Designing urban landscapes in a new neighbourhood, focusing on aesthetical, social, and ecological values

– A study of the south-eastern neighbourhood, Uppsala, Sweden

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Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences
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Abstract

This master thesis is an independent work within landscape architecture focusing on designing neighbourhoods in relation to the characteristics appreciated by the inhabitants. The study aims to identify design principles for constructing a new neighbourhood concerning increasing social interactions among inhabitants, creating delight, which is perceived by all senses, and applying ecological approaches in the face of challenges for humans, flora, and fauna populations. Therefore, the questions raised with this study are: How to create urban landscapes in order to make their residents feel at home with the highest appreciation of the living environment? How can ecological design approaches be applied to make the neighbourhood more sustainable in the face of societal and environmental challenges? In order to answer the research questions, several methods and approaches are theoretically and analytically reviewed in the categorization of aesthetical, social, and ecological values. The project illustrates how to consider chosen values in the whole design process: from collecting and analysing data to their implementation in a design proposal. As a result, principles for designing an urban landscape in a new neighbourhood are outlined and implemented in a project for the south-eastern districts in Uppsala city, Sweden. This study shows green areas as preferred elements by inhabitants that could support the health of natural systems and cope with societal and environmental challenges.

Keywords: Urban landscape, neighbourhood, aesthetical, social, ecological

Preface

By the time I am writing this thesis, I am 30 years old and taking my master's at the Swedish University of Agricultural Science in landscape architecture for sustainable urbanization in Uppsala, Sweden.

I was born and grew up in a small green town, a couple of hours away from Tehran, the capital of Iran. Since I was fully immersed in nature, landscape became my concern in urbanized cities. Moreover, my bachelor's in architecture has given me a passion for designing landscapes close to the built environments. The issue of sustainability was the reason that I chose Sweden; I found here peace, calm, and green. Therefore, in order to achieve my goals, I decided to leave my home.

In the spring of 2020, I had an opportunity to attend the course "Urban Ecology," where Sofia Eskilsdotter, Marcus Hedblom, and Emma Butler introduced me to the ecological world. During ten weeks, ecological, social, and aesthetical aspects of urban landscapes were studied concerning a specific case in the Uppsala municipality. Sofia's encouragement kept me motivated to research and make a proposal based on what I have learned during my studies in Sweden for the South-eastern districts in Uppsala city.

Marjan Rostami

Popular science summary

The idea of my master thesis came from the Urban ecology course during my master's program at SLU, which was an excellent opportunity to discover my interest in this topic. At the beginning of the course, we made a visual presentation representing our interests and motivation in urban ecology, called self-reflection. My motto was;

"Think green in order to save the planet."

I have found my interest in creating greenery close to the residential buildings since it plays a crucial role in social life and aesthetics of the environment. At the end of the course, we implemented our knowledge gained during the course to our self-reflection. I were still in the opinion of green, but in this time, I wrote;

"Green should be designed for all, not only for humans."

Thinking about species and pollinators was the interesting thing that I took from that course and was the motivation behind my master thesis. In order to meet the needs of humans, flora, and fauna, I investigated designing urban landscapes.

My thesis study is about designing urban landscapes in new neighborhoods, focusing on aesthetical, social, and ecological values. The study is positioned geographically in one of the envisioned neighborhoods in Uppsala city, Sweden. The south-eastern part of the city is going to be expanded by 2050, which means a lot of new neighborhoods are going to be built there.

My research questions are: How to make residence feeling at home and appreciate their living environment and how ecological design approaches can make a neighborhood more sustainable in the face of social and environmental challenges. In order to answer my research questions, I built up knowledge in my topic area concerning theoretical framework based on aesthetical, social, and ecological

perspectives. Then I looked up Uppsala municipality's documents and visited the south-eastern part of Uppsala as my chosen site.

I have investigated the appreciation of living environments according to their users; of course, it's a complex topic since it needs the consideration of individuals' opinions. In order to know the people's perception of their living environment, I created an online survey for one of the newly built neighbourhoods in Uppsala city, called Rosendal. Furthermore, since I believe that green should be designed for all, not only for humans, I decided to invite pollinators to urban areas by creating natural and artificial habitats. We can make a situation in which they could find their way to the urban areas.

After the data was gathered, I analysed my findings in order to make design principles for my study. Finally, my design principles helped me to create a design proposal for a courtyard in the south-eastern part of Uppsala.

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Abbreviations

SLU	Swedish University of Agricultural Sciences
LASU	Landscape Architecture for Sustainable Urbanization
SWOT	Strength, Weakness, Opportunity, and Threat
FÖP	Fördjupad Översiktsplan

1. INTRODUCTION TO THE THESIS

Figure 1.Brainstorming sketch, by the author of this thesis.

This chapter introduces the subject of this master thesis. It presents the topic, aim, research questions, a brief overview of the subject, limitations, and target groups.

1.1. | Topic

The topic for this thesis is designing urban landscapes in new neighborhoods, focusing on aesthetical, social, and ecological values. It has three main parts which focus on;

1. Reviewing theoretical and analytical approaches to find the value of urban landscapes.
2. Creating design principles which drive from the theories, observation method, and survey method in new neighborhoods.
3. Applying the result on a chosen case in south-eastern districts in Uppsala city.

1.2. | Aim

This thesis aims to make a design principle for constructing a new neighborhood in order to make the highest appreciation by the inhabitants. The target is to seek knowledge for sustainable urban landscaping in newly built neighbourhoods regarding increasing social interactions, creating delight, and applying ecological approaches in the face of challenges for humans, flora, and fauna populations. Delimitation for fauna in this thesis is pollinators in the city environments. Therefore, inviting pollinators to the urban areas is one of the aspects of this study.

In order to operationalise the aim of this study, the design principles will be applied on a small scale in a newly envisioned neighborhood in the south-eastern part of Uppsala city.

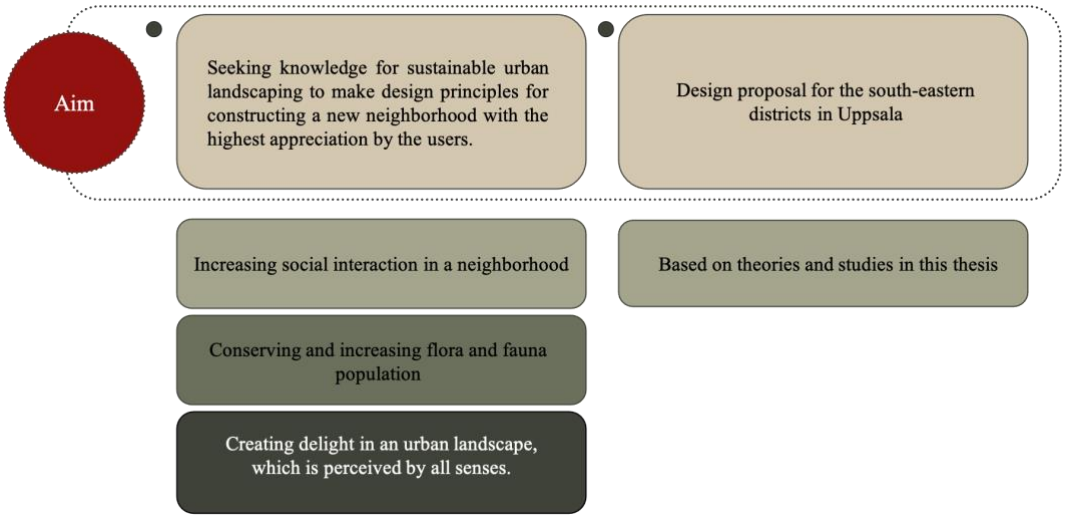


Figure 2.Aim of the thesis by the author of this thesis.

1.3. | Research questions

This thesis work sets out to address two research questions. The questions are designed to discuss how urban landscapes in a new neighbourhood could make their residents "feel at home" (experiencing the satisfaction of aesthetically, socially, and ecologically well-designed environments) and how ecological approaches could be a solution in the face of challenges. These main research questions regarding the objective of the thesis study are as follows:

- How to create urban landscapes in newly planned districts in Uppsala city in order to make their residence feel at home with the highest appreciation of the living environment?
- How can ecological design approaches be applied to make the neighborhood more sustainable in the face of societal and environmental challenges?

The first question will be answered in an in-depth analysis of people's engagements with newly envisioned proposals and an online survey in combination with a literature review. These methods will help to know more about the local needs and demands, potentials, challenges, and opportunities. The second question will mainly refer to literature and observations at the local site. The outcomes of the research will be interpreted as an example of a design proposal.

1.4. | Overview

Landscape architects improve the human condition through the creation of places such as 'streets' (roads, greenways, paths, avenues, lanes, boulevards, alleys, malls, etc.), 'squares' (plazas, circuses, piazzas, places, courts, etc.) (Carmona et al. 2010), 'neighbourhoods' (private and semi-private areas close to building structure, gathering spots for residents in their environment, etc.), and wherever people live and work and play each day of their lives. Before getting into the literature review, the following sections will glimpse urban landscapes and neighbourhoods' characters.

1.4.1. | Urban landscape

Urban landscape is formed of open and green spaces like streets and public squares, cycle and pedestrian routes, waterfronts and city parks within urban surroundings (Memlük 2012). The same author articulates that urban landscape is where people can have an opportunity to spend their leisure time, to see and to be seen, and to interact and be involved with a community. Well designed and managed urban landscapes make improvements in inhabitants' quality of life.

There are essential aims in order to have a good urban environment; These are included, livability, identity and control, access to opportunities, authenticity and meaning, community and public life, urban self-reliance, and an environment for all (Jacobs & Appleyard 1987).

1.4.2. | Neighborhood

A neighborhood can be described as a residential zone with both remarkable face-to-face interaction and unique physical or social aspects (Arnauld et al. 2012). According to Karuppannan and Sivam (2011) a built environment can create situations, where inhabitants interact with their neighbors either deliberately or unintentionally.

A city is considered sustainable only if its components, especially neighborhoods and building environment, meet the sustainability criteria (Choguill 2008). The pioneering academician, Jane Jacobs, said that a sustainable way of living should effortlessly derive from the way we design our sustainable neighborhoods, they are useful to the community and the individual, and the environment (Jacobs, Jane 1961 see (Zhang et al. 2018).

1.5. | Problem statement

Uppsala is the fourth largest city in Sweden (Uppsala Municipality 2019). According to the Uppsala municipality, this city is growing; People are moving here, and new city districts are emerging. For this reason, Uppsala city needs more homes, workplaces, meeting places, schools, and a more extensive and more rapid public transport network.

Uppsala municipality has produced a detailed, comprehensive plan for new districts in the south-eastern part of the city, which will be built by 2050 (Uppsala Municipality 2019). Simultaneously, development is underway in the rest of the city through Gottsunda, Ulleråker, Rosendal, and Bäcklösa neighborhoods.

As a landscape architect, I find it essential to understand the values of urban landscapes in order to improve the future use of living environments for humans, flora, and fauna in cities like Uppsala. With the continuing need for housing in Uppsala and creating new neighborhoods, the demand for creating urban landscapes, which work aesthetically, socially, and ecologically, will be increased.

The site study area and corresponding methodologies have been selected according to the formulated research concept, designing urban landscapes in a new neighborhood. The study emphasizes to creating delight in an urban landscape,

which is perceived by all senses, increasing social interaction in a neighborhood, and conserving and increasing flora and fauna populations (see Figure 3).

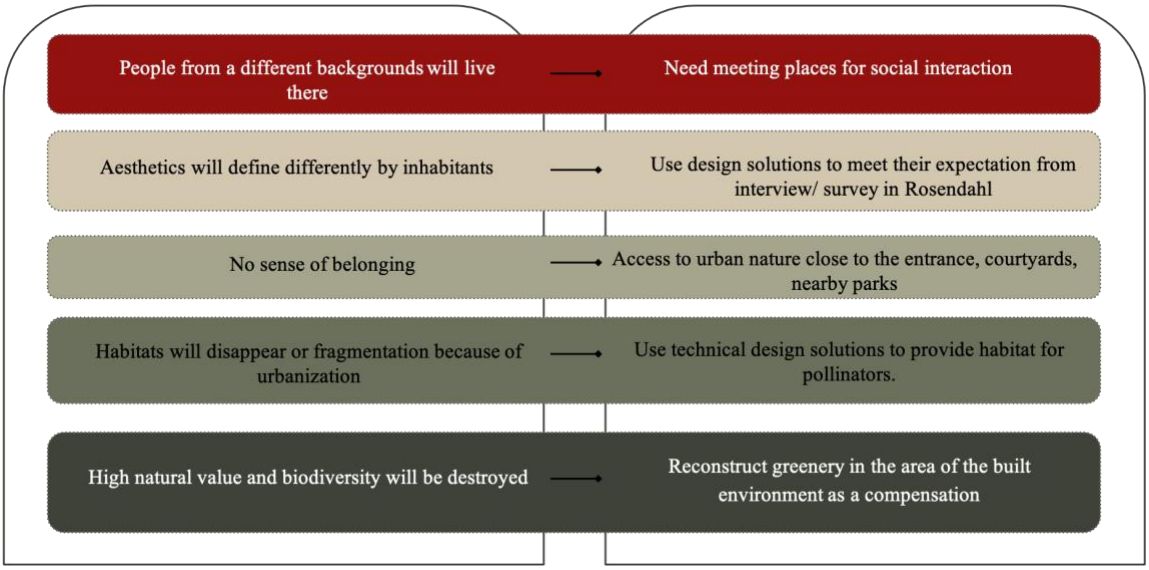


Figure 3. The reason for choosing the site by author of this thesis.

1.6. | Site studies

The thesis's study is geographically delimited to Uppsala city, Sweden. Uppsala municipality introduced a new urban hub in the peri-urban area in the south-eastern parts of the city (See Figure 4).

The following text is summarizing the municipality's comprehensive plan and sustainability assessment by WSP company. The expansion will take place over a long period. The new housing is organized into several city districts tied together by a new high-capacity public transport system. Parks, streets, and squares connect individual neighborhoods and districts with Lunsen, the plains, and the rivers (Uppsala Municipality 2019) (See Figure 5).

The area's natural values are largely linked to Årike Fyris nature reserve and Norra Lunsen Nature Reserve. The reserved area will be separated from the proposed buildings with a protection zone (Uppsala Kommun 2021a).

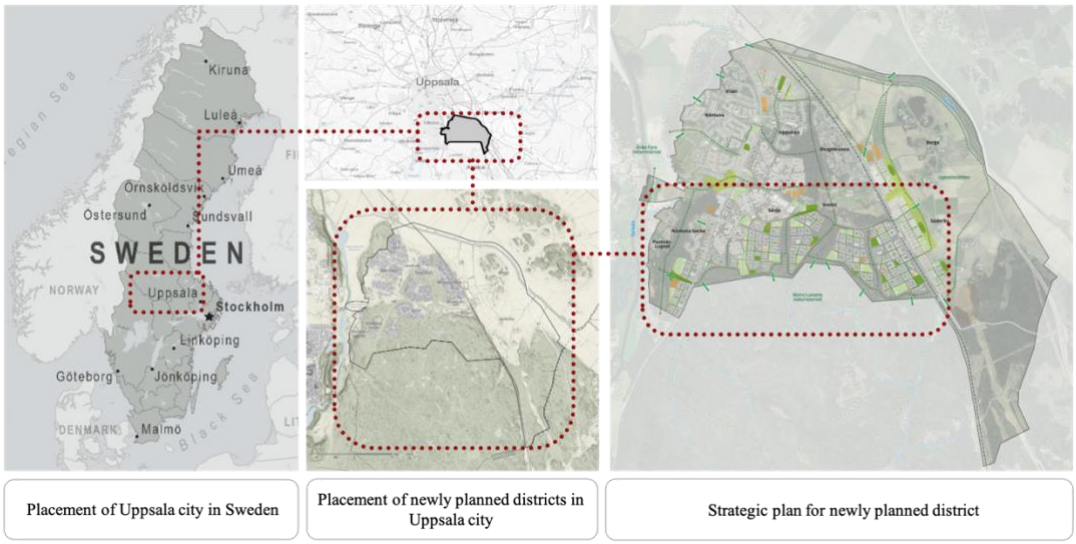


Figure 4. Placement of Uppsala city and strategic plan for newly envisioned district. Based on (Uppsala Kommun 2021b), Modified by the author of this thesis.

The sustainability assessment, which has been produced as an appendix to the in-depth overview plan, mentioned that such an extensive development project as this, predominantly on untouched land, inevitably entails negative consequences for many environmental aspects (WSP 2020).

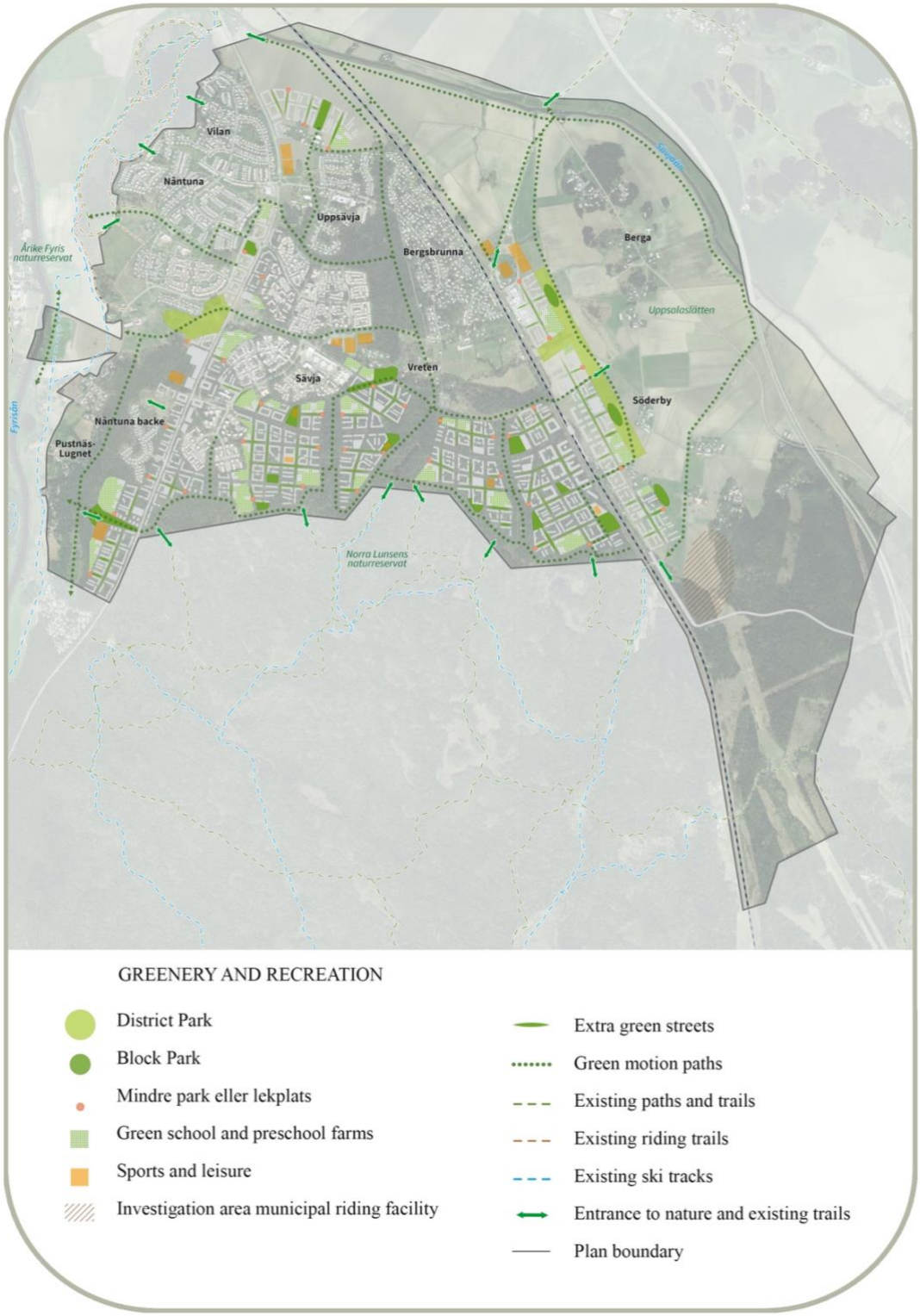


Figure 5. Placement of buildings and green areas in strategic plan. Based on(Uppsala Kommun 2021b), Modified by the author of this thesis.

2. METHODS

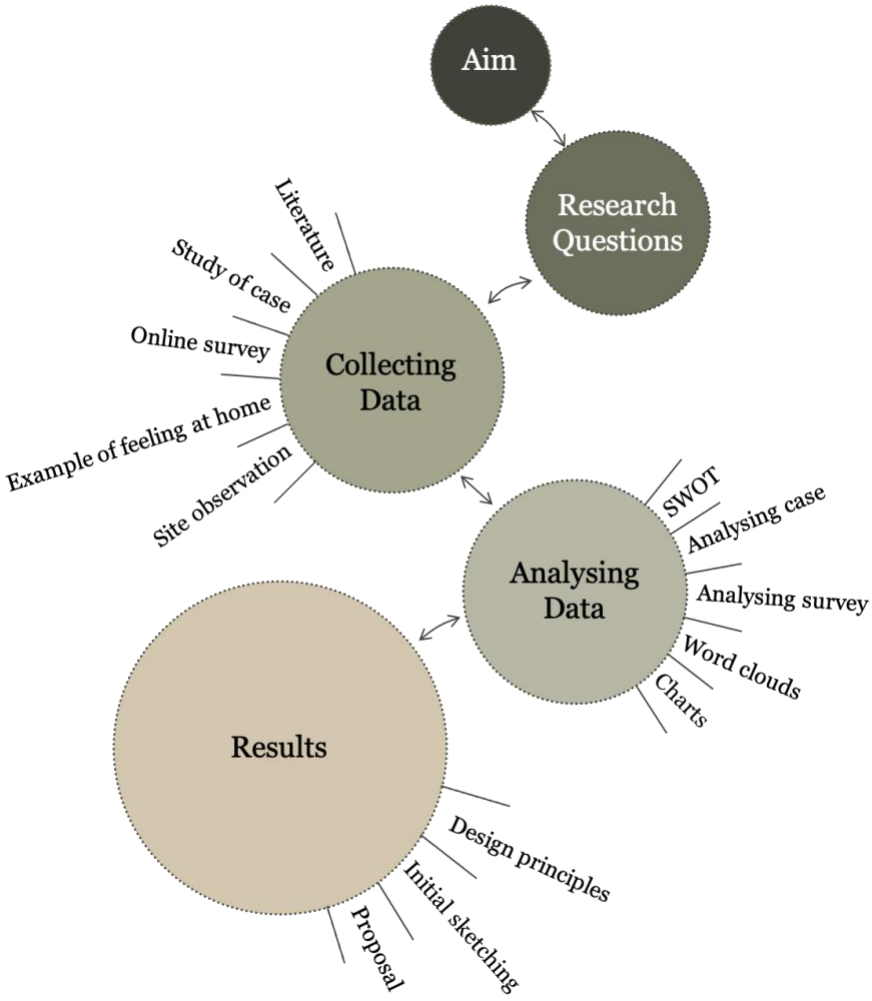


Figure 6. Process of study by the author of this thesis.

This chapter presents the methodological approach and procedure by which this thesis has been outlined to answer the questions. They were answered in an in-depth analysis of Uppsala's south-eastern neighbourhood, people's engagement in consultation meetings, the online survey, the SWOT analysis, criteria based on literature review, and site observation. This helped to make design principles for urban landscapes in the new neighborhood and a proposal for a specific courtyard in the south-eastern districts in Uppsala city.

2.1. | Literature review

A literature study was conducted in order to build a knowledge base for the subject of the thesis. It was divided into three different sections: aesthetic values, social values, and ecological values. Emphasis was placed on finding definitions, aims, and principles for working with these concepts. The search was also regulated on library studies and electronic resources like Google scholar, Scopus, and Web of science. Search keywords were urban landscape, new neighbourhood, ecological design, social sustainability, aesthetic landscape.

Contacting the Center for Environment and Climate Science at Lund university helped to study the value of pollinators in urban areas. They provided different data and documents to support designing pollinator-friendly cities.

2.2. | Site observation

Inventory on the south-eastern districts through field studies was made with the inventory of land use, land-type, and vegetation. The observation was used to identify the current condition of the south-eastern part of the city in relation to opportunities, strengths, weaknesses, and threats. The inventory studies were carried out through photographing, recording, and sketching by hand. And then, they digitally presented by using programs such as Adobe Photoshop.

2.3. | Plan analysis of the south-eastern neighborhood of Uppsala

A specific planning example in Uppsala was used to identify principles found in the literature review. A background study was conducted concerning the history, present, and future conditions of the south-eastern districts. Road map, terrain map, elevation data, ortho-photo, and land cover from Uppsala municipality were studied.

Uppsala residents have had the opportunity to express their opinions regarding the newly envisioned districts in several consultation meetings by Uppsala municipality. The study of comments, questions, and answers that local people raised during consultation meetings was made to meet people's concerns and formulate online survey questionnaires. Moreover, looking into people's concerns regarding the newly envisioned districts helped understand how people perceive urban landscapes. Analysing their expectations gave inspirational principles for designing the new neighbourhood.

Additionally, during the studies, I got a chance to contact the Uppsala municipal authorities via email regarding the newly envisioned districts. They provided data, which helped me in my empirical analysis.

2.4. | Online survey in Rosendal neighborhood

In order to obtain the perception of residents in a new neighborhood, an online survey questionnaire was conducted in the form of closed-ended and open-ended questions. Since the south-eastern part of Uppsala city is not constructed yet, the online survey was regulated in a recently built neighborhood - Rosendal in Uppsala city. The findings from this online survey helped for the design in the south-eastern neighbourhood.

The online survey was launched on the 17th of March 2021, and after almost one week, 73 local people participated in the online survey in the Rosendal neighborhood. The survey was distributed through the Facebook groups of Rodendal residents, which has 1400 members and also shared through a local app for Rosendal buildings, with the help of my friends, who are living there.

Analyzing the results of questions in the online survey which were examined people's experiences and appreciation of their living environment in Uppsala, took place in different phases, which is explaining as follows:

Phase 1: Close-ended questions
Close ended questions asked respondents to choose from a distinct set of predefined responses, such as “yes/no” or among set multiple choice questions. In a typical scenario, closed-ended questions are used to gather quantitative data from respondents. Therefore, in order to easily interpret data, they were presented in pie charts and column charts.

Phase 2: Short open-ended questions
On the other hand, open-ended questions are textual responses and generally used for qualitative analysis and require elaborating respondents' emotions and experiences.
An attempt has been made to find general keywords to identify common patterns and phenomena among responses in short open-ended questions. These keywords are descriptive of phenomena that represent the experiences of the participants in their living environment. This phase defined a visual word cloud of highlighted keywords for short open-ended questions.

Phase 3: Long open-ended questions
Descriptive lines and sentences per response have been highlighted. The interpretations were summarized into three categories based on the thesis topic: aesthetical, social, and ecological values. After categorizing the answers, the critical attitude of each sentence has been identified; keeping the criteria from chapter three in mind and linking them to the theoretical background leads to producing keywords for each attribute. Later on, according to the number of people who cite the same keyword, a word cloud represented the result.

Phase 4: Linking
In the last phase of analyzing the questions, all the analysis methods have been merged into a compilation of individual respondents' experiences in order to get close to the general result. These results can help the research navigate and create a general overview of designing urban landscapes in new neighborhoods in contribution to the highest appreciation of the living environments by their residences.

2.5. | SWOT

A SWOT analysis was performed for the newly envisioned plan in Uppsala. Such an analysis takes into consideration the strengths, weaknesses, opportunities, and threats of a specific landscape from liveability and economic perspectives. The main aim of the analysis was to organize the collected material into a more manageable form with a focus on possibilities and challenges.

2.6. | Example of feeling at home

As a landscape architect and author of this thesis, I decided to explain a neighbourhood from a personal experience, which is purely subjective. But I tried to keep in my mind the knowledge base from the literature in order to analyse my feelings. An example of a neighbourhood in Uppsala city, which appeals to me, has been chosen. This was a chance to find design principles based on my personal experience.

2.7. | Design Proposal

A design proposal for the south-eastern neighbourhood in Uppsala city expressed the theories and analysed data in practice. It started with introducing a design principle for the design proposal, which shows where the design criteria came from.

Then, initial hand-sketching presented design examples, which can be adapted in a neighbourhood. In the end, in order to present the final design proposal for a courtyard in a newly envisioned neighbourhood in the south-eastern part of Uppsala city, computer programs such as AutoCAD, Sketchup, Adobe Photoshop, and Adobe Illustrator have been used.

3. LITERATURE REVIEW

City form and appearance of the living environment must satisfy people who usually experience it since we influence the environment and are affected by it (Carmona et al. 2010). Nasar (1998) articulated people assessed their environment in terms of many vast criteria. He pointed out five attributes of 'liked' environments, with disliked environments having opposing attributes. In each case, it was the observer's realization of the attribute that was crucial. The characteristics convert into a series of generalized preferences:

- Naturalness - settings that are natural or where there is a predominance of natural over built items.
- Upkeep / civilities - setting that appears to be looked after and cared for.
- Openness and defined space - the blending of designated open space with panoramas and vistas of nice elements.
- Historical significance/content - surroundings that arouse desirable associations.
- Order - organisation, coherence, congruity, legibility, clarity (Nasar 1998 see (Carmona et al. 2010).

According to Ian Thompson (2000) - a British landscape architect who has written a book about the values in landscape architecture - the main values are to be found in three areas - ecology, community, and delight. As a liked environment by the public, green infrastructure, based on Nasar (1998), is part of these three values.

Since values are not static and are continuously changing, three values have been selected based on Thompson (2000) and Nasar's (1998), theories. They are represented by three intersecting circles with the highest quality of experience of a neighborhood by their users at the center (see Figure 7). The thesis tries based on the relevant literature, discussing the output of these combinations in urban landscapes.

This Chapter is divided into four sections. Aesthetical values, social values, ecological values, and framework. The term aesthetic value deals with what quality

a landscape must-have. Then the social values section explains the need for social interactions and social cohesion within neighborhoods. It then discusses how urban landscapes will increase social interactions among people within a community. Ecological value in section three explains the effect of urbanization on biodiversity and how we can conserve urban biodiversity. It also provides environmental design solutions in order to decrease the effect of losing habitat in urban landscapes. In the final part, the theoretical framework and design principles are derived from the literature review. It will help in the following chapter regarding designed proposals.

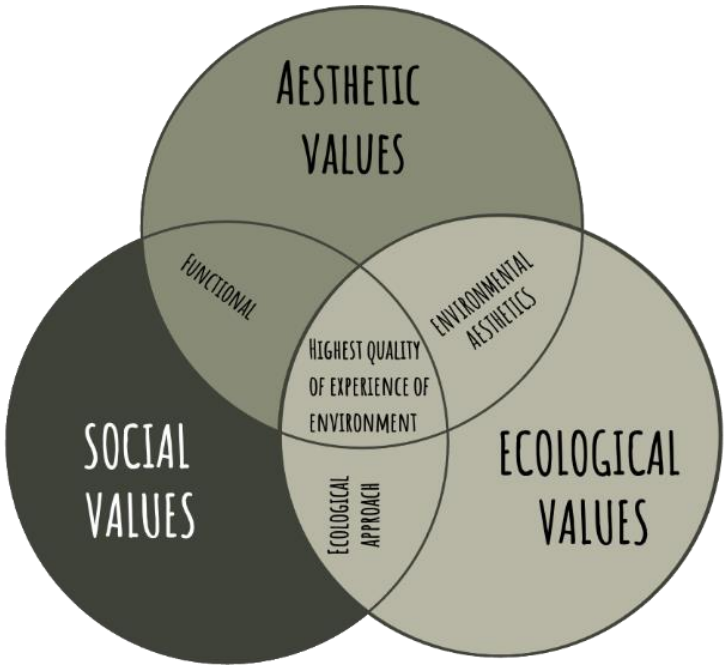


Figure 7. Highest quality of experience of environment by users, by the author of this thesis.

3.1. | Aesthetical values

The word ‘aesthetics’ comes from the Greek, aisthēsis, perception by the senses (Berleant 2016). ‘Aesthetic’ refers to the appreciation of the delightful, the philosophy of taste, or the perception of beauty (Norton 1967). Traditional definitions of aesthetics refer to the perception of beauty in the arts (Nasar 1997).

This part explains the aesthetic values in urban landscapes and will try to answer How do we recognize aesthetics in landscapes? How can environments be appreciated aesthetically?

3.1.1. | Human perception and aesthetics

Human perception has a crucial part in interpreting and assessing aesthetics and other sides of a landscape. Perception is a person’s feeling and cognition of the surrounding landscape (Melluma, Leinerte 1992 see Lazdāne et al. 2013); all senses form it; sight, sound, smell, taste, touch, and cognitive perception, which by interacting interprets what we have seen and heard in our consciousness (Lazdāne et al. 2013). My understanding of good design based on aesthetic values in landscape architecture is illustrated in the following figure.

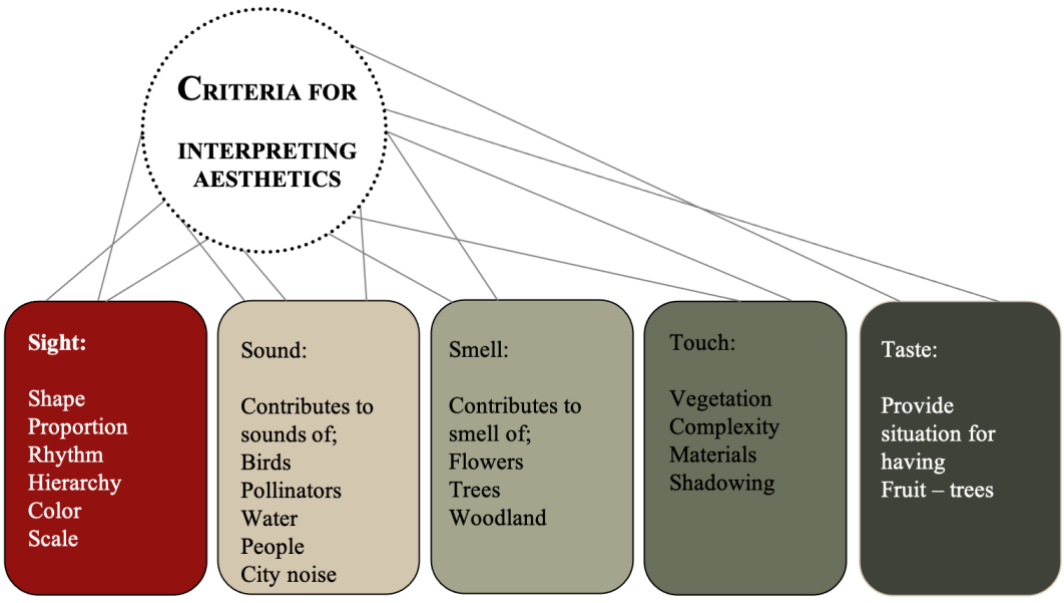


Figure 8. Criteria for interpreting aesthetics in landscape by the author of this thesis.

Theories point out that aesthetics is a complex subject that needs the consideration of individuals’ experiences. Therefore, there might be a contradiction in the

perception of beauty among people. What looks good may not look the same from another perspective. One of the reasons for these contradictions could be the impacts of globalization processes, which influence the transformation of the overall human understanding of aesthetics (Lazdāne et al. 2013).

In the section that follows, the term landscape architecture as an artform will be described, how landscape architecture is assessed as art.

3.1.2. | Landscape architecture as an artform

According to Thompson (2000) the concept of landscape architecture as a work of art has come from the eighteenth century. There are several well-articulated theories about what may constitute a work of art. The following table describes the classification of theories of art suggested by Thompson (2000), which is summarized under four headings (see Figure 9).

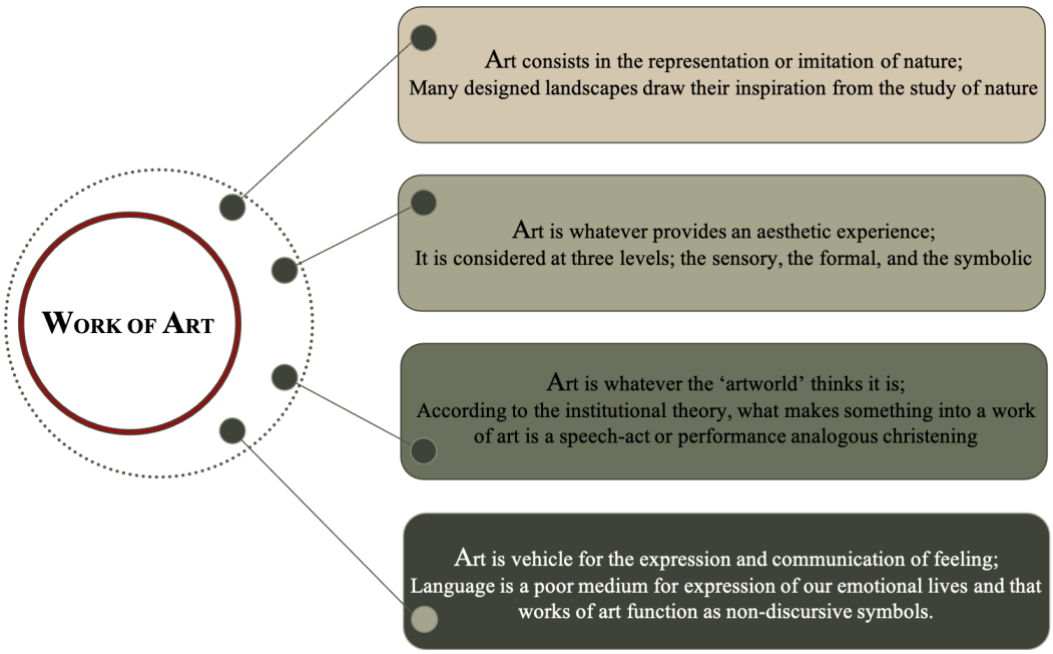


Figure 9. Work of art. Based on (Thompson 2000), Modified by the author of this thesis.

Moreover, van Etteger et al. (2016) interpreted landscape architecture as art. They start by stating that artworks are artifacts; human beings make them.

Taken together, these theories support the notion of landscape architecture as an art, but the question is raised that in practice, is it art? The following part will describe the contemporary definition of landscape architecture.

3.1.3. | In practice; but is it art?

According to the England landscape institute (2015), landscape architecture is a creative profession skilled with a combination of science and art, vision and thought. Landscape architects bring knowledge of natural sciences, environmental law, and planning policy; they create delight with designs, protecting and enhancing our landscapes (Landscape Institute 2015).

The landscape architectural discourse has recently contributed to avoiding aesthetics ideas while concentrating instead on functional and sustainable design concepts (van Etteger et al. 2016). A contrast has often been made between the fine arts and practical arts, such as painting, sculpture, music, and poetry, in contrast with furniture making, industrial design, glass-making, metalwork, and ceramics (Herrington 2007 see (van Etteger et al. 2016). In this way, theorizing landscape architecture serves more practical purposes.

3.1.4. | Not art but 'good design'

Ian Thompson (2000) has argued that just a small number of landscape architects believe that landscape architecture should aspire to be fine art, with a much larger group navigating by the beacon of 'good design,' a position which would place landscape architecture in the category of the applied arts. Furthermore, Nasar (1998) continues, aesthetics can be distinguished between the formal and symbolic. The former includes criteria like shape, proportion, rhythm, scale, complexity, colour, illumination, shadowing, and hierarchy, which explain the physical aspects of buildings. Symbolic aesthetics is characterized by principles like the human experience of building exteriors through mediating content variables that are not described completely by physical characteristics (Nasar 1998 see (Carmona et al. 2010).

Landscape architecture elements could be defined as landform, plant materials, buildings, pavement, site structures, and water (Booth 1989). Plant materials concentrate on architectural and aesthetic uses of vegetation. Moreover, buildings' characters introduce the placement of buildings in relation to the environment, which creates different areas as public, private, and semi-private in front of buildings (ibid.).

However, urban design elements could be defined as a street pattern, plot pattern, building structures, and land use (Carmona et al. 2010). The street pattern is the

layout of urban blocks and public space/movement channels between those blocks. Plot patterns may be ‘back-to-back’ plots, each having a frontage onto the main street and a common plot boundary at the back (ibid.).

These studies clearly indicate a relationship between the design of landscape architecture and the design of the urban environment, which both consider good design as aesthetically attractive and functionally works well.

3.2. | Social values

Landscape is considered the concrete manifestation of the interactions between the public and its place of living: as such, it can create a reference for people's identity and feelings of belonging to an environment (Zerbi, 2007; Turri, 1998 see (Nardi 2017). Social interactions and social cohesion within the community are the keys to achieving the highest quality of life (Karuppannan & Sivam 2011). Therefore, this section explains how urban landscapes will increase social interactions among people as one of the chosen values within a neighborhood scale.

3.2.1. | Human needs

The primary purpose of a design environment is to satisfy people's needs (Murphy 2016). The theory of social sustainability is based on the concepts of needs and work (Littig and Grießler 2005 see (Harun et al. 2014), which means that people need to work together and interact in order for society to be socially sustainable. Social interactions constitute community feeling and establishes a common sense of purpose and other social profits (Karuppannan & Sivam 2011).

Psychologist Abraham Maslow formulated a general theory, which explains how people strive to meet their demands in a hierarchical series of motivational categories (Lester 2013). According to Maslow, people satisfy their most basic needs first; then, as each consecutive category becomes satisfied, attention is moved to address those in the next tier in the hierarchy, which is approximately less necessary for urgent survival. The hierarchy pattern is explained as a pyramid of human needs with the opportunity to satisfy the demands in each row being based on the relative satisfaction of the level directly below it (see Figure 10) (Murphy 2016).

According to Murphy (2016), belonging includes people's involvement with others, to be loved and accepted within their community through expressions of approval from interpersonal interaction. The following section describes the sense of belonging to the neighborhood, based on different theories.

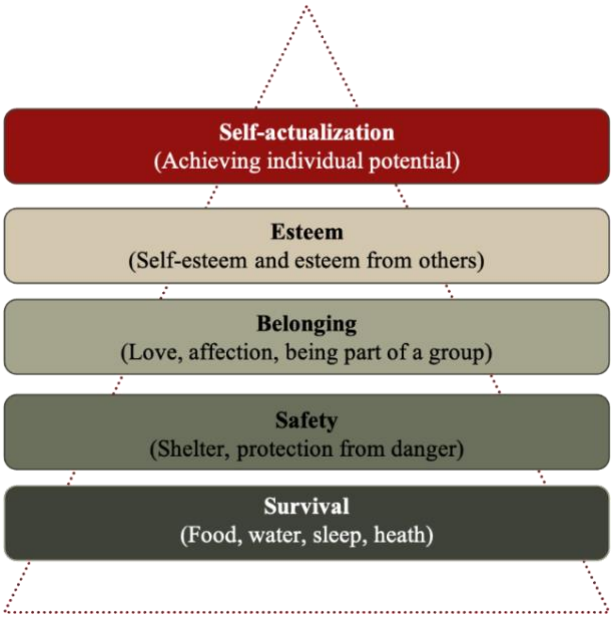


Figure 10. Maslow's pyramid of human needs. Based on (Murphy 2016), Modified by the author of this thesis.

3.2.2. | Belonging to a neighborhood

Community interaction can be measured by elements such as frequency of meeting their neighbors, knowing their neighbors, making new friends, strongly feeling attached to a dwelling, and feeling at home or stopping to chat with neighbors and say hello (Karuppannan & Sivam 2011). Furthermore, the same authors mentioned that participation in social and community activities, safety and security, trust, belongingness, collective norms and values, opportunities for informal and formal social gathering, communal order also contribute to the quality of community life.

Oscar Newman (1996) defines defensible space as a residential environment whose physical characteristics - building layout and site plan - function to allow inhabitants themselves to become key agents in ensuring their security. An area is safer when people feel ownership and responsibility for that piece of a community (ibid.).

A sense of belonging to a new neighbourhood needs time. Length of residence is related to becoming used to the new place and having experiences enabling people to create a bond with it (Rishbeth & Powell 2013). However, responses to landscape and feelings of belonging are also highly influenced by personal meanings and specific daily experiences (ibid.).

3.2.3. | Social sustainability of a neighborhood

Shirazi and Keivani (2019) formed the idea of the social sustainability of neighborhoods as a combination of two parallel but interconnected conceived and perceived qualities. The authors' conceived form of social sustainability addresses the physical and configurational qualities of neighborhoods in terms of availability and accessibility of urban services, building density, connectivity, building typology, and land use, what we considered as 'tangible infrastructure.' On the other hand, the perceived aspect reflects the perception of the neighborhood inhabitants from the fundamental social qualities of a neighborhood, including equal accessibility, social interaction, participation, safety, and home and neighborhood quality, which was discussed as 'intangible infrastructure' (ibid.) (see Figure 11).

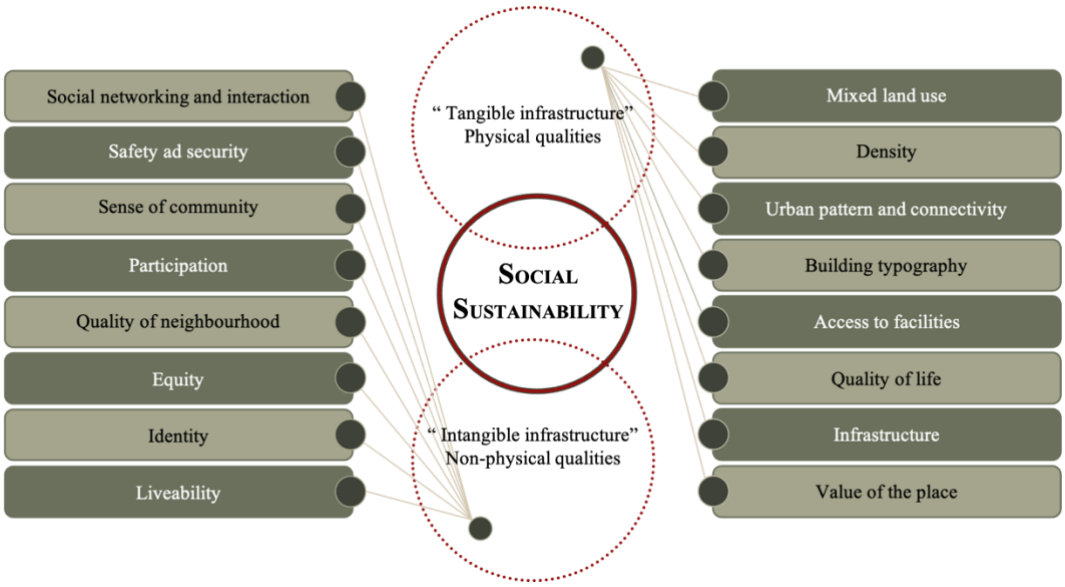


Figure 11. Defining social sustainability. Based on (Shirazi & Keivani 2019), Modified by the author of this thesis.

In this sense, socially sustainable neighborhoods are defined as neighborhoods where both conceived and perceived qualities of the neighborhood collaborate at a high-standard level for a noticeable period (Shirazi & Keivani 2019). According to them, perception of social sustainability simultaneously addresses physical and non-physical qualities of the built environment. For instance, while human interaction, equity, sense of community, and social interactions are generally non-physical, personal properties, the concepts like the quality of life, the proper infrastructure, internal and external housing conditions, and place's value have clear material and objective aspects.

Taken together, a considerable amount of literature has been published on the effect of environmental design, which can motivate people to control the environment and make sense of belonging, security, and defense. Therefore, the importance of social sustainability is emphasized when it comes to the quality of life in relation to designing a built environment.

3.2.4. | Design as a key for social values

The key to creating sustainable development is design (Karuppannan & Sivam 2011). The same authors articulate that the intensity of social interaction is very much related to recommended activities, design elements, and patterns. Common areas for passive and active recreation at the residential level in neighborhoods increase interaction within the community and allow people to interact with society (ibid.).

3.3. | Ecological values

The distribution of urban dwellers continues to grow at an extraordinary pace, and by 2050, over two-thirds of the Earth's population will be living in urban areas (Soga et al. 2014). According to the same source, given this scale of urbanization, it is extremely important to accommodate urban development and biodiversity conservation. It could benefit both city-dwellers and nature conservation (Dearborn & Kark 2010).

Therefore, this section is going to explain how ecological design could work as a solution for conserving urban biodiversity and benefit city-dwellers.

3.3.1. | Urban biodiversity

Biodiversity refers to the diversity of life on earth (Rottle & Yocom 2011). Most often however, the biodiversity is approached at the species level (Hermy 2010). Urban biodiversity can be understood as a diversity of species and ecosystems (Ahern 2013).

There are several main reasons to conserve urban biodiversity. First, cities were formerly entrenched in riparian areas, ecological transition zones, or other naturally species-rich locations (Dearborn & Kark 2010). Secondly, nature in cities is crucial for maintaining and improving human health and well-being, with diverse impacts from physiology to social behavior (Soga et al. 2014). Thirdly, being exposed to nature in cities can reduce the extinction of experience and disengagement of people from natural environments, which may have broader consequences for the support for conservation action and the future of biodiversity (ibid.).

Thus, there is an extensive need for enhancing biodiversity in urban environments. Studies have demonstrated that some structural features (e.g., tree cover, diversity of habitats) and management practices contribute to better conditions for urban biodiversity (Shwartz et al. 2014).

3.3.2. | Ecological design

"Ecological design, at its deepest level, is designed for biodiversity" (Van Der Ryn & Cowan 1996). In the urban environment, ecological design can be interpreted as solutions which integrate human needs at the same time as a fashion in which to cope with environmental challenges (Rottle & Yocom 2011). The same author also said that by promoting ecology in design, the development of a self-maintaining environment is provided. As maintenance often creates a time-consuming and costly factor regarding energy consumption, principles of ecological design can

reduce both time and costs associated with maintenance in designed landscapes (ibid.).

Since it is not possible to introduce all the advantages of ecological design in this study, delamination has been made. The following part is clearly going to focus on the advantages of ecological design for humans and pollinators.

3.3.2.1 | Human dimension

Urban nature contributes to a variety of benefits to psychological health (Matsuoka & Sullivan 2010). When individuals are exposed to urban nature regularly, they reliably show an enhanced capacity to concentrate, better ability to cope with the stress, higher levels of life satisfaction, and greater well-being (ibid.).

According to the same author, a number of recent studies indicate the positive impacts that access to urban nature can have on the amount of social interaction, and continuously, the strength of social ties, among neighbors. Green urban spaces appear to attract people outdoors and increase opportunities for casual social encounters among neighbors. Green places may diminish aggression and violence.

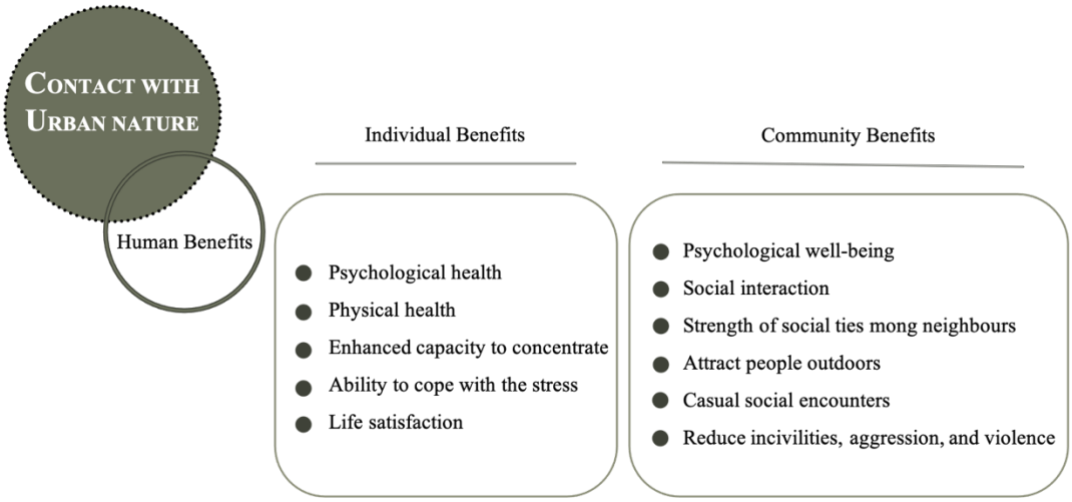


Figure 12. Advantages of being in touch with urban nature. Based on (Matsuoka & Sullivan 2010), Modified by the author of this thesis.

3.3.2.2 | Pollinators

Pollinators are part of our biodiversity. Without pollination services, we would lose many fruits, nuts and vegetables from our diets, and many other important foodstuffs and materials, such as vegetable oils, cotton and flax (Wilk et al. 2020).

Besides these material benefits, society benefits directly or indirectly from the services of pollinators, including our health and well-being (ibid.).

Pollinators are mainly insects - including bees, hoverflies, butterflies, moths, beetles and other fly species. Transfer of grains of pollen between flowers on different plants– is an essential step in the reproduction process of most flowering plants, including many plants we rely on for food and materials (Wilk et al. 2020). This process takes place as insects and other animals' movements from plant to plant. Without pollinators, many plants could not set seed and reproduce (ibid.).

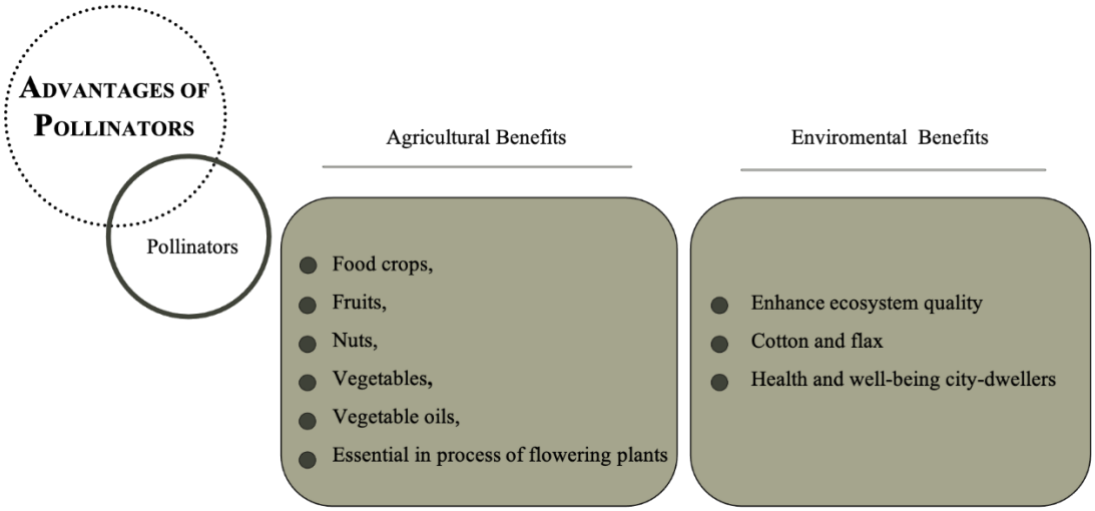


Figure 13. Advantages of pollinators. Based on (Wilk et al. 2020), Modified by the author of this thesis.

However, according to the same authors, scientific studies express that populations of wild pollinators have dropped across Europe over the last few decades. These trends call for urgent conservation action.

3.3.3. | Design with ecological approaches

Vegetation is one of the most evident elements of landscapes (Murphy 2016). In order to use ecological design, this section presents different approaches which will be performed in the selected case study later. Below, working with native plants, the greening of roofs, building facades, street tree planting, rain gardens, and inviting pollinators to the urban areas are presented.

3.3.3.1 | Native plants

Kongjian Yu, one of the pioneers within the ecological design, states that very simple skills and common native plants can be used to solve complicated issues

(YU 2006). As plants native to a specific environment have accommodated the local conditions, fewer resources are required to support them (Rottle & Yocom 2011). Consequently, they will receive a greater number of visits from pollinators (Wilk et al. 2020).

Native species can be precious because of the cultural heritage and the symbolism that expresses familiarity to individuals and strengthens people's relations to places (Gustavsson 2004). Moreover, they are safer to use in a long-term perspective, especially in stressed urban environments (ibid.).

3.3.3.2 | Green roofs

"A green roof is a flat or sloped rooftop designed to support vegetation." (Dvorak & Volder 2010). An important feature of green roofs aiding biodiversity is acting as stepping stones through a city (Dunnett & Kingsbury 2008). They can create critical networks between parks, gardens, and other urban greenspace and let animals stop by and plants spread.

3.3.3.3 | Green facades

A vertical garden is another way to incorporate greenery in urban environments (Svenska naturtak 2015). The same source points out good qualities, for instance improving the urban climate and environment, reduction of the intense heat and smog in the city, filtering harmful substances, it has a cooling effect during the summer and an insulating effect during the winter inside the buildings, it enhances the biodiversity of species in the city, absorbs carbon dioxide and produces more oxygen. Moreover, it is also used for its aesthetic value.

Dunnett & Kingsbury (2008) explain that green walls make a significant difference in fauna biodiversity in urban areas. They contribute habitats for insects, spiders, beetles, and invertebrates that are eaten by birds and bats who affect the shrubbery of the green walls (ibid.).

3.3.3.4 | Street trees

Street trees can enhance local conditions for wildlife and simultaneously improve the human environment by reducing the urban heat island and providing aesthetic beauty (Rottle & Yocom 2011). Street trees adequately provide shade for roads and sidewalks; moreover, it introduces diversity into the street environment and provides a varied classification of habitats (ibid.). The following table can show the advantages of street trees;

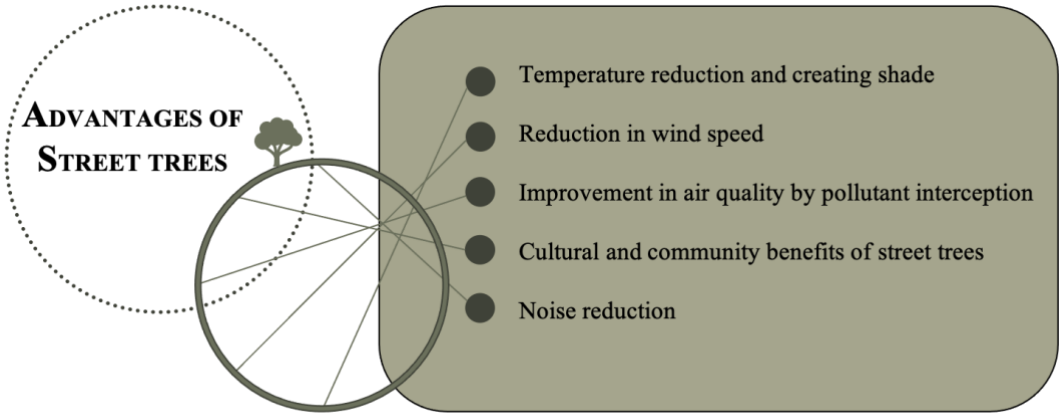


Figure 14. Advantages of street trees. Based on (Rottle & Yocom 2011), Modified by the author of this thesis.

3.3.3.5 | Rain gardens

A rain garden is a system designed for managing and treating water from frequent rainfall events (Robinson et al. 2019). The authors also said that the primary purpose of the rain garden is to treat stormwater rather than to retain it. The stormwater from roofs, roads, and parking areas is headed to the nearby plant bed, where the plants infiltrate through different layers (ibid.). Rain gardens in urban settings can also serve aesthetic and biodiversity purposes.

3.3.3.6 | Inviting pollinators to urban areas

There are two main ways in order to increase the number of environments suitable for pollinators; to manage existing green areas and create new suitable environments (Wilk et al. 2020). In addition, in order to increase the value of green areas for biodiversity, there is a need to connect them with green corridors to a green network in the city. This would allow pollinators to move between patches easily. (Benton 2006, Vergnes et al. 2012 see Wilk et al. 2020).

Furthermore, there are two best options for creating habitats for different pollinators; natural nesting habitats and artificial nesting habitats (see Figure 16).

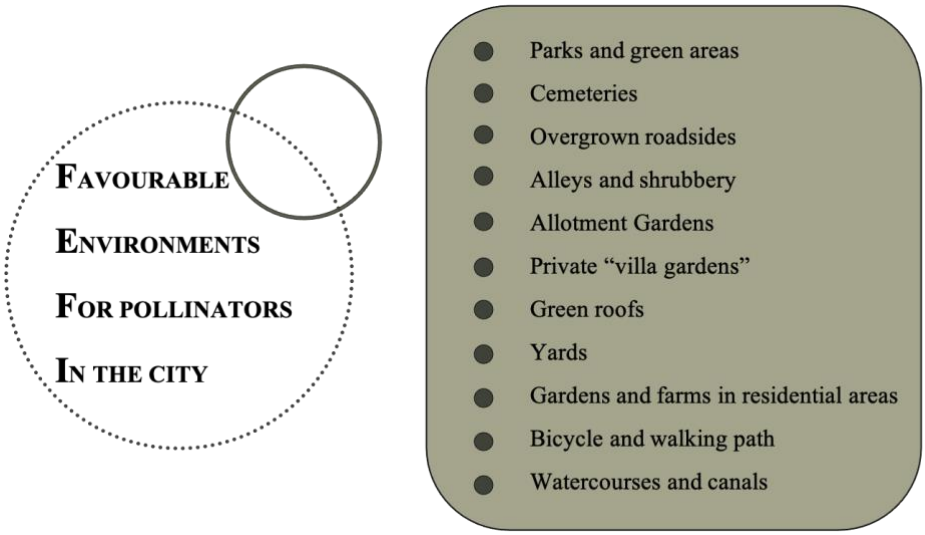


Figure 15. Favorable environments for pollinators in the city. Based on (Wilk et al. 2020), Modified by the author of this thesis.

Figure 16. Natural and Artificial nesting habitats in cities. Based on (Wilk et al. 2020), Modified by the author of this thesis.

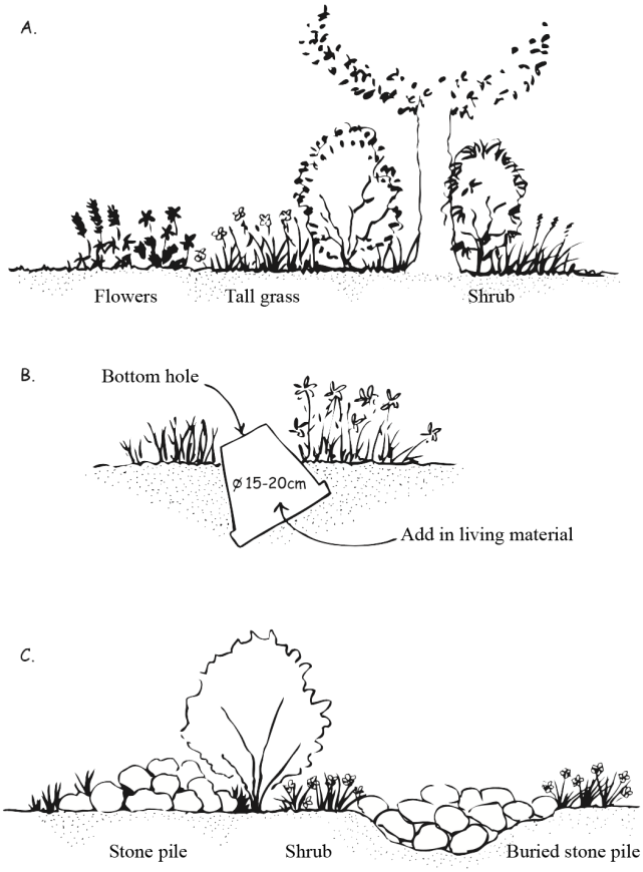


Figure 17. Different ways to create habitat environments: A. Shrubbery and tall grass, B. Buried terracotta pot, C. Stone piles that form cavities (Persson 2012).

3.4. | Framework

The study of the thesis is centered on the theme of the urban landscape. Three theoretical frameworks were designed based on the literature review in this chapter to follow the main principles in urban landscape design in new neighbourhoods.

In this study, the purpose of design is to improve the quality of life for humans, flora, and fauna populations. The thesis analysed literature concerning aesthetical, social, and ecological values. After conducting the analysis, a framework is filled with conclusions and objectives for the sustainable development of a neighbourhood. In order to improve the human, flora, and fauna conditions, some of the performance requirements are outlined below (see Figure 18).

Figure 18. Design principles derived from theories, by the author of this thesis.

4. ANALYSIS OF FINDINGS

This chapter presents the analysis in response to the collected data and describes the study's findings. It evaluates social, aesthetical, and environmental aspects of landscapes and people's relationship to the outdoor physical environments.

4.1. | Introducing the site

Pictures below display the south-eastern district in Uppsala city in my site visit. The most important elements of the site, from my perspective, are represented in the following figures. These include a mixture of natural environments such as woodlands, pastures, arable land, wetlands, the Fyrisån river, built structures, and railway.

The planning area is delimited by Natura 2000 Lunsen area to the south. To the west by Årike-Fyris nature reserve. Just west of the planning area, there are agricultural lands. Within the northern part of the planning area, the Sävja neighborhood is visible (WSP 2020).

The site consists mainly of forests and arable land. The forest is located on one side of the railway, and on the other side, there are large agricultural fields that are spreading out like a sea of grass and plants. There are beach meadows with high natural values on both sides of the Fyrisån river. The area is an important resting place for migratory birds, and the land next to the river serves as a floating plane to the Fyrisån river with high species and biotope values (WSP 2020). Wetlands in the forest areas are suitable habitats for water salamanders, field frogs, and common frogs (ibid.).

Figure 19. Surrounding of south-eastern districts in Uppsala city, by the author of this thesis.

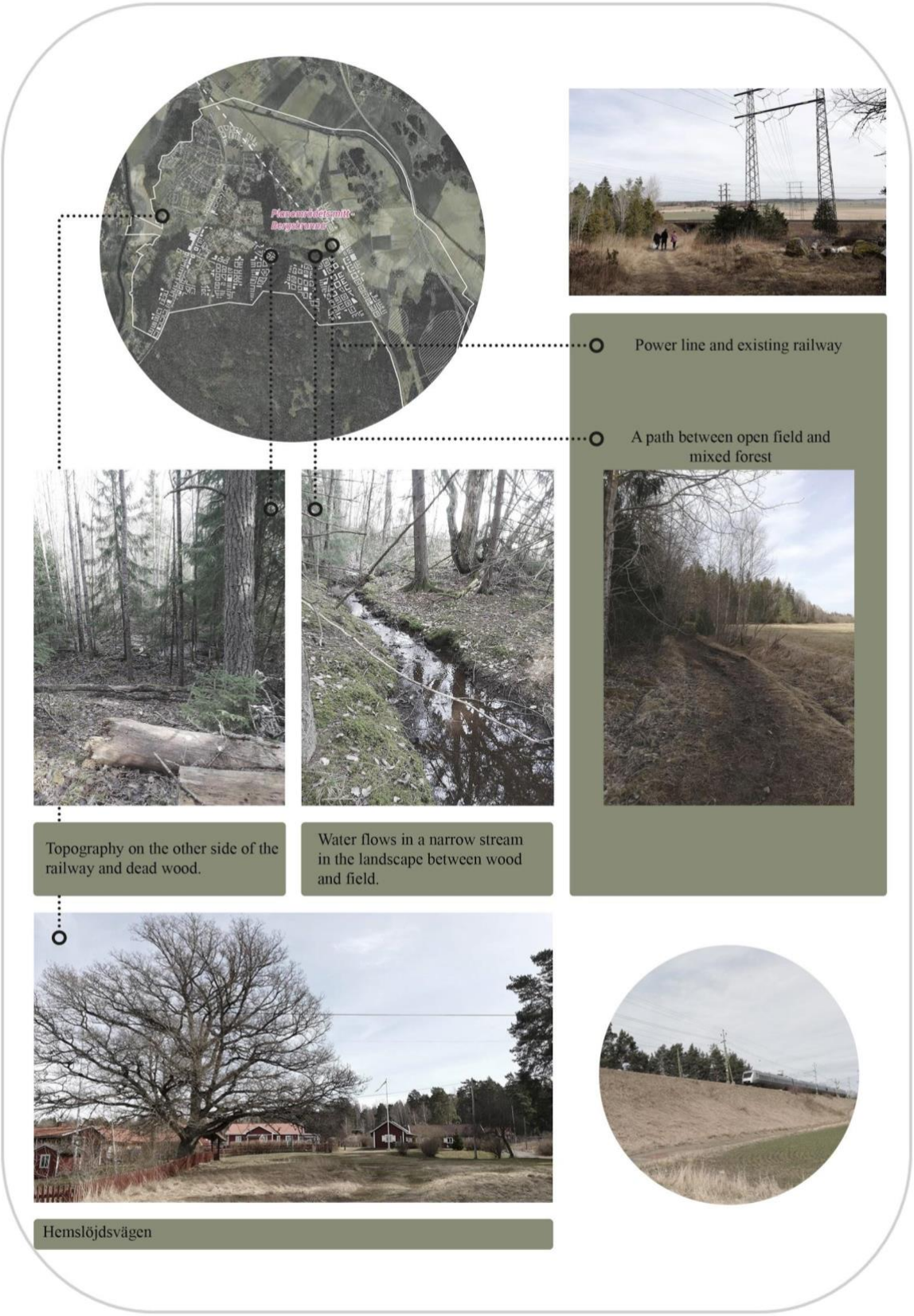


Figure 20. Surrounding of south-eastern districts in Uppsala city, by the author of this thesis.

The forest is varied in age and tree species, but has a large element of centuries-old pine trees (Uppsala Kommun 2021a). Overlaying historical maps of Uppsala in 1700 onto google earth in 2020 and strategic plan in 2020 represent that many old structures are still the same in the landscape today as for 300 years ago (see Fig 21). The arrow points out a line of starting areas for woodland on the old map. Recognizing the history of this area would help to conserve some part of this woodland. Overall, many greeneries and habitats will be replaced by construction according to the municipality's proposed plan, which will be discussed in-depth in the SWOT section.

Figure 21. Overlaying historical map of Nåntuna from Lantmäteriet in 1700, strategic plan by Uppsala municipality in 2020, and google earth in 2020,(Upplandsmuseet 2018), (Uppsala Kommun 2021b), and (Google earth 2020), Modified by the author of this thesis.

4.2. | Analysing people engagement with in-depth plan

The proposal for an in-depth overview plan was out for consultation in the spring of 2020. At that time, about 400 opinions were received. The opinions have led to changes to meet the wishes of citizens and consultative bodies. The most recent meeting in 2021 was attended by 663 people. Uppsala residents have had the opportunity to chat on the web with the municipal boards, about the plans for the south-eastern districts. The following are some examples of questions and answers based on Uppsala municipality's website which was published in February and March 2021(Uppsala Municipality 2021).

Table 1. Some examples of questions and answers from consultation meetings based on (Uppsala Municipality 2021), Modified by the author of this thesis.

	Quote
Participant: Municipality:	Why does it have to be built so much? The amount of new housing planned is partly based on population forecasts that indicate that the amount of housing is needed to avoid housing shortages if Uppsala's population continues to grow at the expected rate.
Participant: Municipality:	Why is it built so high and dense? Most of the planned area is built with 2–5-story buildings. Streets and courtyards are generally generously sized to provide opportunities for lots of greenery and good access to daylight, among other things.
Participant: Municipality:	Why is it built on qualitative arable land? The goal has been to minimize the number of buildings on agricultural land.
Participant: Municipality:	How are natural values handled within the in-depth overview plan? After the consultation meetings, the buffer zone against Lunsen has been expanded, among other things. This is to ensure that the municipality, in the future detailed planning phase, has the opportunity to protect the Natura 2000 area Lunsen's designated species and habitat types from impact. Within the planned buildings, several spreading routes are also planned, which are designed so that, among other things, amphibians, birds, and bats can move between different natural land surfaces.
Participant: Municipality:	I wonder why the large expansion plans mainly consist of the same type of housing, even if you change the name and call it a "garden city" instead of a "concrete city". There will be no "concrete city," and that has never been the idea. The houses will be built in sustainable materials such as wood and brick.
Participant:	According to your plans, an entire forest will be felled, and all existing buildings will be built!

Municipality:	Generally, great consideration must be given for future planning, and nature must be saved where possible. Uppsala needs to build housing and more workplaces as we become more numerous. It is a municipality's duty to plan for it. The intention is to do it without causing insecurity, and there is much knowledge about how to compliment a city so that it becomes both pleasant, safe, and sustainable.
Participant: Municipality:	How do we avoid the new Sävja becoming another outlying area with problems such as crime, drugs and other things? We have discussed this with the police and it has led to FÖP having a goal under the theme "Health, safety and security". We write that "Physical environments should be designed to prevent crime and increase security".
Participant: Municipality:	Most of us who live here today do it for a reason; we want to live in a smaller community, we want to take a walk in the woods, pick mushrooms, etc. Where should we go when our habitat disappears? An important reason for the City Council's decision to form the nature reserves Norra Lunsen and Årike Fyris was precisely to ensure that Uppsala residents would also have access to nature and recreation in the future.

According to the questions and answers, it is apparent that a growing Uppsala will need more housing, and Uppsala municipality has to plan for it. The responses tried to answer the questions, but there is still room for putting more effort into it since the audiences were mainly concerned about the woodland, which will disappear where the new building will stand. This woodland is valued by people, which means that a link to biodiversity was drawn. They are thinking about biodiversity needing to be protected or even enhanced in Uppsala city.

Although the revised proposal shows that the buffer zone against preserved nature has been expanded, according to the audience's questions, there is room for citing how the green areas work. People need to know more about garden city ideas, sustainable materials, and ecological design approaches.

Furthermore, People are also concerned about problems such as crime in the new neighborhood. Oscar Newman (1996) argues that an area is safer when people feel ownership and responsibility for that piece of a community. Uppsala municipality mentioned that the physical environment should be designed to prevent crime and

increase security. At the same time, the audience had questions regarding how the design works in housing development to prevent crimes, which means there is a need for more investigation to represent the good design in the new neighborhoods.

4.3. | Analyzing online survey in Rosendal neighborhood

The online survey was set up, keeping in mind the present study's research questions and tried to refer to Nasar (1998) and Thompson's (2000) theory regarding urban landscapes. Therefore, they were designed to point out naturalness, civilities, openness, history, order, delight, community, and ecological values. The questions were arranged to ensure that the outcome could be used in order to provide principles for this thesis study. The questions were also formed to feel encouraged to connect participants' experiences of the urban environment with their emotions. Moreover, it helps to know more about the local needs and demands, development trends and tendencies, potentials, challenges, and opportunities. The questions were asked on the online survey are as follows:

Question 1: Do you appreciate your living environment as a whole?

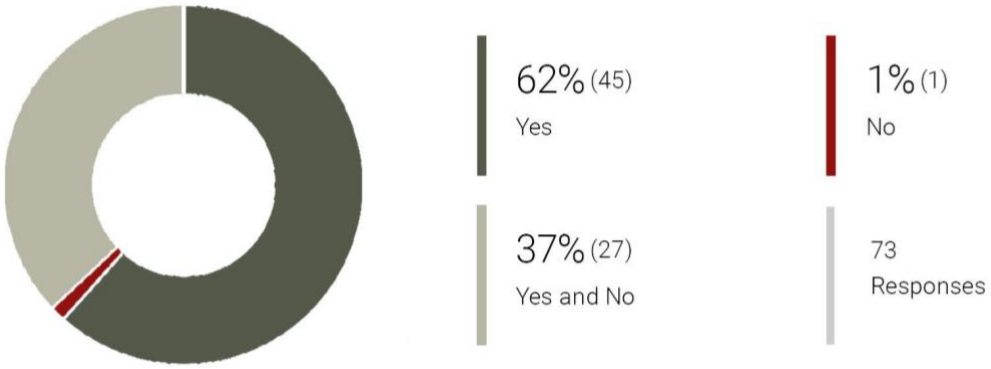


Figure 22. Appreciation of Rosendal neighborhood, by the author of this thesis.

Question 2: What is the motivation for you to be in your neighborhood? Choose as many as you wish.

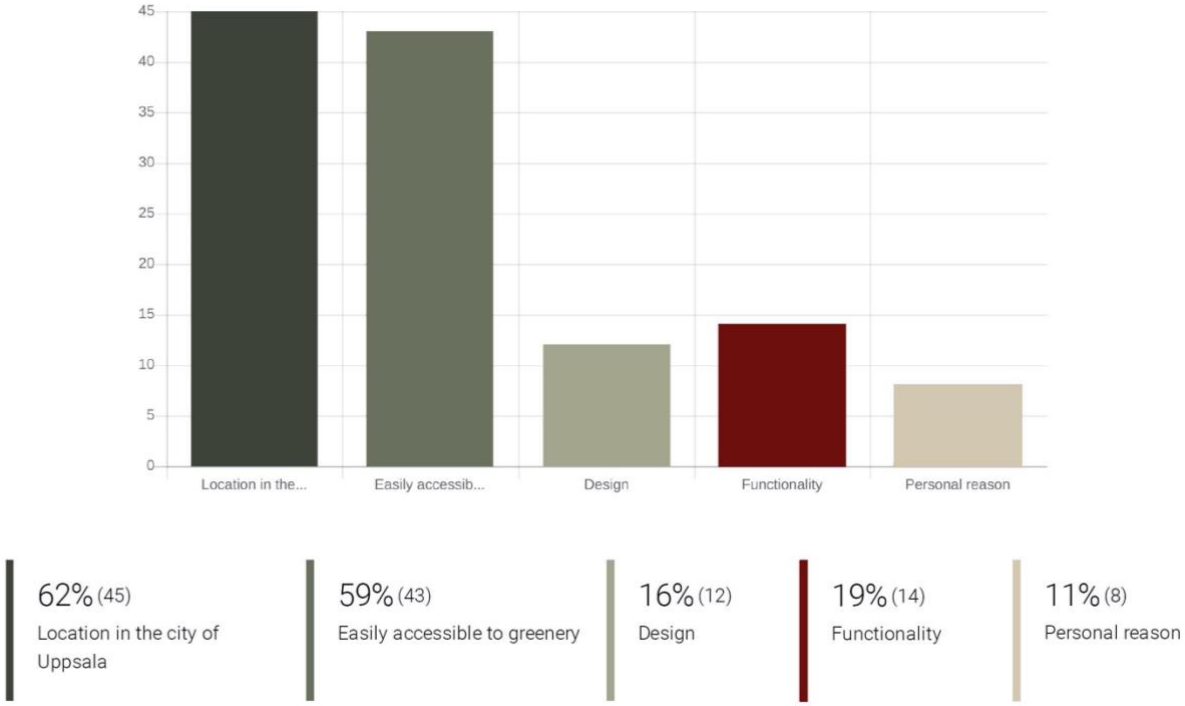


Figure 23. Reported motivation for living in Rosendal neighborhood, by the author of this thesis.

Question 3: Do you sense any elements of cultural/historical connections in your living environment?

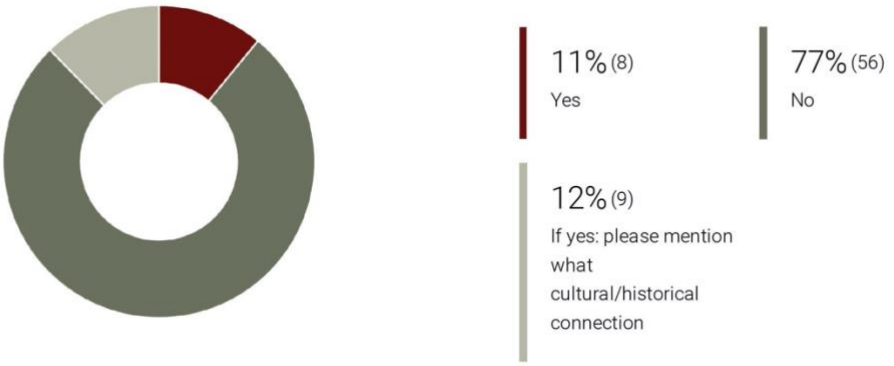


Figure 24. Reported connection with cultural/historical in Rosendal neighborhood, by the author of this thesis.

Below, the word cloud shows keywords mentioned by respondents. Only nine out of seventy-three respondents sensed a historical connection in their living environment, mainly through the military signs in the forest and street names. A grandchild of a military officer living in the Rosendal neighborhood wrote a short history of Rosendal, located on the old practicing grounds of military services in Uppsala.

Figure 25. Keywords related to cultural/historical connections in the living environment of nine respondents, by the author of this thesis.

Question 4: Have you ever got a feeling that you get involved with people intentionally or accidentally in the public or semi-public space in your neighbourhood?

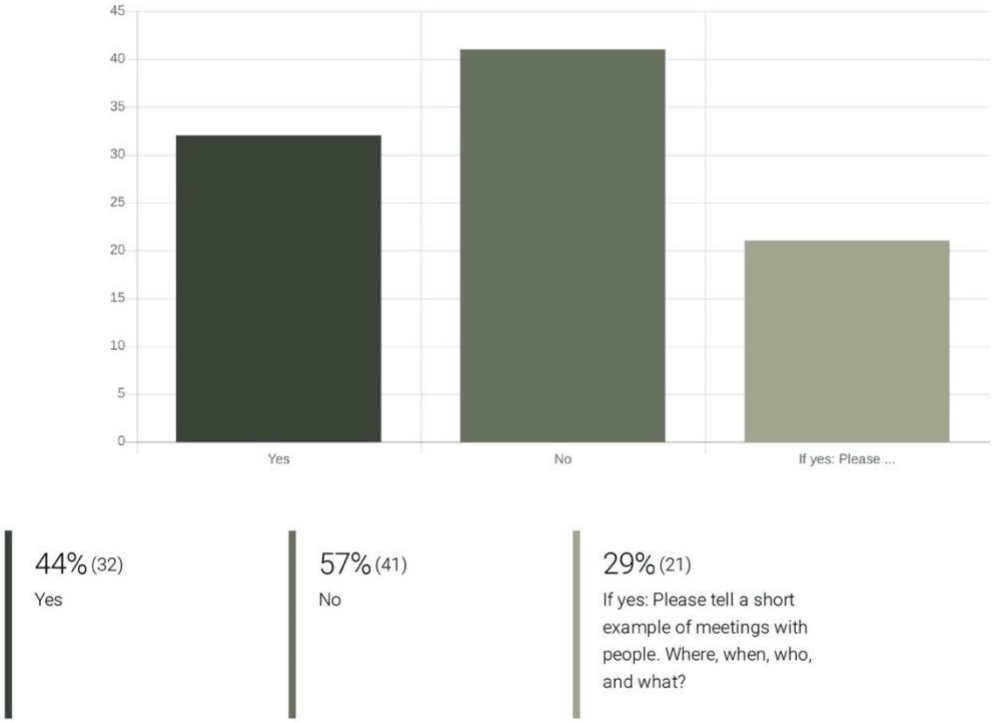


Figure 26. Reported involvement with people in Rosendal neighborhood, by the author of this thesis.

Below, the word cloud shows keywords mentioned by respondents. Twenty-one out of thirty-two "yes" respondents mentioned where they get involved with their neighbors. Some of them said that it was only a small chat in the elevator or common areas, but it would be nice to have more engagement and social events. According to the word cloud, it seems that parents, dog owners, and those who are engaged in physical activity get more chances to socialize with their neighbors. It's also been mentioned that when we water our plants in our public garden, we meet our neighbors.

Figure 27. Keywords related to where people get involved with their neighbors intentionally or accidentally in the public or semi-public space. Twenty-one out of seventy-three respondents, by the author of this thesis.

Question 5: Please choose any outdoor activities in public and semi-public areas that you would like to have incorporated in your outdoor living environment. Choose as many as you wish.

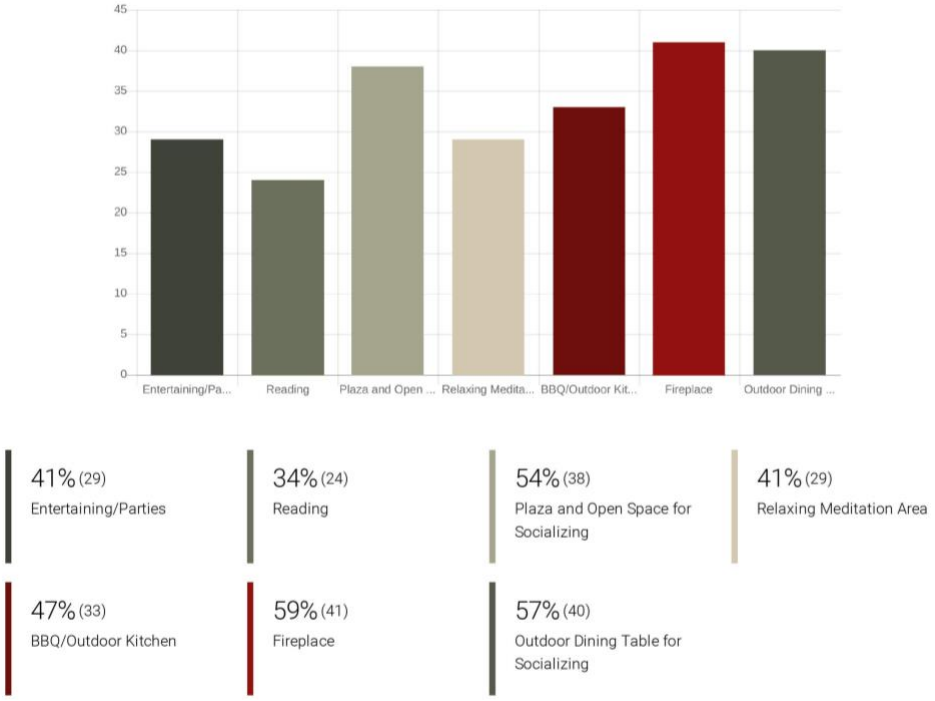


Figure 28. Favorable outdoor activities by respondents, by the author of this thesis.

Question 6: What measures can be taken to increase urban greenery in your neighborhood?

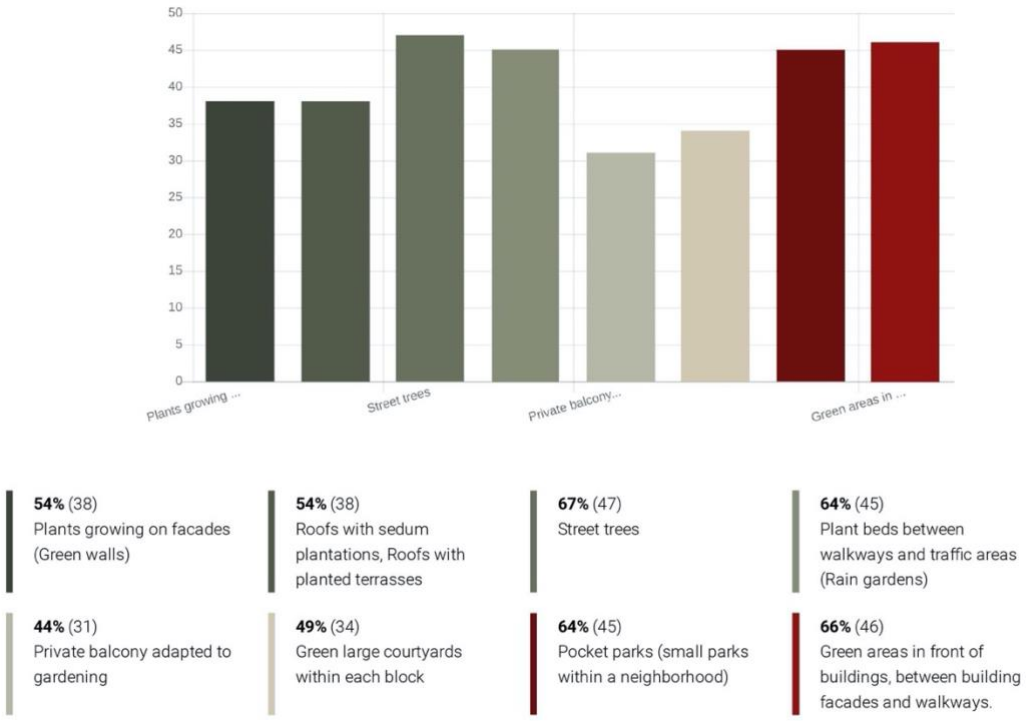


Figure 29. Favorable urban greenery by respondents, by the author of this thesis.

Question 7: How do you experience the density of your living area? Are the measurements of the courtyards, parks, and street environments spacious enough for sunlight to come down and greenery to grow?

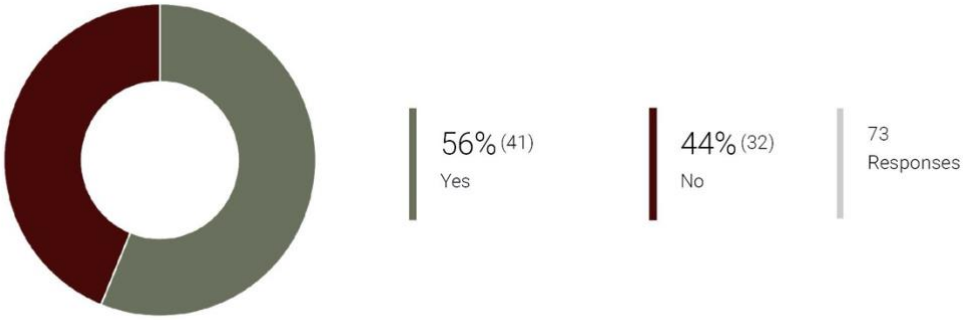


Figure 30. Experiment of density by respondents, by the author of this thesis.

Question 8: How would you like the green area in your neighborhood to look?

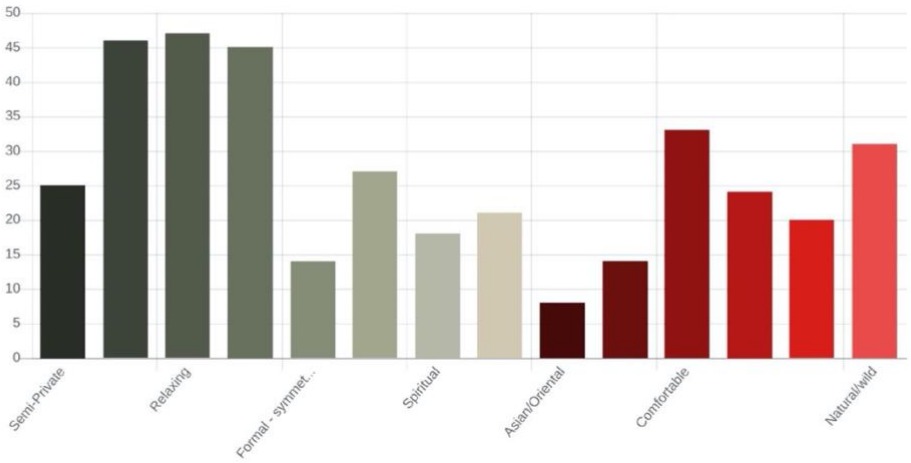


Figure 31. Favorable style by respondents, by the author of this thesis.

Question 9: Please check the shapes and styles you prefer to see in your neighbourhood's gardens and open spaces.

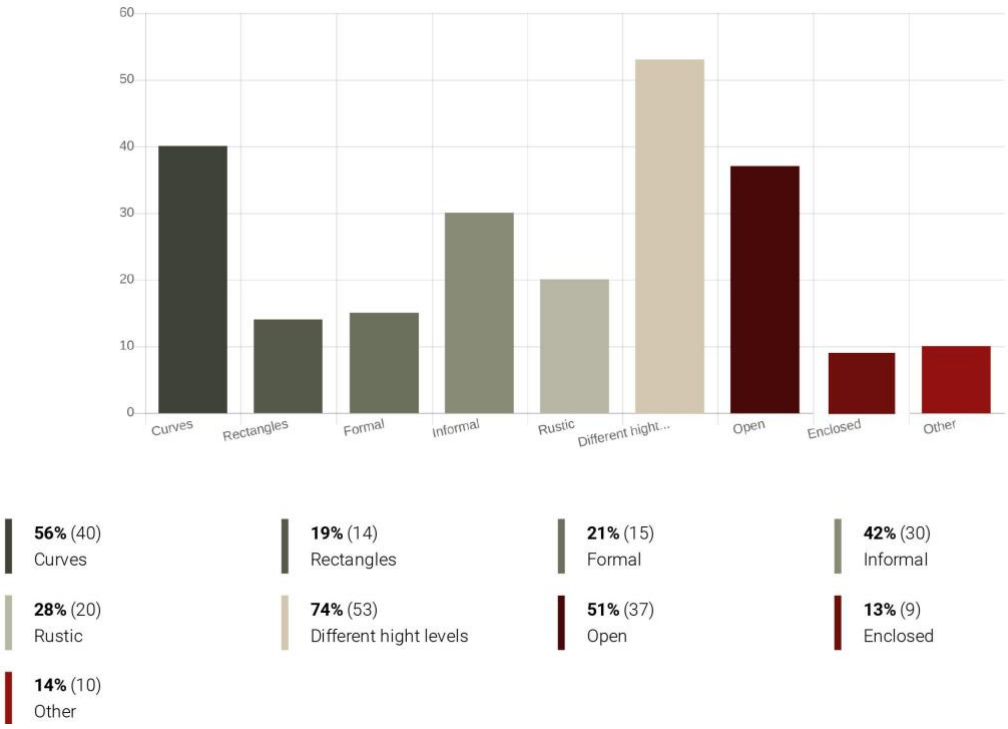
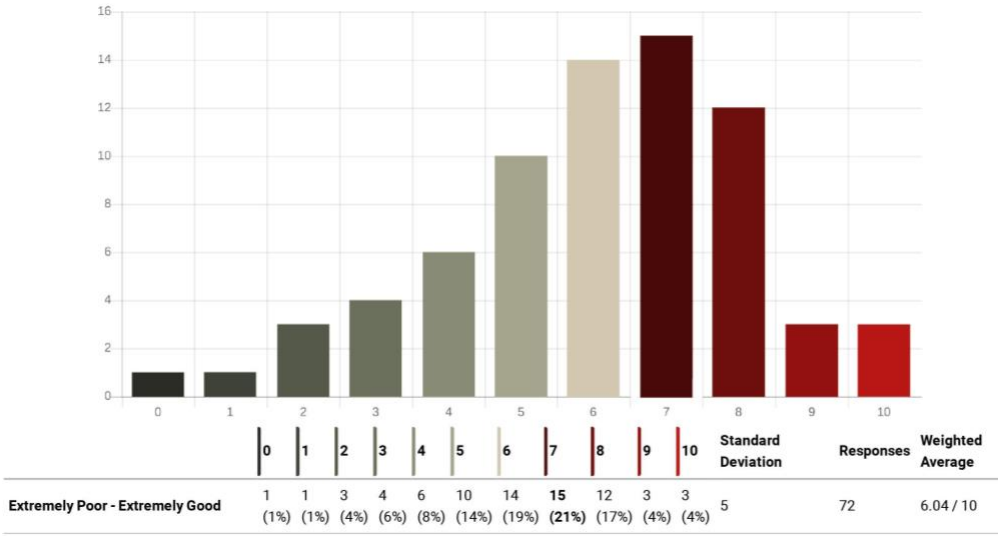


Figure 32. Favorable form by respondents, by the author of this thesis.

Question 10: How do you experience the maintenance of the Courtyards, Street environments, and Parks?



	0	1	2	3	4	5	6	7	8	9	10	Standard Deviation	Responses	Weighted Average
Extremely Poor - Extremely Good	1 (1%)	1 (1%)	3 (4%)	4 (6%)	6 (8%)	10 (14%)	14 (19%)	**15 (21%)**	12 (17%)	3 (4%)	3 (4%)	5	72	6.04 / 10

Figure 33. Reported experience of the maintenance, by the author of this thesis.

Question 11: What materials appeal to you in your green living environment, such as flooring the ground and in urban furniture, etc.

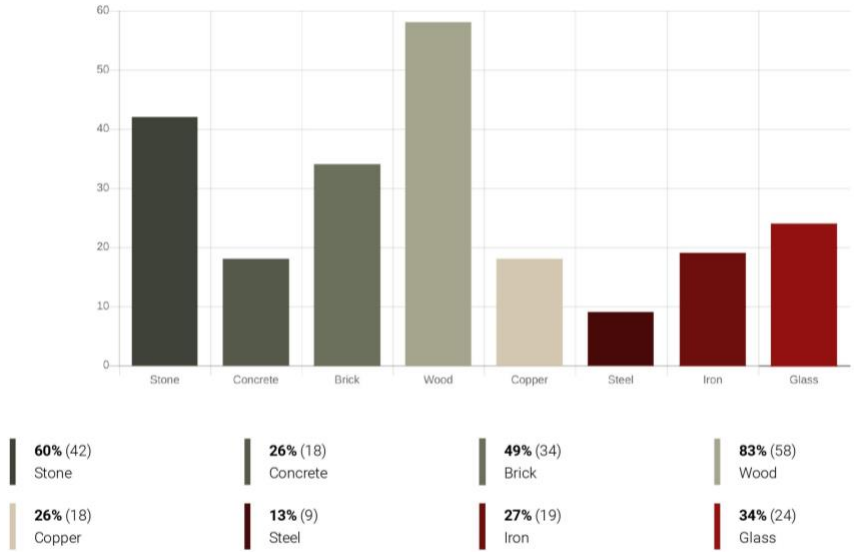


Figure 34. Favorable materials by respondents, by the author of this thesis.

Question 12: Please choose any landscape features you would like to incorporate into your landscaping.

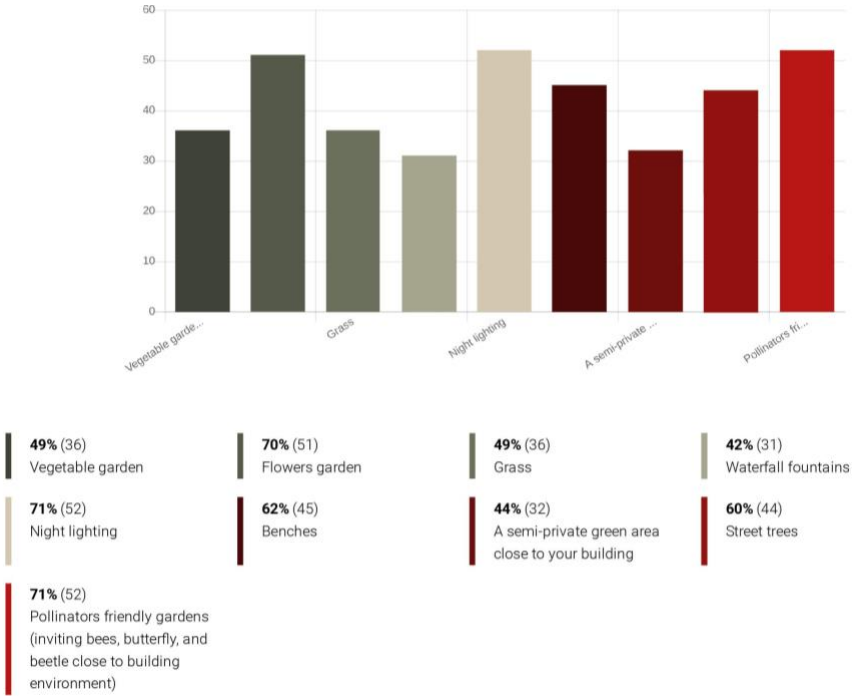


Figure 35. Favorable landscape features by respondents, by the author of this thesis.

Question 13: How do you recognize the functions of green space in public and semi-public areas as valuable for ecological purposes? (Flora and fauna)

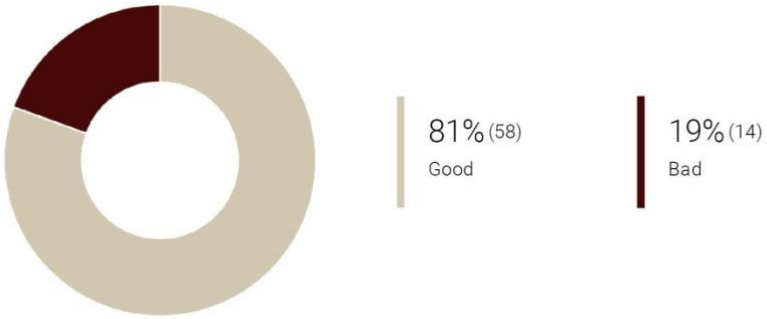


Figure 36. Means of green spaces for ecological purposes, by the author of this thesis.

Question 14: Have you noticed any part of the green areas (gardens, roofs, balconies, etc.) in your neighborhood that is specifically pollinator-friendly?

Figure 37. Reported pollinator-friendly green areas, by the author of this thesis.

Below, the word cloud shows keywords mentioned by respondents. Only ten respondents have noticed some parts of green areas in the neighborhood work with pollinators. According to question 13, fifty-eight respondents have recognized the functions of green space in public and semi-public areas as valuable for ecological purposes, flora and fauna. This means that people would like to invite pollinators close to their living environment. They have found natural meadows in corners close to the bus station, flowering plants, and private green balconies that work well with pollinators. It was mentioned that it's essential to know plants and trees which are pollinator-friendly, which shows that people are concerned about the pollinators.

Figure 38. Keywords related to which parts of the green areas in the neighborhood specifically are pollinator-friendly. Ten out of sixty-one respondents, by the author of this thesis.

Question 15: What do you like most about your neighborhood's environment?

Analyzing the result of this question (long open-ended) is represented in the following table (see Table 2). The interpretations which came from the online survey are categorized into three different values based on the thesis topic. Therefore, the responses have been summarized in the following categories: aesthetical, social, and ecological values. The number of people who have mentioned the same attributes came to the left column of the table.

After categorizing the answers, I tried to identify the critical attitude of each sentence. Keeping the criteria from the literature review led me to interpret respondents' comments with keywords (they were written in capital letters in parentheses after each sentence). Later on, the word cloud shows keywords according to respondents. *Woodland, accessibility, diversity, and accessibility to facilities* are the most important features people like in their neighborhood.

Table 2. Answers which came from the online survey regarding what people like most about their neighborhood, by the author of this thesis.

Number	Quote
	Aesthetical
2	The mixture of forest and open areas - (RHYTHM)
9	Location - Convenient distance to most things - (ACCESSIBILITY)
1	The smell of old pine trees - (SMELL)
4	Pretty houses - Beautiful neighborhood - (BEAUTIFUL)

7	That all the buildings don't look the same - Variety in the architecture of house - Narrow street and little traffic - (DIVERSITY)
5	That it is very safe and calm - (LIVABILITY)
	Social
4	Semi-public social areas such as the roof for running track - Private courtyard connected - small basketball court and is also just a good place to hang out and enjoy the sun - (PRIVATE AND SEMI-PRIVATE AREAS)
6	Having outdoor gyms and playing grounds for kids in the neighborhood - (ACCESS TO FACILITIES)
5	Plenty of possibilities for social / physical activities - (SOCIAL INTERACTION)
	Ecological
29	Close to Nature - (WOODLAND)
6	Different type of green areas and trees - (BIODIVERSITY)
2	Environment-friendly thinking and idea of a car-free neighborhood - You can see that they thought about the environment and the atmosphere when they planned it! - (INNOVATION)

Figure 39. Keywords related to what people like most about their neighborhood's environment, by the author of this thesis.

Question 16: What do you like least?

Analyzing the result of this question (long open-ended) is represented in the following table (see Table 3). The interpretations which came from the online survey are merged based on their attributes. The number of people who have mentioned the same attribute came to the left column of the table.
Furthermore, I tried to identify the critical attitude of each sentence. Keeping the criteria from the literature review led me to interpret respondents' comments with keywords (they were written in capital letters in parentheses after each sentence). Later on, the word cloud shows keywords according to respondents. *Continuously under construction, density, noise, and lack of street trees* are the most important factors people like least in their neighborhood.

Table 3. Answers which came from the online survey regarding what people like least about their neighborhood, by the author of this thesis.

Number	Quote
11	Too many buildings and close to each other - (DENSITY)
3	We don't have enough street trees - (LACK OF STREET-TREE)
18	Always under construction - Noise of construction - (CONTINUOUSLY-CONSTRUCTION)
9	The cars. Both those belonging to the area and those (huge amount) passing by. (NOISE)
3	No flowers in the neighborhood - (LACK OF PLANTS)
5	Conflict about parking cars - (LACK OF PARKING)
4	Crowded - (DECREASE SAFELY)
2	The color of some buildings - (COLORS)
2	Big houses make the building pretty anonymous, smaller building make the neighborhood somehow "safe" - (SCALE)
1	All the building companies taking a kit of spaces - (COMPLEXITY)
1	Everything is open and for competition. Nothing is for music performance, water, reading, culture, and art - (LACK OF ART)
1	The park is really bad. And the original detail plan promised more efforts to keep the natural flora and fauna intact - (NOT- BIODIVERSITY-FRIENDLY)

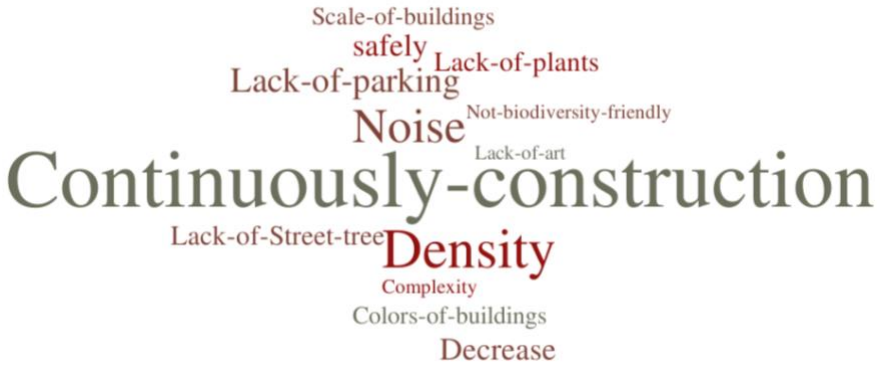


Figure 40. Keywords related to what people like least about their neighborhood's environment, by the author of this thesis.

Question 17: What single most important thing would you like to change/add?

Analyzing the result of this question (long open-ended) is represented in the following table (see Table 4), which works the same as the last two questions. The word cloud shows keywords according to respondents. *More greenery, decreasing story of buildings, and more flowers* are the most important factors people would like to change/add in their neighborhood.

Table 4. Answers which came from the online survey regarding what thing would people like to change/add in their neighborhood, by the author of this thesis.

Number	Quote
15	More greenery around the buildings - (MORE-GREENERY)
7	More flowers - (MORE-FLOWERS)
5	Establish green corridors between forests - (GREEN CORRIDOR)
9	Decrease story of building - no posts modern style - (DECREASE STOREY)
2	Streets only for pedestrians. no cars - (NO-CAR)
1	I'd love to see a dog-park (DOG-PARK)
3	I would like to see a little fountain - (WATER)
1	Street lights - (STREET LIGHT)
4	More social community - (PLAZA)
1	Art is missing! (ADD-ART)
1	Less noise and disturbance from construction - (LESS-NOISE)

Figure 41. Keywords related to what people would like to change/add in their neighborhood, by the author of this thesis.

In the last phase of analyzing the questions, all the analysis methods will be merged in order to get close to the general result. These results can help the research navigate and create a general overview of designing urban landscapes in new neighborhoods in contribution to the highest appreciation of the living environment by residence.

The following text is some interesting results that I am going to take forward from this online survey. Personal motives behind urban landscape in Rosendal's neighborhood are closely associated with words, sounds, feeling, emotions, color, and other elements, which helped to understand how residents experience their living environment and which criteria in a neighborhood meet their dweller's expectations.

The most critical mutual response between most participants is that they all would like to have green areas close to their living environment. *Woodlands* close to the Rosendal neighbourhood are the most important features that people like in their neighborhood, and being *always under construction* is the least. If they could change or add something in their neighborhood, they would like to add *more greenery*.

The given pie chart represents that 77% of people have not noticed any cultural and historical elements. Although the area has a rich history, it is not apparent in the environment. Moreover, just over half of residents stated that they have not got involved with their neighbors in public and semi-public areas.

As the diagrams suggest, a fireplace (59%), outdoor dining table for socializing (57%), and plaza and open space for socializing (54%) got the highest demand for outdoor activities that residents would like to incorporate with their living environment. Now turning to the urban greenery, which shows that residents appeal

to green areas in front of buildings, between building facades and walkways (66%), street trees (67%), pocket parks, and rain gardens (64%).

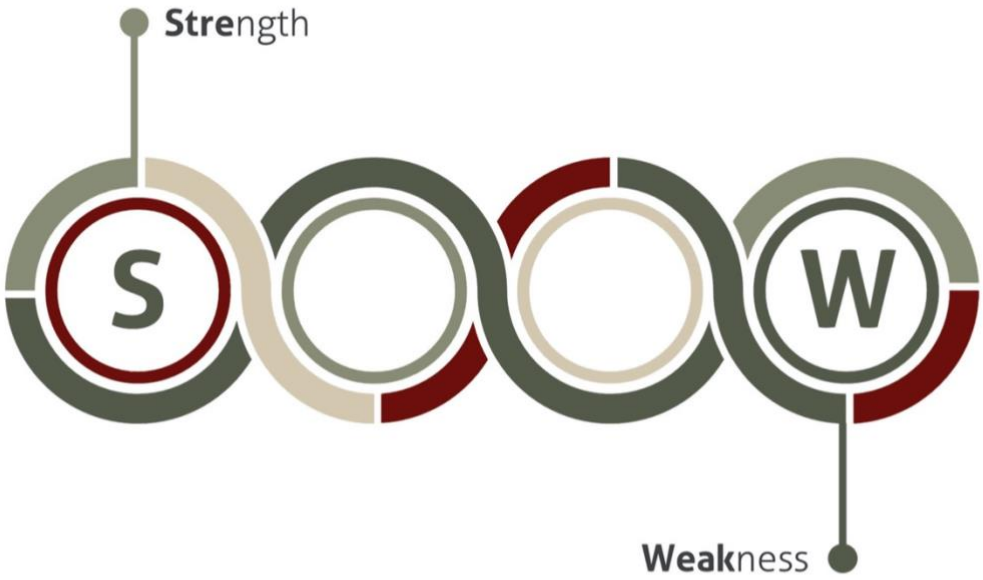
It is worth noticing that 81% of dwellers have found green space is valuable for flora and fauna. As can be seen in the column charts, pollinators' friendly garden (71%), night lighting (71%), and flowers garden (70%) are three landscape features that residents would like to integrate into their landscaping.

4.4. | SWOT analysis

This section considers the Strength, Weaknesses, Opportunities, and Threats in the south-eastern districts in Uppsala city by the author of this thesis. The SWOT analysis is based on the In-depth master plan by Uppsala municipality and WSP's sustainable assessment.

Studying municipal documents and considering that many people will live in this neighborhood guided the analysis for the perspective of liveability. Positive consequences regarding job opportunities and economic growth are also some of the views of this SWOT analysis.

- Being close to the woodlands
- Considering topography as a value
- Being close to the Fyrisån river
- Protection of species included in the EU Species (WSP 2020)
- Attractive housing for different needs (WSP 2020)
- Create good conditions for an active everyday life and living communities
- Green structure with high biological diversity
- Creating social cohesion, security, and affordable housing
- Streets and squares contribute to security, identity, and character
- Provide public transport and bicycle infrastructure
- Positive consequences for the business regarding the communication to Stockholm and Arlanda
- New train lines between Uppsala and Stockholm



- The loss of a large part of the forest and a certain part of arable agricultural land
  Major negative consequences for natural values and protected species such as amphibians, reptiles, birds, bats, and certain species of plants, insects, and mosses
- (WSP 2020)
- Major negative consequences for ecological connections
- The plan proposal entails increased air pollution (WSP 2020)
  Compact neighborhood with high buildings

- Creating conditions for ecosystem services: stormwater system, green streets.
- Energy-saving through a new innovative technical supply system
- Opportunities for new jobs
- Opportunity for people to be involved during the construction
- High participation in the labor market, and indirectly for a good household economy
- Opportunities for social activities

- Habitats will disappear or fragmentation over time
- Expansions take place over a long period, which threatens residents with noise and construction
- Crowded area, which decreases sense of responsibility and increases problem such as crime
- Affecting Årike Fyris and Norra Lunsen nature reserve over time

Figure 42. SWOT analysis based on the studies of documents, by the author of this thesis.

4.5. | Example of feeling at home

This section presents an example of feeling at home based on my own experience. As a landscape architect who moved globally would like to explain from my personal experience how I perceive my surroundings in my new city Uppsala and what do I mean by feeling at home. Since I believe that migrants bring their own style from their home country to the landscape or look for their style in the new country. Therefore, one of the neighborhoods in Uppsala city, Sunnersta, has been chosen since it gives me a sense of home.

Giving the project a personal touch would be purely subjective, but there is a need to explain and analyze the feelings. Therefore, keeping the literature in my mind guided me to determine which liked criteria by Nasar's (1998) theory made me feel at home and appreciate this environment.

The pictures present the chosen area in Uppsala and my home in Iran, which have many similar elements. Some elements that cooperate in the Sunnersta neighbourhood are as follows:

- Diversity in greenery, texture, colour, and materials,
- Low density,
- Close to woodland,
- Transparent borders,
- Being responsible for the living environment.
- Clean,
- Organized,
- Hierarchy for getting to private areas.

Figure 43. Example of feeling at home in Uppsala based on author's home in Iran, by the author of this thesis.

5. RESULTS

The main findings of this thesis are used to define design principles for urban landscapes in new neighborhoods, which will be applied to the comprehensive plan by Uppsala municipality for the south-eastern neighborhood. The knowledge and understanding of scientific and artistic aspects of landscape architecture help propose a design proposal for the south-eastern neighborhood in Uppsala city.

5.1. | Design principles

This thesis suggests principles for designing urban landscapes in the new neighborhoods based on analysis of the findings from qualitative observation, quantitative online survey, theories and background, and reviewing people's engagement in consultation meetings with the municipality. These principles build upon aesthetical, social, and ecological values, which is the main focus of this thesis. It shows in a circle with categorization of three colors for three main values (see figure 44).

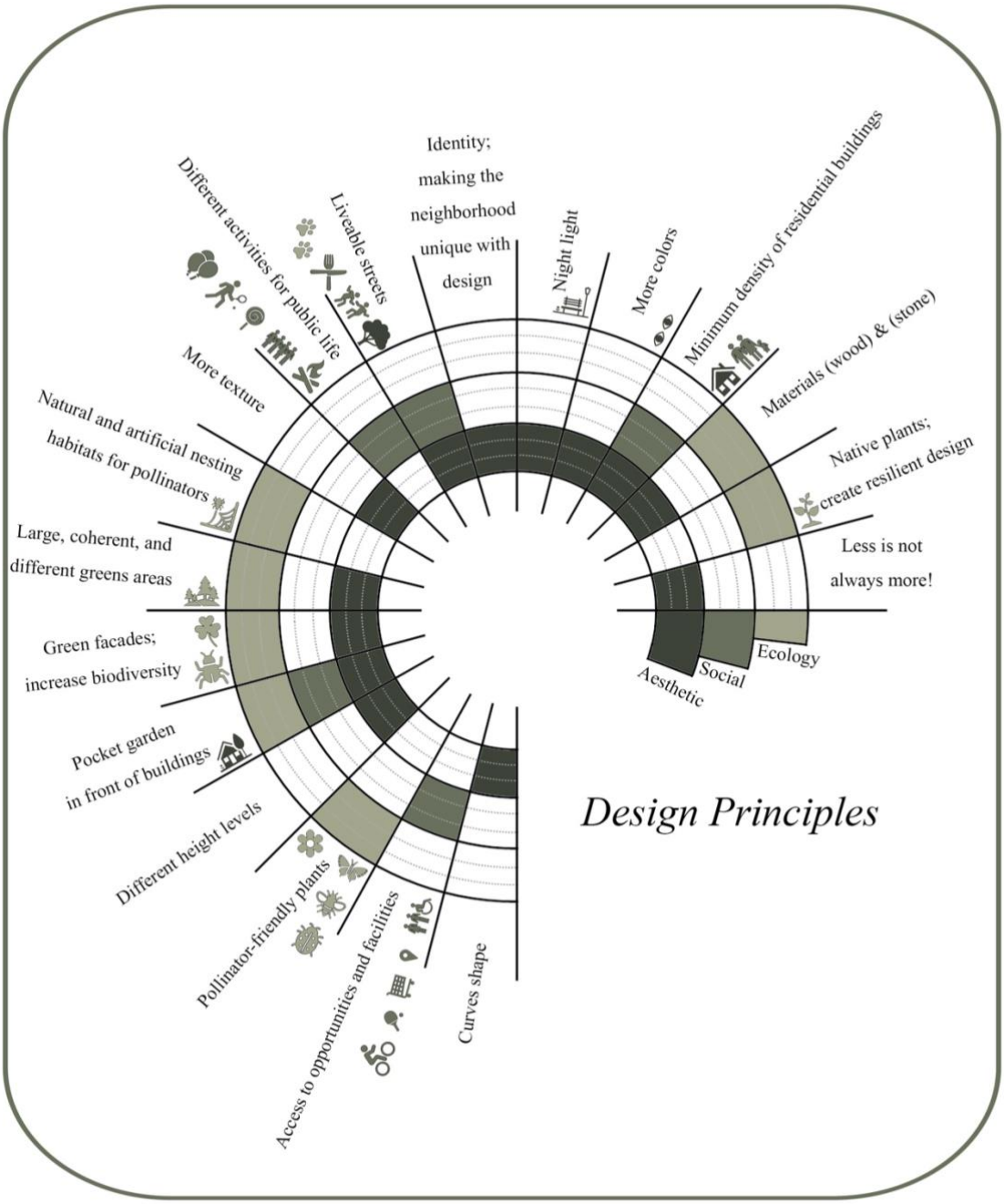


Figure 44. Design principles for designing urban landscapes in the new neighborhoods, by the author of this thesis.

5.2. | Initial sketching

This section presents my primary thoughts, based on the elements in figure 44, design principles. These illustrations are based on theories, analysis of the online survey, and people's expectations of newly envisioned districts as outlined in the findings presented in chapter 4.

The sketches are part of the process of thinking about how it would be possible to combine and visualize everything that has happened so far. They show examples of different green design elements that could be in many diverse areas in the neighborhood. These initial sketches are not the final design for the south-eastern neighborhood in Uppsala city. The most critical elements contributing to the environment and a short story behind each sketch are mentioned in a rectangular at the top of each page.

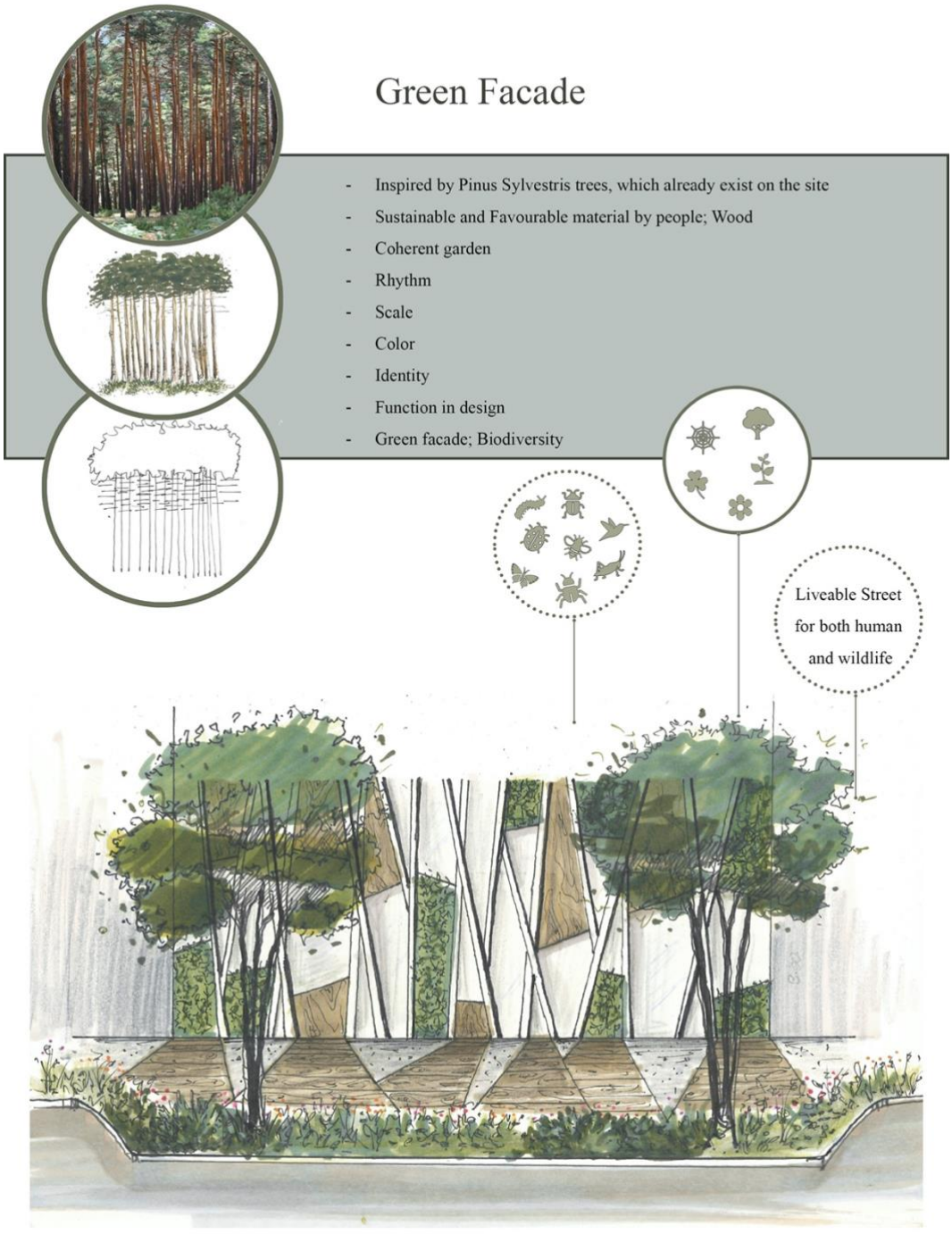


Figure 45. Sketch of green facade in the neighborhood, neighborhoods, by the author of this thesis.

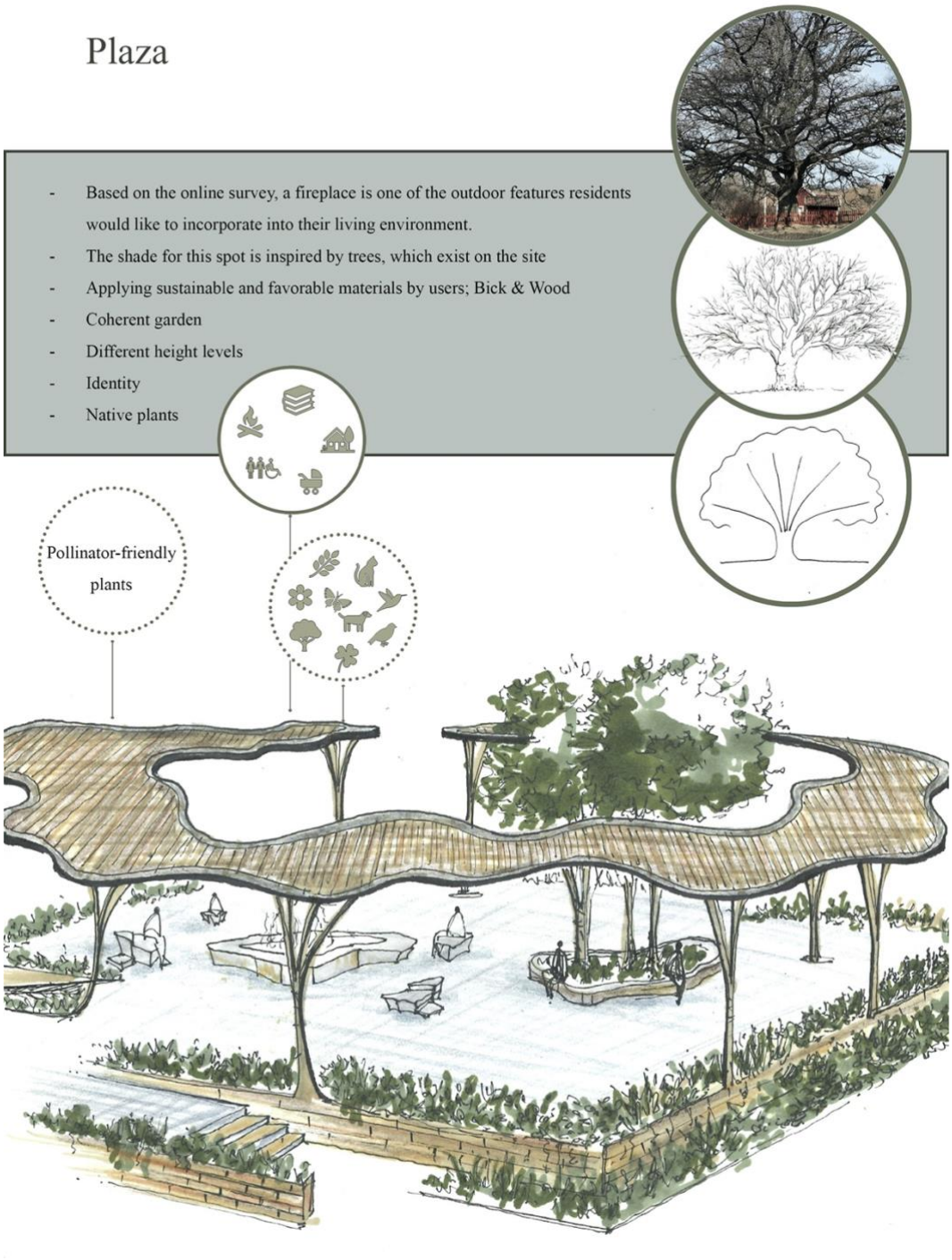


Figure 46. Sketch of plaza in the neighborhood, by the author of this thesis.

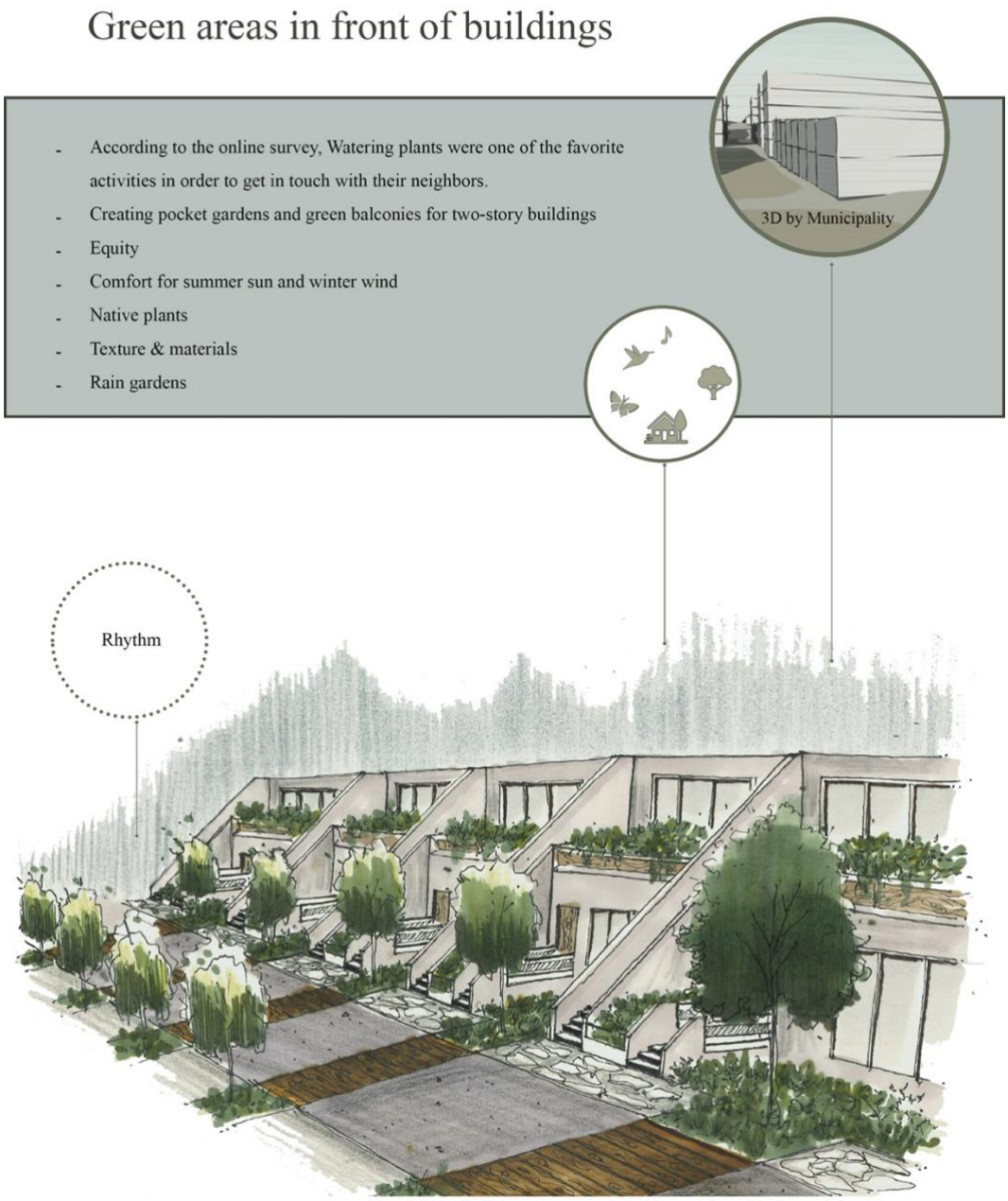


Figure 47. Sketch of two-story buildings in the neighborhood, by the author of this thesis.

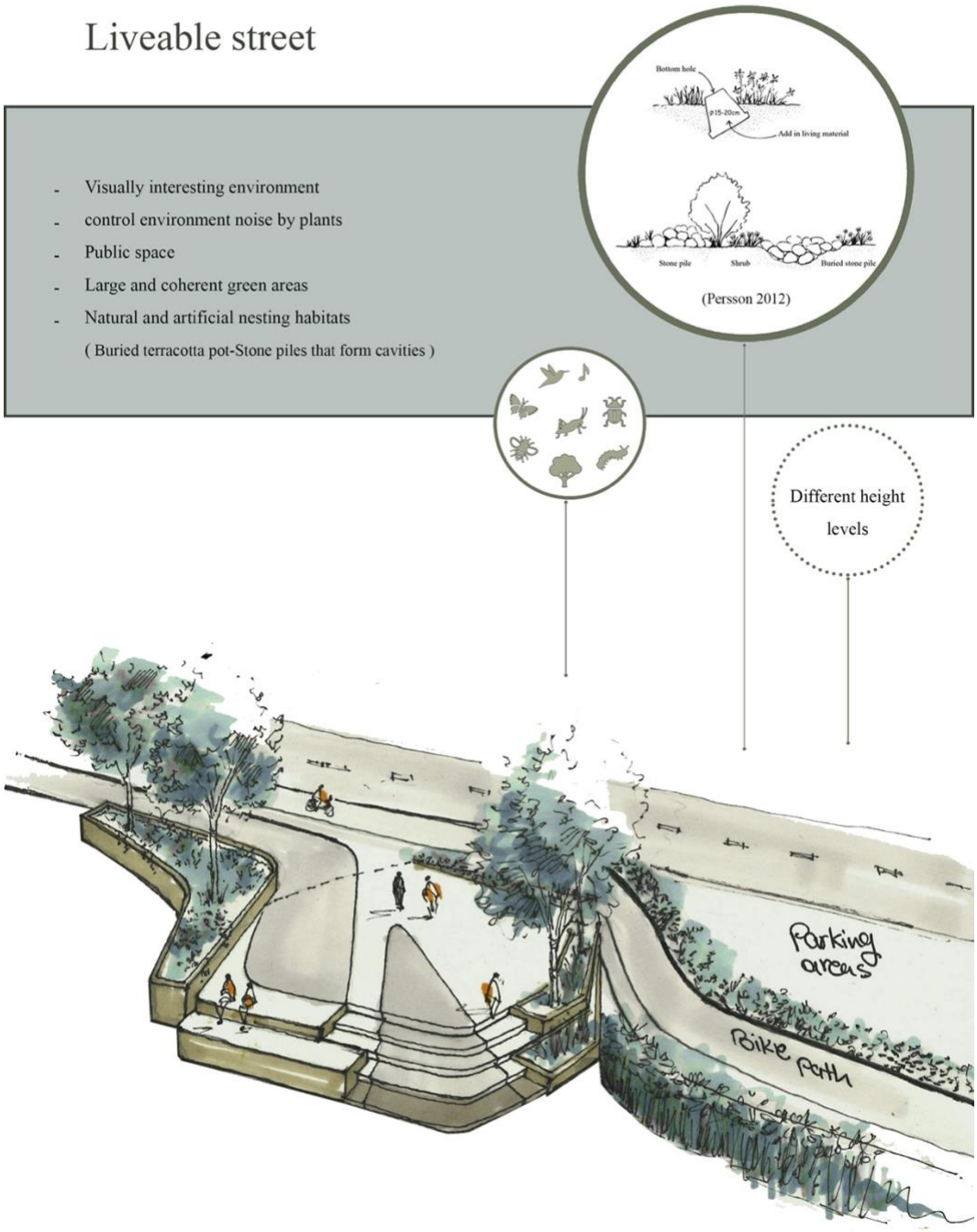


Figure 48. Sketch of liveable street in the neighborhood, by the author of this thesis.

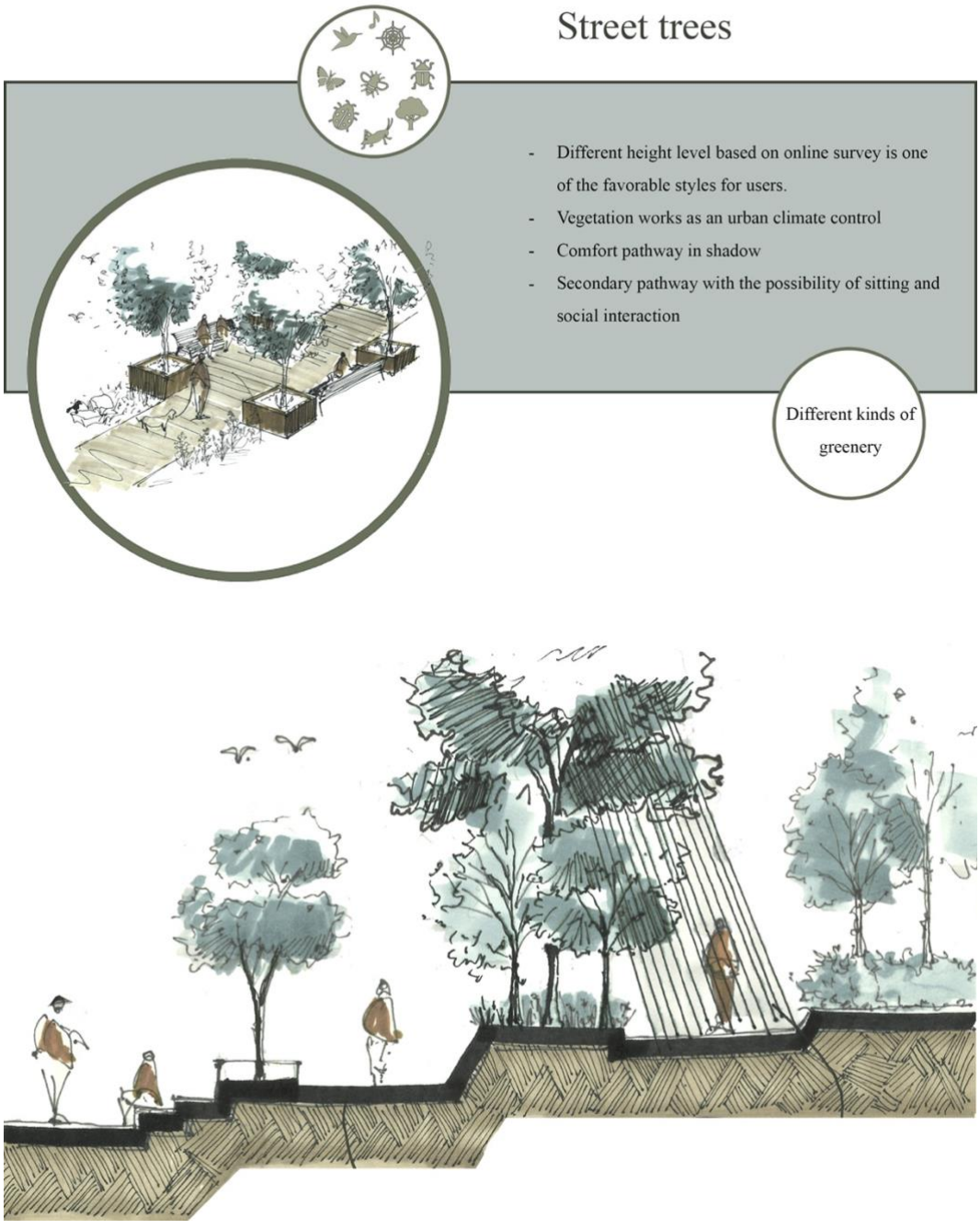


Figure 49. Sketch of street tree in the neighborhood, by the author of this thesis.

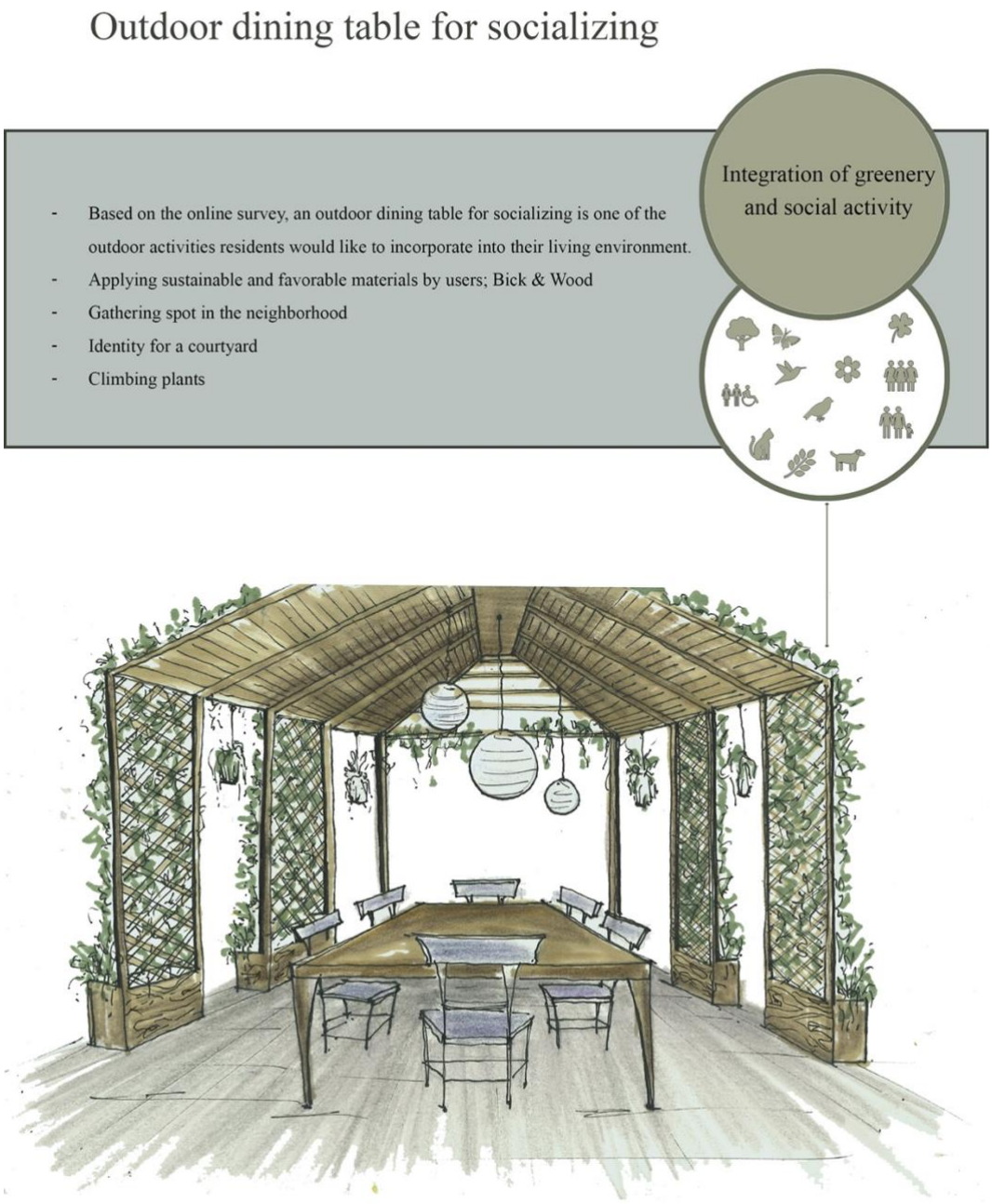


Figure 50. Sketch of social spot in the neighborhood, by the author of this thesis.

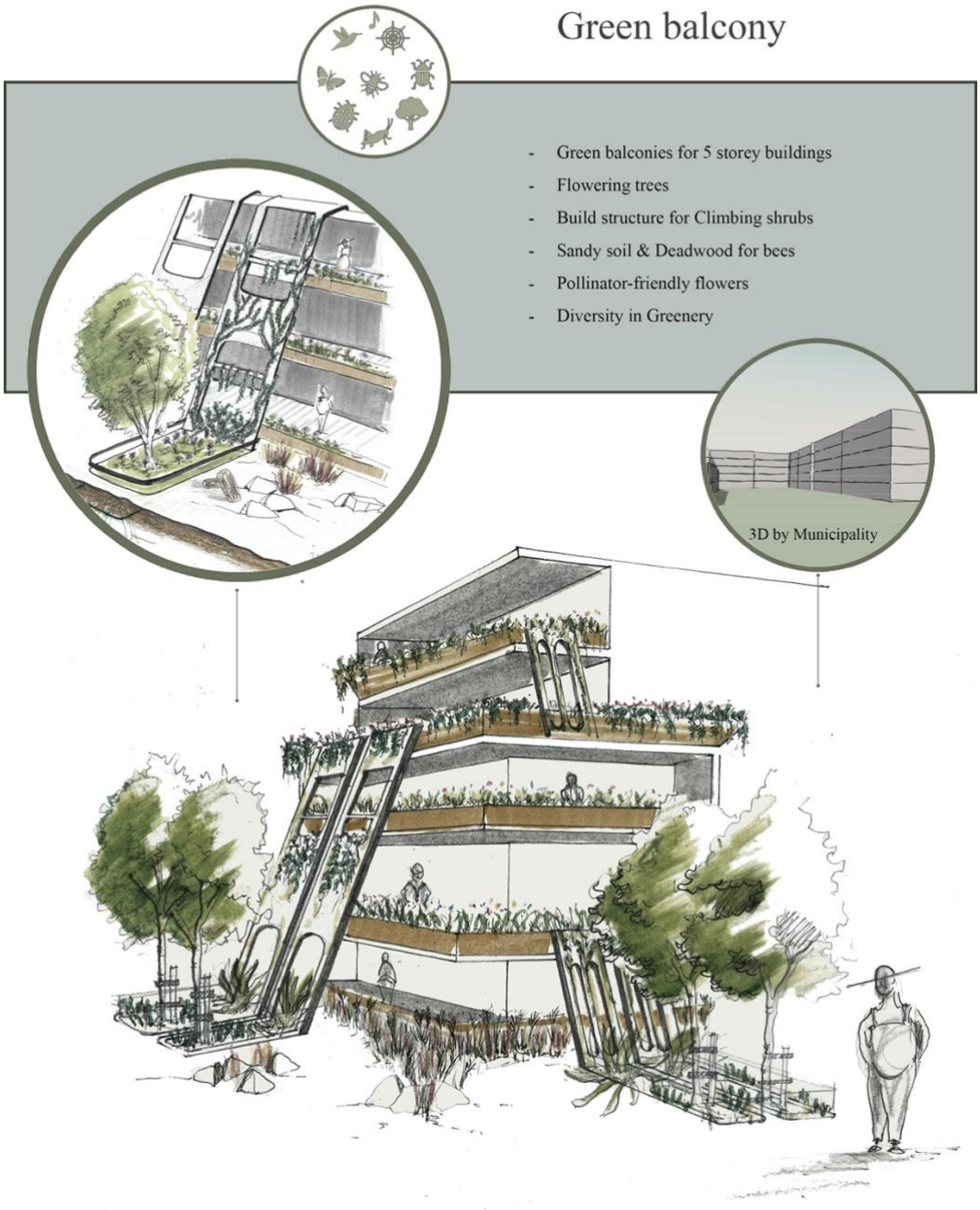


Figure 51. Sketch of green balcony in the neighborhood, by the author of this thesis.

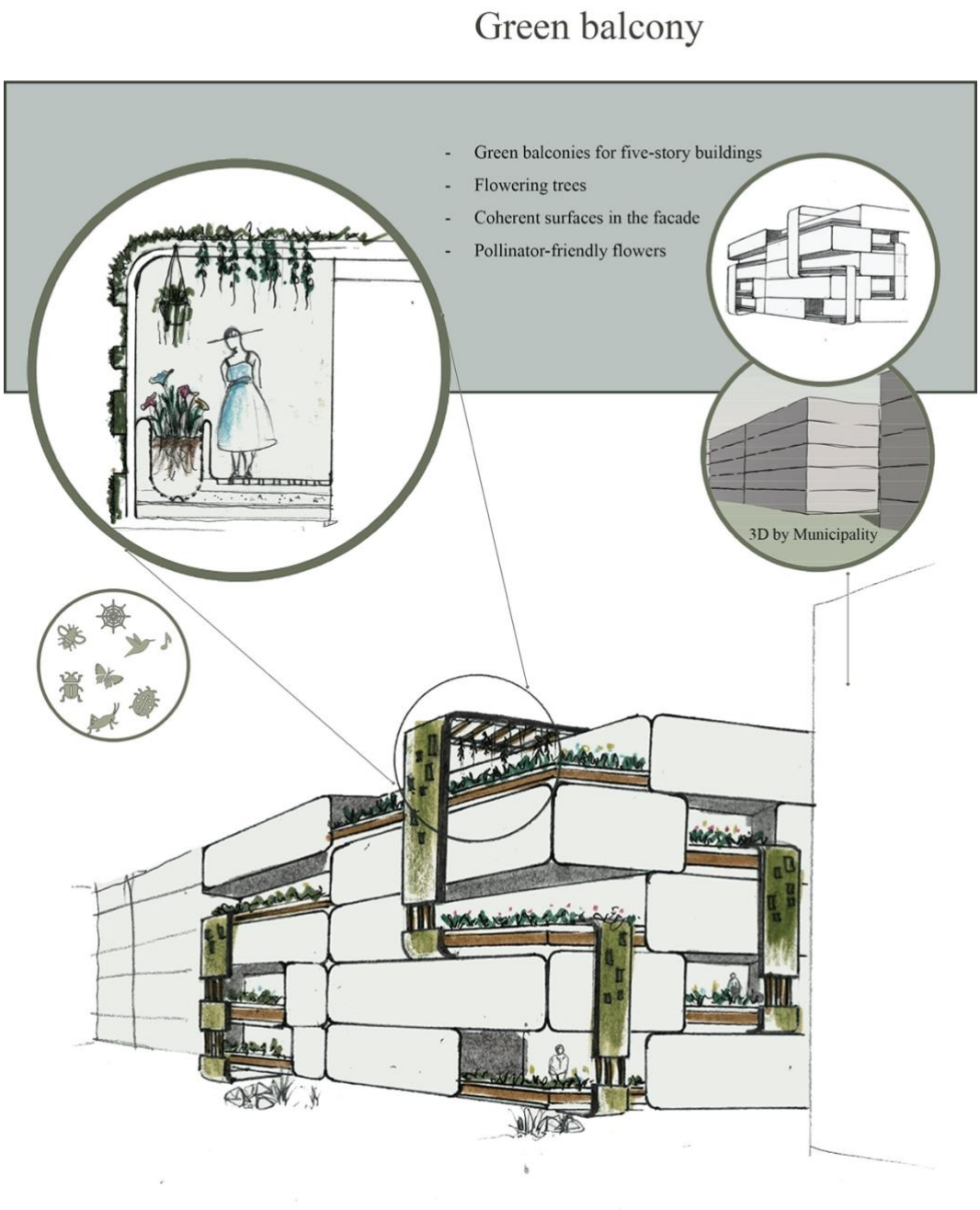


Figure 52. Sketch of green balcony in the neighborhood, by the author of this thesis.

5.3. | Planning proposal as a result of the findings

The planning proposal takes place in one of the courtyards in the neighborhood connected with initial sketching as a basis in a concept plan (see figure 53). According to the people's experiences, they would like to have small gardens close to their living environments, which also work as a social spot. Therefore, a courtyard surrounded by buildings and open to the sky has been chosen to design. Ecological approaches such as native plants, green facades, rain gardens, pollinator-friendly plants are applied to the chosen area.

According to the knowledge that I have built up in the literature chapter, green balcony balcony and terrace plants could be very effective in buffering noise, collecting dust, and cooling buildings (Zhang et al. 2018). All these factors result in pleasant surroundings and an increased aesthetic value of the neighborhood (ibid.). Moreover, in order to increase the value of green areas for biodiversity, there is a need to connect them with green corridors to a green network (woodland) in the city (Wilk et al. 2020). This would allow pollinators to move between patches quickly.

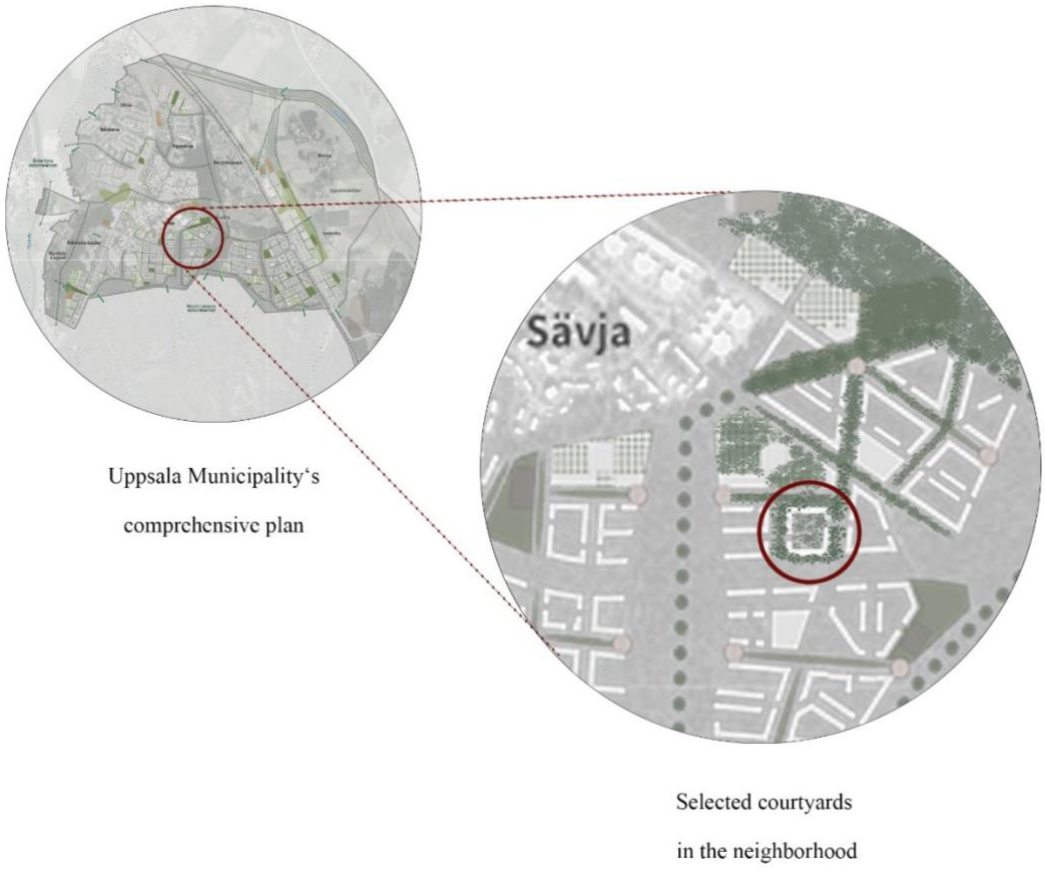


Figure 53. Placement of the chosen courtyard. Based on (Uppsala Kommun 2021b), Modified by the author of this thesis.

5.3.1. | Plan and 3D model

The idea of illustrating the courtyard's plan came from the "the golden ratio" concept. Golden section preferences are considered a significant part of human beauty and aesthetics and a part of the outstanding proportions of growth patterns in the environment, such as plants and animals (Akhtaruzzaman & Shafie 2012). Plants have prominent characteristics of the Golden Ratio, where they provide a Fibonacci sequence in the number of leaves (ibid.). Much of the things that are viewed as beautiful possess the Golden Ratio in one way or another (ibid.).

Based on my background in architecture, some basic practical elements, such as emergency lines, pitched roofs, etc., have been considered in my design proposal. According to the online survey results, inhabitants would like to have different features that cooperate with their living environment. These activities and elements have been introduced in golden sections in the courtyard (see figure 54). Some of these features include:

- Outdoor dining table for socializing
- Reading areas
- Fireplace for socializing
- Green balcony
- Pocket garden in front of their buildings
- Different height levels
- Curve's shape
- Fountain

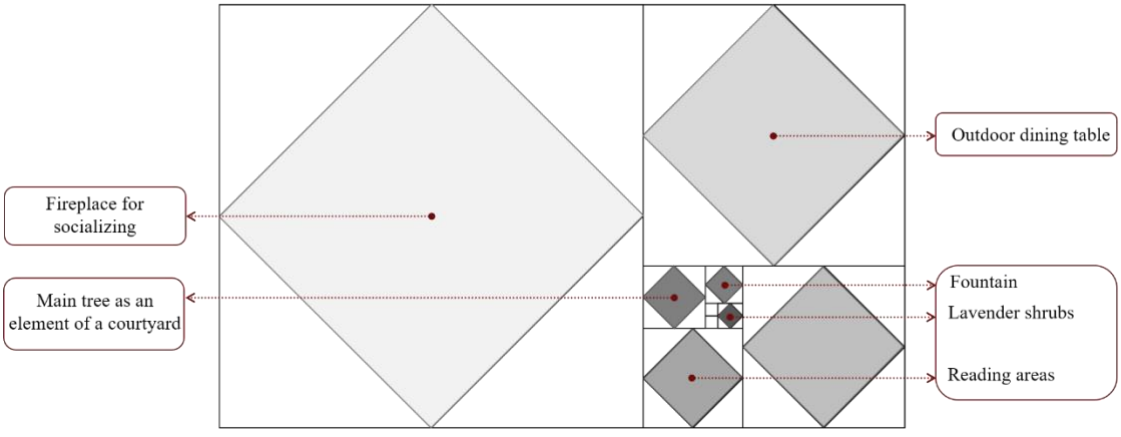


Figure 54. Placement of different activities on golden ratio squares, by the author of this thesis.

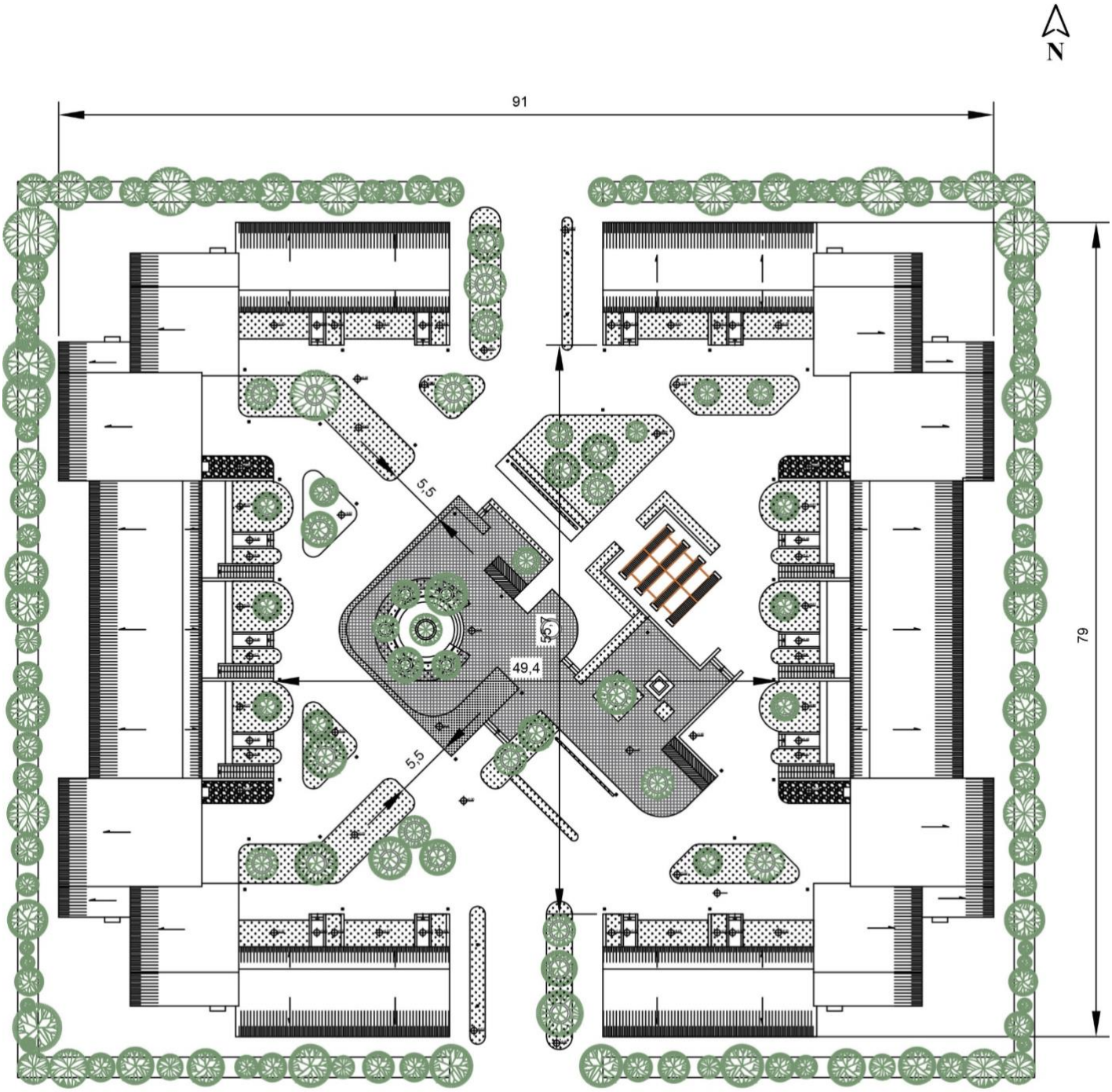


Figure 55. Illustration of landscape plan for the courtyard. scale: 1:500, by the author of this thesis.

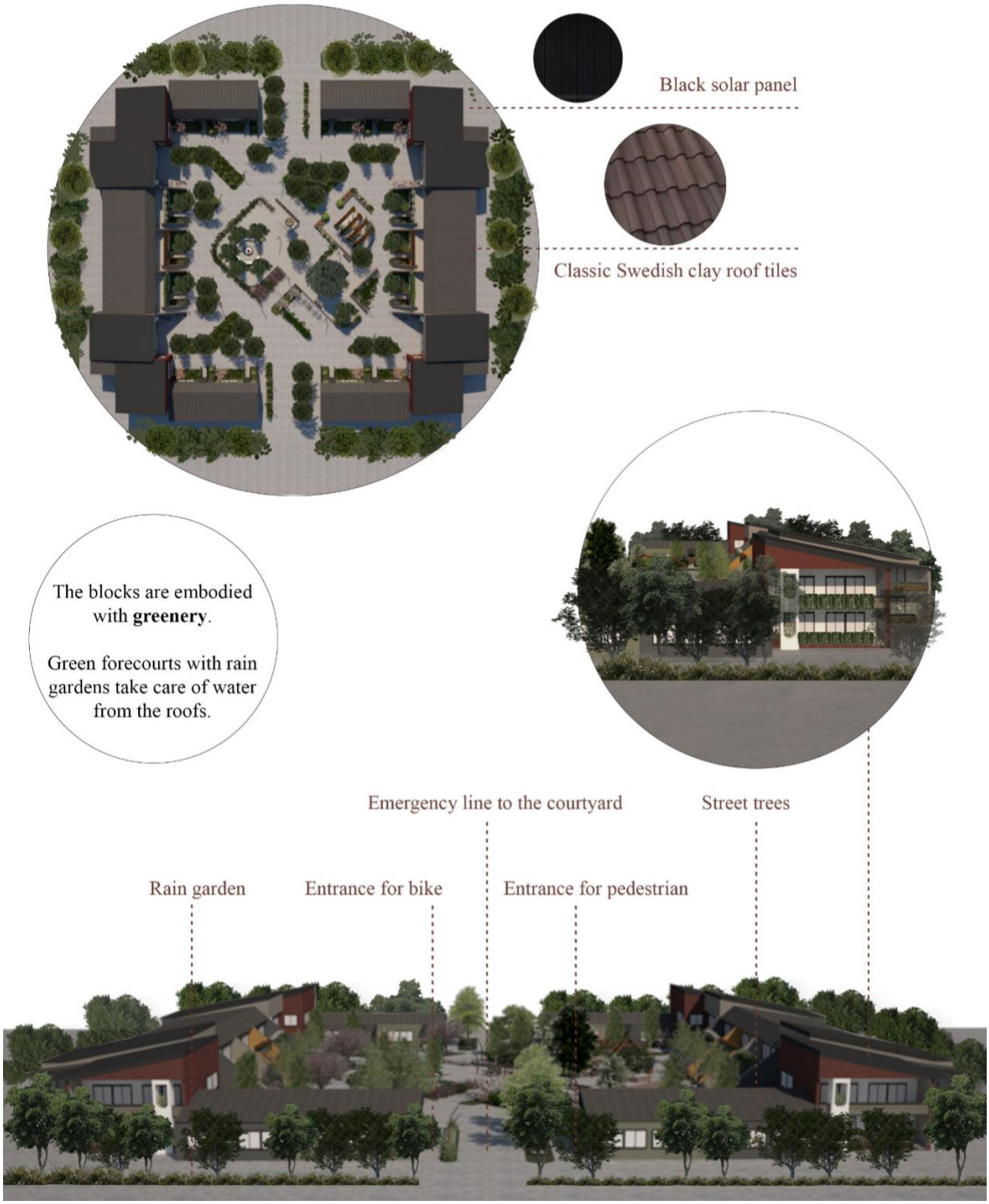


Figure 56. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.

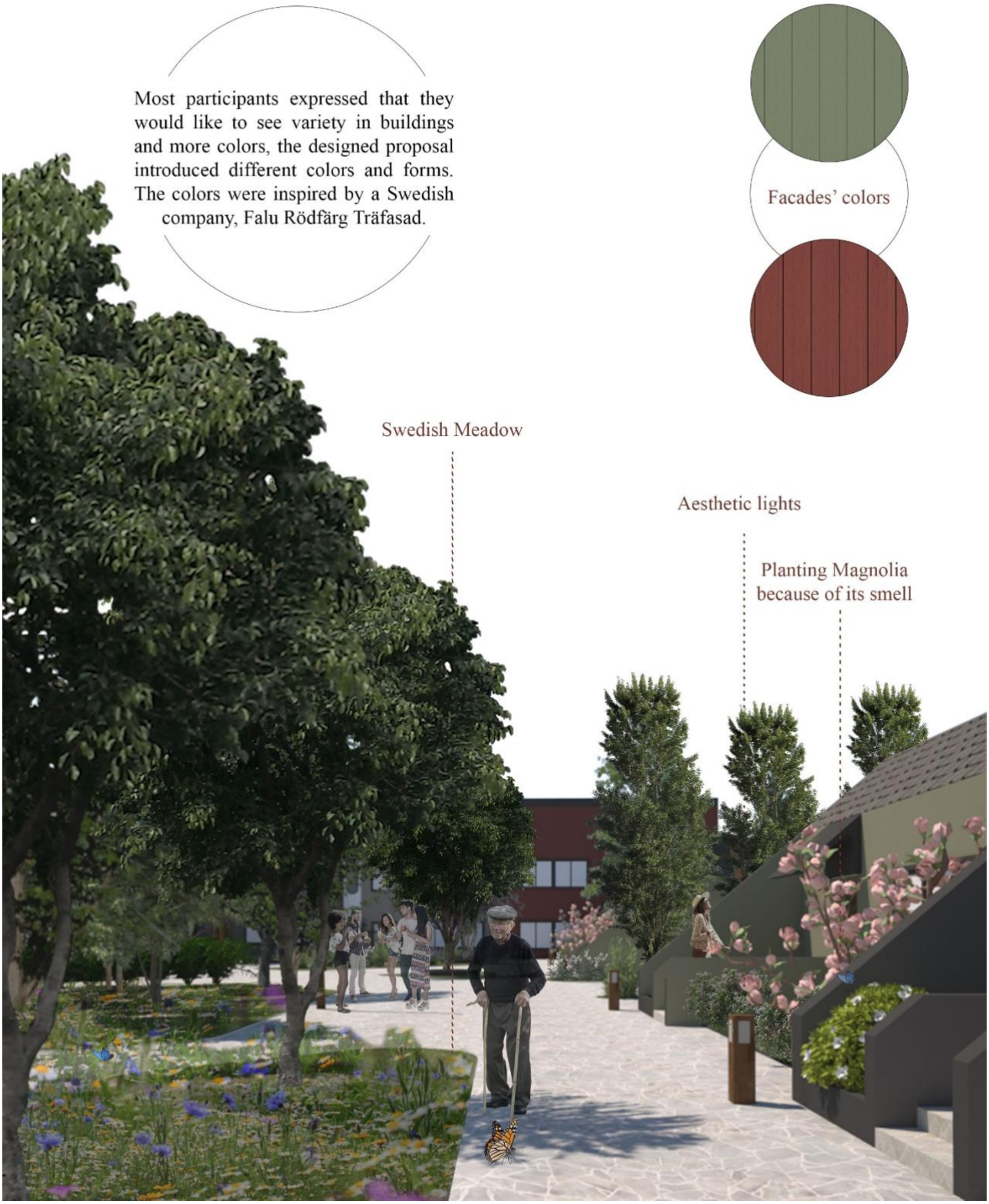


Figure 57. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.

Figure 58. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.

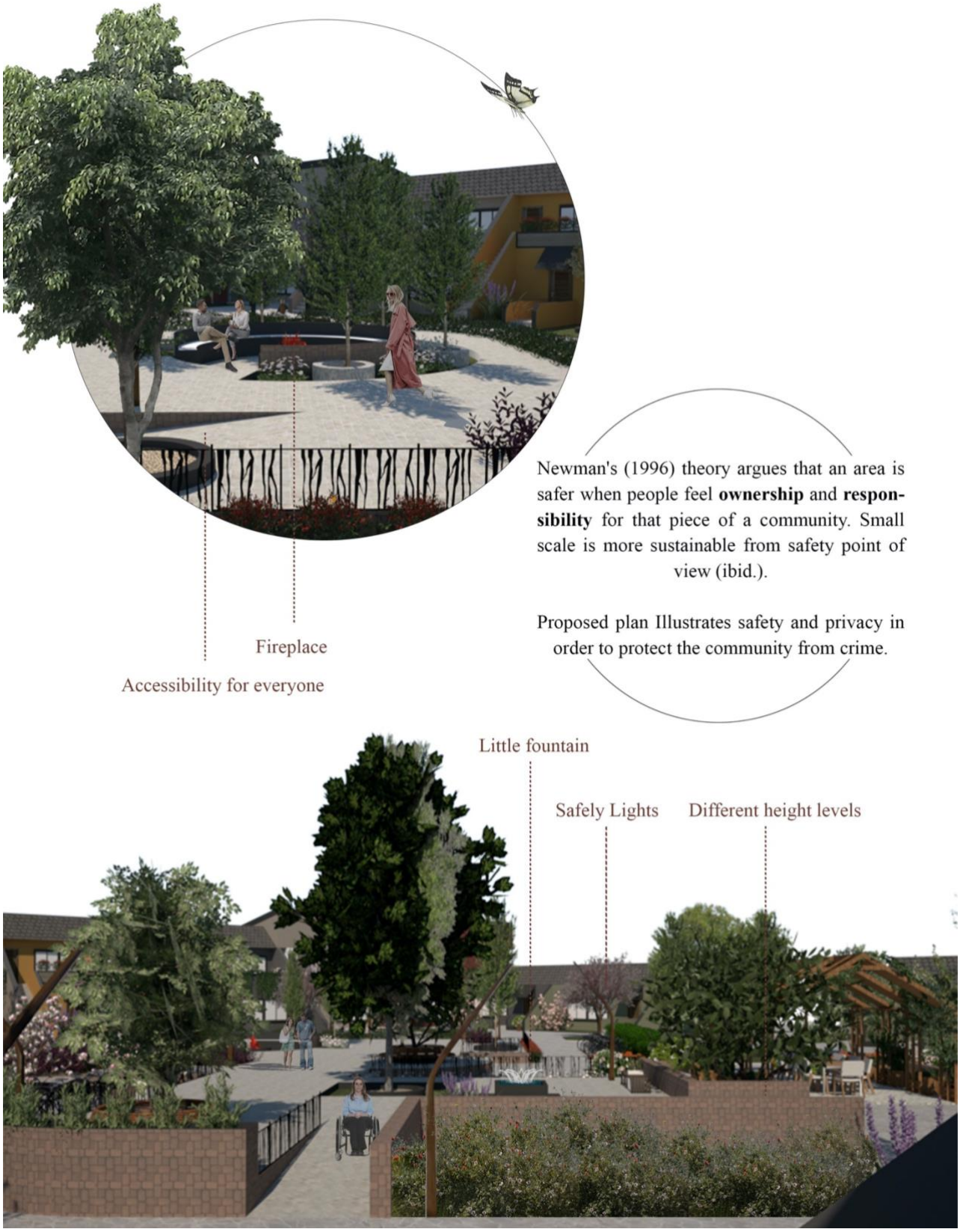


Figure 59. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.

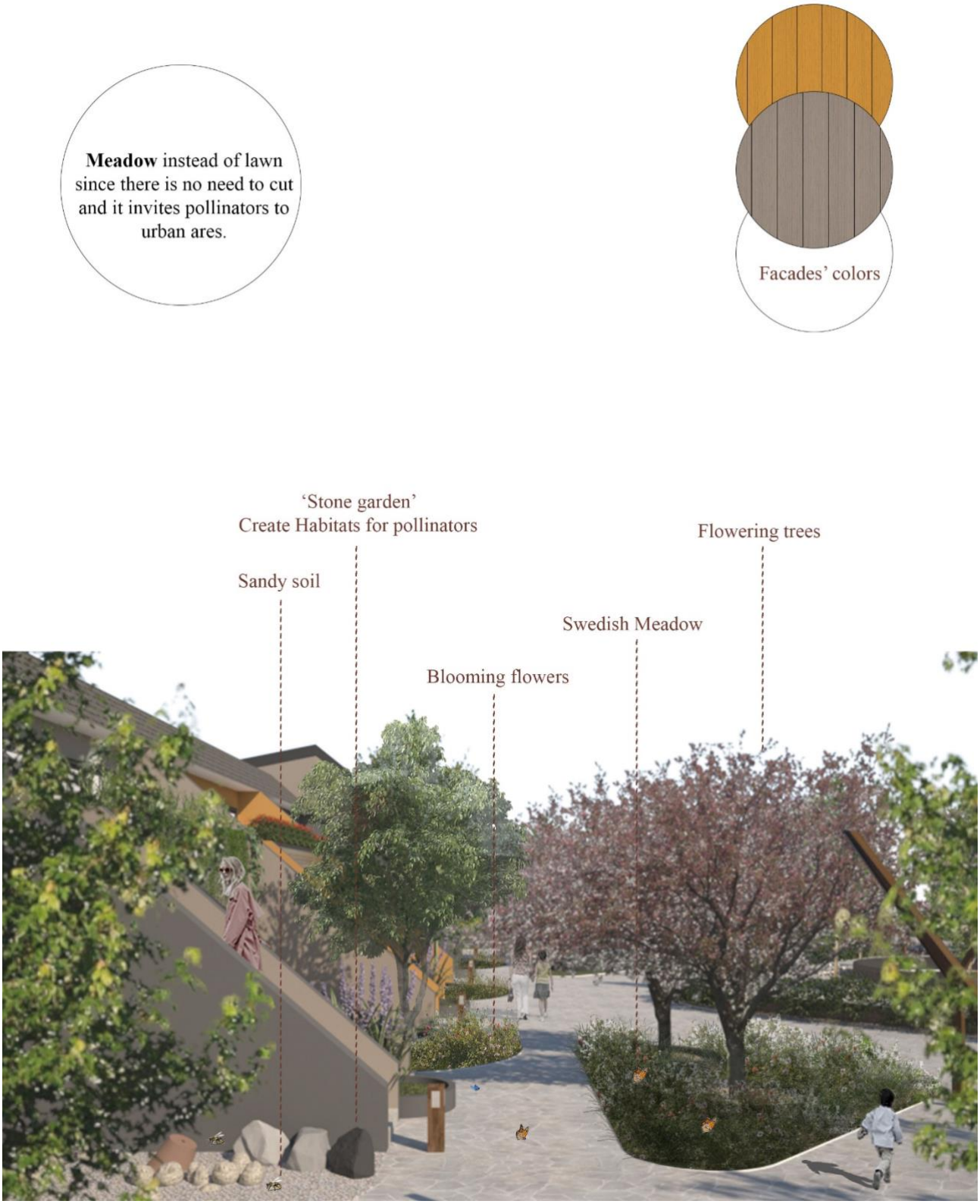
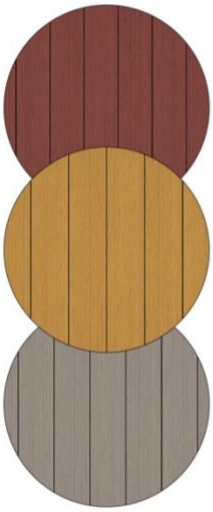


Figure 60. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.



Common areas for passive and active recreation at the residential level in neighborhoods **increase interaction** within the community and allow people to interact with society (Karuppannan & Sivam 2011).

An outdoor dining table for socializing has been designed in the courtyard. It was one of the favorable elements, according to the online survey.

Figure 61. Designed proposal for a courtyard in a newly envisioned neighborhood, by author.

6. DISCUSSION

This section discusses the prominent findings of this study. It describes the potential of designing urban landscapes in new neighborhoods as a solution for challenges in different values such as aesthetical, social, and ecological through design and planning principles.

6.1. | Interpretation of main findings

The study has found design principles for a specific neighbourhood in Uppsala city, supported by theories and main findings. As an outstanding outcome of this master thesis, the design principles for a neighbourhood could be transferable into other urban landscapes with a minor adjustment based on the context in order to meet users' expectations.

Having a knowledge base in the literature chapter within the subject areas leaded to designing the questions of the online survey and analysed the findings of this study. They were considered based on Thompson (2000) and Nasar's (1998) theories. According to Ian Thompson (2000), the main values in the landscape are in three areas - ecology, community, and delight. And according to Nasar (1998), five attributes of 'liked' environments are; naturalness, upkeep, openness, historical significance, and order. These values helped to analyse the answers in the online survey.

The online survey and people’s engagement with planning proposals show how much people appreciate their living environment and which criteria are important to them. The most critical mutual response between participants is that they all would like to have green areas close to their living environment. *Woodlands* are the most important feature that people like in their neighbourhood, and being *always under construction* is a disturbing feature in a new neighbourhood. If they could change or add something to their living environment, they would like to add *more greenery*.

As found in the survey, almost everyone is aware of the ecological value of green spaces in public and semi-public areas, particularly pollinators. But what I have found here is that there is a need to define everyone in my study. It would have been interesting if I had gathered the demographics data of the individuals such as age, gender, etc. Then I could have categorized my target groups and designed the areas based on their categorization.

I also realized that the methodology that I have used to gather the information in some of my questions was kind of guiding participants to answer the questions. For instance, participants responded that it is needed to have pollinator-friendly plants and wild meadows in their neighbourhoods. I wouldn't have had this result if I hadn't mentioned pollinators in my online survey. It would have been interesting if I hadn't guided them for ecological design approaches in my questions. Then I might have been inspired by new thoughts.

Participants in consultation meetings have shown that they are concerned about crime in the new neighbourhood. Referring to the theory, an area is safer when people feel ownership and responsibility for their community (Newman 1996). The crime rate is higher in dense areas with high buildings (ibid.). After analysing data, I have found that even though Uppsala municipality mentioned the importance of designing a physical environment in order to prevent crime and increase security, the audience still had questions regarding how the design works in housing development to prevent crimes, which means there is a need for more investigation to present the good design in the new neighbourhood.

It was interesting to hear that ‘less is not always more!’- this sentence was one of many inspiring comments I received from the inhabitants in Uppsala city. It can be interpreted as ‘less sometimes can be boring.’ Inhabitants would like to have more colors, textures, and forms in their living environment. The final proposal tried to illustrate the connection between the knowledge for the thesis and the design principles.

I would also like to reflect on my background. Coming from Iran has given me a certain perspective on describing designed environments that make me feel at home. The question raised for me was whether this feeling is the same when people move globally? It was a great motivation to explore an individual's experiences. My personal experience from my studies in Sweden is that the ambition behind the aesthetical, social, and ecological factors is global. No matter where you come from, you can feel at home when environmental elements appeal to your senses; vision, hearing, taste, smell, and touch.

6.2. | Strength and limitation of study

The study has shown that the residents' appreciation of their living environment depends on different reasons. Designing a neighbourhood landscape has been studied specifically with how to meet people's expectations of the living environment and how to create a resilient urban landscape when it comes to challenges. In contradiction, the study also showed why some residents don't feel at home in their neighbourhood and how it's possible to create a sense of belonging to a neighbourhood.

Considering people's perspectives regarding different values will give insight into the motives behind residents' appreciation in a neighbourhood. How do they appreciate their living environment, how do different activities cooperate with social cohesion in a new neighbourhood, and how do flora and fauna contribute to building the urban landscape character? But the point here is that the questions and answers of the online survey influenced the outcome of this study. The subjectivity of this approach might have a different outcome in a different context.

This thesis study also addresses the sustainable development goals by a designed proposal for the south-eastern neighbourhood in Uppsala city. The first and most apparent one is to ‘make cities and human settlements inclusive, safe, resilient, and sustainable.’ Furthermore, we have seen the demand for healthy environmental living that could promote well-being for all groups. This was illustrated by prioritizing the presence of flora and fauna in urban landscapes. Moreover, having local and decent materials in a neighbourhood would impact economic growth. Increasing access to facilities and greenery for all the inhabitants would reduce inequality within a community.

In the process of conducting the study, I have gained valuable knowledge regarding the role and importance of urban landscape as a crucial part of urban environments throughout the master’s program, landscape architecture for sustainable urbanization. At the personal level, I have gained enough confidence to analyse an example. I have never thought that I would detect the feeling behind the scenes in the Rosendal neighbourhood, which will give me inspirational clues for my designing principles and proposals.

With more time, I would have liked to conduct a more extensive analysis on recently built neighbourhoods and the appreciation of their residents, comparing both from Sweden and other countries. A comparative case-study approach to this research would provide a greater contextual understanding of design in different cultures.

Similarly, it would have been interesting to hear from planners, landscape architects, and other officials involved in the chosen case studies planning process. In general, the south-eastern districts in Uppsala and designing urban landscapes in that neighbourhood particularly are interesting cases relevant for Landscape architecture.

6.3. | Implication and further studies

The design principles of this study will primarily promote and strengthen the envisioned proposed plan by the municipality. It will contribute to the integration principles which drive from theory in urban landscapes with people's perspective regarding having a functional and satisfying living environment. Thus, it will create a sustainable neighbourhood meeting the needs and expectations of its inhabitants.

The study gives implications beyond the landscape of the south-eastern districts in Uppsala city. Uppsala municipality, the housing development agencies, and other policymakers can use the findings, design principles, and proposal of designing a new neighbourhood as support for future developments. Most importantly, this thesis will lay an academic foundation for further research into integrating the urban environment into social activities and ecological approaches in an urban setting.

The proportion of urban dwellers continues to grow (Soga et al. 2014); therefore, there is an extensive need to explore the connection between functional urban landscapes and aesthetical urban landscapes if the designed landscape will appeal and contribute to human, flora, and fauna. Also, in countries with high-density cities, creating urban landscapes should continuously take that into account.

To conclude, with the increased need for housing development in Uppsala city, it could be possible to continue this kind of thesis work at a Ph.D. level with a detailed study focusing on designing urban landscapes of new neighbourhoods and integrating them with aesthetical, social, and ecological values.

6.4. | Conclusion

This study has shown the essential role of green areas as preferred elements by inhabitants. Green urban spaces appear to attract people outdoors, increase opportunities for casual social encounters among neighbours and provide a sense of meaning beyond environmental elements. Consequently, green areas could support the health of natural systems and cope with challenges such as climate change, loss of sensitive species, and valuable resources.

My experience based on analysis of the findings from qualitative observation, a quantitative online survey, and reviewing people's engagement in consultation meetings with the municipality showed that applying ecological design approaches in the scale of a neighbourhood not only can satisfy people's needs but also would provide a possibility for natural nesting and habitats for flora and fauna. Technical design solutions in my proposal can be seen as generous greenery, with native blooming flowers, bushes, trees, and rain gardens. According to my understanding based on theory, ecological design can aid in the reduction of both time and costs associated with maintenance of designed landscapes.

In addition, Nasar (1998) and Thompson (2000) were articulating some liked attributes in urban landscapes, and according to the knowledge that I have gathered during my studies, there are many attributes that inhabitants appreciate in their living environment. Of course, there might be contradictions in the appreciation among people since it needs the consideration of individuals' experiences. But as landscape architects, we can serve the primary interests of the people and concern about the need for good design in our urban landscapes.

In summary, my proposal indicates that in order to face ecological and social challenges, a good design that works aesthetically and functionally can help to create a sense of responsibility, sense of belonging, identity, social sustainability, public life, and habitats for flora and fauna.

References

Ahern, J. (2013). Urban landscape sustainability and resilience: the promise and challenges of integrating ecology with urban planning and design. *Landscape Ecology*, 28 (6), 1203–1212. https://doi.org/10.1007/s10980-012-9799-z

Arnauld, M.C., Manzanilla, L.R. & Smith, M.E. (2012). *The Neighborhood As a Social and Spatial Unit in Mesoamerican Cities*. Tucson, UNITED STATES: University of Arizona Press. http://ebookcentral.proquest.com/lib/slub-ebooks/detail.action?docID=3411775 [2021-03-02]

Berleant, A. (2016). The Way to Social Aesthetics. *Proceedings of Social Aesthetics: Perspectives on Art and Engagement*, Brazil, November 10 2016. 7. Brazil. https://www.researchgate.net/publication/313876832_The_Way_to_Social_Aesthetics?enrichId=rgreq-b43ae7123173e1eb6ba640d088617d01-XXX&enrichSource=Y292ZXJQYWdlOzMxMzg3NjgzMjtBUzo0NjQyNjc1NDg4NjA0MjJAMTQ4NzcwMTQxNzk1Mw==&el=1_x_2&_esc=publicationCoverPdf

Booth, N.K. (1989). *Basic Elements of Landscape Architectural Design*. United States of America: Waveland Press.

Carmona, M., Heath, T., Oc, T. & Tiesdell, S. (2010). The Visual Dimension. *Public Places Urban Spaces, Second Edition: The Dimensions of Urban Design*. 2nd edition. UK: Elsevier, 169–200. https://www.routledge.com/Public-Places-Urban-Spaces/Carmona-Carmona-Heath-Oc-Tiesdell/p/book/9781856178273 [2021-05-16]

Choguill, C.L. (2008). Developing sustainable neighbourhoods. *Habitat International*, 32 (1), 41–48. https://doi.org/10.1016/j.habitatint.2007.06.007

Dearborn, D. & Kark, S. (2010). Motivations for Conserving Urban Biodiversity. *Conservation Biology*, 24 (2), 432–440. https://doi.org/10.1111/j.1523-1739.2009.01328.x

Dunnett, N. & Kingsbury, N. (2008). *Planting green roofs and living walls*. Portland: Timber Press. https://lib.ugent.be/catalog/rug01:001301644

Dvorak, B. & Volder, A. (2010). Green roof vegetation for North American ecoregions: A literature review. *Landscape and Urban Planning*, 96 (4), 197–213. https://doi.org/10.1016/j.landurbplan.2010.04.009

van Etteger, R., Thompson, I. & Vicenzotti, V. (2016). Aesthetic creation theory and landscape architecture. *Journal of Landscape Architecture*, 11 (1), 80–91. https://doi.org/10.1080/18626033.2016.1144688

Gustavsson, R. (2004). Exploring woodland design: designing with complexity and dynamics- woodland types, their dynamic architecture and establishment. In: Dunnett, N. & Hitchmough, J. (eds.) *The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban*

Planting. 1st Edition. London: Taylor & Francis, 246–294. https://doi.org/10.4324/9780203402870
Harun, N.Z., Zakariya, K., Mansor, M. & Zakaria, K. (2014). Determining Attributes of Urban Plaza for Social Sustainability. *Procedia - Social and Behavioral Sciences*, 153, 606–615. https://doi.org/10.1016/j.sbspro.2014.10.093
Hermy, M. (2010). Landscaped parks and open spaces. In: Douglas, I., Goode, D., Houck, M.C., & Maddox, D. (eds.) *Handbook of Urban Ecology*. London; New York: Routledge, 289–300
Jacobs, A. & Appleyard, D. (1987). Toward an Urban Design Manifesto. *Journal of the American Planning Association*, 53 (1), 112–120. https://doi.org/10.1080/01944368708976642
Karuppannan, S. & Sivam, A. (2011). Social sustainability and neighbourhood design: an investigation of residents' satisfaction in Delhi. *Local Environment*, 16 (9), 849–870. https://doi.org/10.1080/13549839.2011.607159
Landscape Institute (2015). *Landscape architecture: a guide for clients | Landscape Institute*. https://www.landscapeinstitute.org/publication/landscape-architecture-a-guide-for-clients/ [2021-04-20]
Lazdāne, L., Jankevica, M. & Zigmunde, D. (2013). Diversity of Landscape Aesthetics in Rural, Periurban and Urban Ecosystems. *Science-Future of Lithuania*, 5 (3), 229–241. https://doi.org/10.3846/mla.2013.40
Lester, D. (2013). Measuring Maslow's Hierarchy of Needs. *Psychological Reports*, 113 (1), 15–17. https://doi.org/10.2466/02.20.PR0.113x16z1
Matsuoka, R. & Sullivan, W. (2010). Urban nature Human psychological and community health. In: Douglas, I., Goode, D., Houck, M.C., & Maddox, D. (eds.) *Handbook of Urban Ecology*. London; New York: Routledge, 408–423
Memlük, M.Z. (2012). Urban Landscape Design. In: Dr. Murat Ozyavuz (ed.) *Landscape Planning*. Turkey: InTech, 276–298. http://www.intechopen.com/books/landscape-planning/urban- [2021-02-19]
Murphy, M. (2016). *Landscape Architecture Theory: An Ecological Approach*. Washington: Island Press.
Nardi, A. (2017). Landscape and sense of belonging to place: the relationship with everyday places in the experience of some migrants living in Montebelluna (Northeastern Italy). *Journal of Research and Didactics in Geography*, 1 (6), 61–72. https://doi.org/10.4458/8579-05
Nasar, J.L. (1997). New Developments in Aesthetics for Urban Design. In: Moore, G.T. & Marans, R.W. (eds.) *Toward the Integration of Theory, Methods, Research, and Utilization*. Boston, MA: Springer US, 149–194. https://doi.org/10.1007/978-1-4757-4425-5_5
Newman, O. (1996). *Creating Defensible Space*. United States of America: DIANE Publishing.
Norton, T.M. (1967). Police Power, Planning and Aesthetics. *SANTA CLARA LAWYER*, 7 (2), 18
Persson, A.S. (2012). *Strategi, åtgärder och uppföljningsmetoder till stöd för pollinerande insekter i stadsmiljö*. Malmö: Biologiska institutionen, Lunds universitet.
Rishbeth, C. & Powell, M. (2013). Place Attachment and Memory: Landscapes of Belonging as Experienced Post-migration. *Landscape Research*, 38 (2), 160–178. https://doi.org/10.1080/01426397.2011.642344
Robinson, T., Schulte-Herbrüggen, H. & Gerenstein, T. (2019). *Raingardens for stormwater management Potential of raingardens in a Nordic climate*.

(2019:196). Sweden: Trafikverket. http://www.diva-portal.org/smash/get/diva2:1370826/FULLTEXT01.pdf
Rottle, N. & Yocom, K. (2011). *Basics Landscape Architecture 02: Ecological Design*. Lausanne: AVA Books. (Basics. Landscape Architecture; 02)
Shirazi, M.R. & Keivani, R. (2019). The triad of social sustainability: Defining and measuring social sustainability of urban neighbourhoods. *Urban Research & Practice*, 12 (4), 448–471. https://doi.org/10.1080/17535069.2018.1469039
Shwartz, A., Turbé, A., Simon, L. & Julliard, R. (2014). Enhancing urban biodiversity and its influence on city-dwellers: An experiment. *Biological Conservation*, 171, 82–90. https://doi.org/10.1016/j.biocon.2014.01.009
Soga, M., Yamaura, Y., Koike, S. & Gaston, K.J. (2014). Land sharing vs. land sparing: does the compact city reconcile urban development and biodiversity conservation? *Journal of Applied Ecology*, 51 (5), 1378–1386. https://doi.org/10.1111/1365-2664.12280
Svenska naturtak (2015). *Växtvajersystem för klätterväxter | Svenska Naturtak*. https://www.svenskanaturtak.se/vajersystem [2021-03-12]
Thompson, I. (2000). *Ecology, Community and Delight: An Inquiry into Values in Landscape Architecture*. London; New York: Routledge.
Upplandsmuseet (2018). *Kulturhistorisk förundersökning inför fördjupad översiktsplan*. Uppsala: Upplandsmuseet. SLUTVERSION Bergsbrunna, kulturhistorisk förundersökni ng.pdf
Uppsala Kommun (2021a). *Bilaga 1: Förutsättningar Fördjupad översiktsplan för de Sydöstra stadsdelarna inklusive Bergsbrunna Utställningshandling*. Uppsala: Uppsala Kommun. bilaga-1-forutsattningar_lagupplost.pdf
Uppsala Kommun (2021b). *Fördjupad översiktsplan för de Sydöstra stadsdelarna inklusive Bergsbrunna*. Uppsala: Uppsala Kommun. 3.1.-utstallningshandling-fordjupad-oversiktsplan-for-de-sydostra-stadsdelarna-inklusive-bergsbrunna.pdf
Uppsala Municipality (2019). *Uppsala is growing*. https://bygg.uppsala.se/samhallsbyggnad-utveckling/uppsala-vaxer/summary-in-english/ [2021-03-13]
Uppsala Municipality (2021). *Frågor och svar i chatten med Erik Pelling*. https://bygg.uppsala.se/planerade-omraden/sydostra-stadsdelarna/dialoger-och-moten/genomforda-dialoger-och-moten/moten-under-utstallningstiden-2021/fragor-och-svar-i-chatten-med-erik-pelling/ [2021-04-20]
Van Der Ryn, S. & Cowan, S. (1996). *Ecological Design*. Washington, DC: Island Press. https://www.scribd.com/book/252756595/Ecological-Design-Tenth-Anniversary-Edition
Wilk, B., Robollo, V. & Hanania, S. (2020). *A guide for pollinator-friendly cities: How can spatial planners and land- use managers create favourable urban environments for pollinators?* ICLEI Europe for the European Commission.
WSP (2020). *Hållbarhetsbedömning*. Stockholm: WSP. Klint and Englid - Hållbarhetsbedömning.pdf
YU, K. (2006). *The Art of Survival - Recovering Landscape Architecture /anglais*. Mulgrave: IMAGES PUBLISHI.
Zhang, Q., Yung, E.H.K. & Chan, E.H.W. (2018). Towards Sustainable Neighborhoods: Challenges and Opportunities for Neighborhood Planning in Transitional Urban China. *Sustainability*, 10 (2), 406. https://doi.org/10.3390/su10020406

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