Sustainable Urban Development: Integrating Strategic Large-Scale Planning with Small-Scale Public Space Design in Copenhagen

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Introductory Note

The report was developed as part of an internship as the final part of the course in the Master's degree in Landscape Architecture at the Faculty of Science at the University of Porto. The six months internship ended with a result of this final report.

The project aims to investigate the impacts of large-scale urban design on smaller proximity spaces. Prior to the investigation an emphasis was placed upon the necessity to incorporate a variety of factors to ensure an ideal placement. Furthermore, a central theme throughout is how to create small-scale designs which focus on minimal interventions to improve urban public spaces increase life quality.

Acknowledgements

With this report I would like to express my gratitude to my entire support system of family and friends who have supported me throughout this journey over the past five years. Your constant support has been invaluable.

A special thank you to my teachers at the Faculty of Science at Porto University for their continuous support and constructive feedback, which has provided me with the tools to shape my landscape architecture career.

I am grateful for my internship partners at VEGA Landskab, where I leaned what it means to be a landscape architect in a professional setting. Lastly, I would like to extend a thank you to my constant support system who continue to encourage me in all I decide to do. Your belief in me never ceases to inspire.
Thank you.

Abstract

This research investigates the influence of large-scale urban design on small and local areas by exploring how minimal interventions can enhance urban public spaces and thus improve quality of life. The central research question was to what extend can small-scale designs effectively integrate into urban environments to enhance the functionality and provide with resident well-being? The study involved a comprehensive literature on urban proximity spaces, sociological and anthropological theories and human centered design strategies and principles. Furthermore, a mapping allowed for an analysis of large-scale structure to provide a background to apply this knowledge to the intervention site.

City development was necessary to understand, as it influenced large-scale design and planning patterns withstanding today. Defining movement within the city and outwards and attaching identity to places. A key point was to ensure connection between different scales. Requiring an examination of the sociocultural context to understand the needs of the local population. The proposal show how the findings can be applied to enhance sustainable urban development practices to mitigate negative impacts on residents. The conclusions suggest that the large strategic structure of a city design has potential to positively impact and transform urban landscapes and support growing diverse urban populations.

Keywords: Urban Design Structure, Socioeconomic Urban Landscape, Urban Landscape Renewal, Small-Scale Interventions, Sustainable Urban Growth

Resumo

Este trabalho investiga a influência do *design* urbano em grande escala nas áreas pequenas e locais, explorando como intervenções mínimas podem melhorar os espaços públicos urbanos e, consequentemente, a qualidade de vida. A questão central da pesquisa foi até que ponto projetos em pequena escala podem integrar eficazmente os ambientes urbanos para melhorar a funcionalidade e promover o bem-estar dos residentes. O estudo envolveu uma revisão abrangente da literatura sobre espaços públicos urbanos, teorias sociológicas e antropológicas, bem como estratégias e princípios de design centrados no ser humano. Além disso, um mapeamento permitiu uma análise da estrutura em grande escala para fornecer um contexto para aplicar esse conhecimento ao local de intervenção.

O desenvolvimento urbano da cidade foi essencial para compreender como ele influencia os padrões de *design* e planejamento em grande escala que perduram até hoje. Definir o movimento dentro e fora da cidade, e atribuir identidade aos lugares foram pontos-chave. Foi essecial assegurar a conexão entre diferentes escalas, exigindo uma análise do contexto sociocultural para entender as necessidades dos moradores locais. A proposta mostra como os achados podem ser aplicados para melhorar práticas sustentáveis de desenvolvimento urbano e mitigar impactos negativos nos residentes. As conclusões sugerem que a estrutura estratégica em grande escala do *design* urbano tem o potencial de impactar positivamente e transformar paisagens urbanas, apoiando populações urbanas diversas em crescimento.

Palavras-chave: Desenho da Estrutura Urbano, Paisagem Urbana Socioeconónica, Renovação da Paisagem Urbana, Intervenções em Pequena Escala, Crescimento Urbano Sustentável

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1. Introduction

1.1 Introduction to the theme and scope

In the scope of an academic internship at a Danish landscape architecture firm VEGA Landskab, during the 2nd year of the master's degree program in landscape architecture at the Faculty of Science at University of Porto, the following internship report is presented.

The theme emerged from a comparison between the context of academia and work environment, with a focus on the different scales at which designs are made. During the internship, an intriguing question was raised regarding small-scale drawings where millimeter is the dominant unit of measure. Requiring an amount of detailing to accurately represent the reality that is projected. Reflecting upon the scales used in the academic career, normally expressed in meters and not millimeters, it highlights the amount of detail necessary in a professional practice. Small-scale projects can never stand alone and are always linked to larger-scale urban frameworks.

The project aims to investigate the extent to which the large-scale urban design influences the design of smaller-scale proximity space. Inserted into a Scandinavian context as the landscape studio is situated in Copenhagen Denmark, providing a practical area to explore these aspects.

1.2 Objectives

The main objectives lie in an investigation of large-scale urban design and planning on a strategic level, its development and how it reflects and interacts with the small-scale urban design. The analysis aims to understand the importance of the synergy between the scales. Furthermore, the proposal presents a design for a proximity public space, which is incorporated and integrated into the larger urban fabric,

Key elements include:

- Historical background and current research.
- Large-scale analysis of Copenhagen at a macro level to define strategies and structural backbone elements.
- Medium-scale analysis of Bispebjerg, with a focus on structural elements and the socioeconomic situation.

- Small-scale analysis of the intervention site and its immediate surroundings.
- Final development of a small-scale public urban proximity space with the proposal of an area that enhance local connectivity by integrating results from previous analytical scales.

1.3 Methodology

The work was carried out in multiple phases including a literature review and research, an elaborate strategic analysis, a synthesis of these phases, and the development of a small-scale project. The initial phase involved a comprehensive literature review focused on urban development and strengthening of proximity public spaces in an urban context. Including a study of sociological and anthropological concepts relevant to public spheres and an exploration of pattern creation and repetitions when forming, and even more so analyzing, large-scale urban designs. After considering these theoretical aspects an understanding of the Scandinavian context was necessary. Comparisons were drawn within three cities; Oslo in Norway, Malmö in Sweden, and Copenhagen in Denmark through a reflection upon similarities and differences in their patterns. Multiple structural aspects were taken into consideration however, current strategic plans regarding future development from both Oslo and Malmö were outside the scope.

The next steps relied on the cataloguing and recording of statistical data and geological data from Copenhagen. It was done to initiate an analysis on structural components, which make up the city. Furthermore, it allowed for an interpretation of the data to be made and the creation of patterns to be used throughout the design process. The large-scale investigation occurred alongside the gathering of information for the smaller scales to ensure the same information was carried through to the various phases. This helped to determine a potential area for the intervention site. A final consideration to the choosing of the intervention site was concluded and immediately after, the design process initiated. It consists of zooming through the scales to ensure connection between them. Upon moving scales, connectivity became more evident.

By using geographical information system services such as the open-sourced program of QGIS, it was possible to create maps of various elements. The information and shapefiles used are from a free data communication website *Dataforsyningen* in the Danish context (SDFI, 2024). Software such as Adobe Illustrator, and Adobe Photoshop were used to process the information received, while Microsoft Excel was used to create statistical data graphs supplied from the open data source of the Copenhagen

registry (Københavns Kommune (Copenhagen Municipality), 2024).

The design phase used programs such as CAD software namely AutoCAD and Archicad alongside Adobe Illustrator, Photoshop, and Adobe InDesign.

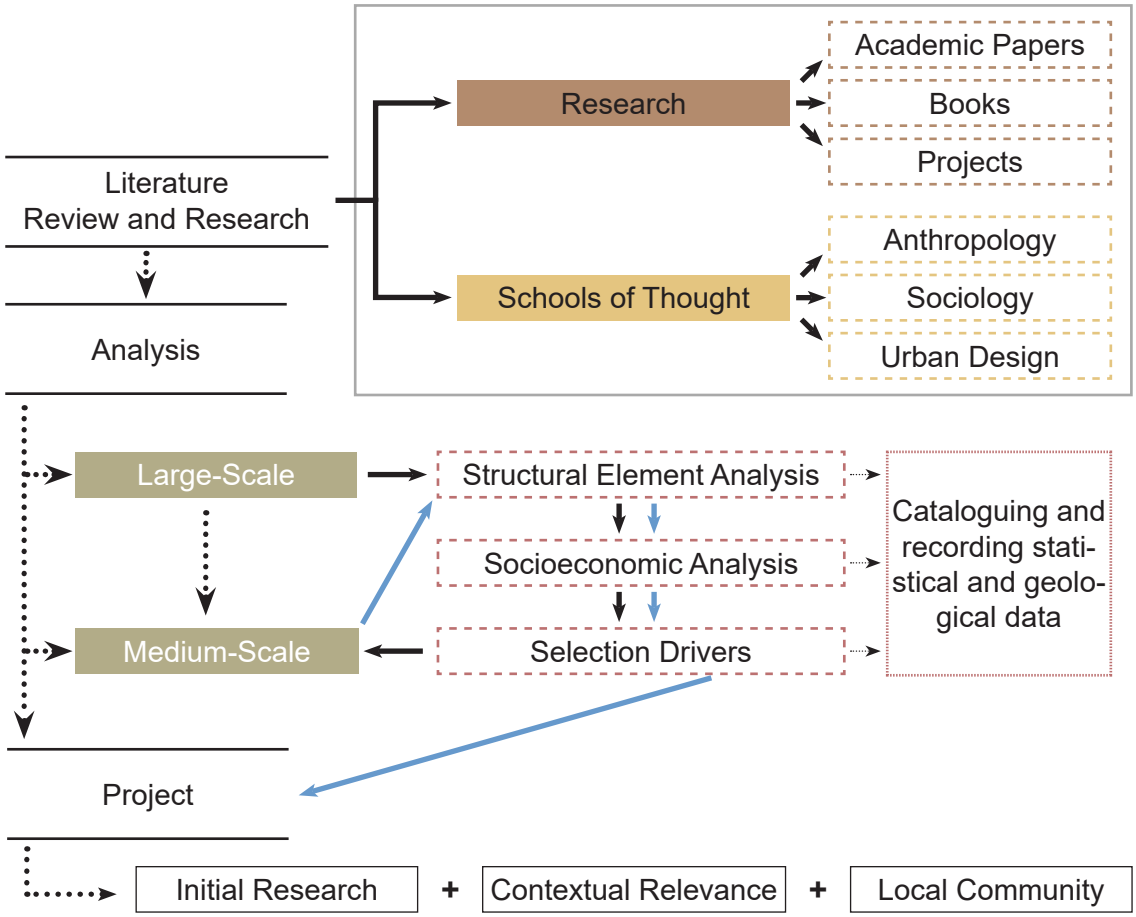


Figure 1
Methodology

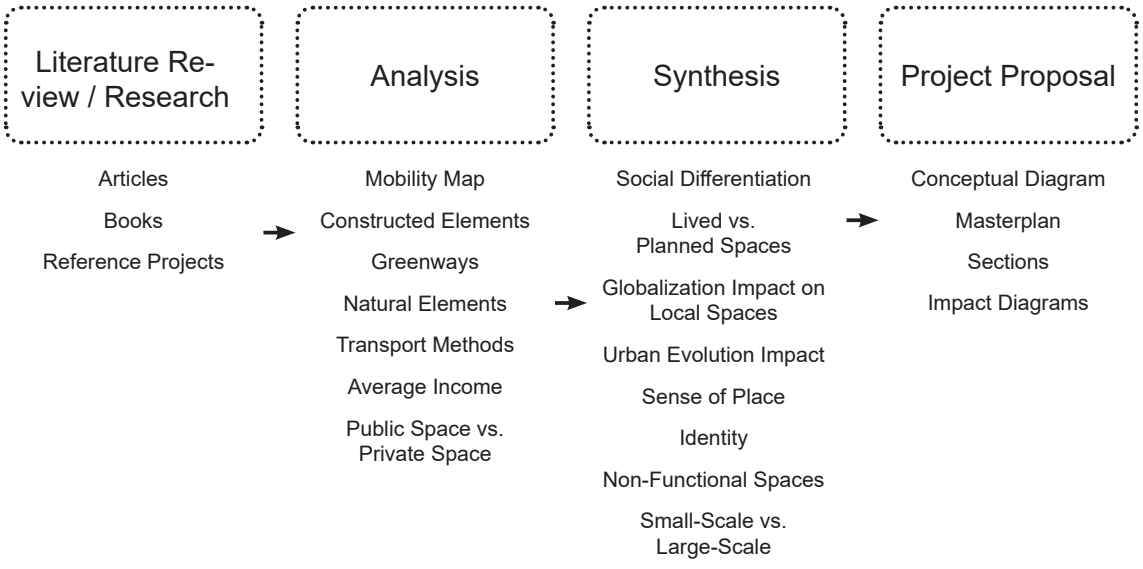


Figure 2
Methodological Framework

The initial research allowed for an investigation into smaller green spaces and their importance on local communities as proximity spaces and as a factor to improve the life quality of nearby living residents. A variety of sources discuss the importance to be able to connect smaller green spaces to a larger network, whether this is done through transit-oriented development, zoning strategies or other forms of strategies (Hsiao & Huang, 2023; Carmona, 2018; Wang, Xie, Xia, He, & Lin, 2024). Additional important aspects included the impact that play has on the urban quality (Covatta & Ikalovic, 2022). The notion that places create an identity is a strong and steadfast idea and further acknowledged in many studies to provide both the place, but furthermore the residents with a sense of belonging and a sense of place (Prompayanuk & Sa-hachaisaeree, 2012; Carmona, 2018; Relph, 1997).

2. Theoretical Principles

2.1 Large-scale patterns

Christopher Alexander illustrates in his book *A Timeless Way of Building*, one of the most common examples of pattern and systematic creation of urban areas. Consisting of a high-density center, surrounded by smaller peaks and hotspots of density. A network of freeways as he calls it, often referred to as highways or high-speed traffic roads connects these centers. There is a two-dimensional network of streets, where every fifth to 10th smaller street will meet a larger street artery. These main arteries tend to be arranged radially. He further claims that there are many structures and patterns to be noticed on a larger-scale, claiming they are patterns of relationships (Alexander, 1979, p. 87).

Alexander further argues that central business districts, often exist in areas close to high-density office blocks and nearby those are high-density apartment buildings for the workers (Alexander, 1979, p. 86). These business districts exist in the large center but also in the smaller peaks. While the apartment blocks tend to be smaller in size the more central one is located. Thus, resulting in larger housing the further from the center leading to lower population density than in central parts (Alexander, 1979, p. 86). Anthony Giddens, sociologist, discuss transition zones in cities and argues that these zones are often inhabited by immigrants in temporary housing where a great cause of city conflicts arise (Giddens, 1986, p. 109). Further claiming that a large part of the population lives in that belt on a smaller space however, this social housing supply often does not correspond to the demand (Giddens, 1986, p. 109). Within the topic of housing classes, which, was a central studied theme for Giddens, he further discusses its organization and growth. Stating that these social neighborhoods were always meant for the working class with dwellings being situated close to the place of work, thus reducing commute time (Giddens, 1986, pp. 105-107).

However, there is a change in the borders from city to land, or built environment versus open space. If by a space we mean a social and not physical place, these boundaries cease to exist between city and land (Giddens, 1986, p. 104). Referred to as borders and boundaries between the human lives and nature, Giddens argue that man-made conditions are where human lives take place, and it is an artificial climate (Giddens, 1986, p. 105). A place where society constructs the environment can cause this boundary, however, it must be possible to reduce the boundary and ensure a new

connection with non-artificiality. According to anthropologist Marc Augé, spatial arrangements express the groups' identity, and they become united by the identity of the place (Augé, 1995, p. 45). Whereas C. Alexander argues for the life of the town and says that its people are the ones who provide this identity. The actions of the moments and their quality of events that is encountered, is what shape the life of a town, and not only the shape of buildings (Alexander, 1979, p. 65). Patterns help to establish this character.

However, there are personal and impersonal spaces. Jan Gehl, urbanist, argues that smaller and intimate spaces such as small streets or small buildings bring warmth and personality, whereas large streets and tall buildings tend to be seen as cold and impersonal (Gehl, 2017, p. 65). Further bringing back the personality and identity which is "[…] the character of a place, […] given to it by the episodes which happen there" is the life and the soul of a place (Alexander, 1979, p. 62). If a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non-place. The hypothesis advanced… super modernity produces non-places – meaning spaces which are not themselves anthropological places (Augé, 1995, pp. 77-78). Identity and relations bring a shared identity, a particular identity or a singular identity. Anthropological places which are concrete and symbolic constructions of space, serve as reference for all those who assign it a position, a principle of meaning for the people who live in it, a principle of intelligibility for the person who observes it (Augé, 1995, pp. 51-52).

These above thinkers reflect upon patterns within urban landscapes. The way in which people interact with the spaces and the way in which they are organized. Providing key elements to focus on when intervening in urban public spaces to ensure identity is established and the creation of non-places avoided.

3. Scandinavian Context

3.1 City development of three cities; Oslo, Malmö and Copenhagen

The Scandinavian cities like Oslo, Malmö and Copenhagen share a common historical development dependent on their proximity to the sea. Relying heavily on sea routes for trade and transportation, becoming a central placement and resulting in a circular expansion outward from the harbor. The name of Copenhagen is derived from the harbor of merchants. Within the small scale, it is possible to see the expansion from the coastal fortresses extending central roads from these positions of protection.

As the cities evolved, new development saw the creation of circular higher traffic roads connecting roads departing from old medieval centers towards the countryside. These central nodes established a foundational pattern guiding city expansion inward.

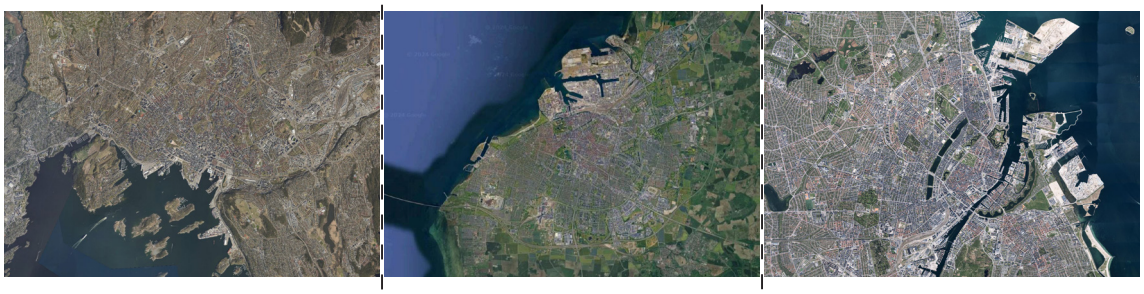


Figure 3
Google Maps of Oslo, Malmö and Copenhagen | (Kartverket, 2024; Google, 2024; SDFI, 2024)

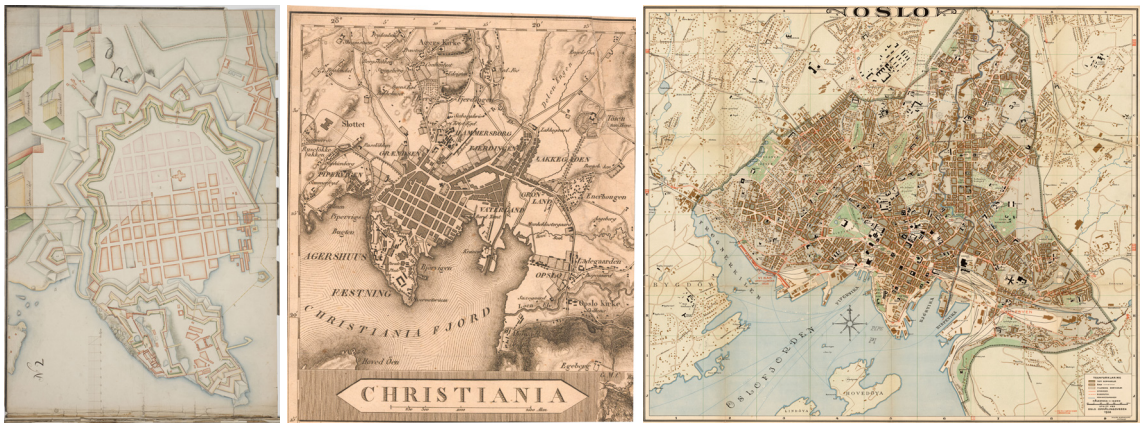


Figure 4
Oslo Development in 1704; 1827; 1938 | (Kartverket, 2024)

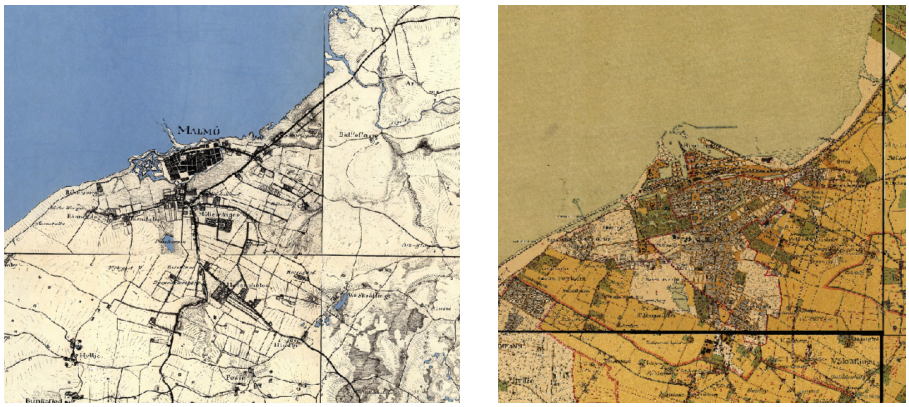


Figure 5
Malmö Development in 1812; 1912 | (Malmö Stad, 2024)



Figure 6
Copenhagen Development in 1694; 1878; 1900 | (SDFI, 2024; Styrelsen for Dataforsyning og Infrastruktur., 2020-2021)

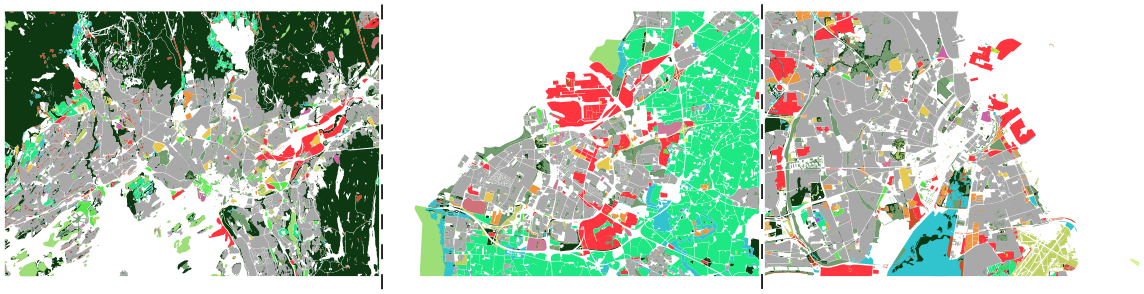


Figure 7
Landuse from Open Source in Oslo, Malmö and Copenhagen | (Geofabrik.de, 2018)

An important aspect is the identification of green spaces, shaping urban development historically but also currently. Current green structure is depicted here in the three urban cases, based on data from the Open Sourced *Geofabrik.de* (Geofabrik.de, 2018).

The green structure shows an importance on green and blue infrastructure in all of the cities, ensuring that they occupy a relatively large area in their vicinity to the center. Another important aspect is the establishment of green corridors which serve as networks of green spaces stretching alongside blue infrastructure.



Figure 8
Water Bodies from Open Source in Oslo, Malmö and Copenhagen | (Geofabrik.de, 2018)

Further placing emphasis of the establishment of a structural backbone upon which the rest of the city can be built. These aspects of natural occurrences, are among those most difficult to change, and thus it must be taken into consideration in urban development patterns and structures.



Figure 9
Primary Roads from Open Source in Oslo, Malmö and Copenhagen | (Geofabrik.de, 2018)

The road structure reflects the underlying green structure, forming a circular pattern repeating itself outward from the central fortifications. Similar to ripples in water. These roads often called the ring-roads, establish connections along their trajectory. Interrupted by increasingly straight roads, expanding radially from one of the most central rings and outwards allowing a faster connection to the further distanced areas, either within the city or in neighboring areas.

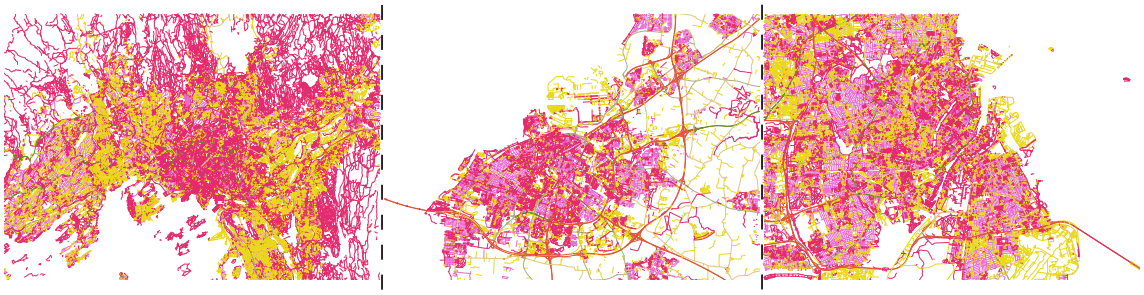


Figure 10
Secondary Roads from Open Source in Oslo, Malmö and Copenhagen | (Geofabrik.de, 2018)

Within the roads of smaller scale and lower hierarchy, an increasingly orthogonal grid is seen. The density of the lower hierarchy roads such as service, residential and pedestrian roads are seen to have a stronger and more dense presence within the older urban centers where housing is placed closer together and the streets narrower.



Figure 11
Buildings from Open Source in Oslo, Malmö and Copenhagen | (Geofabrik.de, 2018)

The built structures either depend upon the existing road structure or the road structure depends on it. In most cases they are interdependent as the more built areas there are, the more access roads are necessary. Within areas of larger green spaces, there are fewer traffic roads and within areas of high-density housing the tendency is to have more traffic roads.

The terrain is of utmost importance when deciphering various urban development models. Often providing essential structural elements upon which others, such as roads and buildings, are inserted. Accentuated relief will not allow for the creation of buildings nor roads with a certain percentage of inclination. If necessary or possible the terrain will be altered to accommodate these elements. Within the Danish context, having a relatively flat terrain, this does not impose an impact upon the structural patterns. In Malmö the situation is similar to Denmark, however, Oslo is situated in a valley having the surrounding terrain influence the expansion of the city. Placing constraints upon the structural patterns of elements such as the built and road accessibility.

4. Large-Scale Context of Copenhagen

4.1 Administrative units

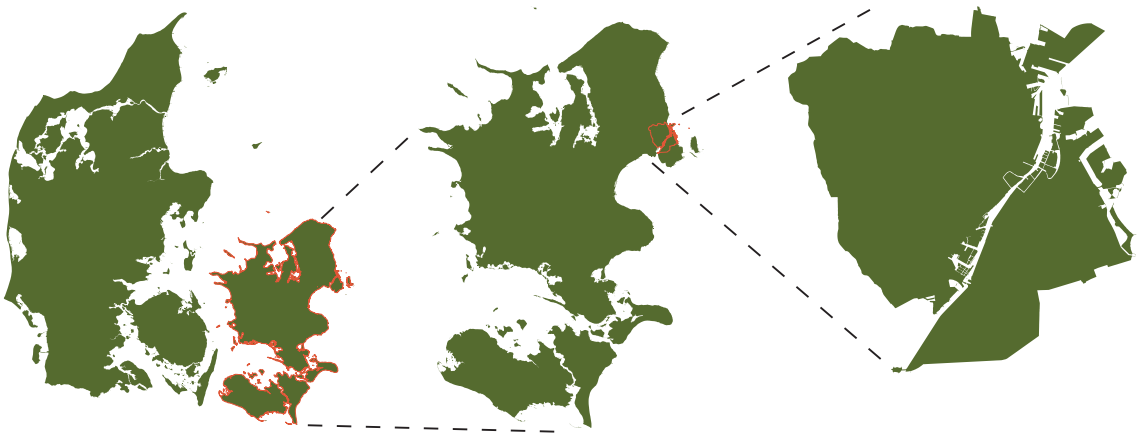


Figure 12
Denmark

Size: 42 954 km²
Population: 5 969 774
Population density:
138 ppl / km²

Figure 13
Zealand

7 031 km²
Population: 2 625 206
Population density:
373 ppl / km²

Figure 14
Copenhagen Municipality

90,10 km²
Population: 659 350
Population density:
7 352 ppl / km²

An analysis of Denmark and its general distribution of people shows an unbalanced reality revealing differences between areas of high population density and low population density. The general distribution of Denmarks inhabitants is unbalanced, with a majority of the population living in dense areas. Particularly evident in the capitol city, Copenhagen, where the population density is of 7 352 people per km². Furthermore, a large amount of the Danish population lives on the island of Zealand where the capitol is located. A total of 43,97 % live on this island representing a considerable amount compared to the size of the rest of the country.

Denmark's landscape is dominated by agricultural land with a covering 59% of the country forest 13% based on statistical data collected in 2021 by the Danish

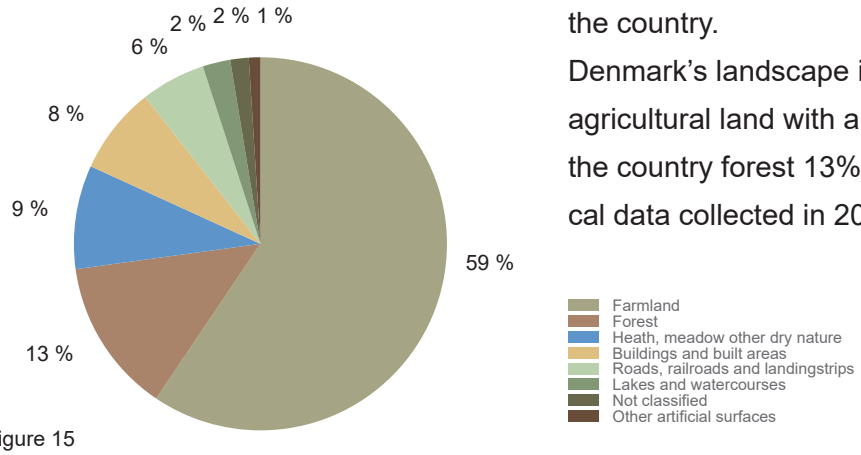


Figure 15
Denmark - Groundcover Area in % | (Arealopgørelser (Area Inventory), 2021)

authorities (Arealopgørelser (Area Inventory), 2021). A total of 72% of the country total area is made up of these regions, and this following chapter will discuss the implications of the populational distribution, and the land use patterns in the municipality of Copenhagen (see appendix for a distribution map). Examining how it impacts the urban development, and the planning of public spaces in Denmark.

4.2 General characterization of Copenhagen

Copenhagen, the capitol of Denmark, is divided into 10 administrative functional neighborhoods, each with its own unique character. Specific elements that are inserted into these neighborhoods help to identify them and distinguish them from one another. The distribution as well as the names of the 10 neighborhoods are shown in the following diagram.

Within the boundaries of the municipality there is an area in white. This represents the city of Frederiksberg, which became independent during a municipality reform in 2007 (Tønnesen, 2013). Despite being situated within Copenhagen municipality it functions and operates independently and is known for being rich in green spaces. It is not included in the following statistical contexts.

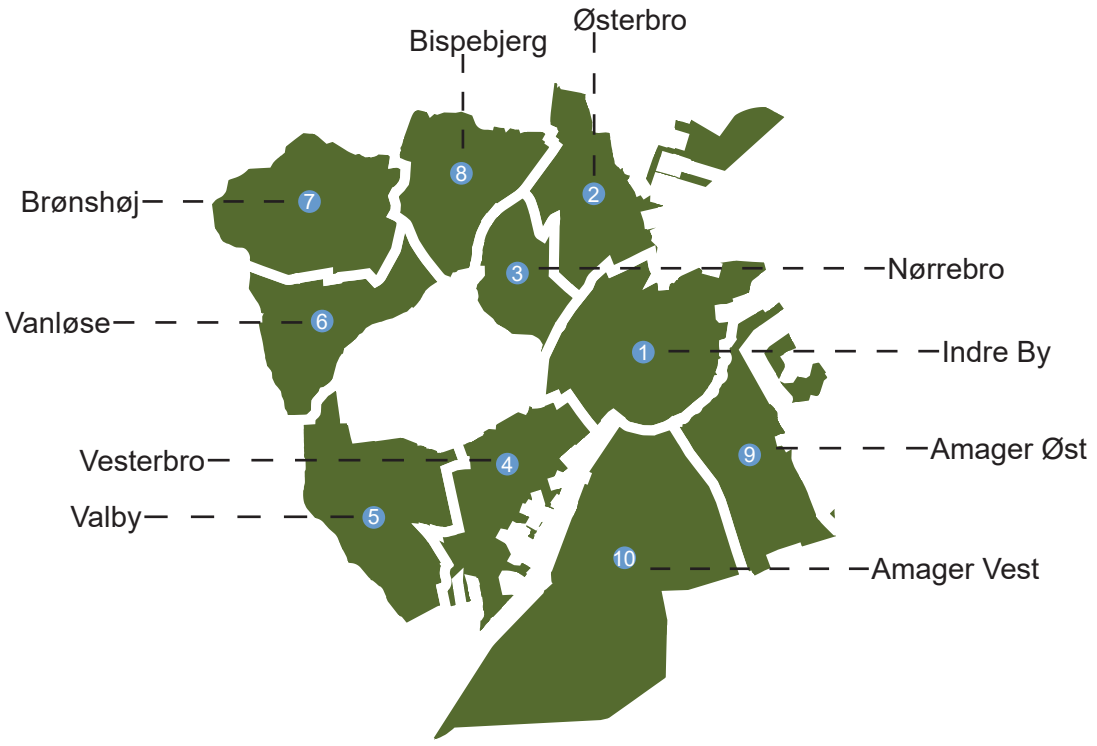


Figure 16
Neighborhoods in Copenhagen Municipality | Author Creation

4.3 Population density in the neighborhoods

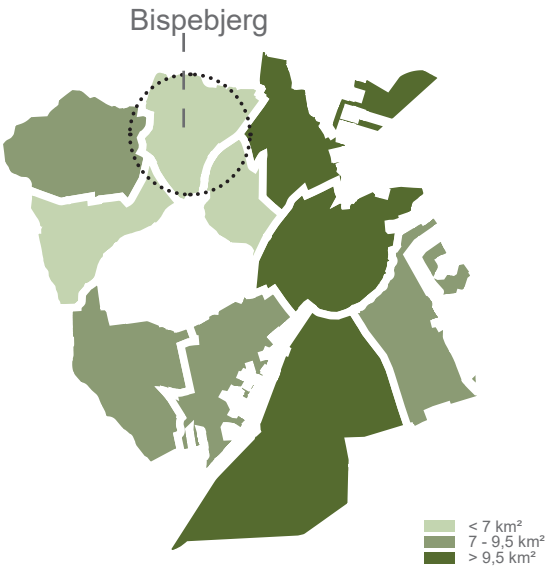


Figure 17
Neighborhoods in Copenhagen Municipality (km²) | Author Creation

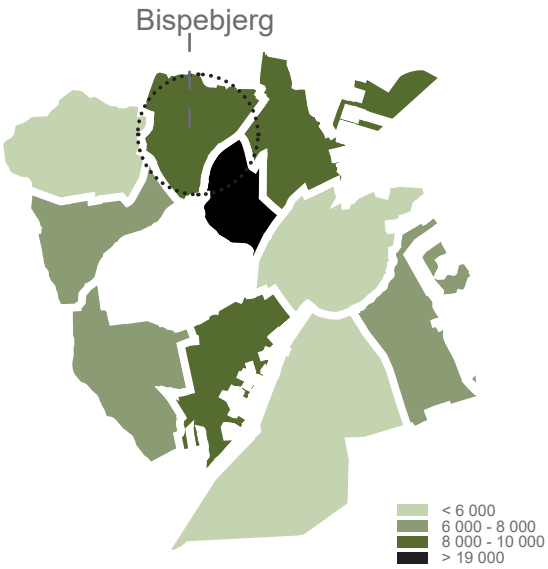


Figure 18
Population Density Map of Copenhagen Municipality (residents / km²) | Author Creation

Five neighbourhoods are among the areas with the highest population density. All rise above the average for the entire municipality of Copenhagen, which is valued at 7 352 ppl/km². The above highlighted neighbourhood of Bispebjerg (figures 17 and 18) has one of the smallest areas and is among the highest population densities.

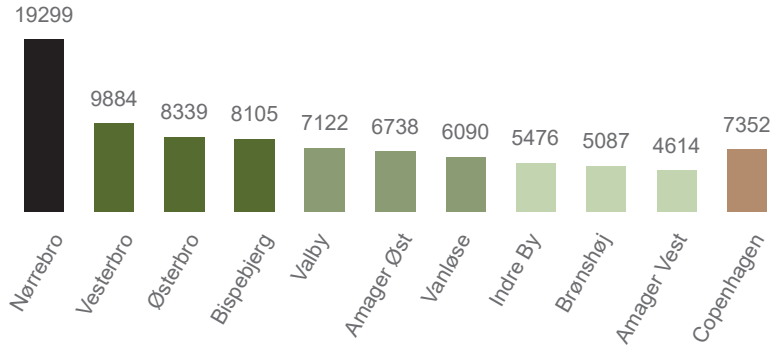


Figure 19
Population density compared with Copenhagen Municipality (residents/km²) | Author creation

4.4 Brief description of the neighbourhoods

Indre By | *Inner City*

Characterized by the old fortification ring around the center with narrow streets and small crooked houses. The streets are often lined with cobblestones and meandering streets lead to small open squares. This is also the area where most of the historical and culturally important buildings are placed.



Østerbro | *Eastern Bridge*

An area of later development than the old center, this meant wider streets, and larger housing. It is currently the area where its residents have the highest income. Housing many of foreign embassies and other newly built development in an old industrial harbor (Nordhavn / northern harbor).



Nørrebro | *Northern Bridge*

A multicultural hub with few green areas of connection. This neighborhood has become an increasingly important neighborhood and with the rise in popularity many young people seek to live in this urban area. It is the smallest in size of the neighborhoods, but even though, it has the highest population density of all the neighborhoods.



Vesterbro - Enghave | *Western Bridge*

Vesterbro is the third of the bridge named neighborhoods and its name means the Western Bridge. It houses the city's central station and has been dominated by industry associated with the train transport but currently there are many areas that have been transformed into housing areas and undergone urban renewal projects.



Valby

Valby is an area still affected by small industrial neighborhoods, but is an area of higher contrast. There is an increasing amount of allotment houses and a high variety in housing situated close to larger recreational parks.



Vanløse

An older farmland area which currently is one of the neighborhoods with the lowest population density. There are more single-family houses, which also supports the density. It is a highly residential area with few large green spaces.



Brønshøj - Husum

Brønshøj is an area of large green areas, and a differentiation in the housing situation. There are both a high density of social housing apartment complexes, and single-family houses.



Bispebjerg

The northernmost neighborhood in Copenhagen and an area which has many difficulties in social contexts. It can be separated in two areas, the southernmost, which is densely built and the northernmost area which has a large cathedral and vast areas of green and blue spaces.



Amager Øst | *Amager East*

Historically an area of many allotment gardens and currently an area influenced by the long artificial beach front towards the Baltic Sea. It also has a direct connection with the central parts of Copenhagen and the oldest part of town.



Amager Vest | *Amager West*

The Western Amager neighborhood is an area of immense recreational space. A central road leading to Copenhagen center divides the neighborhood in built and green spaces. It further houses a lot of newly build residents made by large architecture firms to establish living spaces in newly developed neighborhoods.



Figure 20
Neighborhoods in Copenhagen Municipality - separated | Author Creation - diagrams; (Trap Danmark, 2020)

4.5 Land use

According to open-sourced data from *Geofrabrik.de* the following map was created showing the land use in the municipality (Geofabrik.de, 2018). Residential areas occupy the largest amount of space. Strategically placed centrally and along various axis optimizing connectivity and accessibility. Allowing the support for higher density areas to be accommodated. Along the peripheries of the municipality, larger green spaces are situated, while industrial areas tend to be associated to areas with water and along industrial harbors.

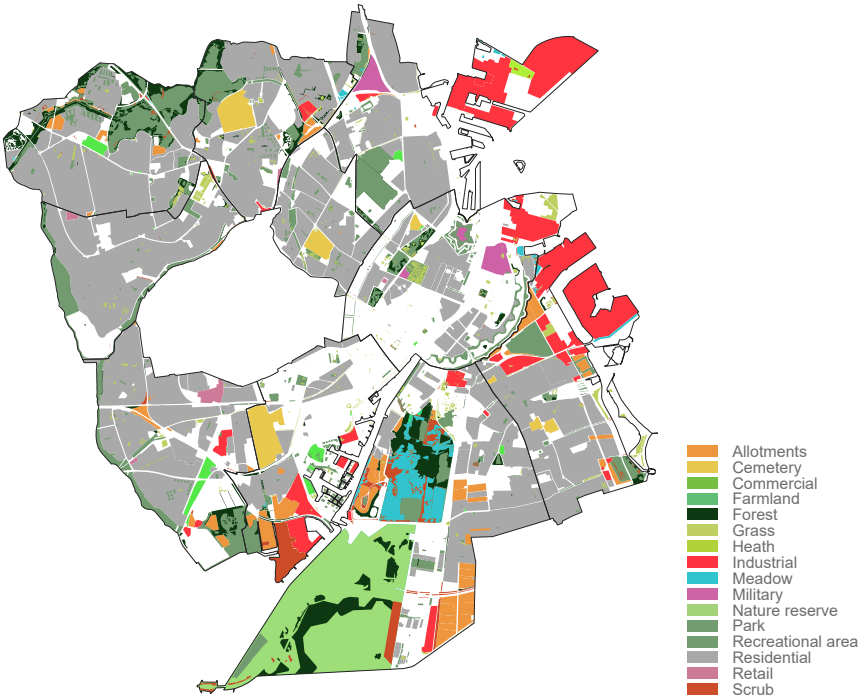


Figure 21
Landuse in Copenhagen Municipality | Author Creation (Geofabrik.de, 2018)

4.6 Road structure

The roads follow a pattern with regard to their circular form and the way in which the motorway leads toward the center parts. Whereas the primary and secondary roads provide with a ring like structure to place a backbone structure to the further development.

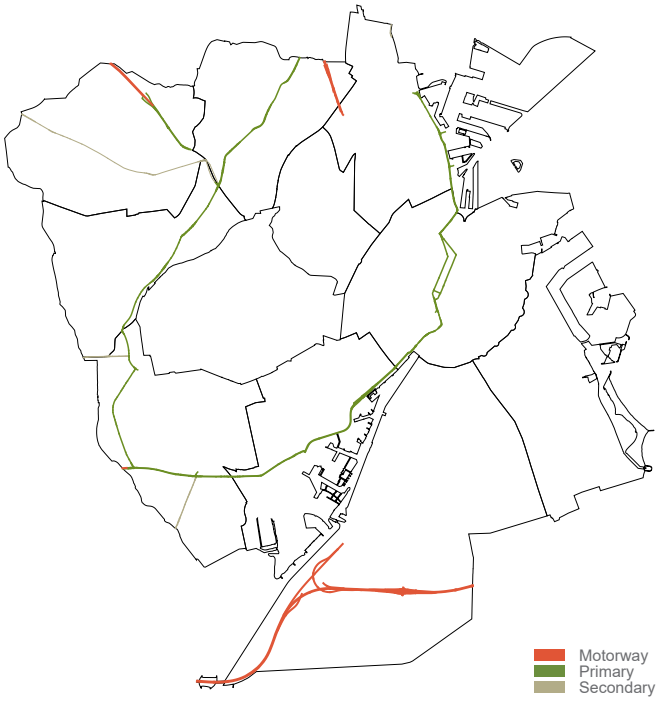


Figure 22
Main Roads in Copenhagen Municipality | Author Creation

In areas where the different larger roads meet, there's a certain development of the surroundings urban life. Usually accompanied by a larger green space to border the heavy traffic flow. The larger roads with heavier flux tend to lead toward a business district outside the city - to ensure a proper access both from those living in the city and working outside and for those living outside and working in the city.



Figure 23
Structural Roads in Copenhagen Municipality | Author Creation

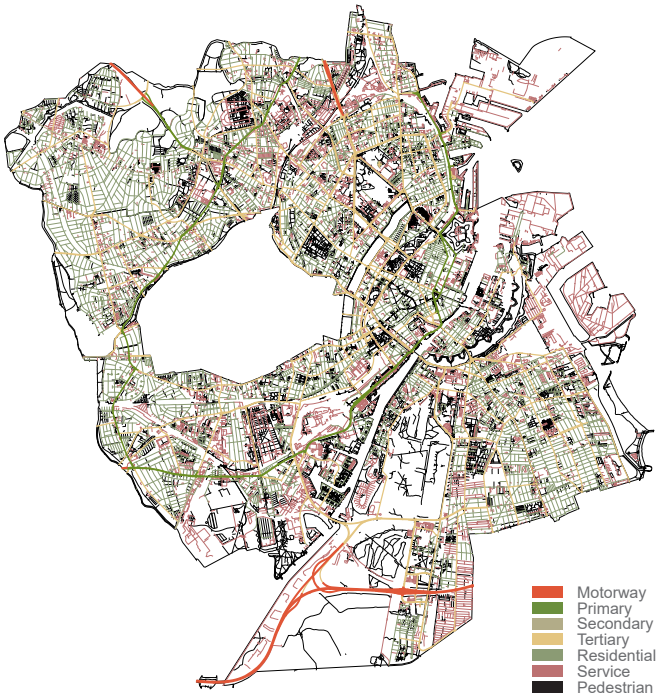


Figure 24
Road Network in Copenhagen Municipality | Author Creation

The tertiary roads establish a pattern in an orthogonal grid like a structure to provide the main circulation for the transportation done on smaller distances. They allow for further strategies in various neighborhoods and to divide parcels of the city into smaller quadrants. Within these quadrant, the even smaller roads appear and may provide additional support for the local community.

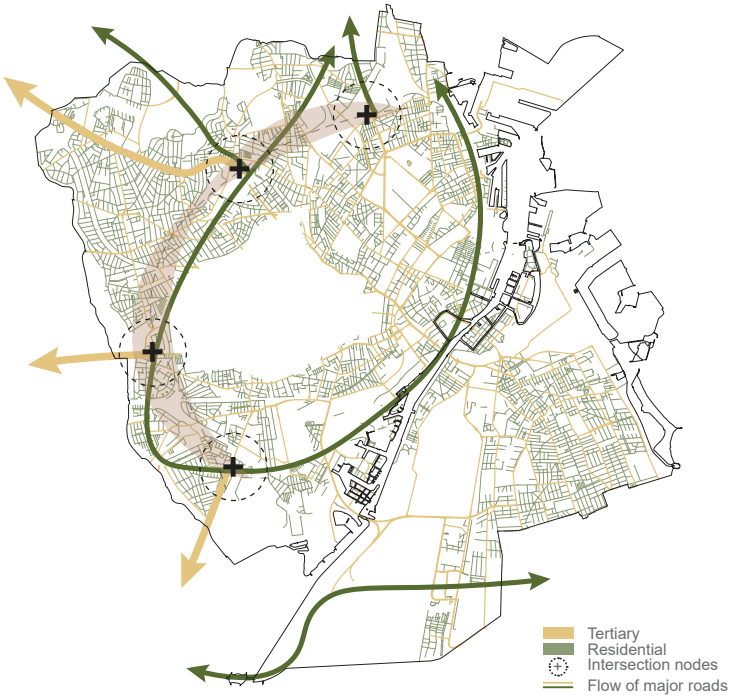


Figure 25
Roads - Structural diagram showing intersecting nodes of road network

4.7 Built structure



Figure 26
Buildings in Copenhagen Municipality | Author Creation

The density of the houses is highest where the black areas are concentrated, by indicating the clusters of buildings. This initiates a discussion on solids and voids in urban planning. Furthermore, enhancing the impact that green spaces have on the urban layout and the way it is able to break up the built clusters ensuring lesser dense cities in terms of buildings. The built areas appear as solids in the urban grid, whereas the streets are voids, the spaces in between.

4.8 Transportation and mobility

The public transportation network in the municipality provides efficient, well-established, and a wide-ranging connection with residents and workers throughout the day. Shown in a circular central connection with multiple radial lines extending from this central circle. The central circular metro line allows for a strong connection between the neighborhoods. The train lines run every 10 minutes per train line during the daytimes (7 train lines). While the metro has a circular line that goes non-stop and three lines that each depart every two minutes. This allows for a well-connected city by public transportation. Figure 27 show the bus routes and how they align with the tertiary roads establishing connections in residential areas without disrupting local traffic happening on residential roads.

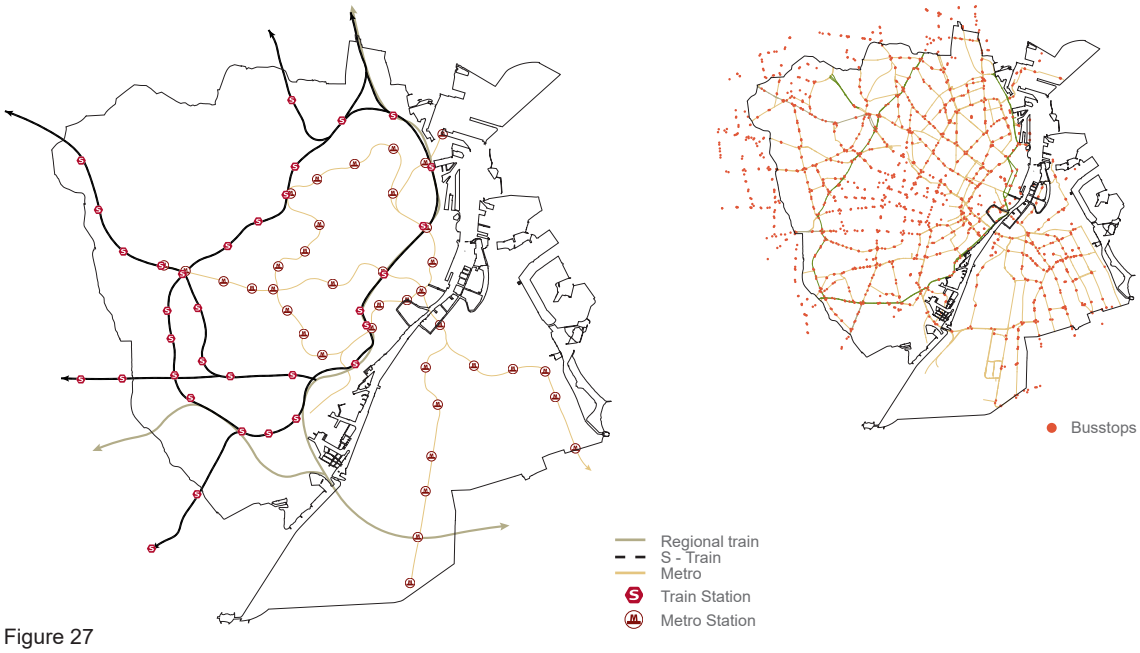


Figure 27
Public Transportation Network - Trains and Busstops in Copenhagen Municipality | Author Creation

Public transport is important as the number of daily commuters represents a high number especially in the "*bridge*" neighborhood having over 20 000 people commuting up to five km a day.

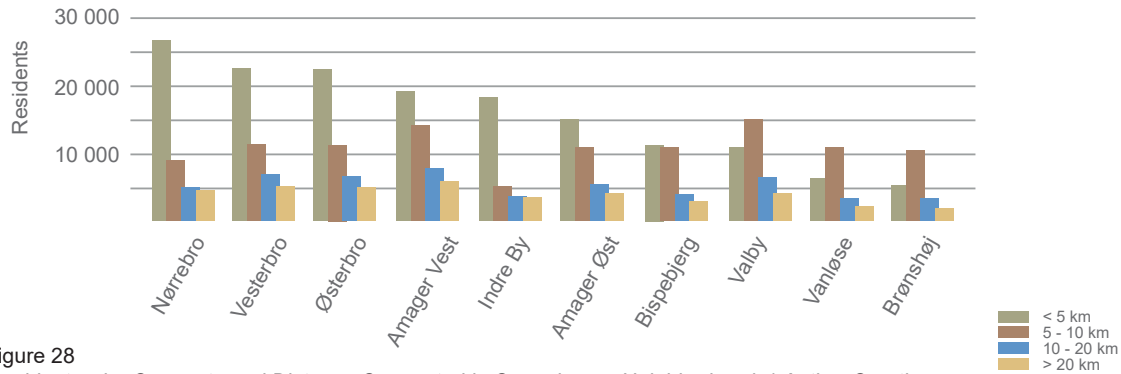


Figure 28
Residents who Commute and Distance Commuted in Copenhagen Neighborhoods | Author Creation

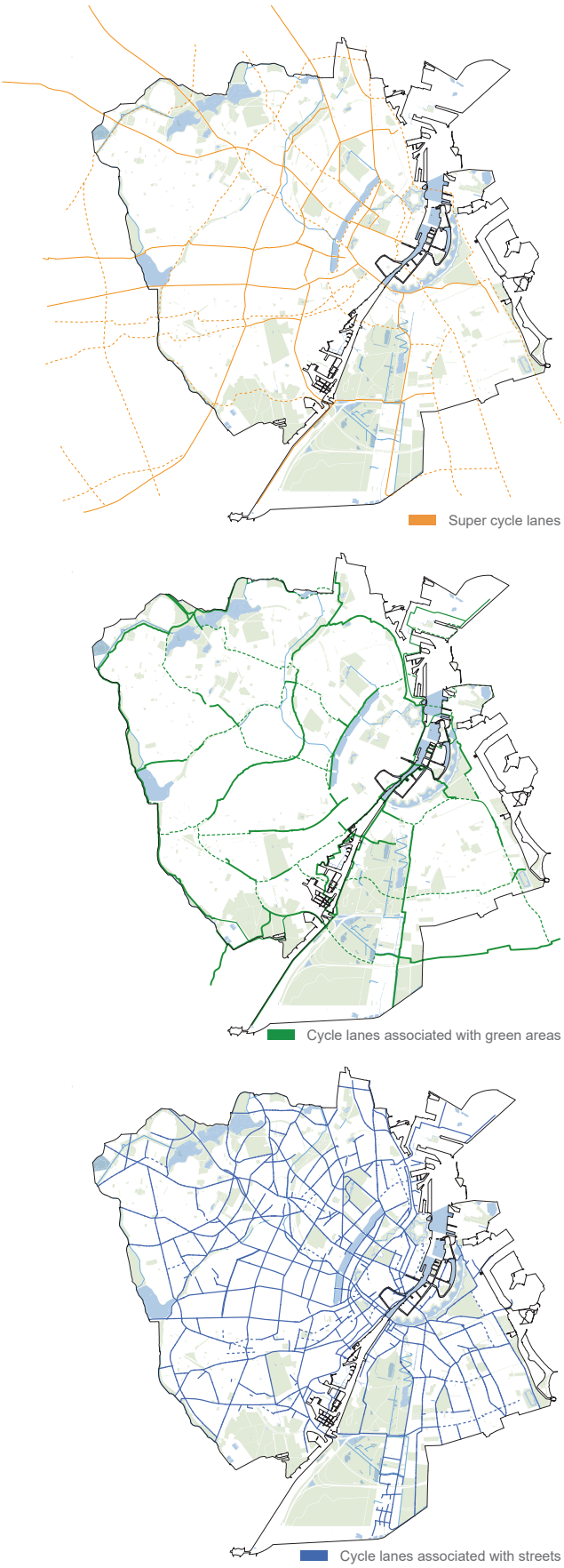


Figure 29
Bicycle Connections in Copenhagen Neighborhoods | Author Creation

Cycle infrastructure is often divided into the following three categories.

Orange

Also referred to as the super cycle lanes, allowing for a higher speed, often wider separated roads, and for those going on longer distances. Furthermore, many of the super cycle lanes have footrests to support the cyclists while stopping at a red streetlight.

Green

These are cycle lanes which are associated with green spaces, either alongside tree-lined streets, or through recreational areas. They may also follow longer stretches of green infrastructure.

Blue

These are the cycle lanes which are associated to roads, having an individual and designated lane separated from the cars by an edge. They follow a regular and rigid grid and are more abundant than any of the two above.

Although the above show an extensive grid, most of the bikes throughout the city will ride on all streets, however the roads not shown in the above diagrams are roads where bicycles and cars will typically share the lane.

4.9 Green infrastructure

Parks and recreational spaces make up 29 % of the entire municipality and this shows a large percentage of the area being filled with permeable area (Status on Copenhagen public green m2 2023, 2023). The distribution of the green spaces is mostly concentrated on the peripheral neighborhoods where there is room for larger sized green spaces away from the densely built center. A large amount of the recreational and designated green spaces are well connected to one another by green corridors.

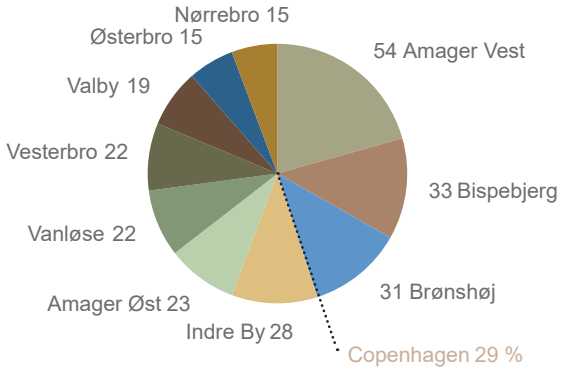


Figure 30
Green areas pr. neighborhood (%) | Author Creation; (Status on Copenhagen public green m2 2023, 2023)

These provide a strong backbone in terms of green infrastructure and corridors. Furthermore, increasing the connectivity is a key factor in ensuring increased quality for residents, thus proving to be an utmost important aspect to strategic planning.

The waterfront areas are one of the parts most recognizable when discussing the characterization of the municipality itself. With a high influence in the most central neighborhood, where the canals frequently visited by the public and used for recreational activities play an important role. Towards the eastern border there is further an importance placed upon the water features and especially along the southernmost space where a beachfront allows for recreational activities.

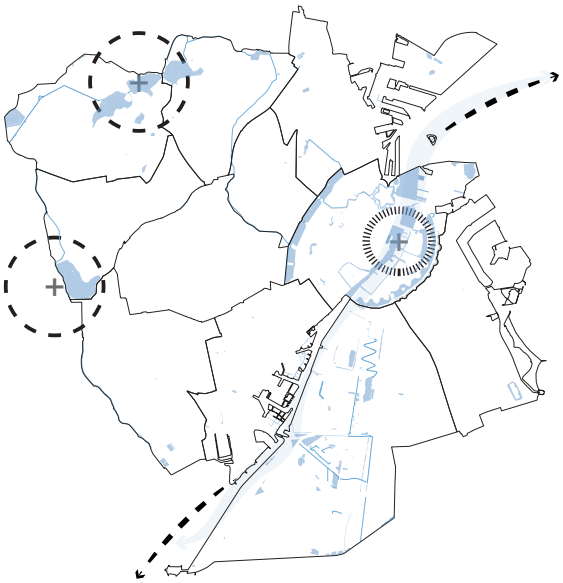


Figure 31
Blue Infrastructure in Copenhagen Municipality | Author Creation



Figure 32
Green Spaces in Copenhagen Municipality | Author Creation

These two aspects of green and blue infrastructure help to connect the city across the neighborhoods, although challenges remain as to how to improve the connectivity in some of the most populated areas and areas with high population density. This is to try and establish that all have accessibility to public spaces both in general and spaces of high quality.

4.10 Socioeconomic aspects

The following section places an emphasis on the economic importance and social composition of the city. Representing topics, which focus on connections through the municipality to find an area in which to zoom in. These following aspects, alongside the already established structural patterns will determine the site allocation for the small-scale urban design project.

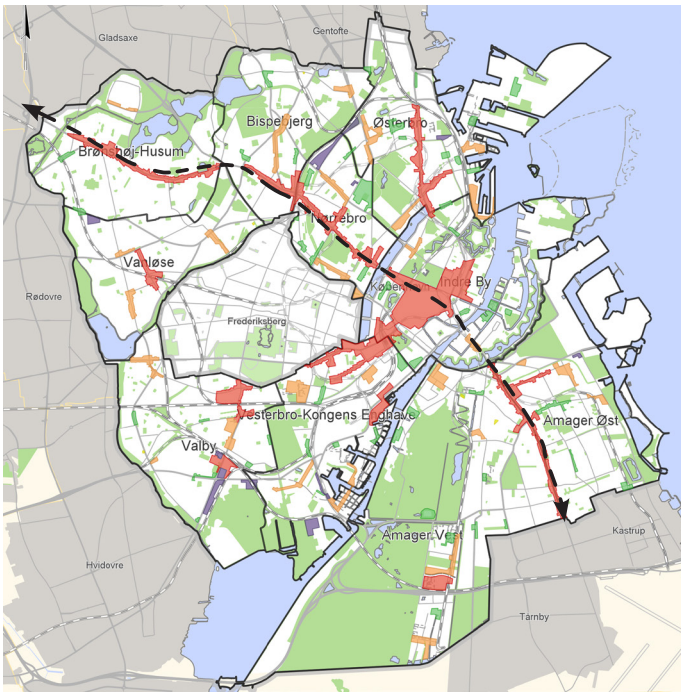


Figure 33
Copenhagen - Central Business Districts | (Copenhagen Municipality, 2024)

Economic hubs and social aspects:

There are central axis where the economic hubs play an important role in the structural layout of the city. Many important roads which have the majority of smaller businesses are placed centrally or across the neighborhoods. One of the important axis is the one shown from north west to south east, passing straight through the central area. This long stretch has been an area of development and an area promoting local community engagement despite being a high traffic road to connect central area with suburbs. In the central area this part is a pedestrian friendly area, further increasing and promoting local commerce.

This area represents a central vein down the street of Frederikssundsvej and spreads alongside the canals. The older medieval streets with their narrow openings do allow for local car traffic to run through, but the speed is reduced significantly to ensure the safety of those with a priority, namely the pedestrians. The shopping street provide inspiration in many towns across the country and have a designated name for the type of street. Furthermore, they do exist in other parts of the city which are not central.

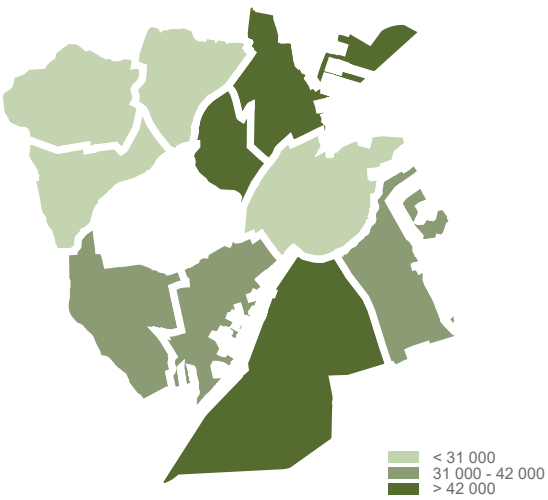


Figure 34
Amount of Houses per Neighborhood | Author Creation

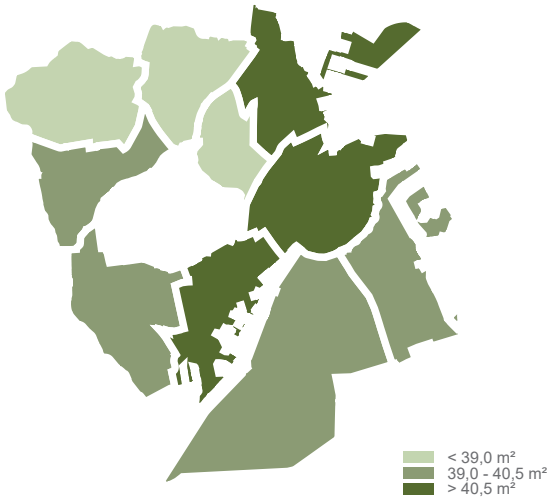


Figure 35
m² per Resident per Neighborhood | Author Creation

Housing situation in the neighborhoods:

According to Copenhagen statistical institute (Københavns Kommune (Copenhagen Municipality), 2024) there is a division in the types of housing into the following five categories. Social housing, cooperative dwelling, housing owned by the municipality, owner housing and private rentals. The area with the highest amount of owner-based housing is Amager Vest (11 387), which is also the neighborhood with the largest area. This is followed by Østerbro. The neighborhood with the smallest amount is Bispebjerg (3 615). Another category is cooperative dwelling where neighborhoods like Nørrebro (16 854) and Vesterbro (15 067) are in the top in terms of residences, and Brønshøj is in the bottom (2 268). Social housing is an important category where Bispebjerg is with the greatest number of houses (9 554), and the Inner city (1 385) is among the lowest. There is an increased amount of the social housing in the northern neighborhoods, an area historically rich in industrial activities and an area where the working class would reside.

Square meters in the various neighborhoods:

The area where each resident has the most amount of m^2 is Amager Vest, the area with the smallest space per resident is Nørrebro. The number of houses differs between the various neighborhoods. This is also due to the types of houses that exist. Where social housing is in increasing amounts, the number of residences tend to be higher as they normally are of a smaller individual size and in larger apartment complexes giving opportunity to the most amount of people to have a home. In areas where the dominant type of housing is a villa, there are fewer number of houses.

4.11 Synthesis

While overlapping the maps of the road network, and green and blue structure one can notice a juxtaposition with the structures. The roads create a grid with converging arrows leading toward and outward from the center, while at the same time expanding radially like ripples in water – creating multiple layers of structural backbone. The natural elements function in an opposite way, as they do not follow the same rigidity as the road network, but they create flows that interrupt this rigidity allowing for corridors across areas to be connected. These become principal guidelines where various activities can be established. With the guidelines created, the various activities can be established within the boundaries and tehy create inward and outward axis. It further helps when navigating in the various parts and to help point one out from another. To differentiate the various areas and establish an identity and unique character.



Figure 36
Road, Water, and Green Networks in Copenhagen Municipality | Author creation

Distribution of shops and districts in terms of buildings, built structures, are placed in the grid of the road system and this is able to be a defining part in identifying each area and distinguishing them. Rules and regulations exist on the facade structures and heights of buildings, including whether street level floor must be used for shops or not. This helps to regulate and to value both the local markets, as well as maintaining the streets as an area of local commerce and pedestrian traffic. Areas with slower traffic are bound to be safer and potentially more comfortable areas to be in.

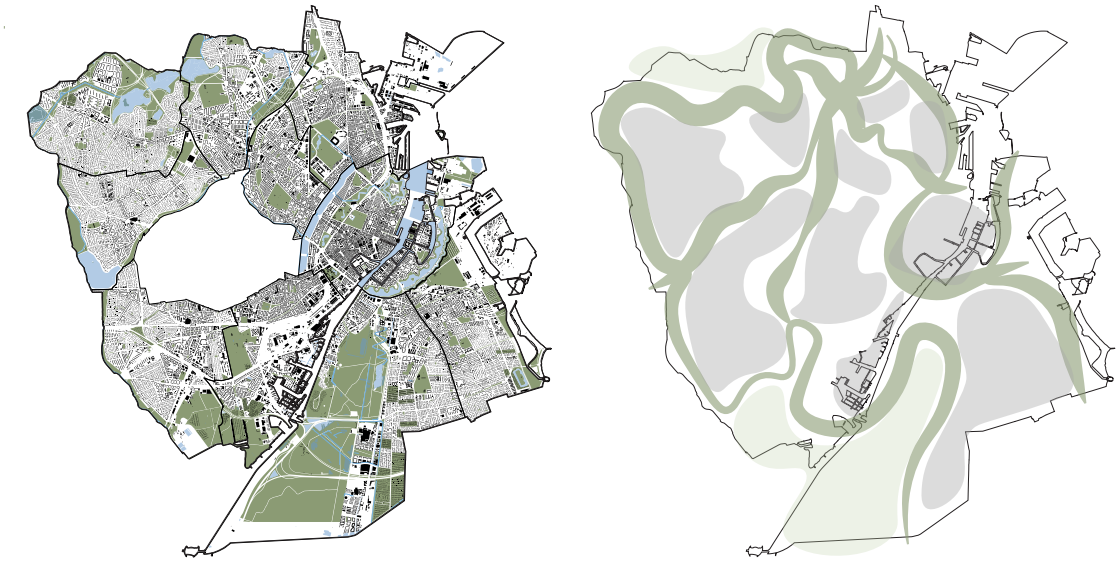


Figure 37
Distribution of green and blue areas compared to the presence of buildings | Author Creation

As shown previously, the percentage of green public spaces in each neighbourhoods is relatively high, having an average of the municipality at 29 %. However, while overlooking these two categorical maps of green space and built structures, there is a clear differentiation in the distribution of the two. The larger green spaces tend to be arranged radially on the peripheries of the municipality, while the center is dense in terms of built structures. Smaller green spaces allow for a connection between these important larger green spaces to one another by establishing corridors (figure 37).

On a larger scale there are street level shops in most areas, and they are facing larger traffic nodes, which have a wider section between house, street and house. The smaller villa roads tend to not have many of these shops. There are further areas that serve the purpose of being places without high traffic. The slow speed traffic such as walking and slow biking are the main arteries for shopping. Containing streets of various categories and appealing to the masses and tourist while shopping or strolling through the city.

According to the above analysis on Copenhagen as a municipality, this allowed downscaling to a singular neighbourhood at a medium scale. The neighbourhood of Bispebjerg was chosen. This is an area characterized by its large green parks in m², and its socially challenged southern division. Within this neighbourhood, the municipality has claimed some socially vulnerable areas, meaning that the composition of the spaces tends to be monotonous and cause difficulties for the residents. The chosen project area situated on the northern border of Copenhagen is the home of a variety of monuments, cultures and mixed smaller local neighbourhoods.

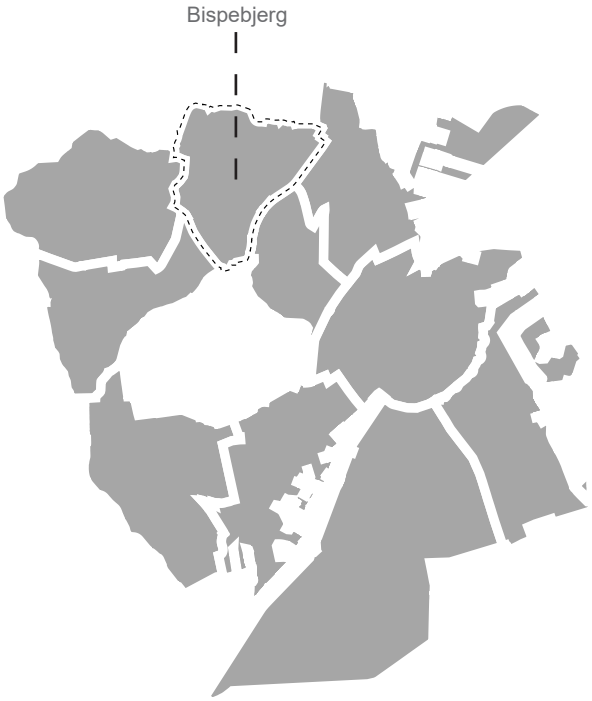


Figure 38
Medium Scale Analysis - Location Choice | Author Creation

The area is a socially challenged area, and the neighborhood was chosen to ensure that this challenge does not spread further to neighboring areas. Thus an intervention is required in this area. The method of overlapping the various individual maps where used. Although other areas could have been used, Bispebjerg was chosen because it is a problematic area, while at the same time increaing in popularity among young entrepreneurs and creative minds.

5. Medium-Scale Context of Bispebjerg

5.1 Bispebjerg

Bispebjerg is situated along the northern border and has a centrally placed Cathedral with a cemetery that doubles as a recreational space. There is an importance in trying to continue this identity creation which the area has historically, such as being an industrial area, where the working class would reside. A rich multicultural area with initiatives associated to a public use such as student housing, social housing, library functions, creative workshops and more.

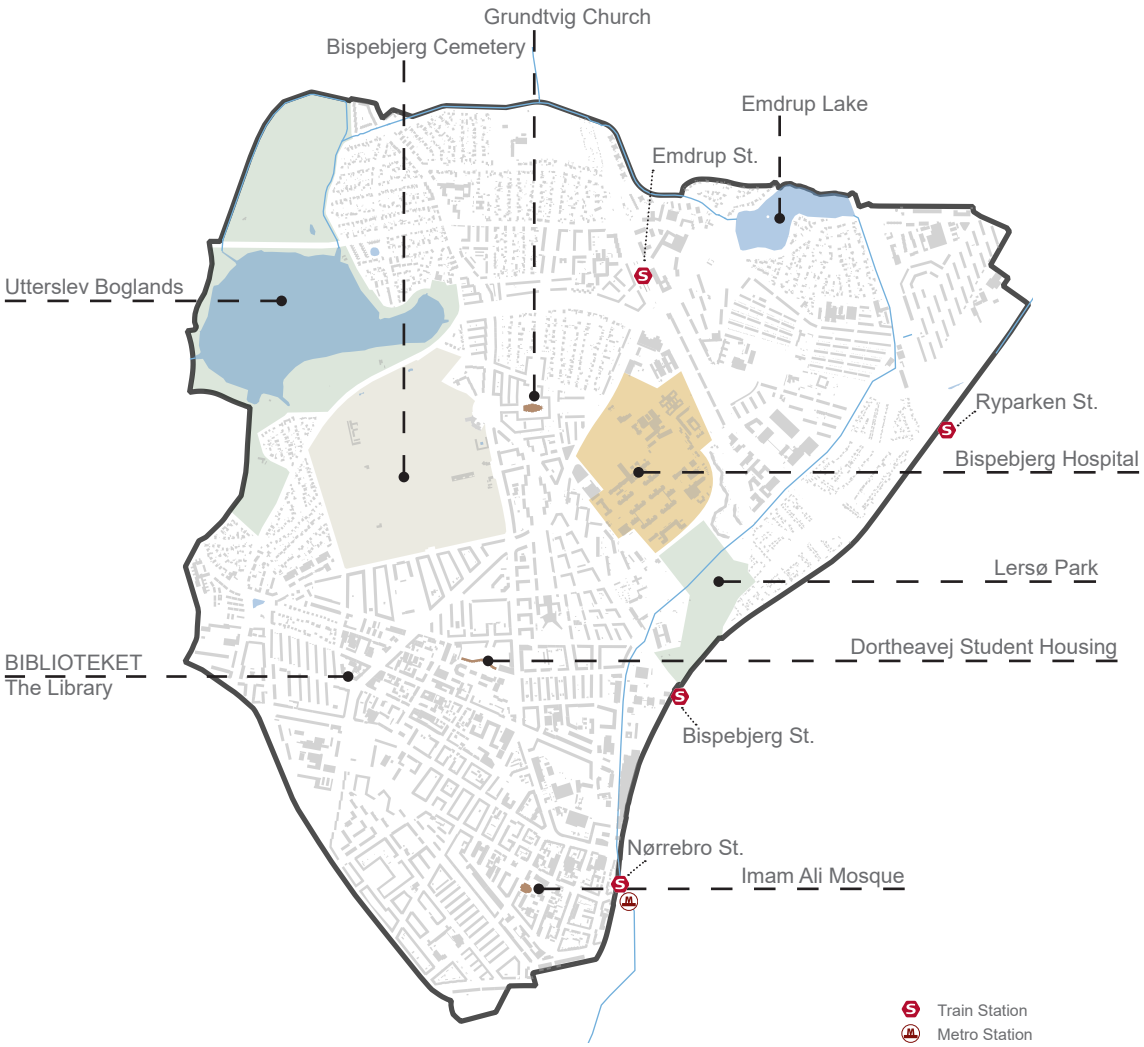


Figure 39
Area Chracterization of Bispebjerg | Author Creation

It is divided further into five different local areas; Utterslev, Emdrup, Rypark-en, Bispebjerg and Nordvest, each having a specific character. Population density of the neighborhood is among the highest in Copenhagen municipality however it is not equally distributed throughout.

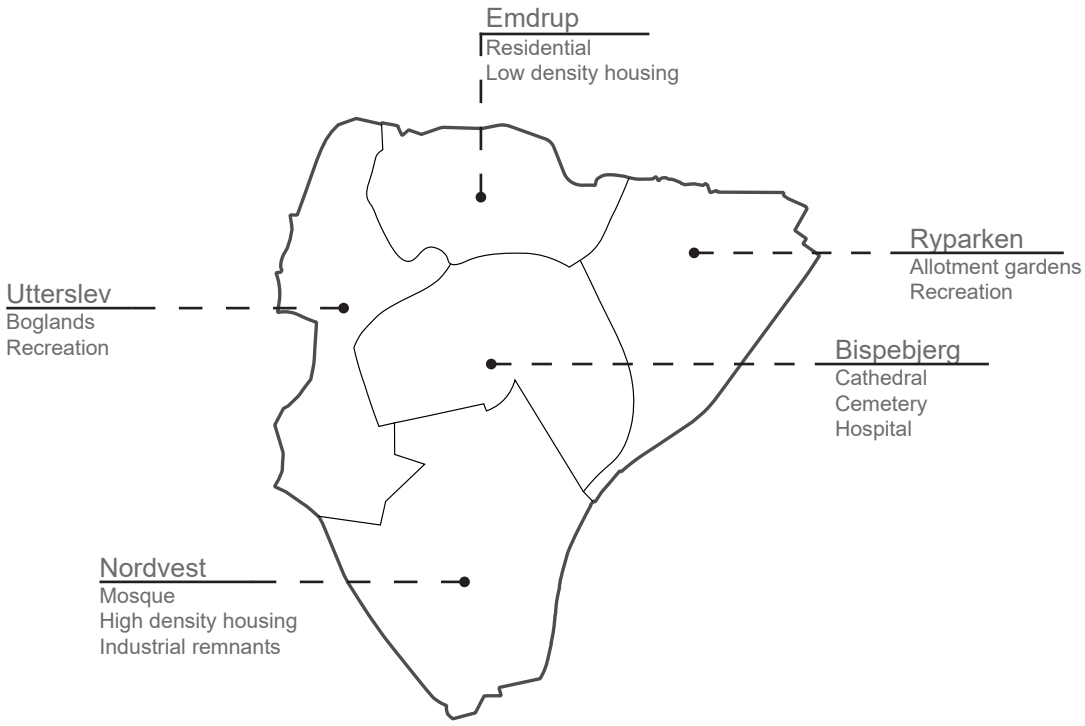


Figure 40
Division of Bispebjerg and Central Elements | Author Creation

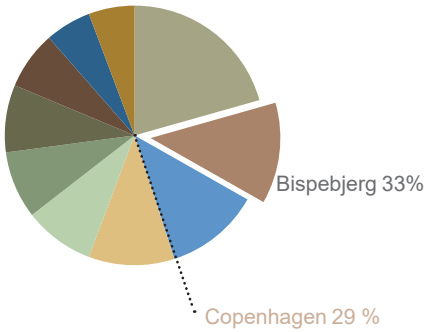


Figure 41
Green areas pr. neighborhood (%) | Author Creation; (Status on Copenhagen public green m2 2023, 2023)

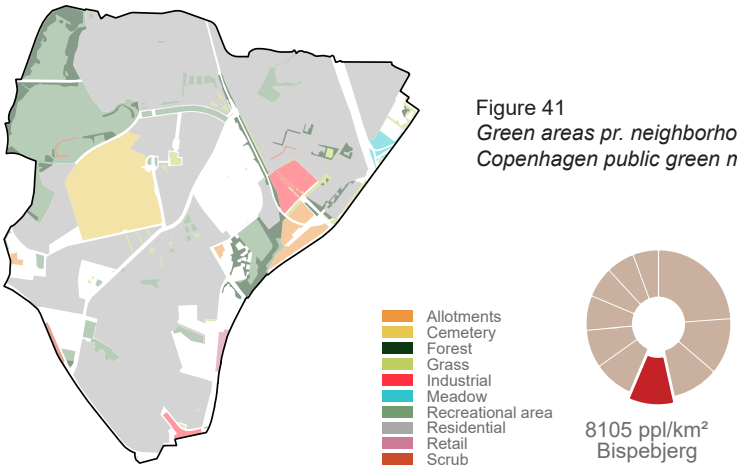


Figure 42
Landuse according to Open Street Map | (Geofabrik.de, 2018) | Population Density | (Danmarks Statistik, 2024)

5.2 Road structure

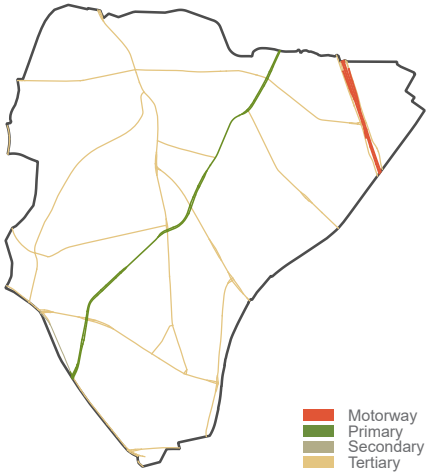


Figure 43
Main Roads | Author Creation; (Geofabrik.de, 2018)

The existing road structure reveals a division of the neighborhood, cutting a line from North to South, shown in dark green on figure 43. Furthermore, the roads are used as connection lines from suburbs into the center of Copenhagen, being high traffic nodes and suffering from congestion during busy hours of morning and afternoon commute.

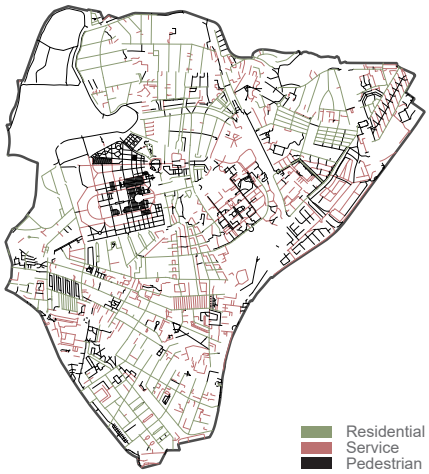


Figure 44
Secondary Roads - Structural grid | Author Creation; (Geofabrik.de, 2018)

The smaller residential roads, establish a regular grid within the larger road structure. This allow for a division into the high usage and low usage roads and ultimately ensures that the residents are shielded from the increased traffic flows.

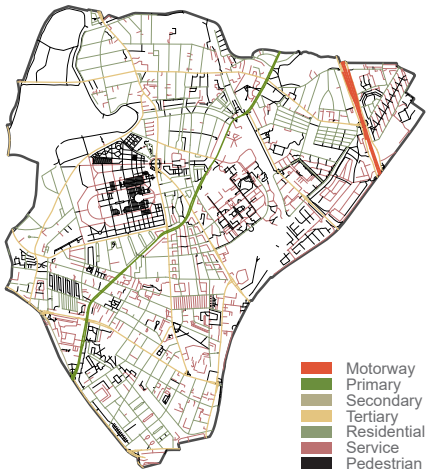


Figure 45
All Roads in Bispebjerg | Author Creation; (Geofabrik.de, 2018)

Along the major intersections of the higher hierarchy roads nodes of intersections cause the traffic to slow down with the ultimate goal of reducing the speed. Although most streets have a speed limit of 50km/h, many of the residential roads have a limit of either 40 or 30km/h. Further giving more safe spaces to those opting to use their bicycle as the dominant means of transportation.

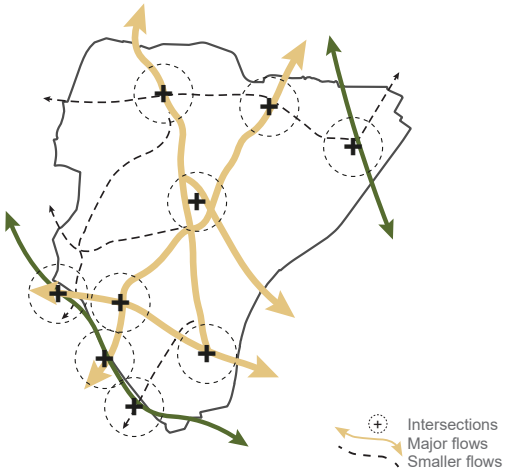


Figure 46
Flow of the main roads and their intersection | Author Creation

The diagram illustrating major traffic flows and some key intersections highlight areas, which have great potential for small-scale planning and development. With good accessibility, intersections provide ideal placements for creating community spaces and helps to stimulate sustainable growth with areas focused on the residents and commuters.

5.3 Built structure



Figure 47
Buildings - fills and voids | Author Creation; (Geofabrik.de, 2018)

From the analysis of the built areas in the neighborhood alongside the population density, a significant contrast is revealed in how the people are distributed across the area. However, when taking into account that the green spaces make up 33 % of the total area, the population density becomes even larger and lays a further pressure of the constructed areas.

It is possible to notice a densely populated southern part and a more sparsely populated northern area. These voids created by the dominant green recreational areas further accentuate this difference.

5.4 Transportation

In Bispebjerg the public transportation system has a strong presence, which includes cycling accessibility. This is mostly concentrated to the easternmost border. The cycling maps indicate a future programming of more super cycle lanes, and more cycle lanes associated with green spaces. Particularly by establishing connections across the area, thus, improving the connectivity.

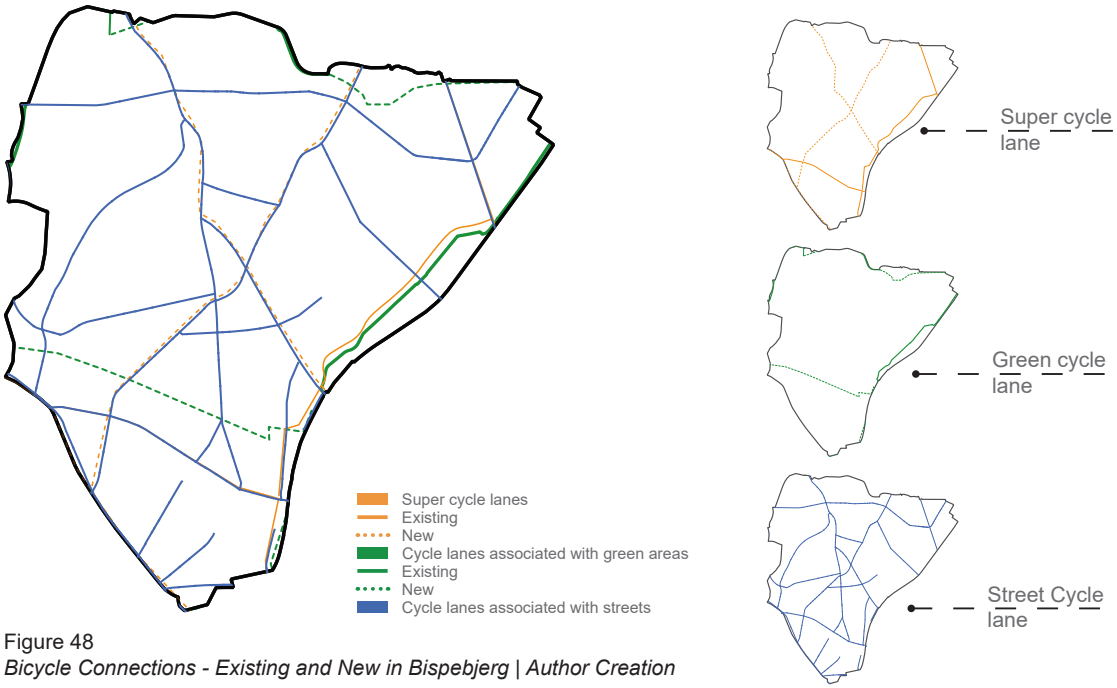
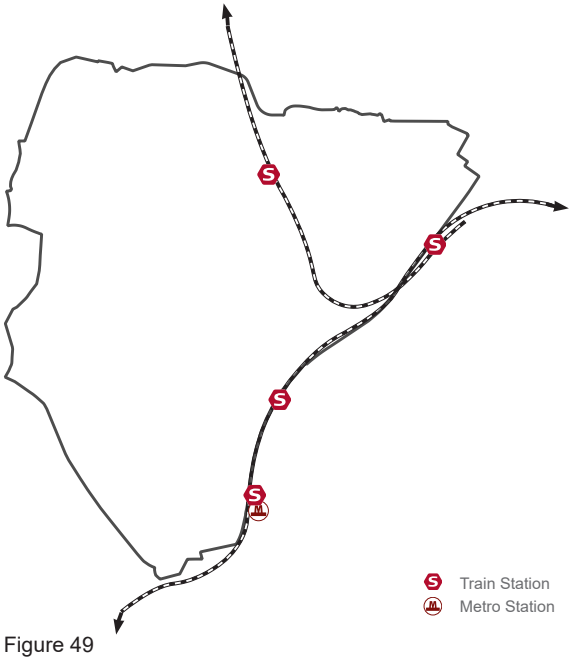


Figure 48
Bicycle Connections - Existing and New in Bispebjerg | Author Creation



Train transport is similar to the cycling situation with a strong concentration on the eastern border running in the north-east and southwest directions as well as a metro station connected to the city's ring metro enhancing the connectivity to other neighborhoods and the broader metropolitan network.

Figure 49
Public Transportation Network Bispebjerg | Author Creation

5.5 Green and blue infrastructure

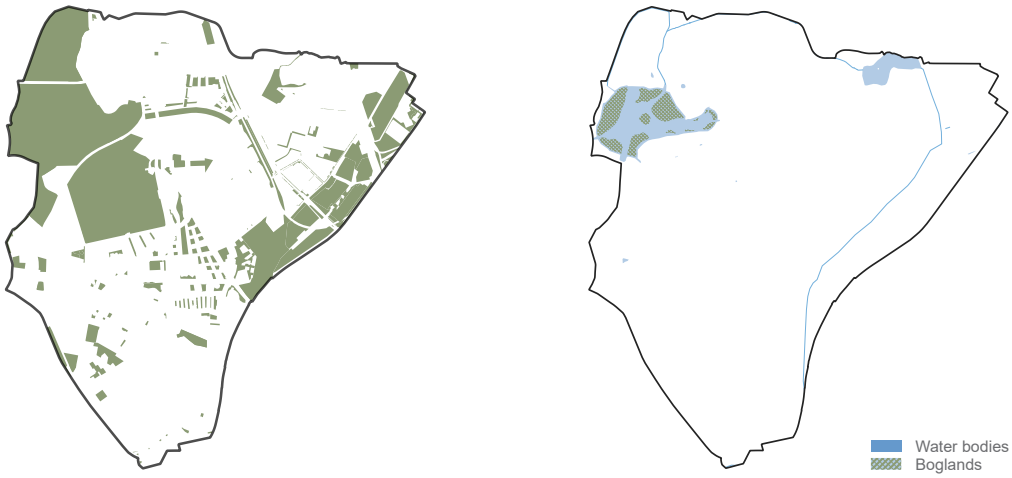


Figure 50
Green and Blue Infrastructure in Bispebjerg | Author Creation; (Geofabrik.de, 2018)

While examining the distribution of both the green and blue infrastructure, it is clear to see that they are spatially unevenly distributed, revealing a greater dominance to the northern peripheries of the neighborhood. The southern area, is lacking the smaller green spaces, found in the central areas, which are essential to improve the life quality of the residents by providing access to public spaces of quality. While there is an increasing need for housing there is a limited space to introduce large green areas.

This requires a focus on smaller and impactful green areas. It is crucial to acknowledge and recognize the scarcity of these spaces to ensure that future planning will address these gaps to promote a more fairly even distribution of green infrastructure.



Figure 51
Central Green Connections and Potential Connection | Author Creation

5.6 Socioeconomic aspects

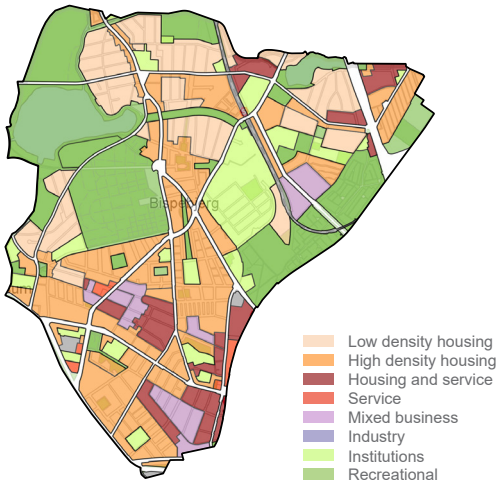


Figure 52
Spatial Distribution of Functions

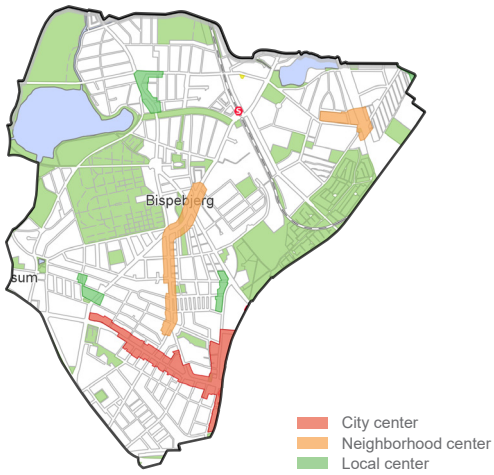


Figure 53
Business Districts

The following diagrams show the spatial distribution of building types, and business districts in the neighborhood. This reveals a southern part of the neighborhood with a significant concentration of high-density housing, services and industries, while the northern area is characterized by low-density housing and extensive recreational spaces. Zones with housing and service often has apartment buildings with ground-floor retail spaces.

This design approach can potentially invigorate and enhance public spaces if made pedestrian friendly. Key street connections in the high-density areas ensure connectivity to the rest of the municipality along the central axis. These highlight the importance of integrating both small-scale and large-scale strategies to invigorate life in the local neighborhoods.

5.7 Synthesis

Architect and design theorist Christopher Alexander emphasizes that if we hope to understand the life which happens in a building or a town, we must try to understand the structure of the space itself – how the spaces are arranged and interconnected – to reveal patterns of space (Alexander, 1979, p. 75). Roads and intersection nodes play a crucial role when examining potential development zones. By overlaying the various aspects analyzed potential intervention sites can be identified.

A strategic location should be in the area where small scale interventions could have a key role in mitigating the challenges of urban densification. The diagram below illustrates the southern area having potential site locations.



Figure 54
Urban development expands from the southern corner and upwards | Author Creation

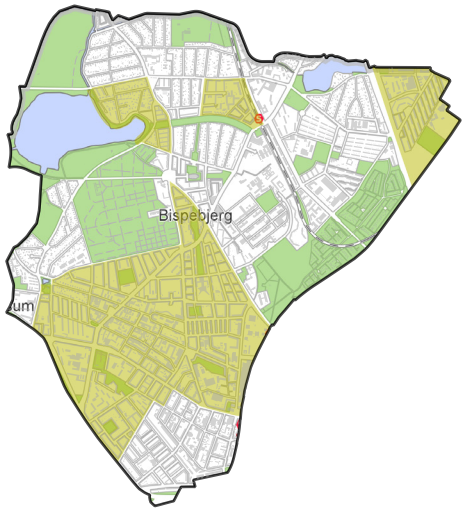


Figure 55
Socially Vulnerable Areas | (Copenhagen Municipality, 2024)

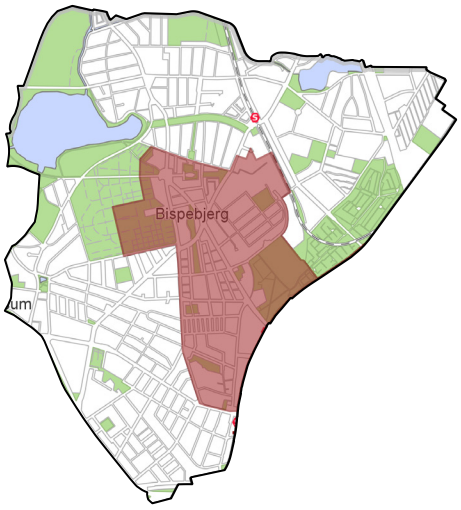


Figure 56
Area Redevelopment in Motion | (Copenhagen Municipality, 2024)

To avoid a further densification of the southern area, it is clear that an intervention site must be found here. In an area both socially vulnerable and part of current redevelopment plans, intersections and potential green connections to be established helped to decide the site location where its impact on the local community would be the greatest.

6. Small-Scale Design Proposal

6.1 Introduction

The following section introduces key aspects that ensure a connection from the site, to the larger-scale design. The site was chosen to facilitate connectivity. After exploring the area, it became apparent that the area suffers from a high portion of impermeable surfaces. This includes this square which has a cover of asphalt and few green zones. With an accentuated height difference, the issue has currently been solved with the use of stairs. It is susceptible to heavy rainfalls, and this introduces some risks to pay attention to such as excess water runoff from the street, accumulating on the lower levels at the apartment entrances. Addressing this will be a crucial aspect in the design proposal to mitigate the risks exposed.

Additionally, this site holds a great potential in being transformed given the diverse user base throughout the day. Accommodating students from the neighboring school (ages 16+), the residents, other street level businesses, and the local community. Benefitting from good sun exposure, this could serve as a pedestrian corridor and hub for social activities. The existing café located at the northeastern corner is already an interesting area, which could be further developed to integrate better into the space.

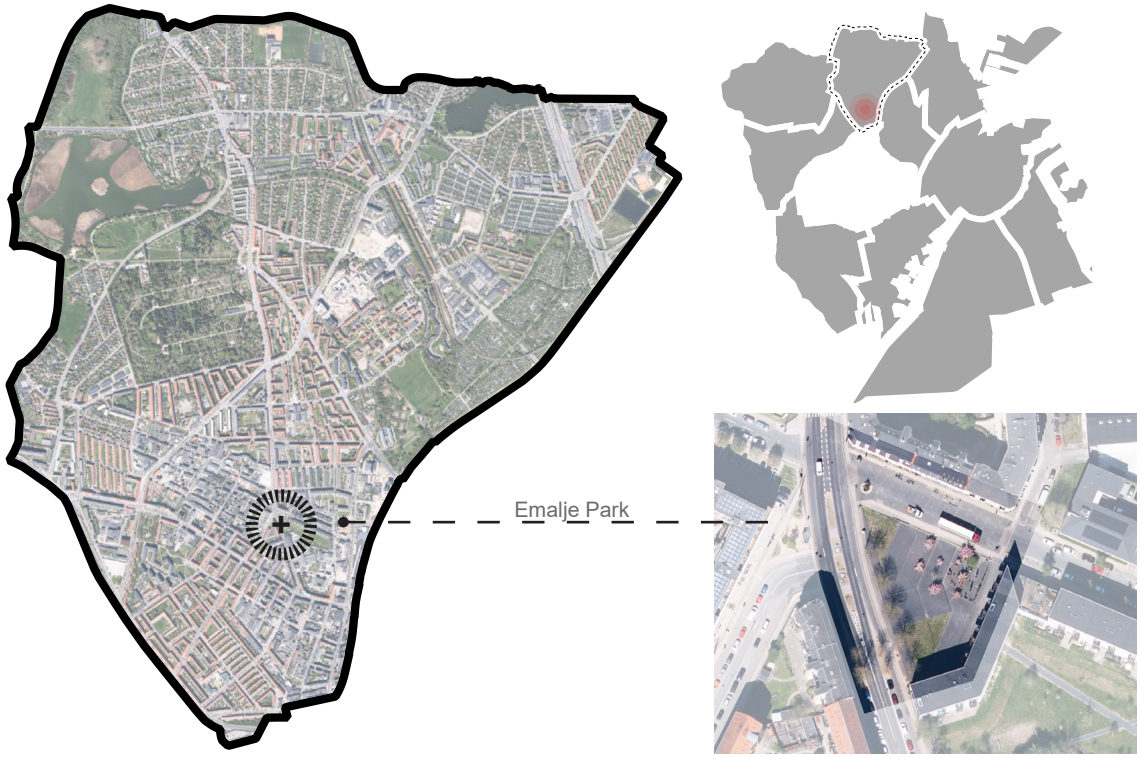


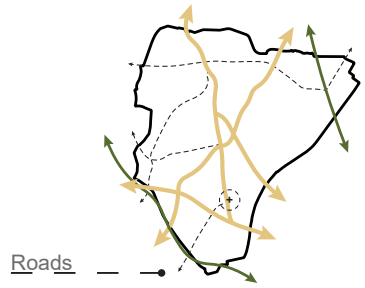
Figure 57
Site Location in Various Scales | (SDFI, 2024)

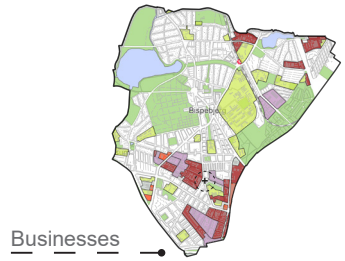
6.2 Site connection and history

Connecting to local and nearby landmarks such as schools, stations, churches and a churchyard are essential aspects when boosting the community accessibility and its identity within the neighborhood. The area holds historical value reflecting the past industrial zone through remnants of large warehouses and abandoned areas. However, the most important aspect it has left behind is the naming of the roads, all related to a certain trade. Rentemestervej which make up the northernmost boundary of the project site translates to the one who collects taxes. The western adjacent road is called Glasvej meaning glass road and various of the surrounding roads are called names of technical professions.

Despite the roads being an important trace and reveals the industrial past, the area has during recent times undergone a development and the arrival of smaller companies, many with a creative skill set has been more prominent. Rentemestervej marking the northern border is evolving and becoming an “urban jungle” for creative minds. This development shows how an area can adapt and accommodate for a new vibrant community while embracing the industrial past and increasing innovation.









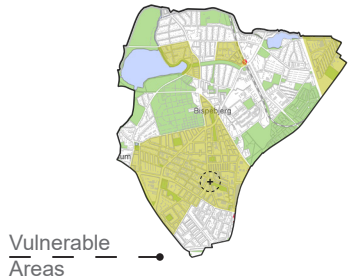


Figure 58
Walking distance diagram from the intervention site

6.3 Current situation



Figure 59
Satellite image 1999 | (SDFI, 2024)



Figure 60
Satellite image 2008 | (SDFI, 2024)

The satellite image from 1999 (*figure 59*) clearly shows a green structure which once occupied the site. This was after a factory was torn down and vegetation left to grow uninhibited. The Satellite image from 2008 (*figure 60*) was taken after the construction of a new building and the square itself is already seen here. It marks a change in the local landscape and the functionality of the space. However, the site shows a potential for further development when it comes to enhancing the public spaces for the local community.

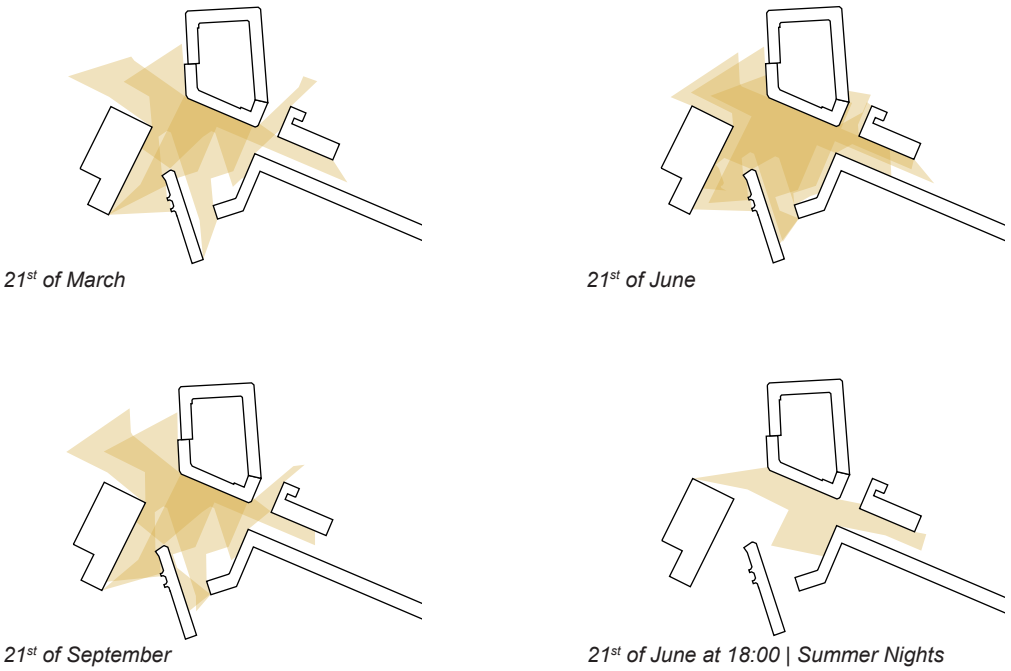


Figure 61
Sun diagrams have been created during various times of various months to understand the impact of the surroundings and how it influences the space in terms of heating, natural light and shade. | 9:00am ; 12:00pm ; 15:00pm



Figure 62
Existing Situation of the Site | Author Creation



Figure 63
Site photos taken during afternoons where most of the area is covered in shade | Author Images

The site photos show problem areas identified in the intervention site including excessive pavement, health risk of vegetation and safety risk of passing pedestrians.

6.4 Project development

The following diagrams of a perspective view aim to illustrate how the space can function to encourage social interaction with the local community. It further demonstrates how a corridor will facilitate the movement and engagement of the local community. Showing how the site transforms the connectivity in the area by taking its departure point in the previous analysis of the large-scale and the medium-scale strategic principles.

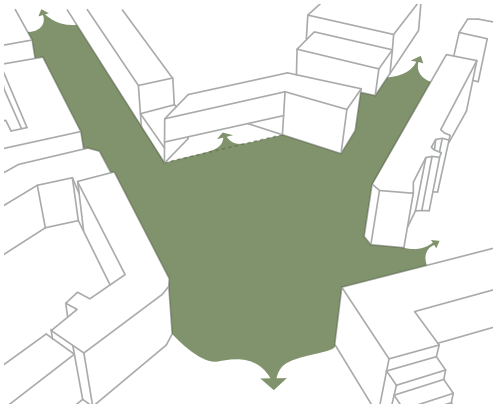


Figure 64
The connection space for the local community | Author Creation

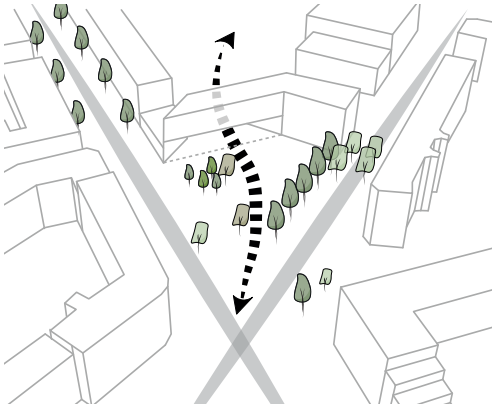


Figure 65
Connection corridor made through the opening in the building | Author Creation



Figure 66
Bicycle routes connection the site to the established routes | Author Creation

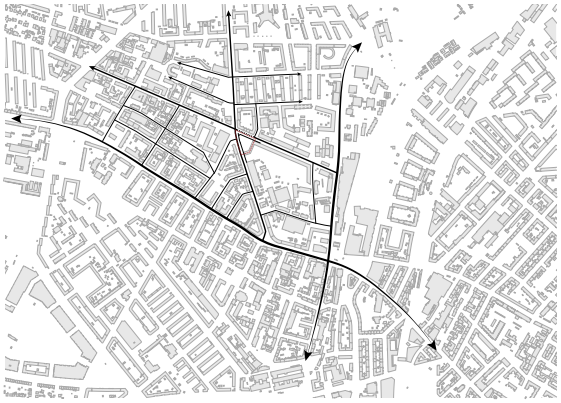
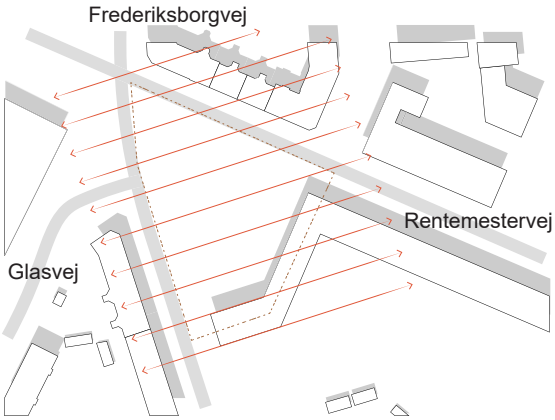


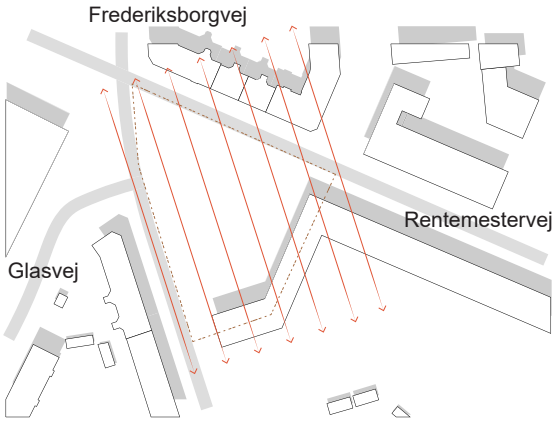
Figure 67
Car flux from the site outward onto the road network | Author Creation

The following section outlines the implementation of a grid structure seen in the large-scale design to enhance the connectivity and overall functionality of the site. While the buildings around the site are aligned with the surrounding roads, the grid takes departure in these central lines. With the lines, intersections and directions of key elements, have been considered to establish this structured foundation and backbone to the development plan.



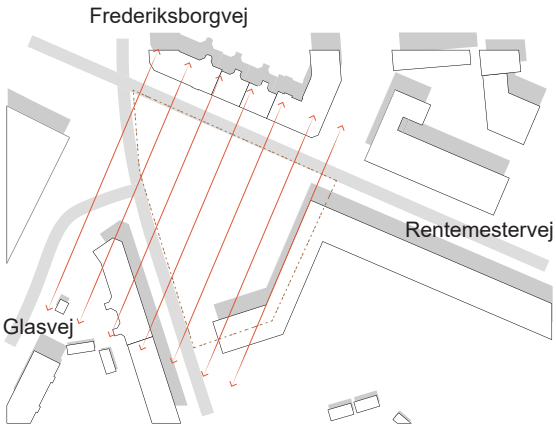
The first grid follows the edge of the central building façade leading towards north-west aligned with the direction of Glasvej as it intersects with Frederiksborgvej.

Figure 68
Grid 1



The second grid runs perpendicular to the first and follows the westernmost façade leading towards Frederiksborgvej.

Figure 69
Grid 2



The third grid goes along the western façade of the central building towards the square, intersecting with Frederiksborgvej and Rentemestervej. This grid follows part of Glasvej but goes in opposition to all the surrounding roads which are converging towards the square, accounting for an interesting spatial interaction.

Figure 70
Grid 3

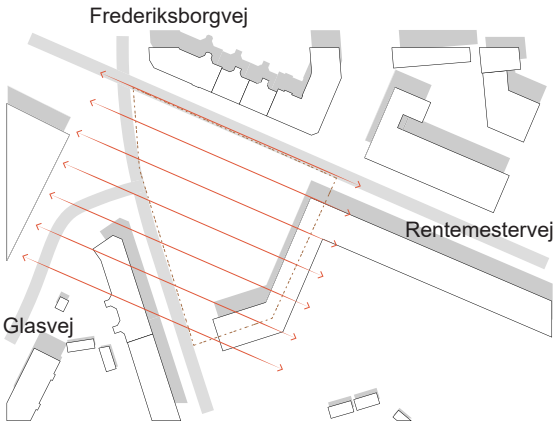


Figure 71
Grid following the building facade parallel to Rentemestervej

The fourth grid runs opposite to the above, creating a parallel direction along Rentemestervej to the north.

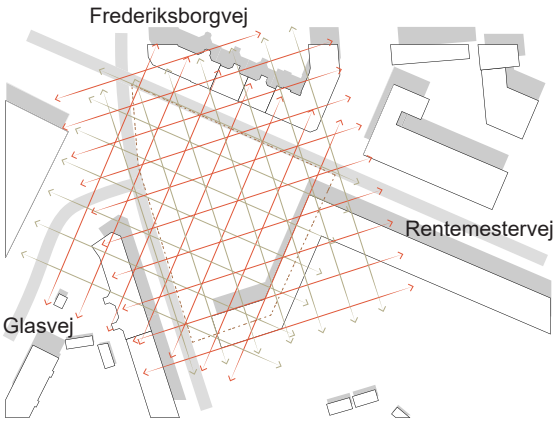


Figure 72
All above grids overlaid to establish a structure

All the four grids are overlaid to form this structural starting point. Although a structure has been used as the foundation of the creation of the plan, it does not imply a rigid orthogonal grid system to be applied to the design. It serves to understand how the large-scale principles can be applied to smaller scaled projects.

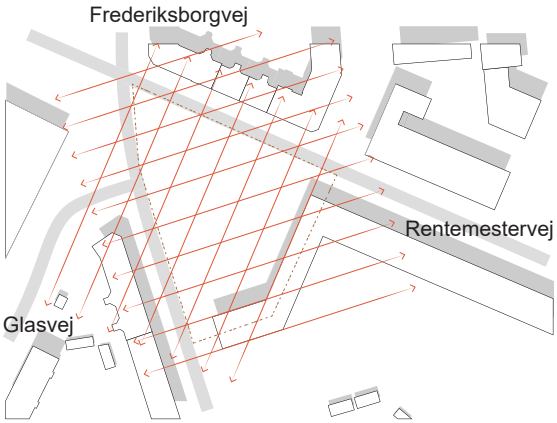


Figure 73
Grid structure follow the building facades towards the intervention site

The two grid systems following the building fronts immediately facing the square are highlighted, providing openings towards the area while maintaining the structural continuity of the grid.

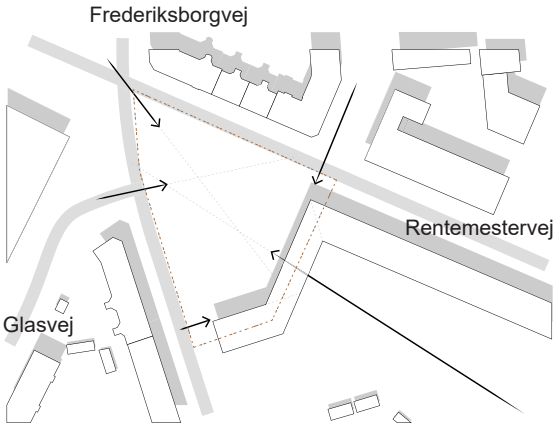


Figure 74
Entrances to the site from existing structural pathways and converging roads

Central axis shows the entrances to the site from existing structural pathways and converging roads. These entrances are important aspects to consider due to the larger road structure not changing. A need to define the entrances which should be focused on resident accessibility and should minimize external flux.

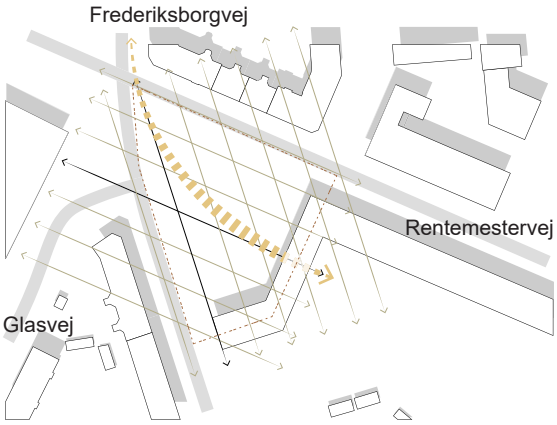


Figure 75
Central Grid Lines

This next diagram identifies central grid lines and creates a circular path connecting points in the square. It establishes the area with the highest pedestrian flux, leading from the already established park which has a private function, towards the square which has a public function. The grid formation placed as the background are the ones following the end towards Frederiksborgvej and the long side parallel to Rentemestervej (*figures 69, 71*).

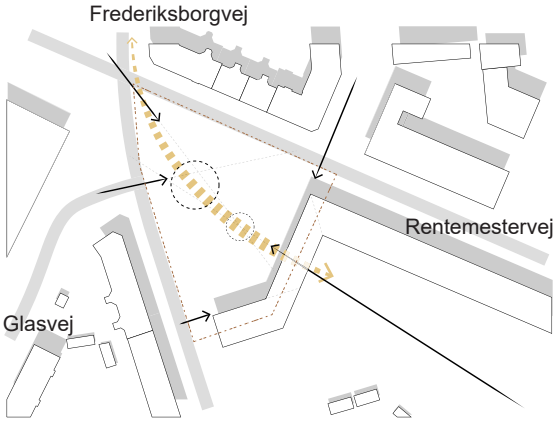


Figure 76
Placement of central nodes

Utilizing this central path, the determination of the placement of central elements such as pathways, meeting points, seating areas and other functional places. This further shows the grid underlay, which is a feature common to the larger scale planning, especially when discussing structural elements such as residential road systems where central functional areas are placed on structural pattern nodes where the structural grid intersects.

The structural backbone emphasizes the importance of current and logical entrance, which gain value when viewing the large-scale connection. Although a restructuring of the movement throughout the place has been made, the entrances gain a higher value and has specialized functions, due to a differentiation between residence entrance and public entrance. The creation of the grid serves to understand the decisions made regarding the placement of central functions and the creation of borders, alongside roads and building facades.

6.5 Conceptual diagram

A conceptual diagram has been made to display the disposition of the various elements to be included in the project. A primary aim for this square is to ensure its connectivity to the larger-scale structure. Secondly, the goal is to improve small spaces with minimal changes to ensure that interventions of this kind are plausible in many other cases and contexts. The most important aspect to take into consideration is the subtle changes that can transform the public urban spaces.

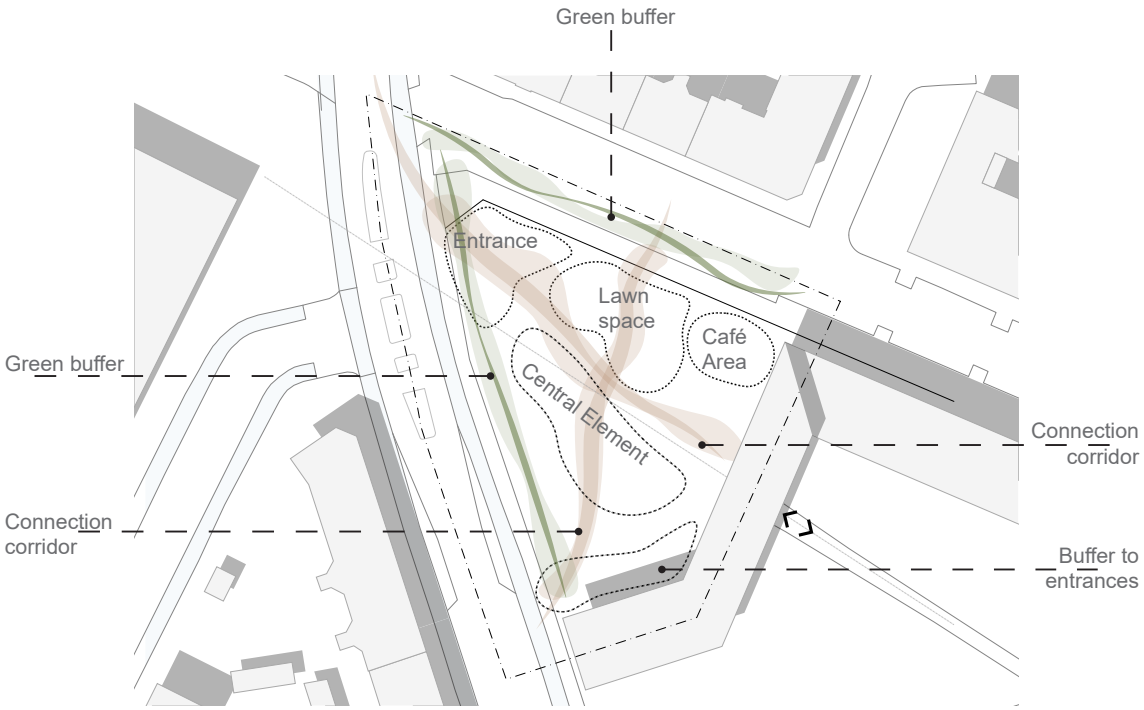


Figure 77
Conceptual Diagram - displaying various functions and buffer zones to be established | Author Creation

6.6 Master plan

The Emalje area (Enamel Park) aims to transform an urban public space within a small-scale context resulting from an analysis of large-scale strategic design. There is an emphasis on a central axis, which is able to accommodate various types of traffic including those who pass by, residents, or other visitors.



Figure 78
Master Plan of Enamel Plaza | Author Creation

The plan aims to further explore this aspect and does so by activating a pedestrian section. By the means of giving back to the local neighborhood incentivizing its residents to explore recreational activities near the home. Multiple green zones are developed to allow for playing or picnic on the grass or the occasional outdoor event the summer may bring.

The general idea activates multiple age groups and challenge the public urban areas by bringing in natural elements which are tactile encouraging play, interactions and exploration. To allow a separation, street trees and wide vegetation buffer zones will keep the faster paced traffic away from the wild play around the water retention and rock-climbing zone. It blends in with a small crossing – to ensure that those with reduced mobility are able to enter from the southern entrance.

Other elements to account for is the integration of the existing café, which is a crowded place on sunny afternoons and summer evenings. A specific room is created where natural elements integrate and interact with the borders to allow for a fluid border between the wild nature and the paved decking. Through this approach, the changes that have been brought demonstrate how small and subtle changes can have a significant impact upon community life and its social and local dynamics of an area.

6.7 Sections

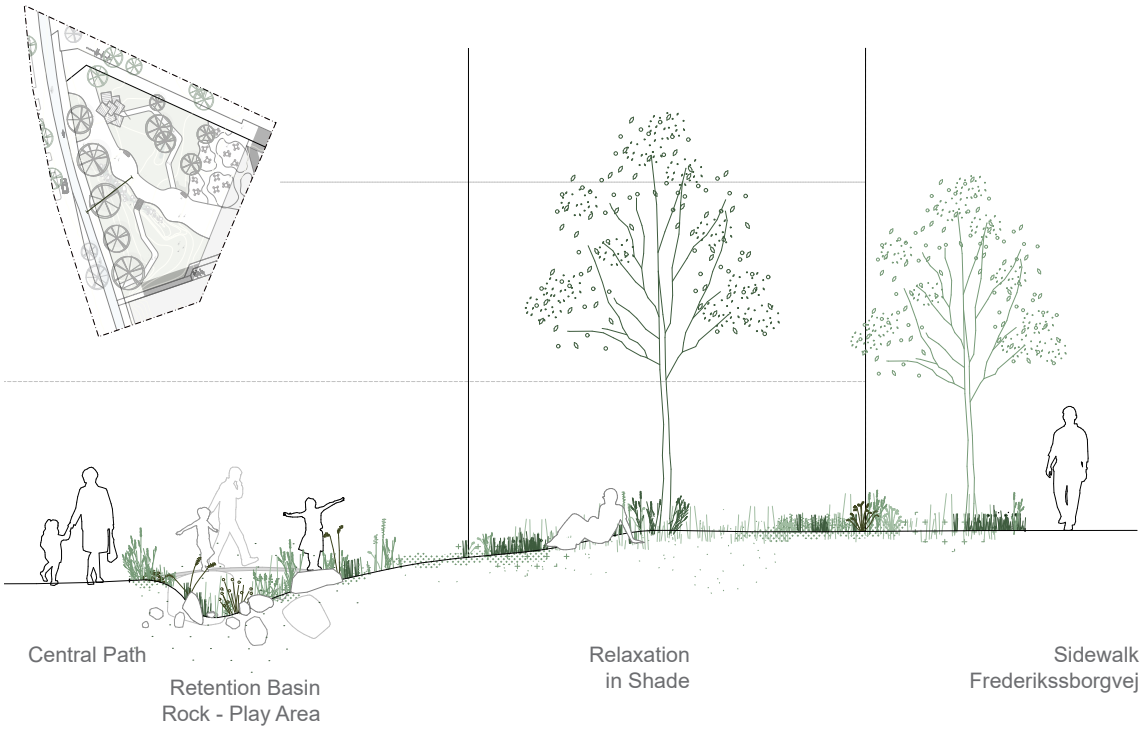


Figure 79
Section showing rock-play garden and terrain from Frederiksborgvej to the central path | Author Creation 1 : 100



Figure 80
Rock Water Retention Detail | Author Creation

This above section and diagram show how the retention basin doubles as a retention basin and rock play garden to establish a strong connection with nature promoting a diverse microclimate. These two sections will allow the entire area to be captured and to show both the terrain differences, but also the terrain challenges in introducing elevated areas and lowered areas in this section.



Figure 81
Section on the northern border to show the diversity in functions carried out in the space | Author Creation 1 : 200

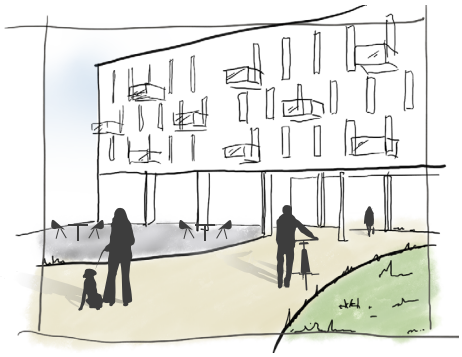


Figure 82
Central crossing detail | Author Creation

Above is shown a cross section from Frederiksborgvej and through the existing café area. This visualization points out how the planned elements will enrich the functionality of the space and the influence of a large green surface immediately on its side. Wilder play areas are placed strategically within the green areas, which are both isolated from the street level and the residencies.

7. Conclusion

With the aim of investigating the extent to which large-scale urban design influences the design of smaller-scale proximity places, the project concluded with the application of a large-scale strategic integration to a proximity urban public area in Bispebjerg, Copenhagen. Using theoretical evidence within schools of sociology, anthropology and design, important aspects such as fair access to green and recreational spaces, identity, and placemaking or sense of place all revealed to be key aspects when navigating between scale. Through an analysis of a Scandinavian context, a large-scale, and medium-scale a small-scale project proposal was created.

An important driver for this project was the potential to improve small scale urban areas through minimal interventions. Understanding how subtle changes can create substantial impacts. When the structural connectivity is in focus and the needs of the users are taken into consideration. Placemaking is another crucial point, creating a sense of identity and belonging socially, whilst creating landmarks upon which one can associate with.

Ultimately, this investigation was able to identify selection drivers to ensure a successful choosing of areas in which to apply subtle changes. To advocate sustainable urban development practices, thus, mitigate the negative effects of urban growing populations to promote inclusive and resilient urban landscapes.

Final remarks:

To bring this investigation further an analysis of the microclimate conditions, vegetation cover and detailing of the pavement would be required. Another aspect which could have been considered is the use of questionnaires to ensure that the place reflects the current users. However, this approach might cause an exclusion of future potential users as they are not the ones currently using the area.

The methodological approach and findings in this investigation are versatile and could be applied in any city, through the analysis of the structural background as shown in this paper. This multiscale approach ensures the urban interventions are contextually relevant and respond to the local diverse urban populations.

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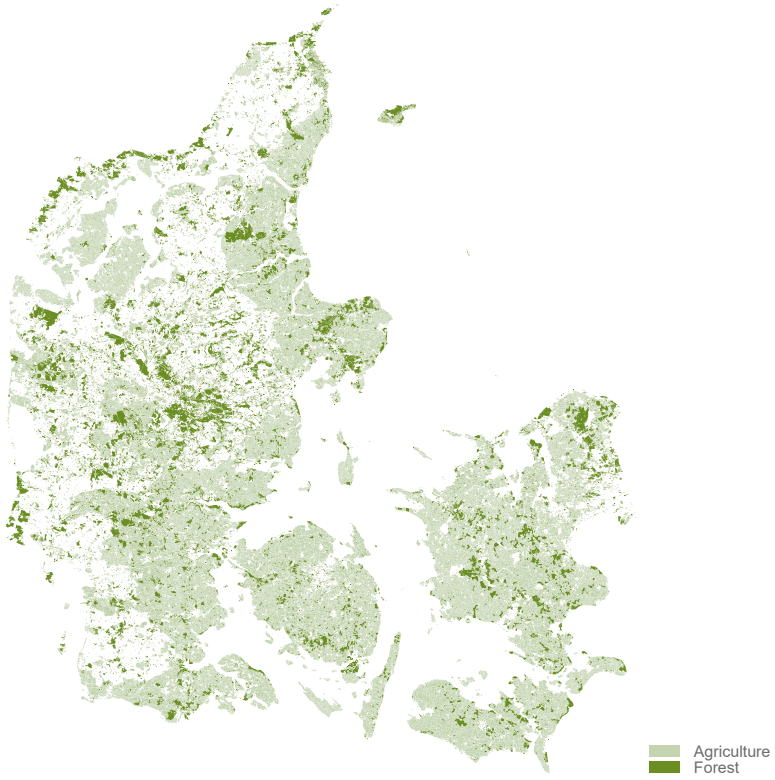
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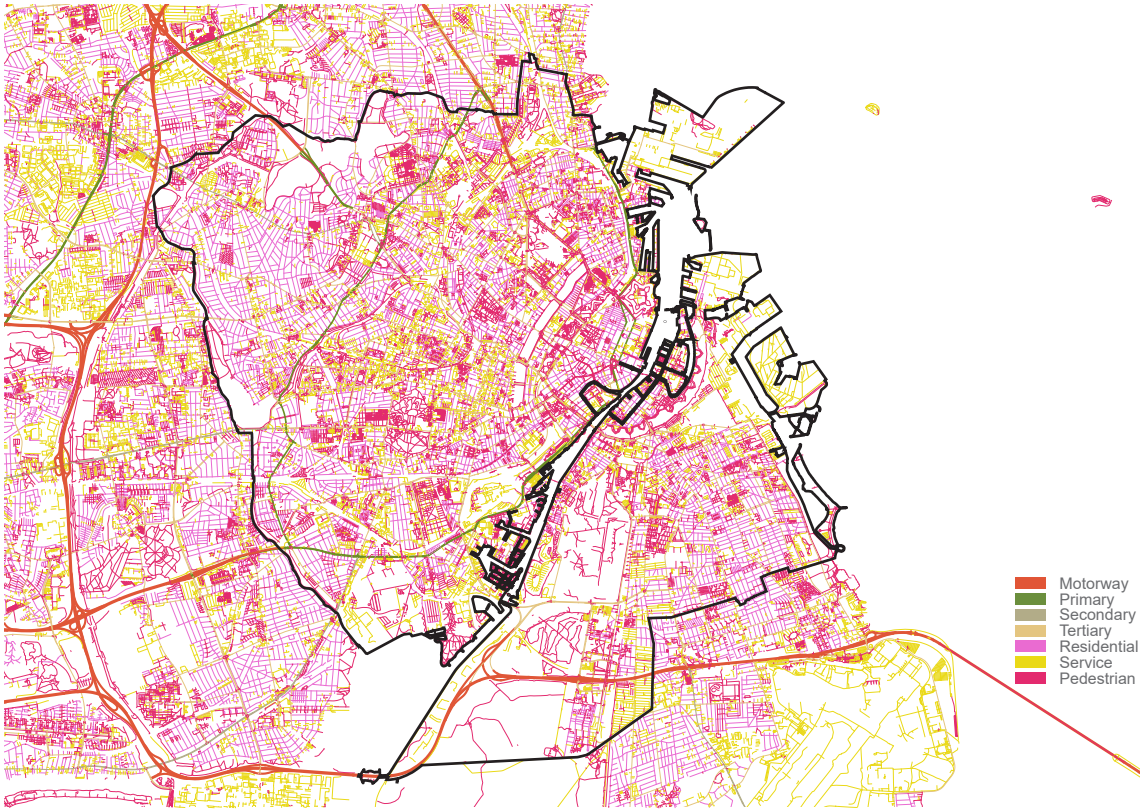
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Appendix

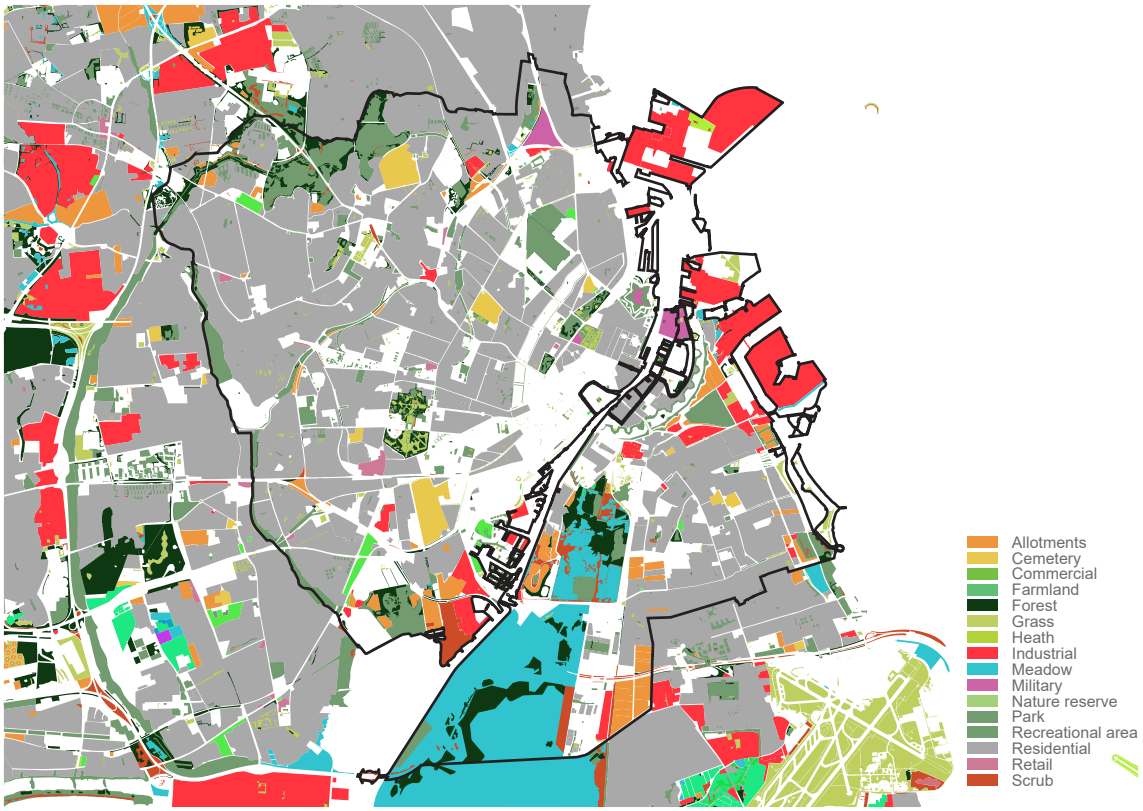
Groundcover Area - Farmland and Forest in Denmark (72 % of total groundcover)



Roads in all Copenhagen area including Frederiksberg Municipality



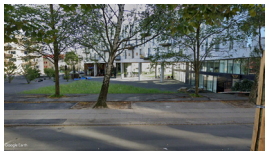
Landuse in all Copenhagen area including Frederiksberg Municipality



Site serial view from (Google, 2024)


1


2


3

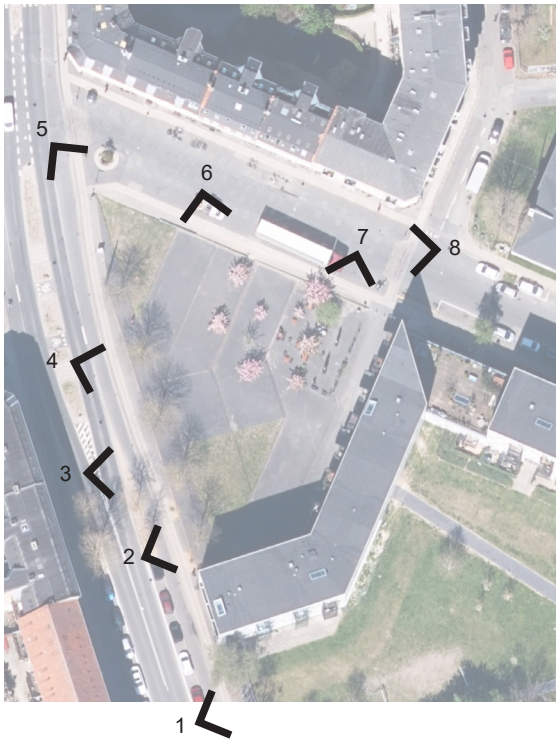

4


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8



Potential plant catalogue

Climbers:

Crataegus monogyna
Humulus lupulus
Jasminum nudiflorum
Rosa canina

Trees:

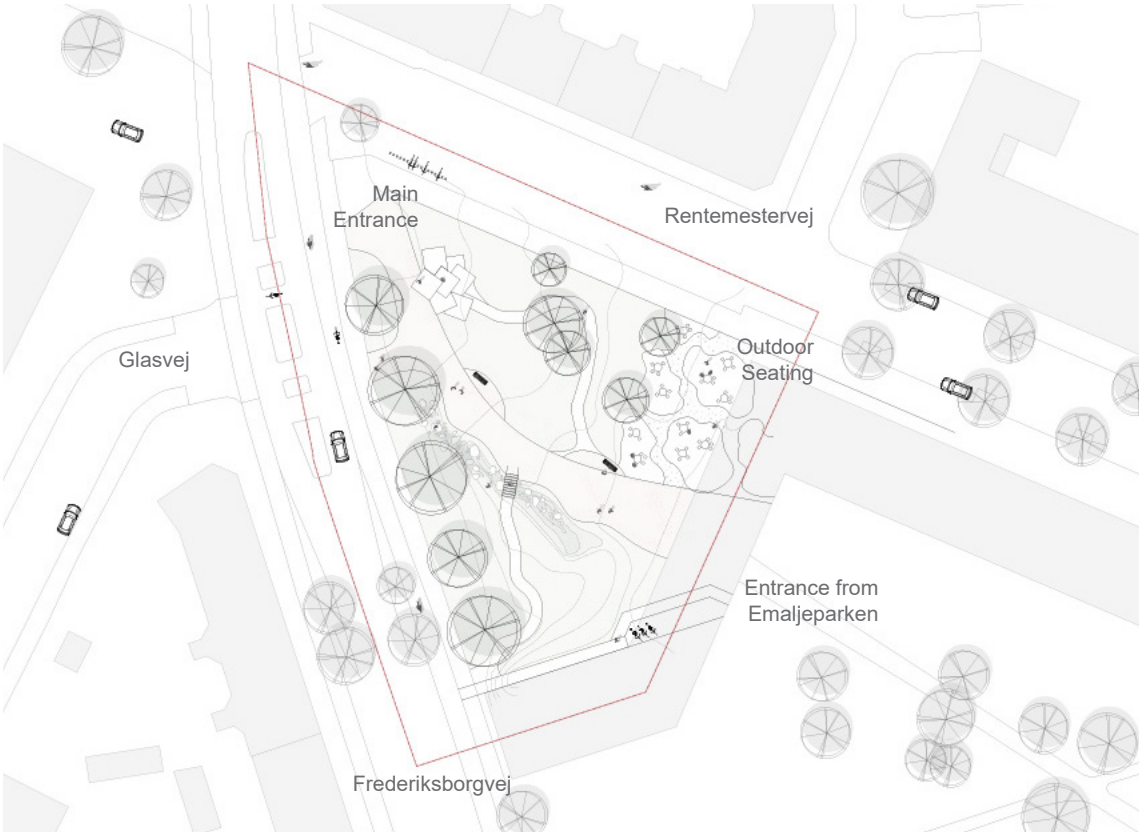
Betula pendula
Magnolia soulangeana
Robinia pseudoacacia

Shrubs:

Acer campestre
Prunus spinosa
Sambucus nigra

Herbaceous and grasses:

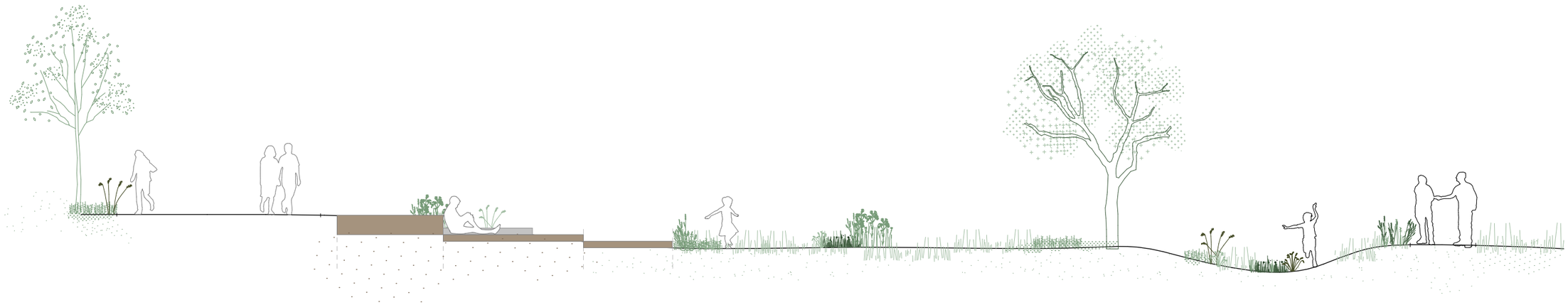
Cichorium intybus
Dianthus deltoides
Dispacus fullomum
Helianthemum nummularium
Knautia arvensis
Silene holostea
Stellaria serpyllum
Anthoxanthum adoratum
Briza media
Descampsia flexuosa
Festuca ovina
Festuca rubra
Luzula campestris

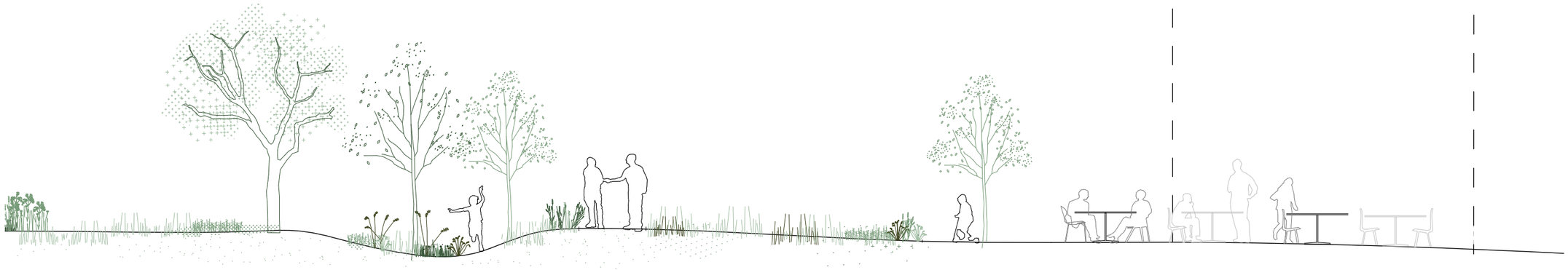


First master plan sketch in Neutral tones



Master plan in original size 1 : 500
A3 Landscape format

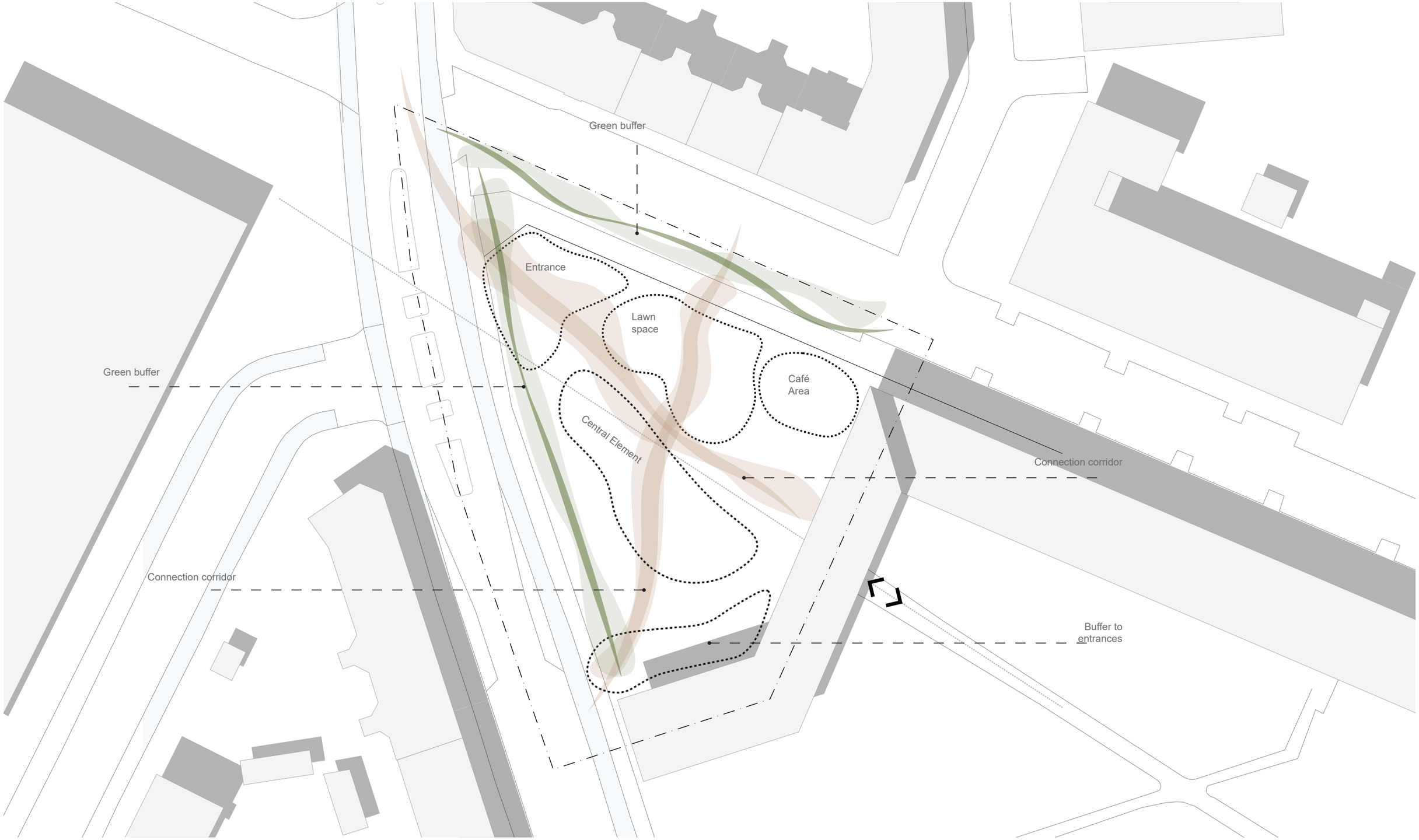




Section of Café area in original size 1 : 100
A3 Landscape format



Section of rock play area in original size 1 : 100
A3 Landscape format



Conceptual diagram in original size 1 : 500
A3 Landscape format

List of works done during the internship at VEGA Landskab:

• **Competition Proposal** (Winning Team) – Flyndersø Mølle. A reconversion and creation of a cultural ice age landscape to become an entrance to a large natural park.

• **Courtyard Proposal** - Platanvej: Section details to be incorporated into a user involvement workshop with all stakeholders.

• **Kindergarten Playground:** New developed kindergarten with increased slope difficulties and artificial hills to be created.

• **Competition Proposal** (Phase 1) – Fanø Klit Slow Down Resort. A large scale natural wellness resort where the dune landscape was in focus to ensure the proper management and value is taken of this landscape typology. This was an idea phase, where the focus was on diagrams with logistics, landscape types, and a masterplan poster.

• **Nivaagaards Park:** A vast collection of historical data and current data to understand the situation in Nivaagaard Park, which is a historical park initially designed by Danish landscape architects H.A. Flindt and Johan Glæsel. This included detailed mapping of all elements in the park.

• **Dåstrup Kirkegård:** Initial mapping of a churchyard in Denmark needing a plan of their current situation.

• **AB Ingolf:** A closed courtyard proposal where initial information and collection of data and analysis was done, including a vegetation cataloguing and a pavement cataloguing