Master's thesis

NTNU
Norwegian University of Science and Technology
Faculty of Architecture and Design
Department of Architecture and Planning

Rosemina Azad

# Realizing the challenges of low-mobility citizens when using public areas.

## A case study in Ålesund, Norway.

Master's thesis in Urban Ecological Planning
Supervisor: Wang Yu
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*'A good city is like a good party – people stay longer than necessary because they are enjoying themselves.'*

*- Jan Gehl*

## Abstract

At some point in life, most people face some sort of low mobility or decreased mobility, be it temporary or permanent. Studies now show that lower mobility is directly linked to lower social engagement as this specific group does not feel confident enough to associate in communities due to their differences. Since proper urban design and planning can reduce the challenges of interactions with society and the environment, today, disability and reduced mobility are considered more of a social issue than a personal medical condition. Urban environments should be designed in ways that sufficiently adhere to the needs of the mobility-impaired community, allowing them to use their environment and interact with society like everyone else. This thesis aimed to determine the challenges faced by the mobility-impaired group when they interact with and use three urban and public areas in Ålesund. Through various methods of interaction, their situations were observed to reach a verdict. The target groups were the senior and handicapped citizens, and it was found that wheelchair users faced significantly more challenges than other types of users. The city was built more than 100 years ago without thoughts of universal design, therefore, many heritage sites lacked inclusivity, and incorporating inclusion is a sensitive task right now. However, newer areas are more inclusive, as they had interventions of universal design. It was also found that the users had the greatest challenge with accessibility and usage of urban amenities, but the availability of amenities significantly increased the usability of urban spaces. Some of the implications of these issues are creating more universally designed urban elements, improving accessibility, and increasing communication between citizens and authorities. Additional findings and implications are further mentioned in the paper.

Keywords: low-mobility, accessibility, universal design

## Acknowledgment

Many people have been with me through this journey, and I have my heartfelt gratitude to every one of them for their support and motivation.

I would like to start by thanking the Møre og Romsdal Fylkeskommune for believing in my thesis and the subject of it, and for providing me with financial support to conduct my research.

I am grateful to my supervisor Wang Yu, who guided me throughout the entire process and provided me with insightful comments. Additionally, I am thankful to my co-supervisor from Ålesund Municipality, Claudia Viviana Lopez Alfaro, who helped me immensely from the beginning of the project and made my research smoother. I would also like to thank Rolee Aranya, the UEP study program leader, who motivated me and guided me when I was stuck in my work.

My research would not have been possible without the help of the Handikapforbundet in Ålesund, whose members were my participants constantly. Furthermore, I would like to thank every other participant who contributed to my research, and without whose contributions, this thesis would be incomplete.

I am further thankful to all the members from Ålesund Municipality, who happily answered my questions regarding the research topic.

My thesis journey would be frustrating if it weren't for my friends from UEP, with whom I could discuss my thesis, and also my troubles. Special thanks to Atiq and Puspa for being there when I was at a low.

And finally, I am immensely thankful to my partner, Nuhash, who helped me and inspired me throughout my thesis, and also in my entire master's program.

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## Abbreviations and Acronyms

**AL** - Aldersvennlige Lokalsamfunn (Age-friendly Communities)

**Bufdir** - Barne-, ungdoms- og familiedirektoratet (The Norwegian Directorate for Children, Youth and Family Affairs)

**CRPD** – (UN) Convention on the Rights of Persons with Disabilities

**FGD** – Focus Group Discussion

**KS** – Kommune Sektorens (Municipality Sectors)

**LF** – Local Factors

**NHF** – Norges Handikapforbund (Norwegian Handicapped Association)

**NHFA** - Norges Handikapforbund Ålesund (Norwegian Handicapped Association, Ålesund)

**NMA** – The Norwegian Mapping Authority

**PF –** Pensjonistforbundet (The Pensioner's Association)

**PT** – Public Transports

**RPFN** - Rådet for personar med funksjonsnedsetting (The Council for Persons with Disabilities)

**SDG** – Sustainable Development Goals

**UD -** Universal Design

# 1. Introduction

Urban public spaces are features of a community, town, or city, that are open to public use and can be used by its citizens, regardless of age, gender, ethnicity, or physical characteristics (Mitchell and Staeheli, 2009). These public spaces can be many things: it can be a bus stop, a small street, a plaza, a park, a neighborhood, or even the town council (Mehta, 2014). The scales can vary greatly, as long as it serves the purpose.

Urban planners consider public spaces as a connection between the people and the space (Pacheco, 2017). But how strong is this 'connection' in reality? How many people can *feel* this connection? A public space should consider all or at least most of its users, making everyone will feel comfortable using or interacting with the space. Social conditions should not foster fear - it should enhance the wish to connect more, or else it might result in being secluded in one's home (Evans, 2009). To improve this interaction with society, ideas of universal design are being adopted now, which enables all citizens to use public spaces equally and safely (n.d.-k). Universal design enhances the usability, serviceability and accessibility of an area, or an object, which creates inclusion amongst people. This thesis focuses on the challenges of a vulnerable group of the society, which might feel disconnected in using public spaces if proper universal design is not provided.

## 1.1 Importance of public space

Being outdoors and socializing in the community are directly linked to better mental and physical health (Digital, 2020). Being outside in public areas boosts the mood, reduces stress and anxiety, and helps people do some form of exercise; health practitioners stress the importance of going out, be it for a hike, a walk, or even for gardening (Digital, 2020). Public spaces increase community bonding and enhance socialization. These spaces also help prevent crime, and create a sense of security, as one will always be in front of the eyes of other users. A good public space contains diversity and attracts people to the streets (Pacheco, 2017). Therefore, good, and accessible outdoor and/or urban spaces should be made to help citizens mentally and physically, by creating comfortable and inclusive spaces.

According to researcher Per Gunnar Røe from the University of Oslo, the concept of urban spaces is decreasing in many places due to the distribution of construction work. In the Norwegian context, many large-scale projects are being taken up by private entities, and their projects usually do not consider the urban realms of the scenario. Previously, municipalities

had the sole responsibility of carrying out projects and they would work keeping in mind the quality of outdoor spaces and accessibility as well (2021g).

## 1.2 Research topic

The older population in the world is increasing in number each passing year due to a lower birth rate and larger longevity (Bates, 2018). Fertility rates have dropped by half from 1968 to 2017, and it is expected to drop even further in the world (Dhanesha, 2021). Major countries, such as Japan or Italy, will see their population be halved by 2100, and China too is facing a decreased younger population, for which they have changed their one-child policy to a three-child policy in 2021 (Gallagher, 2020). According to the World Health Organization, by 2030, there will be a person over the age of 60 for every 6 people, and from 2015 to 2050, the population over 60 years old will have increased from a 12% to a 22%, doubling the value in 35 years (2021a).

Additionally, 15% of the world's population is facing some form of disability. Being differently-abled, a person is more likely to face additional livelihood issues, such as health complications, disrupted education, lower job opportunities, lower financial stability, and eventually poor mental and physical conditions (2021e). According to Bufdir (2018), for a disabled person, this financial instability and social exclusion often branch out to their family members as well. Family members need to take care of their differently-abled members, and as a consequence, they end up doing part-time jobs, resulting in less income, and fewer opportunities to socialize with others.

At a moment when the older generation is increasing, and disabled people are not able to move around in society as everyone else, it is high time to realize the shortcomings in the environment. Public and social places should address the needs of all the people in society. These places should be designed in such ways that they are accessible and usable, and everyone feels welcome and comfortable in using them. Having an accessible environment will not only increase the social values of people but will also alleviate their health by being outdoors, amidst nature and human beings.

## 1.3 Research case areas

The study is based on the port town of Ålesund, in western Norway. It is one of the 26 municipalities in the county of Møre og Romsdal, with a population of 67,114, making it the biggest town in the county (Stokkan et al., 2022).

Ålesund municipality is planning to work more towards an accessible and friendly society for its inhabitants, as well as for its tourists. This paper aimed to understand the challenges of the low-mobility residents when they use their urban surroundings and public spaces. Through communications with the target groups, data was collected, and this knowledge will support the job of the municipality while addressing urban developments of the town in the future.

The case study areas are based on three locations in Ålesund. The first is a natural area called Tueneset, followed by a natural area with commercial activities in the vicinity, called Lillevatnet, and finally, the third is the commercial city center, also known as Sentrum. The urban scenarios in these locations will prove how readily they can be used by the target groups, and what difficulties they might be facing which restrict them from being a part of society. The three case areas have been mapped by the Norwegian Mapping Authority (NMA), and their details, such as accessible sidewalks, handicapped parking, and disabled-friendly seats, can be found on their website at norgeskart.no.

The target groups for this study are the low mobility citizens. Elderlies above the age of 65 and handicapped citizens with mobility dysfunction will be considered as the focus group for this research.

The job as a researcher for this paper was to find the said challenges and provide the municipality with relevant findings and data. Being a student of Urban Ecological Planning, which often works with marginalized societies, this research fits perfectly with the curriculum and with what I aim to do. Working with the people to improve their lives and surroundings, is what interests me, and working on a similar thesis project is a motivation to work further in this field. Additionally, conducting a thesis in a country where I have spent only a few months, will give me great exposure to the culture and context. It allows to understand society better, and the outcomes of the research will be unbiased, as I do not have significant prior engagements. Finally, not working with such a user group before, will provide new experience will greatly add to my knowledge.

## 1.4 Research Question

This research aimed to find the difficulties of the mobility-impaired community in the urban and public context of Ålesund. Thus, the research question arises as:

**What are the challenges of the low-mobility groups when they use their urban surroundings and public spaces in Ålesund?**

As the case areas are of different environments, with each being built at a different time, their accessibility should be evaluated to see how readily people can use these areas. Therefore, a sub-question is:

1. **How are the accessibility scenarios different in Ålesund city center and Ålesund's natural and outdoor areas?**

Secondly, as the target group is the mobility-impaired community, the concept of universal design needs to be understood, and how it is implemented in Ålesund. Therefore, the second sub-question is:

2. **How is usability related to appropriate universal design, and how is it executed by the authorities in Ålesund?**

## 1.5 Structure of this paper

Chapter 1 consisted of the introduction to the project, followed by small details about the research location and research participants. This led to the research questions, which have been solved throughout this paper.

Chapter 2 describes the theories. It speaks about accessibility, social justice, and sustainable development goals. Later, the chapter talks about two case studies, one in the Netherlands and one in England. Finally, the chapter describes the theoretical framework, which was derived from the work of Burgstahler, and Kelly, Phipps, and Swift.

Chapter 3 is the research methods chapter. It talks about the various methods used to collect data in this thesis, followed by data quality, limitations of the research, and any ethical dilemmas faced.

Chapter 4 describes the context. It speaks about Ålesund, its history, and climate. Later, the chapter talks about the target groups in detail, followed by various laws in Norway for the target groups and universal design.

Chapter 5 is the case presentation and analysis chapter. It speaks about the three case areas, followed by a detailed description of the data that have been found for the areas. The findings

are later evaluated against the framework to understand how ideal they are, and what lacks they have.

Chapter 6 discusses the research questions and related implications. The three research questions are answered, followed by other findings in the thesis. Finally, several implications have been discussed, followed by concluding remarks.

The paper ends with a reflection on the journey.

# 2. Theory

This chapter talks about two theories related to this thesis - accessibility, and social justice. A thoughtful analysis has been done on these topics to better evaluate the research and its findings. The chapter also describes two case studies in Europe, to show examples of how other countries have dealt with urban issues in their unique ways. Finally, the theoretical framework describes the framework of the project.

## 2.1 Accessibility

*'The right to the city'* is one of the most impactful sentences mentioned by the urbanist and sociologist Henri Lefevre. His book, Writings on Cities, mentions that a right to the city does not only mean being able to *go* to the city, but it also means being a part of the urban life. Individuals should be able to interact and participate with each other in various places and under various conditions that a city might have (Lefebvre, 1996). However, cities do not always welcome and appreciate all their citizens, thus, certain groups of people often feel neglected or excluded in society. Many believe that this social exclusion is both architectural and political (Lid, 2016). The right to a city means that an individual, regardless of their physique or status, should be able to participate in the social and material dimensions of the community and the city. They should be able to enjoy life just as they are because being able to participate in society means that they truly are a citizen with equal status (Lid, 2016).

People can feel physically less accessible all their lives or during certain periods, for example, a child breaking his leg, a mother with a stroller, or an old man with a walker. These are some examples of other major and minor accessibility difficulties; only a few never faces them (Baris and Uslu, 2009). Accessibility is a relationship between a person and the environment, and one of the best ways to improve accessibility is by improving pedestrian movement. This movement can be commuting to work, being able to walk to the store, or just going for a walk with a pet. The walkability of a city depends on how much it supports and encourages walking by providing the pedestrians with necessary safety, comfort, and ease (Lid, 2016). A good route does not contain obstacles or hazards and does not act as a barrier for people with reduced mobility. A good route should be direct, continuous, safe, convenient, and attractive, and paths should often travel through residential areas for easy access for residents (Soltani et al., 2012).

Public transport (PT) also plays a big role in accessibility. PT should be accessible and usable for all people. Someone can be considered 'transport-excluded' if they have a reduced level of

access or opportunities to PT compared to the general population (Casas, 2007). For many citizens, using PT is not feasible and they have to rely on cars. In that case, it is very important to have proper parking facilities, including handicapped spots (Soltani et al., 2012).

Accessibility can also be measured by calculating how many opportunities or activities a person can take part in while moving from one point to another. These opportunities can be sitting on a bench, meeting a random friend on the street, eating food from a cart, or even changing buses (Baris and Uslu, 2009). Cities are public and democratic places with cultural, social, and commercial activities. Equal access to such public places means it is a quality space (Lid, 2016).

Some common physical micro-elements that should be present in urban or public spaces are shop fronts, ramps, disable-friendly toilets, handrails, and benches. These elements cater to the needs of people with a variety of disabilities, including people with low mobility (Soltani et al., 2012).

## 2.2 Social Justice

Social justice in terms of geography is highly related to spatial features, such as urbanization, gentrification, immigration, globalization, or hazards, and these features can create social dilemmas or injustices such as inequality, exclusion, and segregation (Israel and Frenkel, 2018).

It is difficult for the government to create rules that can satisfy every single person in a society. It is impossible to treat each person according to their needs because it is impossible to know what each person requires. Thus, it is imperative to create a more local power, or local institutions, which can help and understand the needs of the people in a better way. Local powers can realize individual characteristics of society, which a universal or divine power can hardly grasp. Having local governments can create better actions, as the rules will be derived by the society themselves, whereas a higher power will only provide commands and pressurized judgments (Novak, 2000).

According to Leslie and Catungal (2012), a good way to reduce social injustice is by creating more inclusive cities, and one of the best ways to do that is by creating equal opportunities for everyone. These opportunities may be in terms of work, social connections, or health-wise. To be a ‘quality’ society and to attract investments, authorities believe in a diverse population and good infrastructure; the built environment, therefore, needs to be inclusive to appreciate the diversity. A non-inclusive environment will just attract more of the same type of people, therefore creating more exclusion or seclusion for certain groups, such as immigrants, women,

or the disabled. Systems usually have laws and rules to create a just society for all, but very often, other laws *inside* the system itself prevent the creation of a just society, thus causing a disruptive cycle of acceptance and segregation (Leslie and Catungal, 2012).

Many societies create special urban and public spaces for socially excluded citizens, such as women, the elderly, or the disabled. However, *creating* new spaces create more stigma. It is a responsibility to fix existing spaces as much as possible and universally design new ones, however, to create spaces exclusively for certain groups of people is not the correct approach. Moreover, having places in a city that are more user-friendly and approachable by other groups of people, secludes them in that area, creating 'ghettos'; this might cause involuntary confinement in that area, unequal distribution of resources, and citizens to feel less confident while living in other parts of the city (Leslie and Catungal, 2012). Being excluded from parts of the city decreases one's chances of prospects and networks. It decreases an individual's self-esteem and this 'trauma' can also be passed on to the next generations (Harloe, 2001).

Some believe that social capitals[1] play a huge role in being part of society. Having enough social links can help an individual to integrate into society much easier than someone who does not have good social links. Being able to meet new people, creates more social networks (Harloe, 2001).

## 2.3 Link between social justice and accessibility

Accessibility is relevant to social justice since the relation between an individual to their physical environment can be linked through ethical, social, and spatial means. The ethical dimension can create inclusiveness, the social dimension involves the everyday physical life, and the spatial dimension contains the built environment (Lid, 2016).

According to American political philosopher Martha Nussbaum, urban spaces should be redesigned to accommodate all people. When someone cannot access a place like other individuals, it will feel like being stripped of dignity and self-respect. Society should create recognition amongst its residents, because being present and being seen, creates inclusion. Rosemarie Garland Thomson, a professor of English, once wrote:

[1] Social Capital is the networks, connections, or links that one might have to alleviate their livelihoods or be part of formal groups.

*"I recognize you by seeing your similarity and your difference to me, and then I make your strangeness familiar. In other words, I see you as you are."*

People with lower mobility are often considered a minority in society due to their physical impairments (Baris and Uslu, 2009). They are seen as people who require care or assistance, but these people are more *architecturally* disabled than physically because the built environment does not meet the appropriate standards for their movement and social activities. Thus, people are marginalized socially, economically, and also politically; an uninviting and improper build environment can also be deemed as 'oppressive' (Baris and Uslu, 2009). Incorporating design solutions for people with various needs show that society and local authorities are respecting individuals as equal citizens (Lid, 2016).

It is important to realize that there is only one environment that must be shared amongst everyone, therefore, it must be shared as equally and as independently as possible. A city is the biggest and most important physical structure designed by man, and their entire life is surrounded by this. A city is not just buildings, streets, and doors, it is also the society, the community, and the environment, which gives a person more meaning to his social value (Baris and Uslu, 2009). To create a better relationship between a person with their environment, and also a person with reduced function with another citizen, proper urban space is required, and it is up to the authorities to create that relationship. All the important stakeholders play an important role in creating an appropriate design of the physical environment. Any key standards or laws should also be developed by the government or authorities to create an equal community (Soltani et al., 2012).

## 2.4 Link between the theories and Sustainable Development Goals (SDG)

The sustainable development goals refer to the action plan to create a better and more sustainable future for all. It addresses the crucial global challenges through 17 goals to tackle them within 2030 (2020d). Accessibility and social justice are highly connected to four of the goals.

**SDG 10 Reduced Inequalities** talks about reducing inequalities within and among countries (n.d.-h), and it can be related to how a universal design (UD) reduces inequalities in society by making the environment more accessible for all its users. It increases opportunities and participation amongst the residents to create a better community. This can also be linked with

**SDG 16 Peace, Justice, and Strong Institutions**. This goal is about promoting inclusive societies and justice for all (n.d.-h). Creating an inclusive city can also help create more sustainable cities, thus, **SDG 11 Sustainable Cities and Communities** is connected as well. SDG 11 aims to make cities and human settlements inclusive, safe, resilient, and sustainable (n.d.-h). Creating plans, communities, and societies inclusive of all, and reducing barriers for certain classes of people can be achieved through the right connection with stakeholders Therefore, **SDG 17 Partnerships for the Goals**, ties the overall scenario together. All institutions, local and international should strive to make the places better by working together (n.d.-z).

## 2.5 International case studies

In this section, two international case studies will be discussed based on how two cities have realized the importance of the low-mobility community and how they have worked towards making the cities accessible for all people. The cases were chosen that resemble the current heritage scenario of Ålesund.

### 2.5.1 Case Study 1: Breda, Netherlands

Breda is a city of 1,85,000 people located in the southern Netherlands. It was one of the most important cities during the Roman Empire and to date, this city has centers and markets that resemble the medieval architecture and essence. Due to its historic significance, and cultural and sporting values, it is a strong tourist destination, and also one of the most entertaining cities in the Netherlands (Yates, 2019). Figure 1 shows the map of the Netherlands and the location of Breda (n.d.-r).


*Figure 1. Map of Netherlands.*

Due to its feudal architecture, many parts of the city, including the city center, has cobble-stoned streets and roads, which makes the city charming and attractive, but at the same time, makes it difficult for people with wheelchairs and canes to travel on (Yates, 2019). Figure 2 shows an old image of the cobble-stoned Grote Market situated in the city center (Ridder, 2016).

Breda was always involved with the people and had good communication with its residents. Mayor Paul Depla is very proud of how different stakeholders are always willing to work together to make the town a better place for everyone. In 2018, it initiated a four-year accessibility and environmental plan, including organizations that review the accessibility of the city for the disabled. The organization checked over 800 shops and to make sure they are accessible for all, trained the staff, business owners, and shopkeepers about how to help and address differently-abled people (2019a).

*Figure 2. Grote Market 2016, Breda.*

One of the biggest achievements for Breda was in 2019, when, with the help of city planners, it turned the round-headed cobble-stoned streets into accessible pathways for all its users. Engineers pulled out the old cobblestones, sawed them in half, flipped them, and placed them again on the streets. The gaps between the stones were filled with sweep-resistant joint fillings, to make it 'flatter' for wheelchair users. Through this technique, the streets were made smooth, and the medieval aesthetic too was maintained. This method also allowed many previously restricted zones to be opened up to the public (Lee, 2020). Figure 3 shows the current scenario of the area (Marsilje, 2020).

Apart from this feat, the town additionally made massive improvements in terms of its public transport, where all the buses, bus stops, and the new railway stations were made accessible for everyone. The bus drivers were also well trained for any situation. Mini-busses and electric wheelchairs are now available in the city to help people get around on their own (2019a). Moreover, if a building is heritage and cannot be altered for accessibility, the shopkeepers use mini portable ramps that enable all users to enter their businesses (Yates, 2019). Figure 4 shows such a ramp being used by mayor Paul Depla (Yates, 2019).


*Figure 3. Grote Market, 2020, Breda.*

The town of Breda follows the UN CRPD[2] and received the 2019 Access City Awards[3] for its amazing achievements in accessibility. During the award ceremony, European Commissioner Marianne Thyssen complimented Breda's work with public places, stores, and the transport system. She praised the town's investment in inclusivity and tourism and believes that Breda will be an example for the future for its outstanding efforts (Figg, 2018).

*Figure 4. Mayor Paul Depla uses a mini ramp and electric wheelchair.*

[2] United Nations Convention on the Rights of Persons with Disabilities.
[3] The Access City Awards is a yearly award that is presented to EU cities that make themselves accessible to their citizens, and it is mostly focused on low-mobility citizens. Source: 2019a. *ACCESS CITY AWARD 2019,* Luxembourg, Publications Office of the European Union.

### 2.5.2 Case Study 2: Chester, England

Chester is located in the unitary authority of Cheshire West and Cheshire, in the West of England, and is the biggest city in the region. It has a population of 1,18,200; almost 18% have a disability, and 21% are over the age of 65. Chester is a historic city and has structures that date back to the Saxon period (2017a). Figure 5 shows a map of England and the location of Chester (Kellner).


*Figure 5. Map of England.*

Chester is famous for two of its most iconic and historical places. The first is The Wall, which is a 3.2km stretch of Roman, Saxon, and Medieval walls, which is also the oldest and longest wall in Britain. Parts of it are almost 2,000 years old and have acted as a defensive force in history. The Wall can be walked a full circle, and it gives a beautiful view of the city (n.d.-e). Figure 6 shows an image of The Wall (Brace, 2021). The second iconic spot in the city is The Rows, which is a stretch of half-timbered galleries through four major streets in the city, and above the street level of this stretch, exists an additional floor that is filled with shops (n.d.-f). Figure 7 shows The Rows (Google, 2019).

Even though both these places are major tourist attractions, nonetheless, both had to be accessed with stairs, making them highly inaccessible to wheelchair users and low mobility users.

*Figure 6. Chester The Wall.*


*Figure 7. Chester The Rows.*

Chester began collaborating with various stakeholders, including disabled organizations, to find solutions to these problems. The city council wanted every citizen to access the historic monuments while maintaining its heritage values. To achieve this, ramps were added to The Wall at various locations. The installation of ramps was not done overnight, but rather took years to complete, and currently, The Wall can be accessed through 11 entry points. Tactile paving and handrails were also added for better safety. A similar approach was also used for The Rows, where a combination of ramps, lifts, and escalators was used for people to access the elevated walkway. The entry points in The Rows were designed in a very technical manner because the existing structures were very sensitive, and engineers were able to add 6 entry

points to them. The access points of both The Wall and The Rows have been well-publicized so that all citizens are aware of their positions and wheelchair users and low-mobility users can readily use them (2017a).

Apart from the improvements of these major sites, larger disabled-friendly toilets with additional equipment and facilities were introduced in the town. In addition, all 129 public buses were made fully accessible, all 192 licensed taxis were adapted to carry wheelchair users, wheelchair-friendly private transport was introduced, disabled parking was added near shops, and wheelchairs and electric scooters were made available to be hired in shopping districts. Angela Claydon, Lord Mayor of Chester, believes that proper accessibility will help the citizens rely more on the authorities, and will also bring better economic and social benefits to the city (2017a).

Chester's approach to making the city accessible and disabled-friendly made it win the 2017 Access City Awards. European Commissioner Marianne Thyssen praised Chester for creating a disabled-friendly environment for its citizens. She highly appreciated the fact that preserving historical, heritage, and cultural sites can be done while maintaining accessibility, and Chester has made a great example for other cities to follow (2016).

## 2.6 Theoretical Framework

As the target groups have low mobility, therefore, accessibility is one of the main intervention goals in this research, and the theoretical framework should address this point. The two models described below were thus used to formulate the framework model.

Both the models are about Information Communication Technology (ICT) accessibility and not spatial accessibility, but the main ideas used are relevant to the research. The model is devised by three authors, Brian Kelly, Lawrie Phipps, and Elaine Swift (2004), who studied various e-learning techniques and tools to find how accessible and resourceful the online tools were for different users. The recourses and tools used a series of guidelines to ensure that websites can be used by people who might have disabilities and that they would not require external help to use the web, rather could use it independently. In their research, they tested several tools from various countries and realized that some countries lacked accessible e-learning. The authors, thus, developed a framework themselves, which could be used by professionals to make the tools more accessible for a larger group of people. Figure 8 shows the framework developed by the authors (Kelly et al., 2004).


*Figure 8. A holistic model for accessible e-learning.*

The authors believed that the users should be the center of the framework and the model should consider individual needs based on local, cultural, political, and social factors. As each user is different, thus, individual needs should be catered to (Kelly et al., 2004).

The positive aspect of this model is that it considers the local factors, infrastructure, and usability, and the entire object is centered on the user and is maintained with quality work. These factors all contributed to creating the perfect feature for the user, thus, this point is going to be taken to formulate the framework for this research.

Despite the progressiveness of this framework, it does not incorporate universal design but rather focuses more on each users' needs. Therefore, the model does not completely align with this research.

To make up for the gap, the framework by Sheryl Burgstahler(2020) was also studied. Burgstahler worked with ICT compatibility for disabled children, and she designed a framework that can be used to address the various needs of the users. She used the idea of UD in her framework to prioritize the social and infrastructural needs of the children and used references from the seven guidelines[4] provided by the Center for Universal Design at North Carolina State University (Burgstahler et al., 2020). Figure 9 shows the framework developed.

[4] The guidelines can be found on table5.

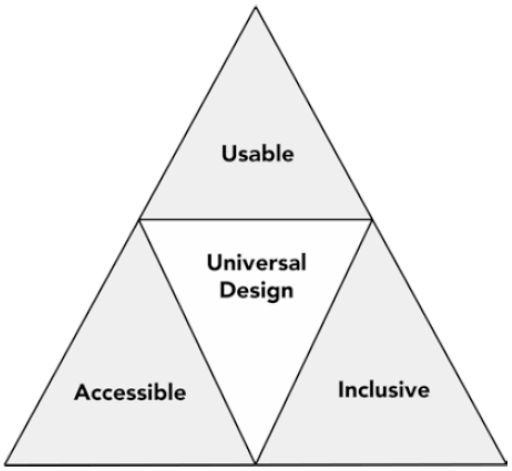



*Figure 9. Burgstahler's accessibility framework.*

Burghstahler placed UD in the center of the model because she thinks that the various diversities of the students' e-learning methods should be integrated. To accommodate and respond to UD, she added characteristics of accessibility, usability, and inclusivity to create a model that can give a universal solution (Burgstahler et al., 2020).

The positive aspect of this model is that it focuses on UD and has links to accessibility and usability. A con of this framework is that it is very limited to its work and does not have other links such as social views or infrastructural views.

Therefore, the framework for this research was conceived with the best features from these two models. Figure 10 shows the formulated theoretical framework.

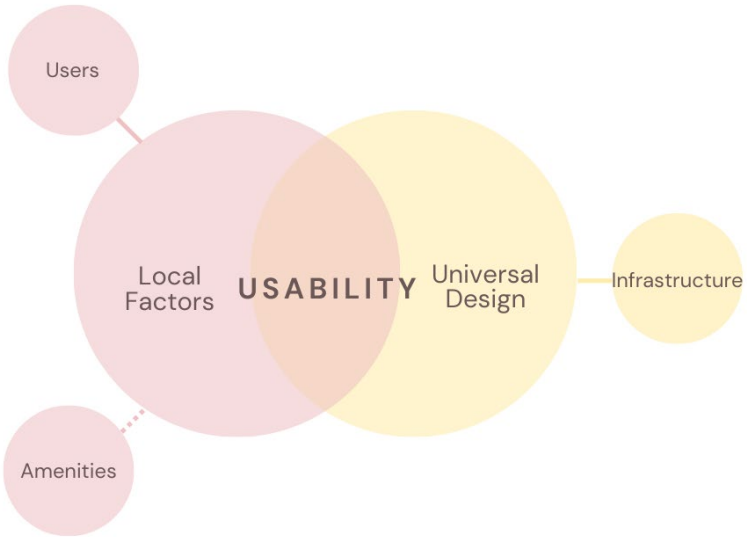



*Figure 10. Theoretical framework. Developed by the Author.*

The model that has been derived is a hybrid of the two aforementioned models. It is made to understand how user-friendly or accessible a place is. If a place satisfies both local factors (LF) and relevant universal design solutions, then it can be considered to have a positive usability index. In the model, the central idea is Usability, and to have a thriving place, any external factor should have a positive effect on it; the higher the usability of a place, the more successful it is.

The local factors in the model can mean the context and everything within it, and the two most important elements of this are the users and the amenities. To have a positive usability index, a place should be designed and implemented through the cooperation of the most important users and stakeholders, such as the handicapped citizens, the senior citizens, the politicians, the municipality, the county municipality, and any external planner or architect. As the thesis aims to understand the low-mobility users, therefore, the term *user* has been used here. The amenities section is connected with a dotted line, as it is not strongly related to accessibility, but its presence will make the scenario better. Amenities can mean any necessary needs or activities that can positively enhance the livelihood and activities of the citizens. They can be benches, toilets, shops, services, or anything that people may need to make their experiences better, therefore, if a place has good amenities, then the place will be used more, therefore, influencing the usability index.

On the other side is the universal design. UD is also another sector that should be satisfied to positively affect the usability of a place. If a place has infrastructures that are designed in a way that everyone feels included and accepted to use, then it will enhance the number of users in the place, therefore, increasing its usability of that place. Infrastructure can mean roads, sidewalks, street lamps, green spaces, open spaces, and so on.

Therefore, both the LF and UD can impact the usability of a place, making it successful or under-used. The current scenarios of the three case areas will be analyzed using this framework to understand whether they are proper usable places in the town or not.

From the case study framework models, this research have used usability from both model 1 and model 2 as my central idea. It has further used the idea of infrastructure and local factors from model 1, and universal design from model 2.

# 3 Research Methods

This chapter describes the various methods used for this research. It will describe each method, followed by limitations and ethical dilemmas faced while using them.

This thesis has used both qualitative and quantitative research methods to find answers to the research questions. Qualitative methods were used to understand how low-mobility citizens feel and experience in their daily lives. Quantitative methods were used to understand what the city offers currently, and how the municipality planners work in this area.

## 3.1 Case study method

The location for the thesis is in Ålesund, and three sites were chosen as the case areas. To study these areas, the case study method will be used, which itself consists of various other methods, such as fieldwork, walks, observations, focus group discussions, interviews, and questionnaires.

Figure 11 shows the three case areas in Ålesund town. There are three markings on the image, denoting each case area. Tueneset is a natural hiking trail located in the western part of the town. The city center is represented by Ålesund Sentrum, and Lillevatnet is a walking trail, located further east. Tueneset and Lillevatnet are natural zones, while Sentrum is a more commercial zone and a heritage site in Ålesund. According to the theories of accessibility in section 2.1, citizens should have access to all zones equally, thus a differentiation between the natural and commercial zones was done to understand the changes in the accessibility of these areas. More details are in chapter 5.

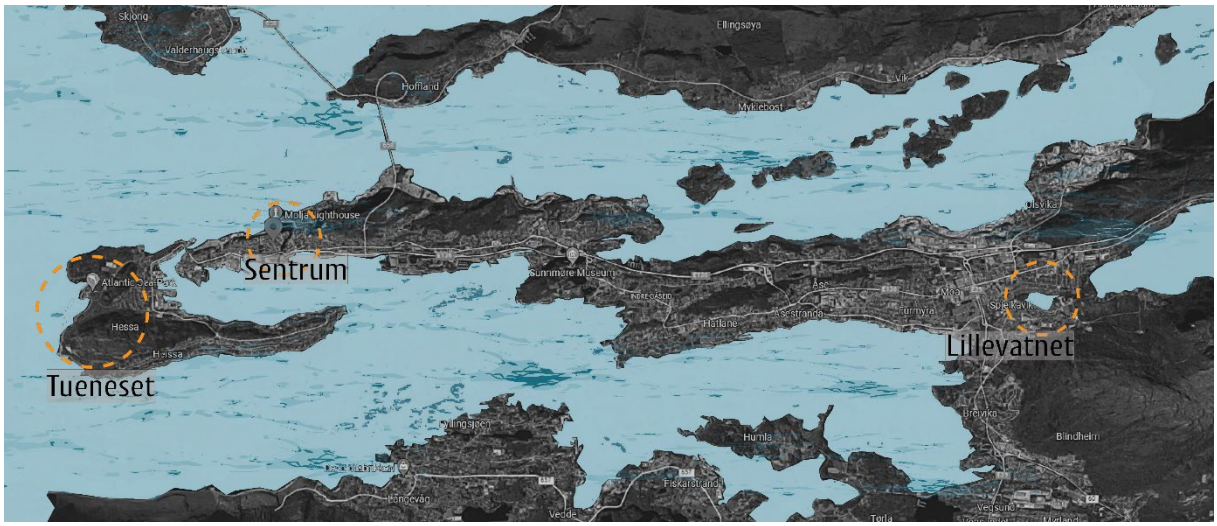



*Figure 11. Case areas in Ålesund. Image developed by the author.*

Theoretical study on Ålesund began in September 2021, while the on-field research began in January 2022. For the research, no particular sociologist's methods were initially used, nonetheless, in the end, it was seen that methods proposed by Robert Stake and Sharan Merriam were somewhat followed for the site studies.

According to Yazan (2015), Stake and Merriam had similar definitions for a case analysis. Stake thought that a case is a 'specific, complex, functioning thing'. It has an intricate system, working parts, limits, and a purpose. Merriam thought similarly, where she additionally defined the case as an entity that has boundaries. The three case areas are also complex systems with their own rules, surroundings, residents, and context.

Stake defines the characteristics of a case study in four ways, three of which are:

1. Holistic: this considers the relationship between the topic and its context. The case areas in this thesis also define the relationship between the challenges of the mobility impaired community concerning their context.

2. Empirical: study is based on observations in the field. This case is also based on the observations and studies done on-site and on-field, using various methods.

3. Emphatic: defining experiences of the case in an 'emic' view. Emic, or relating to culture, is an important aspect of this study. Culture and context play an important role, and chapters 5 and 6 define them correctly.

Merriam defines the characteristics of a case study similarly, with an extra point:

4. Heuristic: making the readers understand the study. The main objective of this paper is to relay the findings in a way so that it is easy for the readers to understand the outcomes and implications.

### 3.1.1 Fieldwork method

Understanding the needs and challenges of the mobility impaired citizens in parts of Ålesund required the need to talk to the target groups and the relevant stakeholders. For that, methods of Transect walk, interviews of pedestrians, target groups, and planners were conducted. Questionnaires were also used for the target groups to get more quantitative data. Apart from that, on-site observations were performed to observe the target groups using the public areas to locate elements of discomfort.

#### 3.1.1.1 Transect walk

Transect walks are a very common method of participatory planning and community inspection, where a group of people, small or big, intentionally walk through a community to explore the social capitals and resources of the place. It is usually done to find any vulnerability, hazards, or land-use systems in the community. The group consists of experts and locals, who observe, talk, ask, listen, and look to understand these resources. The walk can be further utilized to form any sort of zoning plan, disaster mitigation plan, or preparation plan (n.d.-w).

To understand the current scenarios of the case area, a total of four transect walks were performed at the sites. The details are presented in table 1.

*Table 1. Transect walk details.*

| | 1st | 2nd | 3rd | 4th |
|---|---|---|---|---|
| **Location** | Lillevatnet | Tueneset | Sentrum | Sentrum |
| **Date** | 18th March 2022 | 24th April 2022 | 25th April 2022 | 4th May 2022 |
| **Time** | 11 am – 1 pm | 11 am – 12.30 pm | 12 pm – 1.30 pm | 10 am – 12 pm |
| **Weather** | Cloudy | Overcast, 7'C | Cold, windy | Cold, 6'C |
| **Participants** | 3 members of NHFA | 3 senior citizens | 2 senior citizens | 1 member of NHFA |

The first walk consisted of me and Claudia, i.e., the experts, and three members of the NHFA, i.e., the locals. One of the members was an electric wheelchair user, and the other was a manual wheelchair user, who brought his family members as well. The third member, also an electric chair user, joined the walk near the end. Figure 12 shows an image from the walk.

The second walk consisted of three senior citizens, along with Claudia and me. Two of the participants lived nearby, whereas another lived further away. We walked down the hiking and walking trails in Tueneset, which consisted of a beach, several outdoor shelters, places to sit, and World War II remnants.

In the third walk, the participants guided the tour themselves as they were willing to show spots to us. Both the participants lived in Ålesund all their lives, thus they provided historical details as the walk proceeded in the heritage city center.

*Figure 12. Transect Walk 1. Lillevatnet. Photo captured by the author.*

During the fourth walk, the participant showed around areas that are both easy and difficult to access for her, as she lives in that area. Figure 13 shows an image from the walk.

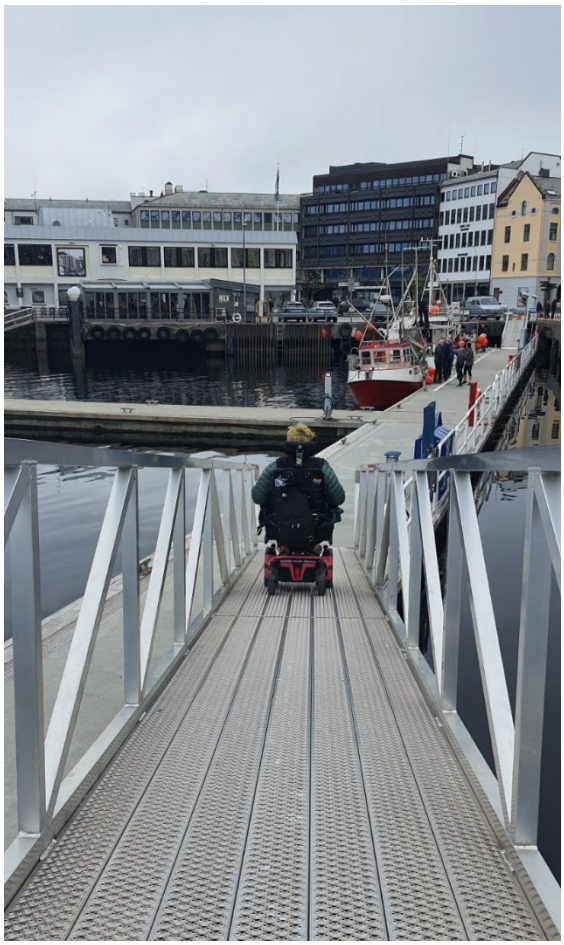


*Figure 13. Transect walk 4, Sentrum. Demonstrating the accessibility of ramps in the area. Photo captured by the author.*

#### 3.1.1.2 Observation

With direct observations of a site, behaviors, situations, events, objects, subjects, or elements can easily be noted and understood, that would otherwise be difficult to identify, describe or talk about. Direct observation is not dependent on another person's willingness to discuss, and therefore can be done by oneself alone. Observations are useful to see and understand physical attributes and can occur both in public places, like a plaza, or in private places, such as a doctor's office (Wates, 2000).

Tueneset was visited a total of three times for observations. Once was on a weekend, and twice on the weekdays. All three visits were done in daylight. Lillevatnet was visited a total of five times, twice on weekends, and thrice on weekdays; the time of the visits was mornings, afternoons, and evening. As for Sentrum, it was visited innumerable times, as it was accessed for personal errands as well, which gave way to some impromptu notes also.

During the visits to the three case areas, notes and photographs were taken of objects that might cause hindrance or discomfort for people with low mobility. These objects can be anything that can create an obstacle to their accessibility or movement. Initially, it was difficult to detect these elements, but after the first transect walk and the first focus group discussion, the idea was clearer. The experiences of the people showed what kind of elements the users deem as obstructive, and what the observations should be looking for. These elements were usually something very small and minute, something that is easy for an able-bodied person to overlook, but not for a differently-abled person. As per the latest construction law in Norway, all new designs should contain UD and proper accessibility, therefore, most of the disturbing elements that were found, were in old infrastructures. The reason for that is that the old infrastructures were built at 1907, when UD did not exist in Norway. Moreover, because Ålesund city center is a tourist destination and a heritage site, any old infrastructures are difficult to mend or rebuild. More details about the results of the observations are given in chapter 5.

As part of the site observations, random pedestrians were sometimes spoken to, to understand their experiences in that area. All the conversations were with older people, as they were often seen on the streets.

#### 3.1.1.3 Focus group discussion

A focus group is a small group of people who sit together and try to discuss an issue or topic in a workshop-like manner. The group can discuss, evaluate, and plan a solution to the topic being addressed. The discussions can be one time, or multiple times, though the most common and best way is to do it a few times. A focus group containing locals, can be a good way to gather and understand the local context, and create a good social network. The conversations in a focus group are almost always semi-structured, where the participants start with a pre-determined question and then carry on the conversation informally and flexibly. The participants chosen can be random or selected (Wates, 2000).

Three focus group discussions (FGD) were conducted in total. One was with members of the NHFA, while two were with senior citizens. All the discussions took place over a cup of coffee. The first was with two members of NFA. The second was with members and leaders of several Pensjonistforbundet (Pensioners association) (PF) from around Ålesund, and the third was after the second transect walk at Sentrum.

The conversations were insightful as everyone spoke about their experiences while traveling in the city. They spoke about their needs, their frustrations, and also their happiness regarding accessibility in Ålesund. They suggested solutions and future recommendations for some of the issues. On two occasions, maps of Ålesund were kept on the table for reference, which came in handy because the participants drew on them, which made the conversation richer and also more visual. Figure 14 is from the first FGD with the members of PFs.


*Figure 14. First FGD with elder community. Picture captured by Claudia.*

#### 3.1.1.4 Interview

Interviews can be both in a group or with an individual, with the aim being to discuss or analyze a certain topic or issue. It is mostly pre-arranged, with pre-determined questions. Interviews are a good way to gather information and it is a very interactive method to have a formal or semi-formal discussion, as it gives better results than questionnaires and surveys. An interviewee is usually a person who possesses enough knowledge or is a professional in the matter, with whom the topic can be discussed to get more information or to determine, analyze or plan something. Interviews can be structured or semi-structured depending on the topic (Wates, 2000).

A series of interviews were conducted for this thesis, mostly with professionals in the field, with some being important stakeholders in this project. The list of interviews conducted is given in detail in table 2 below.

*Table 2. Details of interviews conducted.*

| Name: | Single or group: | Important stakeholder: | How did the interview help? | Date |
|---|---|---|---|---|
| Member of Pensjonist Forbundet | Single | No. | He was the first link to getting hold of PF. | 08th March 2022 |
| Norwegian Health Directorate | Group (2) | Yes. | Gave ideas about how to conduct transect walk. | 08th March 2022 |
| Kartverket. Norwegian Mapping Authority (NMA) | Group (2) | No. | Gave ideas about the mapping system in Norway. | 10th March 2022 |
| Planner from Ålesund Municipality | Single | Yes. | Gave detailed planning methods of the Municipality. Cross-checked information from the user groups. | 29th March 2022 |
| Former planner from Ålesund Municipality | Single | Yes. | Gave detailed planning methods of the Municipality. Cross-checked information from the user groups. | 29th March 2022 |
| Planning chief from Ålesund Municipality | Single | Yes. | Gave detailed planning methods of the Municipality. Cross-checked information from the user groups. | 20th April 2022 |

#### 3.1.1.5 Questionnaire

A questionnaire is a type of survey, which uses a set of questions to collect information, usually from a group of people. The questions often have designs, pictures, multiple choice answers, or other interactive methods of data collection, to easily engage people and get more detailed results. Previously, written questionnaires were popular, but recently, the use of online questionnaire forms has become quite trendy. For online surveys, the system can usually analyze the answers, and present them in a structured manner (Wates, 2000).

For this research, three questionnaires were used on different occasions, mostly to get quantitative results. The transect walks and the FGDs were producing good qualitative data, but not enough quantitative data.

The first questionnaire was used after the first transect walk with the NHFA. The questionnaire was brief and contained basic questions related to the site. The form can be found in appendix 1. After the first questionnaire, the next ones were improved based on the feedback and answers. The second questionnaire was used at a senior center, where the senior citizens gathered for their monthly meeting and socializing event. A small-time frame was allocated to present the questionnaires, therefore, no conversations occurred, and the participants simply filled out the forms. A total of 21 forms were filled. The form can be found in appendix 2.

The third and fourth questionnaires were also right after transect walks. The third questionnaire was presented after the transect walk at Tueneset, and the 4$^{th}$ after a walk at Sentrum. Both the forms were the same, and they can be found in appendix 3.

Figure 15 shows an image from the questionnaire survey held at the senior center.

*Figure 15. Participants answering a short questionnaire at the senior center in Ålesund. Photo captured by the author.*

### 3.1.2 Secondary data

Secondary data is any data that is collected indirectly and is not sourced directly by the investigator. It is any data that has already been collected, analyzed, and is made available in various formats for others to use. The investigator or researcher does not own the data. Different types of secondary data are reports, maps, photographs, files, books, statistics, or newspaper clippings (Wates, 2000). These can be found both physically and digitally.

For this research, two methods of secondary data collection were used. The first was knowledge from various works of literature, and the second was online database searching.

#### 3.1.2.1 Literature

Literature studies or literature reviews are done to analyze existing knowledge and use that as a context for research (n.d.-r).

Various literature had been read and analyzed for this research. The literature used were books, reports, journals, and online datasets. This literature helped to gather information about the older and differently-abled population in the global and local contexts. It further helped to gain knowledge about accessibility, universal design, international case studies, and various research

methods, and also aided to formulate the theoretical framework. Google Scholar and NTNU Oria were two of the most used online methods for this thesis.

#### 3.1.2.2 Norwegian online research database

A research database is a collection of data that can be used or searched to gather information. This database can contain data in the form of articles, images, books, and other formats (2020c).

The Norwegian government is very open about its system, and much of the country's information is public. All the laws, acts, and regulations related to the research were found online at government portals or databases. Furthermore, because the government conducts public surveys often, many census data were available online, including the number of differently-abled and older citizens. Due to rigorous mapping done by the NMA, it was convenient to find accessible and universally designed places in Ålesund, which also helped in the analyses of the three case areas.

Some of the Norwegian online databases that were used frequently for this research are mentioned in table 3 below:

*Table 3. Some of the most common Norwegian online databases used for this research.*

| |
|---|
| alesund.kommune.no |
| bufdir.no |
| ks.no |
| nhf.no |
| planleggelitt.no |
| snl.no |
| ssb.no |
| regjeringen.no |

## 3.2 Summary of methods

The methods overall tied up the entire data collection process. Transect walks gave a firsthand data of how the user groups are using the said area, while observations gave a researcher's point of view of the places. FGD and interviews gave a qualitative understanding of the users' experience and understanding, along with ideas of the professionals. Questionnaire added to more quantitative data, and finally, literature and databases gave a more general idea about the topics and the laws.

## 3.3 Data quality

The results from this research should be deemed as a general understanding of the topic and not considered the bible. Given the number of entities that work with the elderly and the differently-abled citizens, this research was able to communicate with only a few, and that too with few members. Thus, the research may contain gaps to some extent. Furthermore, this research and the related data are solely based on the context of Ålesund. Any processes, conclusions, or outcomes should not be applied to other regions in Norway or other Scandinavian or Nordic countries, without contextual evaluation.

## 3.4 Limitations

Few limitations and challenges were faced while conducting this research. First and foremost was the language barrier. As a non-Norwegian speaker, it was difficult to communicate with the participants, as many of them did not speak English, especially the older citizens. Claudia's interpretations were used for many conversations, and because Claudia does not imperatively belong to the field of urban ecological planning, she might have translated things that *she* thought were of value. When not understanding conversations, I had to catch words that I understood and had to read the body language. Furthermore, as I do not look like a Norwegian or Scandinavian, it made the data collection process more challenging.

Secondly, even though almost all the Norwegian laws and censuses were found online, all of them were in Norwegian and had to be translated via Google Translate[5]. Because Google Translate is 85% accurate (Doctors, 2021), it is difficult to determine how precisely the documents were understood, and how well they were transferred to the paper.

[5] The Google Translate website: https://translate.google.com/

Thirdly, one of the biggest limitations was finding participants. The initial plan for this entire research was to conduct a series of workshops with only the handicapped citizens to understand their needs and challenges in the town. The workshops and activities were planned out, the materials were prepared, and trials were also conducted with fellow students from NTNU. Meanwhile, Claudia was trying to contact various people from the handicapped association and other sources to attend the workshop, but it was a difficult process. People were uncooperative and unresponsive, and almost a month was lost in this process. After days of searching for participants, the methodology was shifted from the workshop to other methods for collecting data, as time was running out for the thesis. At this point, every other means was used to collect the data, which resulted in the many research methods used for this thesis. Senior citizens were also added to have more participants, as they fit the description of 'low-mobility'. The transect walks were done with the two to three people that were managed, and the same people were also used for FGDs, and also for two of the questionnaires. Because the scope was less, most of these activities were done with the same group of people. Planners were also contacted for expert opinions. Contacting the professionals was the easiest part, as they were very responsive.

## 3.5 Ethical dilemmas

Both my target groups, especially the elder community, were not happy with the municipality's work and approach towards them (more detail in chapter 5). In such a situation, I felt morally and ethically unpleasant to tell them that my research was a part of the municipality's work and that I was there to gather information. I do not know what the municipality has planned to do with my research, but if it does not help the target groups in any way, then I would just be another person who came, saw, and left.

Another ethical dilemma was the presence of too many resources. Towards the end, both the user groups and the municipality began suggesting other participants in a snowball method. Initially, it was delightful to have so many connections, but due to the limited timeframe, the data collection had to be stopped to finish the thesis paper. Thus, many resources had to be let go, and it hurts my conscience that they could not be utilized to the fullest.

# 4 Context

This chapter talks about the local context where the study takes place. Understanding the setting is very crucial as the whole project is heavily dependent on its specific site contexts. The chapter further talks about the target groups, and laws and regulations regarding their rights and accessibility.

## 4.1 Ålesund

*"ÅLESUND AND SUNNMØRE*

*Where mountains and fjords meet the ocean"*

*-Visit Norway official website (2022d)*

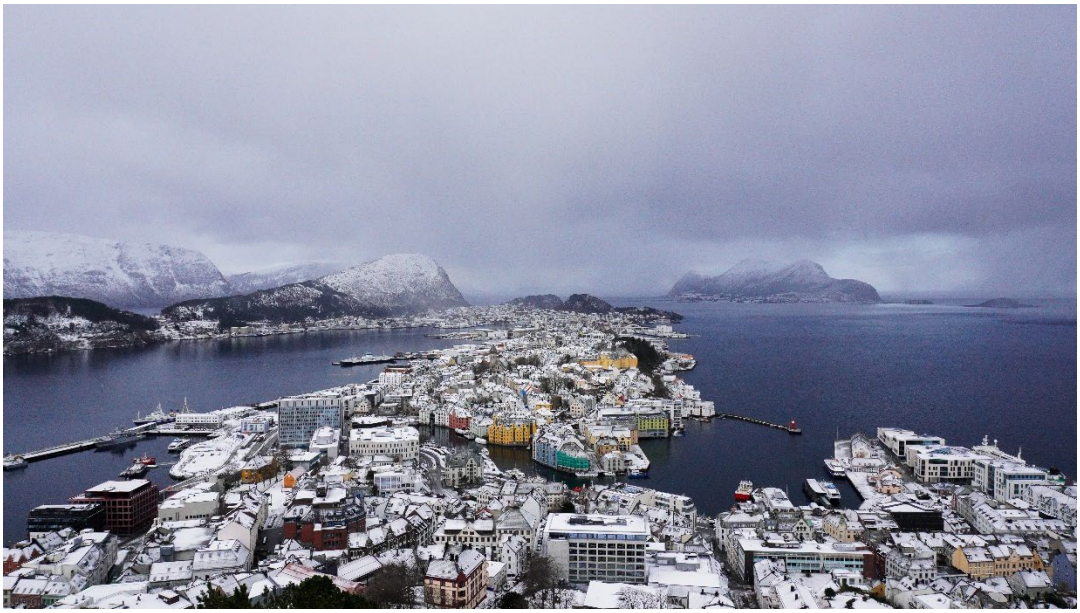


*Figure 16. Picture of Ålesund from Aksla Viewpoint. Image captured by the author.*

Ålesund has a population of population of 67,114, making it the biggest town in the county of Møre og Romsdal (Stokkan et al., 2022). The landscape is mainly of many big and small islands, with the fjord cutting into them from the south (Thornæs, 2020). Figure 17 shows a map of Møre og Romsdal county (Fylkeskommune, 2019), and figure 18 shows a map of Ålesund (Kartverket, n.d.).


*Figure 17. Map of Møre og Romsdal County.*

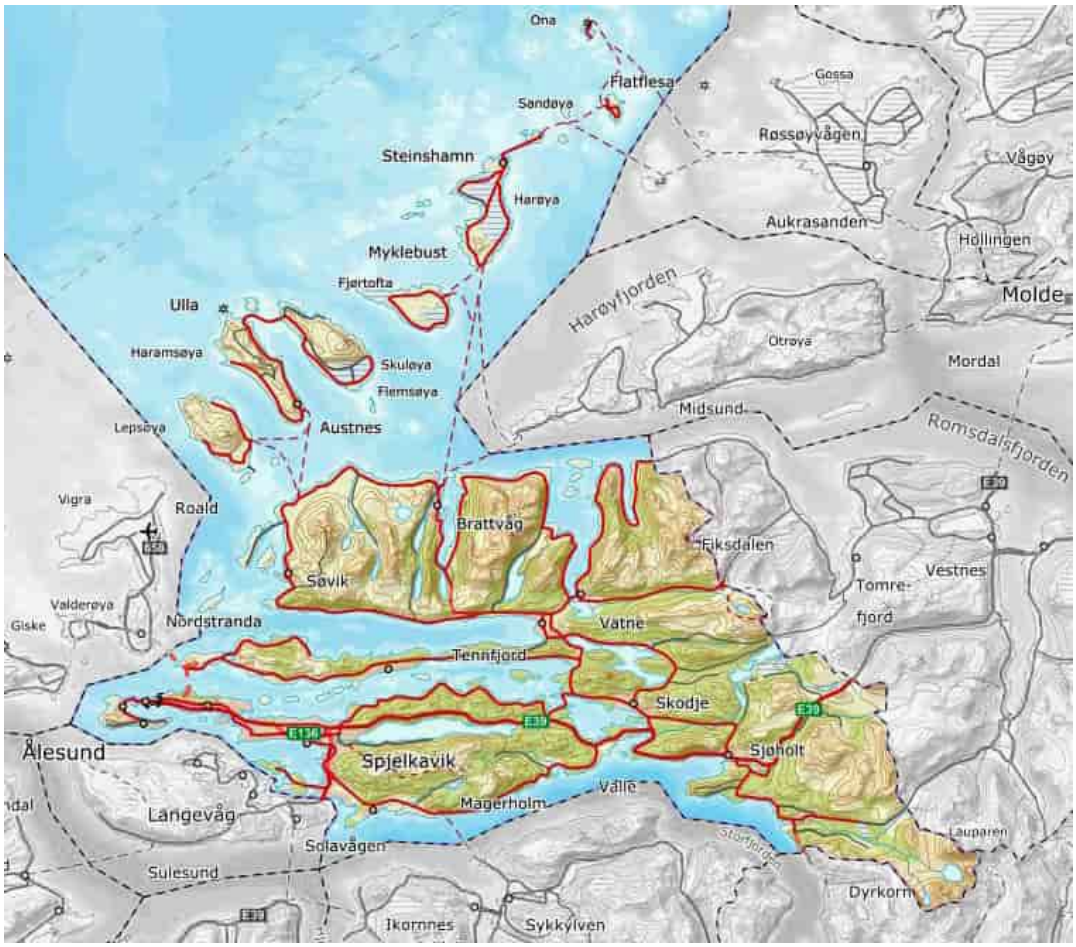



*Figure 18. Map of Ålesund Municipality.*

### 4.1.2 History

From 1837, Ålesund began flourishing and became the center of the region, achieving the title of a fishing village (LettFaktura, 2019). In 1845, clipfish, which is a type of Norwegian cod, started being exported to Central America from Ålesund, turning its business from local to international (Stokkan et al., 2022).

On 23rd January 1904, due to a fierce storm from the Northwest, a factory in town caught fire. Before the fire brigades could handle it, the fire spread across the town of wooden houses, destroying more than 850 houses, and displacing around 10,000 people. One person died in the fire. The fire subsided in the afternoon of January 24 but created one of the worst fires in Norwegian history (LettFaktura, 2019). The town was rebuilt within a very short time with the classic Art Nouveau architecture style. This style has the design of waves, arches, asymmetry, geometric shapes, and mansard roofs (Stokkan et al., 2022). Help from around Norway and parts of Europe built the current cobbled streets and over 300 houses in brick. The town later gained the title of one of the most beautiful harbor towns in Europe and the most beautiful town in Norway, mostly due to its scenic downtown (LettFaktura, 2019). Figure 19 shows an image of Ålesund before the fire (Congress, 1897), and figure 20 shows an image during the fire (Musuem, n.d.).


*Figure 19. Ålesund 1897, before the fire.*


*Figure 20. Ålesund fire, 1904.*

### 4.1.3 Climate

Ålesund has short, cool summers and long, windy, cold, and cloudy winters(n.d.-g). Summer has the least rainfall, with June having 60mm of rain, and fall being the wettest season, with September having 191mm of rain. Being a coastal town, it is warmer than many other Norwegian cities, thus, it gets an average temperature of 1.4'C in winter to 13.4'C in summer (Stokkan et al., 2022). Due to rainfall in winter, snow tends to melt quicker, creating icy roads and sidewalks, thus making it difficult to walk.

Ålesund is (in)famous for its windy weather. The windiest month is December, with an average wind speed of 28.7 m/s[6], and the calmest month is July, with a speed of 2 m/s (2022e).

### 4.1.4 Landscape

Ålesund is mostly mountainous with bedrock that is influenced by the Caledonian mountain range[7]. The structure of the mountains is in an east-west direction, often with very steep northern and western sides, and lower steeps on the south and east. This landscape has caused

[6] 1 m/s (meter per second) = 62.6342 mph (miles per hour)
[7] The Caledonian Mountain range is a European mountain range that runs from the Arctic, through Scandinavia, Scotland, and Northern Ireland. Source: 2022g. *Caledonian Mountains* [Online]. DK Findout. Available: https://www.dkfindout.com/us/earth/mountains/caledonian-mountains/ [Accessed 12.05.2022 2022].

a topography of ups and downs throughout the town, with much steeper routes while going northwards (Stokkan et al., 2022).

### 4.1.5 Outdoor culture

Norwegians are famous for being outdoorsy. Being in nature is part of their culture despite their modern lifestyle.

According to the blogger Frog in the Fjord (2022), Norwegians are into the concept of *friluftsliv*. Fri means free, luft is air, and live means life. The rough definition of it in English is *life in the fresh air* or *connecting with nature*. Friluftsliv can mean many things, such as hiking on a mountain, skiing, going for a cabin trip, ice fishing, berry picking, walking the dog in the park, or even spending a night in a hammock (n.d.-m). All these activities can be done alone or with friends or families. Even in weak physical conditions, people in Norway enjoy nature. In 2020, at the peak of the global pandemic of Covid19, almost 80% of Norwegians went hiking, be it for a short hike in the forests, or a longer hike in the mountains (Capar, 2020a). Overall, going outside is a great anecdote for having good mental and physical health for Norwegians (froginthefjord, 2022).

### 4.1.6 Business

As mentioned before, Ålesund was famous for being a fishing village in the 1900s, and it has still maintained that title to a great extent. Due to enhanced fishing industries, Ålesund has one of the largest deep-sea fishing fleets in Norway (Stokkan et al., 2022).

Owing to the proximity to water, the town can be accessed by ferries and boats, along with roads and tunnels.

Some of the important institutions in Ålesund are the Norwegian University of Science and Technology (NTNU), Norsk Martitim Kompetansesenter (NMK), Helse Møre of Romsdal HF, Stiftinga Viti, Atlanterhavsparken, Aalesunds Museum and Ålesund Rådhus.

### 4.1.7 Urban development projects

Ålesund has plans for urban development in the city to make it culturally and socially rich. It is the strongest region in the county and wants to introduce positive changes and growth to enhance its position. Three of its main development projects are mentioned in this section.

#### 4.1.7.1 Byen som Regional Motor

According to a report from the municipality's official website, the municipality has been allocated 7 million Norwegian Kroner[8] for new urban development projects. This financial assistance is part of the county's support scheme, Byen som regional motor, meaning the City as a Regional Engine (2022a). The byen som regional motor scheme will prioritize projects that contribute to sustainable developments (n.d.-d).

#### 4.1.7.2 Sørsida

Another important project of the municipality is the development of the Southern part of Ålesund city center, named Sørsida. The plan intends to increase the connection of the city and its people with the fjord by extending the land more into the fjord. The new buildings will contain housing, new businesses, services, libraries, cultural activities, and educational institutes (2021d). The area will further have improved lighting, urban furniture, and facilities for physical activities (2022a).

#### 4.1.7.3 Bypakke Ålesund

Ålesund's biggest project at hand is the Bypakke Project, which in English translates to, The City Package. The goal of this project is to create a more sustainable transport system in Ålesund, by generating provisions and improvements for walking, cycling, and using public transport. Usage of personal cars is to be decreased, but not diminished (2021c).

### 4.2 Target Groups

As the focus of this thesis is finding the challenges of the low-mobility group, the focus groups have been defined as the elderly community and the handicapped community. They have lower mobility due to age, illness, or accidents, and have trouble moving compared to others in society. The fact that Ålesund is not a flat city and has high winds and rains, causes them additional discomforts.

[8] 1 NOK (Norwegian Kroner) = 0.10 USD (United States Dollar). Rates according to May 26, 11:18 UTC.

### 4.2.2 Older community

Norway had a population of 5,425,270 as of the end of 2021, and 17.3% of this population was above the age of 65; this number is expected to rise even further by 2060 (2022i). The statistics further claim that in the next 10 years, the number of older people will be more than the number of children and the youth. The main reason for an increasingly older population is that citizens are less inclined to have children[9] and currently, a large number of immigrants are older, and not from a younger generation (Capar, 2020b).

In 2019, Ålesund had an older population of 17.49%, which is 11,588 out of its 66,258 residents. Citizens from 65-74 were 9.91%, and 75+ were 7.58% (n.d.-s). Currently, the Eldreråd[10] (Elderly Council) and Pensjonistforbund[11] (Pensioners Association) are two of the most active bodies working in Ålesund regarding the elder population.

A Facebook page called Senior i Ålesund[12] (Seniors in Ålesund) is present, which posts news and activities taking place in Ålesund for seniors; it is authorized by the Ålesund municipality. When the weather is good and the sun is out, many elder citizens are seen flocking to cafes and cafeterias. They are more comfortable about leaving their homes in summer compared to winter. Ålesund municipality has three senior centers that can be used by the residents to socialize and take part in activities. The centers are open Monday to Friday and provide transport services, breakfasts, dinners, and various activities such as lotto, bingo, quizzes, exercise, music, readings, and trips. The three senior centers are at Klipra (inner district), Spjelkavik (outer district), and Brattvåg and Tennfjord (Northern District) (2022b).

### 4.2.3 Handicapped community

A person might suffer from impaired movement, vision, hearing, cognitive functions, or any other condition in the body. The Norwegian government realizes that disability is less of a medical condition, and more of a shortcoming in the environment, which causes a person's way of life to be significantly hampered. According to Barne-, ungdoms- og familiedirektoratet (The Norwegian Directorate for Children, Youth, and Family Affairs) (Bufdir), the environment and

[9] The Covid19 pandemic, however, resulted in a baby boom, with 700 more births in 2021, compared to the same time in 2020, and it was the highest number since 2017 (2021e).
[10] More details on Eldreråd in section 4.3.2.2
[11] More details on Pensjonistforbund in section 4.3.2.3
[12] Senior i Ålesund Facebook page link: https://www.facebook.com/seniorialesund/?ref=page_internal

society, especially those of importance, should be inclusive of all people, and should not be the reason to create isolation (2022f).

In 2020, 18% of the population, 6,36,000 people, were said to have some sort of disability according to the SSB Arbeidskraftundersøkelse (Statistics Norway's Labor Force Survey). The number of women was higher than that of men, and it usually varies between 15%-18% (2022f).

According to the survey report done by Kartverket and United Future Lab Norway in the summer of 2021, almost 12,000 people in Ålesund were disabled, which is almost 12% of the population. This number is for the age group of 15-66 years old (2021f). The leading association for the handicapped society in Ålesund is the Ålesund Handikapforbund [13] (Handicap Association), which currently has five board members and a good number of general members. According to the deputy of the association, Severin Minime-Brunes, they have a hard time recruiting the younger population, thus the original number of handicapped people in Ålesund is much more.

Handicapped citizens were seen in areas that had more activities and services. They usually prefer using indoor areas because they are more accessible.

## 4.3 National laws and regulations

The next two sections will talk about the laws and regulations regarding the target groups' access to society and community. It further talks about regulations related to universal design and inclusivity.

### 4.3.2 Laws for the older community

#### 4.3.2.1 Aldersvennlige Lokalsamfunn

The aim of the Aldersvennlige Lokalsamfunn (AL), or in English, the Age-friendly Communities, is to improve the challenges and opportunities of the older population and enable them to participate in society more (n.d.-b). Table 4 displays a checklist to create age-friendly communities. Their website (2020b) mentioned:

[13] More details on Handikapforbund in section 4.3.2.3

"At folk blir sett og hørt bidrar til å styrke tilliten til lokaldemokratiet og gjør saker og beslutninger bedre"

*<The fact that people are seen and heard helps to strengthen confidence in local democracy and makes matters and decisions better.>*[14]

*Table 4. A checklist designed to create AL places. Source: (2020a).*

| A checklist designed to create AL places: |
|---|
| 1. Central location |
| 2. Proximity to other places where things happen – shop, cafe, library |
| 3. Entrances facing a common square |
| 4. More ways to get there |
| 5. Universally designed |
| 6. Benches - well placed, with the correct height of the seat |
| 7. Opportunity for generational meetings – elderly, adults, children, and young people |
| 8. Physical activity - especially circulation and balance |
| 9. Social activities - bocce, cultivation, chess |
| 10. Toilets |
| 11. Good lighting - security and orientation |
| 12. Vegetation - sensory experiences and shadow |
| 13. Shelter and shelter |
| 14. Tour for tours - with start and stop in the same place |

#### 4.3.2.2 Eldreråd

Each municipality and county municipality should have an Eldreråd (Elderly Council), which is an advising body for the elders in that region. The council is appointed for four years, and most of the members should be over the age of 60 (2020b). According to a government website (2019b), the council's job is to ensure that elderlies are part of any matter that concerns them directly. Matters can range from planning issues, transport, accessibility, housing, healthcare, outdoor life, digitization, and any other related issue. The regjeringen website (2019b) mentions:

[14] Translated via Google translate.

Det er behov for eldreråd fordi eldre ofte er underrepresenterte i folkevalgte organer. Det er viktig at synspunkter fra eldre blir ivaretatt i kommunale og fylkeskommunale beslutningsprosesser og det er derfor krav om eldreråd i hver kommune og fylkeskommune.

*<There is a need for senior councils because the elderly are often under-represented in elected bodies. It is important that views from the elderly are considered in municipal and county municipal decision-making processes, and therefore, senior councils are required in each municipality and county municipality.>*[15]

Ålesund too has an Eldreråd of its own, with 23 members and meetings taking place each month (n.d.-i).

#### 4.3.2.3 Pensjonistforbundet

Pensjonistforbundet (PF), also known as the Pensioner's Association in English, was formed in 1951 to look after the social and economic conditions of old age pensioners, seamen pensioners, disabled pensioners, and of mothers in general (n.d.-o).

Every three years, there is a national meeting, where issues are discussed and voted for. The political leaders for the three years are also decided in this meeting, along with an action plan (n.d.-u).

There are several local PF in Ålesund. Some of them are the Ålesund Pensjonistforening, Sula Pensjonistlag, Brattvåg Pensjonistlag, Spjelkavik og Omegn Pensjonistforening, Volsdalen og Nørve Pensjonistforening, Liaaen Pensjonistgruppe and the Skodje Pensjonistlag.

### 4.3.3 Laws for the disabled community

#### 4.3.3.1 Diskriminerings – og Tilgjengelighetsloven

Diskriminerings – og Tilgjengelighetsloven, known as the Discrimination and Accessibility Act in English, is a major law for differently-abled people in Norway. The act (no.51) was established on 21st June 2013 (2017b). The act aims to:

[15] Translated via Google translate.

| |
|---|
| Lovens formål er å fremme likestilling og hindre diskriminering på grunn av kjønn, graviditet, permisjon ved fødsel eller adopsjon, omsorgsoppgav er, etnisitet, religion, livssyn, funksjonsnedsettelse, seksuell orientering, kjønnsidentitet, kjønnsuttrykk, alder og andre vesentlige forhold ved en person. |

<*Promote equality and prevent discrimination on the grounds of sex, pregnancy, maternity or adoption leave, care duties, ethnicity, religion, outlook on life, disability, sexual orientation, gender identity, gender expression, age, and other significant circumstances of a person*.>[16]

The act further bans any discrimination based on any existing, previous, future, or alleged conditions by any person. Citizens are also banned from discriminating against anyone who might be affiliated with any person.

The Equality and Anti-discrimination Ombud (Agent) enforces this act further and help anyone to file a complaint or provide legal advice. The Ombud also guides entities on following this act, whilst creating awareness (2009), monitors whether Norway obliges to the UN Convention on the Rights of Persons with Disabilities (CRPD[17]), and reports directly to the UN about it (n.d.-j).

#### 4.3.3.2 Rådet for personer med funksjonsnedsetting

Rådet for personar med funksjonsnedsetting (RPFN), known as The Council for Persons with Disabilities in English, is a mandatory advisory body in all municipalities and county municipalities. The council expresses opinions on cases concerning the differently-abled and can also make recommendations and give proposals for cases. The council may create cases of its own if needed (2021i). The council makes sure that the views and opinions of the differently-abled community are heard before any final decision is made for any related case. The council also works on several aspects of the UN CRPD. The council is available in Ålesund and currently has 11 members and 13 deputies (2021h).

#### 4.3.3.3 Norges Handikapforbund

Norges Handikapforbund (NHF), known as the Norwegian Handicapped Association in English, is an own-interest organization in Norway where it tries to establish a society that can

[16] Translated via Google translate.
[17] The main aim of CRPD is to protect, enhance and guarantee that differently-abled people have the same rights and freedom as every other citizen and prohibits any type of discrimination against the differently-abled.

exist together with the handicapped community so that the handicapped community can have equal rights, and opportunities, and can comfortably follow their interests (Handikapforbund, n.d.). NHF tries to be involved in places and cases that are related to them or might have a consequence on their lives (n.d.-v).

There are currently 14,000 members in the association. NHF has funds that help any project that might benefit them and their social participation and equality in the community. (n.d.-l).

NHF in Ålesund was founded on 7th October 1971. The association currently has five board members (n.d.-t).

### 4.3.4 Joint elder council and handicapped council

Some municipalities may not have enough funds or sufficient resources to create two different entities for the elder council and the handicapped council. In this case, they may create a joined council that will serve both the target groups. Before creating such a joint council, other elderly and handicapped organizations, entities, or already established councils should be consulted (2021i).

### 4.3.5 Overview of the laws and regulations

As an overview, it is understood that the Norwegian government is concerned about both the aging population and the differently-abled. There are various entities, both public and private, working for these user groups. The main aim of all these groups is to create a better place for them, and for any major decisions in the community that concerns them, the target groups should have a voice in the decision.

### 4.3.6 Universal Design (UD)

#### 4.3.6.1 Government's Action Plan 2021 – 2025

The government realizes the importance of UD and aims to make a society in which everyone can participate equally and with equal opportunities. Every citizen, regardless of age, gender, ethnicity, size, language, or disability, should have the freedom to live their own lives in a just, secure, and sustainable society. UD is one of the main ways in which this can be achieved, as it is a method in which an equal society can emerge through physical and technical improvements. Currently, UD is embedded in 12 national laws, over 70 regulations, and over

70 Norwegian standards of society (2021b). The Norwegian government makes action plans (handlingsplan) every few years.

The individual municipalities are responsible for community planning in their city or town; therefore, it is up to the municipalities to maintain UD in any development or interventions. The developments or interventions can be in sectors of the environment, outdoors, urban areas, transport planning, housing, businesses, or even aquaculture (2021b).

#### 4.3.6.2 Kommune Sektorens (KS)

KS (2020a) believes in creating a more inclusive society so that everyone can be a part of it without needing any special help. KS thinks that for any planning project, UD should already be included in the design, meaning everyone's interest is kept in the design. The entity further encourages a society for elders and the differently-abled. Table 5 displays ideas of KS concerning UD.

*Table 5. Measures and means of inclusive society as deemed by KS. Source: (2020a).*

| |
|---|
| Places[18] that people visit often should be located close to each other for people to easily move around. |
| A good and accessible PT system and road networks should be maintained. People should easily be able to go places by PT, bicycle, or on foot. |
| Parks, green areas, and outdoor spaces should be found nearby so that people can easily access them. |
| Materials that make it easier for walkers, wheelchairs, carts, or strollers to move should be used in construction. |
| Benches should be available at outdoor places. The availability of benches motivates people to walk as they know that they will have a place to sit and rest on. |

[18] Places can be schools, libraries, health centers, shops, cafes or plazas 2020a. *Å utforme et aldersvennlig lokalsamfunn* [Online]. KS. Available: https://www.ks.no/arkiv/4-A-utforme-et-aldersvennlig-lokalsamfunn/ [Accessed 29.03.2022 2022].

| |
|---|
| Access to public toilets should be considered in urban areas. Knowing there are toilets makes the journey more comfortable for users. |
| Enough lights after dark. Lights increase the view of the streets and improve safety. The type of lights also plays a role in the design. |
| User needs should always be learned and assessed to be able to transfer them into a good user solution. |

#### 4.3.6.3 Barne-, ungdoms- og familiedirektoratet

Bufdir is one of the main entities in Norway that deals with and handles UD. Bufdir believes that UD is to design the environment in such a way so that the needs of every or most of the people are taken care of; people's needs should be met so that they can move around like every other person (2015c). Bufdir coordinates with various stakeholders and sectors to inform and advise them on how to be more inclusive and how to use UD in their approaches. Bufdir further collects data and statistics regarding UD from various sources and puts them out for public viewing, and finally, it can grant schemes and funding related to projects in UD (2015a).

UD was introduced to Norway from the USA following the seven guidelines provided by the Center for Universal Design at North Carolina State University (Connell et al., 1997). The seven guidelines are mentioned below in table 6:

*Table 6. The seven guidelines for Universal Design.*

| |
|---|
| 1. **Equitable Use**: The design is useful and marketable to people with diverse abilities. |
| 2. **Flexibility in Use**: The design accommodates a wide range of individual preferences and abilities. |
| 3. **Simple and Intuitive Use**: The use of design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. |
| 4. **Perceptible Information**: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities |

| |
|---|
| 5. **Tolerance for Error**: The design minimizes hazards and the adverse consequences of accidental or unintended actions. |
| 6. **Low Physical Effort**: The design can be used efficiently and comfortably and with a minimum of fatigue. |
| 7. **Size and Space for Approach and Use**: Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility. |

# 5 Case Presentation and Analysis

This chapter presents the three case areas and their details in a chronological manner. The first case described is Tueneset, which is a natural area. The second case is Lillevatnet which is a natural area with more commercial surroundings, and the third is Sentrum, which is a commercial district. A brief overview of the areas is given, followed by the case analyses of the sites with the help of the data collected. The results are further analyzed with the adapted theoretical framework described in chapter 2, to form an understanding of the current public scenario in the area.

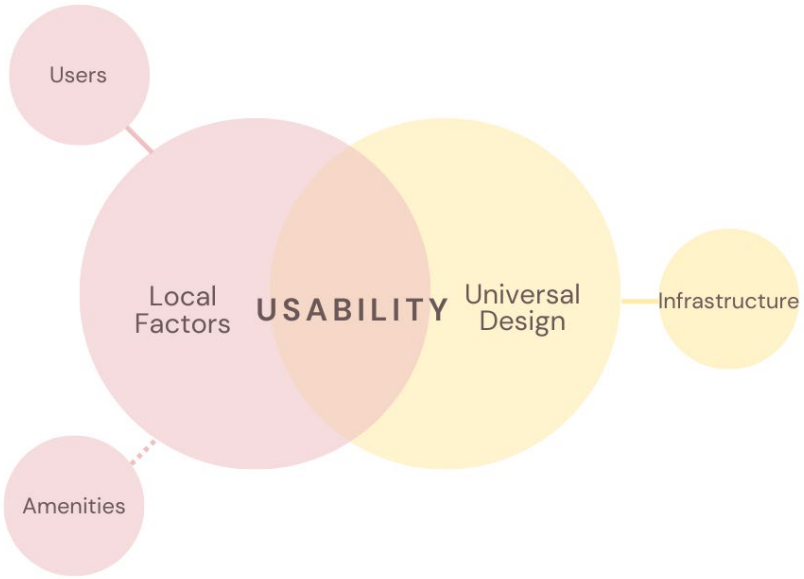



*Figure 21. Theoretical framework model.*

According to the framework, the main focus is on the usability of a place, to determine how actively the user groups can use a public place. The information collected will be analyzed in terms of *amenities*, *users or stakeholders*, and *accessibility*.

Through this sequence, it is easier to understand how people's opinions change as the environment changes from natural to commercial.

## 5.1 Case area 1: Tueneset

*Table 7. A brief outline of Tueneset.*

| | Area type | Research methodology | Stakeholders | Amenities | Infrastructure |
|---|---|---|---|---|---|
| **Tueneset** | Natural | 1. Observation.<br>2. Transect walk.<br>3. Questionnaire.<br>4. Online data. | 1. Senior citizens<br>2. Handicapped citizens | 1. Outdoor shelters<br>2. Benches<br>3. Children's zone<br>4. War artifacts<br>5. Beach<br>6. Toilets | 1. Walking routes<br>2. Materials: asphalt and stones<br>3. Bus<br>4. Bus stops<br>5. Parking<br>6. Street lamps |

Tueneset is a large outdoor area with walking and hiking trails, and various other outdoor activities(2015b). The area has provisions for hiking paths, outdoor shelters, playgrounds, bunkers, World War II remnants, picnic areas, BBQ pits, benches, fishing spots, swimming areas, a beach, and toilets. Tueneset has no lights in an attempt to keep the area light pollutant-free, allowing people to observe the stars and the northern lights. The walking routes at Tueneset are mostly graded as *green*, which means the routes are simple, easy, and suitable for everyone with no special skills required (2019c). Many trails have been covered with wooden planks to reduce slipping during the wet season and also to protect nature (n.d.-y). Tueneset was declared as Ålesund Municipality's most attractive outdoor area in 2015 (n.d.-x). Figure 22 shows a figure map of Tueneset, along with the hiking trail inside it.

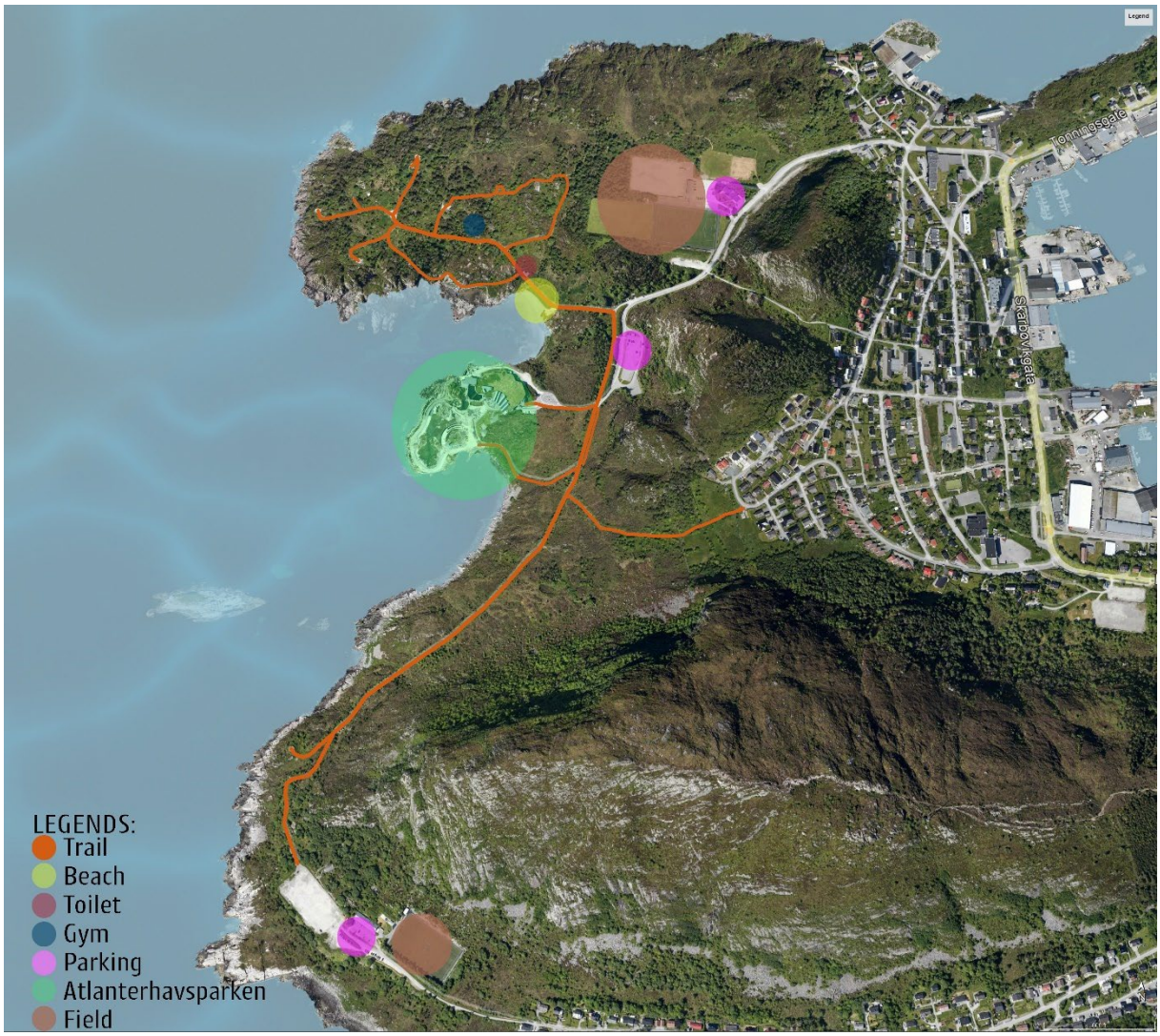



*Figure 22. Tueneset map. Developed by the author.*

On the west of the hiking route of Tuneset, lies the Atlanterhavsparken (Atlantic Park), which is the Nordic region's largest saltwater aquarium facility since 1998, displaying the wildlife of the Atlantic Ocean (Stokkan et al., 2022).

One can reach Tueneset by bus that visits the Atlantic park on fixed hours, or with 3 bus stops nearby (2019c). Figures 23 shows an image of Tueneset.

*Figure 23. The right route is universally accessible, the left route is partially accessible. Image captured by the author.*

### 5.1.2 Case data and analysis

The data collection was done through observations, a transect walk, a small questionnaire, and online data. This information gives an idea of how the area is used, which is later analyzed with the theoretical framework model developed in chapter 2.6.

#### 5.1.2.1 Accessibility

Two routes can be used to reach the northern part of Tueneset, which is situated right after the beach. The routes can be seen in figure 23. The route on the right is the longer route, which is less steep, bigger, and is designed for all users, regardless of accessibility differences. The other route is smaller, thinner, and steeper, which is relatively more tasking to use, and difficult to use with wheelchairs; many senior citizens were seen using the steeper route. To keep the area as natural as possible, there were no asphalt routes on the entire walking trails, thus all the trails are made with gravel and stones.

As much of Tueneset is exposed to the wind and sea, snow or ice can hardly form on the trails during winter, which makes it possible to walk all year round. The southern trail had stones on the gravel, and one of the participants during the transect walk mentioned that it is difficult for

a wheelchair user to use it. The participants being frequent users of this area, showed some hidden wooden walkways during the transect walks. Figure 24 shows images of the walkways.

*Figure 24. Images of gravel trails and wooden planks. Images captured by the author.*

As there were no transect walks with any handicapped citizens at Tueneset, their accessibility on the routes was difficult to determine. As an observer and researcher, the walkways looked very coarse and an uncomfortable journey for wheelchair users, especially manual wheelchair users. According to the website norgeskart.no developed by the NMA, the accessibility of Tueneset can be studied and observed from it. The maps available on the website are national data and have been collected with proper mapping. Their map shows most of the area is partially accessible or completely inaccessible by wheelchair users. Adding to that, most of the benches are displayed as not usable by wheelchair users, and there seems to be no provision for handicapped parking. Figure 25 shows the accessibility map of Tueneset.

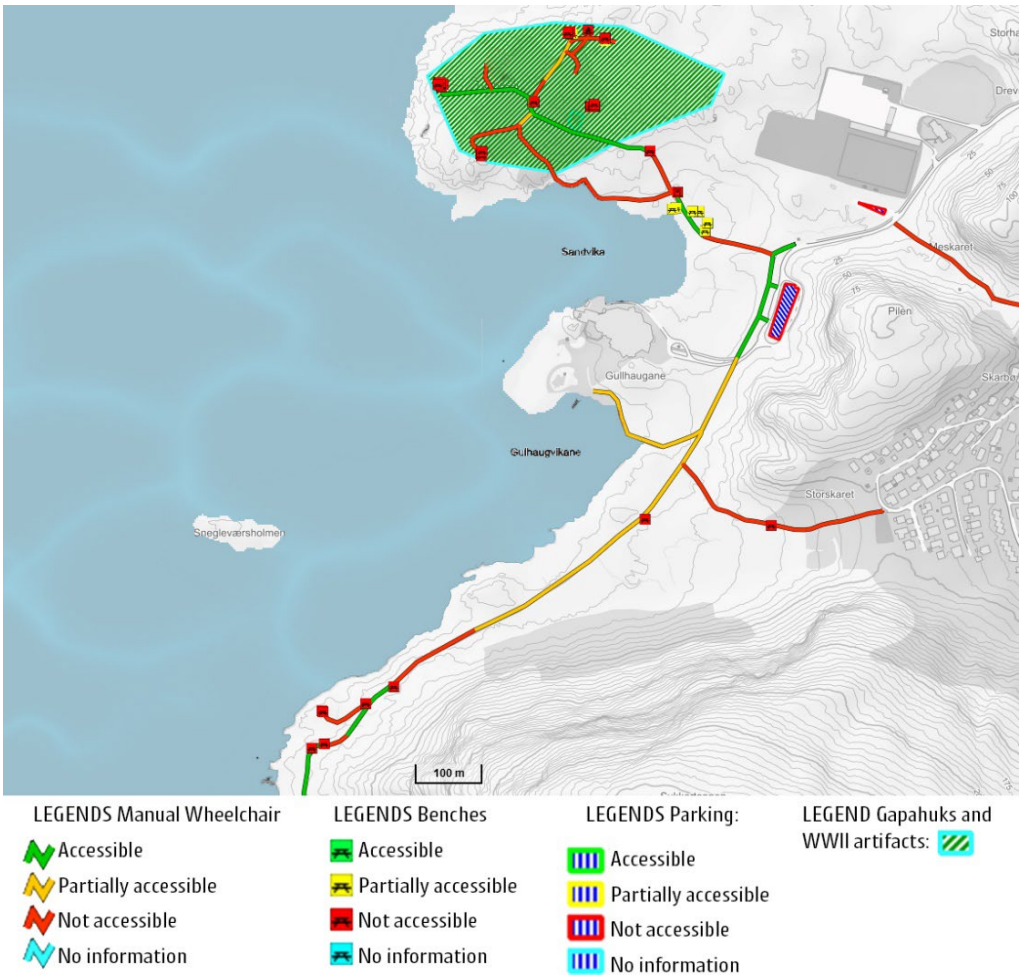



*Figure 25. Accessibility to information on Tuneset. Source: norgeskart.no*

According to a small questionnaire[19] presented to a few senior citizens about Tueneset, they mentioned they usually travel to Tueneset either by foot or by car and do not use the public bus. A handicapped person might not be able to drive to Tueneset, therefore, are dependent on maxi-taxis[20] or public buses. Using maxi-taxis is a daunting experience for the handicapped users, as the taxis need to be ordered at least 24 hours ahead, meaning they cannot make an impromptu visit to Tueneset. Furthermore, normal taxis cannot carry electric wheelchairs as they cannot be folded. In addition, handicapped citizens do not prefer using the public bus as many drivers are unwilling to carry wheelchairs, especially electric wheelchairs, as they weigh over 200 kilograms. The closest bus stop is at Atlanterhavsparken, which arrives at specific hours of the day, thus reducing chances of an impromptu visit once again. The more available bus stop is

[19] The questionnaire can be found in appendix 3.
[20] Taxi services in Ålesund that can carry people with disabilities and wheelchairs.

1.1km away (2019c). The questionnaire further revealed that the senior citizens believe some routes get slippery, and they have heard of accidents at Tueneset.

Therefore, it can be said that the accessibility of Tueneset is not favorable. From reaching Tueneset to walking inside the area is an ordeal for users, especially for handicapped citizens. The trails are usable by the senior citizens, and according to the site visits, the trails were the *only* element used by the senior citizens. The accessibility provisions for the handicapped citizens are unsatisfactory, which might be one of the reasons why there were no handicapped citizens seen at Tueneset. It is pertinent to mention that other users, such as teenagers, middle-aged citizens, and parents with children were seen using Tueneset during the site visits.

According to the theoretical framework, accessibility at Tueneset falls under the criteria of infrastructure and universal design, and it seems that there are lacking in that sector. To make the area extremely natural, the design might have overlooked the needs of the different users in terms of accessibility, therefore, usability is negatively influenced due to reduced accessibility at Tueneset.

#### 5.1.2.2 Amenities and users

Tueneset has several amenities, all of which are designed to keep the area as natural as possible. The area has outdoor shelters, benches, war artifacts, children's play areas, a beach, universally designed walkways, toilets, and in the vicinity, the Atlanterhavsparken – it has something for all ages.

The outdoor shelters are semi-enclosed places for people to sit or enjoy a BBQ, and many of them are designed universally so that everyone can access them. The largest of the outdoor shelters has an additional outdoor gym with them in which some elements are designed for wheelchair users as well, to create inclusivity. Nonetheless, during the three site visits, no one was seen using the outdoor shelters or the exercising area and the places were always empty. Figure 26 shows an image of the area.

*Figure 26. Universally designed outdoor shelters, benches, and tables at Tueneset. Image captured by the author.*

Benches are abundant at Tueneset, but most of them were seen vacant during the site visits. The benches that had a view of the beach and the sea would have users on them, and others that were spread over the area were seen empty. According to the elder participants from the transect walk, they visit Tueneset every week but have hardly used the benches, however, they have seen others use them from time to time.

To keep the area light-free, Tueneset has no streetlamps. Due to the absence of light, there were almost no visitors after dark. The participants from the transect walk mentioned several times how the place lacked lights, and they cannot use Tueneset after sundown in winter and also at other seasons. Other pedestrians on the trail had similar opinions and assumed if lights are present, Tueneset would be used all year round, regardless of season or time.

In terms of user groups, senior citizens were always seen using the area during the site visits. They were mostly concentrated on the trails rather than the available activities. Their casual clothing meant that most of the senior citizens lived nearby and visited Tueneset as if 'going for a walk in their neighborhood'. They would be seen jogging along the routes alone, with a friend or a pet. As for the handicapped citizens, not one of them was seen at Tueneset during any of the site visits. Even though the area provided facilities for the handicapped citizens, such as accessible routes, tables, and benches, the place still lacked the said user group. The site was

visited three times, and more visits and research are needed to understand the correct scenario and usage of the area by the handicapped citizens.

Even though the visits to the site were few due to time constraints, nonetheless, from observations and conversations, the provisions did not seem to be used often; all the activities were concentrated on the trails. Therefore, it can be said that even though Tueneset offers a range of elements, many of which are universally designed, the observed users did not use those features. The elements were provided keeping in mind inclusivity; however, the implementation could not reach its full potential. Furthermore, the handicapped target group was absent in the area during the site visits, meaning their needs are not entirely satisfied at Tueneset.

According to the theoretical framework model, Tueneset does not fulfill the involvement of relevant users, and neither does it satisfy the usage of the provided amenities from the entire mobility-impaired community. Therefore, it can be said that the local factors do not positively influence the usability of the area.

#### 5.1.2.3 Summary

Overall, Tueneset does not satisfy the framework model. The usability of the area is limited to the senior citizens and not the handicapped citizens, which might create stigma to some extent. According to the theory of social justice used in section 2.2, all citizens should have equal access to services in the city, or else they might feel excluded and not a part of the society.

## 5.2 Case area 2: Lillevatnet

*Table 8. A brief outline of Lillevatnet.*

| | Area type | Research methodology | Stakeholders | Amenities | Infrastructure |
|---|---|---|---|---|---|
| **Lillevatnet** | Natural, with commercial surroundings | 1. Observation.<br>2. Transect walk.<br>3. Focus group discussions.<br>4. Interview.<br>5. Online data. | 1. Senior citizens<br>2. Handicapped citizens<br>3. Municipality | 1. Benches<br>2. Outdoor gym<br>3. Toilet<br>4. Animals<br>5. Nature | 1. Walkway<br>2. Materials: gravel and asphalt<br>3. Flat land<br>4. Bus terminal<br>5. Sidewalks<br>6. Parking |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | 7. Street lamps |

Lillevatnet is a small lake situated in the area of Spjelkavik, Ålesund. Lillevatnet always had a walking route around the lake, but it was underdeveloped and not accessible by all. Around 2010, the walkway around the lake was developed keeping in mind UD, and because of its success in design, in 2011, it won third place in a design competition by the Møre og Romsdal County Municipality for designing the best universally designed hiking trail in the county (n.d.-q). Figure 27 shows an image of Lillevatnet.

*Figure 27. Lillevatnet, northern route. Picture captured by the author.*

### 5.2.2 Surrounding areas

As mentioned before, Lillevatnet is a site that is natural itself but is surrounded by commercial activities, therefore, it is important to know a little about the surrounding environments as well.

The lake is situated in Spjelkavik, which had a population of 11,000 in 2019, and is the second-largest part of Ålesund (Thorsnæs, 2021). Spjelkavik has a branch of the Ålesund public library, several churches, a pensioners association, a care center, and several schools, including Ålesund's largest middle school, and AMFI Moa. There is also an active bus terminal at Spjelkavik (2022h).

Moa is the most important area in Spjelkavik. The main bus terminal, the health care center, and AMFI Moa are all situated there (Thorsnæs, 2021). The Spjelkavik Care Center in Moa is

one of the biggest care centers in Ålesund (2022j) and the AMFI Moa mall is the 4th largest shopping mall in Norway (n.d.-a).

### 5.2.3 Case data and analysis

For Lillevatnet, methods of observation, transect walk, focus group discussion, interviews, and secondary data were used. The information will be analyzed with the theoretical framework model that has been developed in chapter 2.6.

#### 5.2.3.1 Accessibility

The walkway at Lillevatnet was developed in a way so that wheelchairs, prams, and walkers could easily be used on it. For that, the ground materials for the walkway were chosen as gravel and asphalt, making it easier for wheels to move on it. The route on the north is made with solid gravel, whereas the route on the south contains asphalt. There are two wooden bridges on the east and west of the route (n.d.-q). Figure 28 shows a map of the area.


*Figure 28. Walking route around Lillevatnet. Map developed by author.*

Senior citizens were always seen at Lillevatnet during site visits, and according to interviews with pedestrians, they feel the walkways are perfect and need no change. The handicapped citizens mentioned the same; the depth and thickness of gravel were perfect, and the

wheelchairs would not sink[21] into it. During the transect walk, it was seen that both manual and electric wheelchair users could comfortably use the area. The wooden bridges on the east had poor maintenance, and the woods were rotten and rattling under the pressure of the wheelchairs. One of the participants was using a manual wheelchair, and he and his caretaker faced difficulty at some points in the route in pushing the wheelchair. Some participants mentioned narrow trails where it might be difficult for two wheelchairs to cross at the same time. The participants additionally expressed that the trails might be difficult to use during rain and snow. Ålesund is a town that is prevalent in rain according to section 4.1.2, and if the trail is difficult to use during rain, then it is theoretically difficult to access with ease for a significant part of the year.

The walkways have almost no steepness and are flat. One of the pedestrians at Lillevatnet mentioned that she had previously brought her friend there who had a hip replacement and needed a *comfortable* land to walk on. Additionally, two participants mentioned that they relocated to Moa due to its flat land and all the amenities at hand. Additionally, according to the municipality, a huge number of senior citizens live in Moa[22], therefore, the users no longer need to use the public bus or maxi-taxis as frequently, as most needs are nearby.

As the bus terminal is nearby, it can be used to travel to Lillevatnet from other parts of the town. However, both handicapped and elder citizens have shown their dissatisfaction with public transport multiple times, due to its fare and provisions for holding electric wheelchairs. The planners from the municipality mentioned that they have heard complaints about the public transport, but think the locals need to use the services more often for the municipality and other agencies to authorize more bus services and routes.

Due to budget cuts, the first sector the municipality cuts off are the roads and parks sector, and they cannot afford to hire a maintenance team either. Some of the pavements near Lillevatnet have been broken for the past five years according to the participants. Wheelchairs or walkers travel over the sidewalk, and a broken path adds more inconvenience for the users. Figure 29 shows images of walkways at and near Lillevatnet.

[21] Usually, a softer pavement cannot take the weight of electric wheelchairs.
[22] The map depicting the living situation of seniors at Ålesund can be found at appendix 4.

*Figure 29. Left: Lillevatnet, northern track. Middle: Pavement near Lillevatnet. Right: Lillevatnet, southern track. Picture taken by the author.*

It can be concluded that the accessibility inside Lillevatnet is up to the mark, however, some of the observed streets around Lillevatnet, and the public bus, need improvement.

If the framework is consulted, in terms of accessibility, Lillevatnet is universally designed and has kept in mind the local factors. Both the target groups are happy with its usability. As the PT is not ideal, therefore, the infrastructure is also not perfect, thus, not fulfilling the usability context to its fullest.

#### 5.2.3.2 Stakeholders

A lot of senior citizens were seen jogging alone, as a couple, with a friend(s), or with their pet. They were seen sitting on the benches, taking photographs, eating, feeding the ducks, and also using the outdoor gym. As it got darker, the number of elders decreased significantly. As for the handicapped citizens, a total of 4 citizens were observed during the five site visits at Lillevatnet.

According to data from the municipality, Spjelkavik has the highest number of senior citizens above the age of 65 amongst all the other areas in Ålesund. During one of the focus group discussions, the senior citizens mentioned that they lived in Moa due to its many amenities, but they do not want to be secluded there. The participants expressed their understanding of being healthy and happy, and want a better community to socialize and go out in. They have written to the municipality and politicians multiple times about their needs, such as, to be able to visit other areas in Ålesund, or needing better public transport and services for themselves, but they never got a response back. Therefore, the participants do not think highly of the municipality. The participants further think that there is a lack of coordination inside the municipality, which inherently leads to a lack of communication with the population as well. The municipality has never asked for their advice on anything and some of the translated comments from the participants were:

"The municipality does not have any money, so they can only talk, without any action."

"Sometimes I cannot believe that the municipality can do such poor jobs."

When mentioning the above comments from the participants, the planner agreed with their statement. The planner consented that the municipality is not being able to provide for its citizens adequately. Municipality wants to work for them more rigorously, but due to budget restrictions, they are unable to do so. According to other planners from the Ålesund municipality, the municipality has strong cooperation with the general public, and any new projects are done keeping in mind UD. Relevant user groups and residents are always consulted before finalizing any development plan.

There is an evident communication gap between the users and the authorities, which might lead the users to not be able to express their needs and wants about the area. According to the theories in chapter 2, an overarching power cannot always understand the needs of the people, therefore, more local authorities should be present to understand the needs of individual communities. There is a lack of local powers in Ålesund, creating a big interaction disparity between the important stakeholders. Improved interaction can lead to more inclusivity and the presence of target groups.

If the framework is seen, it does not fulfill the local factors, as the user criteria are not well developed at Lillevatnet. The current scenarios lack the user groups' needs, which, therefore, negatively affects the usability index of Lillevatnet and its surrounding areas.

#### 5.2.3.3 Amenities

Lillevatnet and its surrounding areas contain many amenities and elements of urban design. It has benches, street lamps, outdoor gyms, toilets, animals, birds, nature, and also parking privileges. Furthermore, a variety of amenities such as sports facilities, kindergartens, children's playgrounds, football fields, several businesses, the AMFI Moa mall, health center, libraries, and other services are all nearby (n.d.-p).

The route, also a hiking trail, is 2.1 km long and falls inside an established residential zone in Spjelkavik. The trail is surrounded by various landscapes and environments, such as forests, a plain field, running water, an outdoor gym, a playground, and a kindergarten (n.d.-p). Lillevatnet has a total of five benches at intervals, all facing the water to enjoy the view.

Pedestrians at Lillevatnet mentioned that they visit the area weekly, monthly, or every few months, depending on how far they live. Some of the best features of Lillevatnet according to the participants are the birds, the view, the nature, fresh air, calmness, and peacefulness of the area. Able-bodied users could be seen feeding the birds or going to the edge of the water, but no such provisions were available for wheelchair users, as they could not travel anywhere apart from the walking trail. To reach the available benches or the water body itself, the wheelchair users would need to go over the grass where their wheelchairs do not work well. Additionally, they mentioned that the benches were very few and did not have hand rests, which act as supports for wheelchair users. Elderlies were seen using the benches very often, but the wheelchairs users were never seen using them. Figure 30 shows the position of the benches.

*Figure 30. Bench on grass. Picture captured by the author.*

Lillevatnet has an outdoor gym, and one of the participants during the transect walk showed remorse that she could not access the gym. The gym was built on an inaccessible material, and in addition, all the equipment was for able-bodied users and not for someone in wheelchairs. On all the five site visits at Lillevatnet, the gym was seen being used by elderlies once. The toilet at Lillevatnet, though universally designed, stays closed very often according to some pedestrians. The pedestrians further mentioned the need for more activities at Lillevatnet to make the area livelier.

According to the data collected, there are available amenities at Lillevatnet, but user access is limited. Senior citizens were seen performing activities, and felt included and happy to use Lillevatnet, but inclusivity and usability are limited for the handicapped citizens. The wheelchair users can connect with Lillevatnet more visually and spiritually, rather than physically.

Therefore, it can be said that the amenities are present at Lillevatnet but are not used by both the target groups. According to the theoretical framework, local factors, and universal design should be adequately constructed to positively influence the usability of the area. According to

the analysis, amenities lacked a universal design approach, thus being inaccessible, therefore, negatively influencing the usability of the place.

#### 5.2.3.4 Summary

Overall, Lillevatnet does not satisfy the framework model. Lillevatnet is not entirely inclusive of its amenities, as the handicapped citizens were not able to use many of the elements during transect walks. Furthermore, during the site visits no handicapped citizen was seen using any amenities. Additionally, there is a big gap in communication between both the user groups and the municipality. To make a public place successful, all user groups should feel comfortable in using them, and to make the place usable for everyone, the designer or decision-maker should consult with the relevant user groups to cater to their needs. The public transports are also not efficient as the participants hardly ever use them, and electric wheelchair users have significantly more difficulty riding them. The PT should have equal opportunities for all its users to make it of quality.

People have claimed to move to Moa due to its amenities, therefore, giving Lillevatnet more users. If Lillevatnet was not situated near Moa, then the users would be fewer, therefore, the external commercial zones affect the usability of Lillevatnet.

### 5.3 Case area 3: Sentrum

*Table 9. A brief outline of Sentrum.*

| | **Area type** | **Research methodology** | **Stakeholders** | **Amenities** | **Infrastructure** |
|---|---|---|---|---|---|
| **Sentrum** | Commercial | 1. Observation.<br>2. Transect walk.<br>3. Focus group discussions.<br>4. Interview.<br>5. Online data. | 1. Senior citizens<br>2. Handicapped citizens | 1. Nature<br>2. Benches<br>3. Shops<br>4. Museums<br>5. Services<br>6. Architecture | 1. Sidewalks<br>2. Materials: asphalt, cobblestones, brick<br>3. Bus terminal<br>4. Steep<br>5. Curbs<br>6. Zebra crossing<br>7. Parking |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | 8. Building entrances<br>9. Street lamps |

As mentioned in section 4.1.2, Ålesund had gone through a devastating fire in 1904, after which the town was rebuilt. It was done within a short span of 3 years under the direction of Kaiser Wilhelm of Germany, and the design of Jugendstil, or in English, Art Nouveau architecture style[23], was implemented on the buildings (n.d.-c). Due to its architectural features, Ålesund is an important city in Norwegian architectural history and is also part of the European Network for Art Nouveau[24] (2022c). Figures 31 shows an image of Sentrum.


*Figure 31. Sentrum. Picture taken by the author.*

As Ålesund is made up of many broken islands, Sentrum is mostly situated on the islands of Aspøya and Nørve, with quayside facilities both on the north and south of the islands (Thornæs and Haugen, 2022).

Currently, there is a Sentrum Forening (City Center Association), that works on creating a more vibrant Sentrum by organizing events such as the Sentrum Brosundet lighting show, ByLørdag

[23] Some say the new style was derived from Norse mythology and fairy tales. Source: 2022c. *Ålesund (by)* [Online]. Wikipedia. Available: https://no.wikipedia.org/wiki/%C3%85lesund_(by) [Accessed 11.05.2022 2022].
[24] More about the European Network for Art Nouveau can be read in this link: https://www.artnouveau-net.eu/

(city on Saturdays), Eat and Shop for 100, Ålesund Pride Parade, War history weekend, and The Norwegian Food Festival (n.d.-aa). Additionally, there are guided city tours, hop on – hop off buses, and city trains (toy trains) for tourists, and all of these activities start and end at Sentrum (n.d.-c). Ålesund, today, is a popular tourist destination, with around a million tourists each year, many of which arrive through boats and cruise ships (LettFaktura, 2019).

### 5.3.2 Case data and analysis

The most data collected was for Sentrum, through methods of observations, transect walks, focus group discussions, interviews, and a small collection of online data. The data will be analyzed with the theoretical framework model.

#### 5.3.1.2 Accessibility

The ground coverings vary from asphalt to cobblestones to bricks, which adds to the aesthetic heritage of Ålesund. According to senior participants from the transect walk, the cobblestones were difficult to walk on due to their bulging shapes and gaps between the stones - it hurts the sole of their feet. If a pedestrian street is made with cobblestones, they walk on the sidewalks which are made of asphalt. During a transect walk with a handicapped citizen, she mentioned the cobblestone streets were uncomfortable as they caused a constant vibration for her. She assumed that it would be almost impossible for manual wheelchair users to use these streets. Moreover, some of the cobblestones were wobbly, making it even more uncomfortable. Some streets were made with bricks, and according to her, those were worse than cobblestones. Therefore, both wheelchair users and senior citizens prefer traveling on the asphalt sidewalks rather than the cobblestones.

The asphalt sidewalks, however convenient, were often too narrow, broken, or simply blocked by objects or chairs from shops, therefore, it is common to see wheelchair users using the vehicular road instead of the sidewalks. Figure 32 shows an image of the obstructed asphalt sidewalks. The senior citizens mentioned that most of the sidewalks were accessible for them, and as many were heated, there was no snow or ice on them during winter, and easier for them to walk. Nonetheless, they pointed out some broken sidewalks in certain places, and those paths have been broken for years now. They also feel that the sidewalks are not built with contrast, and sometimes they stumble because they did not realize where the sidewalks were ending or beginning. In addition, wheelchair users cannot get off the sidewalk anytime they want due to

the height difference between the sidewalk and the street, and the number of curb cuts available on the sidewalks is low. The curb cuts should also have zebra crossings for them to go to the other side, and the zebra crossings in Sentrum were almost fading; it was difficult to notice them. Furthermore, the absence of signs added to these obstacles for wheelchair users. According to a handicapped citizen, due to Sentrum's low number of curb cuts, her journey is unnecessarily long. Moreover, there were no curb cuts beside handicapped parking, thus a user would have to travel a long way just to get on the pavement. According to planners from the municipality, there have been complaints about the sidewalk, but many sidewalks in Sentrum are privately owned, therefore, the municipality does not have any strict law to make the owners maintain them.

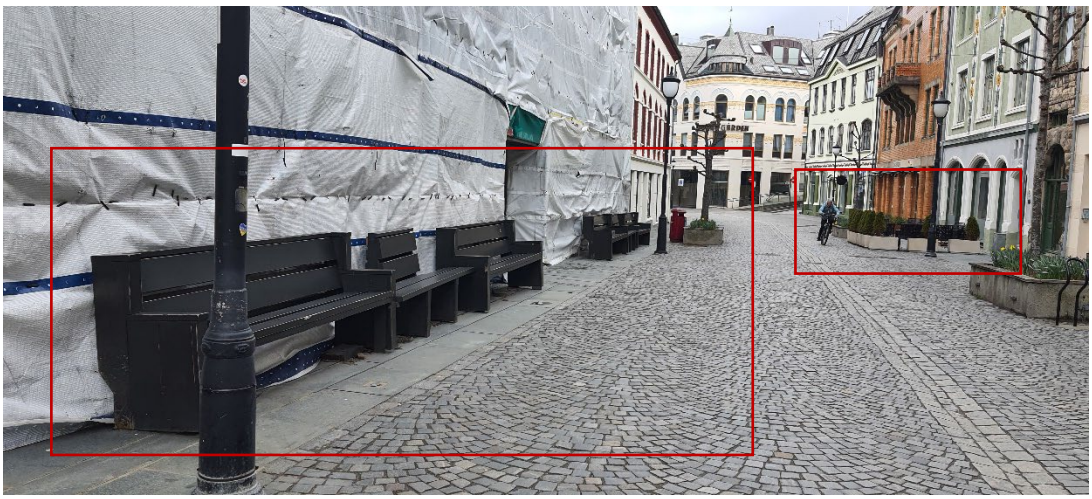


*Figure 32. Obstructed asphalt sidewalks in Sentrum. Image captured by the author.*

Participants mentioned relocating to Spjelkavik from Sentrum due to Sentrum's inaccessible steep streets. The participants were also aware that Sentrum is a heritage area, and making it accessible will be difficult, and the politicians will probably never agree to fix them. The participants just want easy city centers that they can use normally. They even have difficulty using the Ålesund church, because the ramp material is wrong, and it makes using wheelchairs daunting. Expensive projects are always carried out in Sentrum, but they have the wrong interventions according to certain users. One of the participants said:

"Sentrum probably has 10 slopy roads which I can access, and the rest are difficult or impossible to use by me."

Some senior citizens thought Sentrum is accessible during rain, but not as accessible with snow, and one participant mentioned not leaving her house in winter because she cannot access the

outside safely. Another participant mentioned that she only uses streets that are heated, and by now has memorized which streets are heated at Sentrum. Ramps are also prevalent at Sentrum to help people travel from street level to water level. When a wheelchair participant tried to demonstrate one of the ramps during a transect walk, she could not get off the ramp due to the poor pavement condition at the landing; figure 33 shows the scenario.

*Figure 33. Left: Participant cannot get off the ramp due to broken paving right by the end. Right: Participant getting off the curb at the far end, as no curb cut right by the HC parking. Images captured by the author.*

When asked to evaluate features at Sentrum, 21 elder respondents from a survey[25] voted the sidewalks and parking facilities to be the worst features in Sentrum. Many senior citizens drive, but often they cannot find spots to park and get fined for parking in a no-parking zone. The respondents from the survey and participants from transect walks, all prefer driving rather than using the public bus or taxis. The public bus is very available at Sentrum, and even though a few elderlies have mentioned using it, many elderlies and handicapped citizens mentioned not using the bus due to its poor service and expensive fare. Handicapped citizens cannot use the

[25] Survey can be found at appendix 2.

main bus terminal at Ålesund because the curb to access the bus are too thin to hold electric wheelchairs. The taxi on the other hand is deemed expensive by several senior citizens.

Shopping in Sentrum is mainly focused on the street level, therefore entries to buildings are of vital importance. Sentrum is a heritage area for Ålesund, and it was *not* designed keeping in mind universal design, as it was not a concept of importance at the time. Therefore, many shops and buildings are not accessible by wheelchairs, due to a plinth or entry stairs. The more recent buildings have universal entries, along with multiple entries for convenience. One participant mentioned that she specifically visits a few cafes because not all cafes have access to wheelchairs. Many restaurants in Sentrum have outdoor seating areas by the fjord, but many of those restaurants have inaccessible entries, thus disabling many elderlies, as well as wheelchair users, from using them. In addition, one of the handicapped participants mentioned being able to access the Storsenteret[26] mall only through specific entries, as all of them are not accessible to her.

Upon questioning about the accessibility of Sentrum, of the planners from the municipality stated:

> If a playground is designed universally, then it will mostly be flat land. A playground is a place where children play, develop, and increase their physical skills through obstacles and games. Designing the ground universally means almost no challenge, therefore, parts of the playground should be universally designed, where children with different needs can enjoy; it should be a mix of UD and non-UD. The same goes for Sentrum. Citizens should be imposed to some challenges to make themselves healthier, but there should definitely be streets that everyone can use. But changing the entire essence of Sentrum to make it universally friendly is a job that I will not do. Removing the steps or plinths will disrupt the architectural essence of Sentrum as all of it together makes up the Art Nouveau architecture theme, therefore, it is a very sensitive issue that needs to be looked at more carefully.

The website, norgeskart.no, developed by the NMA, shows data about Sentrum, which has been developed by thorough research. According to the map in figure 34, many parts of Sentrum have been marked in red, meaning, they are not conveniently accessible by wheelchair users. Additionally, even though many benches are present in Sentrum, there are no data on their

[26] The biggest mall in Sentrum.

usability, meaning currently, the handicapped user groups do not use them as much. Adding to that, many buildings have inaccessible entries as seen on the map.

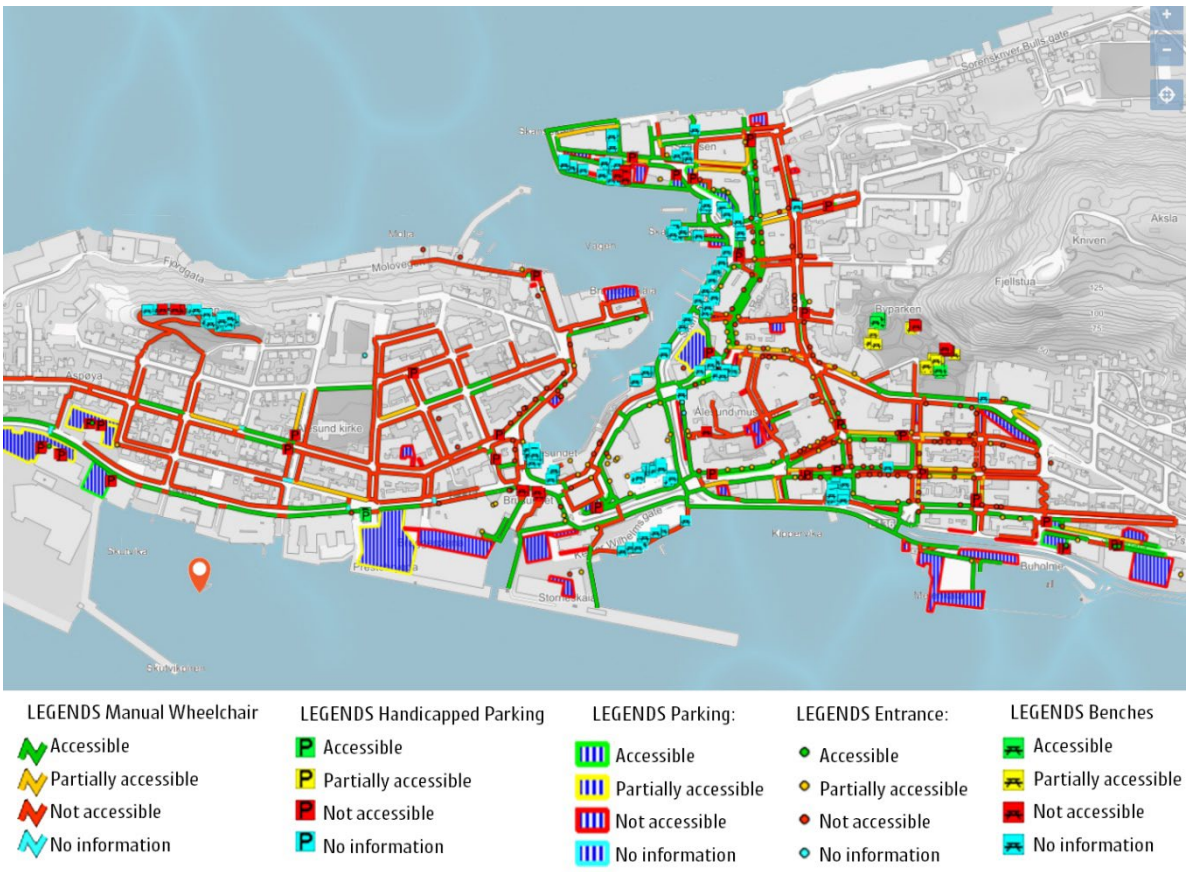



*Figure 34. Accessibility to information of Sentrum. Source: norgeskart.no*

In conclusion, it can be said that accessibility in Sentrum is poor to a great extent and needs improvements. Citizens not being able to use the main bus terminal or being secluded in their homes during winter, fall under the category of social exclusion. According to the theories of social justice, these are considered borderline insulting, as they are depriving a certain class of people of using public areas and services. In the theoretical framework, accessibility falls under infrastructure, and because some users are deprived of using Sentrum due to its inadequate infrastructure, it also falls under the category of users. As the target groups have difficulty accessing certain areas and services, it negatively influences the usability of the area. Additionally, the infrastructure itself is poor, and the limited accessibility also negatively influences the usability of the area. Thus, it can be concluded that the accessibility of Sentrum does not satisfy the theoretical framework model.

#### 5.3.2.1 Users and amenities

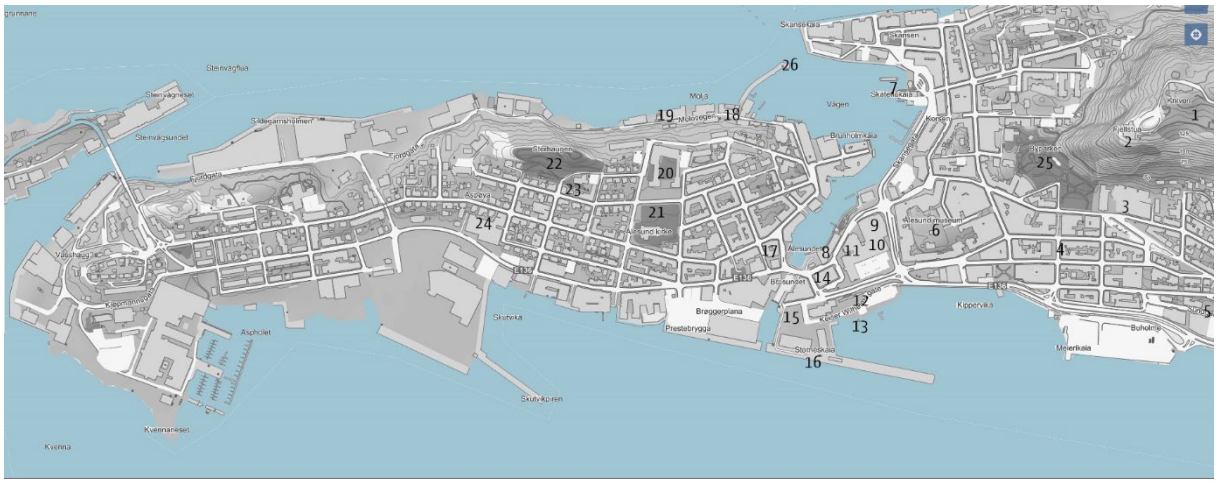
According to the municipality, the third-largest population of senior citizens above the age of 65 is living in Sentrum, which accumulates to around 1,400 people. Appendix 4 shows the map representing the data. Some of the cruise ships that arrive at Ålesund are senior cruises, bringing an influx of seniors to Sentrum. Elderlies can be seen walking, jogging, sitting on benches, shopping, or eating. Two senior participants from the transect walk mentioned that they go out for a walk at Sentrum almost every day and enjoy the city life.

During a focus group discussion with members of an elderly association at Sentrum, they mentioned how pleased they were that *we*, members of the municipality, approached them to talk about their needs. No one has ever done that before, especially from the municipality. They further mentioned that their association has no link with the municipality or the Eldreråd, and they do not know who or how to contact about their issues.

The activities of the handicapped citizens were limited at Sentrum, but their population was abundant. They were often seen on the streets alone or with someone, riding their electric or manual wheelchairs. People with canes and walkers were also seen at Sentrum, both outside and inside the malls. The wheelchair users were hardly seen *doing* anything in particular, rather than just driving away in their vehicles. The number of handicapped citizens observed was large in Sentrum compared to the other case areas, but it was significantly less compared to the elders using Sentrum.

Sentrum being a commercial area has lots of amenities to provide. Some of the basic urban amenities present are streetlamps, (heated) benches, heated sidewalks, bus terminals, shops, various museums[27], services[28], architecture, nature, and the fjord. Adding to that is a whole range of activities for the citizens, such as hiking, kayaking, fishing, cruise ship rides, etc. Almost all the participants from the transect walk and focus group discussions mentioned they use Sentrum mainly because of its amenities. Sentrum is often busy with activities, both on the street and inside the public buildings. Figure 35 shows a map of Sentrum with related functions.

[27] Aalesunds Museum, Fiskerimuseet, The KUBE Art Museum.
[28] Ålesund Church, city library, Bybadet (city bathhouse), hotels, galleries, restaurant, malls, etc.



Legends:

| | | | | |
|---|---|---|---|---|
| 1. Aksla | 6.Aalesunds Museum | 12. Bus terminal | 18. Fiskerimuseet | 24. Court house |
| 2. Fjellstua | 7. Boat terminal | 13. Boat terminal | 19. Teaterfabrikken | 25. Byparken (city park) |
| 3. Bybadet (city bath house) | 8. Queens plaza | 14. Arbeideren Kulturhus | 20. School | 26. Lighthouse |
| 4. Storesenteret | 9. Kremmergaarden | 15. Terminal Byscene | 21. Church | |
| 5. Medicalis Legesenter (medical center) | 10. Library | 16. Cruise ship pier | 22. Storhaugen | |
| | 11. City hall | 17. KUBE | 23. Day care center | |

*Figure 35. Sentrum Map. Developed by the author.*

Several elder participants of the transect walk and FGD mentioned that they enjoy the architecture of Sentrum, but are displeased with the newer constructions, as they are more modern, and do not resemble the architecture of the city. According to them, the newer constructions have also reduced the amount of greenery that was in the city 10 to 20 years ago. The city had more flowers, trees, gardens, seats, and open spaces for them to enjoy in Sentrum, and a previously famous bird mountain called Rønneberghaugen was destroyed to make more space for it (Thornæs and Haugen, 2022). One of the seniors said,

"Sentrum now looks grey, concrete, and constructed"

Interviews with planners from the municipality revealed that the green spaces in the town were decreasing because the municipality tries to keep all the construction in one area and not expand on land outside of the town that has not yet been touched by construction. In this way, green areas outside the town are still being preserved, but simultaneously increasing the construction inside Ålesund and Sentrum. The map for this development is in appendix 5. Another planner mentioned that sometimes green areas can belong to private owners, and they can choose to build something completely different there, and the municipality does not have any say in this as long as the owner follows all the necessary criteria. Figure 36 shows what the current architectural style looks like.


*Figure 36. Art Nouveau architecture style. Picture captured by the author.*

Because the elderly and handicapped citizens cannot take part in the more physical amenities at Sentrum, they opt for more comfortable ones. 21 senior citizens were surveyed[29] about their activities, and 60% responded that they go out of their houses every day and use the public spaces actively. They like to go out for social activities or visit Aksla, or the various cafes, take a walk and enjoy views of the boats, fjord, and the town, or just sit and look at people. Most of the public benches at Sentrum were accessible by the senior citizens, and four were also heated to be used during winter. Nonetheless, they mentioned that some benches were too low or did not have hand rests or backrests; these benches are difficult to sit on, lean on, and also to get up from. The handicapped citizen mentioned during a transect walk that many of the public benches were not universally designed, and most of the benches revolved around the same few designs, therefore, making many inaccessible for her.

In Sentrum, as per the observations, both senior and handicapped citizens were present, meaning they feel confident in using the area. According to theories of social justice, a social and public place should be designed in such a way, that it makes all citizens feel included, and Sentrum fulfills that quota to a great extent. Due to a diverse range of amenities, even if some are flawed, the users are accessing them. Therefore, it can be said that the amenities, even though imperfect to some extent, are attracting people, and both the target groups can be seen using the area equally and being part of the community.

[29] The survey forms can be found in appendix 2.

If the theoretical framework is consulted, the stakeholder section is fulfilled because the target groups are using Sentrum. Amenities partially fulfill the needs of the users, as there is some lacking present. Therefore, the local factors influence the usability both negatively and positively, but the positive influence is more than the negative influence, thus creating a positive usability index.

#### 5.3.1.3 Summary

Overall, Sentrum does not satisfy the framework model. Even though the users are seen at Sentrum as per the site visits, their amenities and accessibilities are inadequate. The accessibility in particular needs improvement, as both senior citizens and handicapped users, face big limitations. Sentrum has a lot of facilities to offer, but they are currently not usable by all citizens equally.

## 5.4 Review

From the data presented from all three sites, it can be understood that each area works differently. Tueneset is a natural area, with basic urban amenities, and no commercial amenities. During the site visits, senior citizens were observed there, while no handicapped citizens were seen. The accessibility at Tueneset is somewhat up to the standards for universal usage. Lillevatnet on the other hand, had natural amenities, with more commercial amenities nearby, and it had both the target groups on site, even though wheelchair users were very few. The accessibility at Lillevatnet was the best among the three sites. Finally, Sentrum provided both commercial and natural amenities, and both the user groups were present, but the accessibility was inadequate compared to the other two sites.

From the data collected, it is seen that Sentrum has the greatest number of target groups present in the area, even though its accessibility is not as good as the other two sites. Additionally, Sentrum has the greatest number of diverse amenities and services present in it compared to the other sites, therefore, it can be assumed that amenities play a big role in the usage of the area. There might be other important factors playing in this picture, but they are not captured within this thesis.

In addition, it is also seen that a communication gap is present between the users and the municipality. This gap has reduced the trust of the citizens, and thus, needs are not being

conveyed properly. As per the data, it is the responsibility of the municipality to amend this bridge, as the citizens are willing to communicate.

# 6 Findings, implications, and conclusion

This chapter will revisit the research questions and answer them according to the analyses conducted in the previous chapter. After answering the research questions, several implications will be put forward, which have been developed both by the author and with the ideas of the research participants. The chapter will end with a brief conclusion of this research.

## 6.1 Research question

**What are the challenges of the low-mobility group when they use their urban surroundings and public spaces in Ålesund?**

The entire research has revolved around this question to realize the challenges and shortcomings in the urban areas of Ålesund for the low-mobility citizens. Their deficiencies in the environment will display what they need to feel more like equal and included citizens.

From the data collected, several issues have been found, both big and small. These issues can be categorized into three sectors, accessibility, usage of provisions, and communication with authorities.

### 6.1.1 Accessibility

Accessibility is the biggest challenge that the target groups have faced in the public areas of Ålesund. Both elderlies and handicapped citizens have mentioned having difficulties in walking, especially at Sentrum. For all three sites, the material of the ground, which enables citizens to walk comfortably or use their wheelchairs on, is a major deciding factor in how conveniently they use the area. Cobblestones, coarse stones, and wobbly materials were particularly challenging for users. Additionally, citizens faced issues while using walkways or sidewalks during rain, snow, and even due to broken or ill-designs. Several wheelchair users were seen using the vehicular road as the walkways were not adequate. Additionally, many walkways had low curb cuts or were too high from the adjacent street. Zebra crossings were faded and were not always visible by users. Accessibility also refers to the entrances of buildings, and many public buildings did not have accessible entries due to their historic architecture. Accessibility in terms of public transport was also challenging for both the users. They have complained about the difficulty of access for electric users on the buses, and thus prefer using taxis or private cars. Taxis too were inconvenient for them to some extent, as the fares were high and some had to be ordered at least 24 hours ahead, which eliminates impromptu

visits for many users. Finally, due to a lack of parking areas, especially in Sentrum, the users have faced additional challenges.

### 6.1.2 Usage of provisions

According to the findings, users had issues with using several of the provided elements, which means a lack of universal design. The most common issue was using the benches. The benches were either too low, causing difficulty in sitting or getting up, or without a backrest, causing difficulty in leaning back, or without hand rests, causing difficulty to sit or get up from it. Some also felt the benches were too few. The second challenging provision was the access to the water bodies. Ålesund is located by the fjords, but almost no provisions are provided for handicapped users to reach the water in any way. Tueneset, however, has a beach, which is accessible by all. Additionally, parking is another issue that users face, as there are very limited parking spaces available for both users, especially for handicapped citizens. There were complaints about street lamps as well, especially at Tueneset, as citizens are unable to use the area after dark or in winter. Toilets are also another concern, where participants wanted available and open toilets to use, especially at Lillevatnet. Citizens also felt the decrease in plants and flowers, especially in Sentrum, and an increase in concrete which is not pleasing for them. Finally, the absence of appropriate signs in all three areas can be difficult for users. Signs can be of crossings, toilets, various amenities, or accessible route directions.

### 6.1.3 Communication with authorities

Communication with authorities is not a challenge *faced* in the public realms of Ålesund, but something that has *led* to challenges in the public areas. The participants have mentioned multiple times how they failed to contact and get a response from the municipality and could never convey their needs in recent times. The users are aware of their health, and how their situations, livelihoods, and equal opportunities can be improved, but they could never reach the correct authorities to discuss these issues. Furthermore, they have shown their disappointment in the municipality, how it always lacks funding for necessary projects, but is willing to spend a big amount on projects that are not currently necessary. The participants believe that the municipality should solve the problems on the ground first, and then move on to bigger projects. In the past, there have been communications with authorities, but it was conversation without any result, therefore, the users have lost faith in the municipality, and have lowered their

expectations significantly. During the first FGD, one of the participants mentioned that there was miscommunication inside the municipality, which leads to miscommunication with the civilians (page 75), and Leslie and Catungal (2012) mentioned the same in their work. Systems usually have laws and rules to create a just society for all, but very often, other laws *inside* the system itself prevent the creation of a just society, thus causing a disruptive cycle of acceptance and segregation. Finally, as mentioned on the website by AL (page 54), *the fact that people are seen and heard helps to strengthen confidence in local democracy and makes matters and decisions better.* As this sentence was used on a government website, it is understandable that the authorities are aware of the need to communicate with the citizens. Therefore, the coordination between the user groups and the authorities should be improved to maintain this status.

### 6.1.4 Other challenges

The users faced other challenges as well, which are not as diverse as accessibly or provisions and may not be directly linked to public areas. They are:

1. Newer constructions do not mimic the existing architectural style.
2. Municipality does not have a proper maintenance plan for the public places.
3. Some places lack activities.
4. Poor government benefits for disabled citizens.

## 6.2 Sub-research question 1

**How are the accessibility scenarios different in Ålesund city center and Ålesund's natural and outdoor areas?**

The three case analyses give a stark answer to this question. Lillevatnet had the best accessibility among the three sites according to the data. The universally designed walking trail and a bus terminal in the vicinity make this the best accessible area compared to Tueneset and Sentrum. Lillevatnet nonetheless had issues, for example, the route becomes too narrow at some points, parts of a few streets outside have been broken for years, and the service of the public bus is not favorable for the target groups. Amidst these issues, the feature that makes Lillevatnet stand out is the fact that the walking trail itself, the main element of accessibility, is suitable for low-mobility users, and is flat land. On the other hand, Tueneset had natural walkways made

with gravel and stones, making them uncomfortable and difficult for wheelchair users to use. Apart from the main walkway, Tueneset had poor access to the area itself, as the nearest bus service is not as frequent as other case areas in the town, with more regular stops being a kilometer away. In terms of Sentrum, it had the most challenged accessibility conditions among all three sites. The steep roads, the cobblestone paths, the high sideways, low curb cuts, and stairs at entrances to buildings, all accumulate to a variety of issues for both senior citizens and anyone needing assistive measures to walk.

Therefore, it can be stated that the natural and outdoor areas in Ålesund, particularly Lillevatnet and Tueneset, have better accessibility for low-mobility users than the city center of Ålesund, yet Sentrum has the highest number of target groups. A reason why Lillevatnet and Tueneset have better accessibility solutions is that they were designed within the last decade, therefore, ideas of universal design and inclusivity were incorporated to some extent; the two areas had also won awards for their design solutions. Both the places were much flatter in the landscape in comparison to Sentrum, which has steep roads. Sentrum was designed in 1907, at a time when the universal design was not a feature in Norway.

Sentrum is now a heritage site, and to make it accessible for its users, interventions are needed in this cultural and traditional city center, which many people does not want to intervene in, including planner from the municipality. The implications section in the next chapter will provide a few subtle solutions for this, nonetheless, this is a sensitive issue that should be looked into with the help of professionals.

## 6.3 Sub-research question 2

**How is usability related to appropriate universal design, and how is it executed by planners in Ålesund?**

Universal design is an index that makes an entity usable by all or almost all users. The more universal the intervention is, the more usability of it is, therefore, the more successful and appropriate it is. The presence of universal design in the public areas makes users and citizens feel equal and a part of society. In this research, the low-mobility users were the target groups, thus, their usability is of importance.

Among all three sites, Lillevatnet and Tueneset had ideas of universal design incorporated in them, for which they have won awards as well. Lillevatnet had universally designed walkways and toilets, but some amenities, such as several benches and an outdoor gym, were not universally designed. On the other hand, Tueneset had universally designed walkways (broader

and less steep), benches, and outdoor shelters. According to the theories in chapter 2, these places should have a different range of active users, especially low-mobility citizens, as their needs were addressed. The site visits however showed otherwise, as Lillevatnet had a very low number of handicapped users and Tueneset had none whatsoever; both had senior users in them. In contrast, Sentrum had a wide range of amenities, most of which were not universally designed. However, according to the observations, Sentrum had the greatest number of users which consisted of both the target groups.

Therefore, it can be concluded that usability is not linked to universal design, as UD is not the only determining factor of the usage of a place. Other factors also play a role, and the accumulation of all creates the perfect usability index. Amenities seem to play an important part in usability, as more services lead to more users according to the findings. Nonetheless, other factors that affect usability have not been determined with integrity in this research paper.

As for execution of UD in Ålesund, according to planners from the municipality, for each project, architects determine the UD parts of the design. For any building construction, 20% should be universally designed or made accessible, so that people with different needs can use the area normally, and currently, all new constructions follow this rule.

A public project is usually displayed to the general public for review. Residents of that zone, local councils, or other interest groups can comment on the project and propose changes, and the municipality has to conform to those changes if necessary. Therefore, according to the planners, the municipality always asks the general people for their advice on new projects.

The planners believe that users should convey to the owners or real estate agents what kind of houses they need because necessary provisions are present now. Additionally, if a building, private or public, was built in the past without proper UD, then the owner can apply for changes in the building, such as adding elevators, in case someone cannot use the stairs. For this kind of intervention, most of the cost is borne by NAV[30] or Husbanken[31]. Many citizens are not aware of this and do not apply for any interventions thinking they need to bear all costs and end up living a life of discomfort.

Additionally, it is difficult to implement UD in heritage buildings. Changes in façade can be done, but the interior is difficult to change due to the old structures and pipelines; some

[30] NAV (Norge Arbeids- og Velferdsetaten) is the current Norwegian public welfare agency, which consists of the state Labour and Welfare Service as well as municipal welfare agencies. Website: nav.no

[31] Husbanken is a Norwegian Government agency responsible for the housing politics in Norway. Website: husbanken.no

buildings are protected both internally and externally, such as the Teaterfestival building in Ålesund.

The planners have also stressed the fact that they do not prefer hiring maintenance for urban areas, as that is money that can be used elsewhere. Additionally, during budget cuts, parks and roads stop getting funding. Therefore, improper maintenance of the available UD amenities deteriorates its conditions even further, thus reducing its usage. Hence, the municipality's job should not be limited to implementing projects with UD, but also to maintaining their conditions over time, so that everyone can use them for a longer period.

Finally, the urban development and densification in Ålesund are limited to several areas only, and if the new projects, which are accessible, are mostly in those areas, they may create seclusion. According to Leslie and Catungal (2012), having places in a city that are more user-friendly and approachable by other groups of people, secludes them in that area, creating 'ghettos'; this might cause involuntary confinement in that area, unequal distribution of resources, and citizens may feel less confident while living in other parts of the city. The map for the urban development of Ålesund can be found in appendix 5.

## 6.4 Summary

Accessibility, communication with stakeholders, and usage of provisions are therefore the main three sectors of challenges the target groups faced. Several other issues were also found along the way, which might not be as important, but should be solved, nonetheless. According to Baris and Uslu (2009), an uninviting and improper built environment can also be deemed 'oppressive', therefore, proper solutions to these issues should be addressed as soon as possible.

According to the framework, the usability index is the determining factor of how readily the target groups use the public spaces in Ålesund, which contains the local factors (stakeholders and amenities) and universal design (infrastructure). The model was developed in line with models proposed by Brian Kelly, Lawrie Phipps, and Elaine Swift, and Sheryl Burgstahler. As their models did not emphasize on the amenities, the adapted model in this thesis also did not consider it of importance, but rather a secondary condition. After the research was concluded, it was found that amenity is in fact an important aspect of determining the usability of an area. The more amenities present, the more diverse they will be, thus, increasing the chances of inclusion. Additionally, the model initially only considered the target groups as the users, but after the research has been completed, it was realized that the target groups interaction with the

authorities is an important factor in some respects as well. Therefore, the model was improved, keeping amenities as a significant part of the model, and changing users to *stakeholders*. This research was conducted on only three sites in Ålesund, therefore, using this model in other projects should be done with further research. Figure 37 shows the updated model.

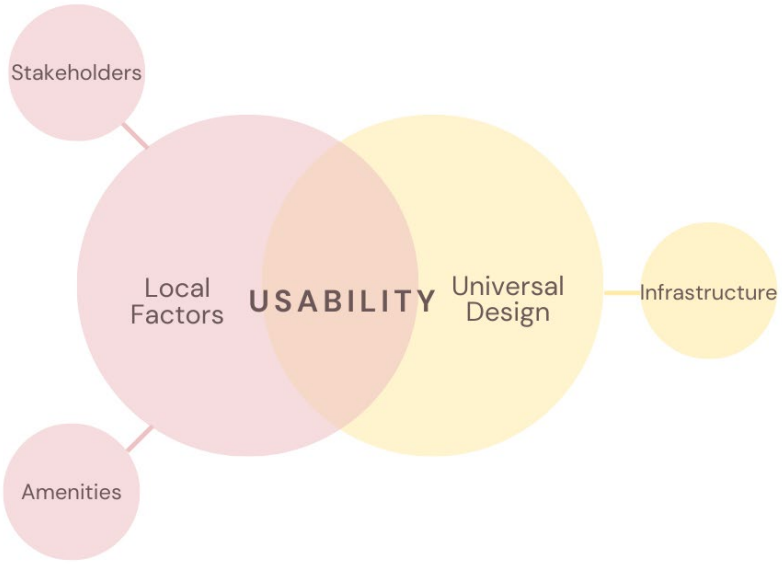



*Figure 37. Improved theoretical framework model.*

## 6.5 Implications

Resolving the aforementioned challenges is not an overnight task. Further studying and formatting should be done before implementing the solutions. Afterwards, the results should be observed to further improve the solutions, and this is a process that can take years to take place. Such designs should be done by professionals and the right stakeholders of the project.

Several implications and suggestions are provided for the said challenges and issues. Several of the recommendations are based on the case studies done previously, some are based on the information collected from the participants throughout the research, and some are personal recommendations of the author. The recommendations can be used to reduce the challenges of the users and make them feel more integrated. These can be used as a guideline for other areas as well.

### 6.5.1 Universal design implementation

The following solutions are provided on the basis of universal design during implementations. If implementations are done correctly on several important amenities, then the areas can be improved significantly.

#### 6.5.1.1 Ground materials

Ground materials were one of the most troublesome elements in the findings. Proper materials should be used, which can be used by all, even if assistive measures, such as walkers or wheelchairs are needed. As for Sentrum, the cobblestones streets contain heritage value, therefore, the case study at Breda, Netherlands in section 2.5.1, can be followed. The city took their centuries-old cobblestone walkways, cut them in half, and placed them again, which not only made them flatter and comfortable to walk on but also maintained the essence of the architecture. The same, or similar, can be applied to Sentrum.

#### 6.5.1.2 Benches

Benches should have an ergonomic solution to treat low-mobility users. Hand rests and backrests should also be available and if there is a table, wheelchairs should be able to slide under the tables for users to be part of the group. If long benches are provided, then gaps should be placed inside the benches, so that wheelchair users can be in the middle of the bench, rather than on the side. Additionally, urban benches should be increased, with more incorporation with nature.

#### 6.5.1.3 Accessing the water bodies

Piers could be made at points for handicapped citizens to go *above* water. This will give them the feeling of being one with the water at least. Many handicapped citizens can move actively with their hands, as a form of crawling, so piers can have ladders that they can use to touch the water. Additionally, piers can be used for able-bodied citizens to jump from as well.

#### 6.5.1.4 Building entrance

Entrances to buildings can also be an example that can be adopted from Breda. Due to their high sidewalks and stairs in front of buildings, each shop owner added a makeshift ramp so that users can easily access their shops. The municipality can take up this project or make the building owners take this approach.

### 6.5.2 Facilities improvement

The following solutions are on the basis of improvement on existing situations. Improving and developing these facilities will increase user groups' participation and inclusivity.

#### 6.5.2.1 Public transport

Public transits should be able to accommodate all wheelchairs easily. The bus driver, or the person in charge, should be properly trained to handle any situation. Cheaper bus tickets can be made available so that users are more willing to travel. Bus frequency should also be increased so that they can travel better. More buses at Moa, especially on Sundays or for elderlies, can be made available, which can take them to places that currently do not have a bus stop nearby.

Taxis or maxi-taxis should also be improved. Taxi fares should be reduced, and maxi-taxis should be made available whenever called.

#### 6.5.2.2 Parking

Parking provisions should be improved. Many senior citizens drive, hence parking is important for them. More parking should be available, with added handicapped parking. The markings of the parking should also be clear for people to see better.

#### 6.5.2.3 Budget

The municipality should manage enough budgets to cater to the needs of the citizens. Much of the budget for public projects in Ålesund comes from private entities, therefore private entities could provide a budget just for facilities for elder or handicapped citizens.

#### 6.5.2.4 Tourism

Each year hundreds of people visit Ålesund, therefore, it should consider its urban development from an internal perspective. If done correctly, Ålesund city can be an important regional and international destination, that can also stand out as an example for the development of diverse methods to make the city more accessible and friendly.

### 6.5.3 Decision making

The following solutions are on the basis of improvement on the decision-making processes of the authorities.

#### 6.5.3.1 Citizen engagement

The connection between the citizens and the authorities has faltered, therefore, this should be mended. Good communication between the citizens and the municipality will create a better understanding and transfer of ideas. The municipality engages with the citizens during the construction of projects, but they should also maintain communication regardless of any projects. If the municipality faces difficulties in maintaining this relationship, they can create local authorities to contact the residents from each zone.

#### 6.5.3.2 Norwegian methods

In chapter 4 of this paper, several checklists and methods were presented that displayed what an ideal scenario is deemed by several Norwegian entities. Those methods can also be followed as an implication, as they are broad, general, and works to the point. These methods implied the way a city or area should be designed to create an inclusive environment for all. Means of UD were also implied to create more sustainable solutions. Tables 3, 4, and 5 can be consulted to see the explanations.

## 6.6 Conclusion

Recognizing a differently-abled person as an equal citizen requires everyone to look beyond any disability or differences. According to the NHF (n.d.-n), being excluded from the community due to shortcomings in the environment is not a disability, it is *discrimination*. Everyone should simply be treated as humans. Society should adhere to the needs of all people, creating equal opportunities, and stopping unwanted prejudice or creation of stigma.

This research aimed to find the challenges of the low-mobility citizens in the urban and public spaces of Ålesund. The three sites chosen were natural, semi-natural, and commercial, to understand whether the environment plays a role in the challenges. Various methods were used to realize the challenges of the target groups, which were mostly based on accessibility, the usability of amenities, and connection with authorities.

The results showed that accessibility needs improvement in almost all three sites. Accessibility is not limited to movement, but also involves the condition of the road, being able to use the streets during various seasons, being able to enter public areas as every other citizen, being able to find parking spaces with ease, and being able to use the public transports without any obstacles. The participants in this research faced challenges, particularly in these aspects, therefore, improvements over these issues are vital.

Connection with authorities was found to be poor, as the participants repeatedly failed to contact administrations. Having a strong connection with the authorities will provide more space for communicating issues and needs. The municipality has mentioned several times that they contact the citizens during the process of project implementation, but according to this research, the contact should not be limited to projects, but should be enhanced for all times.

Finally, amenities were present on all three sites, which can be deemed as a positive finding in this research. Sentrum had the greatest number of amenities, which were also diverse. Lillevatnet had several amenities, with more facilities in nearby commercial areas, and Tueneset had limited amenities, which were mostly outdoor elements. Many of these amenities from the three sites were designed universally, thus, creating inclusion. The types of amenities can be found in tables 7,8 and 9. According to the observations, a link between amenities and usage has been derived, as a place with more amenities presents more opportunities for users, therefore, people feel more included. This might be a reason why many senior citizens and wheelchair users were seen at Sentrum.

Therefore, it can be said that the biggest challenges the senior and handicapped citizens faced were with accessibility and communication with stakeholders. The handicapped citizens encountered more issues with accessibility than the senior citizens, as their wheelchairs were not usable in many aspects.

Implications have been presented to give an idea about how the situations could be improved. Several of the implications have been given by the participants themselves, indicating that they are willing to help. An important aspect of urban ecological planning is co-creation, which is working with all the major stakeholders to find solutions. If the municipality is willing to improve its town, then it will have successful solutions as the citizens already have ideas for improvement and involvement.

This thesis research is just the beginning of a very vast and sensitive issue. Ålesund has great potential with cooperating citizens, therefore, creating stronger communications and awareness might be the first step to producing a better and equal city for the people of Ålesund.

## Reflections

The overall experience for this thesis was unique for me. I was in a new town; I did not know the area and I spoke a different language – it was all challenging and exciting for me. Currently, while I am writing this reflection, with less than a month left for my submission, I can feel that this project is incomplete. The entire work is very deep, and a lot of analyses are needed to get to the root causes of the challenges of the low-mobility people and how their challenges could be addressed. The short time that I had to conduct this research, does not begin to cover the real issues that lie in the society and culture of this town and country.

While working with the elderlies and the differently-abled citizens, I felt sympathy for them because they have to go through so much ordeal to do a simple task, that I, an able-bodied citizen, can do so easily. Their comments about the city and the municipality showed how they felt neglected and excluded from society from time to time. They have been so neglected that they were not even interested to talk to us about the project. They were aware that nothing would happen, and therefore knew talking to us would be futile; this might be one of the major reasons why it was difficult for us to get participants for the project.

While conducting my first transect walk, one of my participants was an immigrant, who came with his family. They mentioned that in their six years in Norway, this was the first time they have been out with others and that too in a place like that. As a researcher from UEP, and also as a human being, this made me realize that societies contain so many complex issues that go beyond our naked eyes. Intersectionality, or exclusion due to differences from the general people, can take a tremendous toll on mental health, and the municipality should look into these matters as well.

Ålesund is a vibrant city with a lot of tourists, and I feel it can stand out internationally. The municipality is more concerned about bigger interventions, but they should concentrate on smaller ones with bottom-up involvement. Making Ålesund a better livable place for its residents will inevitably make it an attractive destination for others.

It was difficult at times to work in a new town, with very few friends, therefore, it was important for me to stay connected with my classmates and friends from other places. The thesis was not easy for me to complete, and I hope the output will be utilized by the municipality in some way.

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## Appendix 1

About today's walk:

1. Did you notice anything new today? Did anything change since you last came here?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

2. Did anything surprise you today?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

3. What are the best features of the place?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

4. Do you see an opportunity for change here? Anything you want to change or improve?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

5. What is the biggest problem of the area (if any)?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

6. How would you travel here from your home?

   _____
   _____

7. How long does it take you to come here from your home?

   _____
   _____

8. Rate the route from your home to here. If you don't live here, rate the sidewalks around this area in general. 1 being worst, and 10 being best.

   1 2-4 5 6-9 10

9. Are the route/sidewalks accessible during rain?
   Yes. No. Mostly accessible. Mostly not accessible.

10. Are the route/sidewalks accessible during snow?
    Yes. No. Mostly accessible. Mostly not accessible.

11. Do you wish there were more lighting here after dark?
    Yes. No. Sometimes yes. I don't know

12. Which was your favorite zone and why?

    _____
    _____
    _____
    _____
    _____
    _____
    _____

## Appendix 2

**ET KORT SPØRRESKJEMA FOR EN MASTEROPPGAVE**
**OM TILGJENGELIHET OG MOBILITET**

Student: Rosemina Azad, NTNU

---

**Alder** a. 60-70 b. 70-75 c. 75-80 d. 80 – 90 e. +90

**Hjemmeområde**: _____

**Medlem av eldreforening**: _____

1) **Trenger du hjelp til å bevege deg eller gå?**
   a) Ingen
   b) Rullestol
   c) Elektrisk rullestol
   d) Gåstav
   e) Rullator
   f) Familie/Pårørende
   g) Annet:

2) **Hvor ofte går du ut i løpet av en uke?**
   a) 0-1 ganger
   b) 2-3 ganger
   c) 5-6 ganger
   d) hver dag

3) **Hva er de vanligste grunnene til at du går ut?**
   a) Gå på tur
   b) Møte venner/familie
   c) Innkjøp av mat
   d) Lege/apotek
   e) Annet :

4) **Hvilke er dine favorittområder eller steder i Ålesund?**
   ……
   ……..……
   ……..……
   ……..

5) **Hvor ligger disse stedene?**

……
……..……
……..……
……..

6) **Hva er noen av favorittfasilitetene ved disse stedene?**

……
……..……
……..……
……..

7) **Har stedene noen av disse fasilitetene?**

a) Sitteplass eller benker
b) Toalett
c) Tursti
d) Fin utsikt
e) Parkering / Handikapparkering
f) Lekeplass for barn
g) Lys om kveld

8) **Er det noe du ønsker å forbedre på disse stedene?**

……
……..……
……..……
……..

9) **Hvem går du sammen med eller hvem møter du på de stedene?**

a) Går alene
b) Venner og/eller familien
c) Lufter kjæledyr

10) **Har snøen noen effekt på at du besøker disse stedene?**

a) Ja
b) Nei
c) Beskriv svaret ditt litt mer:

11) **Har regnet noen effekt på at du besøker disse stedene?**

a) Ja
b) Nei
c) Beskriv svaret ditt litt mer:

**12) Har vind noen effekt på at du besøker disse stedene?**

a) Ja
b) Nei
c) Beskriv svaret ditt litt mer

**13) Liker du å gå tur i Ålesund Sentrum?**

a) Ja
b) Nei
c) Noen ganger

14) **Vurder favorittfunksjonene dine i Sentrum.** 1 er minst likt/bruk - 5 er mest likt/brukt.

| | **minst favoritt** | | | | **mest favoritt** |
|---|---|---|---|---|---|
| **Kaffe** | 1 | 2 | 3 | 4 | 5 |
| **Butikker** | 1 | 2 | 3 | 4 | 5 |
| **Utsikt** | 1 | 2 | 3 | 4 | 5 |
| **Kulturelle aktiviteter** | 1 | 2 | 3 | 4 | 5 |
| **Andre sosiale treffpunkt** | 1 | 2 | 3 | 4 | 5 |

**15) Vurder favorittfunksjonene dine i Sentrum. 1 er Dårlig - 5 er veldig god**

| | **Dårlig** | | | | **Veldig god** |
|---|---|---|---|---|---|
| **Fortau** | 1 | 2 | 3 | 4 | 5 |
| **Overgang** | 1 | 2 | 3 | 4 | 5 |
| **Fortau kant** | 1 | 2 | 3 | 4 | 5 |
| **Vei material** | 1 | 2 | 3 | 4 | 5 |
| **Overflate kvalitet** | 1 | 2 | 3 | 4 | 5 |
| **Skilte** | 1 | 2 | 3 | 4 | 5 |
| **Parkering** | 1 | 2 | 3 | 4 | 5 |

**16) Hvor ofte bruker du buss?**

a) Hver dag
b) Nesten hver dag
c) En gang i uken
d) To ganger i måneden
e) En gang i måneden
f) Hvert par måneder

**17) Er noe problem som hindrer deg i å bruke bussen?**

……
……..……
……..……
……..

**18) Hvor ofte bruker du TAXI?**

a) Hver dag
b) Nesten hver dag
c) En gang i uken
d) To ganger i måneden
e) En gang i måneden
f) Hvert par måneder

**19) Hvordan opplever du å det å gå i Ålesund**

a) Det er lett
b) Det er noe vanskelig
c) Det er veldig vanskelig

d) Det er ikke farlig
e) Det er litt farlig
f) Det er veldig farlig

Takk for din deltagelse!

## Appendix 3

About today's walk:

1. How did you travel here from your home?

a. Walk
b. Car
c. Bus
d. Taxi
e. Another answer:

3. How long did it take you to come here from your home?
   a. Less than 10 minutes
   b. 10-20 minutes
   c. 20-30 minutes
   d. More than 40 minutes

4. Rate the walkway in this area. 1 being worst, and 10 being best.
   1 2-4 5 6-9 10

5. Do you think the road material for this area is okay?
   a. Yes
   b. No
   c. Some places are okay, some places are not okay.
      If you chose option C, please mark it on the map.

6. Is the road width okay?
   a. Yes.
   b. No.
   c. Some places are okay, some places are not okay
      If you chose option C, please mark it on the map.

7. Did you feel comfortable walking here or using your wheelchair?
    a. Yes
    b. No

8. Do you think the route is accessible during rain?
    a. Yes
    b. No
    c. Mostly accessible.
    d. Mostly not accessible.

9. Do you think the route is accessible during snow?
    a. Yes
    b. No
    c. Mostly accessible
    d. Mostly not accessible

10. Do you wish there were more lighting here after dark?
    a. Yes
    b. No
    c. Sometimes yes
    d. I don’t know

11. How often do you come here?
    a. Very often
    b. Sometimes
    c. Hardly come here
    d. The first time came here

12. Who do you come with?
    a. Alone
    b. Family/friends
    c. Pets

13. Did you notice anything new today? Did anything change since you last came to this area?

_____
_____
_____
_____
_____
_____

14. What are the best features of this place?

_____
_____
_____
_____
_____
_____

15. What is the biggest problem in this area (if any)?

_____
_____
_____
_____
_____
_____

16. How would you change/improve the problem?

_____
_____
_____
_____

_____

_____

17. Any general comment about this walk or your experience:

_____

_____

_____

_____

_____

_____

_____

__

Thank you for your valuable opinions!

# Appendix 4

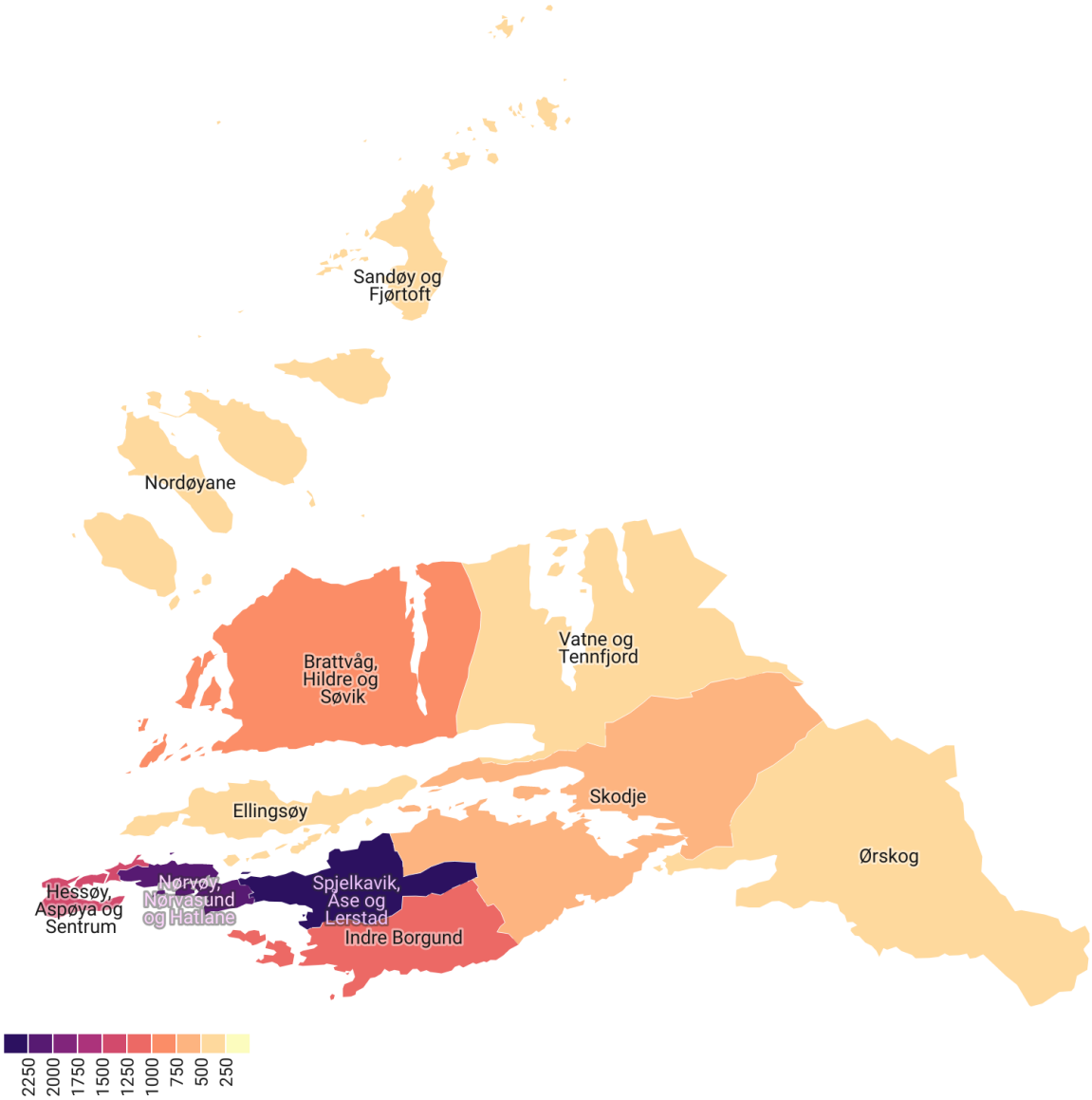



*Figure 38. The number of senior citizens above the age of 65 residing at Ålesund. Source: Ålesund Municipality.*

# Appendix 5

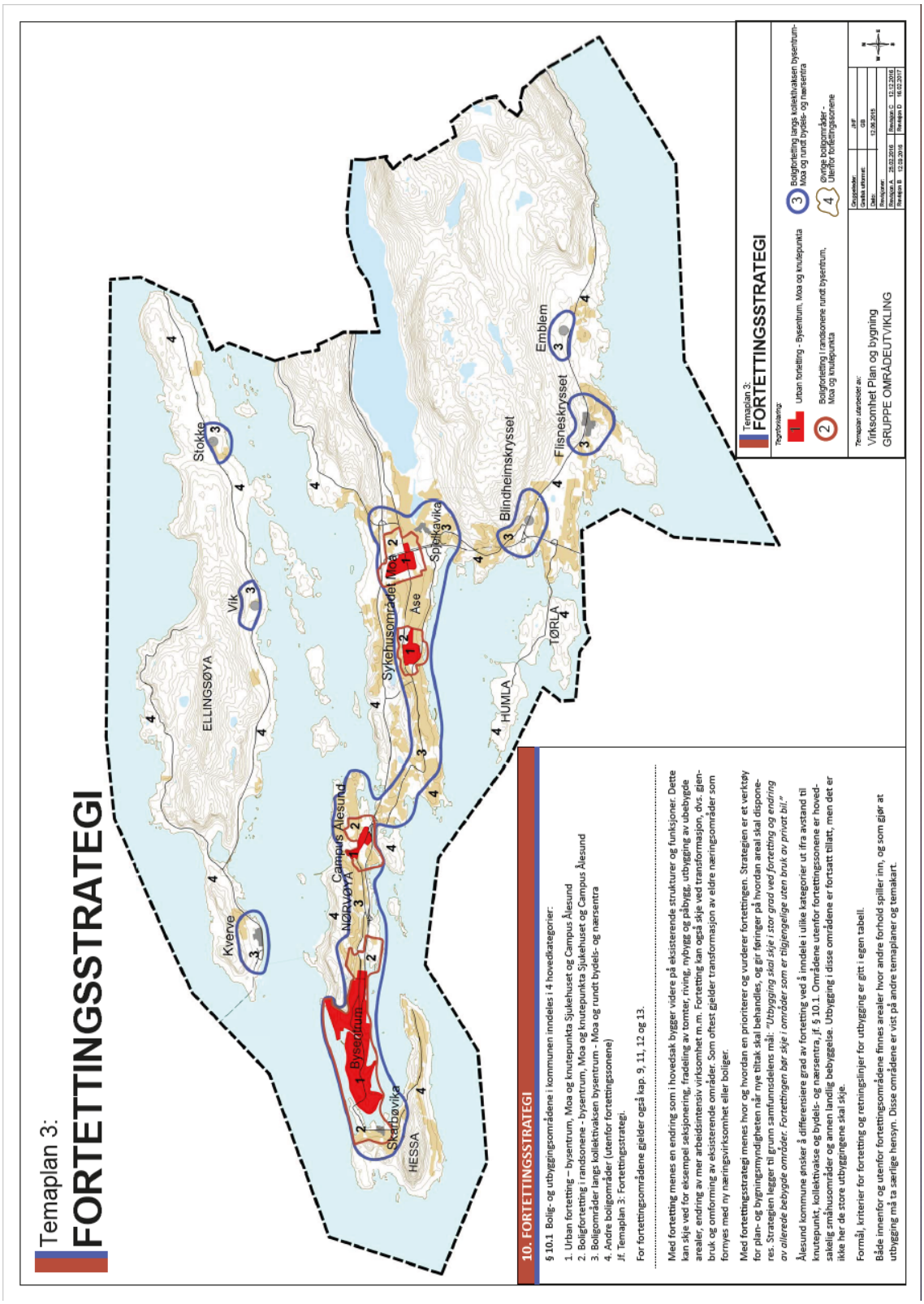
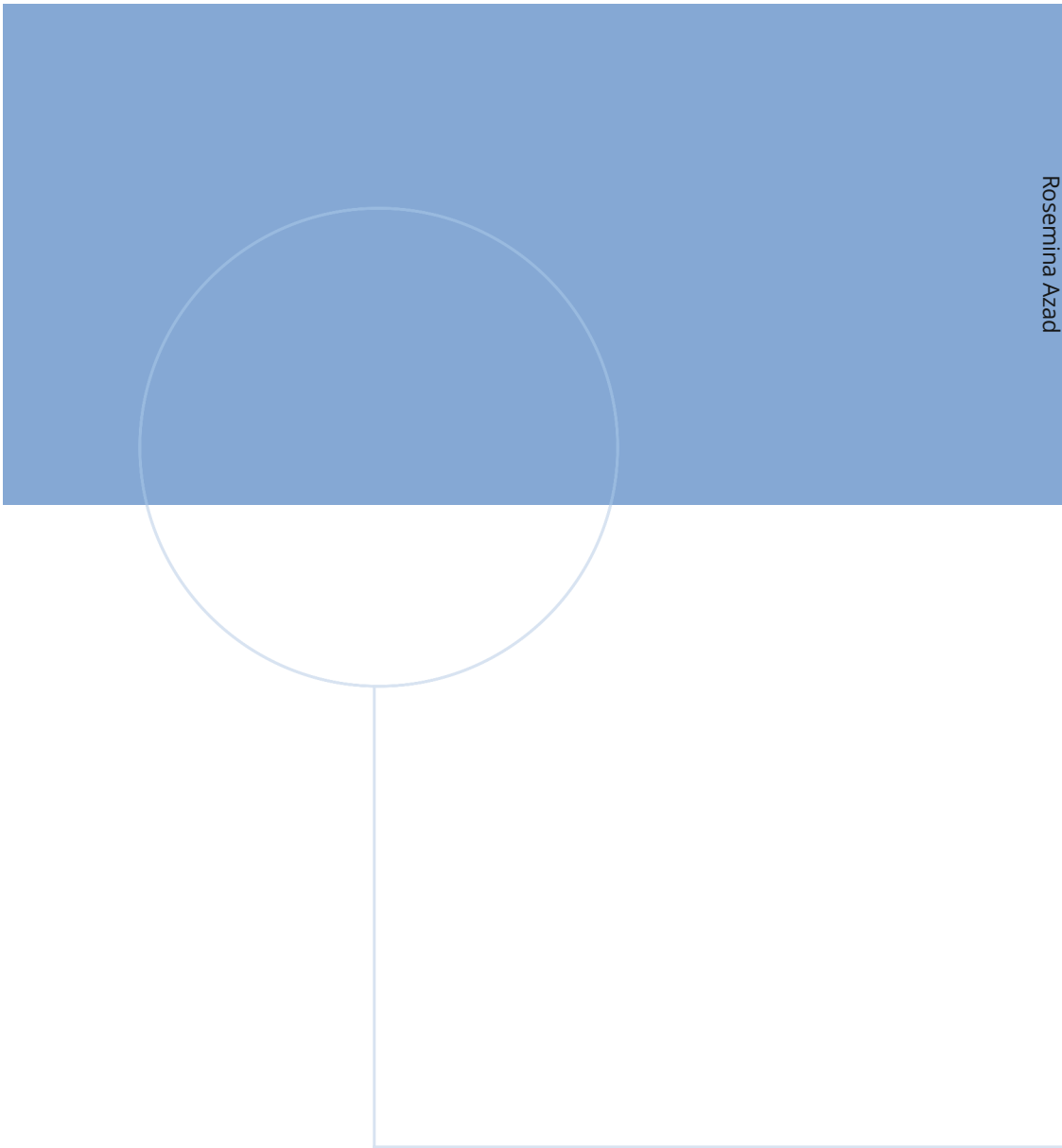



*Figure 39. Densification Strategy. Source: Ålesund Municipality.*



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