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Ten principles to promote perceived safety in parks

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ABSTRACT

As the world urban population increases, our cities become larger and denser. Consequently, the significance of urban parks increases as they may offer an accessible experience of nature leading to better health and social benefits. However, these factors are threatened by fear and perception of unsafety.

The aim of this thesis is to investigate what elements can influence safety perceptions in urban parks and identify the measures to encourage usability. This paper addresses mainly the social dangers as the factor, which evokes sensations of worry and anxiety.

The project comprises four main phases. The first one discusses the existing literature. The second one deals with typical research method used in a field of environmental psychology: interview process with the pictures. The pilot and preference studies examined potential users experience of perceived safety with respect to different vegetation design. This research was site specific and the chosen place was Torshovdalen park in Oslo. Digital photo manipulation was employed to alter the images of this park. Afterwards, the images were used to examine interviewers' perceptions. The third phase includes site analysis. Direct observation was used for the data collection. The fourth phase summarises previously discussed findings in the design principles. These principles are built on the previous research in the literature review with elements of empirical study. The concluding phase encompasses also design recommendations for Torshovdalen, but these are of a secondary importance.

The end product is ten formulated principles promoting perceptions of safety illustrated by the principles application. The principles application in Torshovdalen is more of a guideline rather than a rigid rule for all architects that are in need. The application demonstrates how the principles can be put into practice and used by landscape architects to make the surrounding green area perceived as secure.

INTRODUCTION

This master thesis is written at Norwegian University of Life Sciences (NMBU), Department of Landscape Architecture and Spatial Planning. It is a final stage of my education as a landscape architect. This master thesis fulfills 30 study points toward my degree.

During my study, I have become interested in the interplay between human beings and surroundings. My sphere of interest lies within a well-functioning landscape environment for individuals. Therefore, I have taken socially relevant topic devoted to our perception of safety in a park.

In this thesis, fear of crime in parks is considered as a factor affecting users' perceptions of safety. Anxiety caused by a feeling of danger estimated as the determining factor when it comes to a pattern of park usage. Main focus is on the literature study of perceived safety problem. In addition, the thesis includes interview-based and preference studies to examine perception of safety in the Torshovdalen park, Oslo. This park has become a starting point for my academic work dedicated to the promotion of a greater sense of security for the users.

Oslo municipality seeks to develop the guidelines for safe green areas. The collected information can be fruitful input for the further development of the safety strategy in Oslo.

ACKNOWLEDGEMENT

I would like to express my acknowledgment to the supervisor Deni Ruggeri and co-supervisor Katinka Horgen Evensen. I am grateful for their precious advice and editing during my research and writing of the thesis. They improved my understanding of the field and motivated me a lot.

Last year I studied at university in Copenhagen and took a course "Health design", it was one of the most inspiring and motivating semesters during my study. The founder of the course Ulrika K. Stigsdotter ignited a spark of interest in the influence of physical outdoor environment on our health and wellbeing.

I would also like to extend my deepest gratitude to my family for the continuous support and inexhaustible patience.

INTENTIONS

WHAT MEASURES CAN BE IMPLEMENTED TO MAKE PARKS PERCEIVED SAFE?

- The master thesis has the aim to formulate principles, which can serve as guidelines for landscape architects to promote perceptions of safety.
- Additionally this thesis will identify desires and needs of park users in relation to perceived safety.

The project is intended to contribute to the problem of feeling of unsafety in parks by counteracting fear-promoting attributes with positive safety factors. In this thesis the perception of unsafety is taken in a wider sense; it implies negative emotions evoked by social danger. This definition is explored in a literature overview of safety experience. The goal is to transform theoretical framework into practical principles.

The paper also outlines how the findings may be put into practice and applied to the existing park.

TERMINOLOGY

Due to the specific terminology of the topic, it is important to explain that feeling of security and safety, sense of security or feeling of insecurity all mean the perception of safety. On the other hand anxiety, sense of unsafety or feeling of insecurity have the opposite meaning, i.e. perception of unsafety.

INTENTIONS



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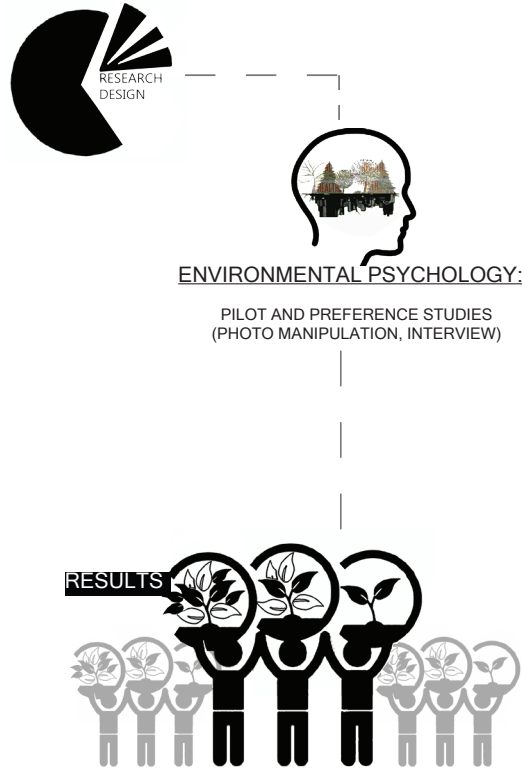
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PHASE 1



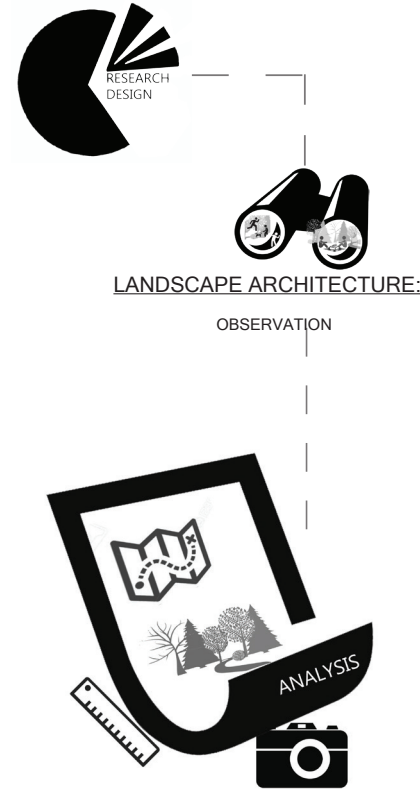
The presentation of published literature.

PHASE 2



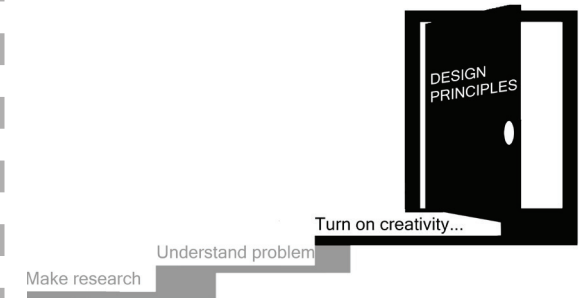
Execution of an interview-based pilot study and a preference study.

PHASE 3



Site analysis based on observation.

PHASE 4



Formulation of design principles and their application in Torshovdalen park.



THEORIES AND SCIENTIFIC UNDERPINNINGS

INTRODUCTION

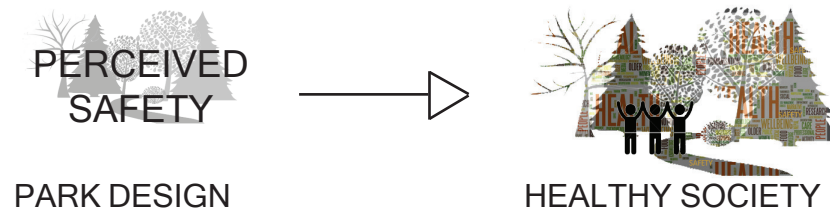


Figure 1. Author's diagram represents perception of safety as prerequisite for health benefits.

The population growth all over the world gives rise to new challenges for the future generations. Further development of the residential and commercial landscapes brings serious concerns of quality of human life because of the loss of green spaces. The increase in a number of city inhabitants forces communities to turn their attention to the study of environment-behaviour and urban ecology (Tzoulas et al., 2007).

How can people contribute to better health of the city inhabitants when today they are facing the results of compelled modifications of human activity? One of the key measures is to tackle stressful urban surroundings with the help of a mindful approach to the design of our environs (Grahn & Stigsdotter, 2003). Therefore, we need to investigate more meticulously the influence of inhabited environments on human life. This thesis focuses on the role of design in urban parks. Studies show a potential relationship between green spaces and physical, psychological benefits i.e. the positive impact of visits to the green areas (Stigsdotter et al., 2010).

Many findings also demonstrate that negative emotions including fear can be induced by vegetation or poor landscape design (Talbot & Kaplan, 1984). This topic is relevant because the perception of safety can be a decisive aspect of the use of the park and other green areas (Kuo, Bacaicoa & Sullivan, 1998). The presence of safety concern serves as an obstacle towards positive psychological effect that green areas have (Foster, Giles-Corti & Knuiman, 2013). Herzog and Smith (1998) distinguish between social danger and physical danger. The first one derives from social source, for example being assaulted, etc. The second one arises from physical settings

in the surroundings, i.e. stumbling over objects and weather conditions. This master thesis addresses social danger as the threat for perceived safety. In recently published papers Sreetheran and Konijnendijk van den Bosch (2014) convey and analyze current literature regarding exploration of fear of crime in urban green spaces. They stress obvious need to carry out more research elucidating the influence of the physical and social factors on the perception of safety. For instance, vegetation design should be further explored.

The fear of crime is often a more significant problem than actual crime action itself (Bannister & Fyfe, 2001 cited in Sreetheran & Konijnendijk van den Bosch, 2014). Consequently, one can assert that landscape architects are able to prevent fear in green areas, and ensure that the feeling of safety is working with diverse settings in a park.

The concept Crime Prevention Through Environmental Design (CPTED in USA and CP-UDP in Europe) acquires a more prominent role. The above comprises of not only theoretical but also practical approaches to the problem. Prevention of insecurity feeling in the urban environment with the help of design can be an example. USA and Europe have actively implemented these concepts during the 90s. The goals of the concepts are to foster an understanding of the significance of safer urban spaces and promote the interaction between users and outdoor spaces. It is essential to mention that Scandinavia (and especially Norway) is quite conservative in implementing CPTED in practice (Grönlund, 2013).

Oslo municipality has introduced the plan "Smart, Trygg og Grønn" ("Smart, Safe and Green") (Oslo Kommune, 2015b). This shows their interest in the research on the perception of safety. This study can be a step towards the implementation of new integrated strategies applied in the parks and suitable for Norway, which can lead to increased perceived safety.

THEORIES AND SCIENTIFIC UNDERPINNINGS

EVIDENCE-BASED DESIGN

Evidence-based design is “a process for the conscientious, explicit and judicious use of best evidence from research and practice in making critical decisions, together with an informed client, about the design of each individual and unique project” (Stichler & Hamilton, 2008, p. 3). The evidence-based approach plays a prominent role within landscape architecture in healthcare facilities (Cooper-Marcus & Sachs, 2013). Environmental psychology states that there is a relationship between the promotion of residents’ health and the urban green spaces, which makes this approach significant for the urban living environments (Stigsdotter, 2005). Landscape architects can provide solutions not only produced on aesthetics evaluation but design surroundings more consciously using the gathered evidence. As U. K. Stigsdotter (2005) claims, this way of practice encompasses two perspectives (figure 2).

This master thesis is an input contributing to the pleasurable experience of nature and promotion of health. This assertion is built upon the fact that safety is an inevitable part of our well-being. Fear is the factor which may threaten mental health conditions (Sreetheran & van den Bosch, 2014). The perception of safety is an important mediator contributing to better mental state (Van Dyck, Teychenne, McNaughton, De Bourdeaudhuij & Salmon, 2015). Therefore, it is worth paying attention to the quality of our environment today to prevent potential health problems in the future.

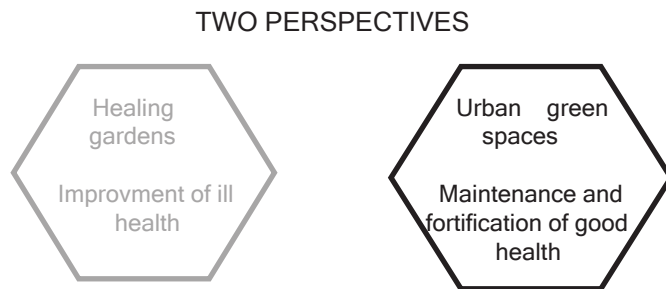


Figure 2. Diagram illustrates 2 perspectives of evidence-based design.

APPLETON'S THEORY

Published in 1975, Appleton's prospect-refuge theory is based on the idea that we consider and perceive our environment using subconsciously the same mechanisms as our ancestors who were hunters in savannah (figure 6). These mechanisms take point of departure from the ability to see without being seen. The most desirable settings or in other words vantage points are those that provide an opportunity for refuge and prospect. The theory identifies the settings, which provide higher perception of safety and thus are considered as comfortable (Appleton, 1975).

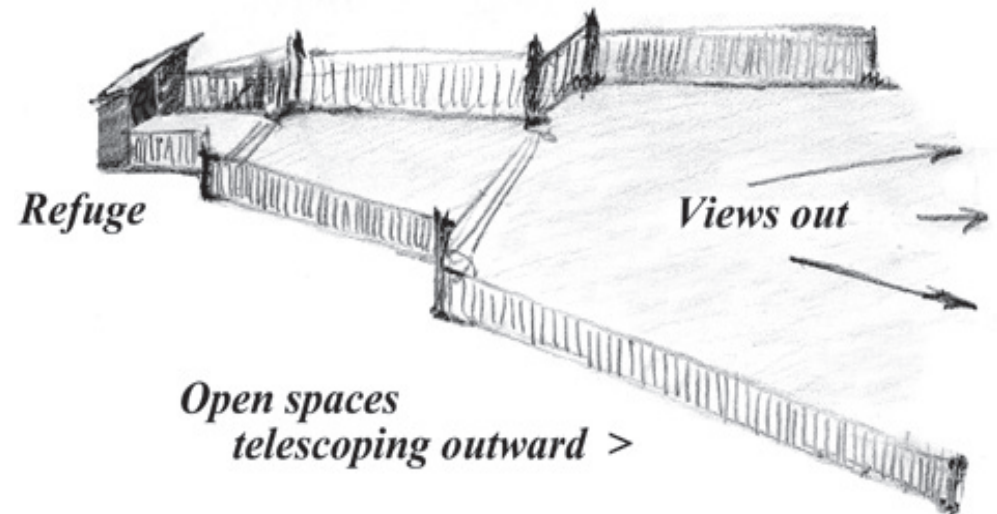


Figure 3. Picture illustrates wider spaces telescoping outward, the safest one is situated back into smaller place.

THEORIES AND SCIENTIFIC UNDERPINNINGS

FEAR OF CRIME AND 3 EXTERIOR SITE FEATURES: PROSPECT, REFUGE AND ESCAPE

Nasar and Fisher (1992) examine the impact of the exterior design features on the perception of safety. The authors evolved Appleton's theory by introducing the term escape in addition to the refuge-prospect. They interpret it as a necessary criteria related to the fear of crime. The preferences of a potential offender coincide with the demands of a victim, i.e. favourable places for a potential victim are also suitable places for a potential attacker. Nasar and Fisher investigated the fear of crime at a college campus. The theoretical framework is based on the idea that sites that contribute to perception of safety have not only a wide vista and places for concealment but also have the possibility for an escape. One can say that fear of crime is uttermost in the campus as long as the area provides refuge for a potential attacker and is enhanced by the limited prospect and blocked escape for a potential victim.

FEAR OF CRIME

The fear of crime may also be found in nearby nature (or urban green spaces) Sreetheran and Konijnendijk van den Bosch (2014) emphasise the presence of "physical danger" as a sort of detriment in green environments. They discuss the negative influence of urban greenery and define factors evoking fear of crime. "Fear of crime" is used in a broad sense; the term is attributed to experienced perception, rather than actual crime, risk or safety. Though factors determining fear of crime are divided into diverse categories (1.personal 2. social 3. physical 4. park image 5. time of day/season, see figure 4). The interaction between attributes is crucial and stresses that one should take into account the interplay of factors working with or investigating, for instance vegetation features like density, maintenance etc.

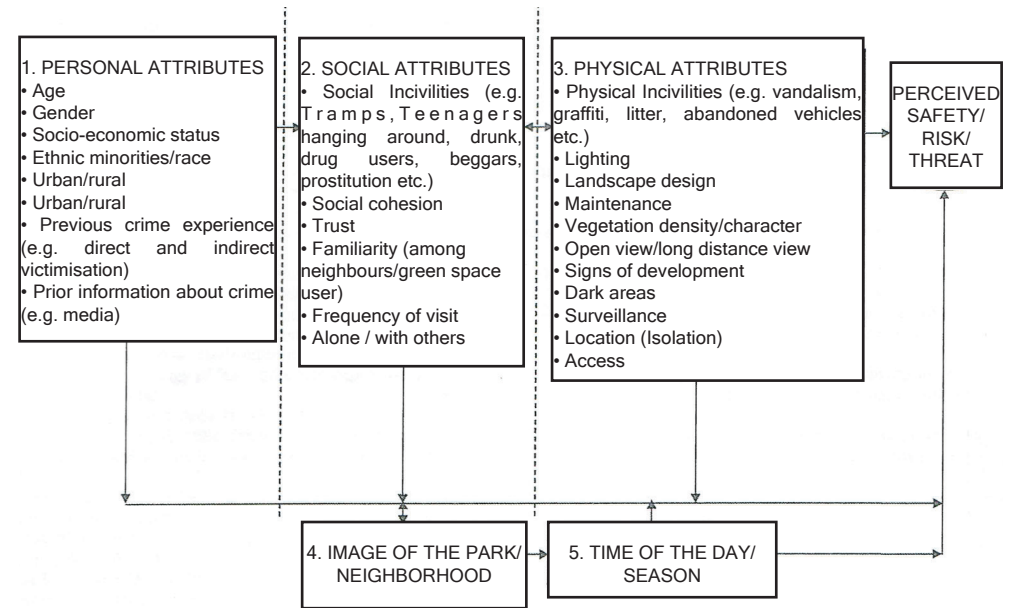


Figure 4. The conceptual framework representing attributes, which influences fear of crime in urban green spaces (Sreetheran & Konijnendijk van den Bosch, 2014, figure 1).

THEORIES AND SCIENTIFIC UNDERPINNINGS

THE POSITIVE EFFECTS OF NATURE

In Roger Ulrich's Theory of Supportive Design, he describes the helpful impact of nature promoting distraction. The distraction is considered as positive because it reduces the level of stress. The calming effect has been measured as lowered blood pressure and decreased stress hormones (Ulrich, 1999). Although Ulrich's theory stresses the importance of this impact in healthcare facilities, everyday stress should not be disregarded in view of the fact that it affects people profoundly. For example, Nygren et al. claimed in 2002 that in Sweden the most prevalent illnesses (associated with depression and aches) are related to stress (cited in Grahn & Stigsdotter). Moreover, city dwellers are affected profoundly by mental, stress-related diseases; attendance of parks can be very favorable because one can avoid urban environmental pollutants, for example traffic noise (Lederbogen, Haddad & Meyer-Lindenberg, 2012).

Stephen and Rachel Kaplan argue that long periods of directed attention and concentration cause mental fatigue, which can be quite harmful (Kaplan & Kaplan, 1989). Therefore, restoration is vital. The Kaplan represent nature as the means to provide recovery and restoration. Nature is beneficial because it is not demanding in terms of efforts. According to their theory, the "nearby nature" promotes well-being. Among the restorative settings for instance the effect of *fascination* plays a great role, as it stimulates effortless attention (Kaplan, Kaplan & Ryan, 1998).

MULTISENSORY EXPERIENCE AND HEALTH

- The most valuable assets and positive outcomes of natural environment take point of departure from the multisensory experience (Sachs, 2009).

"Forest Bathing" (in Japanese *shinrin-yoku*) means to walk in the forest and at the same time experience the scent of pine needles, scene of trees and exertion of green exercise. All these together lead to increase in health. Each component is essential to achieve beneficial health effect. Among the health outcomes is a reduction of stress (Li et al., 2013).

- The impact of multisensory experience is the most successful when the urban noises are minimized and one may hear the birds and the sounds of water instead of the hum of the city (Mace, Bell & Loomis, 1999; Kline, 2009).

VEGETATION SCREEN AGAINST MAN-MADE MATERIAL

There is a study, which describes a benefit of vegetation screens. A test was carried out by Nakamura and Fujii using the brain activity to measure stress while the respondents were seated in front of a greenery hedge, concrete wall, and a mixed setup. The hedge reduced the level of stress and had a calming effect; on the other hand the concrete wall had a reverse effect (Nakamura & Fujii, 1992).

THEORIES AND SCIENTIFIC UNDERPINNINGS

STUDIES ABOUT PHYSICAL ELEMENTS ASSOCIATED WITH FEAR OF CRIME IN URBAN GREEN AREAS

Sreetheran and van den Bosch sum up research about fear of crime and demonstrate the pieces of physical environment which may induce fear (2014). A few of them have unambiguous effects, namely they have decreased or increased fear, while the others are considered to have both positive and negative impact (the varying results of studies) in relation to perceived safety.

a) Badly maintained vegetation, poor lighting, and the lack of landscape design can have unambiguous effects on perceptions of fear.

b) Ambiguous effect can be induced by the presence of vegetation. Shrubs could be a hiding place for an offender. Greenery can limit the view. On the other hand, some studies point that increased amounts of greenery cause a safer perception.

There is the need to continue this type of study in the context of urban parks.

SOCIAL COHESION AND FAMILIARITY

Research findings have proved that social cohesion has an influence on the perception of safety. The presence of cohesiveness and trust in a neighbourhood may reduce the feeling of insecurity (Brownlow, 2006).

The familiarity with a vicinity is associated with a high perception of safety. The familiarity is a social attribute, which can be boosted by frequent use of parks (Krenichyn, 2004).

The next paragraphs, Place and genius loci and “The eyes of the skin”, describe how landscape architects may reinforce the bond between people and environment and between members of a community. The “Eyes on the street” paragraph emphasizes the attractiveness of place as a recipe for success for a positive perception of safety.

PLACE AND GENIUS LOCI

The article “The phenomenon of place” celebrates and rediscovers the communicative method of design and planning, which helps to express a spirit of place and its characters.

Norberg-Schulz examines the contrast between modernism’s approach and environmental phenomenology. The first one is aimed to give universal answers despite the context. The second one is based on sensory experience, materiality and the link between place and context. It is also favored to make the place legible. The role of the designer is to reveal the identity (*genius loci*) and thus reinforce the connection between the user and the place (Norberg-Schulz, 2013).

“THE EYES OF THE SKIN”

In the book “The eyes of the skin”, author Juhani Pallasmaa argues about the importance of sensory experiences in architecture. He highlights that sight is the prevailing sense in design and architecture, and the other senses are neglected. Author champions importance of “multisensory architecture”, which strengthens existential experience, thus a space becomes a meaningful place for an observer (Pallasmaa, 2005).

“EYES ON THE STREET”

“The Death and Life of Great American Cities” written by Jane Jacobs has had a profound impact on generations of designers. Jacobs argues that the more people are on the streets, the safer is the perception of the place. She juxtaposes modernist architecture to varied residential neighbourhoods and a robust street life. The “eyes on the street” are achieved by the qualities of public space and its attractivity. To Jacobs, a lively place equates a safe place (Jacobs, 1961).

THEORIES AND SCIENTIFIC UNDERPINNINGS

SOUNDSCAPE

The soundscape is “acoustic environment as perceived or experienced and/or understood by people, in context” (Axelsson, 2011). The acoustic environment is assumed to influence our behaviour and mental health. First, it determines the level of tranquility; for instance, noisy roads decrease the sense of effortless engagement with the surroundings (Watts & Pheasant, 2015). Second, there is evidence that man-made noises may reduce social activities and increase negative soundscape (Refat, 2014). Social cohesion and interactions are vital for perceived safety (Sreetheran & Konijnendijk van den Bosch). The disturbed acoustic environment may cause an increase in fear of crime.

LIGHTING

Lighting may improve perception of safety, but when too intense may provoke fear of crime (Nikunen & Korpela, 2012). The distinct difference in illuminance may hinder the feeling of visual control of environment because the observer may run into the blinding contrast between light and dark also referred as “barrier of light”. Lighting provides better surveillance and prospect, which can be considered as a positive effect. Although on the other hand the attacker may follow the victim more easily.

In addition development of lighting hierarchy in a park may allow users to feel more secure (PPS, 2016a; PPS, 2016d). This may create a more uniform light distribution in a park and exclude “barrier of light”.



Figure 5. The impact of lighting and sounds.

SUSTAINABILITY AND PERCEPTION OF SAFETY IN PARKS

The urban population in 2014 is estimated as 54% of world population. It is expected to growth by 1.84% per year between 2015 and 2020 according to WHO (2016).

ADULTS	CHILDREN
Alzheimer's and Dementia	ADD/ADHD
Asthma & Respiratory Disorders	Autism Spectrum Disorders
Cognition	Cognition
Depression	Depression
General Health	General Health
Heart Health	Nature Deficit Disorder
Hospital Recovery	Obesity
Obesity	Stress
Post-Traumatic Stress Disorder (PTSD)	Type II Diabetes
Stress	Well-Being
Stroke	
Type II Diabetes	
Well-Being	

Figure 6. Health benefits of nature.

The growth of urban territories should be sustainable. Sustainability concept implies that we should think about our development constrained by natural limits, that the environment influences our survival. The destiny of next generations rests on our ability to preserve existing planet resources and ecosystems, and it is the basis of heritage (Cozens, 2002). One of the significant components of this heritage is the presence of green environment in our cities since it has a lot of benefits for our well-being and for our society (National Recreation and Park Association, 2012). Among these benefits are a reduction of stress-related diseases (Grahn & Stigsdotter, 2003, 2010). Obesity rates are estimated to be lower (Wolch et al., 2011) (see figure 6).

Nowadays the cities in Europe are exposed to the densification. (Beatley, 1999). It is essential to achieve the balance between green spaces supporting inter neighbour contact, health benefits and demand for other urban facilities. However, the availability of park on its own does not ensure the successful use of green space. Perception of safety may be decisive in terms of park's value and usage rate (National Recreation and Park Association, 2012). One may assert that our urbanised society requires the urban parks to implement sustainability strategy improving psychological, environmental, recreational and economic spheres of our life (Burgess et al., 1988; Conway, 2000; Gehl & Gemzoe, 2001; Grahn, 1985). We should be aware that keeping park unsafe may cause deteriorating effect and may impede the wellness of society (National Recreation and Park Association, 2012).

THEORIES AND SCIENTIFIC UNDERPINNINGS

VEGETATION DESIGN AND PERCEIVED SAFETY. SUMMARY

- Mowed areas devoid of any understory vegetation are humans' preferred vegetation according to the studies. The lawn is perceived as safest due to the possibility to identify hazard (Wolf, 2010).
- The open landscape with mow grass and high canopy trees is the most reliable alternative in relation to experienced security. Except for the fact that there is a conflict between visibility associated with feeling of safety and dense vegetation, more natural-looking woodlands, which urban dwellers appreciate (Wolf, 2010; Jorgensen, Hitchmough & Dunnett, 2007). In addition, the diversity of vegetation should be present, because various individual factors might be satisfied with the variety of green environments (Jorgensen et al. 2007).

THE OPTIONS TO INTEGRATE UNDERSTORY AND TO ADD VARIETY

- The undergrowth providing a concealment is defined as fear-evoking. On the other hand, one should not avoid understory at all but to keep up the sightlines in the park (Wolf, 2010).
- According to the studies, the development of woodland vegetation is feasible where enclosure is low and the room possesses open character (figure 7) (Jorgensen, Hitchmough & Calvert, 2002).
- In a space with high enclosure, the vegetation should provide a sort of transparency to give the overview of physical route to escape from a threat. The safety issue with respect to vegetation undergrowth might be solved using low density. The lower density may be an option when one observe the greenery from a closer distance (Jorgensen et al., 2002; Jansson, Fors, Lindgren & Wiström, 2013).

- One of the most preferred combinations is the surface, which is covered with flowers and no understory, this conjunction may diversify environment (figure 8) (Jorgensen et al. 2002).



Figure 7. Author's illustration based on the study.

- The Project for Public Spaces claims that the mown edge (2-3 m) or maintained low vegetation near the path contribute to the perception of safety (2016a). This option can be introduced to prevent excessively obstructed view.
- In order to contribute to a feeling of security in a green area, woodland vegetation should possess a more open character consisting of for example lower density in the undergrowth. It may boost visual control and visual penetration thereby well-maintained impression will be achieved (Schroeder & Anderson, 1984; Coles & Bussey, 2000).

THE MOST PREFERRED SETTINGS UNDER ALL SPATIAL CONDITIONS:
no undersory with flowers



Figure 8. Author's illustration based on the study.

THEORIES AND SCIENTIFIC UNDERPINNINGS

Crime Prevention Through Environmental Design (CPTED MODEL)

The CPTED model has proven itself to make urban environment perceived safer and contribute to the prevention of crime. There are a few examples that confirm the success of this method applying to urban green areas as for instance the James River Heritage Trail in Lynchburg, Virginia (McCormick, 2007).

I have found this approach interesting because it stresses the importance of context, it is not only a list of requirements to put tick symbol as McCormick illustrates it (2007).

This model may serve as a groundwork for analysis of place and further design.

4 CPTED principles based on McCormick's article (2007):

1. Natural surveillance

- to keep up visibility in a park in a way that visitors of a park could be seen by passer-by; to promote unobstructed view.

2. Territorial reinforcement

- to design elements, which may guide visitors of a park; to delineate what is the part of public area or part of trail etc (working on different scales); to indicate transition between zones having various functions. In other words to provide markers of territoriality.
- t.r. is intended to make people aware of sense of ownership.
- to provide signage that is visible for visitors and one may easily recognise and read the surroundings.

3. Natural access control

- the layout of the site must be designed to direct pedestrian movement thereby the visitors can reach the points with good surveillance. The circulation routes should be facilitated with clear sightlines and the blind corners should be avoided;

- the entrances should be well defined
(• to promote measures stimulating recreation and activities related to recreation; the design is supposed to discourage undesirable behavior associated with crime)

4. Maintenance

- to promote upkeep and design features, which may be well-maintained.

Taking into account CPTED model one may stress the importance of the circulation pattern (Sarkissian & La Rocca, 2003), which represents as cycle and walking paths. As this aspect described by Oscar Newman, pedestrian circulation should be planned to offer better interplay between facilities and improve surveillance (Newman, 1996).

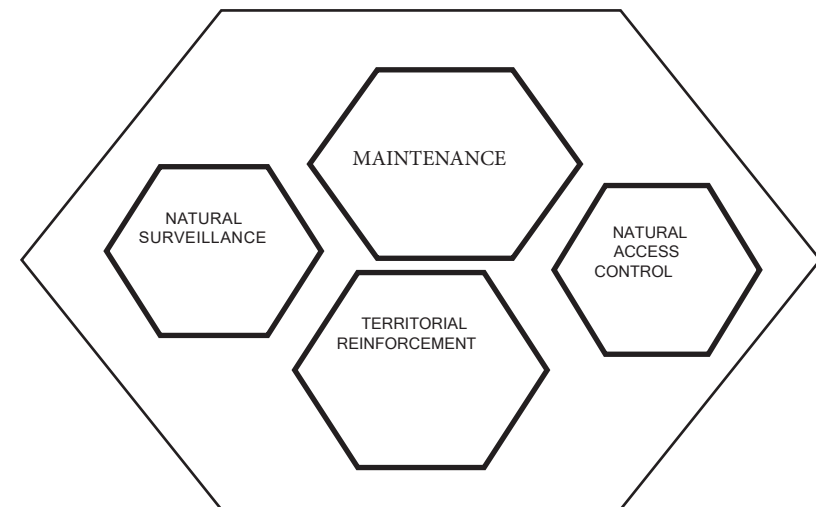


Figure 9. The main principles of CPTED.

THEORIES AND SCIENTIFIC UNDERPINNINGS

PROJECT FOR PUBLIC SPACES (PPS)

Design can help us to construct safe and attractive environments. The Project for Public Spaces has developed useful framework to assist other landscape architects, urban designers and planners to create more successful public places.

In this master thesis, one of the main principles, which organisation recommends for placemaking, was borrowed: “you can see a lot just by observing” (PPS, 2016b). The mentor and the inspirational leader of PPS, William Holly Whyte, formulated it this way: “look hard, with a clean, clear mind, and then look again - and believe what you see” (PPS, 2016c).

The article “What Role can Design Play in Creating Safer Parks?” published by PPS bridges the gap between knowledge about perception of safety and the design of the attractive and vibrant place. It is devoted to the main aspects that designers can change to improve the perception of safety in a park (PPS, 2016a). The main assertions and ideas used in the master project are:

- The layout of the park should be legible where the entrances role is prominent. The use of signs may contribute to it.
- Good design provides a framework for a well-used place, it will result in surveillance.
- Promote the accessibility in the park
- Use lighting to encourage evening use, taking into the account: placement, hierarchy, and intensity.
- Diversity in vegetation, spatial arrangements etc. facilitates enhanced safety feelings.

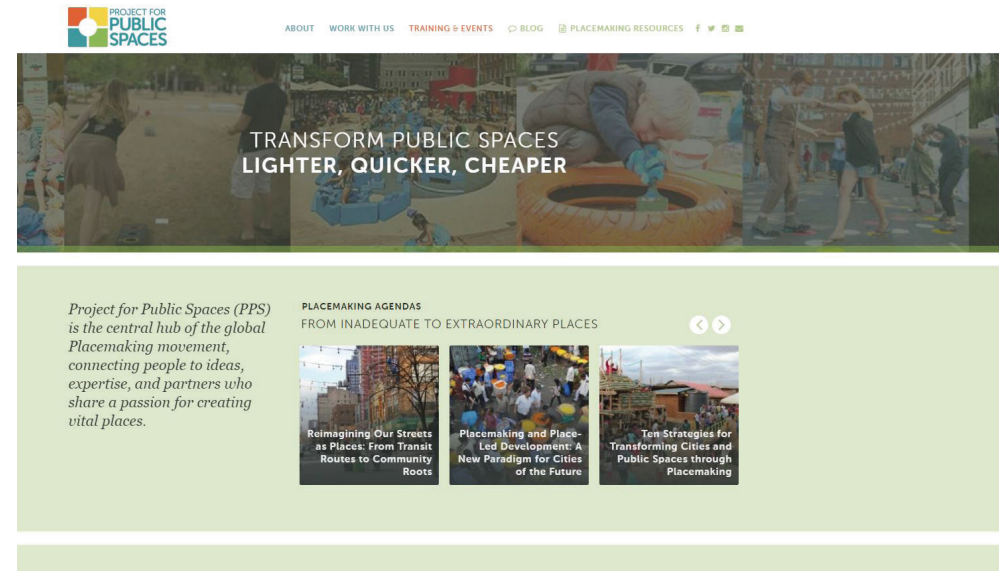


Figure 10.

THEORIES AND SCIENTIFIC UNDERPINNINGS

CHAPTER SUMMARY

Previous research suggest that fear of crime in green areas can lead to health deterioration. Conversely, the improvement of perceived safety may create preconditions for a well-used park. This will contribute to positive mental and physical health consequences.

The findings in this chapter allow defining measures to prevent perception of unsafety and provide park visitors with a pleasant experience. This measure can be divided into two main categories:

- PHYSICAL ELEMENTS
- DEVELOPMENT OF SENSE OF BELONGING TO THE PLACE

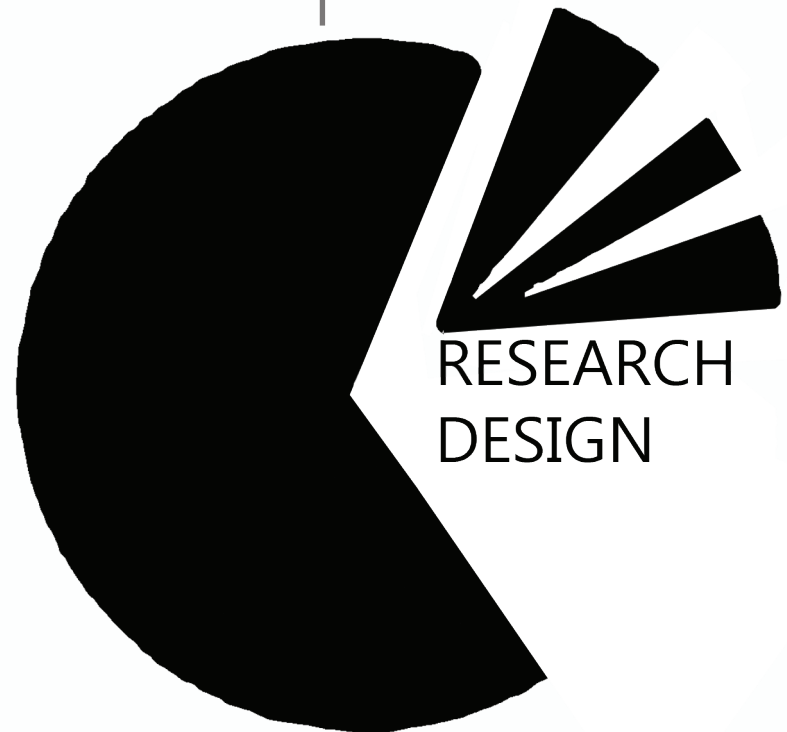
Given the evidence from research, the well-thought-out design is considered to provide increased perception of safety (Anderson & Stokes, 1989; Shaffer & Anderson 1985). Therefore, the contribution of landscape architects to safety improvements can be anchored to *genius loci* and articulated through physical form and materiality.



ENVIRONMENTAL PSYCHOLOGY



LANDSCAPE ARCHITECTURE



RESEARCH
DESIGN

RESEARCH DESIGN

PHASE 2 ENVIRONMENTAL PSYCHOLOGY:



Figure 11.

INTERVIEW-BASED PILOT AND PREFERENCE STUDIES

Environmental psychology is “the discipline that studies the interplay between individuals and their built and natural environment” (Steg, Van den Berg, & De Groot, 2012, p. 2). According to the European Landscape Convention, people’s perception and preferences should be key elements in evaluating the value of a landscape. In environmental psychology, one of the widely used data gathering instrument is photographs as visual stimuli to measure preferences (Tveit, Sang & Hägerhäll, 2012).

This approach is applied in this master thesis. Both the pilot and preference studies based on this method are described in phase two. The method gave the opportunity to apply the theoretical groundwork using existing site as the background and to get a response about the changes in an environment.

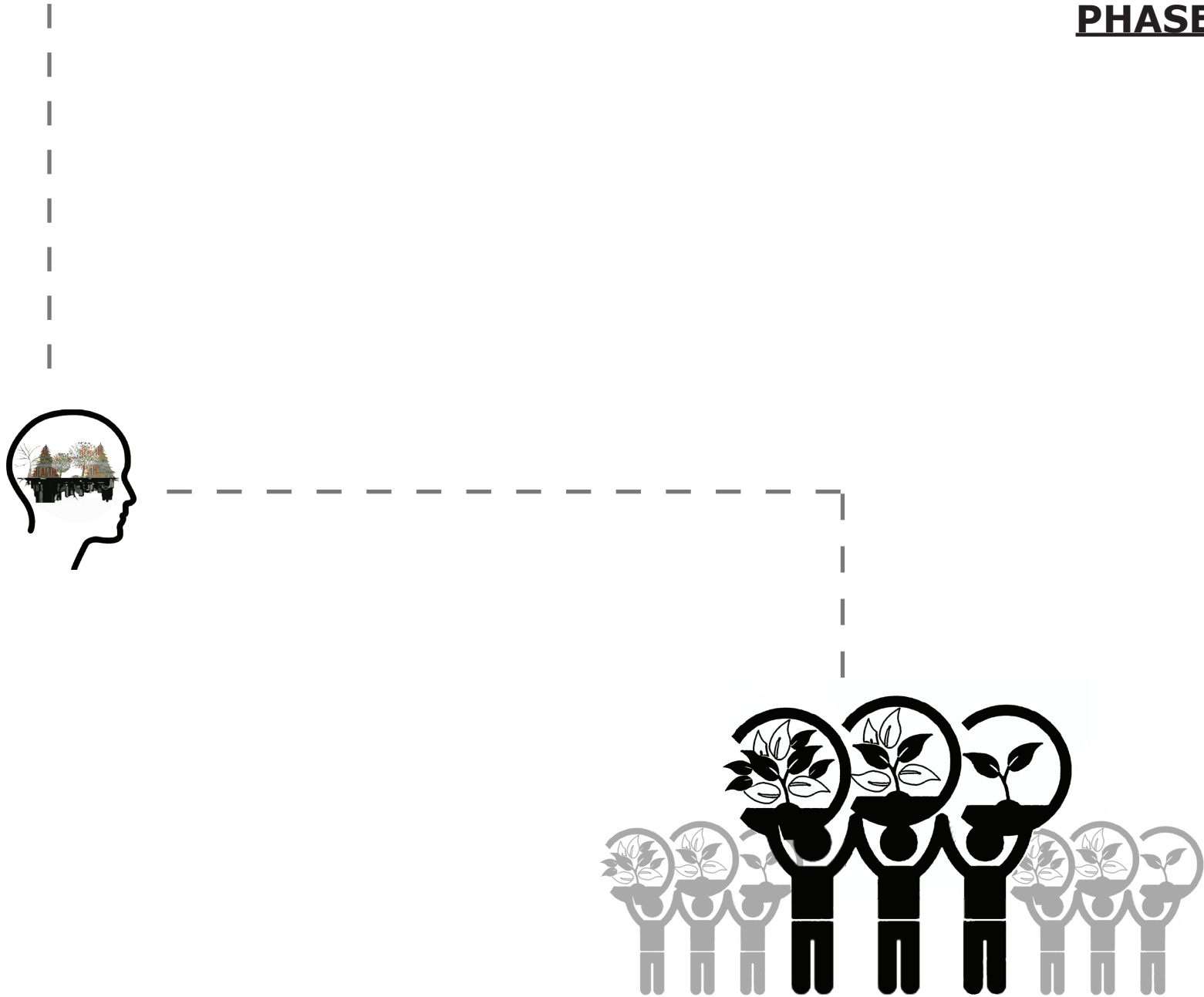
PHASE 3 LANDSCAPE ARCHITECTURE:



Figure 12.

OBSERVATION AND EXPERIENCE

Observation is a widely used approach among landscape architects and urban planners. It has acquired a growing interest due to Jane Jacobs (1961), Kevin Lynch (1960) and Jan Gehl (2007). Observation is a helpful tool, which has served as the basement for analysis in the phase 3. The theoretical knowledge about perception of safety allowed the researcher to analyse the user’s behaviour at the site in terms of perceived security and find the interrelation between the physical form and daily use by people.



**ENVIRONMENTAL PSYCHOLOGICAL
STUDY ABOUT PERCEIVED SAFETY**

PHASE 2

LOCATION OF TORSHOVDALEN PARK

Torshovdalen park in the Sagene district bordering the popular area of Grünerløkka in Oslo was chosen as a study site for this master project. The park is a convenience sample selected by the participants of the project “Trygghetsskapende tiltak for levende byrom” (Safety measures for lively urban spaces). Transportøkonomisk institutt (TØI) runs the project together with Norwegian University of Life Sciences (NMBU) and Bymiljøetaten in Oslo as a customer. The project aims to develop methods for the evaluation of security in the urban public spaces, uncovers various aspects of safety-related qualities of the urban environment (TØI, 2016).

The district has strong identity represented by industry buildings along Akerselva and parks. Nowadays industrial sites are available for the public and considerable amount of people are moving to the area. This defines the neighborhood as a popular area. According to the website of Oslo municipality, it is aspired to preserve existing identity in the future (Oslo Kommune, 2015a).



Figure 13. The map of Norway.

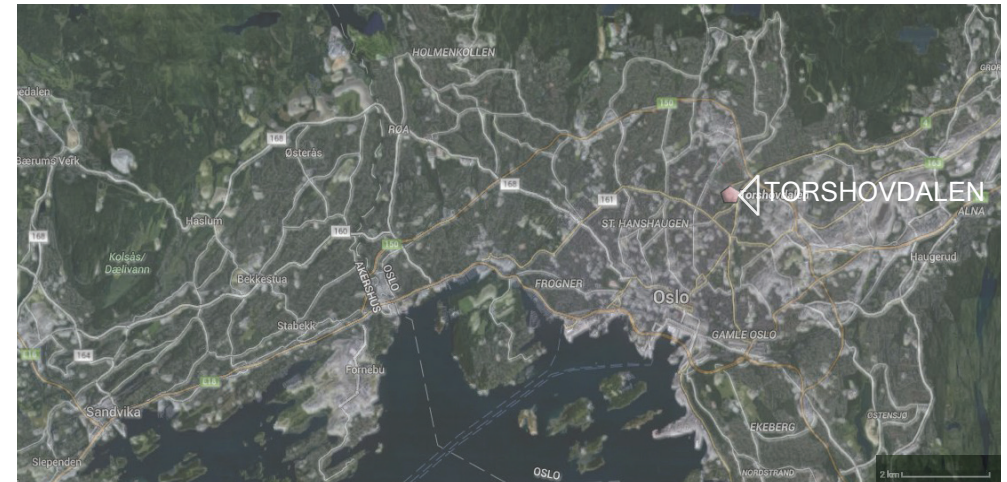


Figure 14. The map illustrating Oslo and location of the park.



Figure 15. The collage of pictures representing the district Sagene.

PHASE 2

LOCATION. ABOUT HISTORY OF THE PARK

In 1938, architects Røhne and Strøm (cited in Apall-Olsen, 2007, p. 70) described the park: "En naturpark overensstemmende med tid og behov, praktisk, økonomisk og estetisk tilfredsstillende og i samklang med sig selv og omgivelsene." ("The park is designed in accordance with time and needs, practical, economic and aesthetically pleasing and in harmony with itself and the surroundings".)

Marius Røhne's main idea was to create the park to promote social interaction so that green area may serve as meeting place. Moreover, Røhne conceived Torshovdalen as eastside response to Frogner Park. The ambition was to create parks on each side of the city. The undeveloped area along Trondheimsveien was planned as a part of Oslo green belt.

The districts of Torshov and Åsen were built in 1920-30s and Sinsenbyen established by 1939 were densely populated and local green areas were under threat of destruction. Consequently, authorities proposed to develop a large park to prevent devastation. Because of war in 1940, the park's construction period was long and tortuous.

The establishment of the park represents ideas of functionalism and Modernism in design and architecture, which predicated better access to green space, fresh air and social inclusion of all citizens. The open landscape is the characteristic feature promoted by the architect. The landscape monotony symbolized social equality (Apall-Olsen, 2007).



Figure 16. View from the bottom of the valley Torshovdalen. Cultivation of vegetables on the parcels of land. Horses with carts.



Figure 17. The view of area before the transformation into the park took place, 1929.



Figure 18. A winter day in Torshovdalen park.

PHASE 2

LOCATION. AKTIVITETSHUS

A representant from municipality Mona Joakimsen Skøien describes the role of Aktivitetshus.

As a place designed for youth activities in the district Sagene, it is used mainly by the children and youth. The state agency charged with ensuring the welfare of children (Barneverntjenesten) is responsible for it and provides diverse entertainment.

The staff uses the house during daytime, activities are carried out in the afternoon on weekdays. There are no activities on weekends.

There are 2 age groups, one group comprises children between 6 and 10 and the other is made up of children between 10 and 14 years old. They are engaged in various seasonal activities in addition to participation in cultural programs.

There is also motorcycle trials sport, which Aktivitetshus facilitates. The trial is a motorsport when a person rides a motorcycle in rough terrain. The group has workshop in the house. The actual driving takes place next to Hvervenbukta. The group uses the workshop in Torshovdalen.

Playground, mini-pitch and skate ramp are under the responsibility of municipality (park og idrett / friluftsetaten) and are open to the public. The activities organized by Aktivitetshuset are “closed” to public.



Figure 19. The Aktivitetshus and surroundings.



Figure 20. The entrance in Aktivitetshus.



Figure 21. Aktivitetshus in summer.

PHASE 2

RESEARCH: VEGETATION DESIGN / INTERVIEW-BASED PILOT STUDY

RESEARCH QUESTION

Which vegetation characters were perceived as the safest in the given environment?

The assignment was focused on the design of vegetation along the footpath in Torshovdalen (figure 22). One of the intentions was to gather data as a constituent element to the municipality's project and contribute to the improvement of the area with respect to the perception of safety.

This research was divided into the pilot and preference studies. The aim was to find relationship between varying vegetation characters that may positively or negatively affect respondents' perceptions of safety.

1. The major tested variables were the continuity (to explore the appropriate space between the shrubs), height, density, and maintenance.
2. The research was based on the manipulation of pictures of the existing path condition using digital imaging technology. The study examined diverse spatial frameworks (continuity, height, density, maintenance).
3. The images were later assessed by respondents in terms of perceived security.
4. Implementation of the preference study followed the pilot study and analysis of conducted work (see p. 38-39).

THE SITE

The selected path is situated in Torshovdalen (figure 22-23). It is laid out at the outskirts of the park. The path serves as a boundary between green area and the slope. The slope shows limited accessibility. The hill is privately owned and it is covered with lush but not well-maintained greenery, and offices of a few private companies are located in the upper part of the slope.

On a daily basis, the path is used by different groups: dog owners, parents strolling their babies in their prams, joggers etc. Two sides of the path have distinct characteristics. One is quite open and lined with birch trees. In contrast, the other one is occupied by shrubs; structure varies greatly along the path.



Figure 22. The diagram illustrates the park and the path highlighted by red stripe. Figure 23. Picture of the path taken by author.

PHASE 2

RESEARCH: VEGETATION DESIGN / INTERVIEW-BASED PILOT STUDY

METHOD

The pilot study comprised both quantitative and qualitative strategies.

Material:

The key materials for assessment were the pictures as a form of landscape stimulus. The images were processed in Photoshop.

PROS:

- Simulation method gives reliable results (Trent et al., 1987).
- This method has an advantage because the independent variables can be altered and promoted preserving opportunity to have other settings in the steady state (Kuo et al., 1998).

CONS:

- Comparison of the results from simulation research and study conducted outdoors possibly demonstrates the underestimation of positive effects or the overestimation of factors like threat (Bishop & Rohrman, 2003).

THE AIM OF THE PILOT STUDY

The aim was to test different variables: continuity, height, maintenance, density. In the pilot the purpose was to get feedback from respondents about the perception of the environment that was illustrated in the pictures. One of the goals was to reveal the pattern in their answers (for example to find the pictures that were “very unsafe” for most of the respondents). The pilot study was done to provide the groundwork for the adjustments and further manipulation with pictures for the main study.

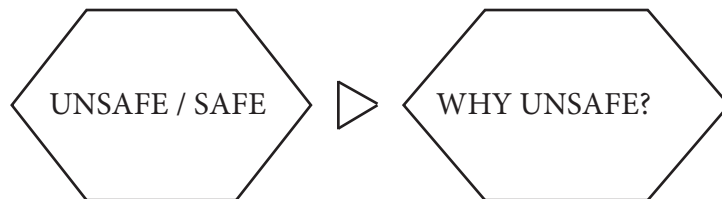


Figure 24. The aim of the conducted study was to answer these 2 questions.

MATERIAL FOR PILOT

The pictures of the path were taken during the summer, on a clear sunny day. There was foliage on the trees, bushes etc. These weather conditions provided a clear contrast between shady spots and sunlit places.

There were 4 pictures taken from the same eye-level height but in diverse parts of the path. The pictures were used as the backgrounds for 4 variables depicting continuity, maintenance, height and density. Each variable had 4 attributes. The pictures representing existing situation were altered in Photoshop to achieve distinguishable attributes. For example, there were 4 different illustrations depicting the height of the bushes: higher than eye-level, eye-level height, knee-height (or a little higher) and groundlevel (see Appendix A).

For conducting the study the pictures were printed, but the quality of the images on the screen of the laptop better illustrated the nuances. Therefore, the pictures were placed in 4 separate folders on the laptop, and each folder illustrated one variable. The folders were labeled as 1, 2, 3, 4. The material was arranged in the same way for all participants.

QUESTIONS

Using a model developed by Fisher and Nasar (1992) as a starting point, the questionnaire was based on the earlier theory of Appleton (1975); it included questions about prospect, refuge, and escape. The questions were adjusted to correspond to the path settings, since the original study was intended for the urban pathway (Wang & Taylor, 2006).

PARTICIPANTS

Five people participated in this study. Four of them were landscape architect students and one was an architect. The recruited students were from KU (Københavns Universitet) and NMBU (Norges miljø- og biovitenskapelige universitet).

PHASE 2

RESEARCH: VEGETATION DESIGN / INTERVIEW-BASED PILOT STUDY

HYPOTHESIS. EXPECTED FINDINGS

This pilot study sought to test the interrelation between “very unsafe” images and site features proposed by Fisher and Nasar (1992). Their study was based on the idea that combination of “refuge for offender” and “limited prospect for victim” tends to contribute to fear (and vice versa: the lack of “refuge for offender” and open view for observer/victim ensures the perception of safety). Their study confirmed that low possibility for escape leads to higher perception of fear.

Pilot study assumed that the unsafe picture had to possess the following features: the potential places for attackers were evident, the view was quite limited and the possibility for escape was rather hard.

The questions were expected to promote the dialogue about participant’s perceptions and to specify for instance potential refuge etc. As a result, the factors seen as unsafe might be uncovered. Consequently, the aim was to prevent and limit the usage of these factors further on. The outcome from the conversation about these unsafe characteristics provided a groundwork for further manipulations with pictures.

The last question in the questionnaire was intended to evaluate the presence of “mystery” at the chosen “very unsafe” picture. According to Kaplan and Kaplan (1989), the scenes with mystery, which motivates observers to explore, are most preferable. This idea hypothesized that the presence of mystery is a significant, positive feature which could be eliminated when one attempts to create a safer environment (Sreetheran & Konijnendijk van den Bosch, 2014).

PROCEDURE

The pilot study was designed as a survey that asked respondents about their perception of safety. The interview was carried out with each person individually. People were encouraged to give comments about their choice or to express their feeling/thoughts about the images.

The questionnaire consisted of 6 questions. It was divided into 2 interrelated parts. The same pattern of questions was applied to each variable (first continuity, then density, height, and maintenance) (see Appendix B).

PART1:

This part consisted of two questions. The first question evaluated participants’ perceptions. They were invited to compare 4 attributes and to classify pictures according to suggested categories: “very unsafe”, “unsafe”, “safe” and “very safe”. The pictures were shown on the laptop, and the persons could freely switch from one picture to another within the limits of one variable. The second question sought to find out their perceptions during dark periods of time. The respondents analyzed the same setting imagining the same environment at night.

PART2 :

The second part asked questions to evaluate qualities of the pictures previously chosen as “very unsafe”, to explore it minutely. One had to answer the questions based on the theory of Nasar and Fisher about the prospect, refuge, and escape. Respondents detected the traits that might evoke fear at the path.

PHASE 2

RESEARCH: VEGETATION DESIGN / INTERVIEW-BASED PILOT STUDY

RESULT AND DATA ANALYSIS

Participants scored all 16-path images in terms of perceived safety (see Appendix C).

Continuity: Four of five considered that picture 1 was the safest. Three of five defined image number 4 as “very unsafe”.

Density: All respondents evaluated picture 1 as “very safe”. Four of five reported that 4th picture had evoked more fear than the other (“very unsafe”).

Height: Picture number 1 was interpreted as “very safe” by four participants. Picture 4 was described as “very unsafe” by all respondents.

Maintenance: The 3rd picture had been perceived as safest by three respondents. The 1st image has been related to fear i.e. described as “very unsafe” by four people.

Although respondents assessed diverse pictures regarding “refuge”, “escape” and “view”, the outcome revealed a pattern. Pictures classified as “very unsafe” tended to have moderate to very limited views, which could provide places for a potential attacker to hide and might influence “escape opportunity”. The answers confirmed that the conditions mentioned by Fisher and Nasar (1992) should be taken into account when designing a park’s vegetation. According to the survey, the mystery did not seem to disappear at all despite the perception of fear. A few of respondents claimed that they would willingly have continued the walk along the hedge.

DISCUSSION

The lighting of pictures had prominent influence. For instance, pictures representing continuity have been evaluated by sunlight. One participant

described beams of sunlight shining through the trees create the soothing effect. The main focus was on the gaps between shrubs highlighted by sun rays.

The dialogue with the responders brought up what they estimated as a potential place for an attacker in this particular case. The most part of respondents were afraid of lush thicket and branches (picture 4, height) protruding out towards the path. (One of the respondents compared with “forest”, especially when the height exceeded eye-height).

On the contrary very dense and high vegetation (picture 3, maintenance), which was designed as neatly sheared, did not seem suspicious for the majority, because potential offender could not hide behind. Although one person mentioned that it made him feel uncomfortable because of height and the other one said that she had preferred maintained vegetation but with a more natural look, i.e. not very hard edges of the hedge, which appear sharp.

Low height has been preferred because of open view. However, different background for manipulated variables attracted a lot of attention and presumably had a disruptive effect. The lowest hedge (picture 1, height) illustrating not a very realistic landscape on the background was very distinguishable and made people focus more on the scene behind than on the parameters of the hedge.

The attributes of density showed as having negligible differences, suggesting that it may have been too complicated to distinguish.

Two of respondents claimed that path on the left side (without asphalt cover) was more favorable because the path on the right had too explicit and sharp edge between foliage and surface of path.

All participants struggled to visualize the scenes and the most part of answers matches with perception in the daytime. Therefore, the responders feedback about the effect of dark time of the day has not been taken into the consideration.

PHASE 2

RESEARCH: VEGETATION DESIGN / PREFERENCE STUDY

SUMMARY OF THE PILOT STUDY. GUIDELINES FOR PREFERENCE STUDY

• **The groups of pictures reflecting density and maintenance possessed a set of quite equal (not easy to identify) characteristics. The participants of the pilot study experienced difficulty grading the images. Therefore, the participants of the preference study were questioned on only 2 variables: continuity and height. One of the main arguments of transition from 4 to 2 variable was the complication to make them explicit and recognizable enough.**

• **Although the maintenance and density were excluded as separate variables one could not ignore that they have a prominent role. It had been proved in the pilot study. Therefore, the images for the preference study were devised using the findings from the preparation stage.**

• **The picture in the pilot study had blurred and diffuse settings (the parking lot at the background was mixed up with the lake in the pilot study). Furthermore, there was no a scale reference. This was altered in the set of pictures for preference study.**

• **The pilot study used pictures which had extreme contrasts of light and shade. This had weight when a person had judged the image (it might have both positive and negative impact). It was changed in preference study, a smoother transition between the light and the shadow was created.**

PREFERENCE STUDY

- The focus was on the 2 variables: continuity and height.
- The research was made up of 2 main parts (the same background was chosen for 2 parts or in other words 2 variables):

The first part analyzed the set of pictures illustrating height. The second part intended to examine the combination of “average height” and various aspect of continuity but has not been completed.

Four pictures were modified to depict different height of vegetation (see p. 39). The lowest greenery was the lawn and the highest vegetation was the shrubs above the eye-level. The point of departure was taken from the pilot study, therefore a bench was placed to provide the scale reference. In addition, the background on the four pictures was similar to the existing environment.

METHOD

Photos were used as a stimulus to conduct the preference study (see p. 39). The difference between pilot and preference study was that participants were asked to fill out a questionnaire (see Appendix E), there was no dialogue between the researcher and respondents.

PARTICIPANTS

Participants were students from NMBU. Their involvement was a part of the academic course accounted by credits.

PHASE 2

RESEARCH: VEGETATION DESIGN / PREFERENCE STUDY

The preference study for this master thesis comprised the questions, which can be found in appendix E and a new set of revised pictures (figure 27). It analyzed different height of the vegetation along the walking trail. Twenty six students were given the pictures. Of these, twenty five were women and one was a man in the age group from 21 to 50 years old, average age 27,5, and standard deviation of 6,9.

Once the images were presented, each person had to rank the pictures on a scale from 1 to 7, where 7 indicated the most positive impression of the control questions:

- A. Do you like it here? (Liker du deg her?)
- B. Do I feel myself safe here? (Jeg føler meg trygg her)

The respondents' answers to question A and B are displayed in figures 25 and 26. Twenty six students gave the image number 4 the highest average score both in terms of liking and feeling safe. Image number 4 had the lowest vegetation height, i.e. fine cut lawn.

Image Nr:	Average Result
1	5,0
2	5,2
3	5,5
4	5,9

Figure 25. The picture represents answers to the question A: Do you like it here?; Scale from 1 to 7.

Image Nr:	Average Result
1	4,9
2	5,4
3	5,2
4	5,8

Figure 26. The picture represents answers to the question B: Do I feel myself safe here?; Scale from 1 to 7.

DISCUSSION

There were some limitations in the research. The small number of participants could increase the likelihood of errors in the results. The gender of participants could affect the research since the majority of respondents were females. Women reported higher levels of fear comparing to men (Özgüner, 2011). In addition, the participants had the same educational level. This topic needs to be further explored (Sreetheran & Konijnendijk van den Bosch, 2014). Thus, results should be treated with caution because the findings might not generalize to persons with different backgrounds.

Moreover, it should be noted that the change in a sequence of pictures could be a decisive factor. Ideally, pictures should have been presented in a different order to more than one group of respondents. The observation during pilot study revealed that the first picture appeared on the screen was a starting point for further assessment.



Figure 27. The picture illustrates 4 height variations in the sequence as they were represented to respondents.

PHASE 2. OUTCOME

STUDY AND EXISTING LITERATURE REVIEW

This conclusion takes point of departure from the study in Torshovdalen and literature review of vegetation (see p. 21). It brings out 3 alternatives in order to make the best use of greenery in the park and increases perceived safety (figure 28).

The study has shown that many outcomes can be anticipated and human-nature interaction can be predicted. Anxiety can be alleviated with the help of vegetation design.

The main deduced conclusion from the interview survey has been used to formulate the first option for the path in the safe park. It follows that limited view created by high-rise greenery negatively influences sense of security. Relying upon descriptive analysis of numerical data (see p. 39) and previous research (see p. 21), it can be recommended to avoid vegetation undergrowth to encourage adequate lines of sight. This spatial characteristic should be prevailing in the park since it provides the highest level of perceived safety due to longer view distance (figure 28 (1)).

However, one may face a contradiction: woodland vegetation is associated with the highest preference ratings (see p. 21). Therefore, two alternatives are suggested to encourage a sense of security and simultaneously keep valuable woodland shrubbery. The integration of natural-looking vegetation is feasible by the means of spatial arrangement. The options are illustrated in figure 28, 2 and 3. These two improvements should be limited in the park as surveillance should be dominating. Moreover, a mystery factor tested in the pilot study should not be ignored (p. 37). It confirmed that some people prefer uncut vegetation as uncut vegetation invites a person to explore. A similar thought can be found in the other study about a feeling of security. One woman assessed uncut greenery and said: "No, I would not cut a beauty spot away" (Jorgensen et al., 2007, p. 283). In summary, landscape architects are able to retain woodland plantings and well-planned variation would not impair perception of safety.

The communication with interviewers has been an invaluable experience to understand the significance of personal preferences and to realize the strength of variation in the landscape.

1



THE SAFEST ONE IS NO UNDERSTORY, WELL-CUT LAWN, HIGH-CANOPY TREES

THE LEAST FEAR PROVOKING SETTINGS ARE WELL-CUT LAWN, HIGH-CANOPY TREES

2



THE MOST FAVOURED CONDITION IS NATURAL-LOOKING WOODLANDS

THE WOODLANDS VEGETATION CAN BE INTRODUCED, WHEN IT IS PLACED AT THE DISTANCE 2-3 M FROM THE PATH (see p. 14, PPS)

3

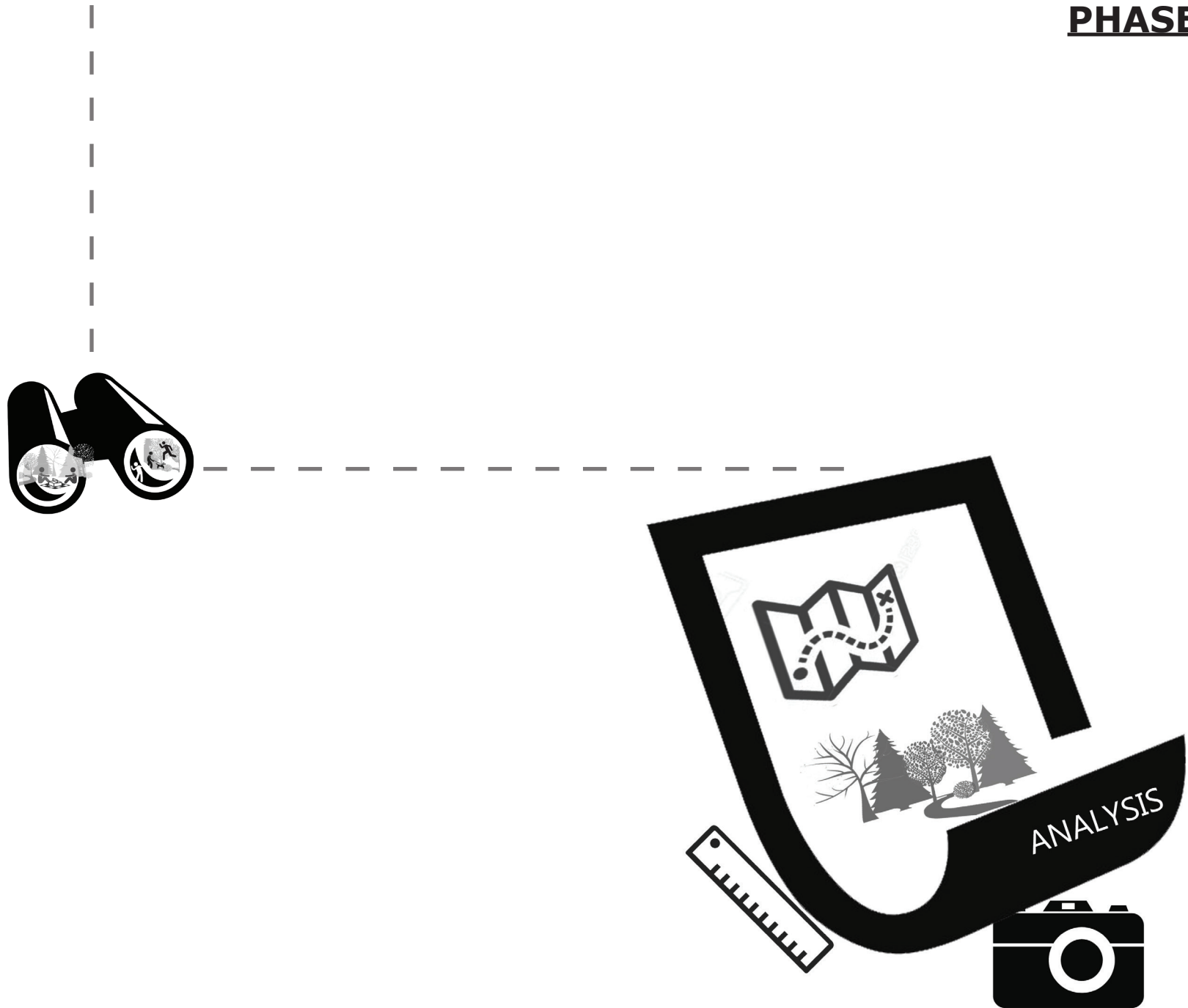


THE MOST FAVOURED CONDITION IS NATURAL-LOOKING WOODLANDS

THE VEGETATION WITH NATURAL CHARACTER CAN BE PLANNED AND DESIGNED ON ONE SIDE OF THE PATH IF THE OTHER IS OPEN AND DOES NOT OBSTRUCT SURVEILLANCE

Figure 28. First picture demonstrates recommended prevailing spatial character providing surveillance. Second and third pictures show integration of natural-looking vegetation with view restriction.

PHASE 3



PHASE 3

METHOD: OBSERVATION

Observation is one of the main research methods used in the discipline of landscape architecture. "To consult the genius of place" is a way to prepare spatial settings and overall design concept to stimulate the use of place (Deming & Swaffield, 2011, p. 66). In this master thesis, the strategy has been chosen to get insight into the essence of the place and improve the settings of security.

The observation is also based on the collation of theories discussed in THEORY AND SCIENTIFIC UNDERPINNINGS CHAPTER and the existing conditions in Torshovdalen. The main theoretical framework comprises of the following components PPS article What Role can Design Play in Creating Safer Parks? (Project for Public Spaces, 2016a) and CPTED model (see p. 22).

Observations were done during summer and winter and at different times of the day to gain a full overview of the park.

The next chapter represents the results of observation analysis consisting of few parts: Physical structure and materiality of the park, Circulation and other user amenities, Perception of safety and maintenance consideration, Seasonal Changes, Overall sunlight and shade analysis.



Figure 29.

PHASE 3. ANALYSIS

INTRODUCTION

The analysis of park rests on the observation made during summer and winter. The researcher has visited park 8 times in the different weather conditions. At the beginning, the focus was directed towards the investigation of path settings in the southwest part of the park since the work with pictures for the study was devoted the specific place (the area is highlighted in red on the right-hand side figure 31). At first superficial glance, the surroundings provided only a little piece of big “puzzle”, this narrow perspective concealed the fullness of attractivity of Torshovdalen. Only after a few visits, having stroll around and observing the area, it was discovered the values of the park and the thought-out design.

The book “The eyes of the skin” by Juhani Pallasmaa (2005) served as a source of inspiration. The author invites architects to enrich cities with multi-sensory architecture, which enhances and improves our perception of the place. During the site analysis, attention was directed towards the collaboration of senses. The observations were based not only on visual inspection of the site but on the attempt to discover, which senses or combination of senses had the potential for improvement. An example of this type of observation is Soundscape analysis (see p. 58). The main idea of this analysis and further implementation in the park of this concept is to avoid alienation and by activating of senses create feeling of belonging.

After taking pictures at the place and describing the impressions of the place, the researcher started to juxtapose the collected data and literature related to the perception of safety.



Figure 30. Five senses.



Figure 31. The diagram illustrates the park and the path highlighted by red stripe.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

- The valley's terrain comprises of the two-part composition. There is a contrast between the lower zone and the upper zone (figures 32, 33). This variation in the terrain serves as the basement for two different rhythms in the valley. The tension between these 2 parts (see the picture to the right) yields Torshovdalen the landscape identity. The distinction between upper and lower area is highlighted by the walkway between 2 areas of Oslo: Torshov and Sinsen.
- The variation in the topography generates the diversity, which gives positive impact in relation to the sense of security, as the literature suggested diversity attracts a lot of people. The path stroll may be described as varied and exciting due to the difference in height of the terrain.



Figure 32. Height fluctuations in the lower part.



Figure 33. Open landscape and quite flat surface in the upper part.



Figure 34. Illustration represents Torshovdalen's terrain.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

ENTRANCES IN THE PARK AND PHYSICAL ACCESSIBILITY.

A few underpasses, which should accommodate circulation between the park and neighborhood, prevent a flow of pedestrian and bicycle movement. They are not integrated into the surrounding environment of the district because of unattractive design with signs of incivility. Red arrows signify entrances and 2 red rectangles indicate the location of tunnels in figure 37.



Figure 35. Picture shows the entrance in the south where the fence is located and the road leads to the Aktivitetshus.



Figure 36. Picture delineates the tunnel, which serves as the entrance.

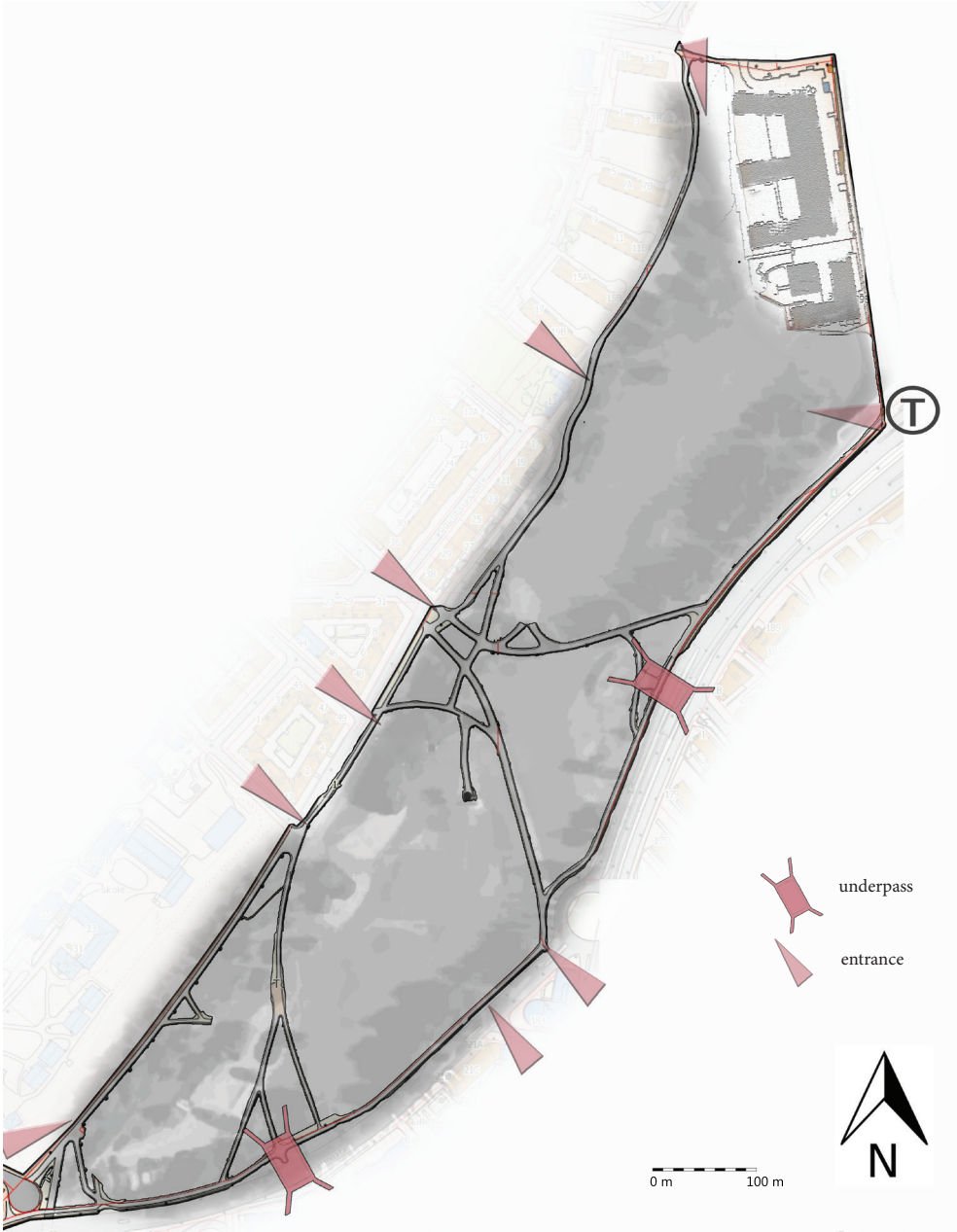


Figure 37. Diagram shows the entrances and underpasses leading to Torshovdalen.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

SEASONAL ASPECT AND THE FOLIAGE STRUCTURE.

The different season pictures were taken to compare the winter and the summer along Mailundveien and Trondheimsveien. In winter, this path is perceived as quite safe with respect to visibility and sightlines but the presence of foliage alters the image considerably. The diagrams in winter and summer time show the difference. The situation is quite the same where the coniferous trees prevail.

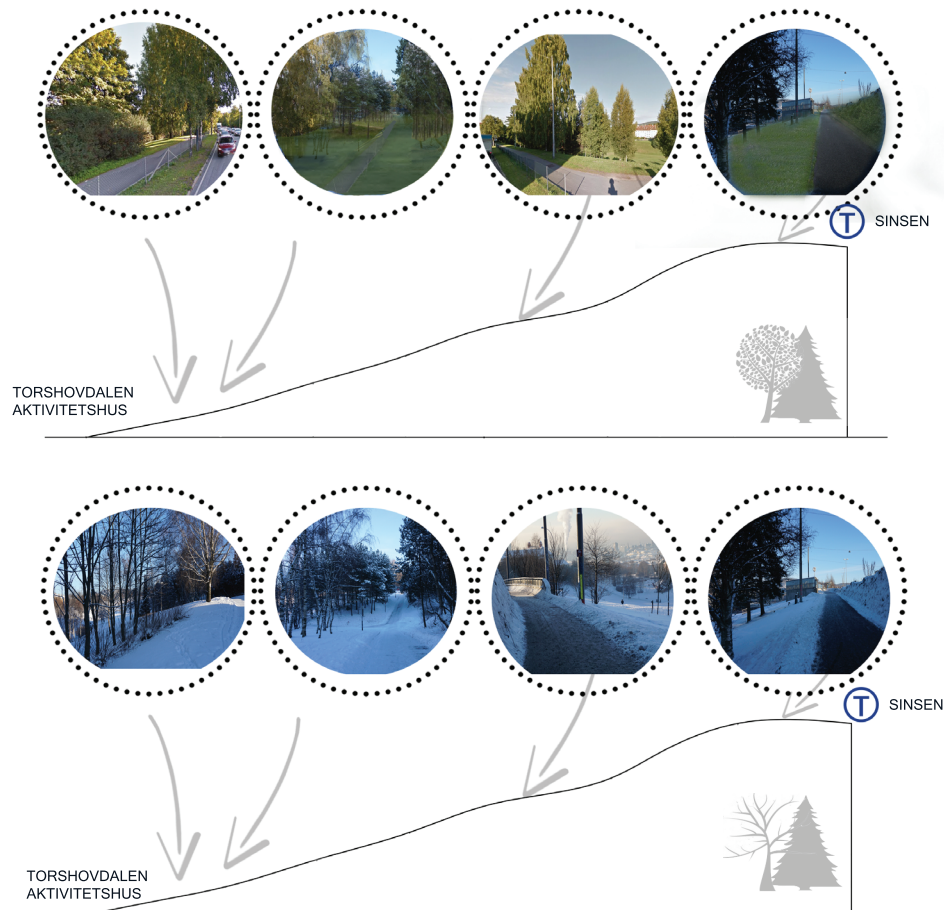


Figure 38. Diagram represents visibility in summer (above) and in winter (below).



Figure 39. Diagram highlights the area where the seasonal aspects are compared.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

THE PARK AND LINE OF SIGHT OF NEARBY HOUSES

The diagram shows that the central part of the park is highly visible and therefore it may be considered as quite safe, while the perception along the perimeter of Torshovdalen varies a lot. The arrows signify the lines of sight from houses located nearby.

Figure 40 represents the example when the path on the slope is quite visually accessible from the windows. On the other hand, one may visualize that there is a lack of overlook when there is a lot of greenery during summer.

Figure 41 illustrates the winter conditions. Trees and shrubs are very transparent and provide a good overview of activities at the playground.



Figure 40. Line of sight.



Figure 41. Line of sight.

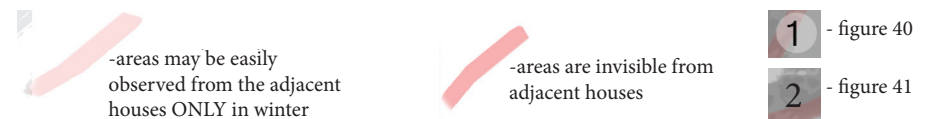


Figure 42. Lines of sight of nearby houses. Author's diagram.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

ISOLATED PLACES or “ENTRAPMENT AREA”

An entrapment area is the one where the person is deprived of openness and being trapped from 3 sides (Project for Public Spaces, 2016a). In general, the park may be considered as quite safe in terms of this aspect, because there are no places where the person can be captured.

One exception consists of the areas of coniferous trees, which can be perceived as quite enclosed because of combination of the dense greenery the wall combined with quite steep slope (pic.1). Although looking at this place from a different perspective, the contrast between this dark space and the place situated a little bit further away provides a view in the direction of the fjord and makes the spectacular impression (pic.2). The transition can be considered as vital mystery effect, which inspires visitors to explore (see p. 36).



Figure 43.



Figure 44.



Figure 45. Topography of Torshovdalen. Author's picture.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

SIGHTLINE

The park has a unique location. From the central part of the Torshovdalen and from the path along Trondheimsveien one can enjoy the view of the city and the fjord in the southwest direction. Moreover, the sightline in the opposite direction gives the view of Grefsenkollen although the view is obstructed by the new residential buildings. Even from Aktivitetshus at the bottom of the park the outline of Grefsenkollen is slightly visible in wintertime behind the bare trees.

The clear sightlines of Torshovdalen are the good groundwork for the visibility. This aspect in turn contributes to the safety as literature suggested because the visitors may see ahead and notice potential threat. The main sightlines are also emphasized by the planted trees (figure 48).



Figure 46.



Figure 47.

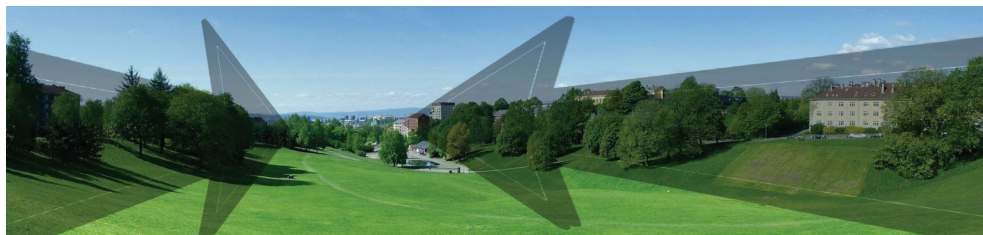


Figure 48.

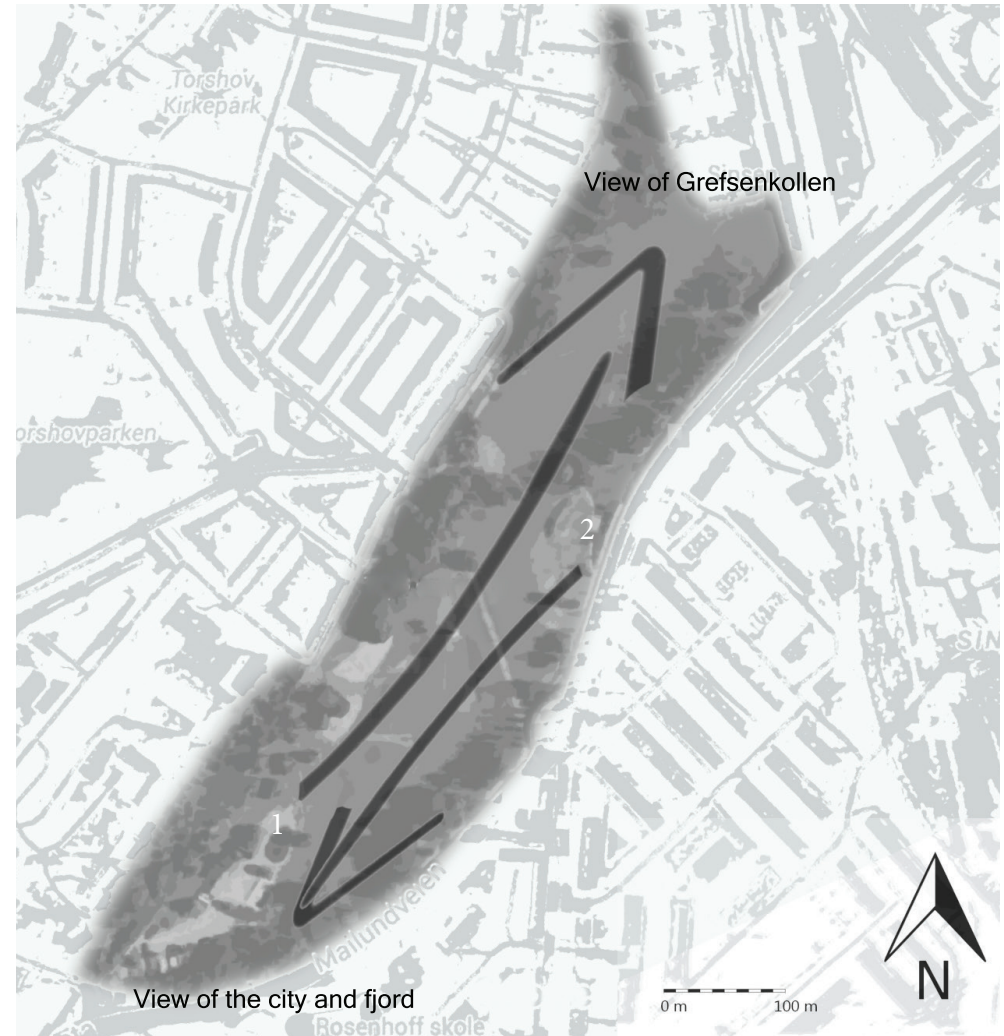


Figure 49. 1,2 signify spots offering views of nature attractions surrounding city: Oslofjord and Grefsenkollen.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

CPTED, territorial reinforcement

Obvious and distinct markers of the territoriality divide private and public areas near the residential houses. The picture below (figure 50) illustrates the shrubs planted to create the sphere of territorial influence.

The kindergarten and the facilities near “Aktivitetshus” are secluded by steel wire fences (figure 51). It is doubtful that this type of territorial reinforcement is able to convey the ownership and that someone cares about the place in the lower part. Especially, the space near the center for the teenagers is badly-maintained and poor design may exhibit the impression of indifference. There is a need to create a “territorial feeling”, which may generate the sense of integration into the surrounding.



Figure 50.



Figure 51.

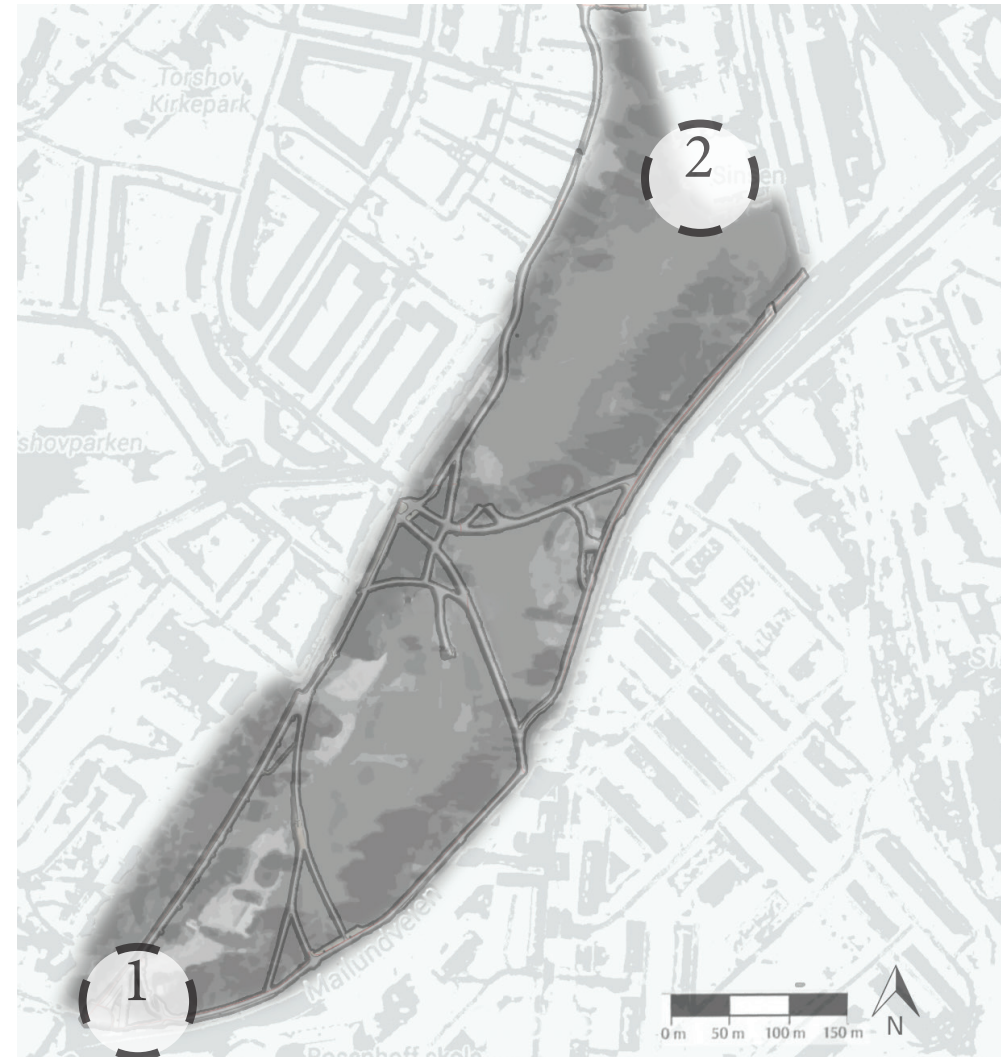


Figure 52. The examples of territorial reinforcement can be found in the marked areas.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

LIGHTING ANALYSIS

The intention of this analysis is to compare the presence of people and use of the park in the afternoon and evening (in the afternoon with a natural source of lighting and afterward with switched on lighting).

On Saturday, the researcher walked half an hour in the park around 16.00 o'clock. There were 2 children at the playground, 4 persons taking a tour with the dogs, 3 couples, 6 people with prams, 7 persons were strolling alone.

After the nightfall at 17.00 o'clock brief tour on foot was taken again (30 min) and revealed changes. A lively atmosphere disappeared. Altogether there were 8 persons, nobody walked with children: 3 runners at workout, 2 persons with a dog, 1 pedestrian and a few persons on their own to Sinsen underground station. The place seemed very deserted as you can see on the right-hand side picture.

Pic1. The playground is situated in this place. It is not visible and is unlit. There were no children in dark time of the day.

Pic2. The path is illuminated but it winds. This winding effect creates blind corners, which can be perceived as unsafe especially in the deserted green area.

Pic3. The path is well lit but the dense vegetation on the right side may obscure the view in the summer. While in the winter, the slope is lightened.

Pic4. The tunnel works as the entrance but is poorly lit.

Pic5. The main walkways are equipped with lighting.

Pic6. The outside facilities near Aktivitetshus are focus point during a dark period of the day because of illumination.

7. Areas are not lit.

There is a hint of hierarchy in the park, the activities in the south part of the park are highlighted by light. The playground in the north part looks abandoned and not engaged in the hierarchical system. The intensity of lighting is very high near the roads (Mailundveien and Trondheimsveien) and Aktivitetshus. The places of concealment for the potential attacker are not taken into the account by the lighting layout.

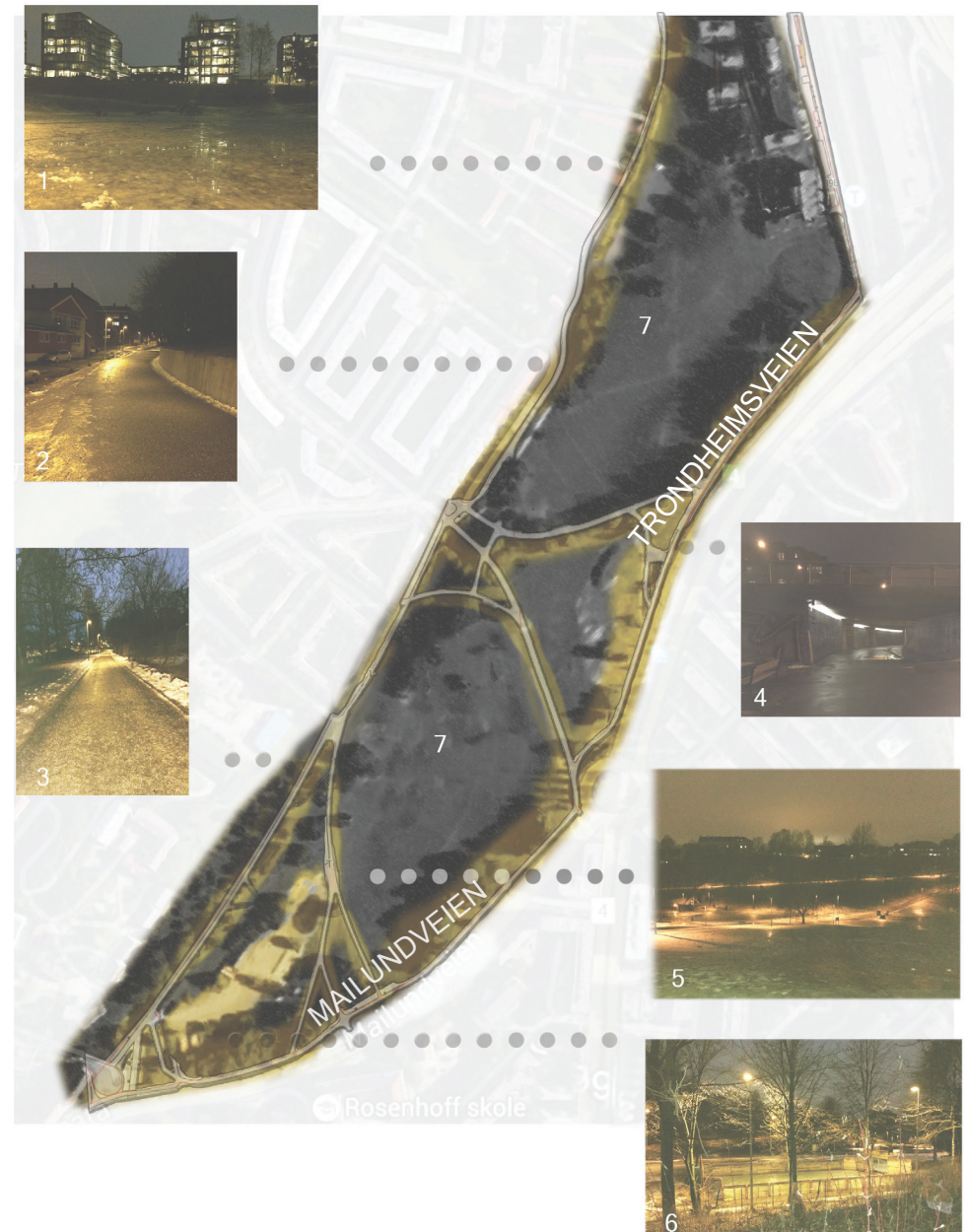


Figure 53.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

DIVERSITY

Torshovdalen is rich with seasonal differences. Groups of birch trees and Swedish whitebeam (*Sorbus intermedia*) produce attractive flowers and berries. Maple trees, American oak and lime trees (*Tilia*) have been planted in the lower part. Mock-orange plants (*Philadelphus coronarius*) and lilac (*Syringa vulgaris*) are appealing to the senses because of fragrance during blooming season (Apall-Olsen, 2007).

The distinct contrast between terrain in the lower and upper parts is characterised by steep escarpment and identified by smooth lines that make the park striking and extraordinary.

On the other hand, one can feel the lack of intimate places. It is a challenge to find sheltered seating place in the park where you would not be exposed to a view of passersby. There are many extremely open surfaces (figure 55 shows these surfaces). Considering the place from different angles, open space gives sufficient visibility, which is a positive feature in terms of perceived safety, while the uniformity can be also perceived as unattractive characteristic as literature review suggests.

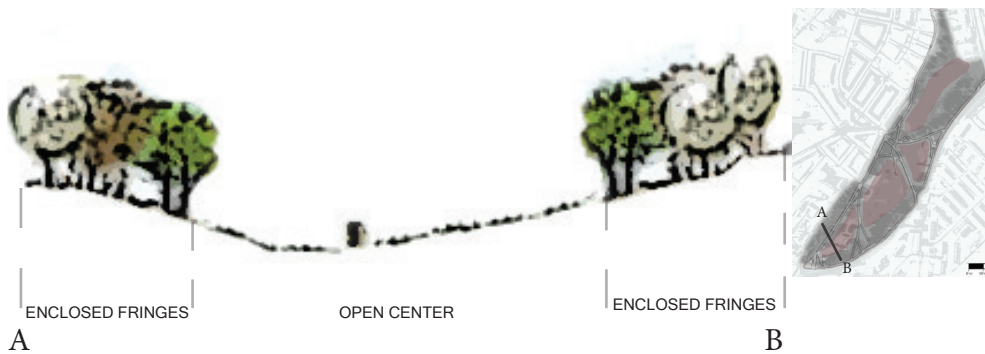


Figure 54. A-B section

Two types of the spatial settings exist in Torshovdalen as shown in figures 54, 55. The enclosed fringes and the open center that is visually accessible. Individual perceptions and individual difference in the preferences needs to be satisfied with the help of development of a variation in green environments. Ignoring of the spatial homogeneity may lead to park visitors been repelled by the landscape pattern.

According to the Project for Public Spaces (2016a), the design of a park should meet the needs of diverse visitors and provide various experiences during the day, evening and different seasons. For instance, the measures, which imply the only removal of vegetation, may not be considered as unequivocally safety-promoting because it may deprive the park of attractiveness.

The other benefit of an appealing park is the presence of greater number of people causing a higher perception of safety. The inference: to provide diversity contributing to a feeling of security.



Figure 56. The collage of plants existing in the park.

Figure 55. A-B signifies section on the left; Red areas possess sufficient visibility.

PHASE 3. ANALYSIS

PHYSICAL STRUCTURE AND MATERIALITY OF THE PARK

VEGETATION

The central part of the park corresponds to the preferences of the majority of people. Open lawn and trees ensure visibility and overview; according to previous studies, these settings are reported to increase perceived safety (see p. 21).

Clear sightlines are important elements of the park's structure and also increase significantly safety perceptions.

Dense vegetation diminishing view distance and visibility is less safe compared to the open area exposed to sunlight (figure 57). The path encircling Torshovdalen should be revised with respect to four unsafety counteracting aspects discussed in the literature:

- landscape design
 - possibilities for overview and control
 - vegetation density
 - vegetation character and maintenance
- (Jansson et al., 2013).

Figure 58 stresses that the fringes should possess rich visual experience addressing the factors mentioned above.



Figure 57. 1.Open lawn 2. Park's fringe 3. The walking path next to traffic road.



Figure 58. INTENTIONS: The borders of the park should be reevaluated in terms of safety especially the red areas where the visibility is quite restricted. The colorful belt signifies the diversity of impressions which should be present.

PHASE 3. ANALYSIS

CIRCULATION AND OTHER USER AMENITIES

ACTIVITIES

Figure 61 illustrates the locations of four zones of activities in Torshovdalen described below.

1. There are a lot of facilities, which provide for activities in the lower part of the park. Most of them are concentrated near the Aktivitetshus (figure 59). The place is intended for teenagers. The playground for smaller kids is also located here.

2. The playground is located in upper part of the park valley (figure 60). The depression, where the playground is situated, creates the feeling of seclusion due to the difference in terrain. On the other hand, the area is in the line of sight of the houses. This effect is seasonal because the foliage hinders overview sufficiently in summer.

3. The terrain park is an area where snowboarders and snow bikers can practice and perform diverse tricks. The facility is well-used by teenagers throughout the winter.

4. These steep slopes are suitable for sledding and parents with children make use of it. According to observations, this type of activity is the most popular among the children in winter.

It is necessary to place activities clustered to make them safer. Today the arrangement of the facilities has the potential for improvement because the distance between them is substantial.



Figure 59. Zone 1.



Figure 60. Zone 2.

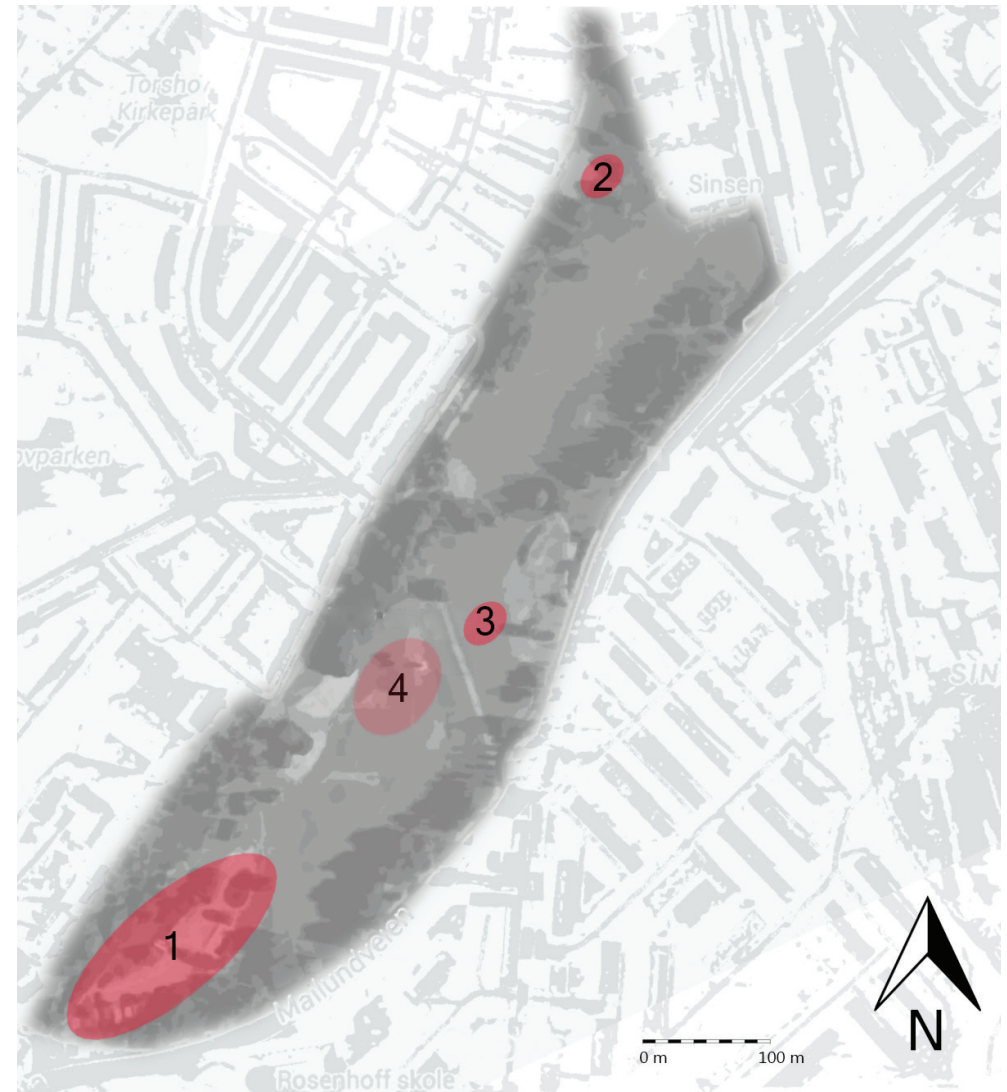


Figure 61. Diverse zones of activities in park. Author's diagram.

PHASE 3. ANALYSIS

CIRCULATION AND OTHER USER AMENITIES

PATHS

Cycle and pedestrian paths make the park edges active. People of different age groups walk along it.

There is a lack of a separate path for the cyclists. There are quite steep slopes that increase the speed of the cyclists significantly and it creates an inconvenience of the pedestrians.

Physical accessibility is a factor that defines a connection with the surrounding environment. Cycle-pedestrian paths alone has a lot of potential for improvement: the paths can be integrated in a better way in the direction of Torshovparken. The interrupted cycle paths should be replaced by a complete interconnected transportation network. Cycle lanes should contribute to a better connection of green areas in the neighborhood.

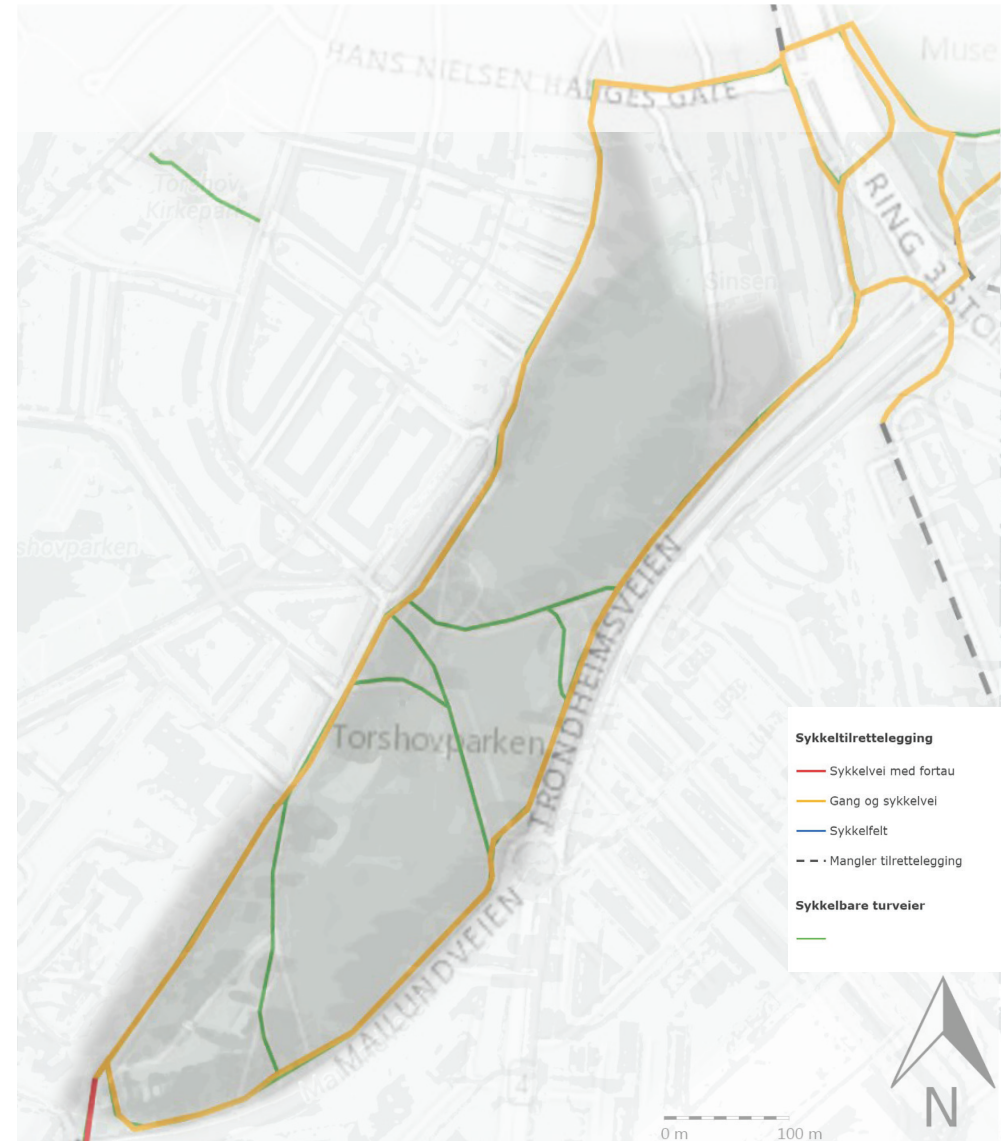


Figure 62. The map illustrating cycle and pedestrian trails.

PHASE 3. ANALYSIS

CIRCULATION AND OTHER USER AMENITIES

SIGNS AND USER INFRASTRUCTURE

Signs in the park have an influence on the perception of safety. People prefer areas where they can easily orientate. It is best for signs to encourage people to use the park rather than to give restrictive messages (Project for Public Spaces, 2016a). Entering the park for the first time may seem confusing to visitors. The visitors may find it difficult to find a playground in the absence of a map.

There are only a few signs at the park intersection. Unfortunately no map of the park. Existing signs do not make visitors familiar with park's layout (figure 63). One sign informs about the pedestrian path, the other makes people aware of the danger. The other one is related more to a traffic rather than providing additional information about the park itself.



Figure 63. The picture is taken in the park and shows the signs placed near the entrance.

PHASE 3. ANALYSIS

CIRCULATION AND OTHER USER AMENITIES

EXPERIENTIAL QUALITIES

The edge (marked in figure 64) along noisy roads Mailundveien and Trondheimsveien can be considered as unsafe due to the surrounding soundscape. The observations show that social activities tend to take place in more tranquil places, for instance along the opposite edge. Thus, the fringes along the heavy-traffic roads are less appealing because the place is less used.

A soundscape analysis pays attention to the characteristic sound of the park. At rush hour, humming sound generated by vehicular traffic is overwhelming due to the intensity level. Only the playground in the south part is devoid of traffic noises as it is situated in a depression. Citing Juhani Pallasmaa about the importance of multi-sensory experience, the dominance of intrusive sound may hinder the establishment of a sense of belonging and integration to the place (see p. 19, 20).

CPTED, natural access control:

Observations revealed that the pathways in the park have sufficient visibility and encourage direct surveillance; walking paths are straight and there is only one blind corner (marked as 1 in figure 64). Overall, the layout can be perceived as readable although the entrances could be defined as more legible elements of the landscape.

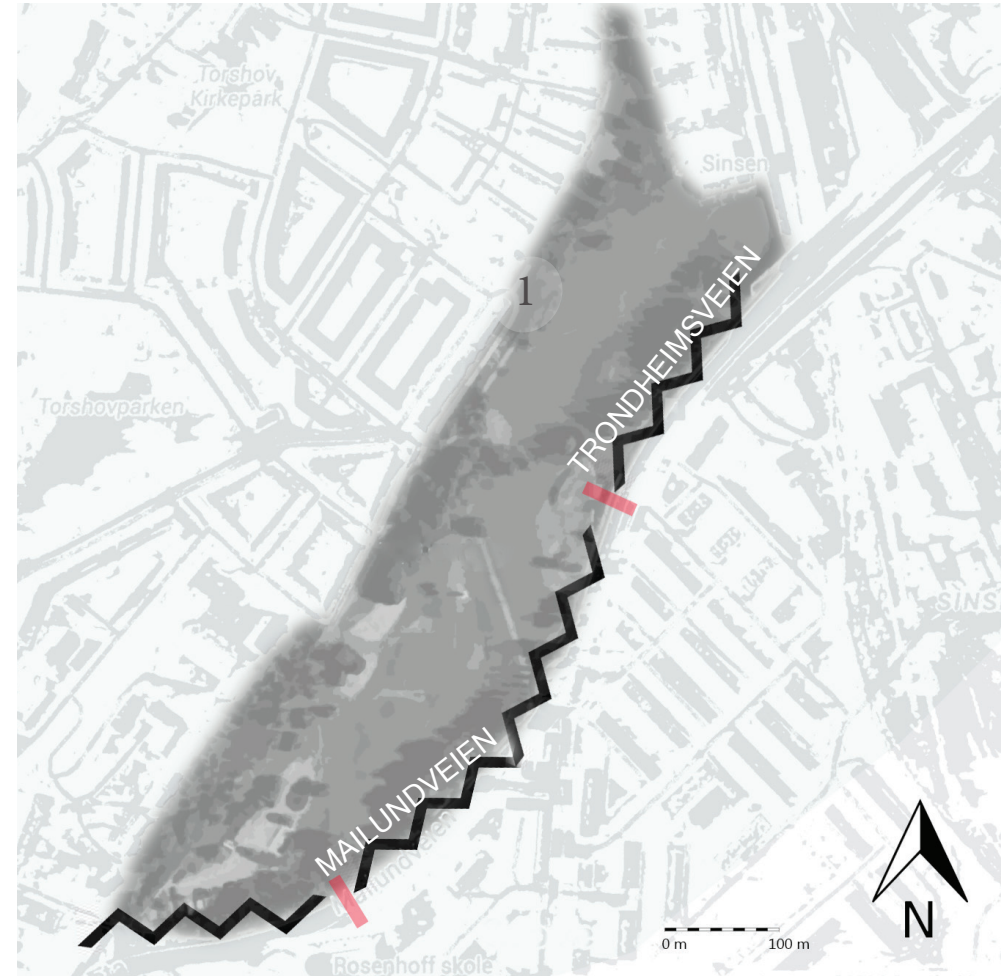


Figure 64. The boundary of the park adjacent to traffic road.

PHASE 3. ANALYSIS

PERCEPTIONS OF SAFETY AND MAINTENANCE CONSIDERATION

Two pedestrian tunnels, which link the park with the surroundings, bear the signs of incivilities. The walls are covered with graffiti and insufficient lighting stimulates fear (figure 66).

VEGETATION AND MAINTENANCE: The park design is not demanding in terms of maintenance. There are a few existing places along the path where the unmaintained hedge may induce fear (figure 65).



Figure 65. Pictures display unmaintained vegetation.



Figure 66. Pictures illustrate signs of incivility.

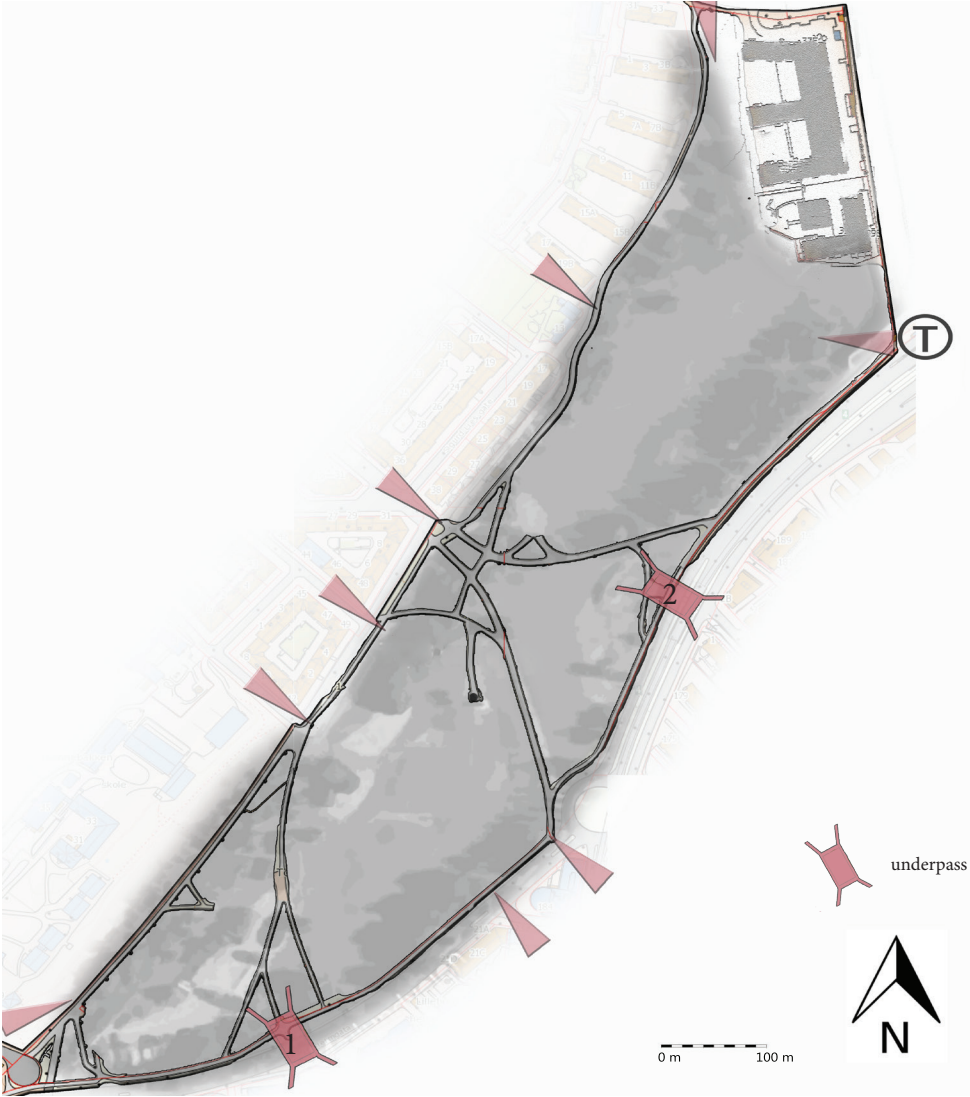


Figure 67. The location of underpasses is marked on the diagram.

PHASE 3. ANALYSIS

SEASONAL CHANGES

On frosty winter days, the slopes serve as amusement for visitors and children with parents who flock here to sled. When the snow melts the ice covers lawns, making it inaccessible. People stroll along the asphalt trails. Observations revealed that visitors of Torshovdalen preferred to stroll along the main routes, avoiding the slippery surfaces. Inaccessibility is most explicit in the north part, where one is not able to move through the park to proceed the tour along the edge. As a result one has to use Sinsen underground station to get back to the main path with a disruption of the circulation pattern.

Figure 69 illustrates the zones that are not easily available during melting of snow. The big red arrow suggests the roundabout trail leading through the station.

Figure 68 depicts the reflection in the ice surface provides additional “lighting” after sunset.



Figure 68. Pictures demonstrate inaccessible areas.

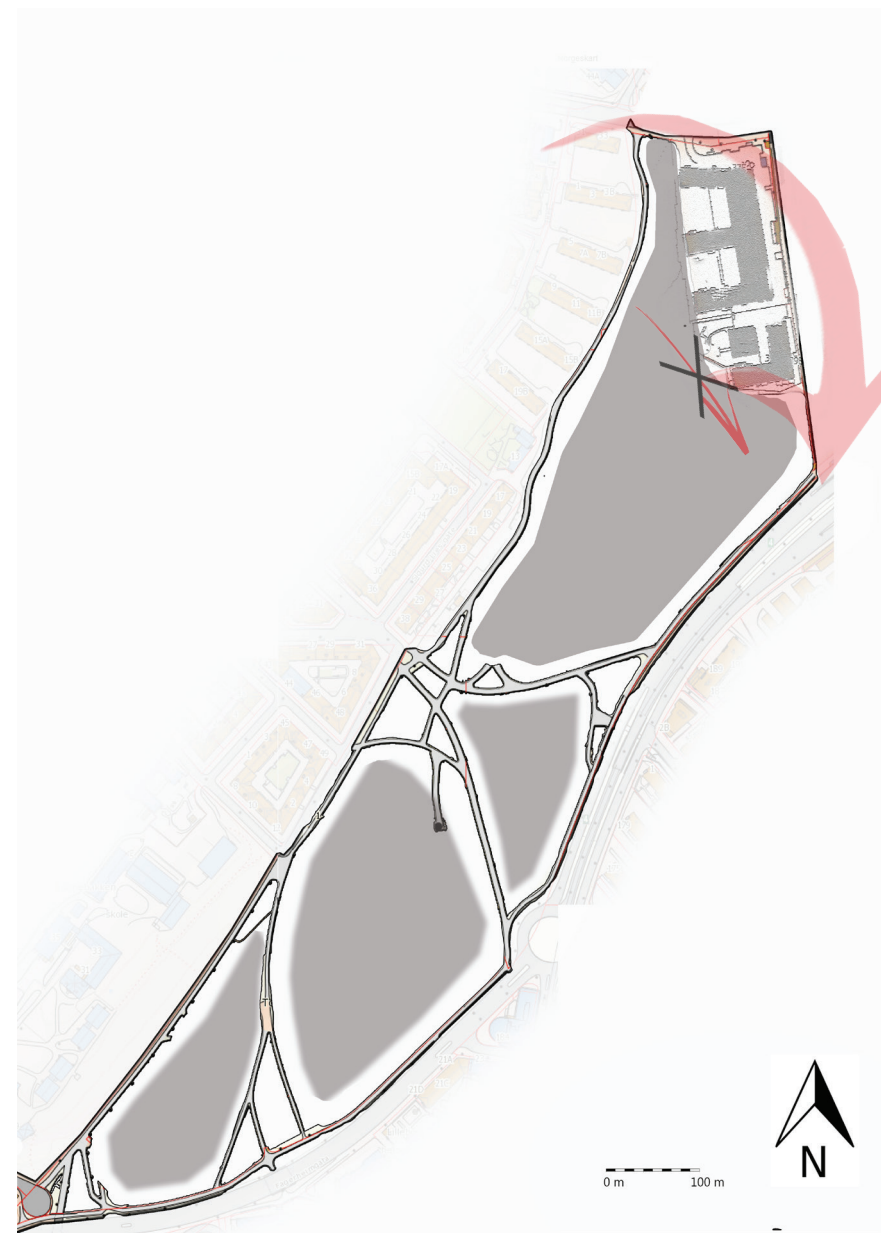


Figure 69. Diagram shows inaccessible areas.

PHASE 3. ANALYSIS

OVERALL SUNLIGHT AND SHADE ANALYSIS

In general, Torshovdalen receives a generous amount of sunlight. The valley provides the opportunity to lay on the lawn and enjoy the sun in the summertime. A lot of people use this possibility.

MORE DETAILS AND BULLET POINTS

The diagram is a result of the elementary surveillance in winter and summer. The shades have been mapped at 09:00, 12:00 and 15:00. Zone number 1 illustrates the area, which is the most exposed to sunlight, Zone 2 shows the shades primarily from the big trees surrounding the park, shades can be quite extensive mainly because of low winter sun (figure 71). Zone 3 demonstrates dense shades year around where coniferous trees prevail (figure 70) or there are landscape depressions in the park.



Figure 70.



Figure 71.



Figure 72.

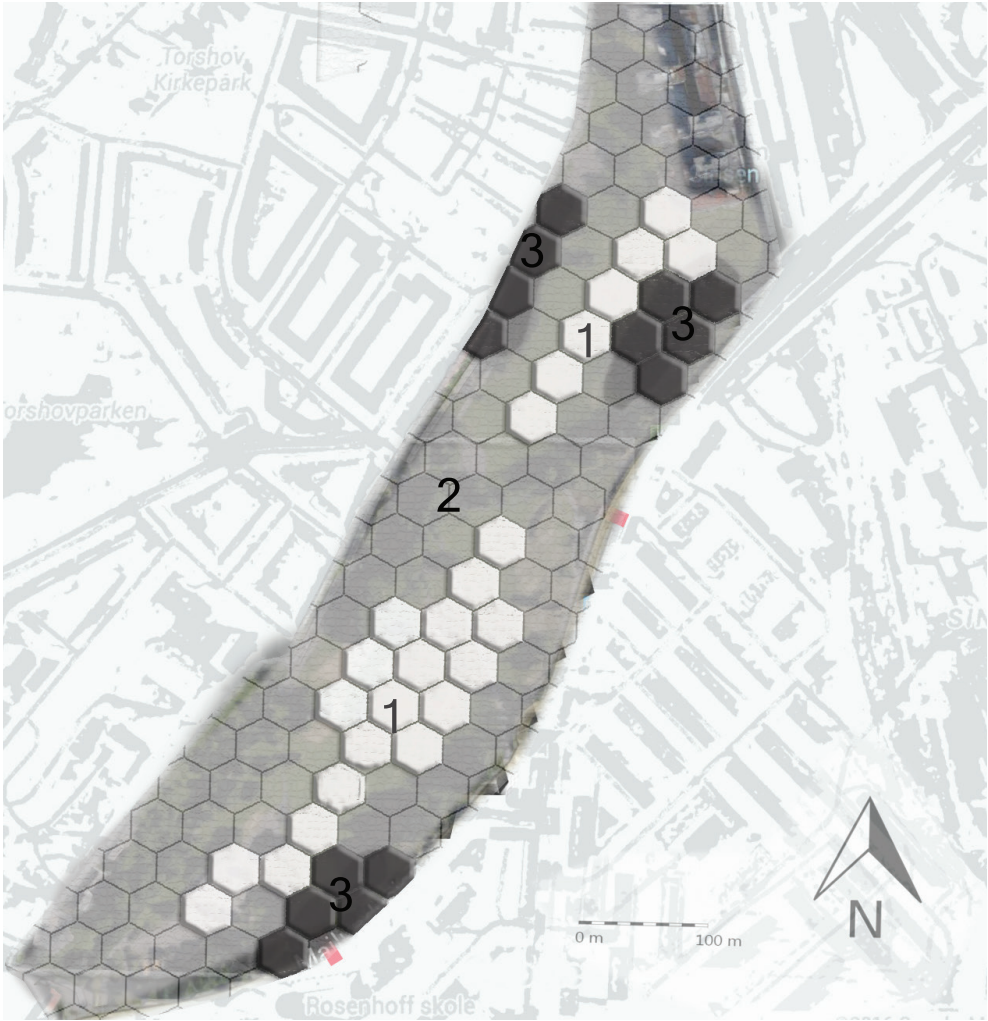


Figure 73. Shades.

PHASE 3. ANALYSIS

YELP.NO VISITORS REVIEWS

The reviews of Torshovdalen at Yelp.no have been used to get acquainted with overall visitors' impressions and perceptions of the park. Even the quantity of reviews (7) (yelp.no, 2016) compared with assessments of other parks in Oslo (St. Hanshaugen 22, Frognerparken 38 etc) emphasizes that Torshovdalen is not the most popular green area in the city. The advantages and disadvantages relied on visitors' reviews are represented below:



- Beautiful view in direction of fjord
- Nice place for runners, dog owners
- The size of park allows finding your own place avoiding close contact with others
- Little children can play around whilst the parents are provided with good overview due to open space
- Perfect place for sledging
- Perfect Park to enjoy the sun
- Park is not so well known therefore one may stay away from overcrowding
- Pleasant place for picnic
- The effect of heavy traffic road is not very tangible



- A lack of benches
- A lack of plants to hide behind
- The absence of public toilet

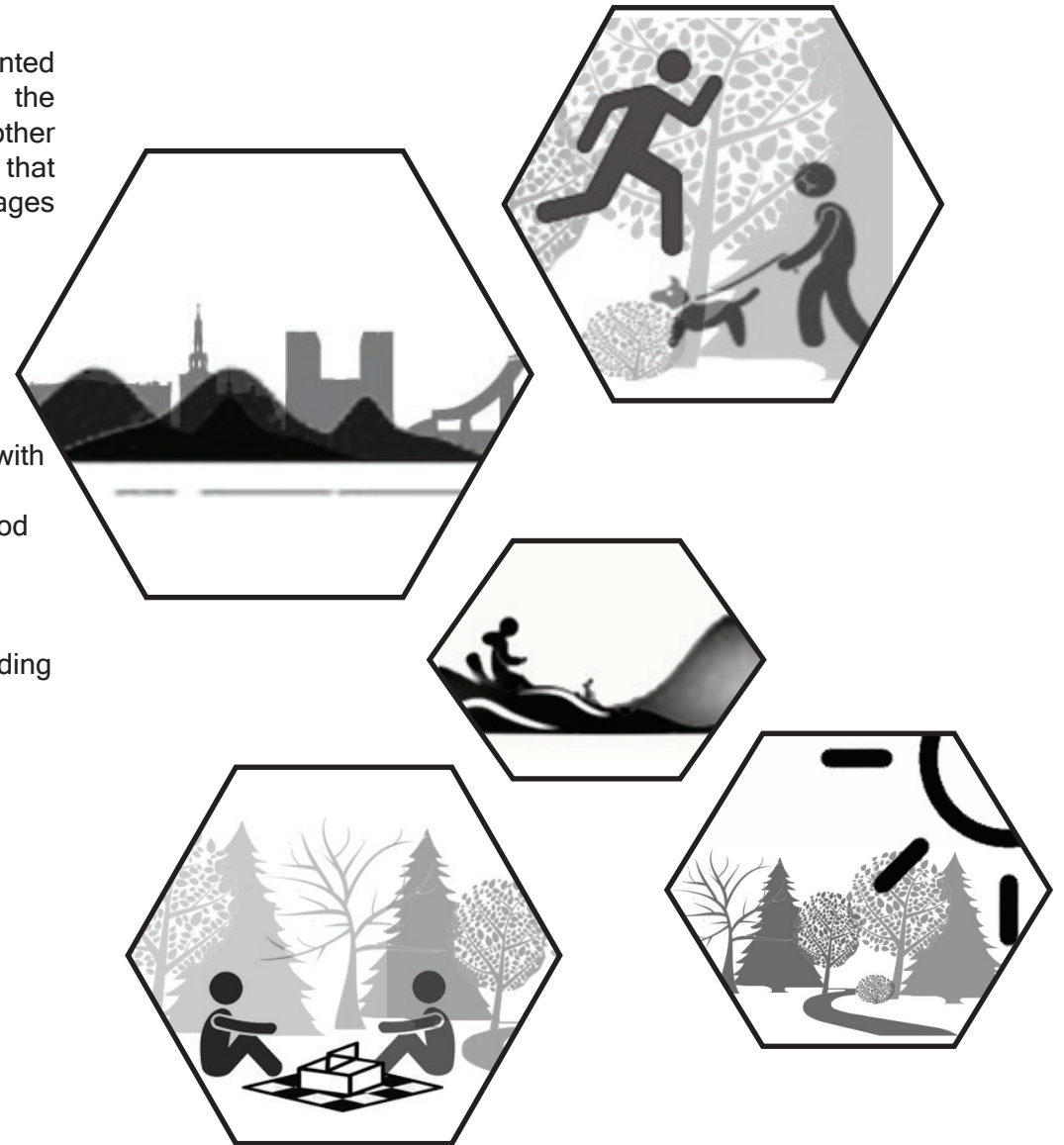


Figure 74. The advantages of the park.

PHASE 3. ANALYSIS

SYNTHESIS MAP. SWOT*. SUMMARY OF ANALYSIS

S

- SUFFICIENT SURVEILLANCE FROM NEARBY HOUSES
- CLEAR SIGHTLINES
- DIVERSITY IN TOPOGRAPHY

O

- ACTIVE EDGES FORMED BY EXISTING PATH
- EXISTING VEGETATION, IN GENERAL, PROVIDES A GOOD OVERVIEW
- THE EXISTING QUALITIES (AS SPECTACULAR VIEW) SHOULD BE PROMOTED

W

- A FEW ENTRAPMENT AREAS
- LIGHTING: SOME PLACES ARE TOO DARK AND SOME ARE TOO BRIGHT
- VEGETATION IS NOT WELL MAINTAINED
- UNDERPASSES HAVE SIGNS OF INCIVILITY
- THE LACK OF SIGNS
- THE CHOICE OF ACTIVITIES IS LIMITED

T

- ROAD NOISES
- NO SEPARATION BETWEEN PEDESTRIAN AND CYCLE TRAFFIC
- THE ENTRANCES ARE NOT INVITING
- THE LACK OF OPPORTUNITY FOR INDIVIDUAL OR GROUP TO SECLUDE THEMSELVES, NOT BEING OBSERVED
- HEARING AND SIGHT SEEM TO HAVE A DOMINANT ROLE (THE LACK OF MULTISENSORY EXPERIENCE)



*SWOT- strengths, weaknesses, opportunities and threats.

Figure 75. The areas where improvement is needed.

INSPIRATION PROJECT

FÆLLEDPARKEN

The inspiration has been taken from the Fælledparken in Denmark; the park is situated in Copenhagen. It can be described as a well-used green space, the second largest in the city and one of the most popular attractions in the capital of Denmark (Wikipedia, 2016). The use rate correlates positively with a perception of safety (National Recreation and Park Association, 2012).

The reason for comparing Torshovdalen and Fælledparken is their similar structure, like the central open space and the enclosed park edges with dense vegetation.

Observations conducted in the park reveal that the area prompts a willingness to use space all day round. Activity nodes are easily noticeable.

As reported by danish newspaper Berlingske (Andersen, 2004), measures implemented to attract people to spend time during an evening in the park included upgraded lighting. The paths in the park are appreciated a lot by the people who prefer to run in the evenings.

The park is characterised by high visibility. Diverse facilities are located at the perimeter. They possess various degrees of visibility exposure, which makes each place unique.

The understory does not seem to cause a negative effect on the perception of safety. The prevailing part of the places with understory have a sort of indent from the path defined by well-maintained lawn. One does not feel entrapped either by virtue of sightline or mown grass edge separating understory from walk path.

The park meets to a large extent the requirements mentioned by PPS (see p. 24) covering among other issues the good legible design, active edge, signs, substantial diversity in terms of vegetation and activities.



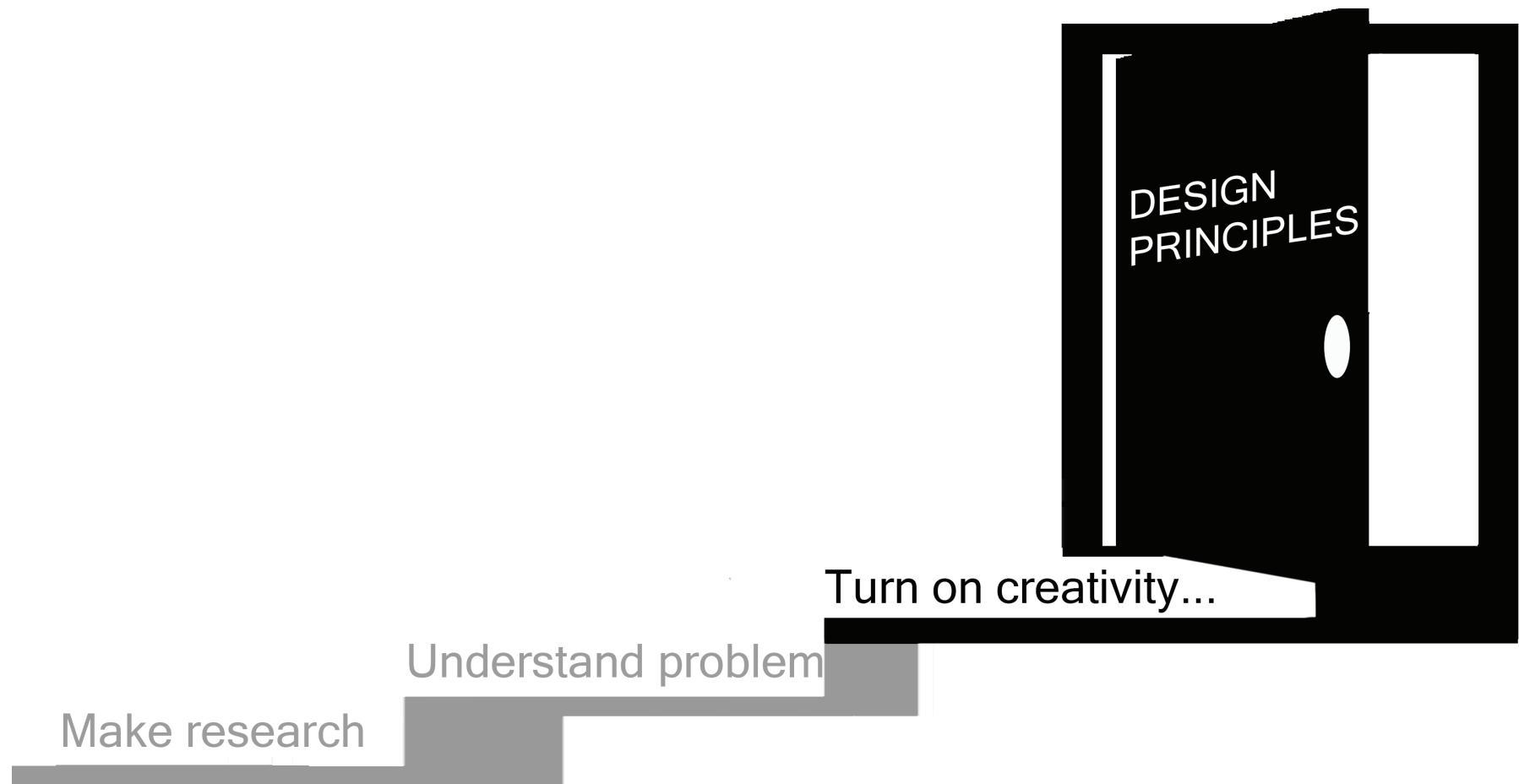
Figure 76. Plan of Fælledparken.



Figure 77. Sign design.



Figure 78. Vegetation settings in Fælledparken.



PRINCIPLES. INTRODUCTION

In this final part of the thesis fundamental ideas about perceptions of safety are introduced as ten basic principles to apply in the park.

Nine of these principles define how landscape architects may shape the physical attributes of an environment. The last one describes the relationship between physical form, sense of belonging and safety. The principles are illustrated by design recommendations applied in Torshovdalen park. The aim is to show how concerns related to perceptions of safety may be resolved using actual environs.

This is not a complete design project but instead, the illustrations from Torshovdalen resemble a set of concept sketches. In this phase, the aim is to outline how all previously mentioned safety-promoting aspects can be integrated and how they interplay.

Jane Jacobs wrote a masterpiece *The Death and Life of Great American Cities* where she mentioned “eyes on the street” as one of the essential concepts to provide necessary perception of safety (Jacobs, 1961). The principles in this chapter are designed to keep in mind her idea to provide safety by means of enjoyable place, where people would like to spend time and interact with each other (figure 79).

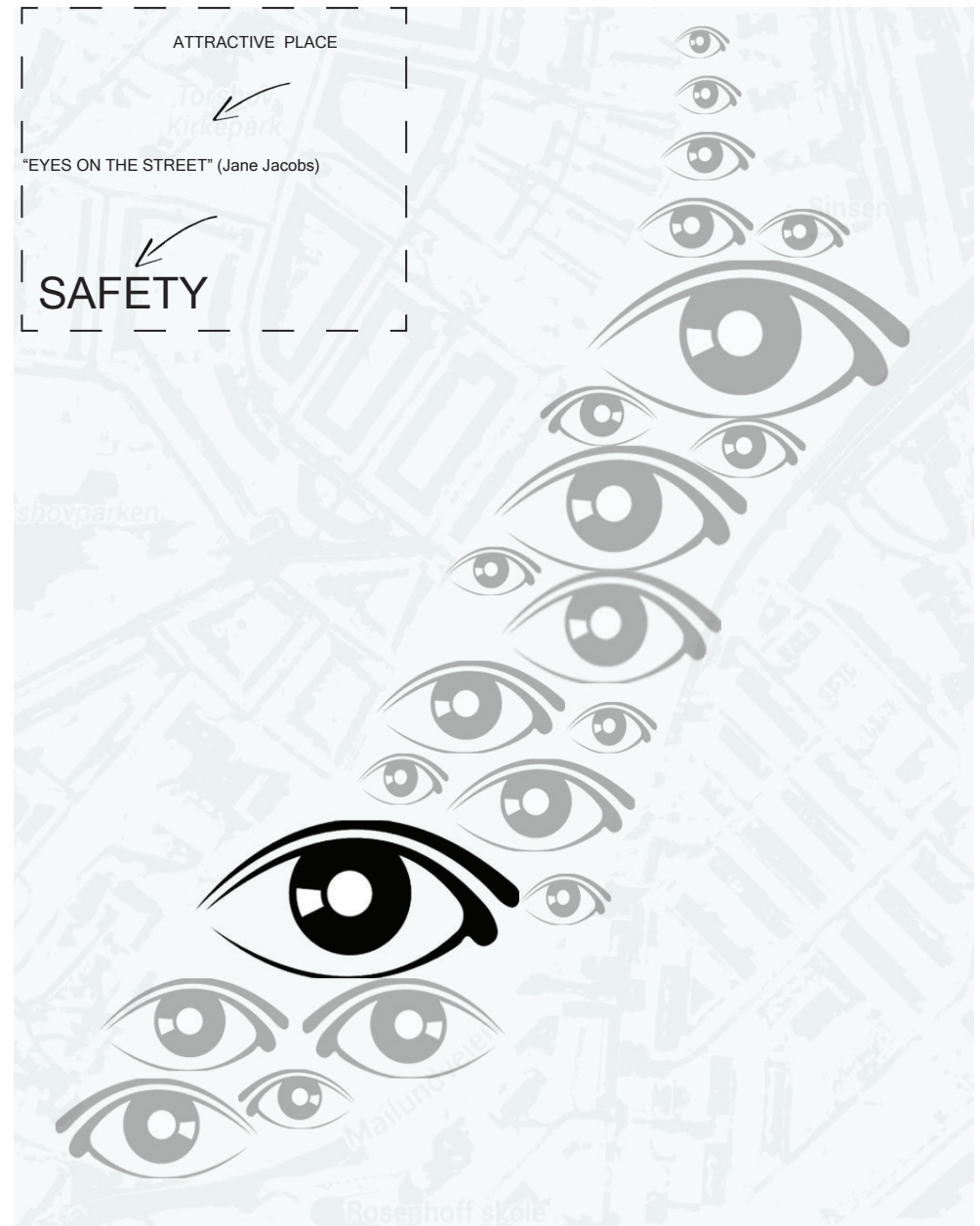


Figure 79.

PRINCIPLES AND LITERATURE REVIEW



PRINCIPLE 1. Make entrances more visible and engaging for everyday users

PPS (What Role can Design Play in Creating Safer Parks? (p. 23)); Vegetation design and perceived safety. Summary (p. 21);



PRINCIPLE 2. Create underpass as the pedestrian link to provide enjoyable and safe experience

CPTED model (p. 22); PPS (What Role can Design Play in Creating Safer Parks? (p. 23));

PPS (Lighting Use & Design); Lighting (p. 20);



PRINCIPLE 3. Link activities through clear sightlines

CPTED model (p. 22); PPS (What Role can Design Play in Creating Safer Parks? (p. 23)); Inspiration project (p. 64);



PRINCIPLE 4. Understory vegetation that does not block accessibility and visibility

Vegetation design and perceived safety. Summary (p. 21) + the master thesis research (p. 40); CPTED model (p. 22);



PRINCIPLE 5. Design for prospect and refuge

Prospect-refuge theory (p. 16);



PRINCIPLE 6. Make aesthetically legible park zones

CPTED model (p. 22); Vegetation screen against man-made material (p. 18);



PRINCIPLE 7. Create a lighting hierarchy based on varying light intensity

PPS (What Role can Design Play in Creating Safer Parks? (p. 23)), CPTED model (p. 22), Lighting (p. 20); Sustainability and perception of safety in parks (p. 20);



PRINCIPLE 8. Use bike lanes and pedestrian paths to encourage park activity and link the park with surrounding

CPTED model (p. 22), Inspiration project (p. 64);



PRINCIPLE 9. Use signage for wayfinding

PPS (What Role can Design Play in Creating Safer Parks? (p. 23)); Inspiration project (p. 64);

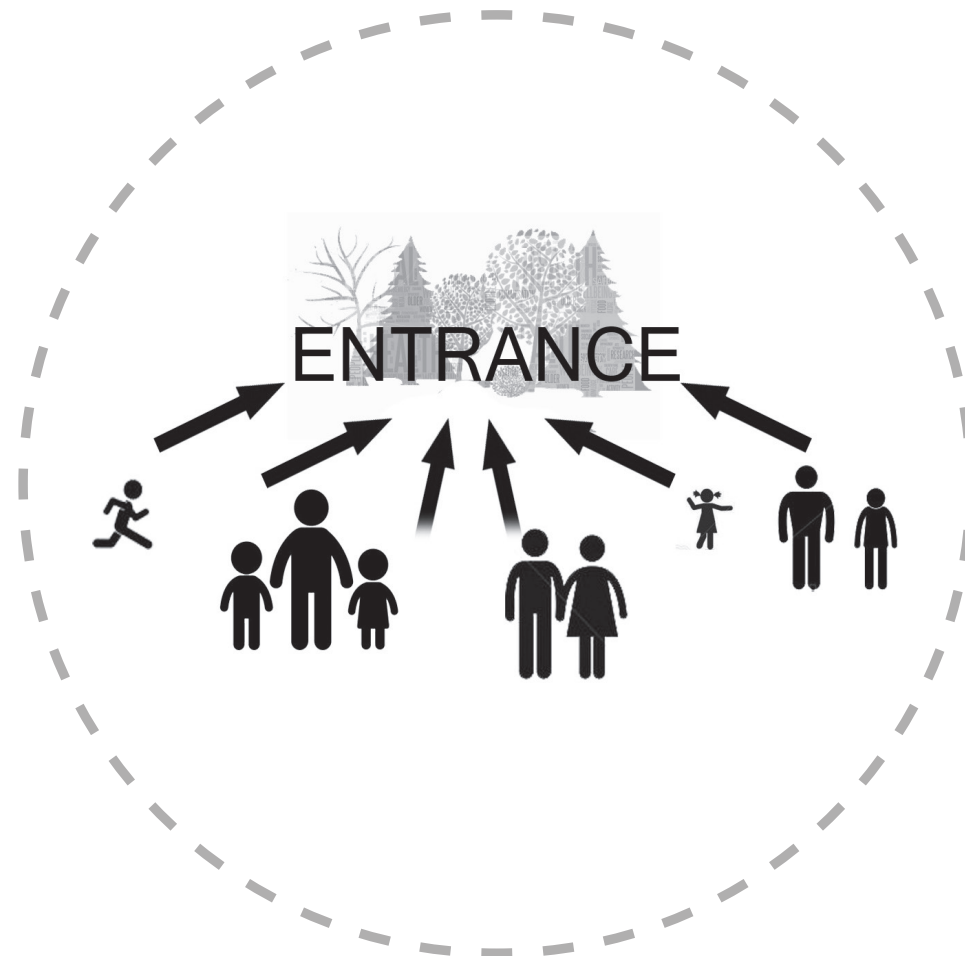


PRINCIPLE 10. Make identity through experience

Place and genius loci, "Eyes on the street", "The eyes of the skin" (p. 19); Soundscape (p. 20);

PRINCIPLE 1:

MAKE ENTRANCES MORE VISIBLE AND ENGAGING FOR EVERYDAY USERS



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 1 IN TORSHOVDALEN

The entrance should give an overall visual appeal and a clear signal for the visitors that they are approaching the park where they can enjoy nature (p. 23). Two following examples are conceived to display the potential design proposals.

ENTRANCE 1 (figure 80 north part).

The transition from one paving (typically asphalt) to the other “wave-like” is assumed to highlight the entrance to the park. The wave shape reflects the terrain of Torshovdalen and prepares the viewer for spectacular landscape in the heart of the park (figure 81).

There is a playground located near the north entrance that is not visible from the entrance of the park. A walkway consisting of wood playground elements is proposed. It is laid out parallel to the existing path and observable from the entrances and streets. This will stimulate children and enrich the way to the destination (figure 82).

ENTRANCE 2 (figure 80, south part).

There is an Aktivitetshus situated near the entrance and other facilities, which youth and children use. To make the way for this user group more appealing the path is intended not only for walking but also for skating. The path starting from the entrance is designed to strengthen the link, to inspire a passerby and evoke curiosity (figure 83).

The study (see p. 21) argues that perception of safety is highest when one faces flowers in the understory. The first glance from the entrance is designed to provide the overview of a well-maintained flower meadow. In the summer and spring blooming flowers under the trees up the walking path will provide fascination for visitors and people that are passing by (see p. 18). Figure 84 illustrates this design recommendation (see Appendix D: Vegetation palette).

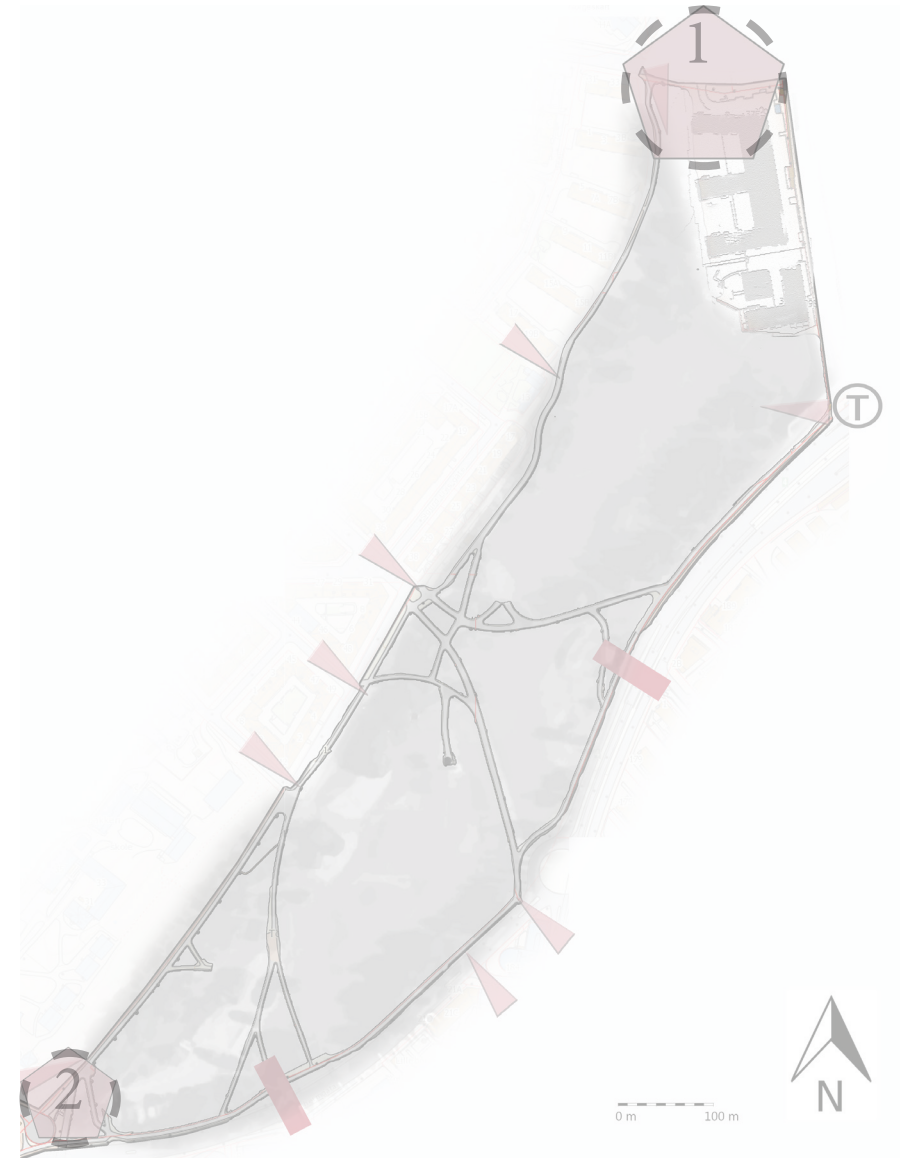


Figure 80. The diagram accentuates the entrances where Principle 1 is implemented.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 1 IN TORSHOVDALEN. ILLUSTRATION

ENTRANCE 1



Figure 81. Entrance 1: the paved surface of entrance is intended to identify the transition from surrounding to the park. The contrast gives a prominence to entrance.

ENTRANCE 2



Figure 83. Entrance 2: the trail is divided into 2 parts, one is transformed into the skate path thus the skating is integrated into the public realm. The path leads to the skate ramps near Aktivitetshus.



Figure 82. Entrance 1: the playground equipment visible from the entrance in the form of stepping path has the aim to make children curious and lead them to nearby playscape.



Figure 84. Entrance 2: a rich palette of meadow's colours draws the attention of a passerby and stresses that people care about the place.

PRINCIPLE 2:

**CREATE UNDERPASS AS THE PEDESTRIAN LINK TO
PROVIDE ENJOYABLE AND SAFE EXPERIENCE**



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 2 IN TORSHOVDALEN

Underpasses serve as transitions from one place to another and control the flow of pedestrians and cyclists. The role of these links should be taken into consideration to avoid these places from feeling abandoned. A deserted place devoid of “eyes on the street” may evoke unpleasantness and perception of unsafety (p. 19).

1. FROM GRAFFITI TO PUBLIC ART

The underpass (figure 85 tunnel 1) has a potential to promote public art to be a “street art gallery”, where one can enjoy the installation of art. Public art expresses the ideas of society and thus, it may encourage a sense of ownership. The visitors and residents should feel that the exhibition in the tunnel refers to the surrounding community and their priorities. The role of lighting in the tunnel can be decisive to make amenity attractive and generally more secure; Used lighting colours should be bright, but they also should suit the surrounding context (PPS, 2016d).

2. FROM SIGNS OF INCIVILITY TO INTERACTIVE SPACE

The interactive urban wallpaper in the underpass can help to activate the pedestrian tunnel (figure 85 tunnel 2; see the section at p. 77). The leads in the tunnel are triggered by the visitors: cyclists and pedestrians, because the pattern on the wall and ceiling varies with movement. The advantage of curved walls (figure 88) is that they are not suitable for graffiti. The pattern on the walls and the ceiling serve also as the source of lighting and contributes to reduction of crime because the potential attacker would be visible.

CONTEMPLATION

In August 2015 the group of students from NMBU university including researcher has visited a little park in Skärholmen near Stockholm designed by Piet Oudolf. The area has a reputation of disadvantaged district characterised by certain social problems. The conversation with the gardener revealed that the park was not exposed to vandalism. It looked like the inhabitants were proud of that beautiful green area. From this experience, the transformation of park from public space with signs of incivility into a point of interest can increase the number of visitors. Furthermore, local residents will be happy to take care of the area.

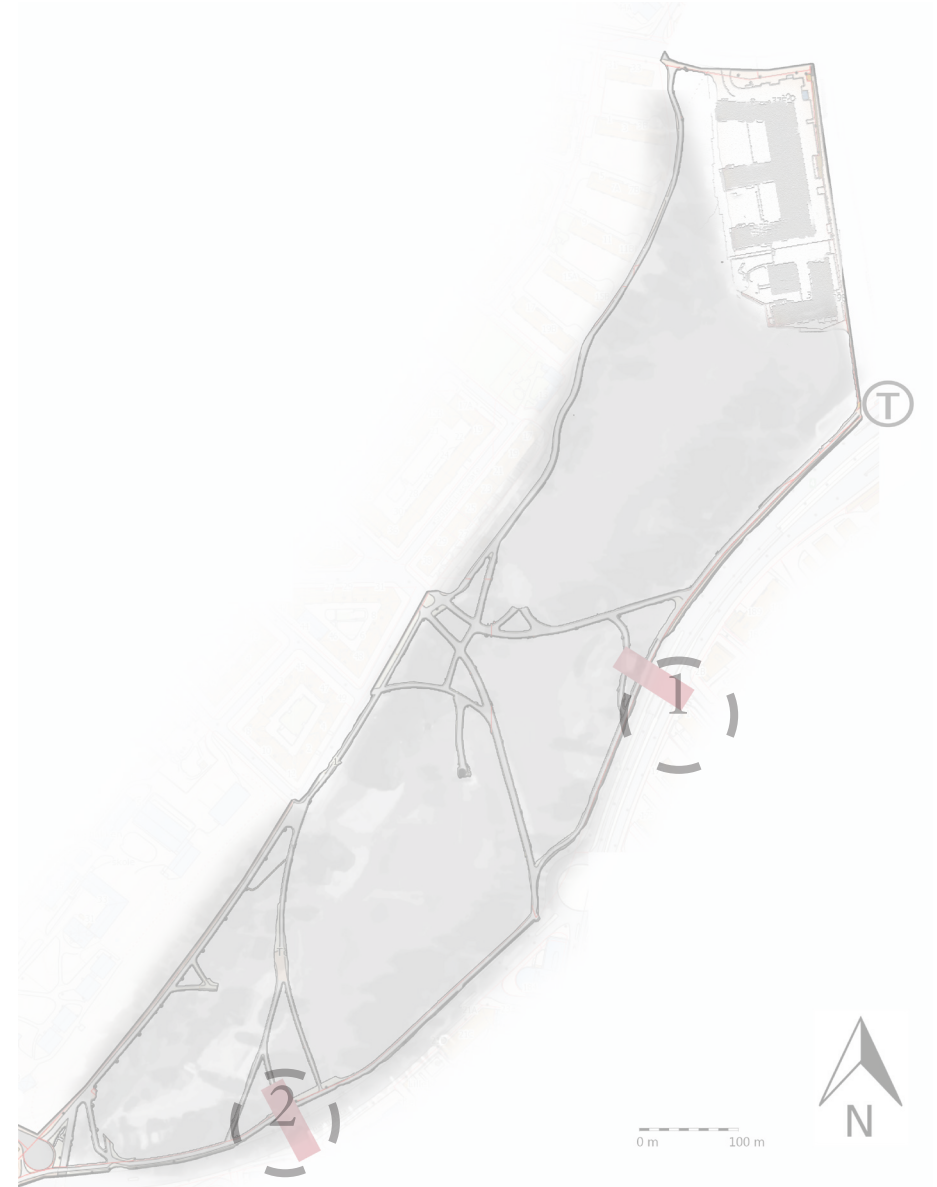


Figure 85. Principle 2 is applied to the underpasses marked at the diagram.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 2 IN TORSHOVDALEN. ILLUSTRATION

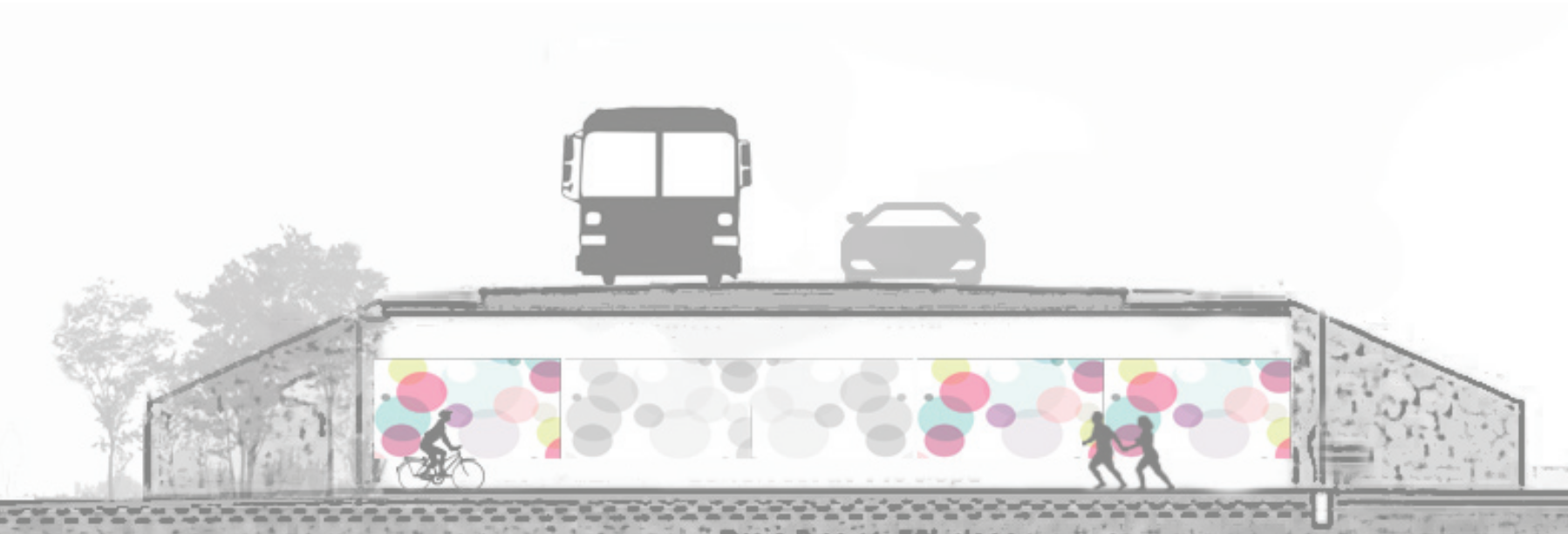


Figure 86. The section of underpass 2.



Figure 87. Inspiration: underpass in Sydney.



Figure 88. Inspiration: tunnel in Amsterdam.



Figure 89. Inspiration: underpass in downtown San Jose

PRINCIPLE 3:

LINK ACTIVITIES THROUGH CLEAR SIGHTLINES



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 3 IN TORSHOVDALEN

Perceptions of safety depend on the layout of a public space, which may either improve or worsen an opportunity to be heard or observed by other users. The current location of activity zones in Torshovdalen does not facilitate hearing and observability. Playground and other areas are supposed to be recognised and distinguished from surrounding areas, but on the other hand, they should be inviting and contribute to the visual dynamic. Figure 90 shows this visual dynamic created by good sight lines; it is intended to reduce concealment of obscured places and provide informal surveillance. Moreover, visibility is employed to create social cohesion through the integration of park users.

The zones are placed adjacent to the perimeter trail to make the margins active and to lure passersby into the park.

The varied experiences are shown on page 81. They should satisfy diverse users' needs.



Figure 90. The diagram indicates the location of new activities in Torshovdalen.

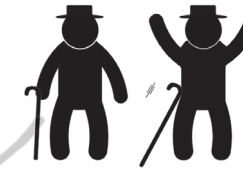
PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 3 IN TORSHOVDALEN. DESIGN RECOMMENDATIONS FOR ACTIVITY AREAS

The existing playground in the north part is stretched along the terrain to provide “climbing wall” for kids. There is an advantage of the steep hill, thus the playscape is extended on the upper side. This transformation would result in a link between areas of activities.*



The picnic area and pavilion may provide the opportunity for the local community to come together. The building can serve as a landmark to promote easier wayfinding. Consequently, the perception of safety would increase.*



The observations reveal that Torshovdalen does not represent valuable assets for seniors to the same extent as it does for children. The presence of low impact exercise machines may improve the current situation and attract elderly people to the park. A sense of place should occur among various groups of population to provide a safe environment.

There is a breathtaking view from the slope in this area. Placement of benches in the existing terrain in the form of an amphitheater may provide a good point of view and make people



linger in the park.

The areas are developed to give visitors a chance to perceive nature through 5 senses by plants colours and textures, the area is intended for



diverse user groups.

Figure 91.

*The areas are designed as additions to existing activities.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 3 IN TORSHOVDALEN. DESIGN RECOMMENDATIONS FOR ACTIVITY AREAS

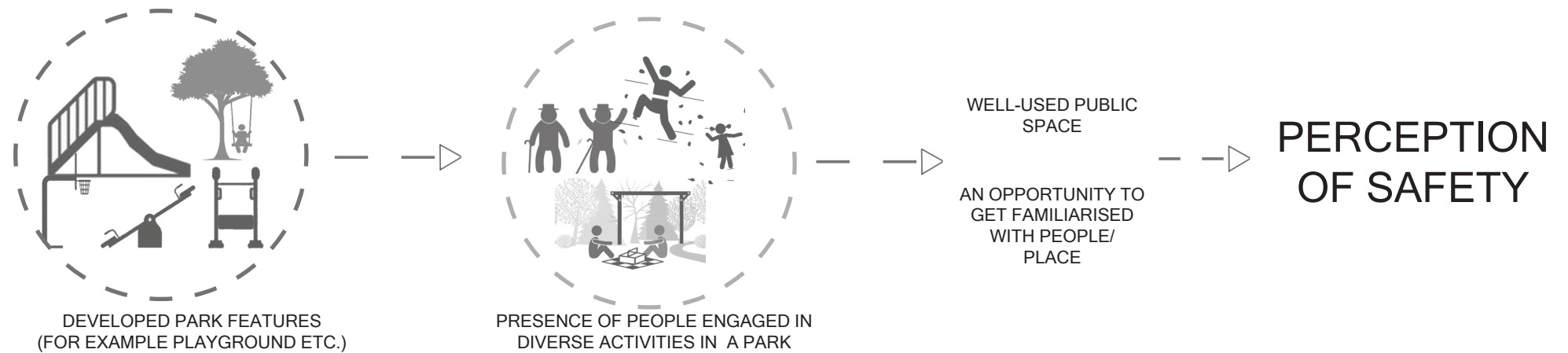


Figure 92. The diagram illustrates the interaction between social and physical attributes and how the activation of the physical framework may manipulate social factors. The interplay is supposed to impact perceived safety. Social and physical factors are borrowed from the overview of studies about a perception of safety (Sreetheran & Konijnendijk van den Bosch, 2014).

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 3 IN TORSHOVDALEN. ILLUSTRATION



Figure 93. Illustration stresses high visibility in the park and the visual link between various activities.

PRINCIPLE 4:

UNDERSTORY VEGETATION THAT DOES NOT BLOCK ACCESSIBILITY AND VISIBILITY



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 4 IN TORSHOVDALEN

The discussion about a feeling of security in a park is inconceivable without exploring the vegetation aspect and its spatial arrangement. Previous studies support the conclusion that there are many unambiguous effects on perceived safety (see p. 19). The design recommendations are based on the aspects confirmed by both previous studies and studies conducted within the framework of the project "Trygghetsskapende tiltak for levende byrom" (Safety measures for lively urban spaces) (see p. 21, 40) and create a feeling of safety. Surveillance is a key element for design, and adding spatial settings with some view restriction could be complementary (see figure 28 on p. 40). This enriches variations and provides much-needed diversity in the landscape. The picture on the right (figure 94) shows the 5 locations that will be discussed further on in the text.

THE DESIGN RECOMMENDATION IMPLEMENTED ALONG MAILUNDVEIEN AND TRONDHEIMSVEIEN (POSITIONS: 1, 2, 3).

In general, the path is perceived as quite safe due to the openness, except for a few places. There are examples presented on page 87 that show how one may improve the conditions along the roads.

THE DESIGN RECOMMENDATION IMPLEMENTED ALONG THE WESTERN EDGE OF THE TORSHOVDALEN (POSITIONS: 4, 5)

The western edge is divided into two parts. One is exposed to views from windows of nearby houses because the vegetation does not impede the view. The other part in southern section is characterized by unmaintained lush vegetation in the understory.

To sum, nowadays Torshovdalen offers a substantial degree of openness, and this condition should be preserved. On the other hand, further design applications (p. 87, 88) will reinforce positive experiences diversifying and promoting individual choice.



Figure 94. The diagram points out the spots where the design recommendations are proposed.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 4. The design proposal implemented along Mailundveien and Trondheimsveien

Location 1. The existing bushes and unmaintained green foliage prevent surveillance, thus the activities outside Aktivitetshus are not visible. The removal of understory vegetation contributes to perceived safety and invites visitors to take part in activities. Since not all of the arrangements are supposed to be open to the public (see p. 33 Aktivitetshus), the low bushes on the slope may not block the view but serve as a certain barrier. Thereby a visitor is guided to the designed entrance of Aktivitetshus. The planted shrubs can be *Cotoneaster horizontalis* (see Appendix D: Vegetation palette).

Location 2. The current settings of this place may be perceived as unsafe. On the other hand, the separation from motorway traffic due to the difference in terrain height makes a serene experience compared to the other places along the road. The unsafe perception is eliminated by the transformation of the tunnel (see principle 2). In terms of vegetation, 2-3 meters distance from the path to the existing trees is recommended (see p. 40). A good-looking lawn should be maintained there. The other influential and determining change is the planning of the place that stimulates senses (principle 10) to attract more visitors. In addition planted flowers under the canopies are intended to create a positive impression of perceived safety (see p. 21) (see Appendix D: Vegetation palette).

Location 3. The path is surrounded from 2 sides by trees and a barrier wall with planted grass, these 2 features deter accessibility and impair overview. Nevertheless, the place has a very appreciated woodland character as it reminds the visitors of the forest in contrast to surrounded openness. There are no shrubs in the understory, but dense crowns seem to influence visibility and create an effect of an “unpenetrated wall”. The proposed remedies:

- Pruning of trees can provide a more transparent impression and the landscape below will get more light. In addition, well-maintained trees may enhance the feeling of safety because maintained landscape is rated higher (see p. 22).
- Low impact equipment along the strip of densely planted trees may attract more visitors (see principle 3). The well-used place is correlated with feelings of safety (p. 16).

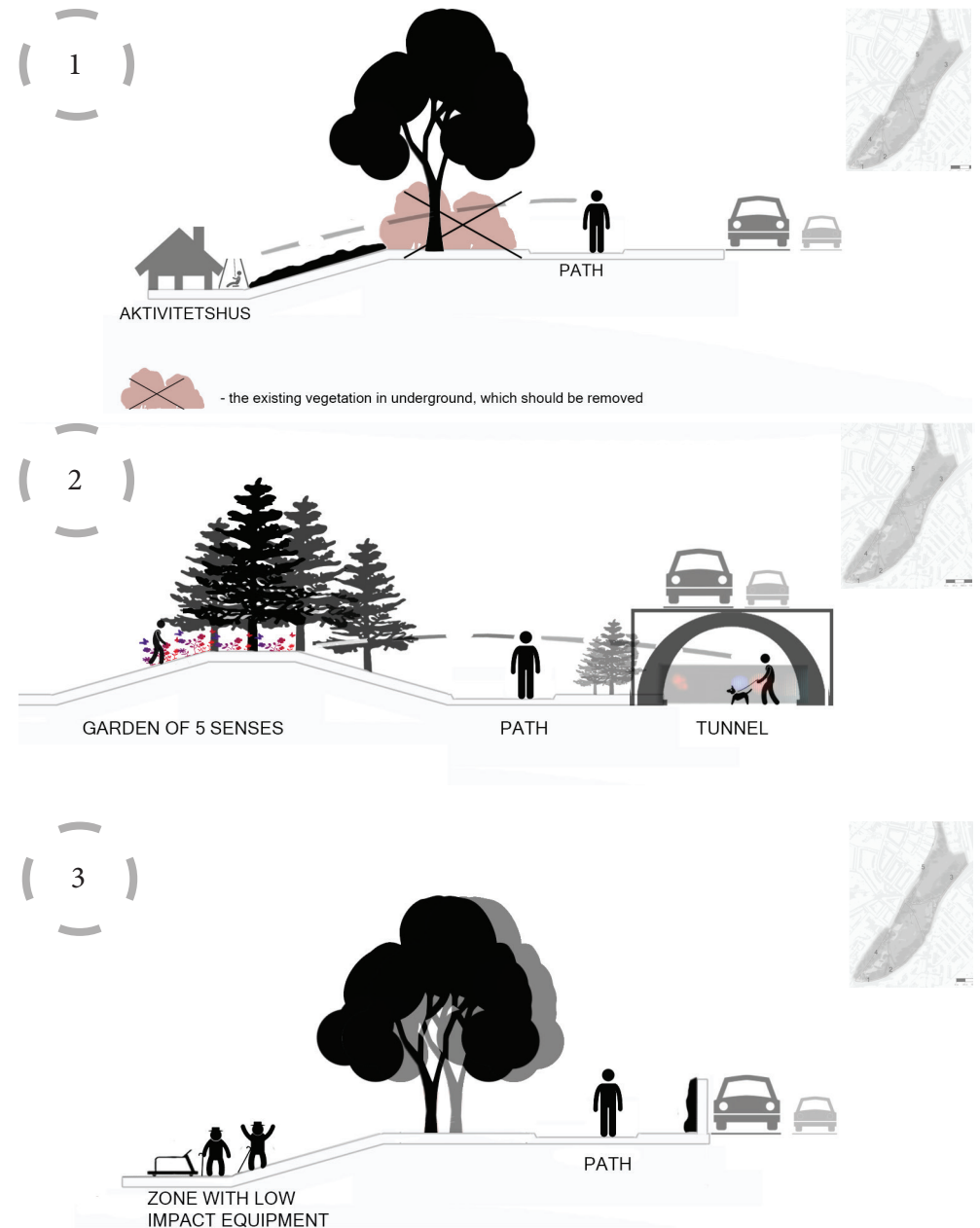


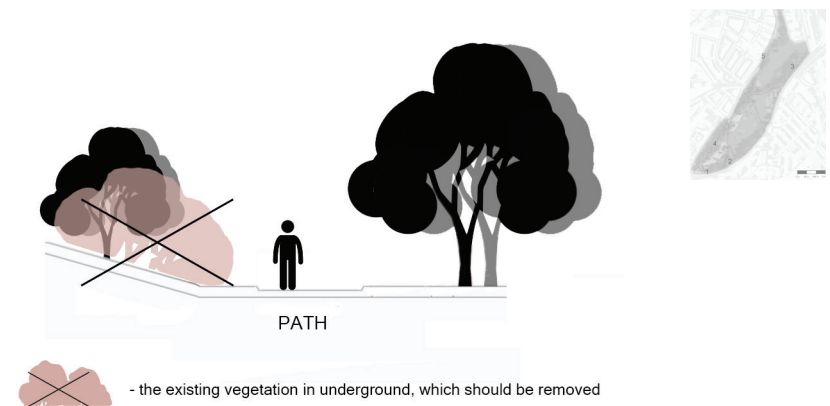
Figure 95.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 4. The design proposal implemented along western edge of Torshovdalen

Location 4. Results from the analysis confirm that well-maintained lawn is the best option to provide the perception of safety instead of lush shrubs, which may be considered almost as visual obstacle along the edge. Under the trees, closer to the entrance early spring flowers may be planted to diversify seasonal experience. Furthermore, a carpet of early spring flowers may contribute to effortless fascination, this component may help urban dwellers recover (see p. 18) (see Appendix D: Vegetation palette). Illustration at page 89 shows the setting.

4



Location 5. There are 2 paths, which are situated almost parallel, one runs at the foot of a rather precipitous hill, the other is placed on the top. The lower one is viewed from the windows on one side while on the other side of the path the existing shrubbery restricts the visibility. In addition, the lower path lacks accessibility due to the terrain.

- 1. The removal of vegetation would establish the connection between 2 walkways in the upper and lower part. Additionally, this would remove blind corners caused by vegetation growing along curves in the path. The eliminated understory would open the view for the visitor right ahead. These configurations are represented on the right (5).
- 2. The other alternative is to preserve existing qualities. Both walking trails have a high density of vegetation on one side and lawn on the other side of the path. According to the previous studies, this greenery arrangement is claimed to enhance perceived security (see figure 28 (3), p. 40).

5

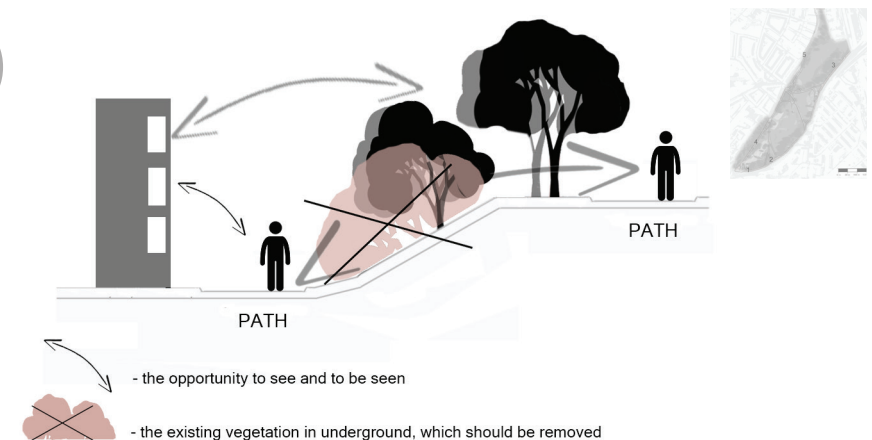


Figure 96.

PRINCIPLES. PHYSICAL ELEMENTS

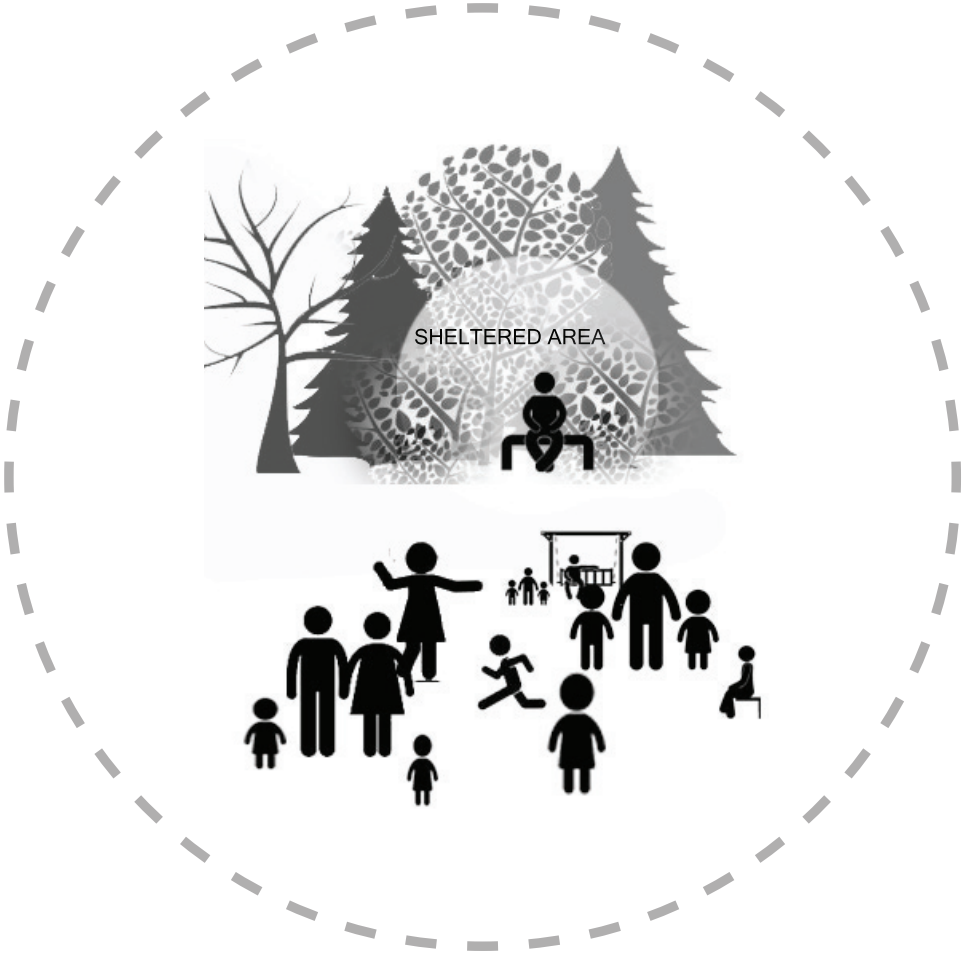
PRINCIPLE 4. IN TORSHOVDALLEN. ILLUSTRATION



Figure 97. It demonstrates previously mentioned site 4 (see p. 88). The picture illustrates the settings, which have been found to be the safest for this path according to implemented interview study (phase 2). The segregated path is related to principle 8 (see p.103). The picture to the right depicts existing situation.

PRINCIPLE 5:

DESIGN FOR PROSPECT AND REFUGE



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 5 IN TORSHOVDALEN

The theory of Jay Appleton (see p. 16) asserts that the “prospect-refuge” relation is preferred by the majority of people. Today one may experience that the park does not offer rest areas consisting of sufficient seating, shade, or clear visibility together with a sense of concealment (see p. 62).

The following design recommendation based on research and observation can be inferred:

- Park settings should meet various preferences and correspond to diverse safety needs (Project for Public Spaces, 2016a). The existing areas can be perceived as quite spacious. Vegetation may serve as the tool to increase the diversity of perceptions and create more private seating areas.
- Sheltered places where one may escape urban noises reduce the negative effect of urban environments. This benefit can be perceived as a positive distraction through contact with nature and mental restoration (see p. 18).
- Furthermore, the design of enclosed settings provides more opportunities for passive recreation like observation, studying nature, sitting etc.

Marked spots in figure 98 coincide with the places identified in Principle 10. The final principle uncovers the concept of 5 senses and may be assumed as supplementary. Intimate contact with diverse restorative elements representing nature as water features, diverse plants, bird song etc. is supposed to increase aesthetic pleasure and invite people to linger.

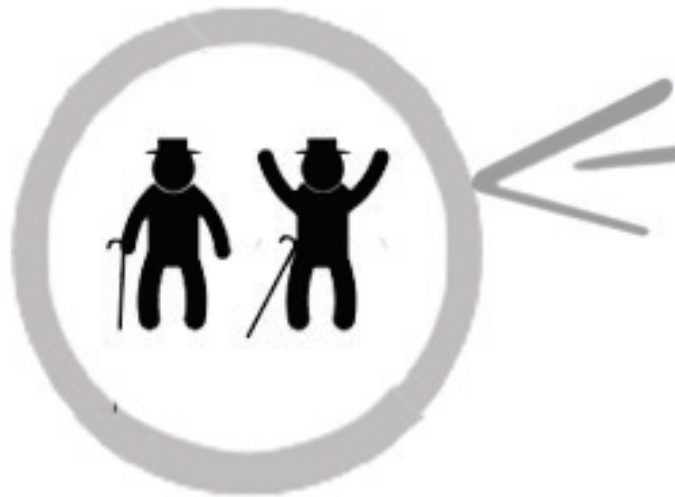


Figure 98. Three zones marked at the diagram imply “prospect-refuge” relation and designed to stimulate 5 senses (see principle 10). From these points of view, one may observe activities in the Area for seniors (1), near Aktivitetshus (2). The third area is bigger in size (see principle 10), it embraces a safe observation point, which allows a visitor to view the others. For instance, the observant may find himself on the edge of Sense Stimulating Place which offers the adequate area for overlooking.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 5 IN TORSHOVDALEN. ILLUSTRATION

1



- Area of activities for seniors is observed from the bench. The bench is disguised by lush blooming plants
 - The bench is integrated into the terrain's surface
 - The place is for people who would love to spend time in shade
- Figure 99.

2

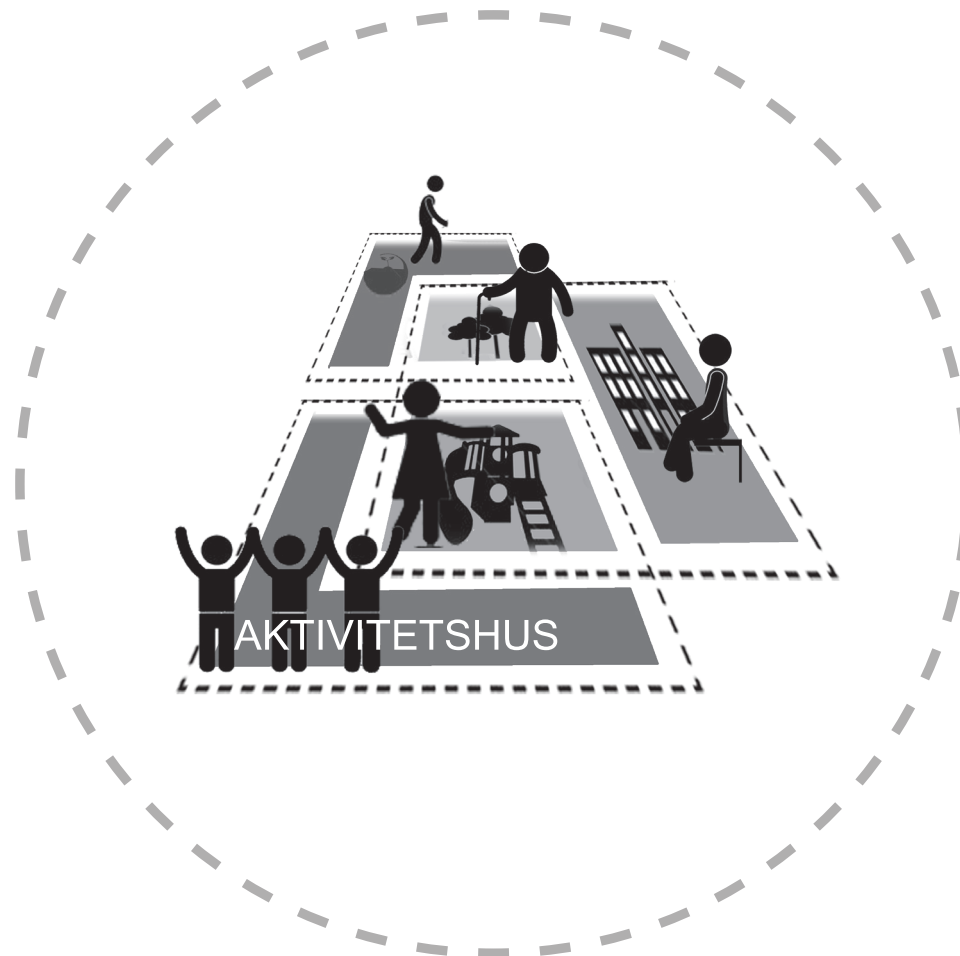


Outdoor activities near Aktivitetshus are observed from a bench. The bench is disguised by meadow vegetation, space is suitable for persons who prefer sunbathing.

Figure 100.

PRINCIPLE 6:

MAKE AESTHETICALLY LEGIBLE PARK ZONES



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 6 IN TORSHOVDALEN

GREENERY INSTEAD OF FENCES

The CPTED model (see p. 22) stresses that one should be able to identify easily certain areas. The barrier or transition between zones should be legible for visitors and not seem confusing.

There is a chain-link fence around the Aktivitetshus (marker 1 of figure 101). This physical barrier can be grasped easily. On the other hand, the plants (green privacy screen) may ensure aesthetically pleasing effect in the park in addition to the stress reducing impact (see p. 18). The other benefit of green privacy screen is altering experience in diverse seasons.

The sense of ownership is conceived to be achieved by attractive and changeable features.

The proposed plants for transition area: *Calamagrostis x acutiflora* 'Karl Foerster' (as the main constituent; it's maximum height is 1.5 m, it is not demanding in terms of maintenance (see Appendix D: Vegetation palette)).



Figure 101. The area where Principle 6 is recommended to be realised.

PRINCIPLES. PHYSICAL ELEMENTS

(1)



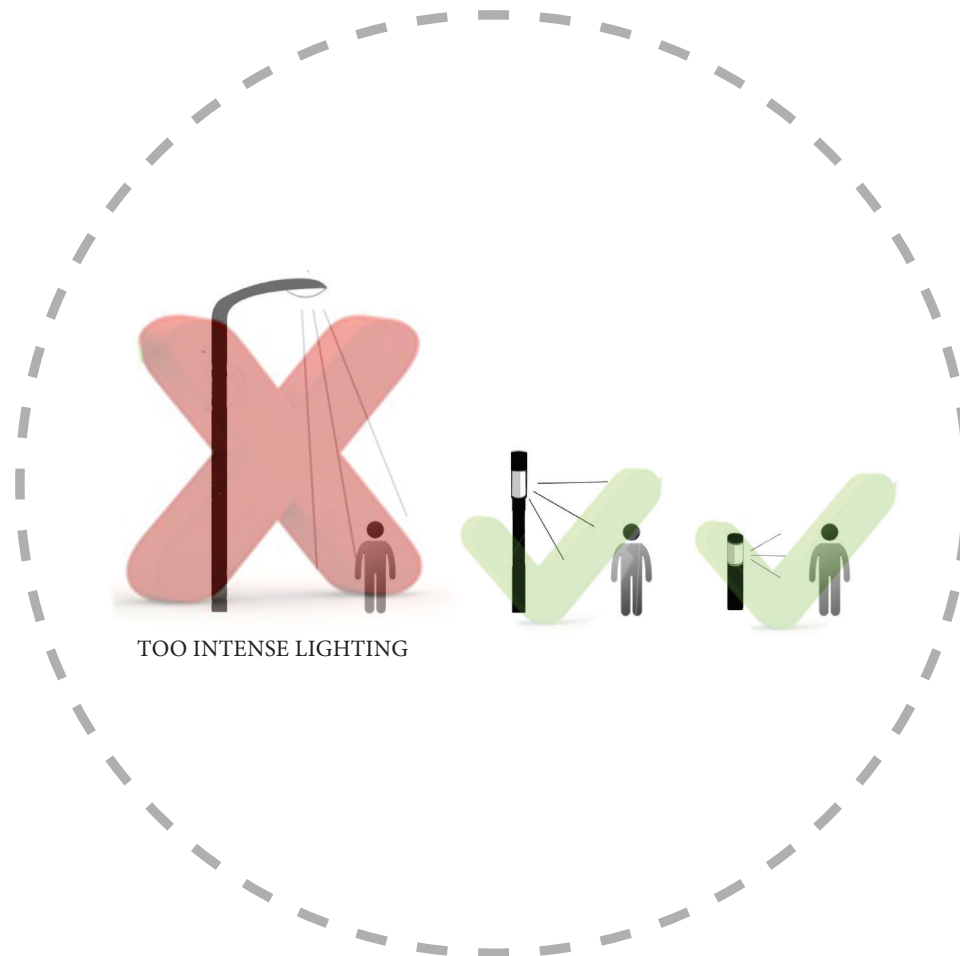
FENCE
VS
PRIVACY
SCREEN
(ornamental
grass)



Figure 102. The existing fence near Aktivitetshus on the left against proposed privacy screen on the right.

PRINCIPLE 7:

CREATE A LIGHTING HIERARCHY BASED ON VARYING LIGHT INTENSITY



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 7 IN TORSHOVDALEN

In Oslo, residents experience long periods of darkness in the autumn and winter, but limited daylight hours should not prevent activities in the park. The zones of diverse activities should be perceived as safe all year around.

- Too much lighting tends to evoke a feeling of insecurity (see p. 29). There should be a tangible difference between the lighting for walking path in a park and a street lighting for the vehicles. Small-scale lighting is more suitable for the park environments (PPS, 2016a).
- Sustainability+lighting: lighting is necessary to invite people to use green areas not only during daytime but also all throughout the day. Solar park lights can reduce the energy consumption (see p. 20).
- Kevin Lynch points to landmarks as a means of urban navigation (Lynch, 1960). Landmarks (the sculpture in Torshovdalen) accentuated by lighting might help to orientate in hours of darkness not only during the day.
- Entrances should be well-lit (see principle 1).
- Metal halide (MH) as a source of lighting is recommended because it gives brighter light and better rendering of colours comparing to yellow colour of high-pressure sodium lamps (HPS); MH is used worldwide for street lighting (Project for Public Spaces, 2016d).

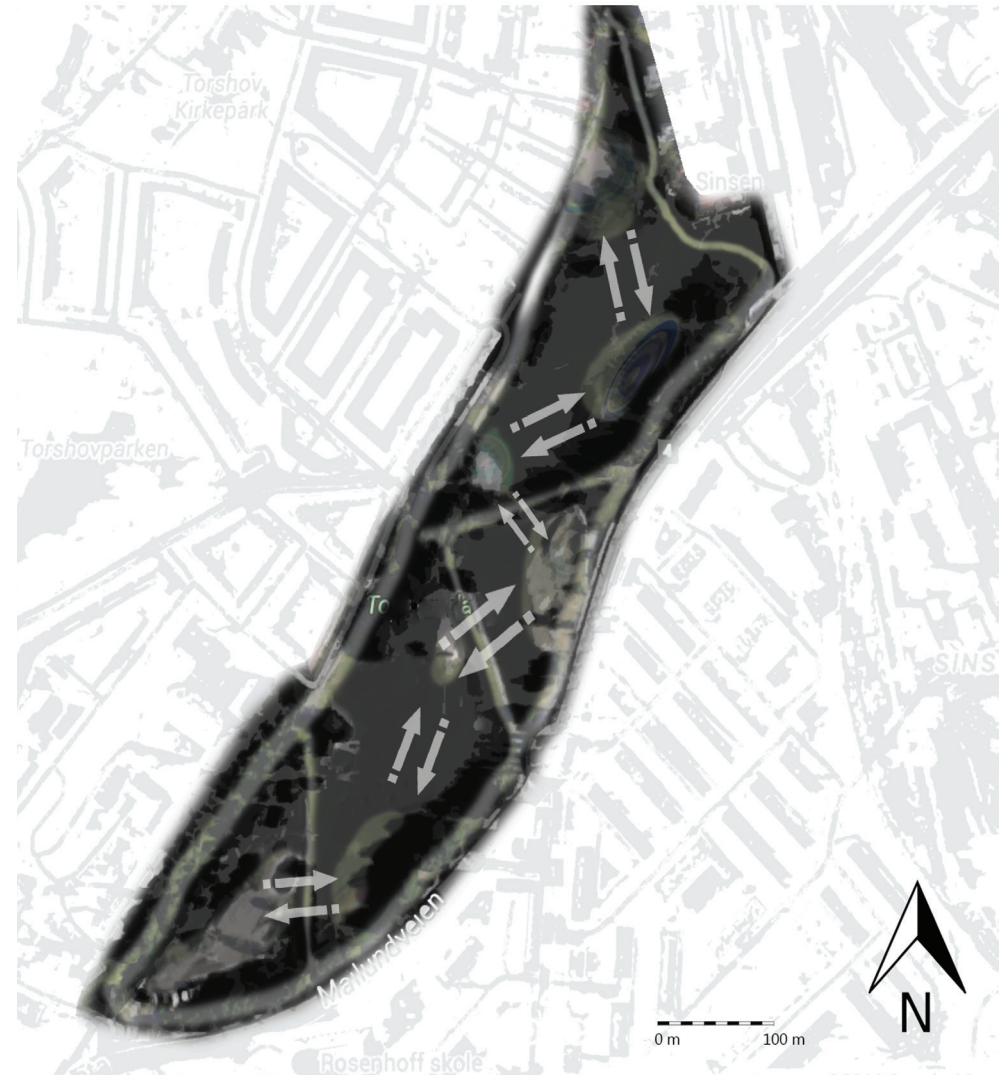


Figure 103. There is a hierarchy of lighting in the park, the edge of the Torshovdalen is illuminated more intensively comparing to zones of activities in the heart of the park. The circulation structure of walkways is devised to be maintained day round by lighting facilities. Playgrounds and other park spaces are perceived as more accessible for users in the evening, improved lighting contributes to a greater choice of time. The arrows at the diagram stress that activities are “clustered” visually, one can witness that zones are easily identified after dark.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 7 IN TORSHOVDALEN. ILLUSTRATION



Figure 104. Lighting design and separation of pedestrian and bicycle traffic. The bollards are designed by Louis Poulsen A/S and the size of these lighting sources corresponds to the requirements of safety, the illustration above demonstrates the proposed alternative of lighting to improve the settings of night-time corridor. The picture to the right shows existing lighting.



PRINCIPLE 8:

USE BIKE LANES AND PEDESTRIAN PATHS TO ENCOURAGE PARK ACTIVITY AND LINK THE PARK WITH SURROUNDING



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 8 IN TORSHOVDALLEN

The grey line in figure 105 defines the bike trail. The green line signifies the walking path. The circulation movement of the park visitors contributes to the active edge of Torshovdalen. The main suggested change is the connection of pedestrian path in front of residential buildings in the north (1), this path will be observed from windows of apartments. Consequently, the overview will influence positively perception of safety. This new link would stimulate the interplay between activity zones. Paving the path would make a stroll in the spring and winter possible (figure 69 at p. 60 displays disrupted circulation today).

Connecting Torshov Kirkepark and Torshovparken to Torshovdalen by a system of pedestrian and bike trails would improve access to diverse green areas in the district and prevent entrapment, which can be threatening to perception of safety.

The bike path on the east side of the park and one on the north-east emphasize that the connection through the underpasses should be provided not only for the pedestrians but also for cyclists, this remedy allows avoiding deserted spaces.

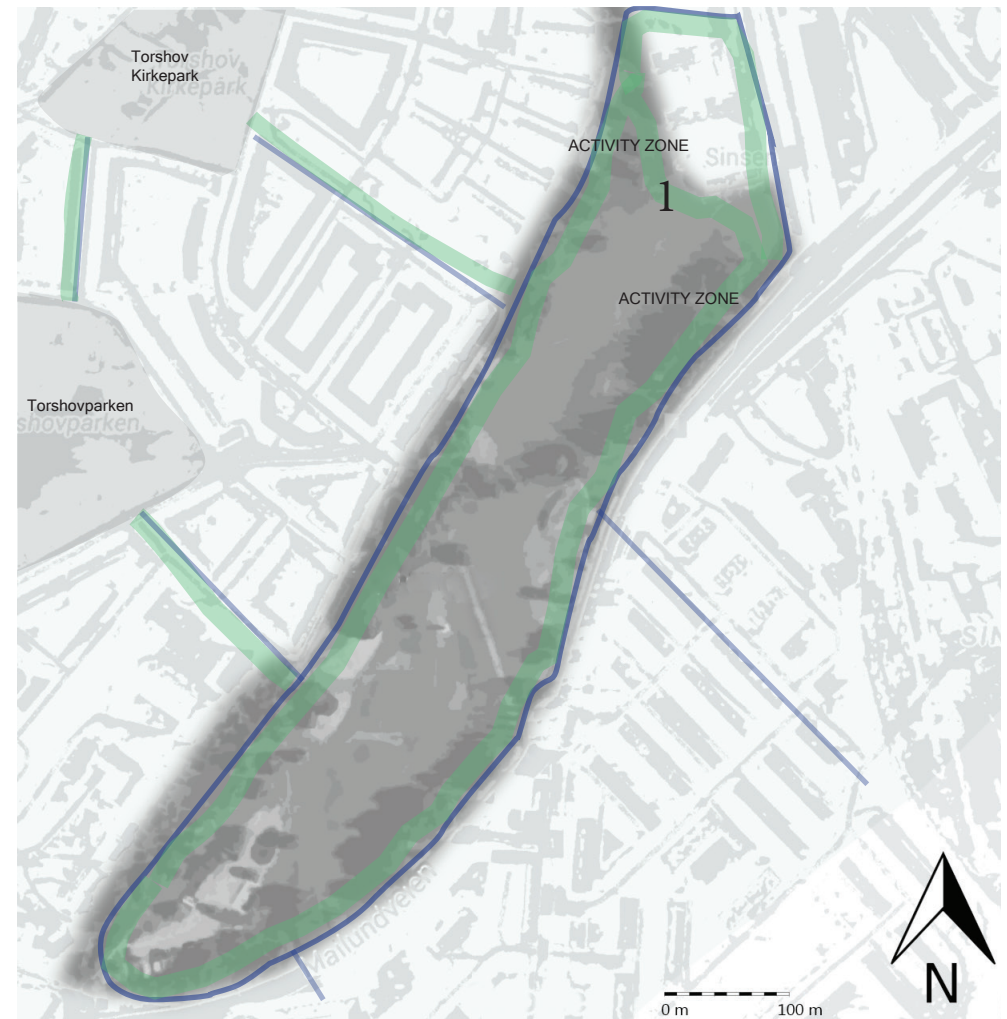


Figure 105. The proposal for new links within the park and connection of Torshovdalen with surroundings.

PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 8 IN TORSHOVDALEN. ILLUSTRATION

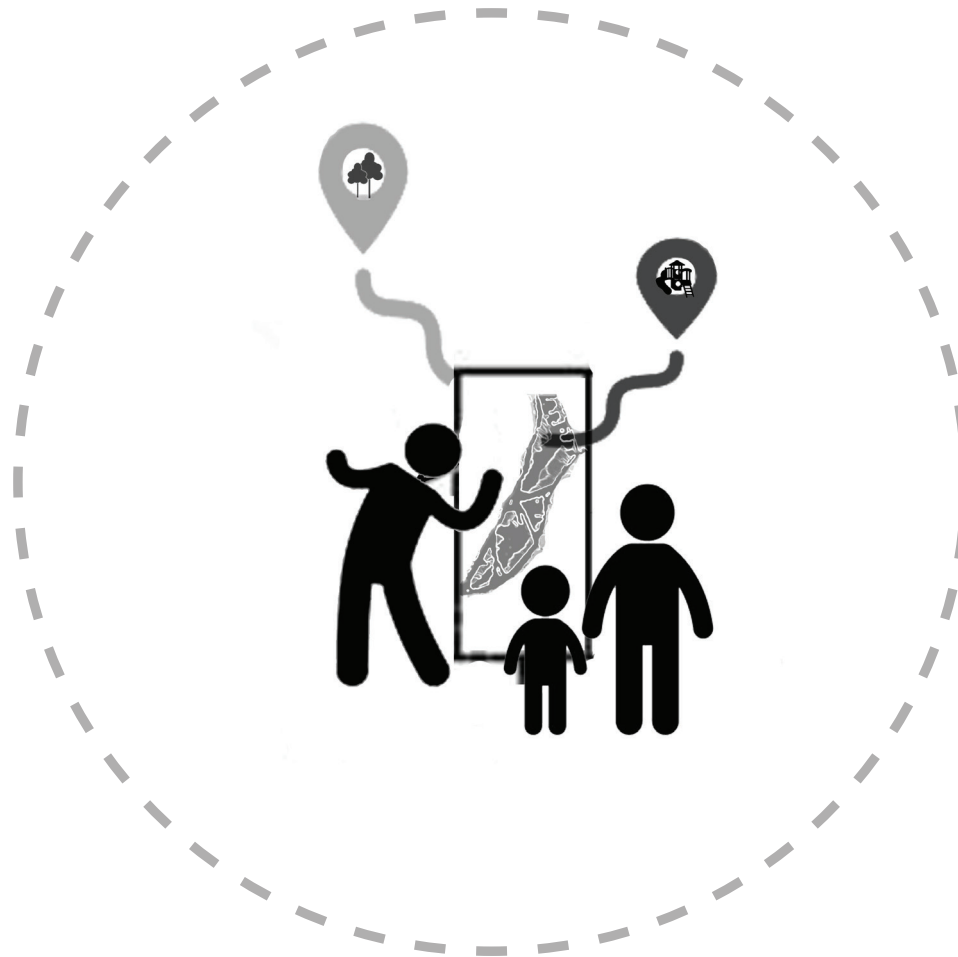


Figure 106. The figure illustrates how new walking trails may enable a visitor to feel safe due to the possibility to have a good overview. The footpath is seen from windows but the birches impede visitors from being too exposed. In the corner, there is an existing situation in winter. Author's illustration.



PRINCIPLE 9:

USE SIGNAGE FOR WAYFINDING



PRINCIPLES. PHYSICAL ELEMENTS

PRINCIPLE 9 IN TORSHOVDALEN

The signs should be organized in a way that people can easily grasp the overlay of the park and thus feel more secure. Signs have a significant role in the promotion of certain types of activities. On the other hand, restrictive signage should be limited to reduce a fear of surroundings. Highly visible and legible sign system allows to keep the park vibrant (see p. 23).

Signs can provide information and reveal details. For example, signs of plant species in the park may contribute to familiarity and sense of belonging as the consequence. Local residents may become acquainted with plants, observe them all year-round and care about the park.

- Hierarchy of signs contributes to better navigation and helps reach needed destination point.
- Placement of signs should be well thought-out.
- Signs should be recognized by different park users.

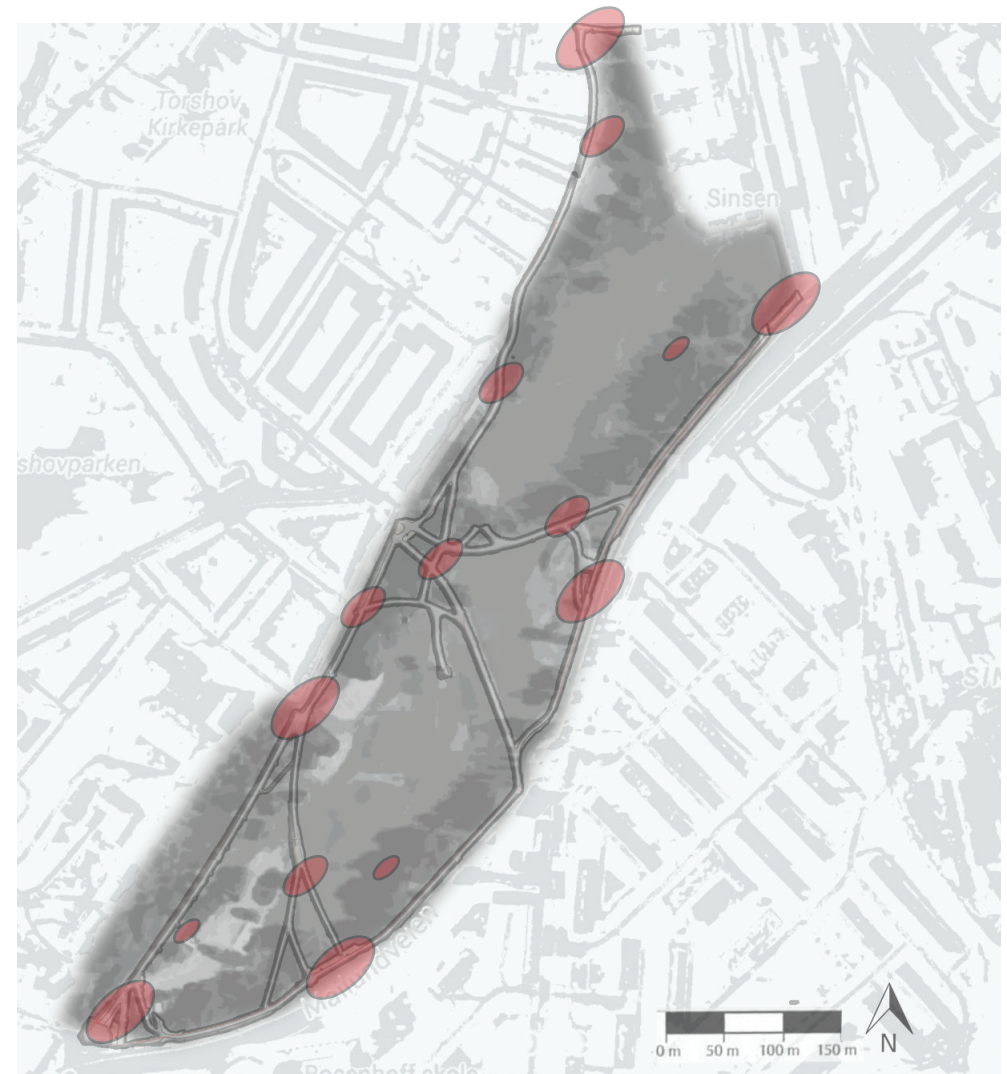


Figure 107. The diagram demonstrates the possible hierarchy of placed signs, where the biggest ellipses indicate the location of park maps and additional maps which children can read (figure 109, 110 on p. 109), the medium ellipses signify direction signs at intersections. The smallest ellipses mean signs of plant species in places stimulating senses (see principle 10).

PRINCIPLES. PHYSICAL ELEMENTS

1



2



3



Figure 108. The diagram demonstrates the feasible hierarchy of signs.



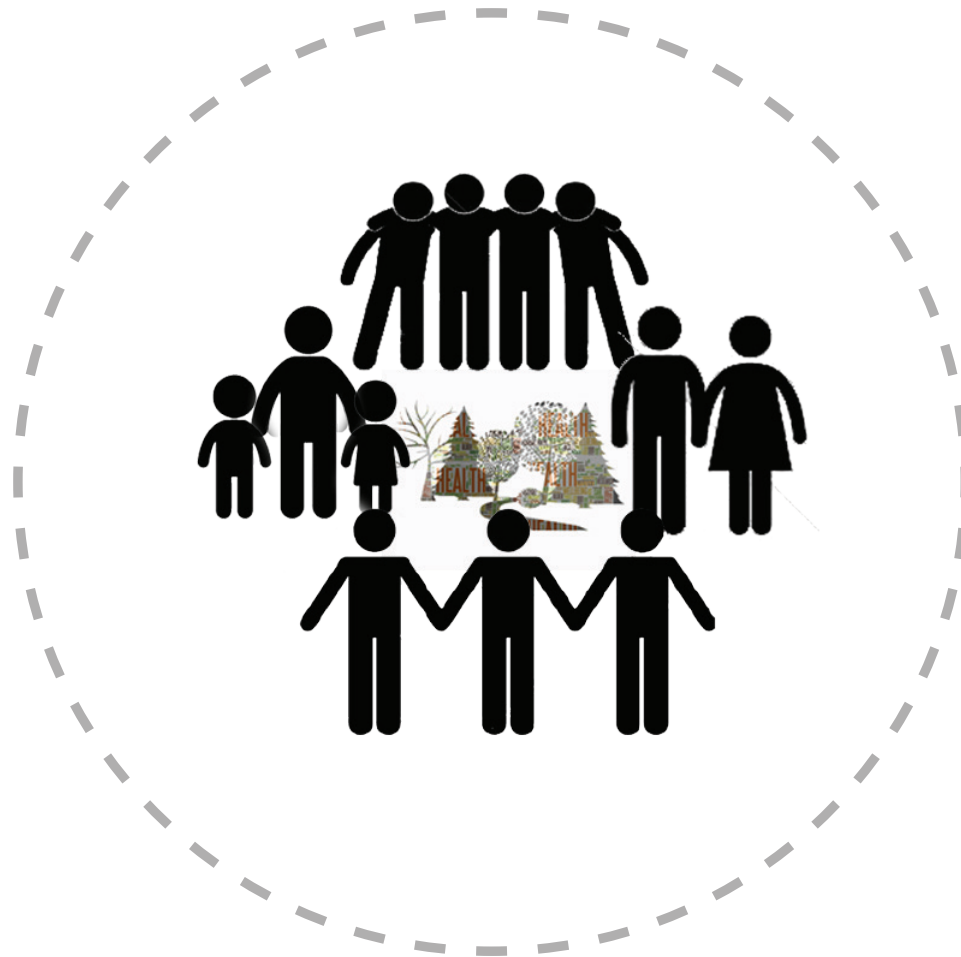
Figure 109. The illustration represents 2 types of signs, which may be easily decoded by different groups of people: the map of the park on the surface of the path (2) may attract the attention of children while more traditional map (1) may be appreciated by elderly people.



Figure 110. The signs may encourage and inspire the physical activity, for example navigating children to the playground.

PRINCIPLE 10:

MAKE IDENTITY THROUGH EXPERIENCE



PRINCIPLES. SOCIAL ATTRIBUTES

PRINCIPLE 10 IN TORSHOVDALEN

Name “Make identity through experience” is derived from an idea of establishing a bond between a visitor and the environment through the physical body, i.e. multisensory experience. The goal is to include community into the surrounding and as a result bring meaning to the place for people collectively and individually.

1. SLEDGING EVENTS

Traveling down from snowy hills in Torshovdalen has been the public activity for a long time (figure 113 at p. 114 shows the winter scene from the past) it has contributed to kids enthusiasm and created enjoyment. The observations confirm that this type of activity still takes place in the park. Children’s play arena can be considered as the dialogue between past and present. The proposed transformation of the local cultural traditions into competitive sledging events may form a sense of identity, and make the place special, and continue cultivating the sense of community.

2. 5 SENSES PLACES. VOLUNTEERS

5 senses are supposed to be stimulated in this sheltered areas (see p. 113 Vegetation / Places stimulating 5 senses) as such experience reduce alienation and contributes to the establishment of the individual bond (see p. 19).

As the power of diversity needs to be appreciated, the three places (figure 111) are supposed to have diverse character. The plausible variations may be expressed by scale, colour palette etc. For instance, place 1 (see figure 111) can dominate in size and imbue entrapment area (see Analysis p. 49) with new qualities. It may resolve entrapment feeling.

The principle “Design for prospect and refuge” (see p. 91) implies more sophisticated design solution than the existing park’s settings. This requires people who will care about the park. To encourage local residents to participate in community life is the improvement corresponding CPTED principles (p. 22). Through this participation and responsibility for the park community members may feel that Torshovdalen is the place, which belongs to them, they own it and consequently should take care. One of the potential volunteers may be children from Aktivitetshus. The awareness that the park is a part common heritage will increase a feeling of security.

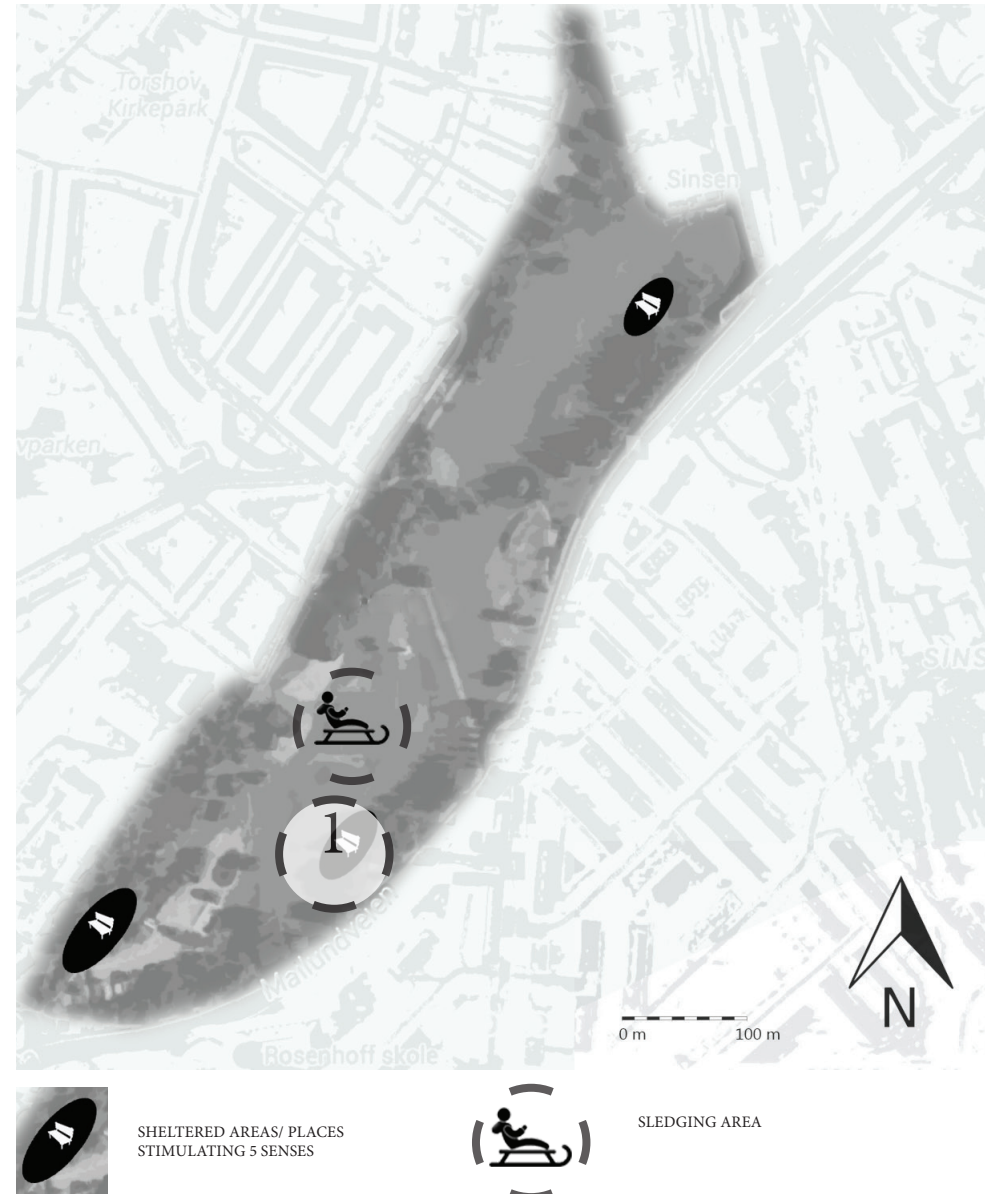


Figure 111. The diagram reveals the sledging area for public events and sheltered areas in the park.

PRINCIPLES. SOCIAL ATTRIBUTES

PRINCIPLE 10 IN TORSHOVDALLEN

VEGETATION / PLACES STIMULATING 5 SENSES

Park's framework promotes a sense of wholeness or integrity. However, there are not such captivating small elements and design features that would evoke other sensations (not only visual sense) to "read" environment by touch, taste etc. The reasons to design such places are grounded in research (see p. 18) and book "The eyes of the skin" (see p. 19).

To engage the senses of visitors is a springboard to find the sense of ownership, and belonging, which helps eliminate fear, as CPTED model relies on these factors and contributes to perceptions of safety (p. 22).

SMELL

"A particular smell makes us unknowingly re-enter a space completely forgotten by the retinal memory." (Pallasmaa, 2005 p. 54)

- To plant scented flowers and plants with a scent, which can be released from leaves.
- It should be the distance between plants with strong scents to appreciate the odors.

TOUCH

"The skin reads the texture, weight, density, and temperature of matter." (Pallasmaa, 2005 p. 56)

- The contrast of surfaces, which one perceive by touch, can be expressed using diverse textures and structures of leaves and stems of plants.
- In general, plants should endure the visitors touches, but the most enduring, durable plants should be placed near edges.
- The planting beds should be designed in different heights to provide access to adults, children and people with disabilities.

TASTE

"Our sensory experience of the world originates in the interior sensation of the mouth, and the world tends to return to its oral origins." (Pallasmaa, 2005 p. 59)

- The fruits, vegetables, and herbs should be edible.
- Plants identification signs near edible vegetation can make people acquainted and feel safe about usage and edibility.
- People who visit Aktivitetshus can use fruits and veggies in their kitchen.

SOUND

"Sight is the sense of the solitary observer, whereas hearing creates a sense of connection and solidarity." (Pallasmaa, 2005 p. 50)

- The traffic noise can be quite palpable in the areas close to busy road (Trondheimsveien, Mailundveien) water features and birds sound are able to provide positive and calming effect
- The garden should be equipped with benches under the trees to hear and enjoy window blowing in the crowns of trees.
- Specific shrubs and trees can attract songbirds.

SIGHT

"In Western culture, sight has historically been regarded as the noblest of the senses, and thinking itself thought of in terms of seeing." (Pallasmaa, 2005 p. 15)

- This sensation should be treated with particular caution not to destroy Torshovdalen's harmony and visual coherence.
- The contrasts and nuances of various structures and textures (for instance plants or path surfaces are absent in park) may take place in this sheltered places to stimulate our visual perception.

The guidelines for 5 senses are inspired by Jane Schul's book "Hvilken plante hvor - planteguide for hagen" (2008).

PRINCIPLES. SOCIAL ATTRIBUTES

PRINCIPLE 10 IN TORSHOVDALEN. ILLUSTRATION

1. SLEDGING EVENTS



Figure 112. Support and keep traditional activities alive by arranging public events.

2. 5 SENSES PLACES. VOLUNTEERS



Figure 115. Upkeep of the park by local residents makes their feeling of belonging initiated.



Figure 113. Parents with children. Scene from the past.



Figure 114. Parents with children. The picture was taken in 2016.

5 SENSES (individual bond) + VOLUNTEERS (group bond)=

IDENTITY

CONCLUSION

In 2015, Oslo's municipality presented the 2030 master plan called "Smart, Safe, and Green", which illustrates an aspiration of the municipality to ensure sustainable and inclusive development: Oslo should be safe for both city residents and visitors. Everyone should be able to move freely through the city without fear of being exposed to criminal acts (Oslo Kommune, 2015b).

Ten principles identified in this research can be contemplated as a green response to this municipality's request. This thesis has synthesized research findings of the perception of safety. The findings have been interpreted to the principles and are intended landscape architecture practitioners and parks management.

One may claim that there is a conflict between the need for visual diversity and the need for surveillance, which implies often simplicity of design settings. The principles acknowledge the eminent role of surrounding's legibility, therefore spaces with more sophisticated design and enclosed features are integrated carefully and do not dominate. Moreover, the principles accentuate the need not only for visual richness but also the diversity of experiences in the park. The significance of park edges goes across a few principles to deliver a safe, enjoyable encounter and make the whole park well-used. Maintenance is the other decisive issue and the principles suggest that attractiveness of the place may be as the antidote to vandalism. All factors mentioned above comprise of physical design framework, which is the precondition for essential social involvement.

In light of the municipality's plan, the project can potentially improve the quality of life in Oslo because the decisions made by landscape architects have the power to modify the environment and influence feeling of unsafety. This master thesis identifies physical elements and social attributes creating prerequisites for a safe physical park environment in addition to essential social cohesion. The design of this framework could allow designers to have significant input on urban safety strategy in Oslo.

CONTEMPLATIONS ABOUT TORSHOVDALEN

The design of Torshovdalen park has not been the goal of this project. Nevertheless, a significant part of the work is devoted to the analysis and design recommendations for the park, which is used to illustrate where safety parameters have been tested and proposed to apply the ten principles.

The work with Torshovdalen has led to the following inferences. The park is characterized by features of modernist architecture; this style dictated certain features, for instance, the lack of diversity and equal overall exposure. There are no enclosed and intimate places in the park. According to modernist ideology, this would promote and symbolize equivalence in society. Consequently, Torshovdalen would be perceived as a meeting place for the local residents.

Nowadays, landscape architects have similar intentions and values; they aspire to create preconditions for the successful social arenas but the means and tools have altered. For instance, greater diversity is widely acknowledged as it offers a choice for park users. The focus on variety in preferences of individuals has become more significant.

Torshovdalen already features good surveillance, which is the important criterium for safety perceptions. However, new studies and theories prove that diversity expressed with the help of well-thought-out design is indispensable for a well-used place. Hence, Torshovdalen can be a venue for a range of activities and consequently perceived as a safe place, if the greater variety of visual experiences would be combined together with already existing park openness.

APPENDIX A. PICTURES FOR PILOT STUDY

CONTINUITY



Picture 1



Picture 2



Picture 3



Picture 4

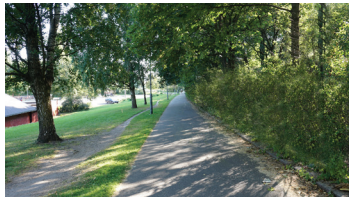
DENSITY



Picture 1



Picture 2



Picture 3



Picture 4

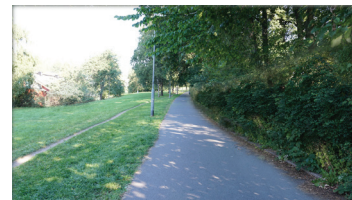
HEIGHT



Picture 1



Picture 2

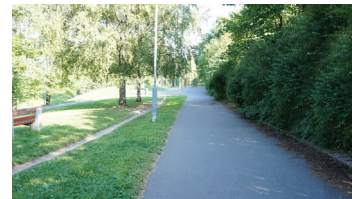


Picture 3



Picture 4

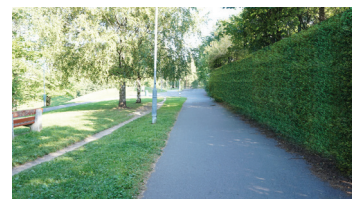
MAINTENANCE



Picture 1



Picture 2



Picture 3



Picture 4

APPENDIX B. QUESTIONS FOR PILOT STUDY

Questions for pilot study

1a. At this point how safe do you feel about continuing to go down this path? Please range pictures from 1-4

Picture1: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture2: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture3: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture4: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

1b. Imagine this scene at night, how safe do you feel about continuing to go down this path? Please range pictures from 1-4

Picture1: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture2: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture3: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

Picture4: very safe (1)/ safe (2)/ unsafe (3)/ very unsafe (4)

2. Take the picture which is determined as "very unsafe" (question 1a) by you and answer the following questions:

a. At this point, how open is your view of the immediate environment? Is it open or limited by environmental features?

Answer: very limited (1)/somewhat limited (2) moderate (3)/somewhat open (4)/very open (5)

b. At this point, how many possible hiding places are there right close by for potential attackers?

Answer: none (1)/ one (2)/ a couple (3)/ three or four (4)/ five or more (5)

c. At this point, how hard would it be to escape from the path if you wanted to?"

Answer: very hard (1)/ somewhat hard (2)/neither hard nor easy (3)/somewhat easy (4)/very easy (5)

d. At this point, does the view seem to promise that more could be learned about the path if you continued?

Answer: definitely not (1)/ no (2)/ not sure (3)/ yes (4)/ definitely yes (5)

APPENDIX C. RESULTS OF PILOT STUDY

CONTINUITY	very safe	safe	unsafe	very unsafe
Picture 1	4*			1
Picture 2		5		
Picture 3			4	1
Picture 4	1		1	3

DENSITY	very safe	safe	unsafe	very unsafe
Picture 1	5			
Picture 2		4		1
Picture 3		1	4	
Picture 4			1	4

HEIGHT	very safe	safe	unsafe	very unsafe
Picture 1	4	1		
Picture 2	1	4		
Picture 3			5	
Picture 4				5

MAINTENANCE	very safe	safe	unsafe	very unsafe
Picture 1			1	4
Picture 2	2	3		20
Picture 3	3	2		
Picture 4			3	2

APPENDIX C. RESULTS OF PILOT STUDY

The following questions have been applied to “very unsafe” picture chosen by participant:

At this point, how open is your view of the immediate environment? Is it open or limited by environmental features?

<i>unsafest</i>	very limited	somewhat limited	moderate	somewhat open	very open
Continuity	2		3		
Density		1	4		
Height	3	1	1		
Main		2	2		

At this point, does the view seem to promise that more could be learned about the path if you continued?

<i>unsafest</i>	definitely not	no	not sure	yes	definitely yes
Continuity		1		1	3
Density	1	1	2	1	
Height	2	1	1		1
Main		2		1	1

At this point, how many possible hiding places are there right close by for potential attackers?

<i>unsafest</i>	none	one	a couple	three of four	five or more
Continuity		2	2		1
Density	1	3	1		
Height		2	2		1
Main		1	1		2

At this point, how hard would it be to escape from the path if you wanted to?

<i>unsafest</i>	very hard	somewhat hard	neither hard nor easy	somewhat easy	very easy
Continuity	1	3	1		
Density	1	1	3		
Height	1	3	1		
Main		2	2		

APPENDIX D.

VEGETATION PALETTE

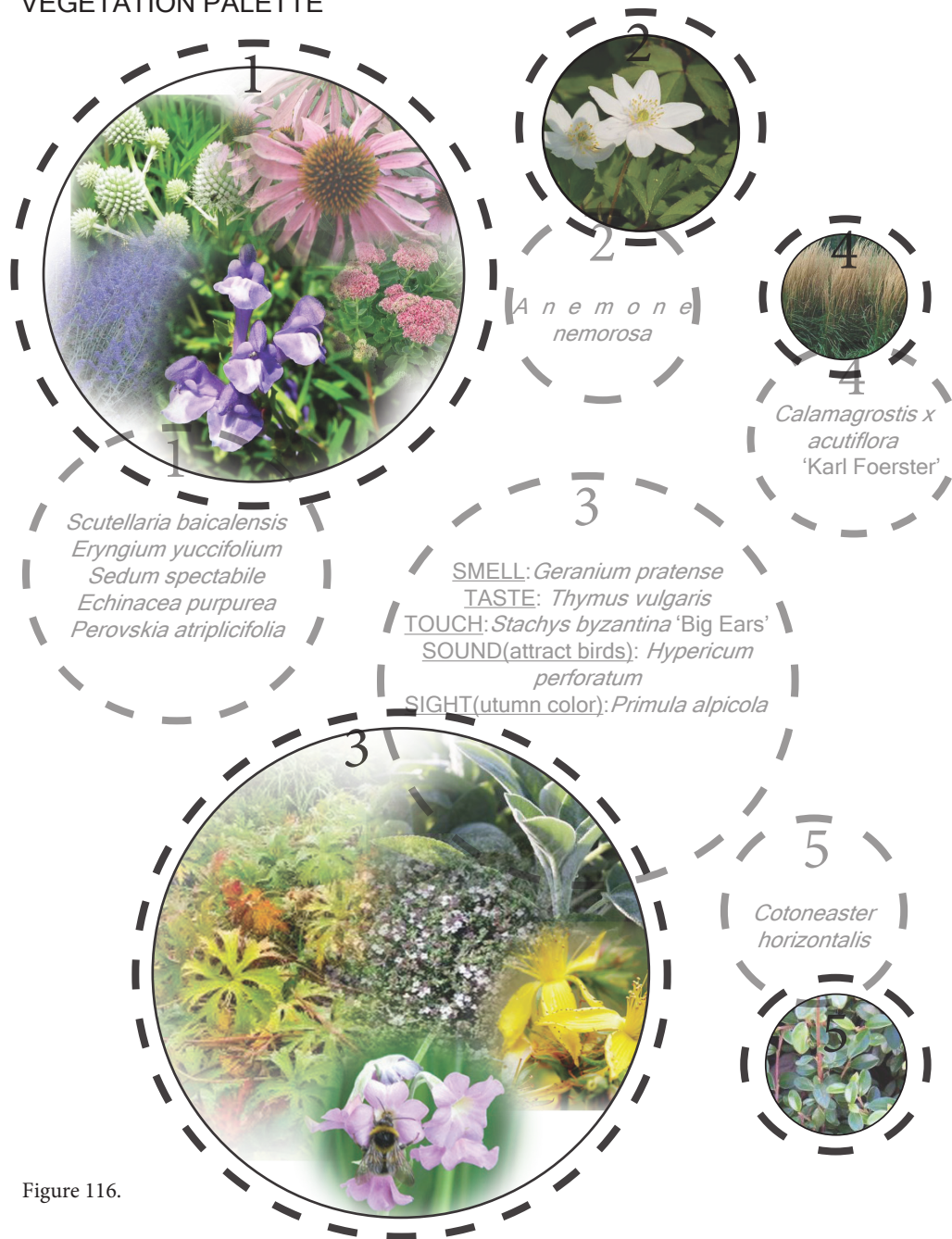


Figure 116.

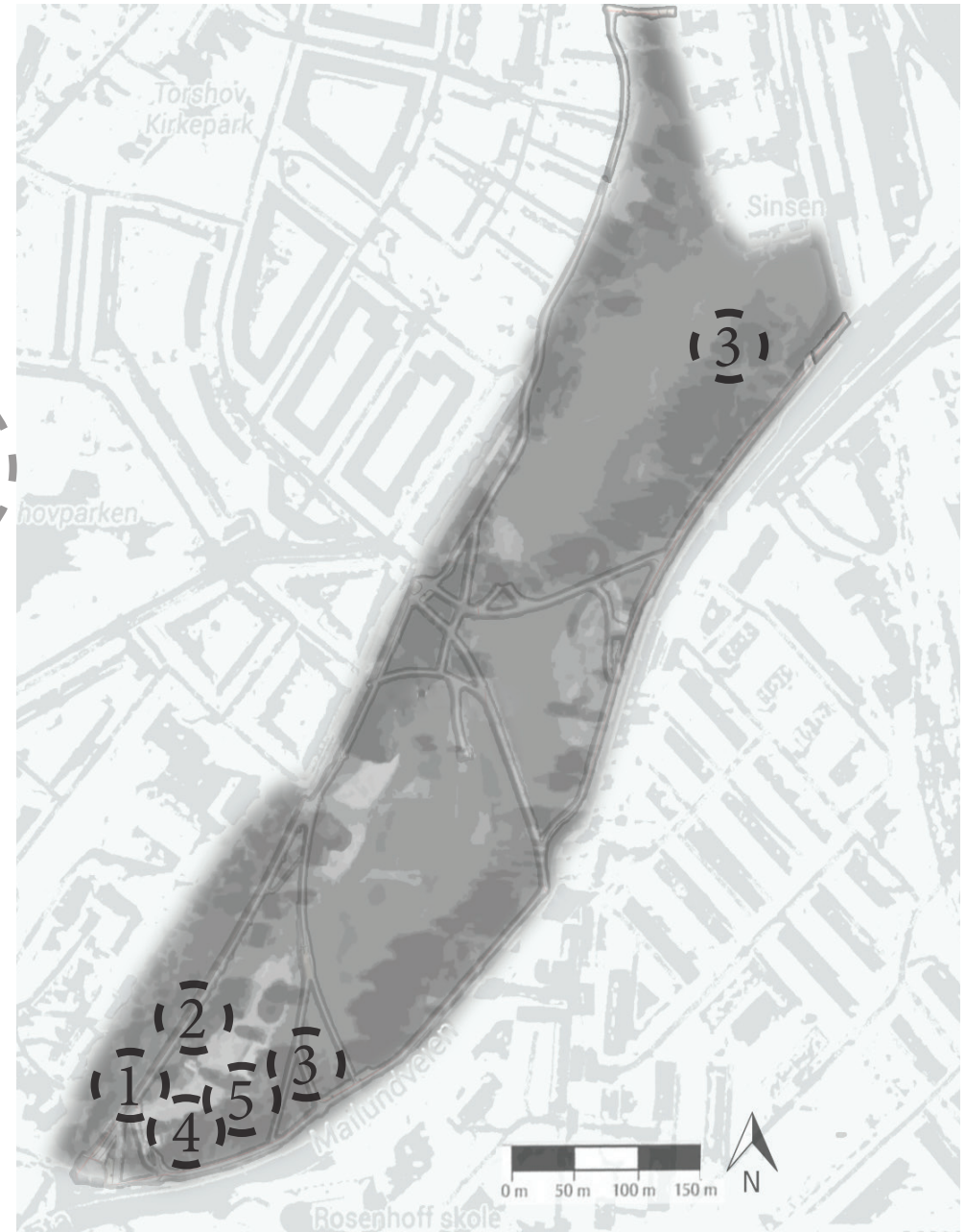


Figure 117.

APPENDIX E. QUESTIONS FOR PREFERENCE STUDY

ID: _____ Rekkefølge: _____ Dato: _____

Opplevelse av parkmiljø

Spørreundersøkelsen er en pilot for masteroppgaven til Anna Stroganova, NMBU. Det er frivillig å delta, og spørreundersøkelsen er anonym. Undersøkelsen gjennomføres på NMBU vha gjennomgang av bilder av parkmiljø med tilhørende spørsmål og tar ca 30 minutter. Er du villig til å delta?



Se på Bilde 1. Aller først ønsker vi å få din generelle oppfatning av stedet.

I hvilken grad synes du dette stedet egner seg for å:

	I svært liten grad				I svært stor grad		
	1	2	3	4	5	6	7
Gå tur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slappe av	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trene/fysisk aktivitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Være sammen med andre voksne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Være sammen med barn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lese	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nyte været/naturen/utsikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lufte hund	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Forestill deg at du over en periode har vært stresset av ulike omstendigheter i hverdagen. Du trenger avkobling og hvile. I hvilken grad ville dette stedet være et egnet sted å oppsøke for avkobling?

I svært liten grad				I svært stor grad		
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1

ID: _____ Rekkefølge: _____ Dato: _____

Bilde 1*

Tenk deg at du går alene nedover her på en dag som denne.

Ta stilling til følgende spørsmål:	I svært liten grad				I svært stor grad		
	1	2	3	4	5	6	7
Liker du deg her?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I hvilken grad inviterer dette stedet deg til å gå videre? (Får du lyst til å gå videre?)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kan du se hva som skjer herfra, uten selv å bli sett?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vil andre kunne se deg her om det hendte deg noe?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er det lett å se <i>langt</i> før du får sikten forstyrret, eller blokkert?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er det lett å bevege seg her?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er det lett å komme seg bort herfra?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er du bekymret for hva som kan være bak deg her?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er du bekymret for hva som kan være rundt deg her?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ta stilling til følgende påstander:	1	2	3	4	5	6	7
Fra dette stedet får jeg en god oversikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler meg trygg her	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg ville gått en lang vei utenom for å unngå dette stedet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg ville hastet meg avgårde for å komme meg bort fra dette stedet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg kan gå her alene	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2

*This set of questions was applied to each

APPENDIX E. QUESTIONS FOR PREFERENCE STUDY

ID: _____ Rekkefølge: _____ Dato: _____

Forestill deg at du går alene i parkmiljøet du har sett bilder av. I hvilken grad ville du vært bekymret for at det skulle skje noe ubehagelig (overfall, ran, eller lignende) hvis du gikk her på...

	I svært liten grad				I svært stor grad		
	1	2	3	4	5	6	7
Sommer -dagtid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sommer -kveldstid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vinter -dagtid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vinter -kveldstid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hvor sannsynlig opplever du at det er at du kan bli utsatt for noe ubehagelig på stedet du har sett bilder av?

	Svært lite sannsynlig			Svært sannsynlig			
	1	2	3	4	5	6	7
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I hvilken grad bidrar følgende forhold til at du kan føle deg utrygg i lignende parkmiljø?

	I svært liten grad				I svært stor grad		
	1	2	3	4	5	6	7
At man kan treffe personer som oppfører seg ubehagelig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At man kan bli vitne til kriminelle handlinger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dårlig vedlikehold/tagging/søppel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dårlig vedlikeholdt beplantning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Høye busker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tette busker/trær	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At man kan falle/snuble	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Raske syklist/skateboardkjørere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ID: _____ Rekkefølge: _____ Dato: _____

Nedenfor finner du to påstander som passer mer eller mindre godt for ulike mennesker. Kryss av for det som passer best for deg slik du vanligvis er. Sett et kryss for det du umiddelbart synes stemmer best.

	Passer ikke				Passer helt		
	1	2	3	4	5	6	7
Er avslappet, takler stress godt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bekymrer meg for mye	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Har du tidligere vært utsatt for noe ubehagelig i lignende uteområder?

Ja Nei

Alder (fyll inn) Kjønn Kvinne Mann

Hva er din høyeste utdanning?

Grunnskole Videregående skole Univ/høyskole < 4 år Univ/høyskole >=4 år

Hva er din yrkesstatus?

I arbeid Skoleelev/student Ikke i arbeid Pensjonist

Heltid Deltid

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