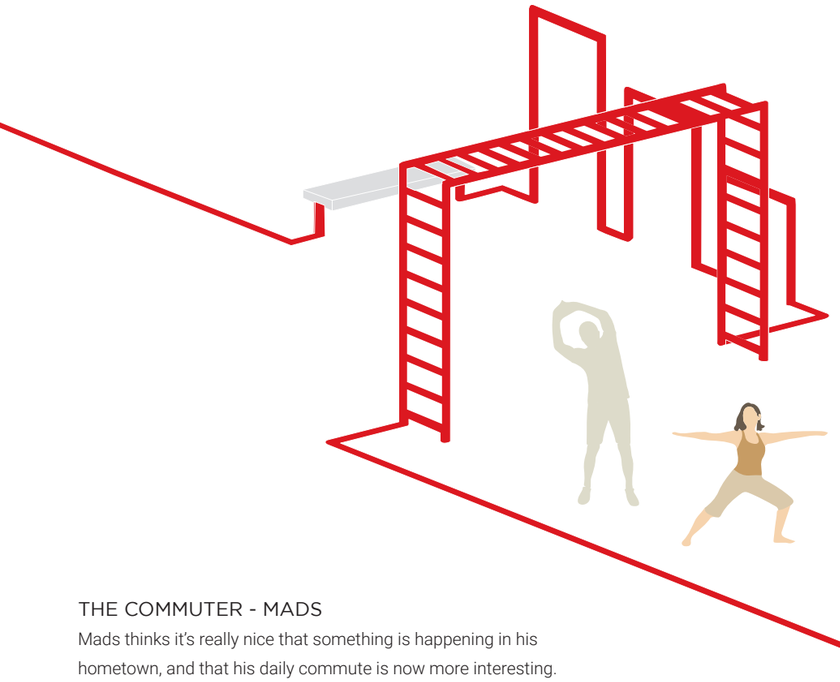
N

1:1500

0 15 30 60 m

Illu.75. Lighting

PERSONAS IN DESIGN

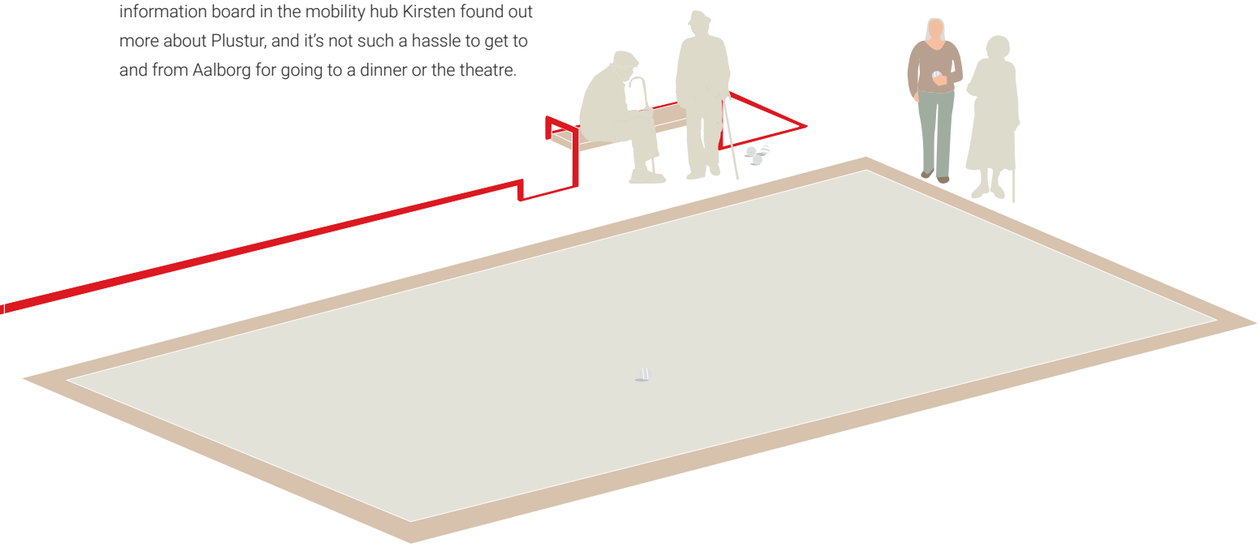


THE PARENT - TINA

Tina is satisfied that the town center has had an upgrade. She doesn't use the mobilities options very much, but feel safer now her children have a public space to wait for the bus, and the opportunity to use e-scooters when the bus doesn't fit their transportation needs. Tina and her husband also took a turn on the e-bikes just to try it out, and she is now considering whether it could work for her when going to the riding school. She is enthusiastic that her youngest daughter can use The Play Zone while she and her husband can use The Active Zone, and on weekends if the weather is nice, they always go together.

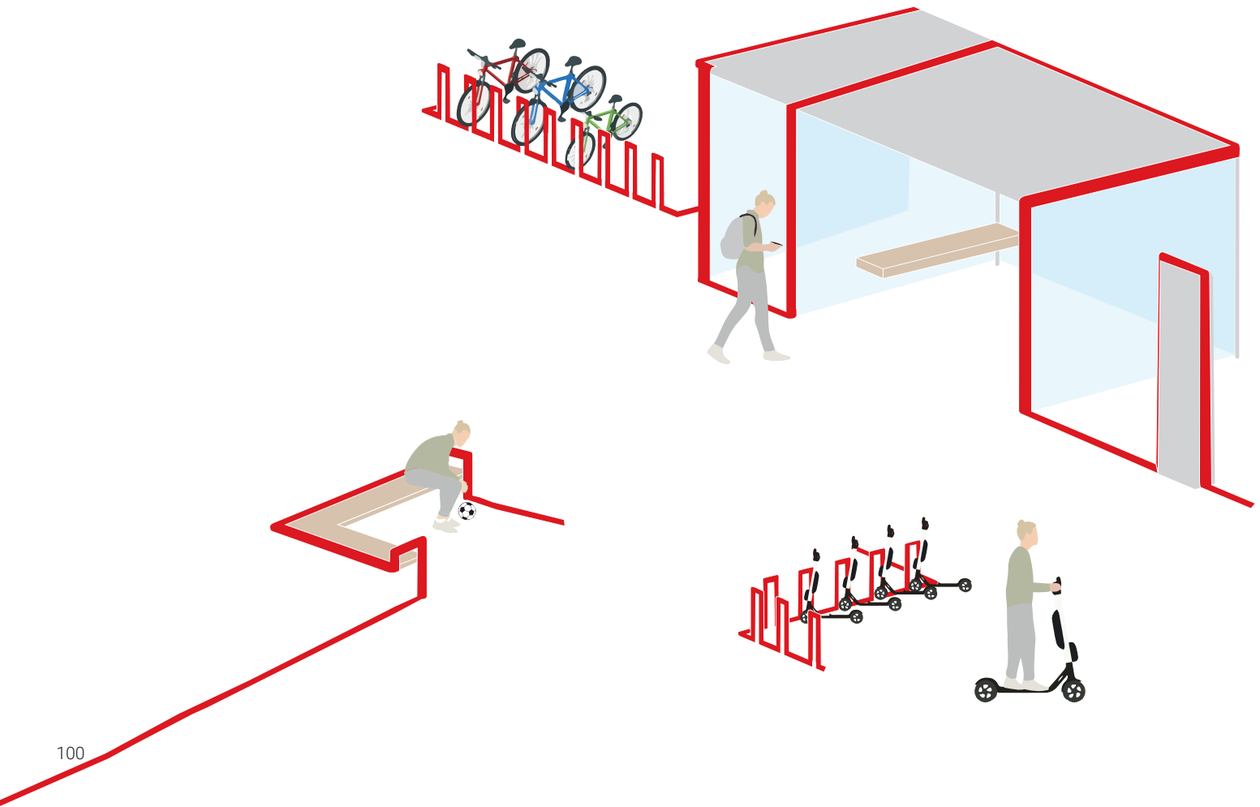
THE OCCASIONAL PASSENGER - KIRSTEN

When Kirsten's daughter is visiting, they sometimes use the e-bikes at the Nr. Kongerslev local node to bike along the new path to Lille Vildmose. With an e-bike it's not too far for Kirsten, and they can enjoy the fresh air, nature, and exercise together. She finds it very positive to see new functions returning to the village cluster, and since the boules court has had an upgrade she and her husband play during the summer with their friends. Through the information board in the mobility hub Kirsten found out more about Plustur, and it's not such a hassle to get to and from Aalborg for going to a dinner or the theatre.



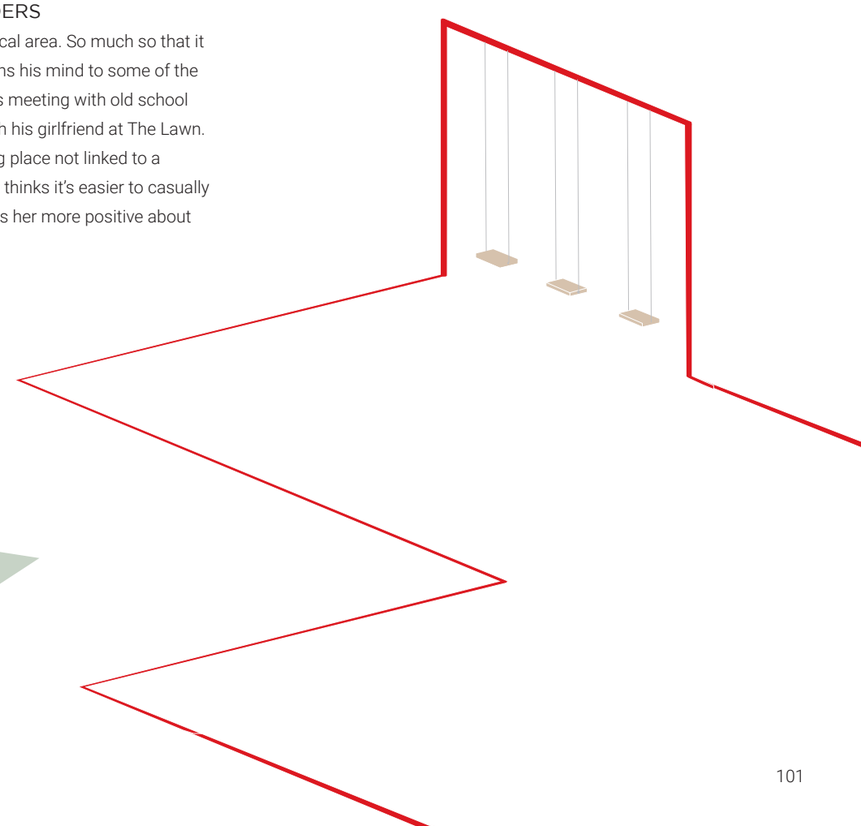
THE COMMUTER - MADS

Mads thinks it's really nice that something is happening in his hometown, and that his daily commute is now more interesting. Young people really didn't have any place to just hang out outside, so he and his friends have found a new meeting place in The Lounge. It's also cool that he can use the shared cars or has a place to wait when catching a ride for the weekend soccer matches. When he's going to visit an old friend from ground school in the other villages, he thinks it's fun to take the e-scooters. Him and his friends also sometimes cruise around on them for fun.

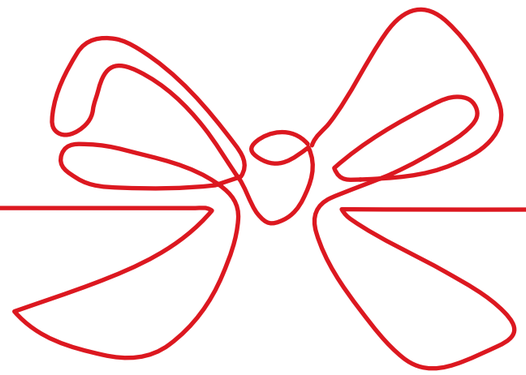


THE INVETERATE MOTORIST - ANDERS

Anders is pleased to see development in his local area. So much so that it starts to soften his car-oriented heart and opens his mind to some of the alternative mobilities. In the summer, he enjoys meeting with old school friends for beer bowling or to have a picnic with his girlfriend at The Lawn. For her, it's nice to have a more neutral meeting place not linked to a specific association or activity. In this way, she thinks it's easier to casually talk to and get to know new people. This makes her more positive about their future life in the village cluster.



07 CONCLUSION



CONCLUSION

In this project, we have combined theoretical knowledge about village clusters and rural mobilities with thorough analysis of both strategic, regional aspects of Village Cluster 9293, and aesthetic, site specific aspects of the chosen site in Kongerslev. Our overall conclusions were that non-car mobility is difficult both due to inadequate infrastructure and time-consuming public transport, and that the active local community and their meeting places are the strengths of the village cluster. The site identified as the location for the mobility hub was found to be lacking in functions, identity, and human comfort, which we later would address through our design proposal.

To deepen our understanding of the lived life of people in the village cluster, we conducted an online survey, where we found out about the daily life, mobilities, experiences, and perceptions of the respondents. The findings from the survey were used both for analysis and design. With regards to analysis, we were able to confirm that most of the challenges we identified were also concerns of the citizens, and we were also made aware of additional perspectives. We developed personas based on the preferences and statements expressed in the survey. In our design process, the personas helped us be aware of how the design would be used and perceived by different people according to their needs, habits, and preferences.

Our concept, Hanging by a Thread, emerged as an attempt to reclaim the negative discourse surrounding the future rural districts both linguistically and through a bold, identity enhancing mobilities and public space design. The geometric red structure is both a wayfinding tool reaching out as a line in the pavement to the surroundings and on the site, it shapes both the added and existing functions, while arious ground surface materials and greenery define and differentiate spaces in the previously open and empty site.

Through the redesign of the mobility hub in Kongerslev, we have improved the internal mobility in Village Cluster 9293 with the addition of e-bikes and e-scooters, and the external mobility is improved with the addition of electric cars for car sharing and facilities for carpooling. Mobility is a prerequisite for daily life in the village cluster, but the new mobility hub is also a new informal meeting place where those that don't use the mobilities functions are able to stay, play, be active, and socialize. Providing a neutral meeting place not linked to a specific activity or association can facilitate inclusion of those that don't already participate or are members of the local associations. Social life and mobilities are among the defining factors in determining the future of rural communities, and in this way a new meeting place in the form of a mobility hub can facilitate and support daily life in Village Cluster 9293.

REFLECTION

Throughout this project, the challenge of a multiscalar approach has been a recurring theme. The village cluster framework requires working simultaneously at a regional and local scale, and for this reason we chose to develop a strategy at the regional scale and a design proposal at the local scale. However, even the local scale was challenging to determine, because both the entire village cluster and the individual towns and villages are at a local scale. We chose to focus our design proposal on development of the mobility hub in Kongerslev even though our design concept, Hanging by a Thread, also applies to the local nodes in Nr. Kongerslev and Komdrup. The differentiation between a mobility hub and local nodes and whether we have communicated this sufficiently is also a point for reflection.

By using the village cluster framework, we become subject to the same criticism of it being a tool for the municipality and NT to strategically withdraw services and functions from the smaller villages and centering them in the largest town of the cluster. This is a particularly hard hitting criticism when Kongerslev is so disproportionately larger than both Nr. Kongerslev and Komdrup. The question is whether the village cluster framework emerges as the least worst option for the smaller towns and villages, or whether the potential for strategic development and collaboration is greater in village clusters with more evenly sized towns and villages.

As urban designers, we also reflect on our actual influence on mobilities design. What can we even change? The logistic and economic realities of rural public transport are very clear, and there are no easy solutions. Choosing to live in a rural district is a lifestyle choice, and perhaps a natural consequence of this is needing a car and accepting a lower public transport service level. Our survey showed that many people find public transport to be important, but for themselves they prefer the convenience of the car. The good intentions are there, but disuse of public transport and the lack of public transport form a negative spiral. It was also clear that many are stuck in a traditionalist mindset of wanting more and more frequent busses, and are not as open to initiatives like Plustur, car sharing, and carpooling.

This leads to a reflection on whether we should always plan and design for the wishes of local citizens or if it is also the responsibility of the urban designer to challenge and counter traditionalist thinking. If presented with the opportunity and well-designed facilities for initiatives like car sharing, carpooling, e-bikes, and e-scooters, can this inspire change in people's perceptions and habits? The choice of a design with a bold red structure is also something which could rub some people the wrong way, even though we have attempted to introduce this design in a way which is context sensitive and where there are functions which appeal to different age groups and preferences. When designing in the context of a small town, it is important to consider inclusivity but if we designed for everyone, we would design for no one. Public space design is contentious in nature, and we believe that a negative reception by some is preferable to indifference from everyone.

Lastly, we will once again reflect on the effects of the coronavirus as already mentioned in the preface. The working conditions and thus the final product has been impacted, and even though it wasn't possible given the circumstances, we are regretful that we were unable to ask more local citizens to get better representation of the elderly and the youth than our survey was able to. Working apart for much of the project and suffering more fragmentation and disruption than usual was particularly challenging in the design process, and it was only when we finally met up in Aalborg that we were able to really make the project come together as a whole.

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ILLUSTRATION LIST

All illustrations marked with • are our own illustrations

08 APPENDIX

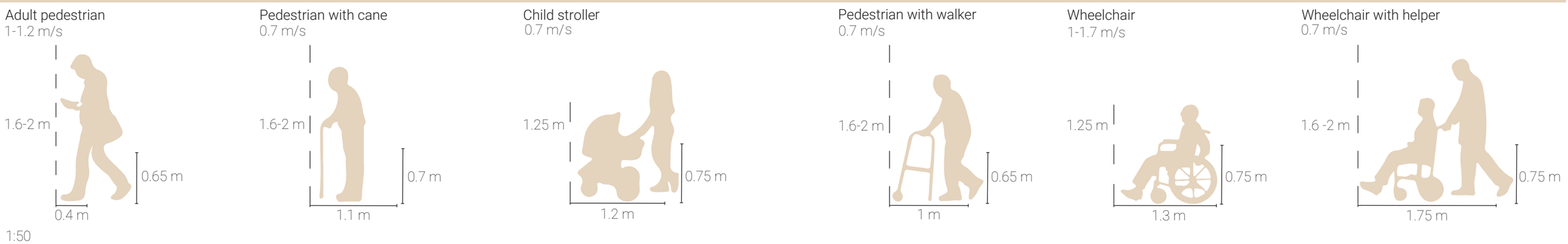
APPENDIX I: DESIGNING MOBILITIES I

MOBILITY FORMS

Mobility is the movement of bodies through cartesian space: an embodied social practice with intrinsic differences and inequalities. Which bodies move, how, at what speed, and how much space does each form of mobility require? These are some of the fundamentals to consider when designing mobilities. We have defined three overall forms of mobility: 1) Walking, 2) Soft Mobility on Wheels, and 3) Motorised Mobility including a representative, although non-exhaustive, selection of mobility types within each category. The boundaries between the categories are somewhat fluid but generally represent mobility forms allocated to 1) the sidewalk, 2) the biking lane, and 3) the road.

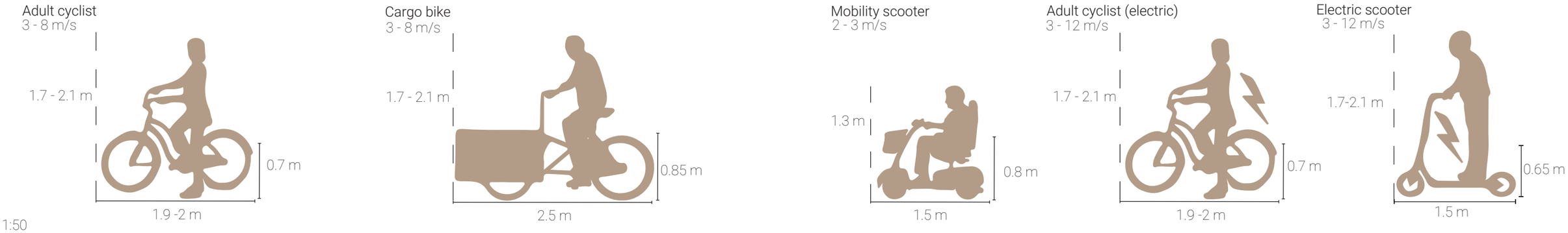
This implies that even though a wheelchair has wheels, it is catgorised as "Walking", and even though an electric bike is motorised, it still belongs to the "Soft Mobility on Wheels". The selection of mobility types is based on what is applicable in the rural context of a village cluster. We intend to use this catalogue of mobility forms and types to be aware of the spatial requirements of different mobilities when designing our solution for Village Cluster 9293. Also, we are curious about alternatives to the car as the main form of transport in a rural context, and we intend to pay special attention to the less mobile segments of the population. For our dimensions, we rely on Neufert's (2000) Architect's Data.

WALKING



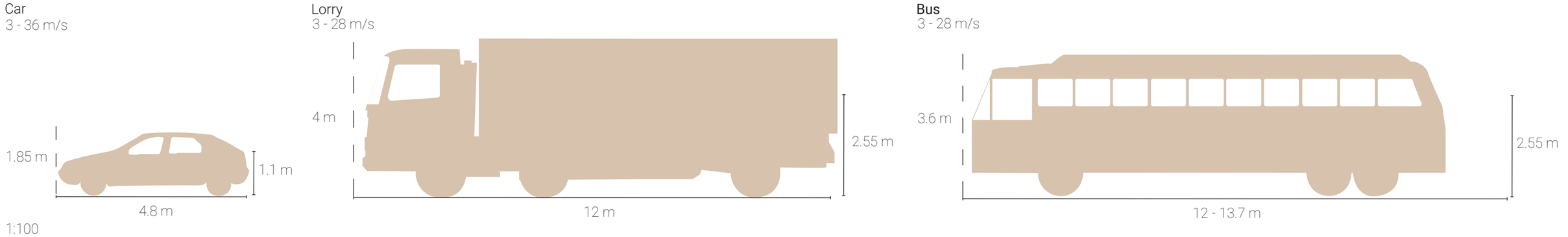
1:50

SOFT MOBILITY ON WHEELS



1:50

MOTORISED MOBILITY



1:100

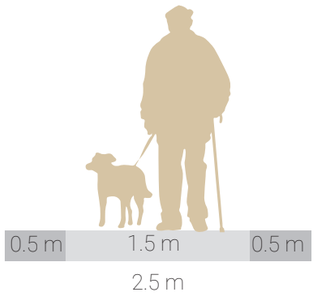
APPENDIX II: DESIGNING MOBILITIES II

ROAD DIMENSIONS

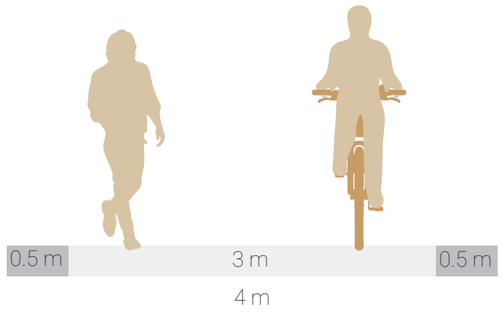
Having defined the different types of mobilities and their typical dimensions and speeds, we here define the types of paths and roads that are most relevant in a rural context based on the guidelines of The Danish Road Directorate (The Danish Road Directorate 1991a, 1991b, 1993, 2002, 2016, 2017a, 2017b, 2017c, 2018a, 2019b, 2019c). We use this knowledge of the technical dimensions to be aware of spatial constraints in mobilities design.

SOFT TRAFFIC ROADS

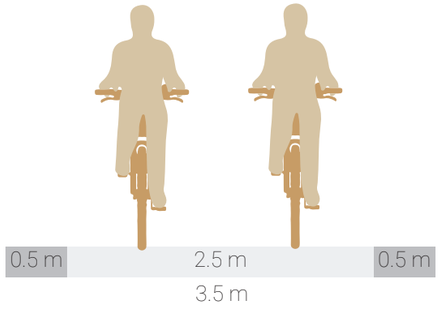
Simple path



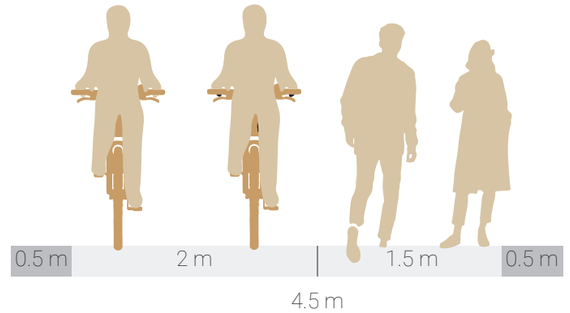
Shared path



Double bike path



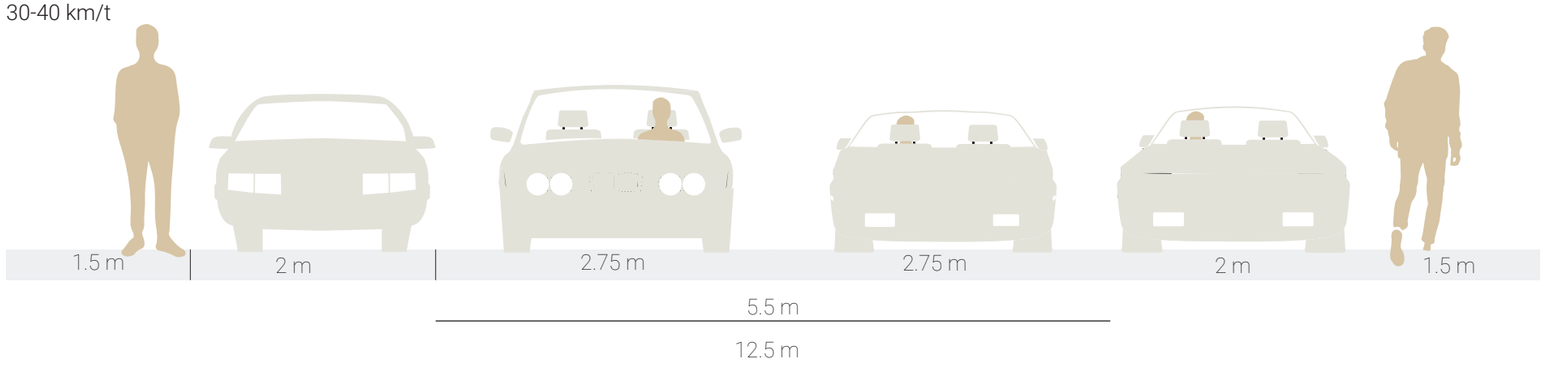
Double shared path



TOWN TRAFFIC ROADS

Town road with sidewalk
50 km/t

Residential street with roadside parking
30-40 km/t



APPENDIX III: SURVEY RESULTS

1. What is your gender?
Female - 68.3%
Male - 31.7%
Other - 0%

2. What is your age?
Average age of 43 y. o.

3. What is your occupation?
Business owner - 1.6%
Private emplyee - 38.1%
Public employee - 26.2%
Unemployed - 6.3%
Outside the work force - 2.4%
Pensioner - 7-9%
Student - 17.5%

4. What is your job title?
Text repsonses.

5. Which type of household are you a member of?
Single - 7.1%
Single with children - 7.9%
Couple - 24.6%
Couple with children - 50%
Other - 10.3%

6. Which village do you live in (nearest village)?
Kongerslev - 73%
Nørre Kongerslev - 19.8%
Komdrup - 7.1%

7. Do you have access to a car?
Yes - 81.7%
No - 10.3%
Sometimes - 7.9%

8. Do you have a drivers license?
Yes - 81.7%
No - 8.7%
No, but I have had it - 0%

9. How many cars are in your household?
0 - 6.3%
1 - 28.6%
2 - 54.8%
3 or more - 10.3%

10. How far is your daily commute?
0-10 km each way
10-50 km each way
+50 km each way

11. What is your primary mode of transport for commuting to/from work/education?
Walking - 1.6%
Biking - 4%
E-biking - 0%
Moped, scooter or similar - 0.8%
Car - 73%
Bus - 12.7%
Plustur combined with bus/train - 0%
Train - 0.8%
Other - 0.8%
Not relevant - 6.3%

12. What is your primary mode of transport for past time activities?
Walking - 18.3%
Biking - 11.1%
E-biking - 0%
Moped, scooter or similar - 1.6%
Car - 60.3%
Bus - 5.6%
Plustur combined with bus/train - 0%
Train - 0%
Other - 0%
Not relevant - 3.2%

13. What is your primary mode of transport for grocery shopping?
Walking - 19.8%
Biking - 4.8%
E-biking - 0%
Moped, scooter or similar - 0.8%
Car - 73.8%
Bus - 0.8%
Plustur combined with bus/train - 0%
Train - 0%
Other - 0%
Not relevant - 0%

14. What is your primary mode of transport for visiting friends and/or relatives?
Walking - 4%
Biking - 0.8%
E-biking - 0%
Moped, scooter or similar - 0.8%
Car - 84.9%%
Bus - 8.7%
Plustur combined with bus/train - 0%
Train - 0%
Other - 1.6%
Not relevant - 0%

15. Add here if you use other modes of transport.
Text responses.

16. Knowledge of public transport.
I know the different modes of public transport and their services. - 80.2%
I know how to purchase a ticket - 70.8%
I know how to plan a journey (e.g. via Rejseplanen app) - 72.9%
I disagree with all of the above statements - 8.3%

17. Satifaction with public transport.
The supply of public transport services is sufficient - 5.3%
The price of public transport is attractive - 9.6%
The travel time of public transport is attractive - 2.1%
It is nice and clean in busses and the like - 39.4%
There is good information about delays and service disruptions - 10.6%
I disagree with all of the above statements - 48.9%

18. How often do you use public transport?
Daily (primary mode of transport on weekdays) - 7.3%
Often (weekly) - 6.3%
Rarely (less than once per month) - 50%
Never - 36.5%

19. Which type of public transport do you use most frequently?
Train - 12.5%
Bus - 47.9%
Flex Traffic - 0%
Plus Ride combined with bus/train - 1%
I never use public transport - 38.5%

20. Motivation behind use of public transport.
Public transport covers my mobility needs - 10.6%
The price on public transport is attractive - 4.3%
The travel time of public transport is attractive - 3.2%
I can use my travel time more efficiently on public transport - 11.7%
Public transport is better for the climate and environment - 24.5%
Public transport is my only option - 14.9%
I don't use public transport - 59.6%

21. Motivation behind non-use of public transport.
Public transport is unable to cover my transport needs . 63.5%
The time schedules don't fit my needs - 68.8%
Public transport is too expensive - 36.5%
Public transport is too time consuming - 68.8%
Public transport is unreliable - 19.8%
It is too far from my home to the nearest stop or from the stop to my destination - 24%
It is difficult to plan my journey - 17.7%
It is difficult to purchase a ticket - 4.2%
It is difficult to change between different modes of public transport - 31.3%
Cleaning is insufficient - 8.3%
Public transport makes me feel unsafe - 2.1%
I need a car for my job - 36.5%
I need a car to drop off/pick up my children who live at home - 19.8%
I disagree with all of the above statements - 2.1%

22. How far do you live from the nearest bus stop?
<500 m - 61.5%
<1 km - 24%
<2 km - 4.2%
>2 KM - 9.4%
I don't know - 1%

23. I have knowledge of public transport in my local area.
I don't know - 1.1%
I strongly agree - 35.8%
I agree - 30.5%
I partially agree - 21.2%
I disagree - 7.4%
I strongly disagree - 4.2%

24. I know where to find physical information about bus routes and departures.
I don't know - 3.2%
I strongly agree - 46.3%
I agree - 29.5%
I partially agree - 12.6%
I disagree - 6.3%
I strongly disagree - 2.1%

25. I know where to find virtuel information about bus routes and departures (e.g. Rejseplanen app).
I don't know - 1.1%
I strongly agree - 55.8%
I agree - 29.5%
I partially agree - 5.3%
I disagree - 4.2%
I strongly disagree - 4.2%

26. I know where my nearest bus stop is, which busses I can take, and where I can go from there.
I don't know - 2.1%
I strongly agree - 43.2%
I agree - 30.5%
I partially agree - 20%
I disagree - 3.2%
I strongly disagree - 1.1%

27. I feel safe when I'm waiting for the bus at my bus stop.
I don't know - 12.8%
I strongly agree - 44.7%
I agree - 29.8%
I partially agree - 9.6%
I disagree - 3.2%
I strongly disagree - 0%

28. I feel safe when I move between my home and my bus stop.
I don't know - 10.5%
I strongly agree - 47.4%
I agree - 27.4%
I partially agree - 11.6%
I disagree - 3.2%
I strongly disagree - 0%

29. Good light of bus stop is important for my sense of safety.
I don't know - 9.6%
I strongly agree - 34%
I agree - 39.4%
I partially agree - 11.7%
I disagree - 2.1%

I strongly disagree - 3.2%

30. I feel safe parking my bike or car near bus stops.
I don't know - 13.8%
I strongly agree - 21.3%
I agree - 19.1%
I partially agree - 21.3%
I disagree - 19.1%
I strongly disagree - 5.3%

31. It is important to me that there are good opportunities to sit at the bus stop.
I don't know - 8.4%
I strongly agree - 16.8%
I agree - 20%
I partially agree - 33.7%
I disagree - 17.-9%
I strongly disagree - 3.2%

32. It is important to me that I'm sheltered from wind at the bus stop.
I don't know - 4.2%
I strongly agree - 38.5%
I agree - 32.3%
I partially agree - 18.8%

I disagree - 3.1%
I strongly disagree - 3.1%

33. It is important to me that I'm sheltered from rain at my bus stop.
I don't know - 4.2%
I strongly agree - 49.5%
I agree - 30.5%
I partially agree - 13.7%
I disagree - 1.1%
I strongly disagree - 1.1%

34. It is important for me that there is firm ground surface at and on the way to my bus stop.
I don't know - 6.3%
I strongly agree - 25.3%
I agree - 18.9%
I partially agree - 32.6%
I disagree - 10.5%
I strongly disagree - 6.3%

35. It is important to me that I have access to toilet facilities at my bus stop.
I don't know - 5.3%
I strongly agree - 4.3%
I agree - 5.3%
I partially agree - 24.5%
I disagree - 41.5%
I strongly disagree - 19.1%

36. It is important to me that there is a kiosk near my bus stop.
I don't know - 5.3%
I strongly agree - 1.1%
I agree - 1.1%
I partially agree - 11.7%
I disagree - 52.1%
I strongly disagree - 28.7%

37. It is important for me that there are good bike parking opportunities at my bus stop.
I don't know - 10.5%
I strongly agree - 11.6%
I agree - 20%
I partially agree - 35.8%
I disagree - 16.8%
I strongly disagree - 5.3%

38. It is important to be that there are good opportunities for parking/drop off at my bus stop.
I don't know - 8.4%
I strongly agree - 12.6%
I agree - 21.1%
I partially agree - 34.7%
I disagree - 17.9%
I strongly disagree - 5.3%

39. I'm willing to walk/bike up to 500 m to reach a bus stop with a departure which suits me better.
I don't know - 7.4%
I strongly agree - 43.2%
I agree - 35.8%
I partially agree - 8.4%
I disagree - 2.1%
I strongly disagree - 3.2%

40. I'm willing to walk/bike up to 1 km to reach a bus stop with a departure which suits me better.
I don't know - 7.3%
I strongly agree - 22.9%
I agree - 27.1%
I partially agree - 19.8%
I disagree - 15.6%
I strongly disagree - 7.3%

41. I'm willing to walk/bike up to 3 km to reach a bus stop with a departure which suits me better.
I don't know - 4.2%
I strongly agree - 2.1%
I agree - 4.2%
I partially agree - 16.8%
I disagree - 40%
I strongly disagree - 32.6%

42. I'm willing to walk/bike up to 3 km to reach a bus stop with a departure which suits me better.
I don't know - 4.2%
I strongly agree - 1.1%
I agree - 0%
I partially agree - 5.3%
I disagree - 36.8%
I strongly disagree - 52.6%

43. It is important to me that the bus stop and the surrounding area is clean.
I don't know - 3.2%
I strongly agree - 15.8%
I agree - 45.3%
I partially agree - 31.6%
I disagree - 4.2%
I strongly disagree - 0%

44. It is important to me that the bus stop and the surrounding area is aesthetically pleasing.
I don't know - 2.1%
I strongly agree - 12.8%
I agree - 31.9%
I partially agree - 39.4%
I disagree - 12.8%
I strongly disagree - 1.1%

45. If my bus stop is subject to vandalism, it is important to me that it is quickly repaired.
I don't know - 4.2%
I strongly agree - 25.3%
I agree - 41.1%
I partially agree - 25.3%
I disagree - 3.2%
I strongly disagree - 1.1%

46. It is important that there are bins at the bus stop so it is possible to keep it clean.
I don't know - 2.1%
I strongly agree - 53.7%
I agree - 36.8%
I partially agree - 6.3%
I disagree - 0%
I strongly disagree - 1.1%

47. - Text responses

48. Which of the following alternative modes of transport have you tried?
Car pooling - 39.5%
Car sharing - 4.7%
E-bike - 8.1%
E-scooter or similar - 3.5%
None - 53.5%

49. Which of the following alternative modes of transport would you be willing to try?
Car pooling - 43.7%
Car sharing - 26.4%
E-bike - 18.4%
E-scooter or similar - 11.5%
None - 35.6%

50. What do you think about carpooling?
Text responses.

51. What do you think about car sharing?
Text responses.

52. What do you think about electric bikes?
Text responses.

53. What do you think about electric scooters and the like?
Text responses.

54. I'm glad to live in my village.
I don't know - 0%
I strongly agree - 47.1%
I agree - 31.8%
I partially agree - 18.8%
I disagree - 1.2%
I strongly disagree - 1.2%

55. We have a strong local community in my village.
I don't know - 4.7%
I strongly agree - 24.7%
I agree - 35.3%
I partially agree - 27.1%
I disagree - 8.2%
I strongly disagree - 0%

56. I participate actively in the local community activities in my villages.
I don't know - 4.7%
I strongly agree - 24.7%
I agree - 35.3%
I partially agree - 27.1%
I disagree - 8.2%
I strongly disagree - 0%

57. I participate in the activities of the surrounding villages.
I don't know - 1.2%
I strongly agree - 1.2%
I agree - 8.2%
I partially agree - 25.9%
I disagree - 35.3%
I strongly disagree - 28.2%

58. Kongerslev, Nørre Kongerslev og Komdrup have a good collaboration.
I don't know - 17.6%
I strongly agree - 1.2%
I agree - 24.7%
I partially agree - 41.2%
I disagree - 11.8%
I strongly disagree - 3.5%

59. Which community institutions' activities do you or have you participated in?
Kongerslev Citizens Association - 49.4%
Kongerslev Sports Association - 64.7%
Friends of KSA - 16.5%
Kongerslev Shooting Club - 38.8%
Kongerslev Business Association - 11.8%
Kongerslev Senior Club - 2.4%
Kongerslev Equestrian Club - 1.2%
Kongerslev Women's Café - 9.4%
Denmark's Civil Dog Training Kongerslev - 16.5%
Sdr. Kongerslev Church - 34.1%

Kongerslev and Surroundings Heart Starter - 10.6%
Kongerslev School - 42.4%
Nørre Kongerslev Sports Association - 12.9%
Nørre Kongerslev Citizens Association - 9.4%
Komdrup Church - 10.6%
Komdrup Citizens Association - 4.7%
Komdrup Citizens House - 12.9%
Komdrup Fishing Association - 2.4%
Other - 17.6%
No participation - 10.6%

60. If you have participated in local activities, what was your role?
Participant - 70.6%
Volunteer - 43.5%
Leader - 10.6%
I have not participated - 12.9%

61. What motivated you to live in a rural area?
Text responses.

62. What do you perceive as the greatest threats against small towns and villages like where you live?
Text responses.

63. Additional comments and questions.
Text responses.

APPENDIX IV: SURVEY RESPONDENTS ATTITUDES

SURVEY RESPONDENTS ATTITUDES TOWARDS PUBLIC TRANSPORT

SURVEY RESPONDENTS ATTITUDES TOWARDS CARPOOLING

Beneficial for climate and environment

I don’t want to be dependent on others

Not suited my job or family life

Works better in cities

Lack of facilities

Negative experience

Not for me

Okay with family, friends or coworkers

Only if the schedule works out

Unsafe

Postive attitude

Postive experience

SURVEY RESPONDENTS ATTITUDES TOWARDS CARSHARING

I don’t want to share a car

Beneficial for climate and environment

Postive attitude

No opinion

A shared car with more room than a regular car could be used for village activities

Not for me

Unhygienic

Not in a rural context

Can’t use the car when I want

Only if you know the other people well

Doesn’t work for my family or job

SURVEY RESPONDENTS ATTITUDES TOWARDS E-BIKES

We need charger stations with bike parking

Aalborg is too far

I have one

I’m not physically able enough

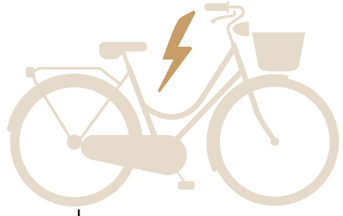
It makes me use my car less

No opinion

Expensive

Theft risk

Not when it rains or is cold



Not for me

Alternative to regular bike

I prefer a regular bike

I want one

Postive attitude

Lazy

Dangerous speed

Only for short or medium distances

I would exercise more

Would increase my mobility

SURVEY RESPONDENTS ATTITUDES TOWARDS E-SCOOTERS

Cheap

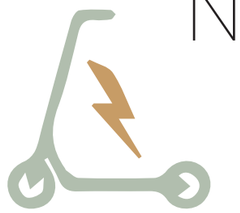
Only for cities

Lazy

No opinion

Not for me

Maybe in the villages or between the villages for bigger children



Should be banned

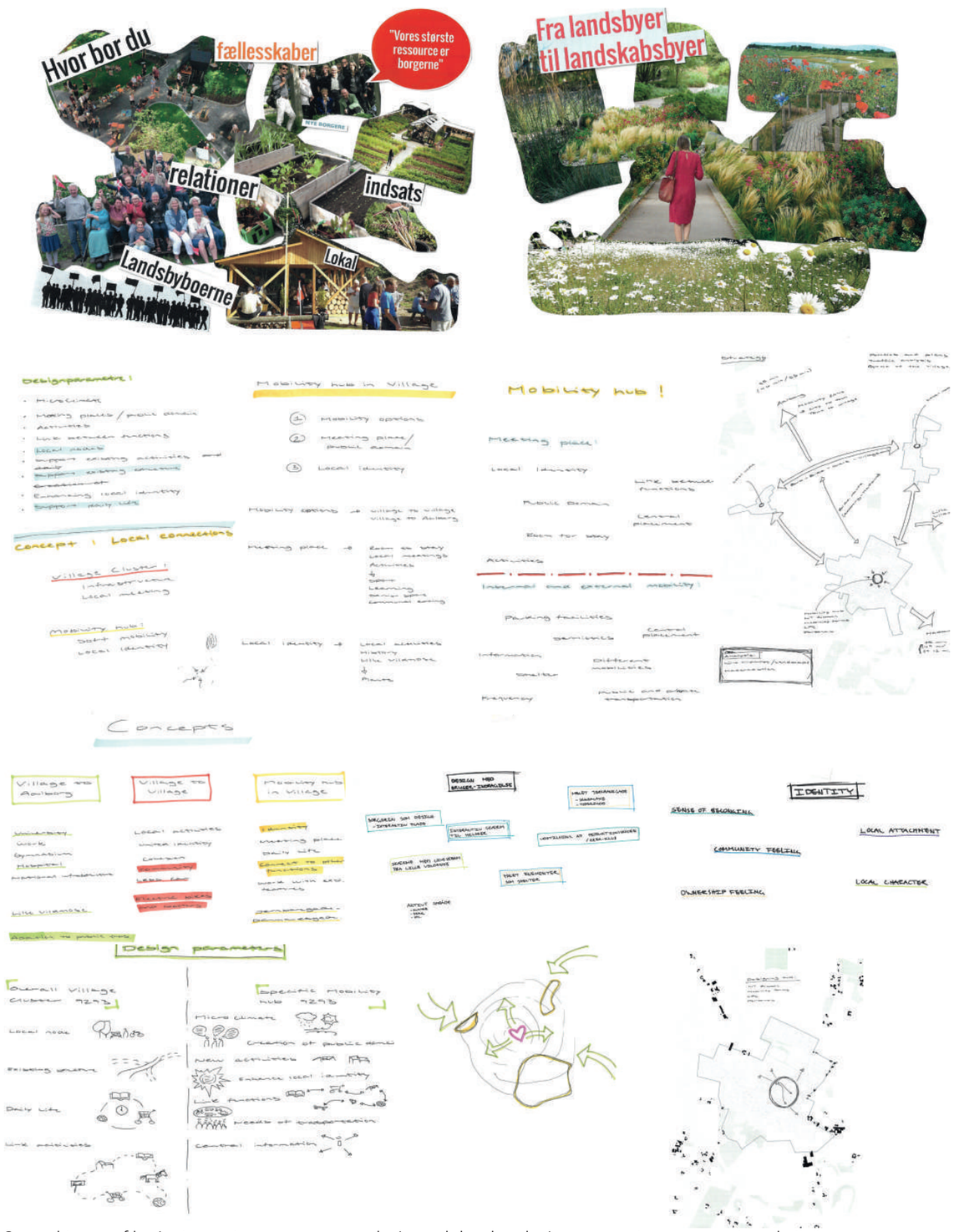
Positive attitude

Unsafe

Unsustainable

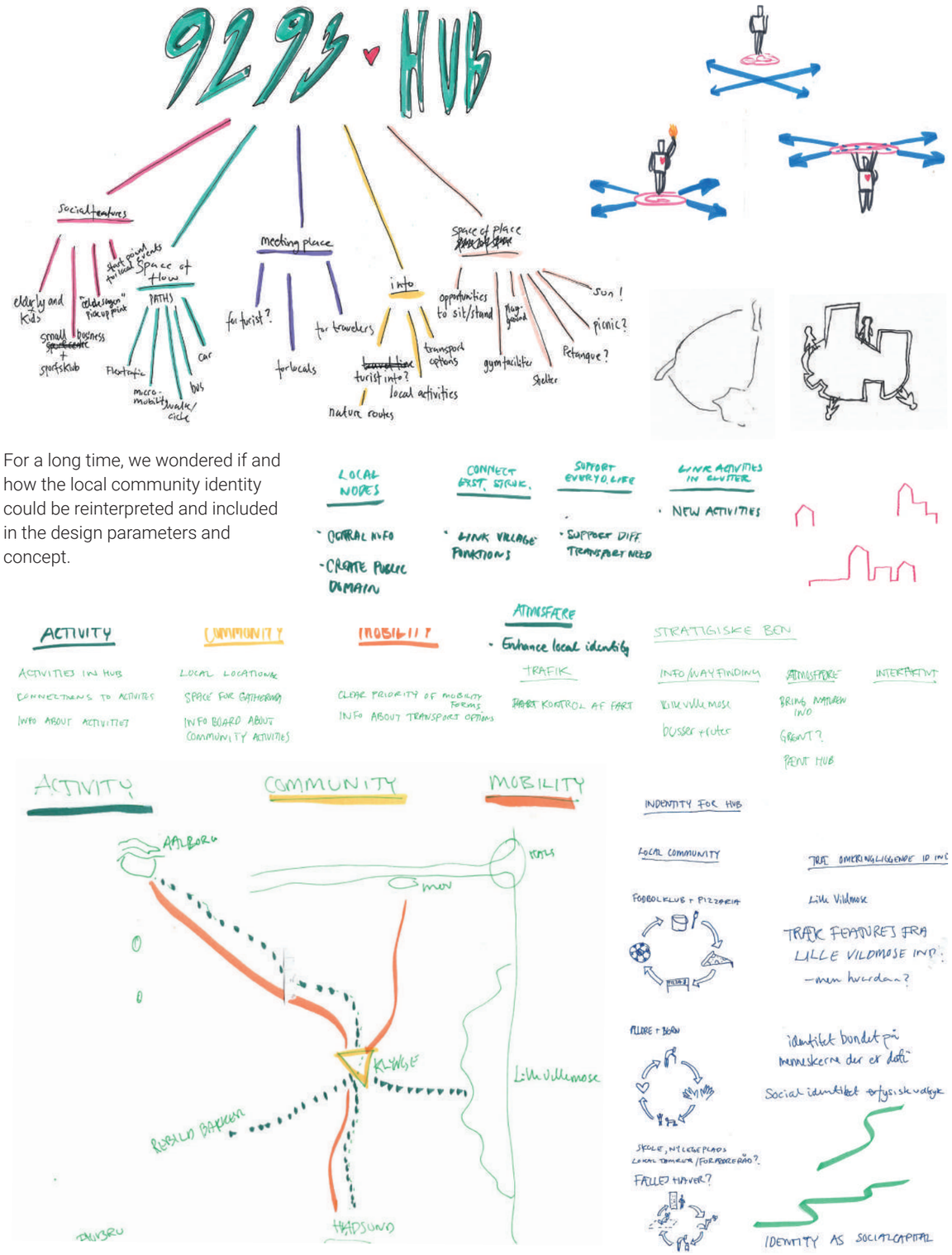
Not suited for rural areas

APPENDIX V: DESIGN PROCESS - BRAINSTORMS

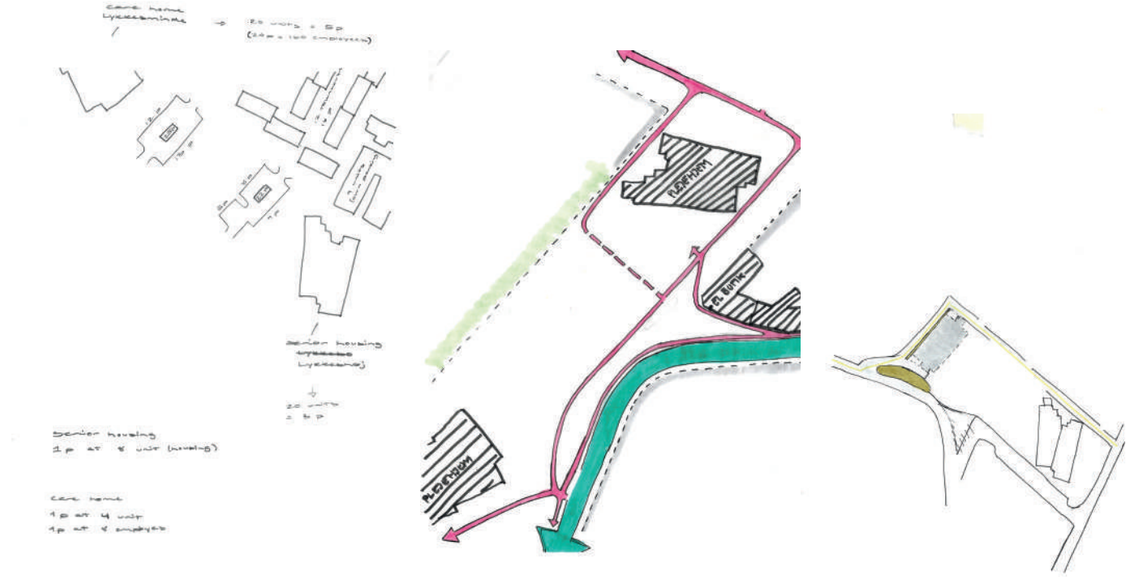


Several types of brainstorms to sum up our analysis, and develop design parameters, concept, and strategy.

APPENDIX VI: DESIGN PARAMETERS AND CONCEPT



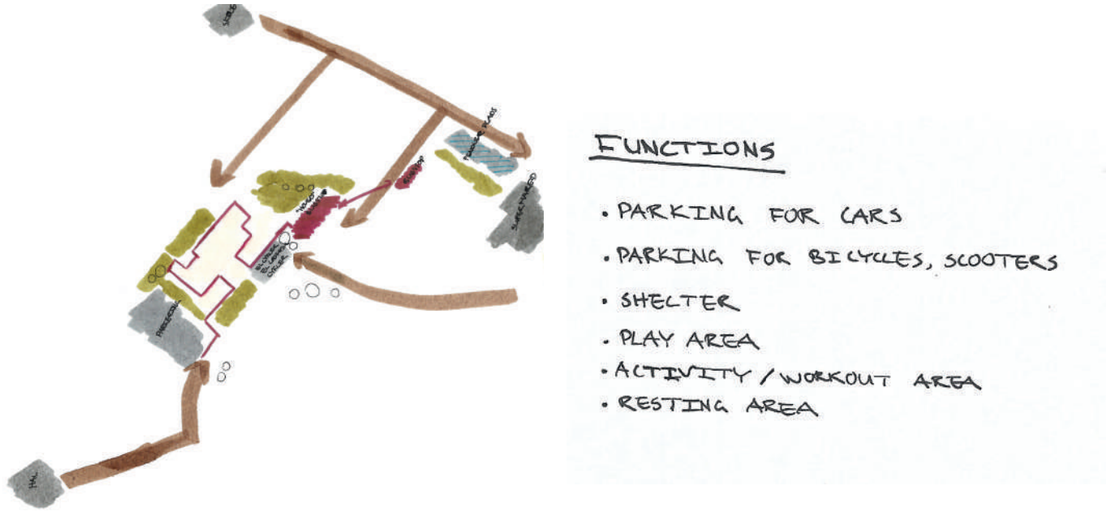
APPENDIX VII: DESIGN PROCESS - ROAD DESIGN



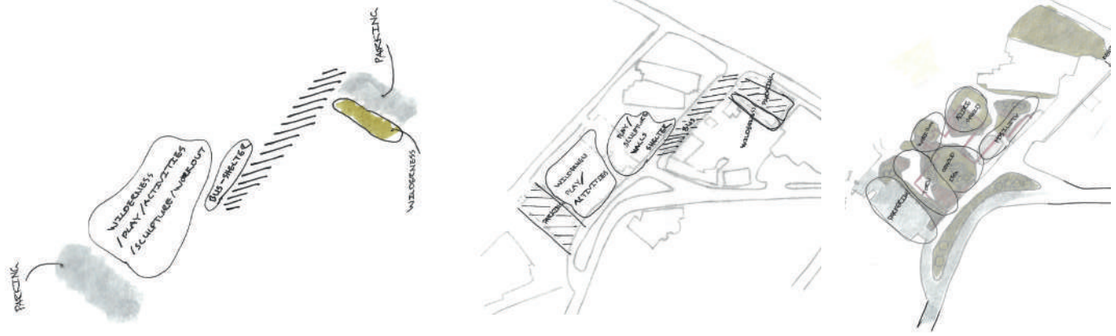
By comparing the amount of parking with the required amount, we found that it was possible to close one of the parking lots. We mapped flows for both pedestrians and vehicles before designing the road structure

We tried several solutions for rearranging the road structure on Jernbanegade using busroutes and swing curves to test and measure

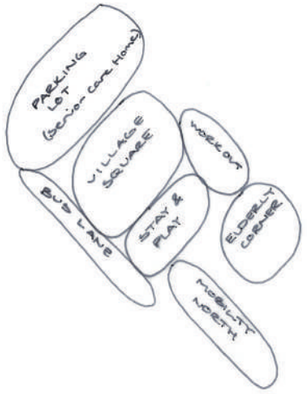
APPENDIX VIII: DESIGN PROCESS - FUNCTIONS



Again, traffic flows were used to determine where different functions could be located. A list of primary functions in the area was created, and later more were added

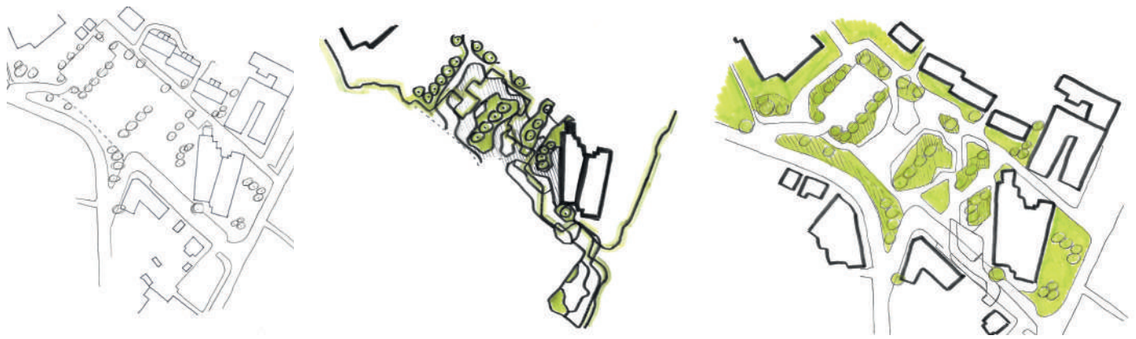


One by one we experimented with different kinds of funtions located in the area. We discussed pros and cons for each location until we decided on a final location

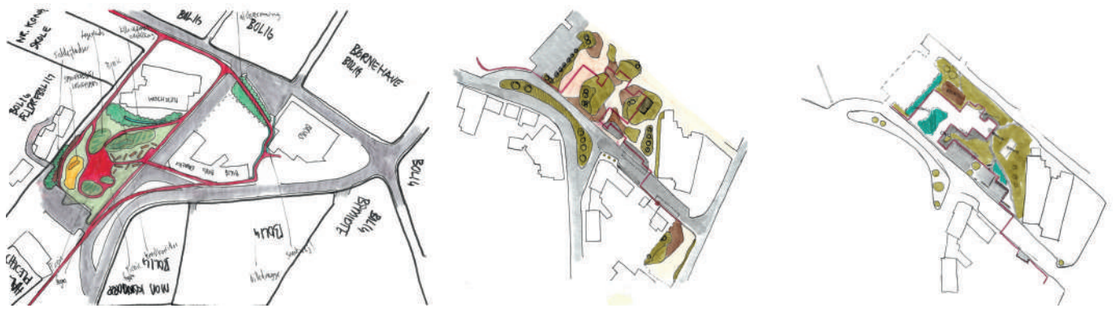


APPENDIX IX: DESIGN PROCESS - THE PLAN

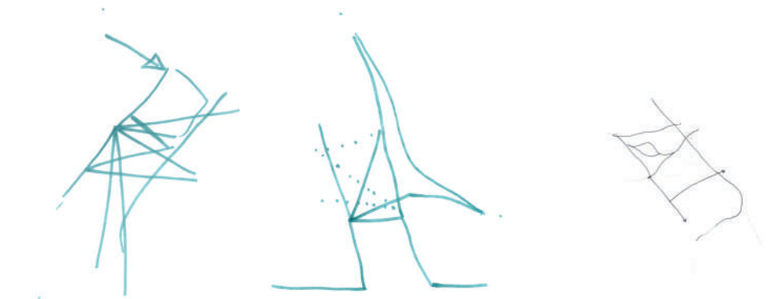
First attempt: Creating different areas by offsetting building facades



Second attempt: Keep existing trees and let them create different areas

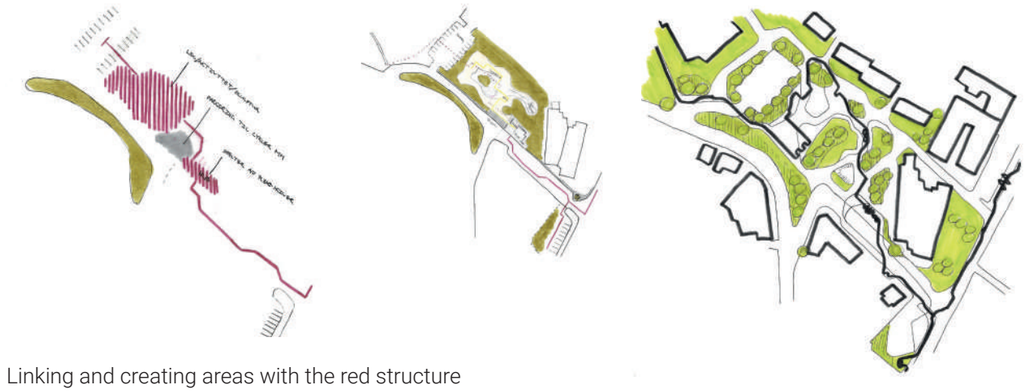


Third attempt: Experimenting with different shapes of smaller areas

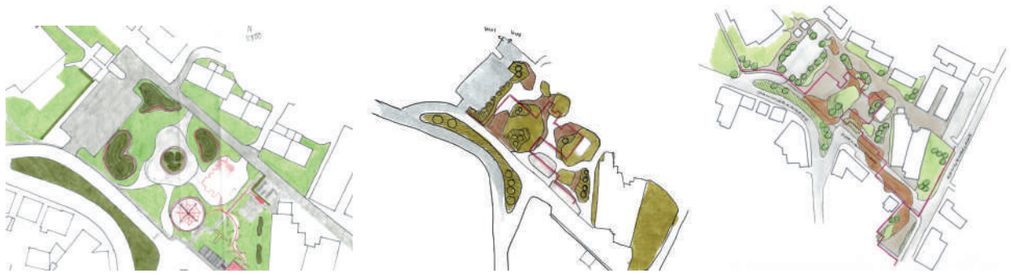


Internal flows helped to difines areas og high speed, low speed and stay

APPENDIX X: DESIGN PROCESS - THE RED STRUCTURE

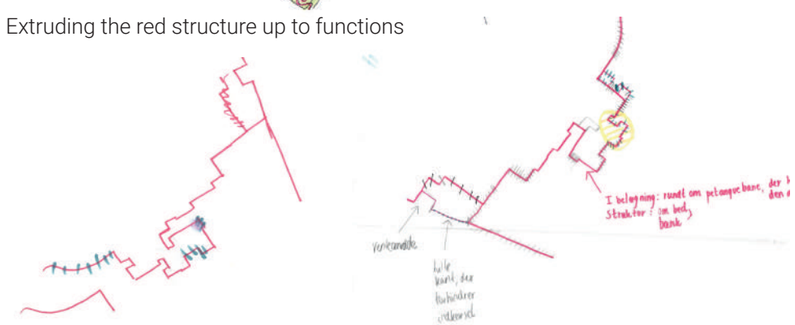


Linking and creating areas with the red structure



Trying different shapes with the red structure

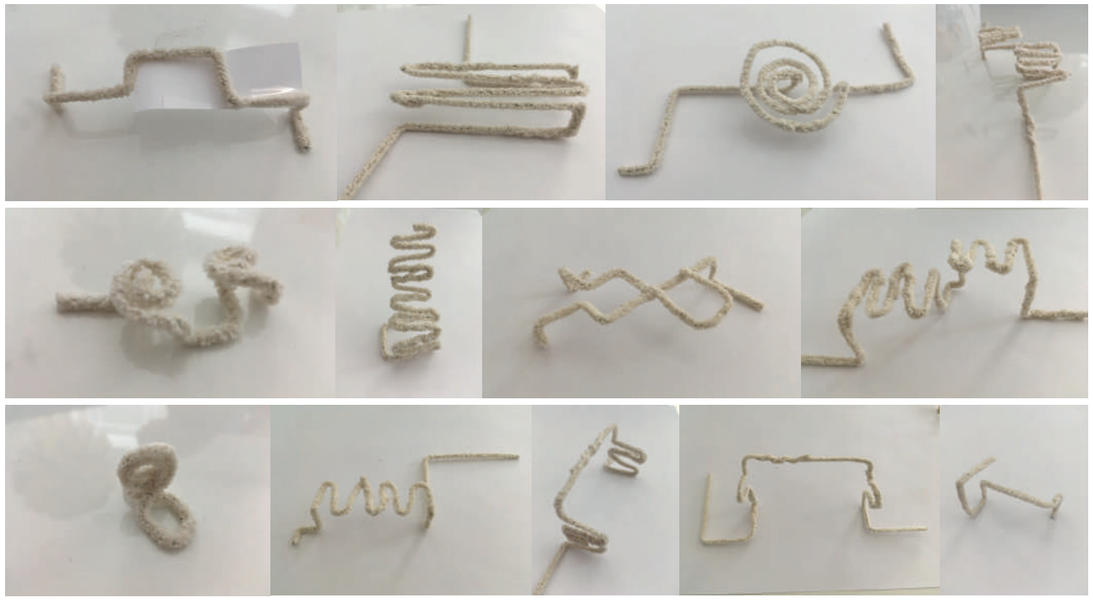
Extruding the red structure up to functions



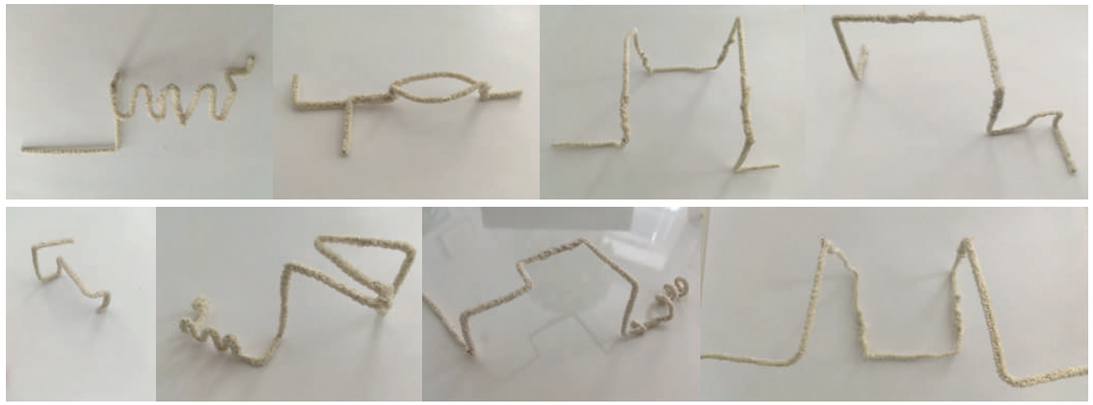
Deciding where the red structure should be on or above ground in order to maintain passage for flow and create functions

APPENDIX XI: DESIGN PROCESS - DETAILING

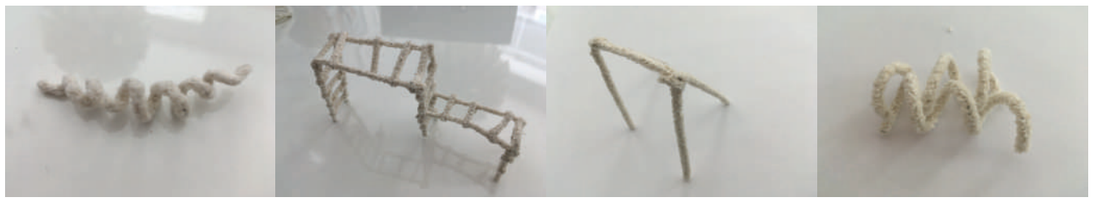
PIBE CLEANER EXPERIMENTS OF SHAPES CREATING FUNCTIONS ON RED STRUCTURE



SEATING

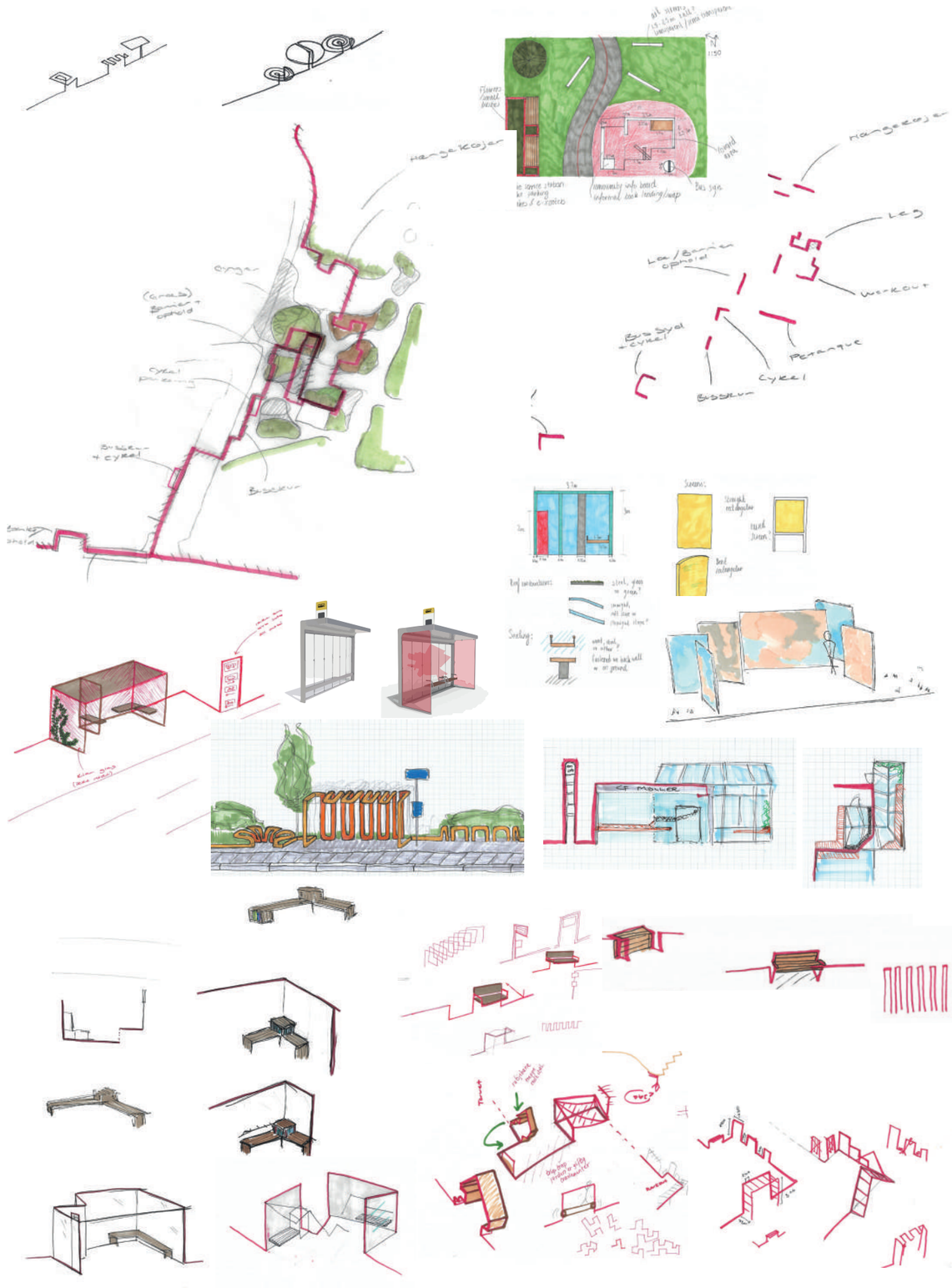


BUSSTOP



OTHER FUNCTIONS

DETAILING THE SHAPES AND FUNCTIONS OF THE RED STRUCTURE AND BUS STOP.



APPENDIX XII: PRECEDENTS

GROUND SURFACE/LANDSCAPING

Piazza Vecchia (Studio Fink) in Bergamo, Italy 2014

Unparallel Way (Emily Weiskopf) in New York City, USA 2012

The Red Folding Paper (Turenscape) in Qian'an City, China 2012

Mineral roof garden (Roberto Burle Marx) in Sao Paulo, Brazil 1983

STREET FURNITURE

Parked bench (WMBstudio) in London, UK 2016

Off-ground (Straschnow & Nygaard) in Copenhagen, Denmark 2013

Houtan Park (Turenscape) in Shanghai, China 2010

Red Ribbon Park (Turenscape) in Qinhuangdao, China 2007

OUTDOOR SPORTS FACILITIES AND PLAYGROUNDS

Park n Play (JaJa Architects) in Copenhagen, Denmark 2016

Hart Mill Surrounds (Aspect) in Port Adelaide, Australia 2014

Kebne (Nola) in Jönkoping, Sweden 2017

Kalvebod Waves (JDS Architects) in Copenhagen, Denmark 2017

COMMUNITY SERVICES

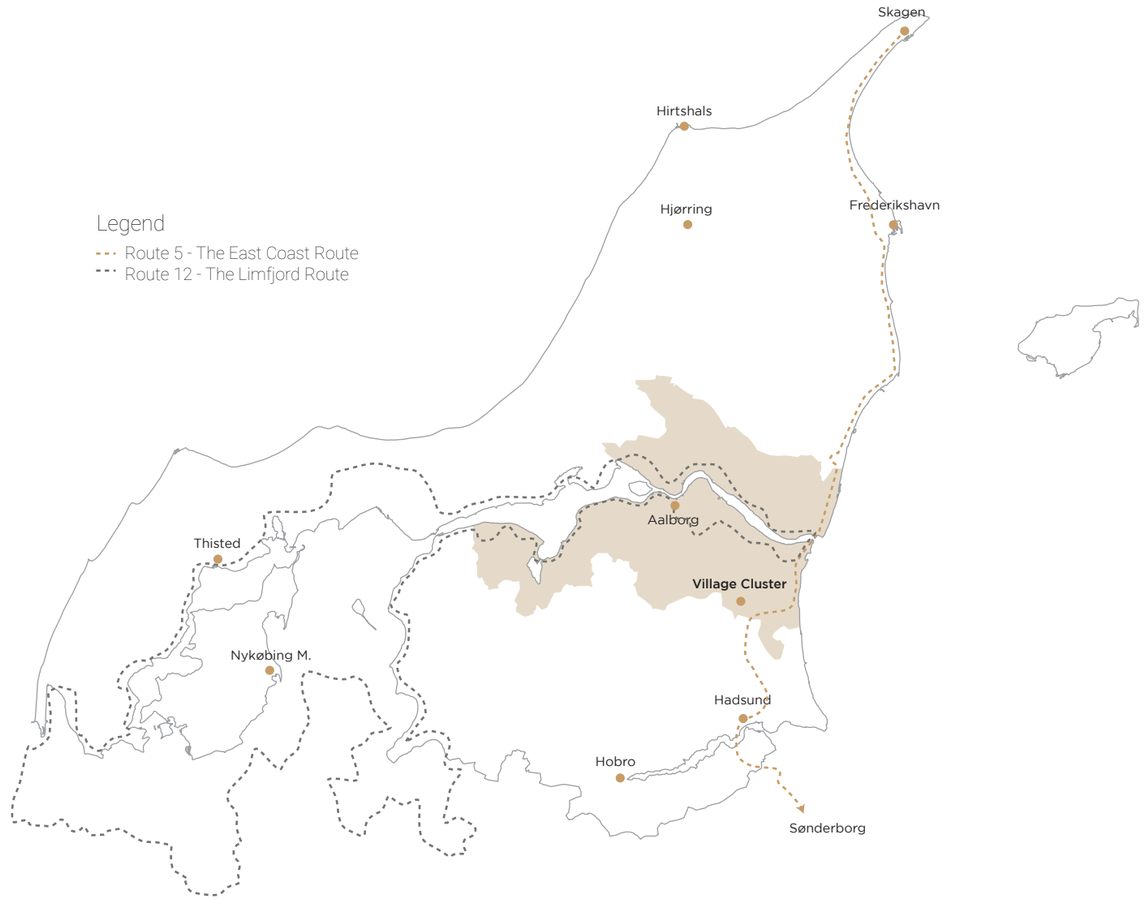
Drive with bench local car pooling bench in Havbakke, Denmark 2019

Outdoor Book Cabinet in Sonthofen, Germany 2016

eTree (Sologic) public charging station in Nevers, France 2015

Bike Fixation bike service station in Minneapolis, USA 2010

APPENDIX XIII: NATIONAL BIKE ROUTES

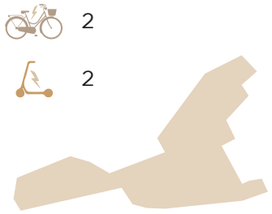


APPENDIX XIV: ALTERNATIVE MOBILITIES COUNT

Shared cars

E-bikes

E-scooters



2

2

Komdrup

3

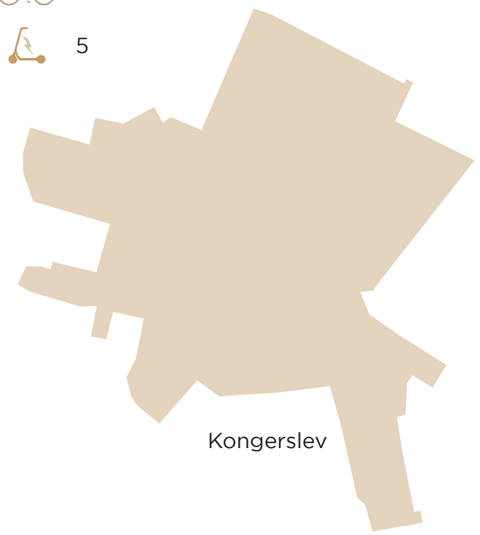
3

Nr. Kongerslev

3

5

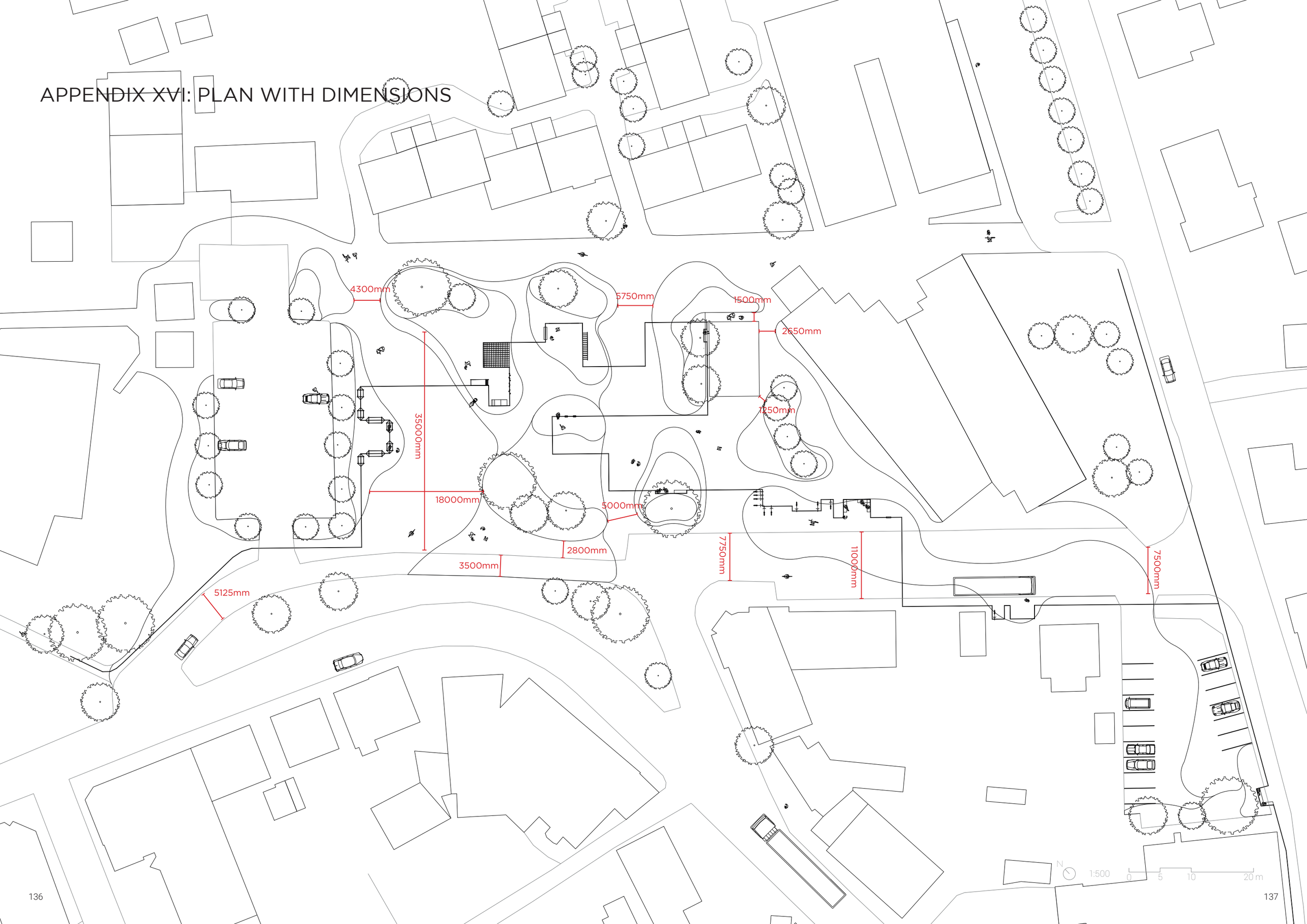
5



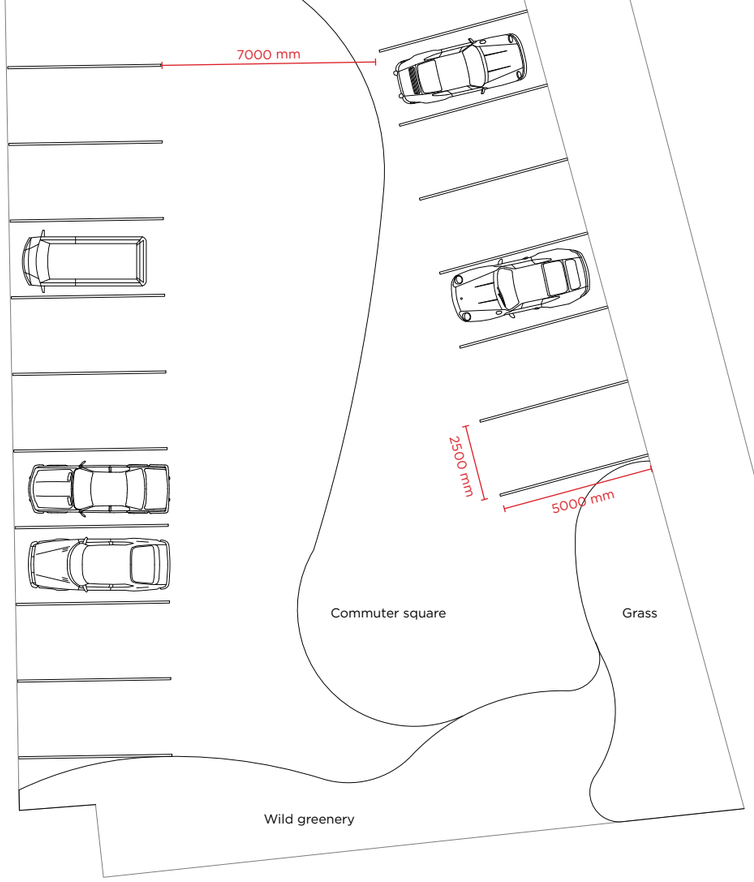
Kongerslev

APPENDIX XV: PARKING CALCULATIONS

APPENDIX XVI: PLAN WITH DIMENSIONS

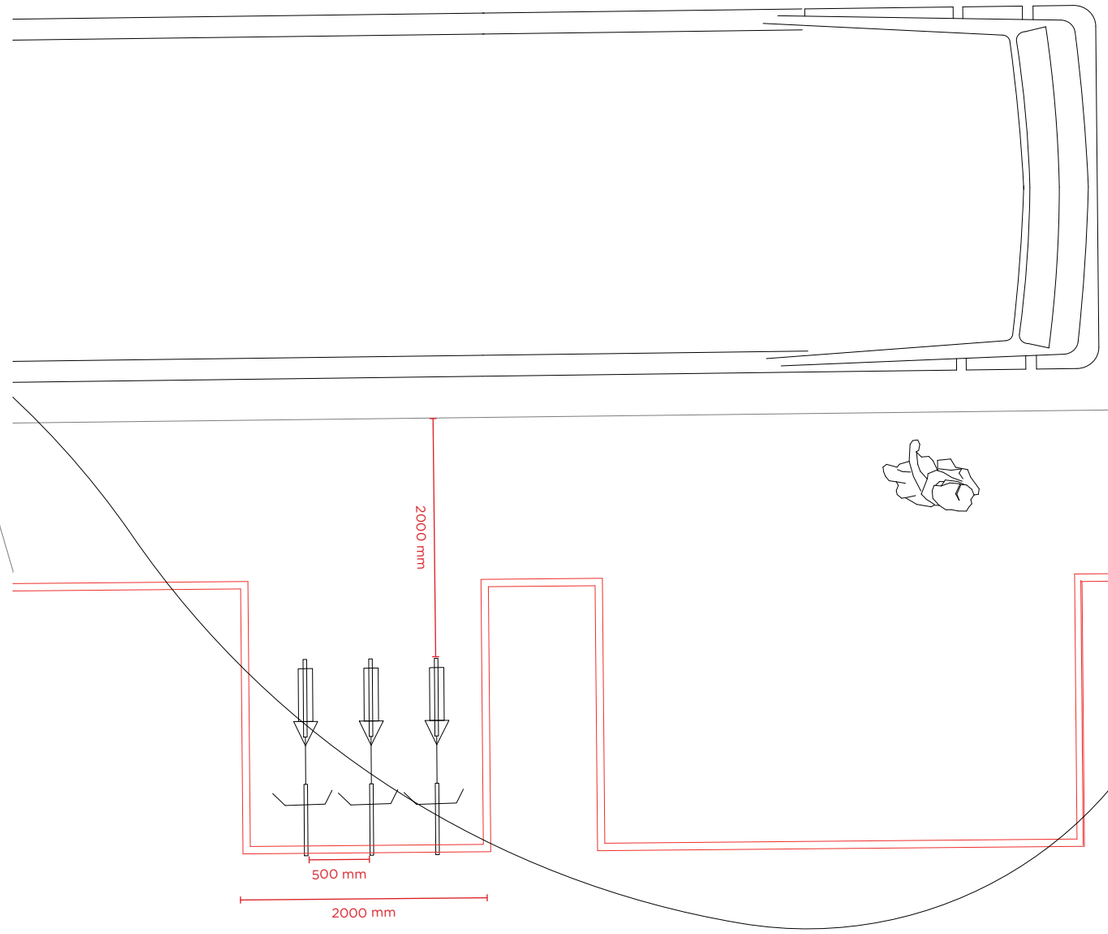


APPENDIX XVII: PARKING DIMENSIONS



N 1:200 0 2 4 8 m

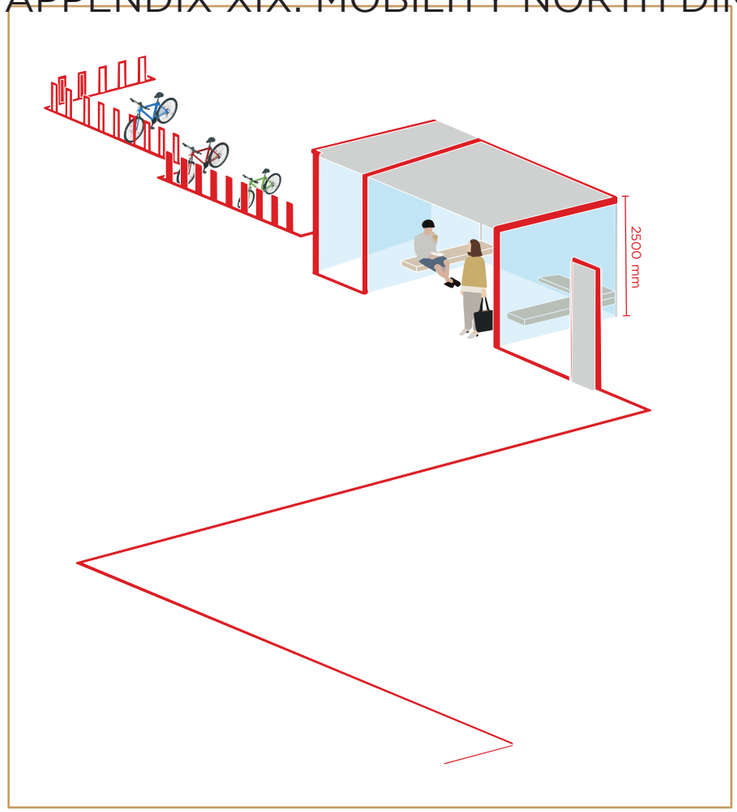
APPENDIX XVIII: BIKE PARKING DIMENSIONS



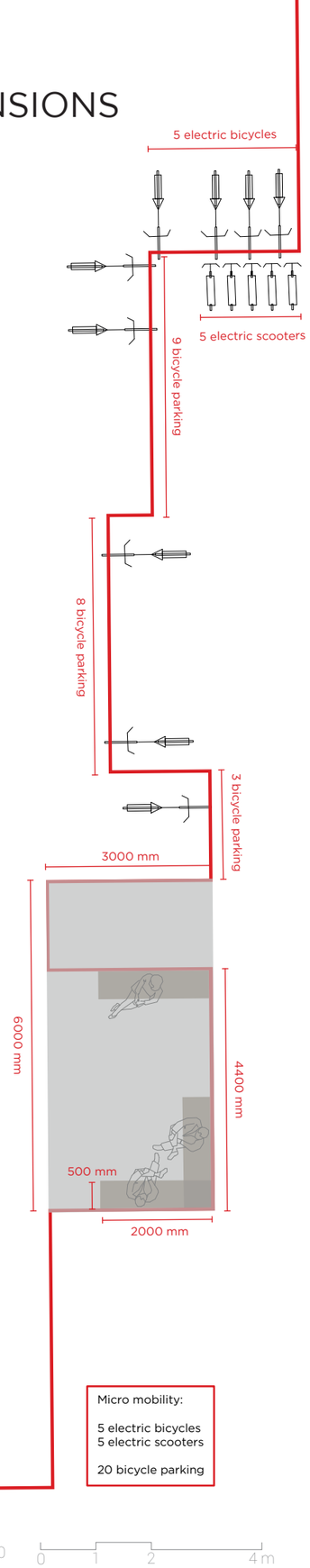
Mobility South

N 1:50 0 0.5 1 2 m

APPENDIX XIX: MOBILITY NORTH DIMENSIONS



Not in scale



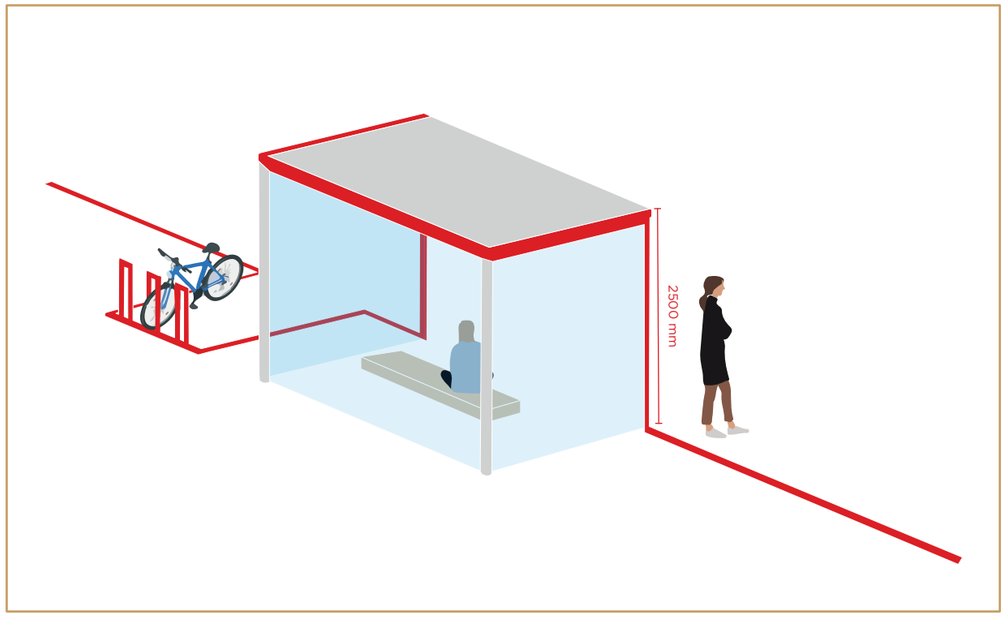
Micro mobility:

5 electric bicycles
5 electric scooters

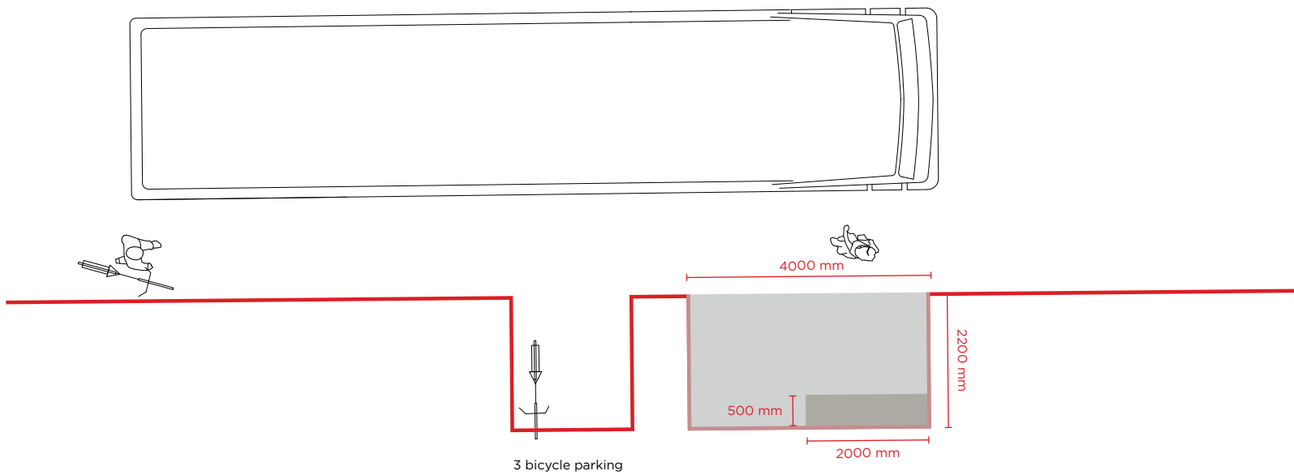
20 bicycle parking

N 1:100 0 1 2 4 m

APPENDIX XX: MOBILITY SOUTH DIMENSIONS



Not in scale



3 bicycle parking

N 1:100 0 1 2 4 m