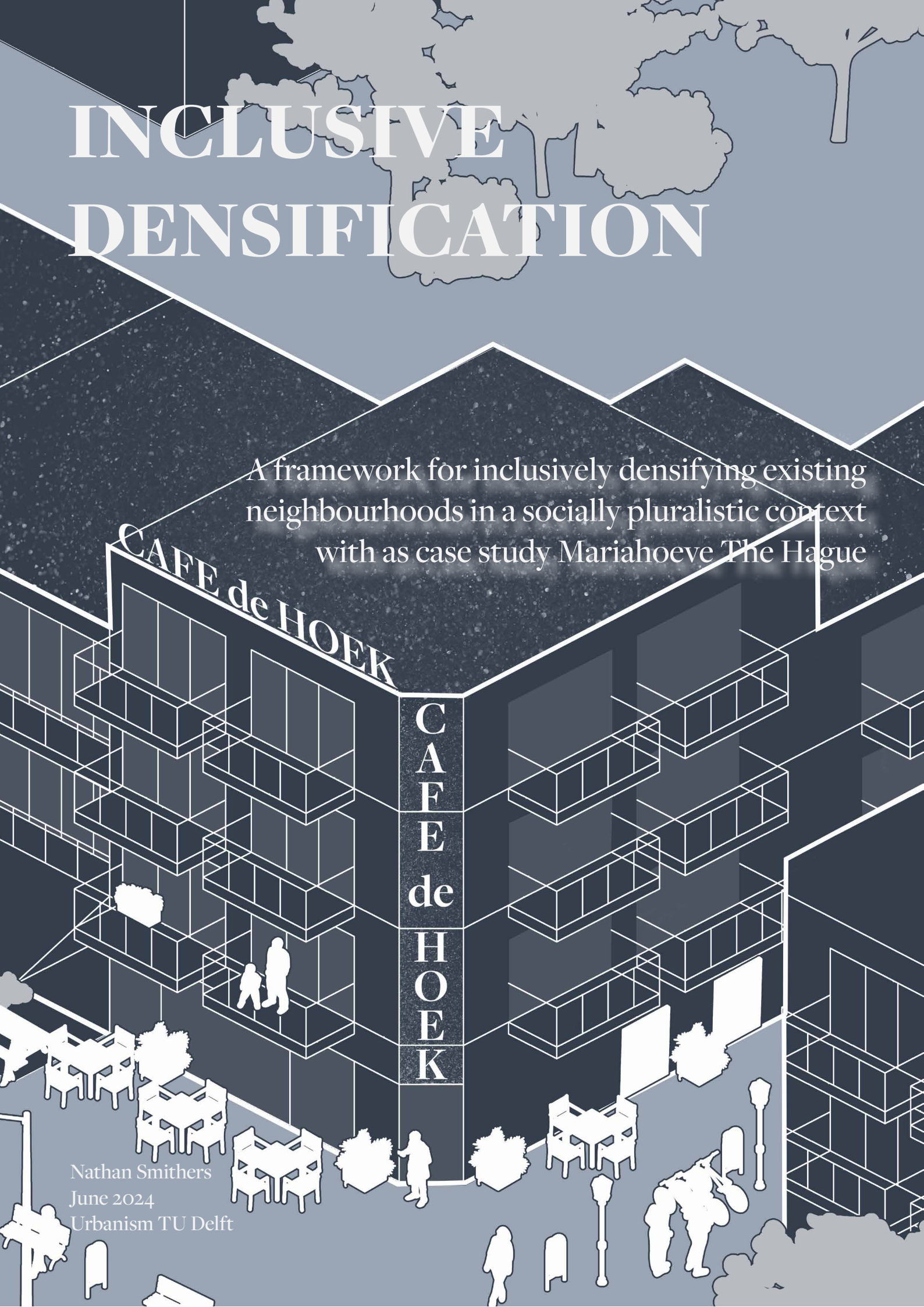
# INCLUSIVE DENSIFICATION

A framework for inclusively densifying existing neighbourhoods in a socially pluralistic context with as case study Mariahoeve The Hague

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June 2024
Urbanism TU Delft

## Colophon

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|---|---|
| Title | Inclusive densification |
| Subtitle | A framework for inclusively densifying existing neighbourhoods in a socially pluralistic context with as case study Mariahoeve The Hague |


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Urbanism

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A thank you to all the lecturers which have supported me and provided me with powerfull insights with regard to addressing the graduation project, from a methodological and contents viewpoint.

A big thank you to all my fellow students which have made the year enjoyable and helpful. I appreciated the mutual support I could always count on. Thank you Merel, Willemijn, Bas, Cecile, Sandra, Serah, Claudia, Hassan, Nancy and Harini.

Finally, I wish to express my gratitude to my friends, family and housemates for their encouragement and support.

## Personal belief

I chose Urbanism because I like designing the larger-scale built environment for people to flourish in. My urbanist aim is to create liveable and inclusive cities through strategic design interventions to meet social needs. With this, I am a great fan of dense and heterogeneous urban environments in its broadest sense. I like to bring up the from 19th century Paris originated term 'flâneur', which refers to a wanderer, or stroller, admiring the streetscape and all its peculiarities going on. I like to put myself in a similar position, for which unfortunately not many places in The Netherlands lend themselves fit as places to 'flaner'.

I would like to turn this personal belief into practical use. My project will be about the CBS prognosis of 20M people in NL in 2050, of which most of this growth will be due to migration. With the current Dutch strategy of densifying urban cores, rather than extending the boundaries, an ever more diverse environment may lead to social friction and segregation. I suggest that, on the physical side, steer the densification process in a socially sustainable way, mitigating tensions for a cohesive whole. Herein, it is about building towards the future we want, rather than preventing what we don't want.

With this, I aim to contribute to the question: “How will we live together?”

## Personal interest and experience on superdiversity

I have had personal experience with superdiversity on a local scale. I used to live in a house of 40 people from many different backgrounds in the Hague. Some were migrants, some were students, some were locals. Differences among people often lead to tensions. I would hypothesise these tensions could have been mitigated if the spatial layout of the building had affordance for these differences. I had seen my 3 years there as an experiment in which I observed many things. Now that I moved out, I was keen to take this experience to the urban realm and learn more about superdiversity on a city scale.

## The consequences of segregation in The Hague

The story of a Surinamese single mother, raising two children in Transvaal-north has made an impact on me. I met her regularly through volunteering, and we had conversations about her living conditions, especially in Transvaal. Her story intrigued me.

Transvaal is a deprived neighbourhood in The Hague. It is a neighbourhood in which the stark majority of people are of a lower economic class, and which many people with a migration background call home. The problem here, as she mentioned, is that the people who can afford to move, move away, leaving behind the people who cannot. Also, this phenomenon does have a magnet effect to it, attracting people who experience economic problems and who are there temporarily. Additionally, there is overcrowding in the neighbourhood because of many temporary residents, and the high density urban fabric. This leads to waste management problems, bad living conditions and low social cohesion. Also, she is afraid of addressing others with non-social behaviour, like littering, as people have bad experiences in doing so.
To make things worse, the neighbourhood is home to many children. These are children who need extra attention, who have disabilities, and who are very bright. All these children go to a single, overcrowded school. Any form of inter-generational upward mobility is therefore made many times more difficult. The potential in these kids is left untapped, strengthening the vicious circle of poverty.

All these things she experiences in her neighbourhood of Transvaal-North, which is a mere kilometre apart of the Statenkwartier, which is the opposite. Privileged and disadvantaged individuals live close from each other, yet segregated.

## Inclusive densification

The Dutch population is growing and becoming superdiverse, necessitating the need to initiate inclusive densification measures. Design-oriented strategies are proposed in the case area of Mariahoeve, The Hague, to achieve spatial inclusion by introducing a differentiated, accessible and compact cityscape, affording co-presence and social cohesion, enabling spatial justice.

## Abstract

The Netherlands is facing the challenge of population growth and increasing diversity through migration, especially in larger cities like The Hague. These trends put pressure on the built environment and exacerbate social tensions. To address this, the thesis aims is to enhance spatial inclusion and social cohesion by densifying the built environment for the increasingly superdiverse population in the Haaglanden Region. Implementing the theories of an open and just city, as well as aligning this to the concept of space's social logic and the 15-minute city is key to achieving this goal.

The region consists of many urban density types, each with different potentials for inclusive densification. The Mariahoeve neighbourhood, a typical postwar neighbourhood located on the outskirts of The Hague, offers many opportunities for inclusive densification. The strategies to be introduced for Mariahoeve are the introduction of courtyard typology buildings, a network of urban quality types, and main streets. The main streets expose the neighbourhood's interiority through their enhanced permeability, and function as places of co-presence, raising awareness and affording interaction among different individuals. In a context of superdiversity, raising awareness through primary visibility is key in enhancing a sense of community.

The thesis concludes with a design proposal that strategically implements density to enhance connectivity, legibility, visibility, spatial diversity, and equity, to create an inclusively densified neighbourhood.

# Contents

# Glossary

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|---|---|
| **Accessibility** | Accessibility is the quality of a certain urban element being in reach of an individual. This quality can be perceived in a sense of distance, as well as being perceived as welcoming. |
| **Connectivity** | The connectivity describes the level of ease to move in different directions within an existing network. Connectivity is tied with the number of connections and can be indicated using the measure of network density. |
| **Compactness** | The quality or state of being compact is defined as the proximity of amenities and opportunities to a wide range of people in proximity. This is an equation of density multiplied by diversity. |
| **Density** | Density is a measure of the spatial distribution of a similar entity and can be expressed in various ways. It is commonly used to indicate areas with a high concentration of buildings (a dense urban environment) or a high share of people living in an area (a densely populated area). Urban density is achieved when space is used intensively and optimally, of which different built and unbuilt proportions have inherently different spatial qualities (Uytenhaak, 2008). |
| **Differentiation** | The quality of differentiation can be defined as the degree to which a place is diverse. This is expressed through the programmatic, spatial and social diversity in an area. The term is used to describe social solidarities in a fluid way, as well as offering a spatial conditions which are different in proximity of each other. |
| **Diversity** | Diversity refers to the presence of a variety of different elements, characteristics or uses within an area. It is the opposite of diversity is uniformity. Diversity is a singular state of the presence of differences within an area. A highly diverse environment contributes to a rich and differentiated urban environment. |
| **Equity** | Equity is a characteristic of the physical and social environment, which involves providing fair and equal access to different opportunities for different groups. It concerns the distributional justice of publicly valued goods, which can be considered opportunities for accessing spaces and the providence of choices. Equity is one of the main pillars of the Just City theory. |
| **Inclusion** | Inclusion is the practice or policy of providing equal access to opportunities and resources for people who might otherwise be excluded or marginalized, such as those having physical or intellectual disabilities or belonging to other minority groups (Oxford English Dictionary, 2024). Inclusion is considered the remedy of segregation and spatial injustices. In order to achieve an inclusive society, where opportunities and spatial qualities are distributed in a more egalitarian way, the physical environment plays an important role. A truly inclusive society is one where every individual can flourish and profit from the opportunities in their proximate environment, as well as one where every individual makes and feels part of a healthy cohesive collective. |

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| **Proximity** | Proximity refers to the distance or closeness between two selected locations, uses, or objects. It measures the relative distance between elements in a space, indicating their proximity to each other. It is inextricably linked to the concept of density and considered a prequisite of diversity and differentiation. Proximity fosters interaction (Uytenhaak, 2008), and less mobility and energy consumption (Berghauser Pont & Haupt, 2023). |
| **Segregation** | Segregation is a state of homogeneity in seperated clusters, and is intrinsically a spatial concept (Marcus, 2007). This inherently need not be negative, depening on what variable this homogeneity expresses. Segregation can be viewed as "*a phenonenon that takes place in space and time*" (Vaughan & Arbaci, 2011). |
| **Social cohesion** | The extent to which there are bonds of trust that bind people together into a society, as opposed to mistrust and antipathy that cause division and tension (Rogers et al., 2013). |
| **Solidarity** | Solidarity is both a condition and quality of being cohesive through mutual awareness, recognition and acceptance despite the differences. A solidarity is one where people rely on each other, and exists through transaction and interaction. The term solidarity tends to invoke a sense of mutual commitment, but not particularly of mutual identification (Stijn Oosterlynck, 2022) |
| **Spatial integration** | Integration is a normalised measure of distance from any a space of origin to all others in a system. In general, it calculates how close the origin space is to all other spaces, and can be seen as the measure of relative asymmetry (or relative depth). |
| **Superdiversity** | Superdiversity is a multivariate state of diversity. This concept implies that diversity consists of a singular component of variation, whilst superdiversity embraces the plurality of variation, overlapping forms (Hausleitner et al., 2023). Three dimensions which are essential when addressing superdiversity, are the societal layers of: socioeconomic class, educational level and ethnic background. |
| **Visibility** | Visibility is the characteristic of being observable. It is about exposure of individuals in relation to each other and the physical envornment, stimulating awareness and interactions. Vsibility can be differentiated between primary and secondary visibility:<br>• Primary visibility is based on direct observation of different groups may mitigate prejudice, fear, stereotyping and marginalisation otherwise caused<br>• Secondary visibility (media representations), as this alters people's perception about how they think and interact with others (Hall, 1997; Schields, 2005; Cancellieri & Ostanel, 2015). |

# 1. Problem field

1. Setting the stage
2. Population growth
3. Increasing social diversity
4. Urbanisation
5. Urban growth
6. Intensifying socio-spatial segregation
7. Societal relevance
8. Project aim

## Drivers of change

This project focuses on four ongoing trends in the Netherlands, with the central point being the CBS prognosis of 20 million inhabitants in the country by 2050, mainly due to migration. The largest growth is expected in the already largest cities, as a result of an ongoing urbanisation process. The Haaglanden Region is one of these areas where the largest population growth is expected, despite the lack of space to accommodate it. Additionally, this region is considered the most segregated in the Netherlands. Consequently, an increase in population, coupled with greater diversity, is likely to result in increased segregation.

There is an urgent need to facilitate the growth of a diverse population and to overcome the negative effects of segregation. In sum: we need inclusive growth!

## 1.1 Setting the stage

This paragraph is a summary of the chapter. It gives a quick overview of the actual problem which is occurring in the Netherlands. The extent of this problem will enlarge if time passes and the urban fabric does not make way for affording solutions. As the built environment moves slowly with change, it is important to construct and transform this in a way to reduces the consequences of what may become a major issue. Therefore, it is important to begin now.

The Netherlands will become more populous and more socially diverse. Different people from different backgrounds will take an ever more substantial part in Dutch society. With an ongoing trend of urbanisation happening in the world, the Netherlands also shows similar patterns. Different norms and values will share the same streets, parks, and other public spaces and porticos. Figure 1 shows actual newspaper headings regarding aforementioned trends.

A laissez-faire attitude towards the influx of individuals into urban areas potentially contributes to increased forms of segregation due to several factors. These factors are in part related to the natural tendency of spatial sorting of people, which is being strengthened through patterns composing individuals' daily lives. Factors regarding culture and social class often play a role, with communities forming around shared identities. In the longer term, this would lead towards a segregated society, bringing social tensions between groups and individuals. If the Netherlands strives to be an inclusive society, spatial measures towards integration should be taken through boasting an inclusive growth. The continued population growth should be planned in a way that strives for a sense of community among all people, no matter the differences. A place where people feel they belong, and are part of a collective; part of Dutch society.

The influx of individuals into urban areas can potentially contribute to increased segregation due to various factors. As population density rises, competition for resources and opportunities may intensify, leading to the formation of distinct socioeconomic clusters. This segregation can be fuelled by economic disparities, as certain groups may concentrate in specific neighbourhoods based on affordability and access to amenities. Additionally, social and cultural factors may play a role, with communities forming around shared identities or backgrounds. Future policymaking should therefore consider these dynamics to foster inclusive urban development and address the potential consequences of population growth on social cohesion and segregation. More people of diverse backgrounds may intensify segregation which can then lead to great social exclusion. On a local level, it can lead to social dissolution.

It is thus important to guide densification processes along an inclusive path which affords the differences among individuals in a superdiverse environment. Inclusion is considered the remedy of segregation and spatial injustices.


*Figure 1*
*Newspaper articles*

## 1.2 Population growth

The Netherlands is population-wise a very densely populated country. In 2024, the Netherlands will reach a population count of 18 million, as shown in Figure 4. Being a country of a mere 42 thousand square kilometres paired with a booming population means space in the Netherlands is scarce. The discussion of whether the Netherlands is considered full or not has already been going on since the 1970s when there was a population count of 13 million. While the discussion is ongoing, it is projected the count will rise to 20 million in 2050 (Centraal Bureau voor de Statistiek, z.d.). More people means more pressure on the built environment, which means more pressure on housing, more pressure on existing facilities and services, and more pressure on infrastructure.

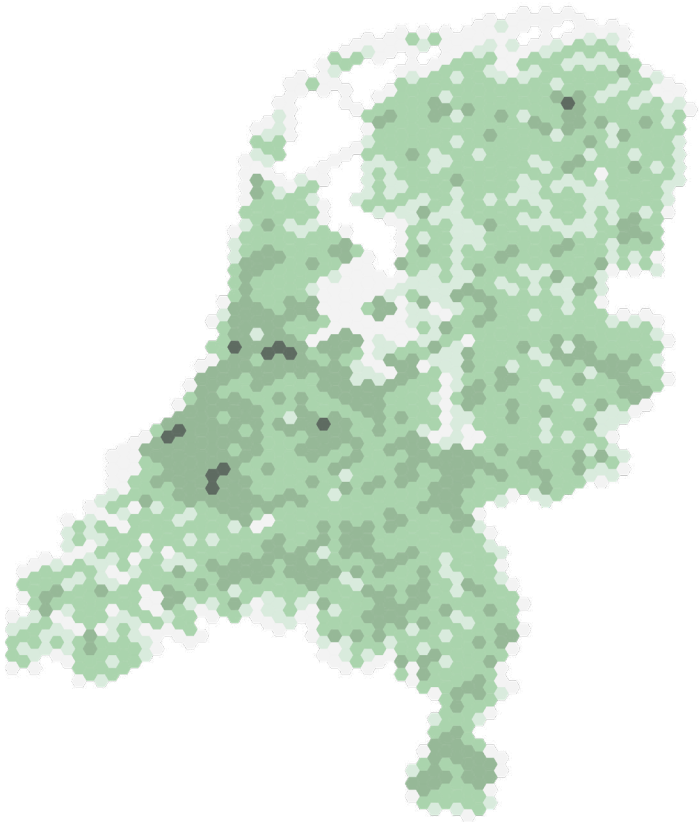


***Figure 2***
***Netherlands population in 2023***

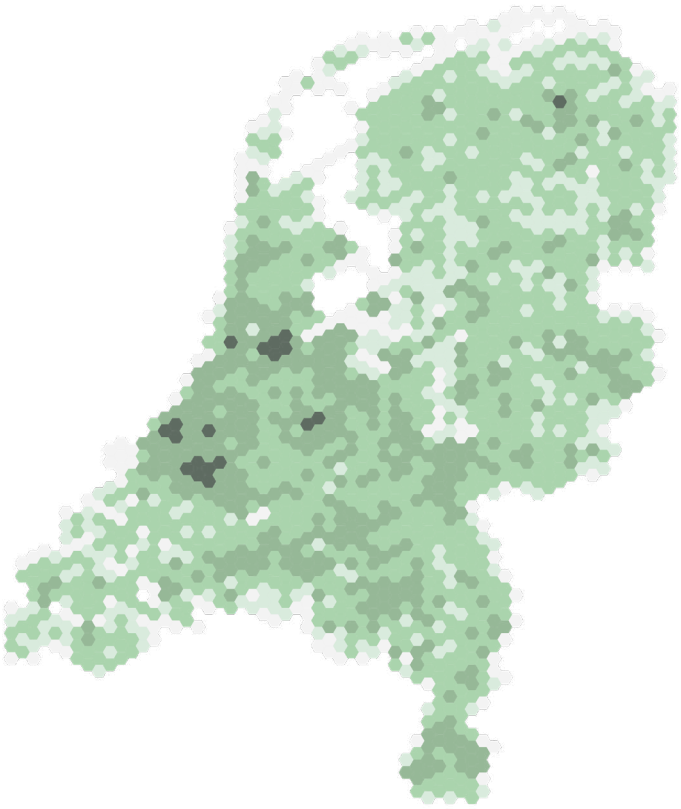


***Figure 3***
***Netherlands population in 2050***

< 100 people
100 - 1.000
1.000 - 10.000
10.000 - 100.000
>100.000

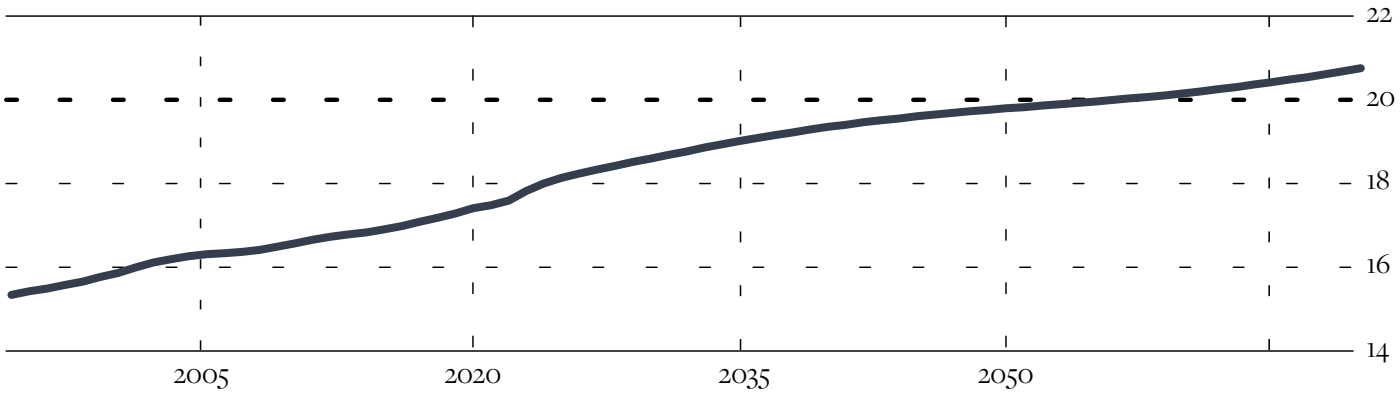



***Figure 4***

***Population growth in the Netherlands 2005 - 2050*** *(CBS; NIDI, z.d.)*

## 1.3 Increasing social diversity

The main driver of this project is the population growth as projected by CBS. Like many European countries, the Netherlands makes no exception in the fact that the natural increase is virtually zero, and the population is increasingly ageing. It is a politically driven choice to balance out the low birth numbers for basic services and actions can still be met. Hence the main contributing factor to the population growth is attributed to the inflow of migrants (Mouissie & Hoorntje, 2023). The growing diversity of ethnicities, cultural backgrounds, and native language speakers residing in the Netherlands will inevitably make Dutch society more complex. These groups may not necessarily have common ground, but they will have to share the same physical ground regardless.

The Dutch society is becoming ever more diverse in a multitude of ways. With a large number of individuals of different nationalities, socioeconomic classes, and educational backgrounds, residing in the same space, Dutch cities can be considered superdiverse places. All these inherently different groups have an impact on the way the urban space is being used and will be used. In dense urban environments, proximate diversity may lead to social tensions among seemingly very different individuals (Rustenbach, 2010). In the long run, it may impede threats to society (Van Lieshout, 2018).

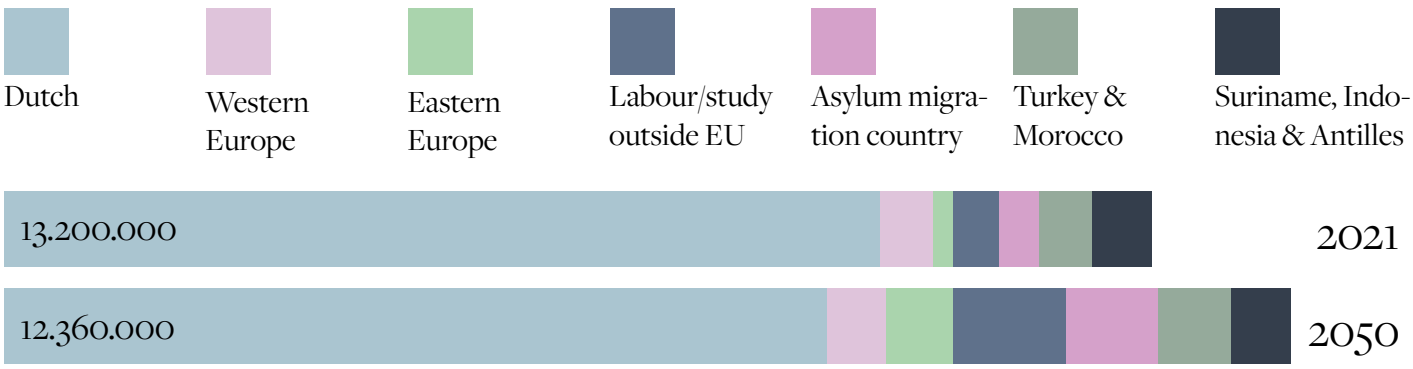
Dealing with superdiversity may be a sensitive topic. It may be prone to pigeonholing and unintentional discrimination. Therefore, at all times, it is necessary to acknowledge diversity and migration has many forms and types, and cannot be viewed as a single-aspect entity. Each migrant has specific aims and needs it seeks to fulfil in the country of residence, and specific characteristics related to demographics, cultural background, first language and many more. The general categories, as formulated by Knappers (2022), for which the many differentiated forms of migrants can be congregated are:

- Asylum seeker;
- Labour migrant;
- Expat;
- Exchange student;
- Family re-unifier;
- Emigrant;
- Illegal.

It is important to acknowledge that while individuals have inherent differences and unique needs, there are also many commonalities. For instance, elders often share similar needs, regardless of their background or social class.

***Figure 5***

***Proportion of inhabitants in The Netherlands 2021 - 2050 (CBS, z.d.)***



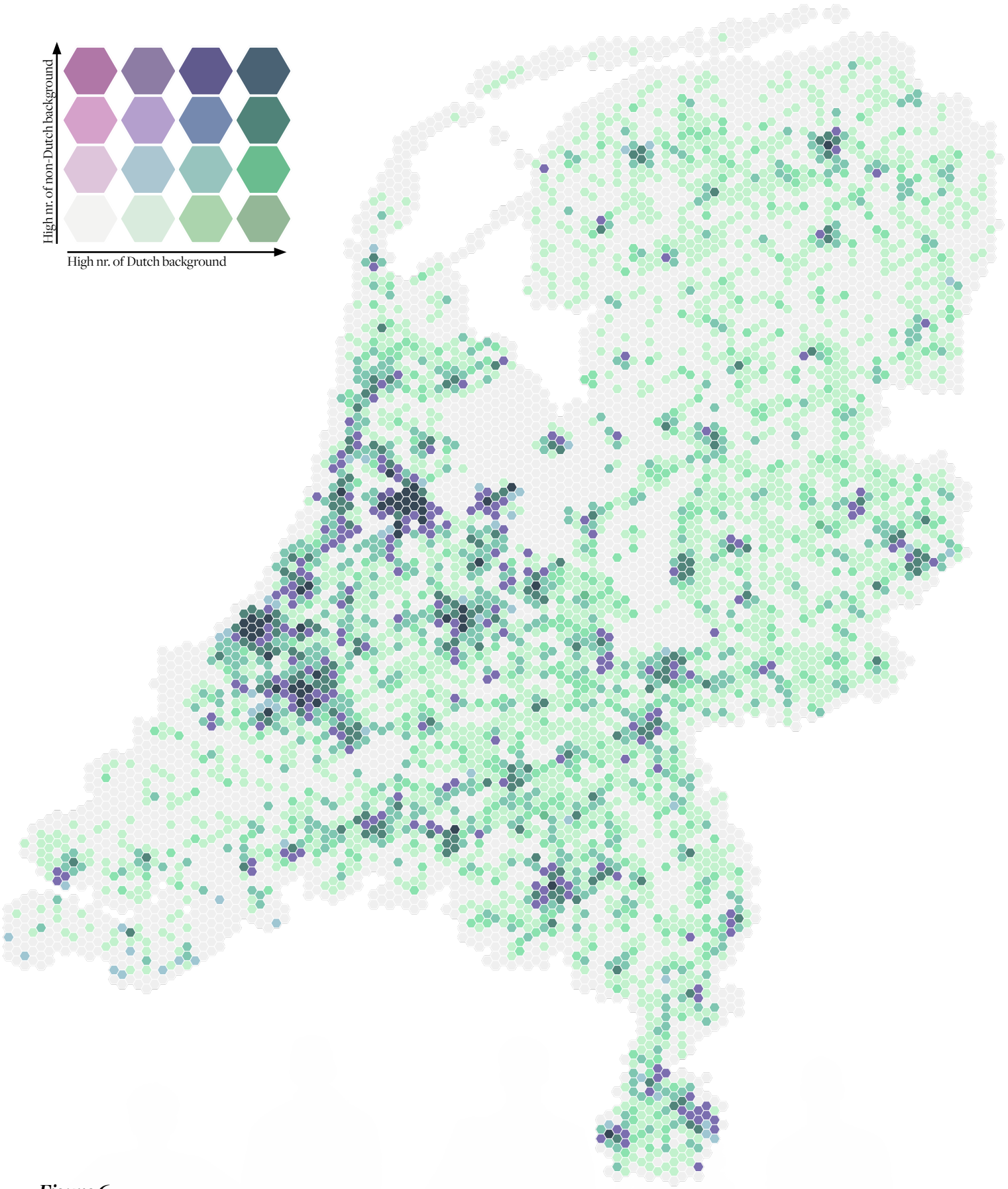



***Figure 6***

***Spatial distribution of population by background in the Netherlands in 2021 (CBS, z.d.)***

## 1.4 Urbanisation

Urbanisation is the process of people migrating from rural areas to urban areas, resulting in a decrease in the rural population and an increase in the urban population. It should be noted that urbanisation differs from urban growth in that the latter pertains to the expansion of urban land surface area. While the two terms are often used interchangeably, this research will distinguish between them.

Globally, an emergent trend of migration to cities is observed. Cities are centres of innovation and economic growth, making them attractive places and drawing individuals to settle (UN-Habitat, 2018). The Netherlands is already an urbanised country. However, according to CBS, the Netherlands will become more urbanised as the process will continue to do so. Meanwhile, this implies that other regions of the country are experiencing depopulation. Not only in absolute numbers but also percentage-wise the largest population growth is accounted for by the larger cities. This means the population rise is putting pressure on selective places in the country. And to accommodate this population growth, these places need to make space to facilitate this process.

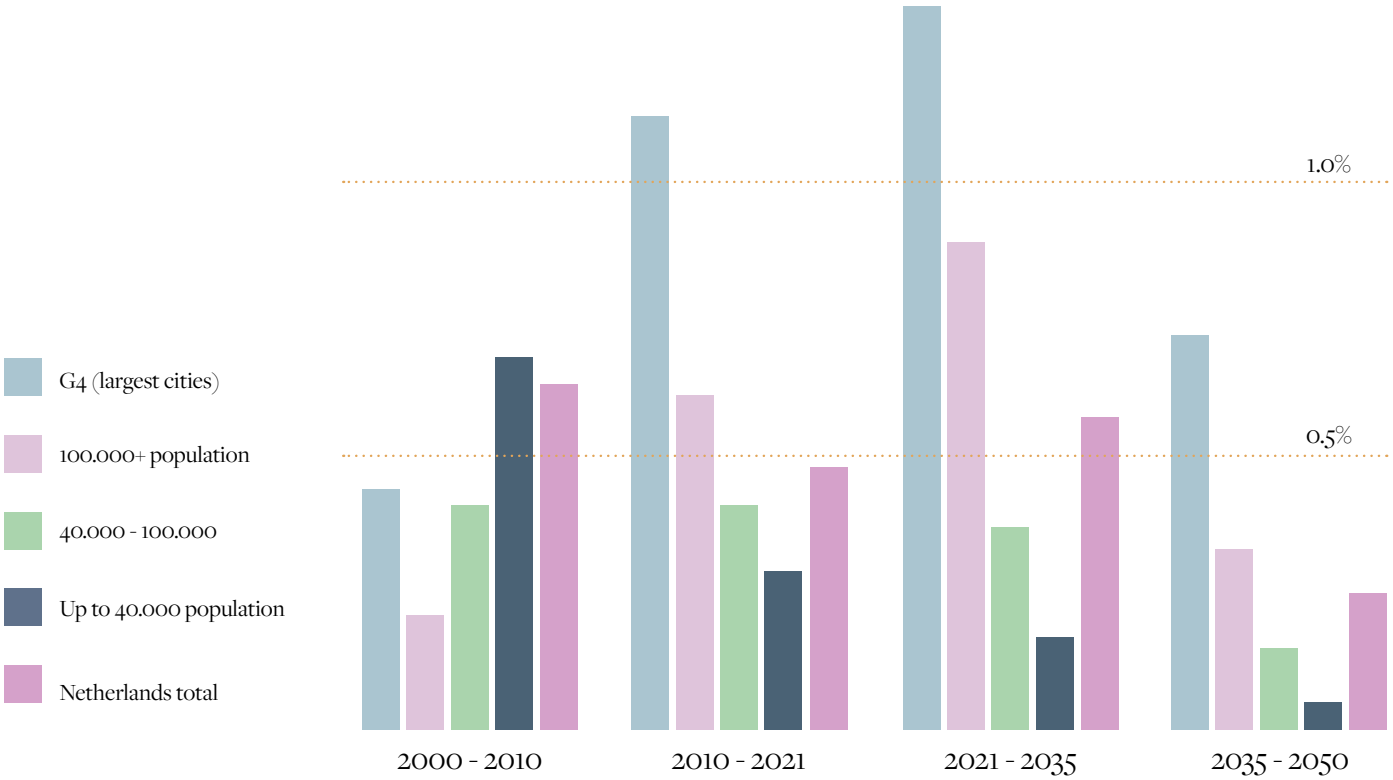



*Figure 7*

***Urban population growth for Dutch cities of all sizes 2023 - 2050** (CBS, z.d.)*

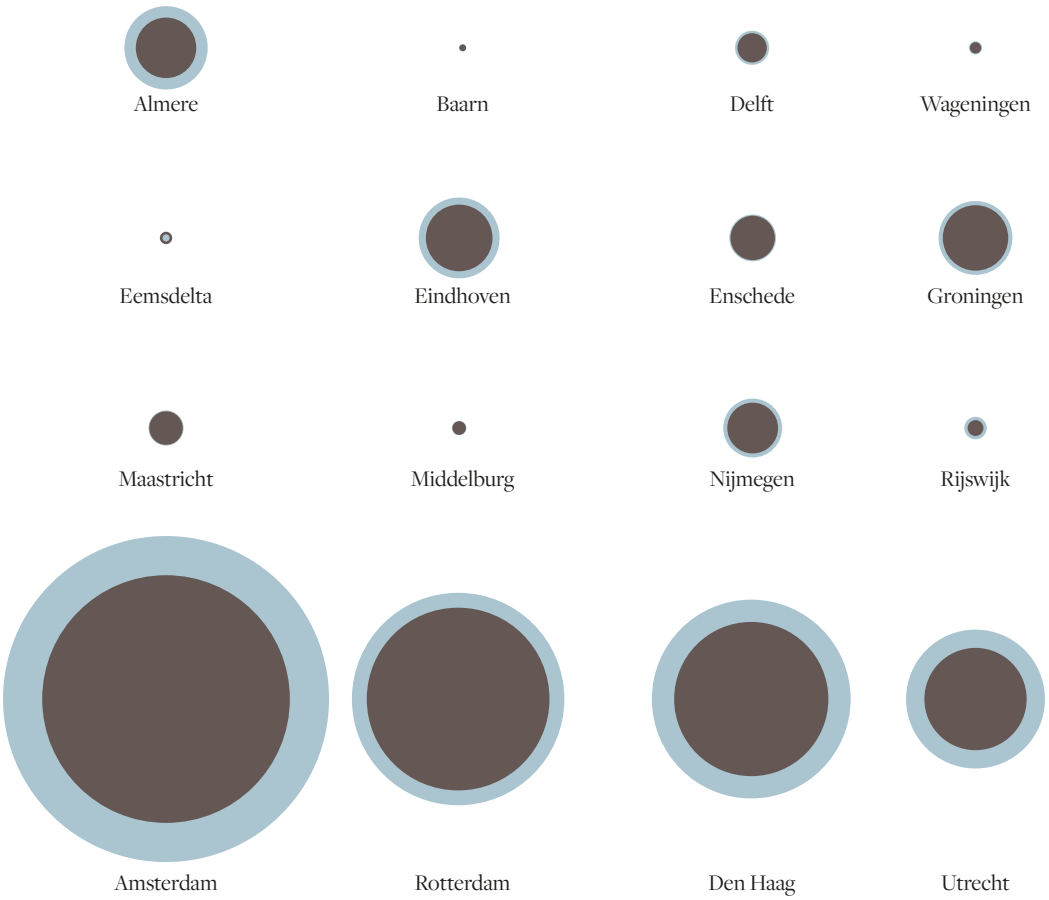



***Figure 8***

***Urban population growth for Dutch cities of all sizes 2023 - 2050 (CBS, z.d.)***

## 1.5 Urban growth

Throughout history, settlements in the Netherlands have grown slowly due to the restrictions imposed by surrounding fortifications and defences. However, after these structures lost their function, space was no longer a scarce commodity. Since the turn of the 19th century, cities have grown exponentially. Under the influence of technological advancement, mobility trends, and a shift in societal preferences regarding living, the divide between city and country became less apparent. Looking at the use of space in the Netherlands over the past 100 years, a trend of exponential large-scale urban development is visible.

In the case of Amsterdam, while the population has only increased two-fold, the built area has increased from 15 km² to 200 km² in the last century (Uytenhaak, 2008). The same has happened in the region of Haaglanden, where the built area has increased from 20 km² to almost 240 km² between 1920 and 2020.
This region is an interesting case, as it has been dubbed the 'Patchwork metropolis', due to the fact that the territorial structure can be viewed as a concatenation of homogeneous areas (Pisano, 2018). During the past century, different patches have been added to the built environment. These areas all have their specific economic activities (either residential, industrial, and commercial) or social classification (socio-economic class, ethnic background, and educational level). This has resulted in an urban landscape embracing many different design principles according to the then-present paradigms. Spatially, it makes for high transferability for the rest of the Netherlands, as it counts a representative range of neighbourhood types and urban milieus.

Nowadays the region deals with space scarcity. The Hague and its surrounding cities and villages have merged into a larger agglomeration. For the existing urban fabric to be able to accomodate more people, a new wave of densification has to take place. Cities will therefore become more dense.

The PBL has explored four different scenarios for the organization of the Netherlands in the year 2050. Densification is a common factor in all scenarios, but the degree and priority of location vary. Despite this, densification will occur in the Haaglanden region, albeit to varying degrees.

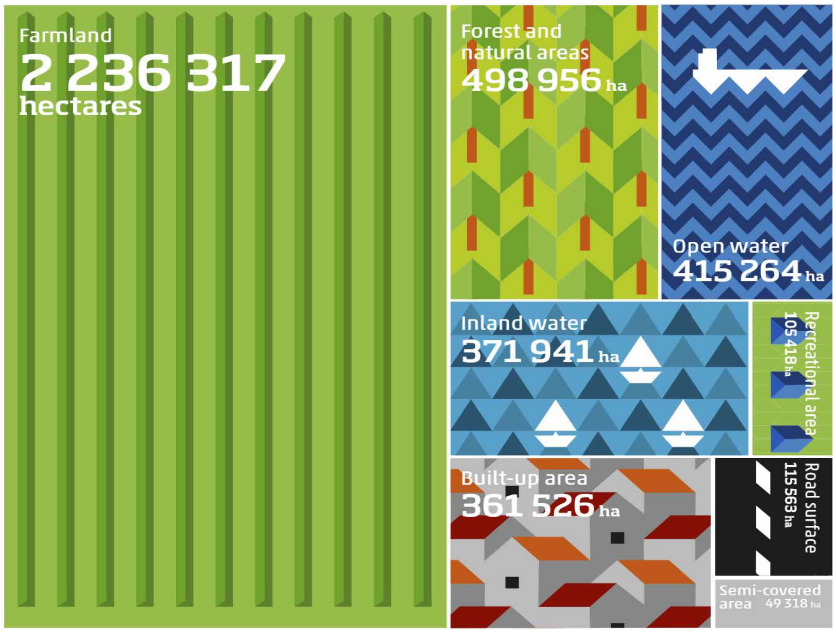



*Figure 9*

*Land use surface area in the Netherlands (CBS, 2020)*

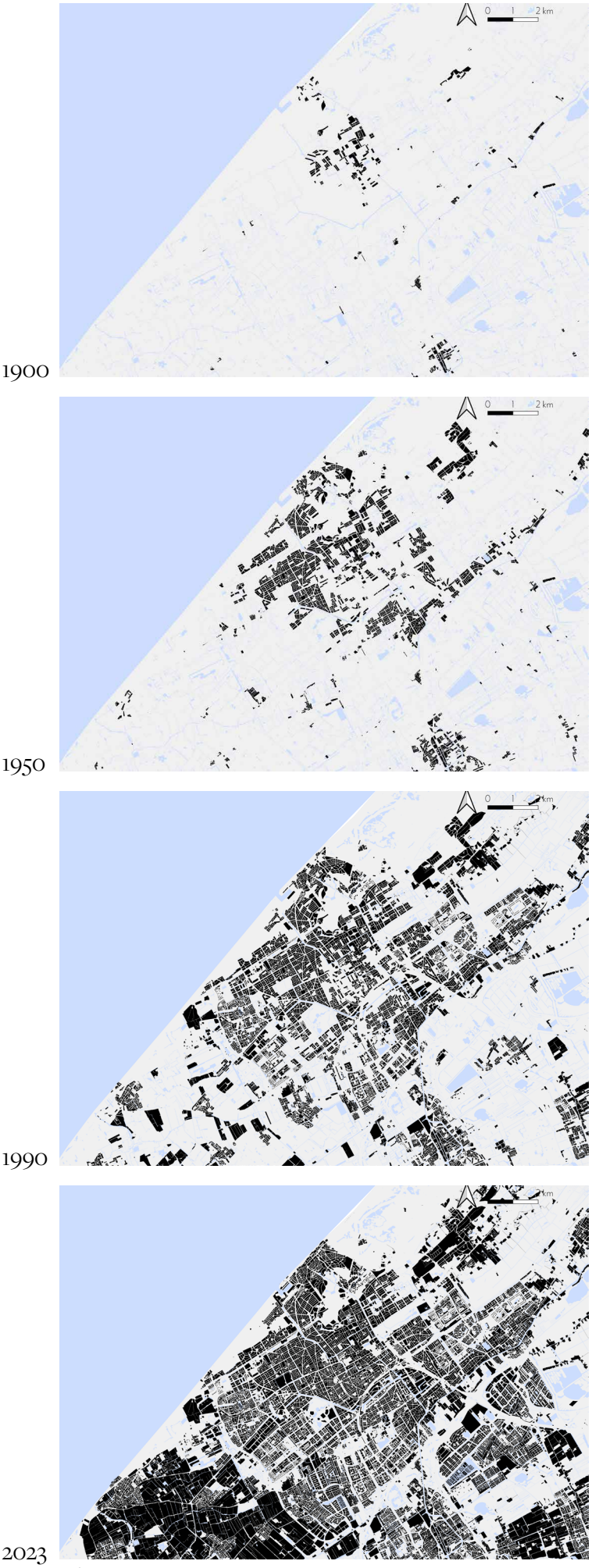



***Figure 10***

***Land use surface area in the Haaglanden Region***

## 1.6 Intensifying socio-spatial segregation

**"Steeds meer Nederlanders betekent ook steeds meer segregatie."**

***"More and more Dutch also means more and more segregation"***

(Van Lieshout, 2018)

As the population count is increasing and diversity is intensifying, there is a natural increase in segregation. This is due to a natural tendency of clustering of similarity, as well as the impeded formation of social interconnections between seemingly different individuals. Paired with spatial inequality, segregation may pose a threat to society. Segregation is nothing new. It arose during the industrialisation of our cities in the 19th century. In those times, people shared the same nationality, and segregation happened through socioeconomic class. Social interconnections between the different classes were unlikely to form, as people did not share the same area of residence nor did they share the same third places. These processes impede upward mobility, thus making segregation a complex long-lasting phenomenon.

With the population mainly increasing through migration, an additional dimension of diversity is introduced, namely ethnic background. Haaglanden is considered a superdiverse region, with individuals of different backgrounds, socioeconomic classes, and educational levels residing rather close together. The four aforementioned trends have the added consequence of reinforcing socio-spatial segregation in the Haaglanden region.
Through selective mobility, individuals tend to cluster based on one or more of these variables. Wealthy individuals have the freedom to choose where they want to live, while the less wealthy live wherever they can. These places are often poverty-stricken. Segregation happens when the constant inflow and outflow of individuals in a neighbourhood happens selectively.

What adds to segregation are the individual path dependencies. People of similar educational backgrounds tend to share the same workplace, and like-minded people tend to share the same third place. This results in limited visibility to other individuals, leading to less interactions happening between inherently different individuals. This path dependency may happen at a young age. Through selective marriage patterns, children are, naturally, being brought to schools in accordance to their parents appeal. With a range of schools following different educational systems, parents get to choose this to their liking. This results in selective tie formations from an early age.
Together with the spatial condition of car dependency in many neighbourhoods, this results in little chance for interconnections to be formed between different individuals. The lack of social exposure between different groups can promote social fragmentation and polarisation (Morales et al., 2019). Therefore, segregation is observable on different scales.

The formation of selective ties seems to interact with spatial clustering. As superdiversity increases over time, so does segregation, creating a cycle that can be difficult to break. Therefore, it is important to spatially intervene to address the growing disparity between groups, particularly at a time when increasing superdiversity is reinforcing the divisions between classes and backgrounds. Not only as it brings many injustices towards the ones who are negatively impacted by the injustices by segregation, but also the the threat towards society as a whole, as it brings polarisation between groups.

In order to address segregation, it is important to enhance inclusivity in the urban fabric, starting with the Haaglanden Region, which is currently the most segregated area in the Netherlands.


***Figure 11***
***Haaglanden population distribution by income** (CBS, 2021)*

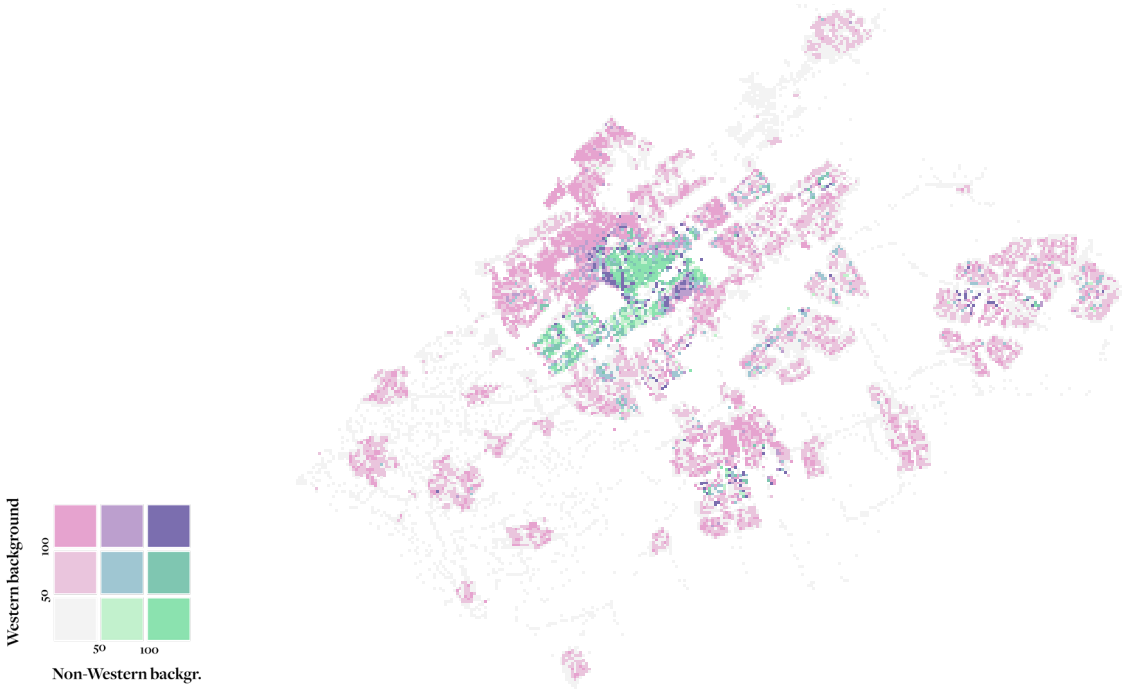



***Figure 12***
***Haaglanden population distribution by ethnic background** (CBS, 2021)*


***Figure 13***
***Economic class distribution The Hague** (CBS, z.d.)*

## 1.7 Societal relevance

To cope with an ageing population, and maintain our level of wealth in the Netherlands, we need to face the fact that our population will need to increase. Migration therefore is inevitable, making Dutch society ever more complex. In an equitable society, one's background should not be decisive for one's future. Yet, spatial injustices do the opposite. An increasingly diverse population is being drawn to the larger cities, and clustering in certain ways. Consequently, segregation is only strengthening over time, leading to increasing concentrations of wealth and poverty, and social tensions among different individuals and groups. It is important to address this problem in its spatial dimension, as these processes manifest spatially, making the solution inherently spatial. The built environment is not built for a superdiverse population. Hence, it is important to alter the built environment to afford the increase in superdiversity. This is necessary to reduce social conflicts and to ensure an inclusive society.

Especially in an era where populism flourishes, people are becoming more polarised, and anti-immigration attitudes and tensions are arising in urban spaces in the Netherlands, it is important to address these issues spatially with a neutral lens.
It is imperative to design and plan for an inclusive urban environment. An environment which is responsive to the variegated population growth, and where mutual understanding is spatially facilitated. In sum, it is important to enhance spatial inclusivity where this may be at stake.


*Figure 14*

## 1.8 Project aim

As space should be created to accommodate the projected population growth, it is ever more important to coincide these developments with socially sustainable practices. These practices aim to enhance inclusivity and cohesion among people of rather different classes and backgrounds. The physical space and its differentiated conditions are viewed as a means of bridging this gap towards this aim towards a desirable future, reflecting on the problems we face today.
People will more frequently be exposed to otherness in future Dutch cities. If we all live together in the future, it should be aimed at doing so in an inclusive and spatially just way.

***The aim is to enhance spatial inclusion and social cohesion by densifying the built environment for the increasingly superdiverse population in the Haaglanden region.***

# 2. Methodology



The methodology of this thesis project will be elaborated on, focussing on the problem, the research questions, the conceptual framework, and the methods to meet intended outcomes. In the end, the problem gets operationalised through the methodology, and the relevance towards science will be stated. The outcome of this chapter is a pattern language formation framework for which the design project is a testing ground.

The outcome products will be a pattern set consisting of design and planning oriented patterns, accompanied with a focus site design. A multiscalar process of design and research precedes the final outcome.

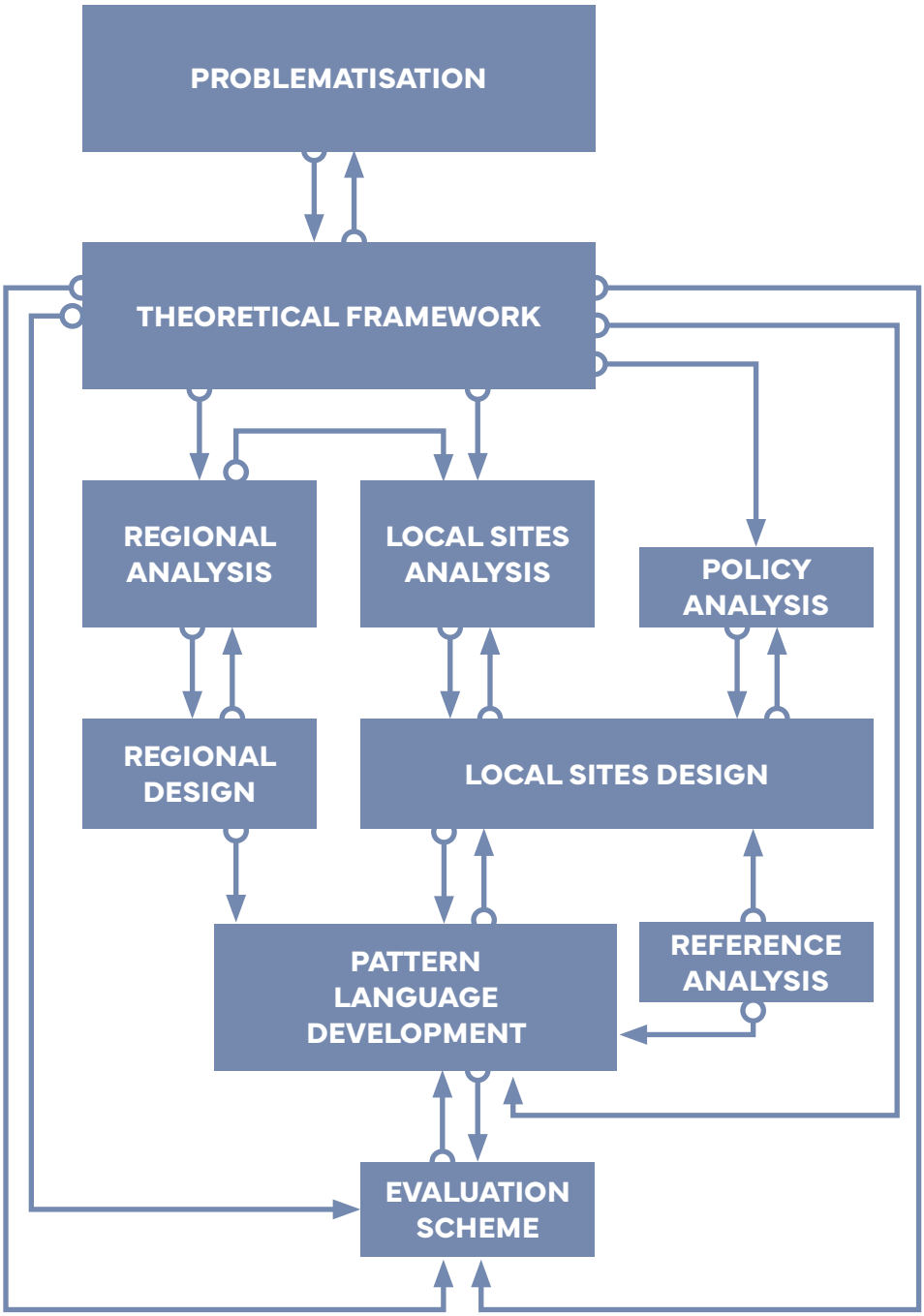



*Figure 15*
*Visualisation of the methodology*

## 2.1 Problem Statement

This study aims to establish a set of detailed densification and integration strategies, with the ultimate goal of creating a more inclusive city in a superdiverse environment. These techniques will comprise specific design principles, based on specific spatial conditions. Further, complementary planning interventions will be included to promote inclusion in a free-market society.

In an era where superdiversity in the Netherlands is at an all-time high, and will keep on increasing, segregation is becoming ever more prevalent. Unfortunately, segregation is often paired with unjustices, as it spatially consists of a side of privilege and a side of deprivation. A laissez-faire approach to these processes of increasing superdiversity and segregation is detrimental to society. It may be expressed through social conflict and incomprehension between people who have little in common. If people have a natural tendency to cluster to like-minded people, it may lead to concentrated poverty, and concentrated wealth, with little awareness between the sides. The in-between spaces are becoming smaller and more significant in the Haaglanden region. Therefore:

*The Netherlands faces the challenge of accommodating a superdiverse population of 20 million people by 2050 within limited space, necessitating strategies to prevent segregation and social tensions in urban areas.*

## 2.2 Research Questions

The main question is directly derived from the project's aim. This will be answered through a range of sub-questions, each contributing an incremental part to answering the main question. The sub-questions are tied to the case study area of Haaglanden. The main question is:

***How can the Haaglanden region be densified whilst enhancing inclusivity and cohesion in superdiverse urban contexts?***

1. How do the notions of superdiversity, density and inclusivity relate and spatially manifest in the region of Haaglanden?
2. How can morphological attributes contribute to inclusion?
3. What are current Dutch policies related to inclusion in an urban context?
4. What strategies create a more dense and inclusive urban environment in terms of urban form, function distribution, and social processes in Haaglanden, in accordance with space's social logic?
5. Which spatial design interventions enhance inclusivity and densify locally in the Haaglanden Region?
6. Which urban planning principles complement the spatial design interventions to preserve social sustainability in the Haaglanden Region?
7. How can the success of densification projects in achieving inclusion and cohesion be measured and evaluated over time?
8. To what extent are the interventions in Haaglanden transferable to other Dutch neighbourhoods?

## 2.3 Conceptual Framework

The conceptual framework represents the relationships between the key values and concepts that form the backbone of the project. It guides the project towards the research objective. The key concepts are listed per body below. These are summaries of the content of the theoretical framework.

### Just City

The concept of the just city goes into the principle of spatial justice. Hereby it embraces the notions of distributional justice and procedural justice in the urban realm. Through creating environments that prioritise the fair distribution and access to opportunities and public goods, as well as the fair provision of affordable housing to ensure a diverse social mix, and democracy in city planning, a place can become more just. Therefore, it the three main pillars in the just city are social **diversity**, **equity**, and democracy.

Besides being physically well-planned, urban policies also need to ensure that cities are ethically and socially just. In terms of social mixing, a just city opts for differentiated solidarity.

The Just City concept acts as main theory, together with the Open City. It directly relates to the concept of inclusivity through its spatial and non-spatial components. By fostering inclusivity, it directly aims at preventing negative social consequences resulted by population growth and increasing superdiversity.

### Open City

The open city enriches the experience, which embraces the notion of exteriority. It is about **visibility** of people and places, stimulating awareness and interactions. Hereby the Open City provides **diverse** urban conditions which are well **connected** through the network, which relates to a compact and just city. Individuals can take advantage of the unforeseen and unplanned opportunities that are much more likely to arise in these open city conditions compared to those of an inward-oriented, closed city. The outcome is a more intricate, compact, diverse and intriguing place. An open city can be viewed as a sociable one. The three main design configurations are:

1. Passage territories
2. Incomplete form
3. Nonlinear narratives

Like the Just City, the Open City acts as a main theory in this project. It is a spatial concept, which aims at reducing segregatory practices through increasing visibility and interaction among different communities. Therefore, it is potent in fostering spatial inclusivity.

### 15-minute City

The 15-minute city (15MC) is a concept about the distribution of public goods. The idea is that cities should be designed or redesigned so that people should be able to access basic needs within the distance of a 15-minute walk or bike ride. Hence the name. That means not only clustering amenities in the city centre but in the vicinity of every part of the city, to provide every neighbourhood with quick access. The key values of the 15-minute city are:

- **Diversity**
- **Compactness** (or proximity)
- **Density**

The 15MC is an instrumental theory as it guides towards a more just and open city, in a context of superdiversity and urban density.

## The social logic of space

The social logic of space is an inherent part of the guiding mechanisms towards interaction between different groups in a superdiverse urban context. This mechanism can be designed and analysed through static features of the built environment and will be a guiding element in the process aiming towards an inclusive and sociable city. The social logic of space can be viewed as the interface between the built environment and the social perception of, and interaction with the built and unbuilt. The Conzenian elements of streets, plots and buildings are hereby of importance and are intrinsically connected to **density**, **connectivity** and **diversity**, which together with their complementary urban design features make a place more **legible** according to social logic.

The social logic of space can be considered an instrumental theory, as it is a way of nudging individuals and groups of individuals to act in a certain way in accordance to the spatial configuration of built environment. Therefore, a more just and open city could be achieved through a psycho-morphological approach.

## Urban Density

As the scarcity of space is being addressed, there is a need to intensify the use of space. **Density** is therefore seen as a means of making the inevitable consumption of land more efficient. When strategically allocated, it can be seen as a quality of urban space, as it produces differentiated spatial conditions for urban life to take place. Therefore, it does matter how is being densified, as different spatial conditions have a different way of being perceived according to a social logic, as differentiation of built masses provide different modes of **legibility** and **diversity** in the streetscape.

Urban density is considered a contextual theory, as it involves understanding how density impacts various social processes. It can therefore be seen as the contextual counterpole of superdiversity.

## Superdiversity

Superdiversity is considered a contextual theory, as it theorises the spatial condition of social **diversity**. Superdiversity is a socio-spatial condition in which multivariable social characteristics co-exist. Simply put, superdiversity embraces the notion of many different people sharing the same area, and enhancing **visibility**. This condition can be afforded by proximate spatial differentiation, but cannot be guaranteed by proximate spatial differentiation. Important variables to address in measuring superdiversity are:

- Ethnic background;
- Socio-economic class and
- Education level.

It is considered contextual, which cannot be constructed or modified directly. However, through indirect measures in the physical environment, it can be guided towards a certain social outcome. A socially heterogeneous place is an **equitable** one, as it gives people the choice of belonging to that place. Besides spatial differentiation, it is hypothesized there is to some extent a social logic driving superdiversity.

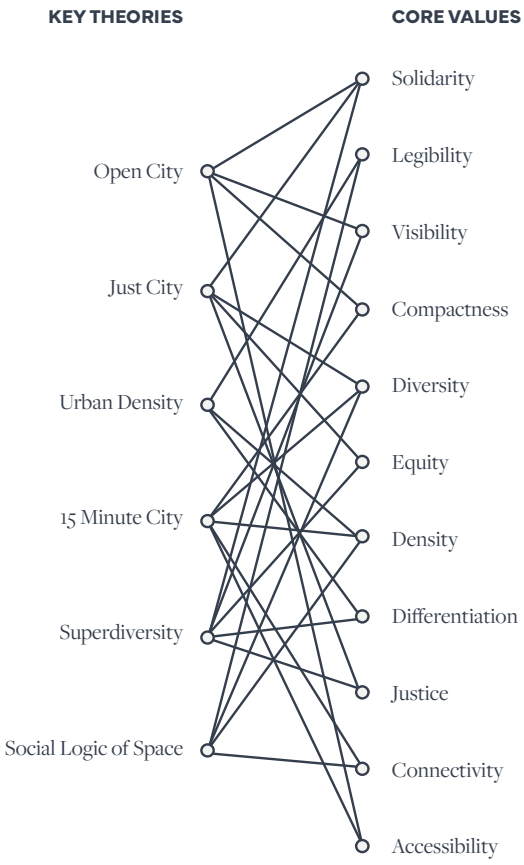



*Figure 16*
*Main values and characteristics per theories*

## Inclusivity

/ˌɪnkluːˈsɪvɪti/
in-kloo-SIV-uh-tee

The practice or policy of providing equal access to opportunities and resources for people who might otherwise be excluded or marginalized, such as those having physical or intellectual disabilities or belonging to other minority groups (Oxford English Dictionary, 2024).

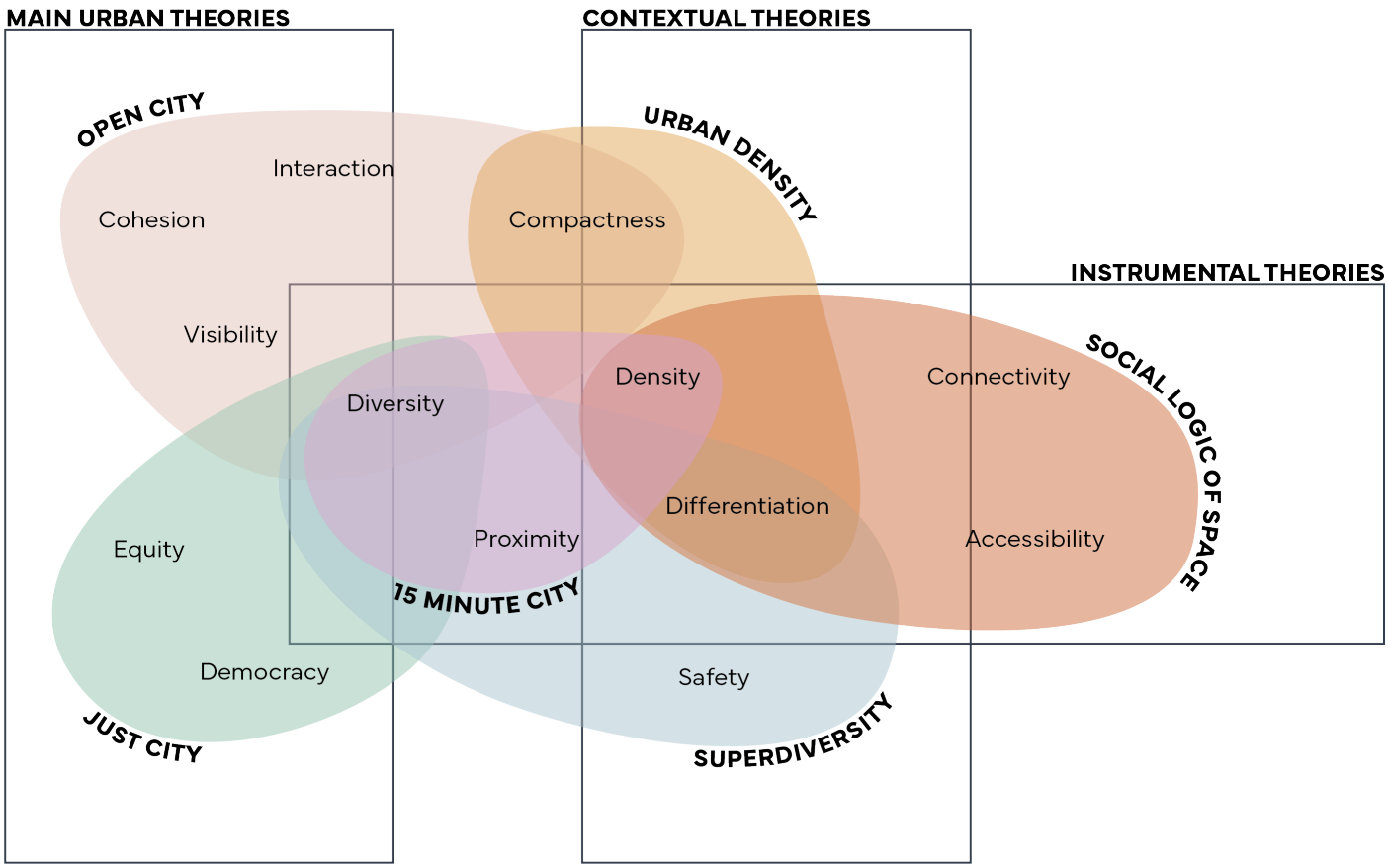



*Figure 17*
*Relational scheme between core values and theories*

Below, the conceptual framework is shown. It aims to foster inclusivity of the urban context through altering the built and social context. It does so by implementing the open city and just city concept, and guiding towards this through the 15-minute city and social logic of space.

The main design goal is to achieve an inclusive urban living environment, offering space to a superdiverse context. This goal is reflected in the conceptual framework. The design objectives below give insight into how this goals is intended to be reached:

1. Creating mixed spatial conditions;
2. Facilitating diversity of social layers;
3. Aligning space to its social logic;
4. Strategies for densification.

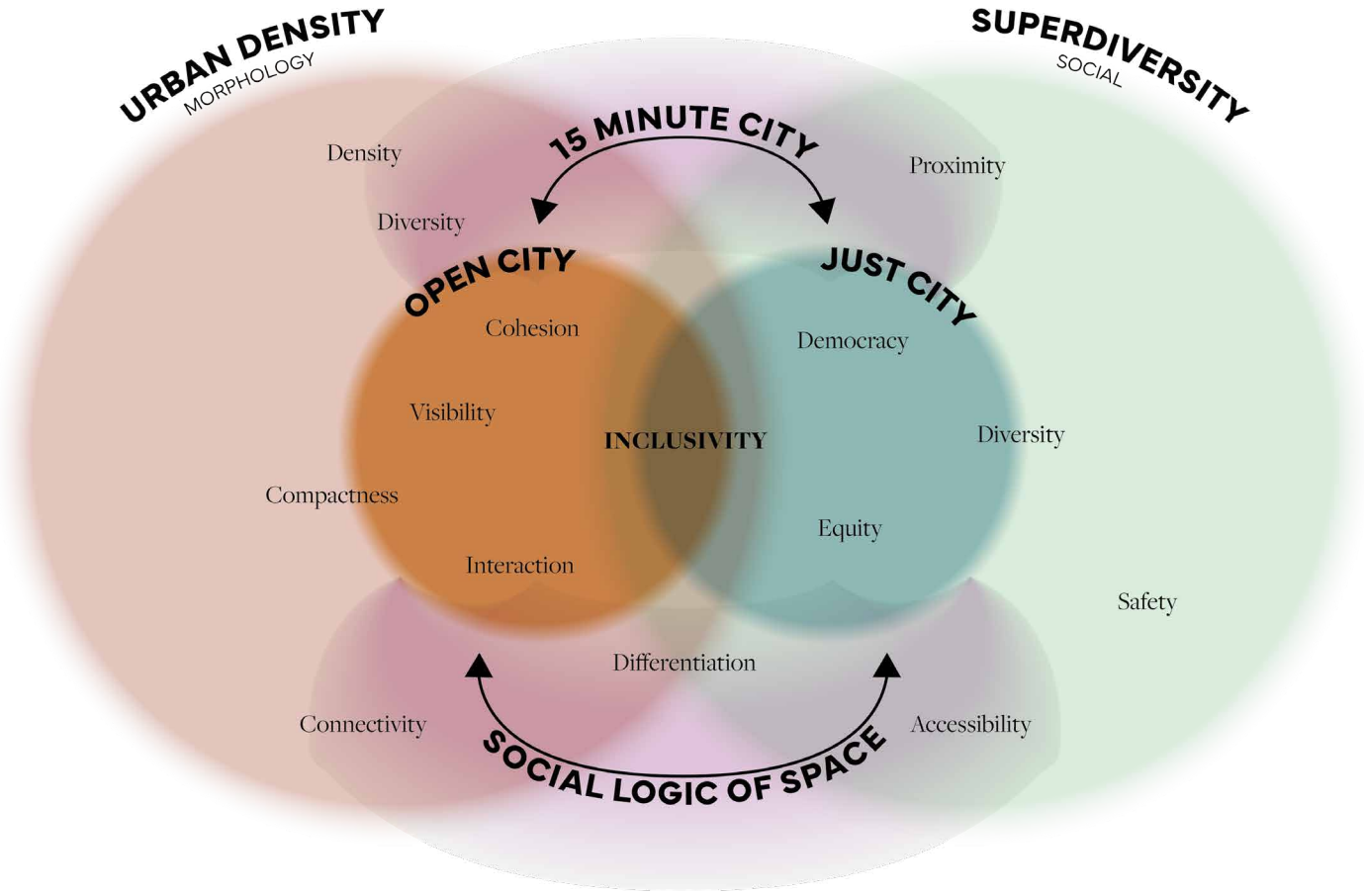



***Figure 18***
***Conceptual framework***

Following value scheme shows which characteristics are embedded from each of the theories. It shows that through enhancing these characteristics, which are spatially modifiable, different qualities can be enhanced, which in turn aim to achieve the objective of inclusive densification.

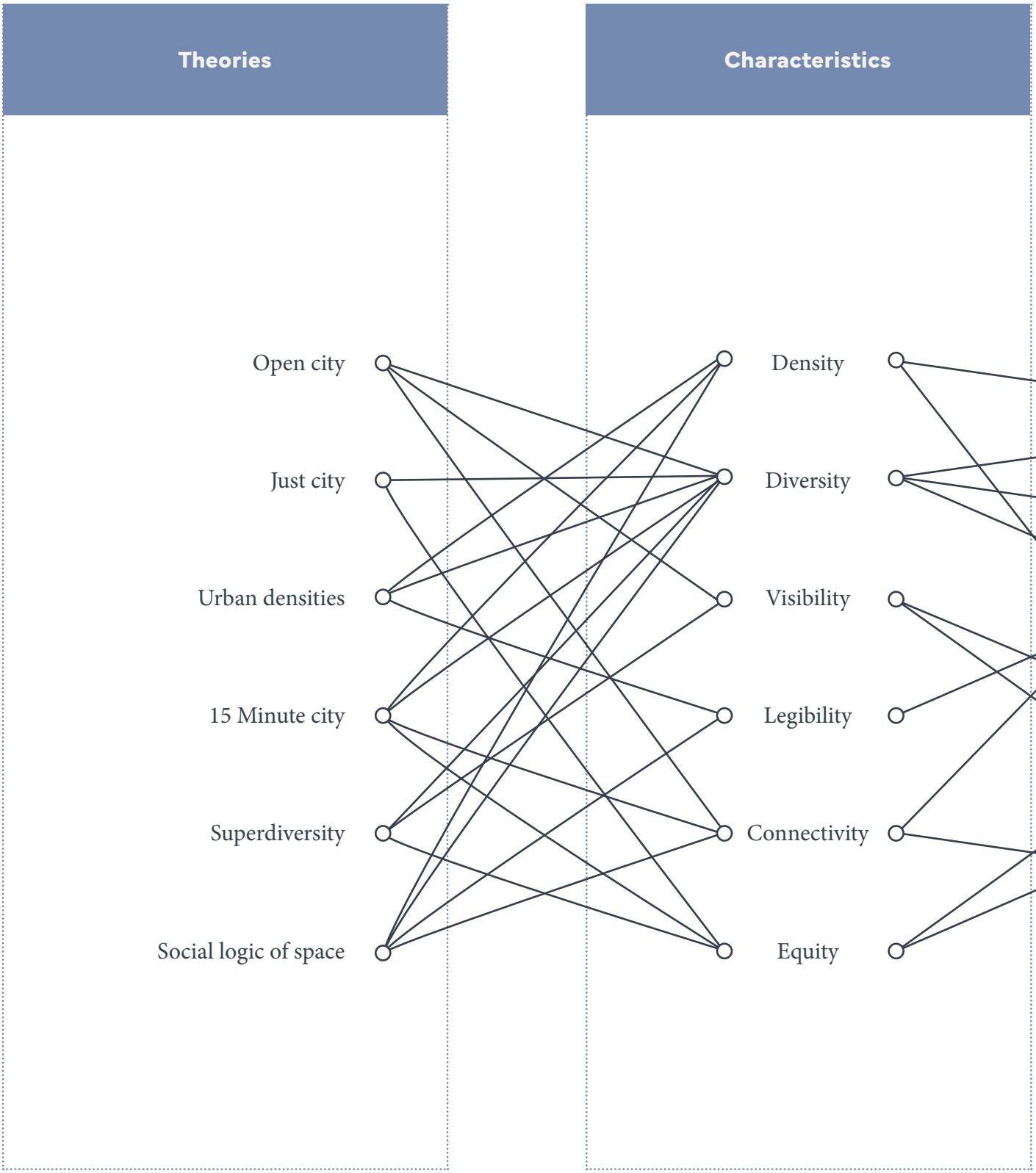
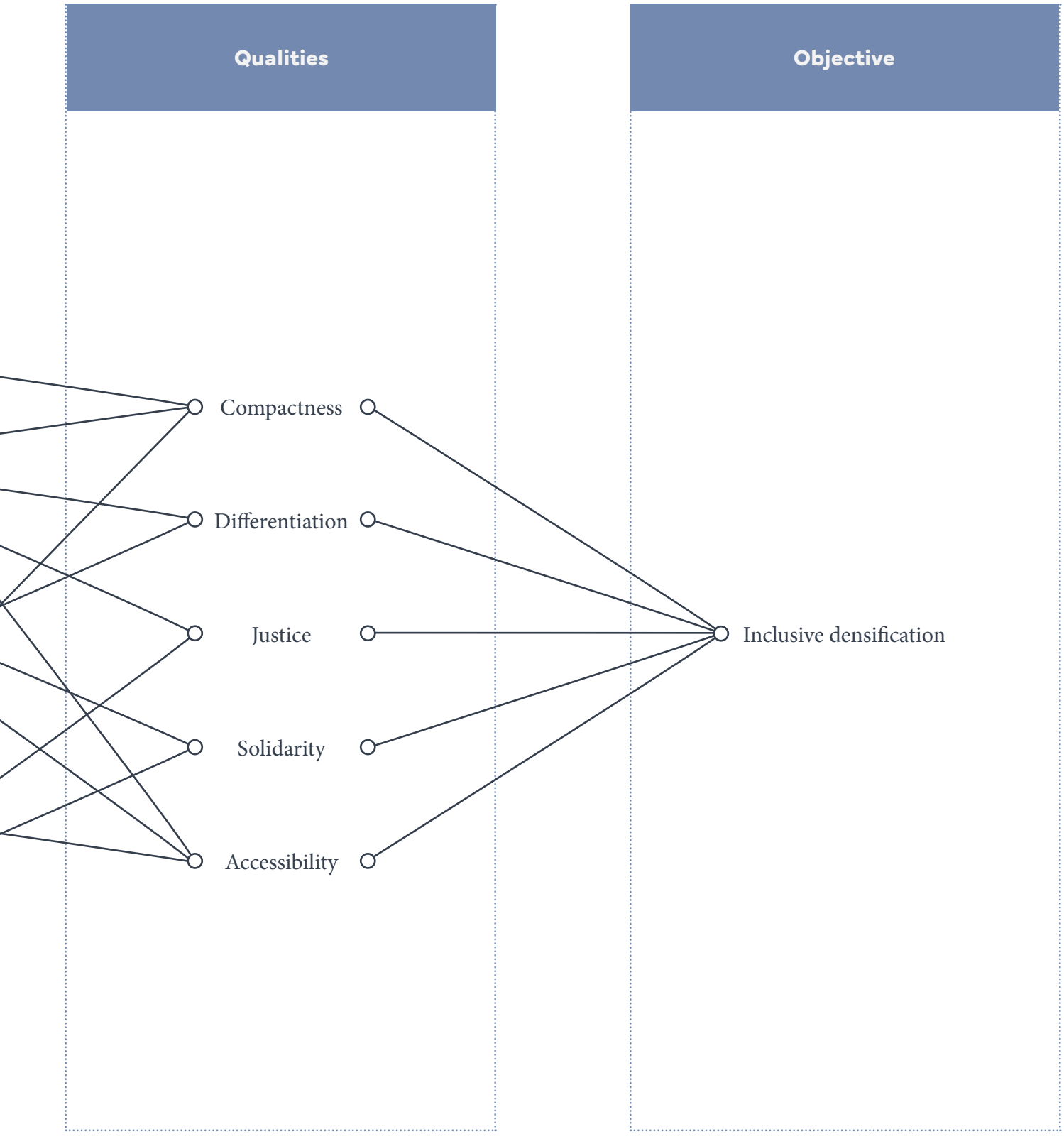



***Figure 19***

***Value scheme***


Qualities
Objective
Compactness
Differentiation
Justice
Solidarity
Accessibility
Inclusive densification

## 2.4 Research Framework

Research question

*How can the Haaglanden region be densified whilst enhancing integration and cohesion in superdiverse neighbourhoods?*

Sub-RQ's

1. How do the notions of superdiversity, density and inclusivity relate and spatially manifest in the region of Haaglanden?
2. How can morphological attributes contribute to inclusion?
3. What strategies create a more dense and inclusive urban environment in terms of urban form, function distribution, and social processes in Haaglanden, in accordance with space's social logic?
4. Which spatial design interventions enhance inclusivity and densify locally in the Haaglanden Region?
5. Which urban planning principles complement the spatial design interventions to preserve inclusivity in the Haaglanden Region?
6. How can the success of densification projects in achieving inclusion and cohesion be measured and evaluated over time?
7. To what extent are the interventions in Haaglanden transferable to other Dutch neighbourhoods?

| Methods | Outcomes |
| --- | --- |
| • Literature review<br>• Quantitative spatial analysis<br>• GIS mapping<br>• Observational studies | An understanding of the actual conditions in the region of Haaglanden set against the ideal from the theoretical frameworks as a base for design development. |
| • Literature review<br>• Quantitative spatial analysis<br>• Reference studies<br>• Observational studies | An understanding of the influence of morphological features on the extent of inclusion, both by an individual's cognitive perception as well as through empirical findings. |
| • Literature review<br>• Reference studies<br>• Quantitative spatial analysis<br>• Observation studies<br>• Interviews<br>• Research by design<br>• Pattern language development | A strategic framework consisting of a set of main design principles, combined with a plan of specific potentially transformable sites (local focus sites) in the Haaglanden region. |
| • Research by design<br>• Literature review<br>• Interviews<br>• Design experimenting<br>• Pattern language development | An empirically based pattern language consisting of several pattern sets of design interventions. These are implemented as spatial design in a single focus site, the Haaglanden region. |
| • Literature review<br>• Pattern language development | A policy set which complements the spatial design patterns, formulated as a set of patterns, implemented in the Haaglanden region. |
| • Literature review<br>• Policy review<br>• Metric analysis | An evaluation scheme in which the key values have been quantified using proxies in order to assess each of the design principles. |
| • Cluster analysis<br>• Transferability analysis | A generalised set of patterns, which are applicable in a generalised set of urban milieus in the Netherlands. |

Thesis outcome

***The intended outcome of the project is an analytic exploration in the region of Haaglanden on superdiversity while enhancing inclusivity and increasing density.***

## 2.5 Research methods

This paragraph elaborates on the different methods that will be undertaken for the answering of the multiple sub-research questions. This includes how these methods will be carried out, for what purpose, and what the intended outcomes are. For all research questions, at least two different methods will be applied. This is for triangulation purposes, as this strengthens the validity of the outcomes.

| | |
|---|---|
| **Literature review** | The literature review is a descriptive analysis which aims to provide a scientific context which can be built upon and integrated into the project. It helps assist every phase of the project, by backing up certain statements with science. Referencing will be done according to the 7th edition of the APA style guide and all references will be listed in the bibliography. |
| **Quantitative spatial analysis** | A quantitative spatial analysis involves the use of multivariate statistical methods to represent a spatial context based on social or physical characteristics. Its main purpose is to identify correlations between social characteristics and characteristics of the built environment, as well as how they are related. Patterns can be derived from the Haaglanden region, which may contribute to a better understanding of the social logic of space. The findings can be visualised through various graphs and plots and interpreted to contribute to the narrative. |
| **GIS mapping** | GIS mapping is a technique that can be used to measure and describe the spread, concentration, or dispersion of a certain entity. It is similar to quantitative spatial analysis, but it adds a spatial dimension to the results, by projecting the data onto a map for visualisation purposes. Additionally, GIS mapping can provide context and clarify existing information.<br>The GIS mapping will be utilised to highlight the relation between the notions of superdiversity, inclusivity and density in the region of Haaglanden. It aims to show deprivation in some areas, and affluence and abundance of services in other areas. |
| **Observation studies** | The observational study entails being immersed in the context and making use of senses to gain a clearer understanding of the conditions at the street level. The study can be conducted from either a passive or actively engaged position, to obtain a comprehensive view of the area's overall atmosphere, appearance and life taking place.<br>The observations will take place in Mariahoeve, which is based on social and spatial characteristics. The observation paths will be tracked using the mobile application *Strava*. Depending on the findings, different visualisation methods are consulted (using maps or graphs). |
| **Policy review** | A policy review is a methodical approach used to gather and assess existing policies or interventions within a specific domain. The purpose of this process is to comprehend the effectiveness, implications and gaps in current policies and proposed design interventions. This method will be applied to identify existing enforced policies related to inclusion in urban space. |
| **Reference study** | A reference study is an empirical enquiry. As designing is a research process, referencing can help through the process. References can be insightful, showing what can be learnt from them and possibly applied within the case of Haaglanden. The reference study aims to understand the potential for the Haaglanden area, through comparison and inspiration from other areas. The references serve as inspiration for the design proposals regarding inclusive densification. |

| | |
|---|---|
| **Cluster analysis** | The cluster analysis aims to generalise spatial characteristics for which design solutions have been brought up. It aims to identify the kind of urban milieus which are present in the region of Haaglanden, through differentiated spatial configuration. |
| **Interviews** | Interviews will be conducted with locals to gain an insider's perspective of the area. This takes place in the public realm within the case area. To maximize the benefits of this method, it is good to visit a local neighbourhood centre and become familiar with the visitors. This approach introduces a participatory element in the project, which adds value towards inclusivity to the project. |
| **Research by design** | "Research by design is a type of academic investigation through which design is explored as a method of inquiry" (Roggema, 2016). It is a context-sensitive way of research, in which design solutions are implicitly compared. It offers the opportunity to quickly explore different integral design solutions. That is needed, as the design of spaces often deals with wicked problems. This is "a social or cultural problem that is difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems" (Kolko, 2012). Research by design efficiently lays grip on this complexity, through an iterative and reflexive design process, fostering values and interests (Roggema, 2016).<br>The method will be used for the creation of a strategic framework to enhance inclusivity paired with high-densities in terms of form, function distribution and social processes in the Haaglanden region. |
| **Pattern language development** | Pattern language can be considered a communication, design and analysis tool for any urbanist project. A pattern set consists of multiple space-related and context-sensitive actions (Hausleitner, 2023). It comes in handy in bridging gaps with many different stakeholders, as it is a simple way of communicating rather complex ideas.<br>I followed the pattern language intensive, in which I focussed on the topic of 'Designing for Social Diversity'. This existing pattern set will be further worked upon through a mutualistic process in line with the method of research by design, design experimentation, as well as literature reviews, reference studies and solution-oriented interviews with stakeholders touching on the topics.<br>A finalised pattern set is the conclusion of the thesis project, together with a finalised design for a potential area in the Haaglanden region. |
| **Design experimenting** | Design experimentation is a method to explore innovative ideas, test hypotheses, and generate new solutions for urban challenges. It involves a process of iterative testing, learning, and refining design concepts to achieve desired outcomes.<br>This method will be used for the local in-depth focus site. Hereby, sketches will be made as overlay on an isometric view of the site, and satellite imagery. This experimentation aims to introduce design solutions which take into account the theoretical principles of a just city, an open city, a 15-minute city, built density and space's social logic, together with input from stakeholders. |
| **Metric analysis** | The metric analysis aims to make measurable the different values which are embedded in the main theories. Metrics will be developed to evaluate the success of the strategies and individual patterns in terms of fostering inclusivity and cohesion. Over time, the design and planning proposals could be re-evaluated, as conditions may change. |
| **Transferability analysis** | The transferability analysis is an additional analysis which follows the cluster analysis. The aim is to evaluate the transferability aspect of the individual design and planning interventions elsewhere in the Netherlands. It is considered to be an additional element to the pattern set that has been created and will be implemented therein. |

## 2.6 Assessing mix and density

### Measuring superdiversity and segregation

Segregation can be measured through many different ways, measuring different variables, using a variety of methods. When people think of segregation, often comes to mind a separation of ethnic background, or socio-economic class, or a hybrid between both. Segregation is however tied to (super)diversity, which can be expressed through an infinite number of variables, ranging from highly dominating in society – as the above mentioned – to insignificant ones, like dominant hand categorization.

Segregation is influenced by how it is measured. It is decisive where area boundaries are drawn and the sizes of the areas. This also constitutes the modifiable area unit problem (MAUP), which is an issue capable of distorting the aggregate data by difference in scale and zoning area (Wong, 1997). The method of measuring different groups or classes can also have an impact. Different divisions of a discrete system can reflect varying patterns of segregation, e.g. the divide between low and medium income households. To investigate segregation, it is important to define a logical class and area division.

Spatial clustering of segregation can be statistically quantified. As segregation is the clustering of inherently different homogeneous areas, it is these areas which need to be expressed numerically in order to measure segregation. There are different methods to calculate the distribution of homogeneity. In terms of residential segregation, it is the level of distribution and exposure which determine the extents of the segregation (Reardon & O'Sullivan, 2004)(Massey & Denton, 1988). Research by Massey & Denton shows there are five forms of measureing segregation, which are:

- evenness;
- exposure (or isolation);
- concentration;
- centralisation;
- clustering.

Evenness refers to the differentiation in distribution of two or more social groups among a demarcated area. A high evenness shows an equal distribution pattern of two social groups among the area of measurement, despite the level of dominance of the majority group. This is often measured through the dissimilarity index.

The Theil's entropy index also measures evenness, but only within the demarcated area. As entropy is inherently a scientific concept, it has been borrowed for the field of sociology to show the evenness of different groups. A high entropy is when all categories share an equal distribution. For example, if there are 4 groups, all equally present with a 25% occupance rate, the entropy index is highest.

The isolation index measures exposure or isolation, indicating the extent to which a subordinate group is spatially in contact with one another.

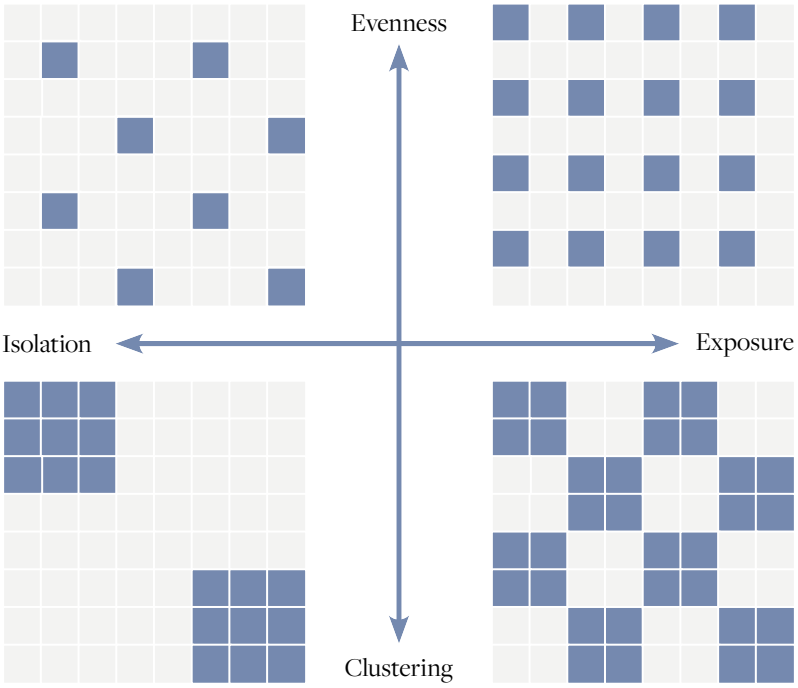



***Figure 20***

***The different forms of segregation (Massey & Denton, 1988)(adapted)***

## Measuring urban densities

Urban densities come in many different forms, each bringing different spatial qualities to the built environment. Density is a measure showing the concentration or compactness of a certain element or multiple elements in a delimited space. Density can be expressed through a variety of measures. For the spatial configuration it can be:

- FSI (floor space index)
- GSI (ground space index)
- OSR (open space ratio)
- L (number of floors or layers per building)

For the density types to be identified, a diagrammatic representation of the above density types has been developed, for which different density clusters can be spatially identified. This diagram goes under the name of the spacemate and serves as input for understanding the spatial characteristics of the built environment, for which non-spatial characteristics can be speculated (Berghauser Pont & Haupt, 2023; p. 99).

## Measuring network density

In addition to built densities, a city's urban fabric also includes its network of paths, roads, and streets, which facilitate the movement of people and goods. The layout of this network has a significant impact on how people perceive and use the spatial environment, whether they are pedestrians, cyclists, or car drivers. The network layout has a nudging quality towards its users, as it shapes certain behaviours related to the social logic of space. The network can be quantified using the measure of network density.

The network density (N) is defined as the length of the network per square metre of base land area ($m/m^2$). The length is calculated by adding the length of the whole internal network to half of the length of the outer network, which is the fabric's demarcation. The outcome is expressed in metres of network per square metre of fabric area (Berghauser Pont & Haupt, 2023; p. 96).

The network density can be used to indicate the fabric's grain size. A high network density indicates there's a high amount of small-grained plots, whereas a low network density indicates there are large-grained plots in the fabric. It also indicates the connectivity, as this describes the degree of relatedness between network geometry. This relates to the network density, as well as the reach, which "measures the total street length covered by all paths extending out from that point that are [cis] no longer than a given threshold value" (Peponis et al., 2008).

## Measuring specific density

Urban densities of specific entities can be measured based on the frequency of occurrence. This shows the distribution in terms of concentration. For the distribution of a singular entity across a restricted area, it can be any entity per area, for example:

- inhabitants per hectare (100m x 100m)
- dwellings per neighbourhood

The latter of these is rather ambiguous, as neighbourhoods differ in size. For comparability reasons, the square statistics will be widely used since it allows for equal differentiations to be made. The aim of highlighting the densities of certain entities is to show where abundances or shortcomings are present in the urban fabrics. This may influence people's experience related to urban living, for which privilege or disadvantage can be appointed. More on this in the following sub-chapter on measuring inclusivity.

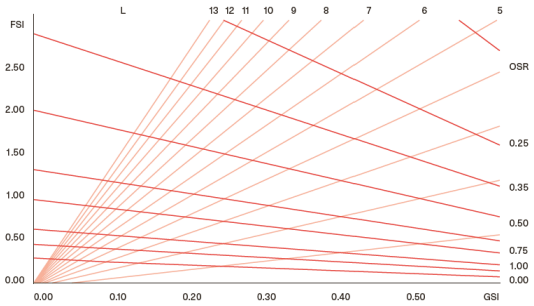



***Figure 21***
*Spacemate diagram showing FSI, GSI, OSR and L (Berghauser Pont & Haupt, 2023)*

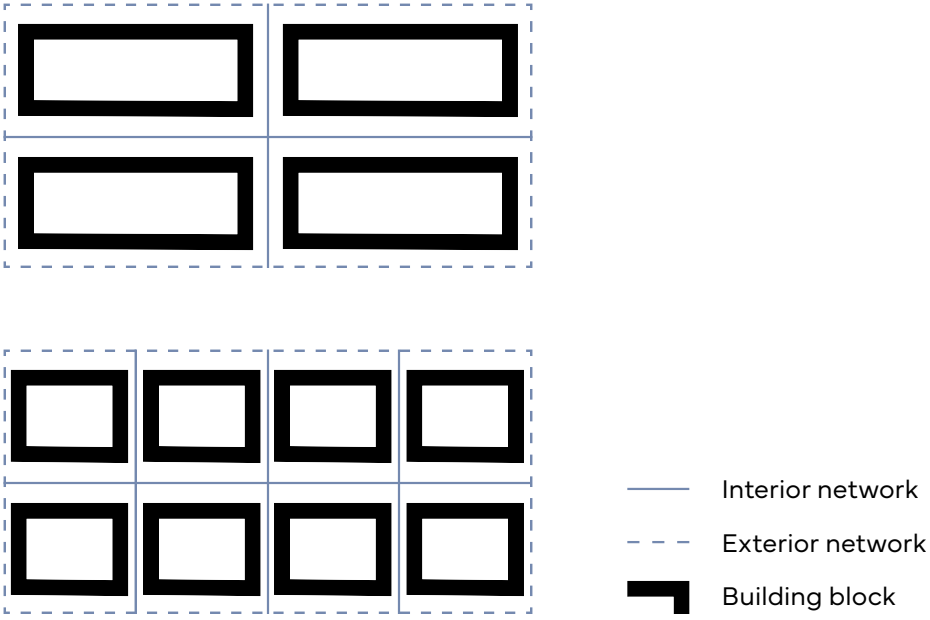



***Figure 22***
*Network densities, of which the latter has a higher network density as opposed to the first*

## Measuring distributional justice

This paragraph will dive into the distributional justice aspect by quantifying the performance of the 15MC theory in different urban contexts. There are many different methods for measuring this performance, which can range from abstract to spatially concrete. This depends on the level of detail for which the analysis is conducted. Undoubtedly, the origin and destination of every trip are pivotal in the analysis. As trip origins, places of residence are used. As trip destinations, public goods in the form of amenities and basic services are used. Hereby it is the predicament to include all goods that cater for all societal layers to attain true distributional justice. Figure 21 shows the specific services that are included as daily and non-daily needs. This list is based on prior research on the subject, with an added criticality on inclusivity according to the Just City.

It is important to note that services classified as non-daily needs are nevertheless essential for the proper functioning of the city and the wider metropolitan region. People's consumption patterns often require some basic services on a daily basis, while non-daily services are necessary on a less frequent basis. To ensure proper functioning of the city and its neighbourhoods, there should be a well-distributed provision of these secondary services to meet the specific needs of each individual. This not only has economic benefits but also adds vibrancy to the streets. For the spatial analysis on distributional justice, the main service categories will be investigated on the basis of the primary needs. Overall service allocation, through offering space is there to cater all the services that need to be provided to cater all needs.

There are different approaches to distributional justice with its corresponding service allocation. The two main approaches that are taken into account in this project are:

- Egalitarianism, which aims at providing equal access to every individual, leaving no one behind.
- Utilitarianism, which aims at providing the greatest access to the greatest number of individuals. Despite good intentions, it does leave out a minor part of individuals.

## Measuring origin-based distances

For distance analysis, only road distance paired with travel time will be used. Euclidean distances are not appropriate for network analysis due to the distortion to time caused by road connectivity. Road distances related to travel time will be displayed using isochronic maps for two active modes of transport:

- Walking, with a speed of 4,0 km/h
- Cycling, with a speed of 14 km/h

The speeds are based on research conducted on elderly individuals (Hosford et al., 2022). This will be conducted for a time-frame of 15 minutes.

| | Daily services<br>Primary needs | Non-daily services<br>Secondary needs |
|---|---|---|
| **S1: Educational services** | **Childcare services / Kindergarten**<br>**Primary schools**<br>**Secondary schools** | **University**<br>**College**<br>**Language schools**<br>**Music Schools** |
| **S2: Food / Grocery stores** | **Supermarkets / Grocery stores / Market** | |
| **S3: Health and care facilities** | Pharmacy<br>Dentist<br>GP<br>Physiotherapist | Hospital<br>Clinic<br>Chiropractor<br>Natal care / Obstetrician<br>Orthodontist<br>Therapist |
| **S4: Civic institutions** | Public administration / governmental facility<br>Recycling / waste disposal | Post office |
| **S5: Retail** | Clothes<br>Electronic | **All shops** |
| **S6: Restaurants** | **Restaurants** | **Cafés**<br>**Bars** |
| **S7: Cultural facilities** | **Library**<br>**Cultural center / Community center** | **Museum**<br>**Theatre**<br>**Conference centre**<br>**Arts centre** |
| **S8: Places of Worhsip** | **Place of Worship** (**church / Mosque / Synagogue / Temple**) | |
| **S9: Economic facilities** | Bank<br>ATM | |
| **S10: Recreational facilities** | **Sports facility**<br>**Park**<br>**Green area**<br>**Playground** | **Nightclub**<br>**Cinema**<br>Brothel |
| **S11: Transport** | Bus stop / Tram stop / Train station / Metro stop | |
| | The services highlighted with a **thick** font positively impact social visibility and interaction | |

***Figure 23***

***Different services differentiated through daily and non-daily needs.***

## 2.7 Evaluation scheme

This paragraph is devoted to an evaluation scheme for which a pattern, an individual design proposal, can be evaluated on the different criteria which are valued to achieve the aim of inclusive densification. This scheme is based on the allowing of affordances by certain design interventions, rather than relying on immediate causality. Affordances here refer to the potential opportunities or capabilities that the design intervention enables towards the different characteristics. For the evaluation scheme, the following main criteria are valued as key qualities for achieving inclusivity:

1. Equity,
2. Differentiation (the degree of diversity),
3. Access,
4. Solidarity,
5. Justice

For these to be achieved, the following instruments will be implemented for inclusive densification. These instruments are measurable and can be used in certain ways to achieve the aim.

- Density,
- Legibility,
- Connectivity,
- Visibility,
- Diversity, and
- Equity.

Each of the patterns (design interventions) will be evaluated against the defined affordances, considering the extent to which it enables the concerning affordance. As some of the measures are not objective, a scale will be used to indicate the level of affordance provided by each pattern. The impact of the measure embedded in every pattern will be shown with this. The aggregated score of an individual pattern on every key value will be shown in an evaluation chart. A design intervention will hold a full-fledged evaluation scheme. This can also be applied to an existing site. This makes it easy for comparisons to be made between an existing scenario, as well as a hypothetical scenario in which the design interventions are implemented.

An important factor in social cohesion is the interaction between different people which takes place in the public realm. For this interaction to initiate, the conditions for visibility and diversity should be set.

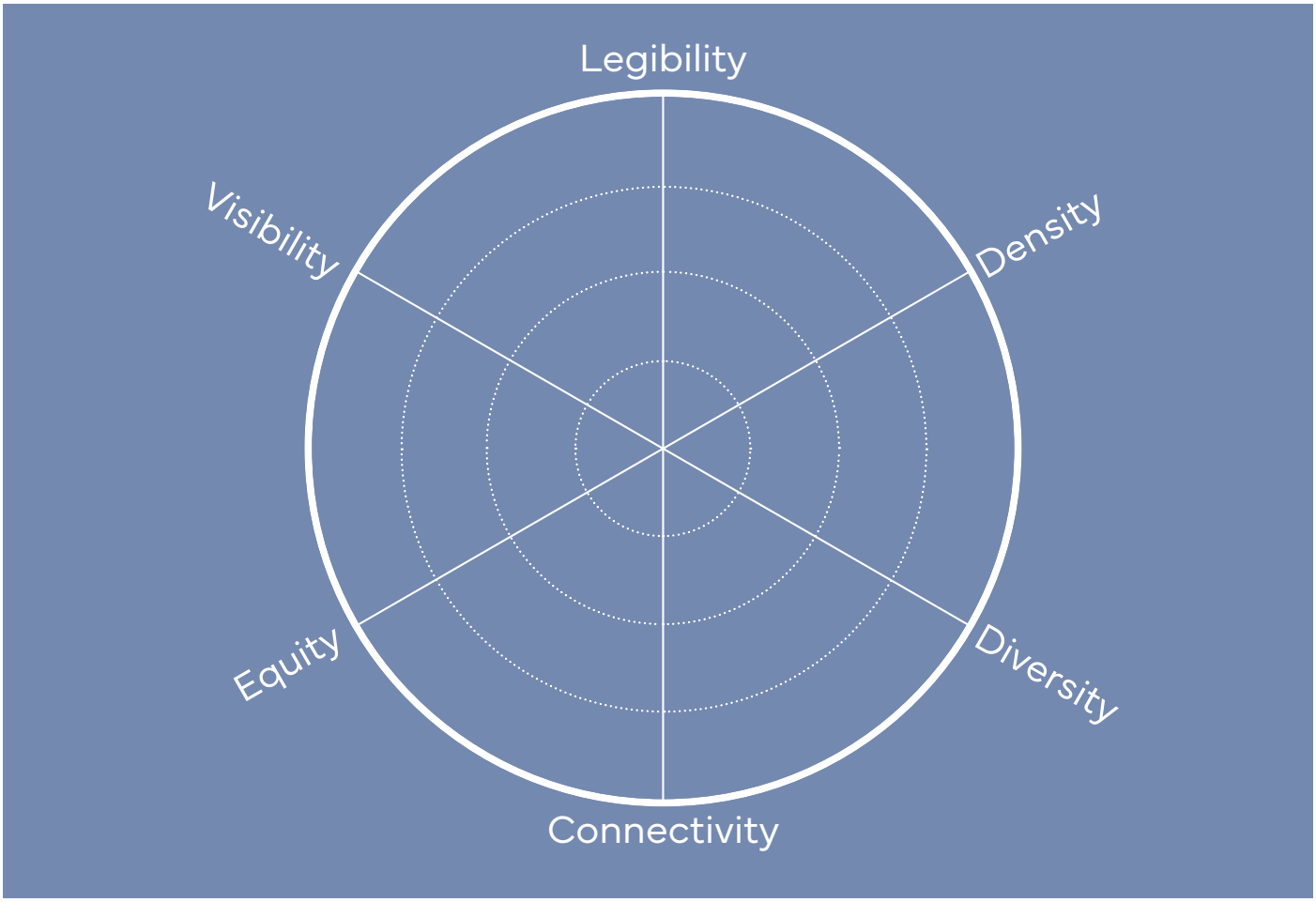



***Figure 24***
***Evaluation scheme***

## 2.8 Scientific relevance

The project can be considered relevant towards the scientific community as it acquires new knowledge through design research in the case study area of the Haaglanden region. Existing notions in the fields of sociology and politics and – naturally – urbanism will be combined and implemented in this region. With a multitude of perspectives, it has the potential to solve a multitude of problems which are arising in Western societies, and particularly in the Netherlands. The research will seek to establish new links between the physical and social environment, to grasp a better understanding of the facilitating and shaping role that physical spaces can have on society. The case of Haaglanden, through the case study area of Mariahoeve, with its existing problems has the potential to provide new insights which constribute to science. These insights are related to strategic densification, inclusion and policy development.

### Urban design

The project provides insights into how urban areas can adapt to accommodate a growing and diverse population in limited space while maintaining cohesion. This could have potence for future urban design and planning strategies. With the concluding pattern language set, the scientifically elaborated design principles could be transferred to areas which are potent for densification in an inclusive way.

### Social inclusion

Studying the effects of increasing superdiversity can be essential for understanding how a population evolves in response to migration-driven population growth. In order to design and plan a spatially equitable and inclusive city, it is important to understand current theories and apply them to the specific case of the Haaglanden region, where segregation persists. Through design research, certain design outcomes can be innovatively constructed.

### Policy development

The resulting patterns can inform policymaking at various levels, which is important for managing and supporting the design interventions. The policies are science-based and can be considered self-standing policies, as well as complementary to design interventions. Through research by design, the aim is to come up with innovative policies fostering inclusivity, and tackling urban unjustices like segregation.

## 2.9 Project timeline

The project timeline gives an indication of the products as juxtaposed on a time axis. In essence, it offers a representation of the process.

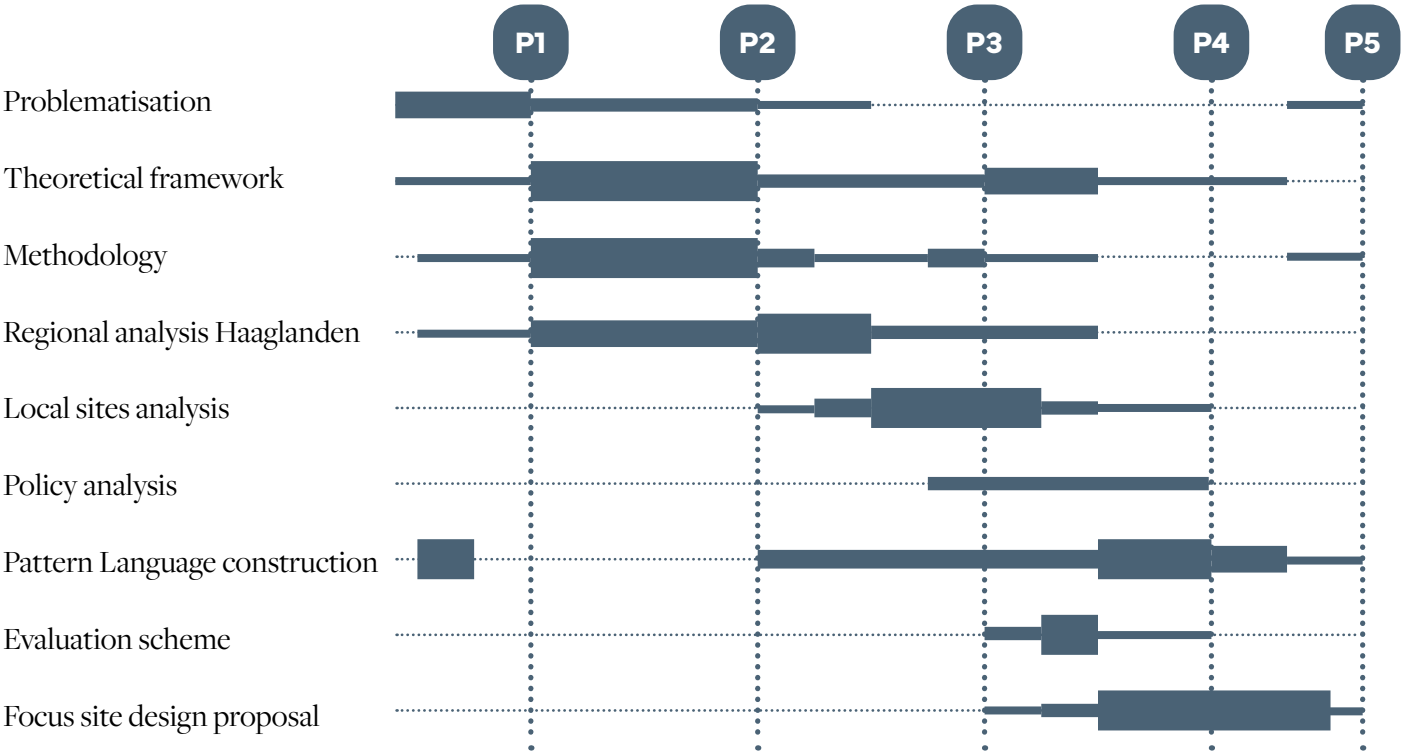



***Figure 25***
***Project timeline***

# 3. Exploring theoretical perspectives on inclusivity

1. Theoretical framework
2. Just city
3. Open city
4. 15 minute city
5. Social logic of space
6. Built density
7. Superdiversity
8. Main theoretical conclusions

This chapter introduces the key values and concepts that are juxtaposed with the risks posed by an increase of superdiversity and increasing segregation while dealing with space scarcity.
The theories have been carefully selected in order to position the thesis within a larger body of academic literature in relation to the problem. The literature reviews that form the theoretical framework provide a stepping stone to the methodology.

## 3.1 Theoretical Framework

With this chapter, the heading "more people means more segregation" can be explained through theory, as well as how to deal with this in an inclusive way. More people refers to a significant increase in population due to migration. These migrants come with different motives, and together in an existing urban context form a superdiverse social environment. The built environment has not been thoroughly thought of as a mechanism for healthy superdiversity, as spatial clusters hold an inherent trait of separating otherness and do not invite inter-ethnic and inter-class interactions for an inclusive society. It reinforces a social dichotomy in the Netherlands. In a time where superdiversity is at an all-time high, and will continue to do so by reaching unprecedented levels of diversity, design for diversity is vital. This thesis will do just that.

As inclusivity is viewed as the solution to segregation and the posed inequalities and inequities involved, the following theories are considered potent in fostering this core quality. Therefore, six inherently different theories have been researched. These are:

- Main urban theories: The Just City and the Open City;
- Instrumental theories: 15 Minute City and Social Logic of Space;
- Contextual theories: Superdiversity and Urban Density.

These are shown in the following diagram. In the following paragraphs, these theories will be elaborated upon, as well as backed up by literature. Through implementing the take-aways from the different theories, densification can be guided in an inclusive way within a socially superdiverse context.

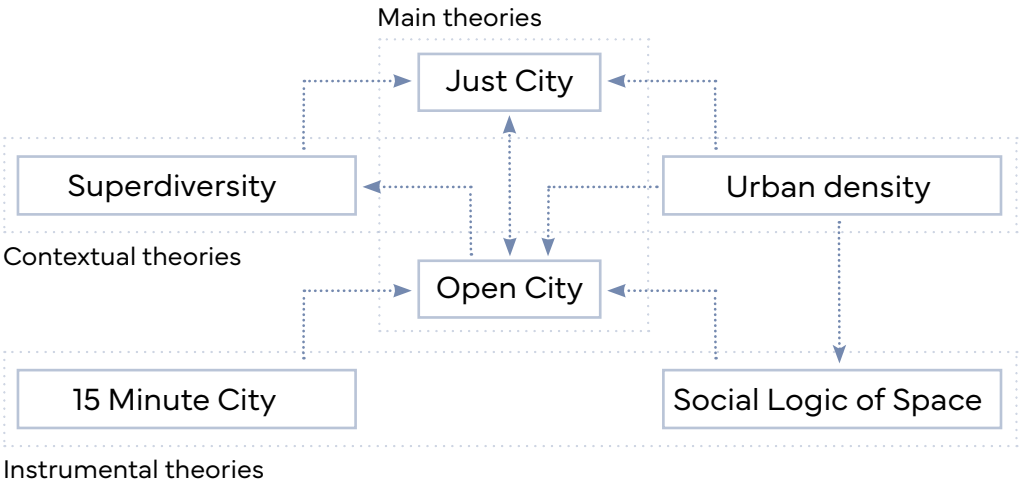



***Figure 26***
***Diagram on the positioning of the theories***

## 3.2 Just city

The concept of the Just City is an ambiguous one, which has many people to be credited as formal authors. Edward Soja is an urbanist who can be credited as the author of the concept of spatial justice. Susan Fainstein is an urban planner who can be credited as the author of The Just City. Iris Marion Young was a political philosopher and sociologist who can be credited as the author of the concept of spatial inclusion and democracy.

A just city is an inclusive city. This concept embraces the providence of choice and opportunity for all. This requires differentiated spatial conditions for differentiated solidarity. People get the choice of participating in a kind of solidarity whatever that may mean for them. Spatial justice is heavily intertwined with many contextual factors as the governmental system, economic system, and the distribution of power. The just city embraces the notion of spatial justice as a key value, and has two dimensions:

1. Distributional justice;
2. Procedural justice.

Distributional justice focuses on the spatial dimension of distributing benefits and burdens, in which fair allocation and access to public goods are imperative. The way this distribution is negotiated, planned, designed, and controlled through transparent and participatory decision-making makes it either just or unjust (Rocco et al, 2021). According to Susan Fainstein, justice in an urban context consists of three core values: equity, democracy, and diversity. These should influence visibility among different social layers, as well as public decisions. Rather than fully develop a theory of what a good city beholds to be imposed, it is important to allow for bottom-up initiatives and recognition (Fainstein, 2010; p5). The following sub-chapters will elaborate on these three values in more detail.

As a democratic country, the Netherlands prioritises inclusivity through policy. Article 1 of the Constitution of the Netherlands reads as follows:

*"All who are in the Netherlands shall be treated equally in equal cases. Discrimination because of religion, belief, political affiliation, race, gender, disability, sexual orientation or on any other ground is not permitted".*

It is important to spatialise this policy in the process of densification. Especially with the trends of increasing social diversity and population growth mostly manifesting in cities. Spatial justice should therefore be considered in the densification process of Dutch cities.

## Social diversity

Diversity is based on the inherent characteristics of individuals, like gender, ethnicity or homelessness. Dealing with diversity from a justice perspective is about providing choices to the many inherently different individuals in a fair way. This means mitigating practices of segregation or any kind of exclusion but rather fostering a natural diversity based on the needs of the individual. This goes into the neighbourhoods and residential clustering, about who gets to belong to a place, and vice versa. This paragraph goes into the natural tendency of residential diversity, and how this manifests spatially, before theorising how diversity can be dealt with in a just way.

Clustering or concentration of groups happens through time, when a certain class or race becomes the majority in a demarcated area, and the dominance of this group intensifies. This happens either by the outflow of the subordinate groups, by the increasing inflow of the dominant group, or by a combination of both. This selective inflow and outflow is what is called selective mobility, and it is the combined outcome of processes of relatability, market functioning and spatial configurations over time (Boschman et al., 2016)(Van Ham et al., 2018) (Hillier and Vaughan, 2007). Selective mobility is an important driver in the dynamic nature of social diversity. This notion will be further elaborated upon in the appendix.

Rather than being a neutral phenomenon, social clustering may prove detrimental towards social sustainability and society as a whole. The separation of different groups may evoke fear between these groups living separate lives. Especially cities with many spatial boundaries may strengthen clustering between groups. Supposing extreme forms of separation may even lead to social conflict and riots (Van Ham et al., 2016). Therefore, the degree of social mix in a superdiverse context matters. The contextual theory of superdiversity theorises the degree of social mix, which is important in enhancing inclusivity.

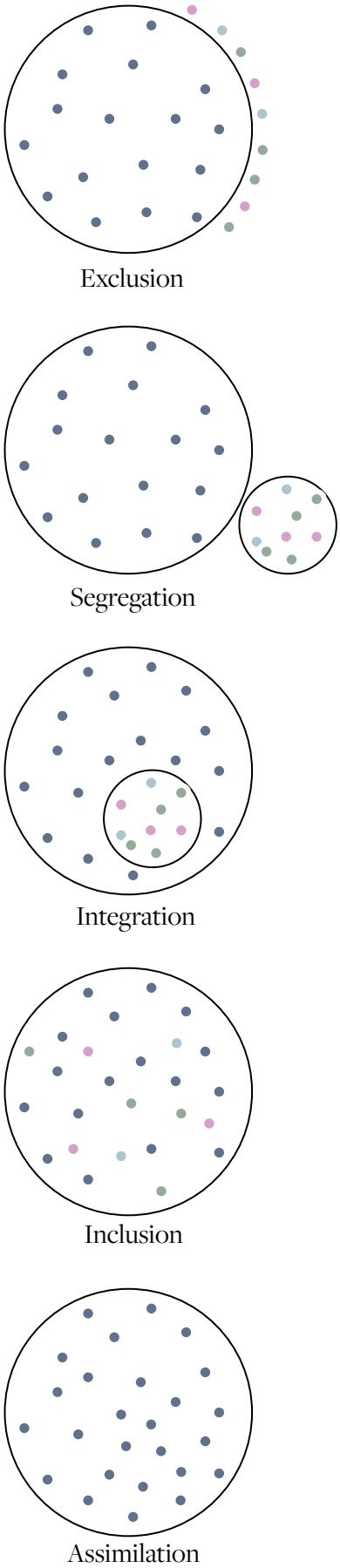



***Figure 27***

***Diragram on different forms of social mix (Adapted from Shamskooshki, 2021)***

While some advocate for complete integration as a solution to segregation, Young argues against such a simplistic view, stating that it emphasizes the wrong issues. The model of integration focuses on mixing and dispersing without addressing the spatial distribution of benefits. Total integration may not be the ideal solution, as residential clustering based on affinity can contribute to the living quality. Excessive integration, under the name of assimilation, may harm society, as there is a multitude of considerable differences between groups, making it impractical (Young, 2002). In addition, urban planners and policymakers should not function as social engineers due to ethical concerns and racist outcomes (Van Ham, 2023).

Young introduces the concept of "differentiated solidarity" as an ideal scenario for democracy and inclusion in cities (Young, 1998; p222). The term solidarity tends to invoke a sense of mutual commitment, but not particularly of mutual identification (Stijn Oosterlynck, 2022). This approach advocates for a voluntary, fluid, and indistinctly demarcated spatial group differentiation (Young, 1998; p197). It recognizes group affinity as a factor for clustering but rejects it as a driver of spatial injustices. The differentiated solidarity model acknowledges that groups coexist within a set of interdependent problems and relationships, emphasizing obligations of justice. Differentiated solidarity takes into consideration the diversity of views, perspectives, beliefs, and stances within society.

To sustain a just diversity, the following principles should be met:

1. Efforts for desegregation should not require forced movement of residents, as much as they should not be moved for further segregation (Young, 2002; p226)(Fainstein, 2010; p174). This means it is important to build upon existing structures, rather than replacing existing structures.
2. Implementation of inclusive zoning and policy practices, which leaves room for a dominant differentiated character through affinity attraction should be strived for, rather than exclusionary practices of zoning implemented (Young, 2002; p224)(Fainstein, 2010; p174). This expresses through affordability of housing.
3. For diversity to be a free-roaming and gradual condition, boundaries between lifestyle enclaves should be porous (Fainstein, 2010; p174). This principle relates to the Open City by Sennett.
4. Land uses need to be mixed to the providence of practicalities and local desires of the affected individuals (Fainstein, 2010; p174). This relates to the 15 minute city concept.
5. Housing types should be mixed to sustain local diversity, combined with policies guiding towards differentiated solidarity (Young, 2002; p226)(Fainstein, 2010; p174). Design for social diversity includes the mixing of housing types on the basis of:
    - Housing age
    - Housing type (detached, row, apartment, et cetera)
    - Housing sizes
    - Affordability
    - Tenure types (Talen, 2008)
6. It is important to ensure that public spaces are both accessible and diverse. However, it is also important to take into account the needs of clashing groups and avoid imposing the obligation to share the same location (Fainstein, 2010; p174). Thus, the notion of territoriality, which is fueled by a (collective) sense of belonging, is important to take into account. Territoriality affords differentiated solidarity.

## Equity

Equity involves providing fair and equal access to different opportunities for different social groups. It concerns the distributional justice of publicly valued goods, which can be considered opportunities for accessing spaces and the providence of choices. Whether segregation is good or bad depends on many separate factors which are intertwined in the spatial outcome of segregation. The separation of individuals with a sole foundation being group affinity is an inherently neutral thing. However, in practice, we see that this separation often comes with many disadvantages. It comes with a side of winners and losers; the haves and have-nots. Spatially this comes down to an unequal distribution of goods and opportunities. Due to this, choices for certain groups are limited, whilst others do get to enjoy a variety of choices provided to them. Through time, segregation may intensify, bringing with it an accumulation of social issues. Hence, spatially manifesting inequity through segregation is unjust.

As segregation and inequality are inherently part of urban life, and an outcome of urban life taking place through space and time, it is an urbanist's duty to detect injustices and advocate for the individuals experiencing these injustices. This paragraph describes the dangers of distributional injustices, and how to sustain an equitable urban environment.

It must be acknowledged that the distribution of public goods influences market conditions and therefore influences segregation. It is important to remain wary of upgrading the neighbourhood as this may lead to segregation through gentrification. This directly relates to the social diversity aspect of the just city, as quality of the built environment, which is intertwined with the distribution of public goods, directly relates affordability for which the social context can get modified. This is further explained in the appendix.

To enhance equity, it is important to ensure distributional justice in urban planning and design. The following principles should be met to raise standards in a just way:

1. It is crucial to emphasize that policies targeting investment in deprived and racially concentrated neighbourhoods should not replace open housing and non-discrimination policies for gentrification to be held back (Young, 2002; p). Upgrading of a neighbourhood should not come at the expense of the sacrificing affordability.
2. It is suggested that new housing developments consider providing units for households with incomes below the median, either on-site or elsewhere, to ensure decent housing and a suitable living environment for all (Fainstein, 2010; p172). Social mix through affordability should be enhanced.
3. It is recommended that housing units developed to be affordable remain in the affordable housing pool indefinitely or be replaced one-on-one and that allocation of housing should rely primarily on subsidies or price regulations. Assigning housing should as comply with the preferences of existing residents (Fainstein, 2010; p172)(Young, 2002; p226).
4. It is important for planners to advocate for egalitarian solutions and avoid those that may unfairly benefit those who are already privileged. This means striving to redistribute resources effectively to tackle the inequalities stemming from material privilege and disadvantage caused by segregation (Fainstein, 2010; p173)(Young, 2002; 227).
5. Interim spaces are important to take into account when redeveloping neighbourhoods to ensure sufficient space is left over for incremental growth, which is one trait of the open city. This makes the city open for a voluntary way of growing through local incrementality. Through providing the option for individuals or businesses to modify their property, rather than viewing the built environment as a fixed system, the built context becomes equitable and just.

The appendix contains additional patterns on enhancing equity which, due to the extent of the thesis, have not actively been implemented in the case study area of Mariahoeve.

## Democracy

Besides being a value, democracy can also be viewed as an instrument to achieve procedural justice. According to Iris Marion Young, the concept of democracy is intricately linked with inclusivity, emphasising equitable decision-making through participation and citizenship (2002). In a strong democracy, the process leading to decisions involves the equal inclusion of all those who will be impacted by them. Young contends that democratic societies often fall short of realizing true inclusion, sometimes leading to democratic exclusion. The key values of a democratic city include equal opportunity, freedom of movement, and the elimination of discriminatory barriers in contemporary urbanized democracies (Young, 2002).

Spatial values are politically driven and can differ per individual, group or society. It is important to allow for equal participation processes to occur and to identify the specific needs in a specific area (McGlynn & Murrain, 1994). Regional governance institutions should ensure the creation of conditions for local-scale bottom-up initiatives and participation to exist and function. Therefore, interscalarity is crucial for procedural justice.

For some, conflicts with a dominant group can be mitigated through unawareness of the other's presence. This means, some individuals rather remain hidden (Vaughan & Arbaci, 2011). Clustering can offer protection towards the minority group, as it may impede practices of discrimination, prejudice and racism among individuals. However, invisibility and isolation prohibit the equal functioning of democracy, as it leads to unawareness between people and each other's circumstances.

The spatial manifestation of democracy is a democratic space, which refers to the creation of a forum for strangers to interact. The problem that cities face today is how to foster a sense of relatedness among strangers in less formal spaces. By creating democratic spaces, individuals can engage with one another and interact freely. A public space is one to which anyone has access, a space of openness and exposure. The physical open spaces of public streets, squares, and parks are embodied public spaces. These are large spaces where many people can be present together, seeing, being seen, and exposed to one another. In them, one may encounter anyone who lives in the city or region as well as outsiders passing through. They importantly contribute to democratic inclusion because they bring differently positioned strangers into one another's presence; they make concrete the fact that people of differing tastes, interests, needs, and life circumstances dwell together in a city or region (Sezer, 2020). Democratic spaces allow for different allow for different uses to be performed. It is built to maximise affordance of uses.

For the improvement of procedural justice, it is important to enlarge democracy. The following principles should be met to raise standards in a just way:

1. The key values of a democratic city include equal opportunity, freedom of movement, and the elimination of discriminatory barriers in contemporary urbanised democracies (Young, 2002). Therefore, a democratic space, one in which many different things are happening and offered at the same time, for a broad range of individuals, is an inclusive space. It is one that does not exclude, but rather provides to all. This space is typical of the open city, which will be addressed in the following chapter.

## 3.3 Open city

The 75-year-old Richard Sennett holds a prominent position as a sociology professor at New York University and the London School of Economics. Employing combined methods of ethnography, historical analysis, and social theory, he has examined topics around the public realm and how this relates to societal and urban identities. Sennett's research explores how individuals and communities derive social and cultural significance from their surrounding cityscape, addressing individual interpretations of their own experiences amid the built and social context. Works include 'Building and Dwelling: Ethics for the City', addressing the relation between how cities were built (ville) and how people live in them (cité), together with his work of 'Designing Disorder', which gives insight into the quality of open-ended cities.

The Open City concept is a way of bridging the spatially just principles in a formal concept to how cities can best be configured, designed, and formed to operate beneficiary to its inhabitants. It embraces the notions of diversity, equity, and democracy in one way or another through fostering certain spatial qualities. Sennett has formalized the concept of The Open City, whereas he credits Jane Jacobs for laying the foundations of this concept by describing individual principles. Jacobs used these principles as counter-arguments against the modernist visionary plans of Le Corbusier. In Jacobs' view, capitalism and powerful developers tend to favour homogeneity, which is predictable and coherent in form. According to Sennett "*A city should be a place which enriches experience*". Practically, it means opening up opportunities economically, as well as managing complexity socially and psychologically. An open city is one in which people become – thanks to the way the city operates, and has been designed – more skilled in managing complex conditions of life, and taking advantage of opportunities which are unforeseen, accidental, and unplanned. The more open the city is, the more this peculiar urban condition of solidarity can develop through mutual reliance and dependency. Modern cities are not enabling this as they are becoming more closed and dispersed. A closed city is a city in which the interior and the exterior are divorced, meaning that spaces are enclosed with little interaction between the areas. The concept is not merely about space, but also time. The closed system is a static, top-down system in which only one thing happens at a time. This de-stimulates people to do things.

An open city is one in which the interior and the exterior are more porous and joined, and where the interior is exposed. Such exposure serves to enhance the visibility of all the peculiarities of urban life to the human eye, thereby providing a more comprehensive understanding of the urban and social environment. There are more things, which may be very unlike happening in the same location and time. This multiplicity makes the place stimulating. Ultimately, the outcome of an open city is far more intricate, compact, diverse and intriguing than simply realizing a homogeneous, preconceived plan.

***Figure 28***
***Richard Sennett (Garritsen, 2024)***

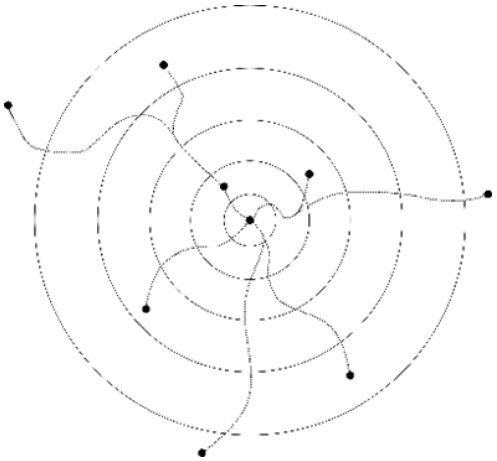
## Open city as sociable city

All human social formations exhibit a duality of spatial and transpatial components (Hillier & Hanson, 1984). The spatial component is based on proximity, whereas the transpatial component is based on distinct categorization, e.g. people going to the same church. This duality can express in either a segregated way, showing correspondence between the spatial and transpatial component, or a more arbitrarily seeming mix, showing noncorrespondence between the spatial and transpatial component. The noncorrespondence in a high density setting constitutes a superdiverse context. It is where high transpatial variety and spatial affinity coincide.

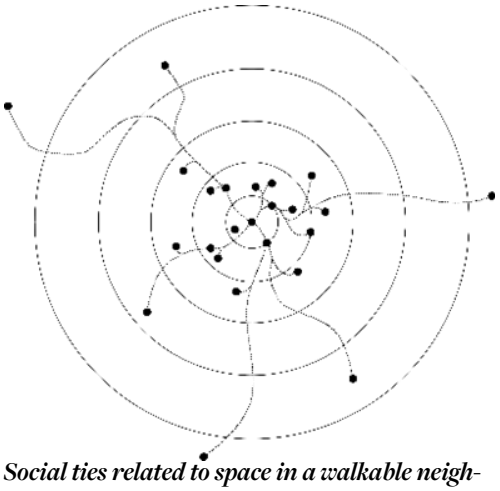
This research has identified multiple spatial processes through which social ties are formed. The spatiality and selective tie formation may boast segregation, as they may provoke or avoid interaction between people. This is coined path-dependency, meaning that different individuals belonging to a certain group are likely to surround themselves in places belonging to that group (Heringa et al., 2017). Factors that may influence social tie formation are:

1. Second and third places (work and leisure), as these places often cater for a similar social layer. A house of worship for example often targets individuals of a similar cultural background. The workplace relates to labour market segmentation and the network effect, for which employees are fairly homogeneous. A socially diverse neighbourhood however may enhance social diversity in second and third places which are in proximity.
2. Marriage patterns, as partner choice is highly selective. This influences intragenerational path dependencies.
3. Schools, as parents have the tendency to choose a school which they themselves are familiar with. This stimulates homophilic interactions among children from a young age.
4. Walkability, as this spatial trait has the potential of bridging the gaps between different socially homogeneous clusters. A walkable neighbourhood is one where people make use of active transport, which can boast the quantity of social tie formations, as walkability boasts sociability, which helps build trust among different individuals. The physical design of a neighbourhood can therefor influence local scale sergegation.

Details on these four factors described in the appendix.



*Social ties related to space in a non-walkable neighbourhood*



*Social ties related to space in a walkable neighbourhood (Smithers, 2023)*

*Figure 29*

## Open City design configurations

There are three design configurations that can be implemented to create a more open city above ground. These configurations are divided into their sub-components, as follows:

1. Passage territories
    - The passage territories may exhibit through different scales. Two conditions can be identified for these passage territories: boundaries and borders. While a walled city is characterized by a boundary, a non-walled city has a border. The difference between the two is the level of porosity. The more porous the edges of communities are, the more open the city becomes.
    - This boundary condition can be compared to a cell membrane, which is both resistant and porous. This concept can be extended from a single building to the areas where different communities in a city meet, forming zones with varying degrees of permeability. Therefore, providing essential public services for transaction and interaction in these edge conditions can tap into the value of the edge and border to maximize integration. Especially in class-divided places, such interventions fight homogeneity. Community-wise, rather than fantasizing about other groups, putting them together raises a proper understanding of each other through observation.
    - There is heightened activity among various groups in this transitional space. The aim is to create more borders and fewer boundaries in the city. Inspiration can by drawn from from Nolli's map of Rome, by adding gradations of all kinds in the urban fabric.
2. Incomplete form
    - There is a necessity for designers to develop distinctive physical forms that are deliberately incomplete. Colonizing the voids or undefined can lead to significant development. However, their incompleteness is rooted in the perception of the object and the purpose given to them may vary over time based on changing needs.
    - The incomplete form embraces the idea that the incompleteness of development will be resolved through the creation of relationships between complementary developments. The whole structure will gain its value from the interrelationships. In time, the individual structures will become incomplete on their own.
3. Nonlinear narratives
    - In summary, an open system can be defined as one that allows for conflict and dissonance in the process of growth. As such, it is vital to equip the built environment with the resources necessary to facilitate change from within. This change can be encouraged through interactions between individuals possessing diverse functions and powers.
    - Rather than following a rigid process towards a singular goal, we consider the various and potentially contradictory opportunities that arise at each stage of the design process. By preserving these possibilities and allowing for conflicting elements to remain present, the design system becomes more flexible and open.

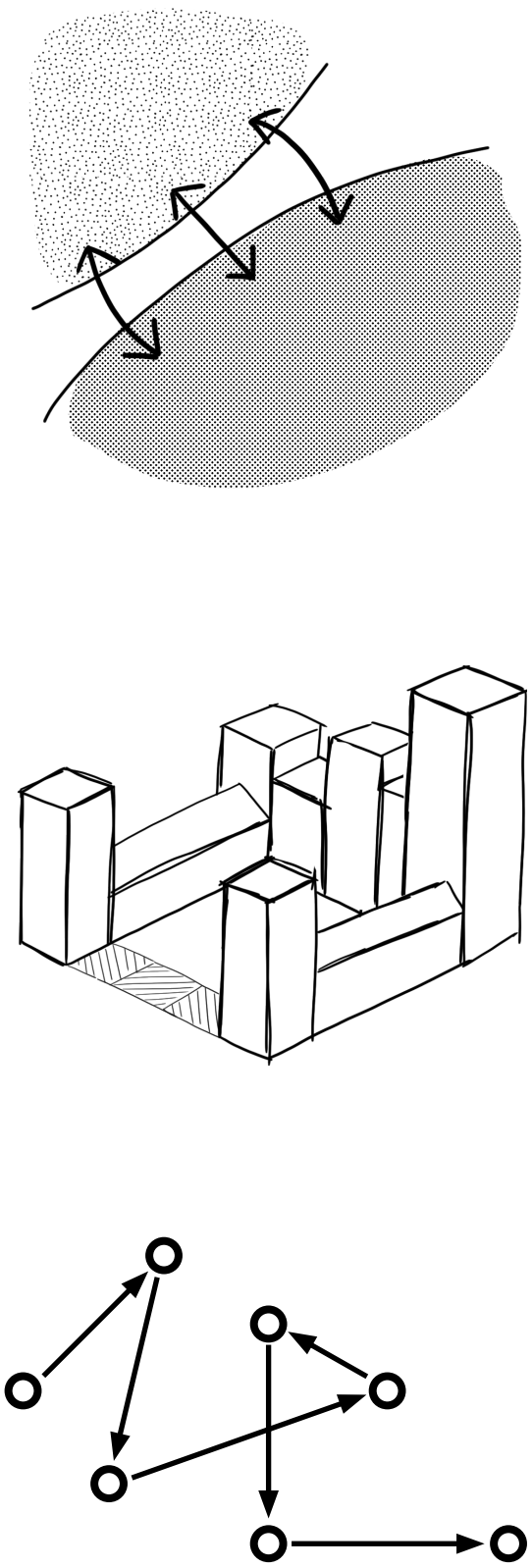


*Figure 30*
*Diagrammatic representation of the Open City design configurations*

## 3.4 15 Minute City

The 15-minute city is a concept mainly credited to the architect Carlos Moreno who is a Franco-Colombian researcher. The 15-minute city shares many commonalities with the urbanist concept of the compact city, as both aim to achieve compactness in the distribution of services for high accessibility. The concept of the 15-minute city is about access through proximity, resulting in a city which is compact programmatically, with many different services and opportunities within reach. By providing these opportunities, the city becomes equitable.

The idea is that cities should be designed or redesigned in a way that enables people to access every need within the distance of a 15-minute walk or bike ride. These needs include grocery stores, schools, parks, and other essential services. That means not only a clustering of functions in the city centre but rather an equitable distribution of public goods and access to them. The concept stimulates individuals to consider using alternative modes of transportation such as walking, cycling, and public transportation, rather than relying on cars.

There are many different measures for the 15-minute city. However, the main attributes are linked to the following urban characteristics:

- Density;
- Diversity;
- Proximity.

Cities around the world are experimenting with this generic concept as an attempt to reduce car dependency (Logan et al., 2022). In this project, the concept can be viewed as a key link between the theories of the Open City, Just City and urban densities, intending to create an inclusive urban cityscape. In terms of service provision, it plays on the just city concept through distributional justice. In this, it provides a minimum standard of equality for urban dwellers within a city region.

The 15-minute city plays into the open city concept as it guides into the desegregating aspect. As the open city aims to achieve seamlessness through transitions, as well as visibility between people, this can in part be achieved through a proper implementation of the 15-minute city. Aligning the implementation with the principles of the social logic of space can enhance the effectiveness of the service allocation and visibility of people and uses. That is to align diversity in function and form (differentiating in densities and spatial conditions) with intuitive connectivity


*Figure 31*
*Three main pillars of the 15 Minute City*

## Relation between density, diversity and proximity

The 15-minute city concept contributes to a high degree of mix within a superdiverse social context. This is because of the close proximity of differentiated urban conditions, enabling different people living in proximity of each other. Thus spatially enabling the rise of many different target audiences in a demarcated area. This means the area needs a certain degree of density, to accommodate a certain degree of critical mass, to sustain its proximate diversity through allowing many opportunities for many people in proximity. It is a condition in which superdiversity can flourish in a just way. Paired with the differentiated urban conditions in proximity, the 15MC has the benefit of generating vitality in public spaces.

The spatial configuration therefore matters, as good connectivity leads to better access. As a whole, the city becomes more just through sharing the perks of a well-distributed network of public goods, which are spatially accessible to all. This concept aims to enhance the convenience, sustainability, and enjoyment of urban living by decreasing the need for long commutes and enabling individuals to live, work, and socialize in proximity to their homes.

## Service categorisation and distribution

To translate the 15MC concept from a conceptual idea to its physical manifestation, it is important to identify which services and public goods are considered daily needs. It is important to avoid generalising services within a single category, as each specific need requires specific service provision. For instance, schools should be categorised into primary and secondary schools, each catering to a distinct group of students. These schools both need to be present at the same time, thus one cannot substitute the other within the broader category of education (Papadopoulos et al., 2023).

As the 15MC concept puts active transport central, the implementation of complementary policies to promote walking should be realised. Such policy recommendations should include the provision of attractive walking and cycling infrastructure, whilst reducing car use (Papadopoulos et al., 2023).

There are different approaches to distributional justice with its corresponding service allocation. The two main approaches that are taken into account in this project are:

- Egalitarianism, which aims at providing equal access to every individual, leaving no one behind.
- Utilitarianism, which aims at providing the greatest access to the greatest number of individuals. Despite good intentions, it does leave out a minor part of individuals. For those, other kind of compensations should be implemented to still reach a fair and just situation.

## 3.5 The Social Logic of Space

The Social Logic of Space is a way of interpreting space as a perception of individuals. This is based on the deep-rooted knowability of an individual related to the spatial configuration. The social logic theory proposes that people have an intuitive way of sensing and interacting with space, based on the principles of a morphic language. It was developed by Professor Bill Hillier, a pioneer in space syntax, and Julienne Hanson, both of whom are professors at University College London (Helmond, z.d.).

The social logic of space is a theory which aims to grasp an understanding of the relationship between space and the social processes happening within this space. Rather than relying on arbitrary processes, it theorises there is a kind of system involved which drives people to behave in a certain way corresponding to the surrounding spatial morphology. The social logic embraces the notion that everything happening in space has an inherent relation with space to make it happen where it does. This system is a morphic language, which is an intuitive language, reflecting an individual's ability to read spatial structures. The concept of a morphic language links together the problem of knowability with that of morphology, by proposing that both are problems of understanding syntax (Hillier & Hanson, 1984; p48). Therefore, the design of spaces should contain the necessary syntaxes to be spatially intelligible. Thus, space needs to be legible in accordance to a social logic.

### Sociability and space's social logic

Hillier and Hanson mention the concept of social solidarities, which are in the interface between the Just City and the Open City theories. They say that social solidarities possess intrinsic spatial attributes that are inherently spatial. The interactions of people are an obvious spatiality of society. With this, certain solidarities can be formed. These interactions require a particular type of unfolding in space. These interactions "*are the spatio-temporal realisations of the more complex and abstract artefact that we call society*" (Hillier & Hansson, 1984; p223). The Social Logic of space is related to the open city as it acknowledges that "*all social processes, whatever their abstract and conceptual nature, are realised in space.*" (Hillier & Hansson, 1984; p200). Therefore embracing the Open City's design ideals, as encounters and interactions are stimulated through visibility which has a well-defined relation to the physical ordering of spaces. This ordering is related to the qualities of urban densities. The social ordering has to do with the contextual setting of superdiversity. Hillier and Hanson identify two definitions:

- Solidarities are the organising principles of interactions;
- Interactions are the space-time embodiment of solidarities.

Interactions can therefore be seen as part of the morphic language, and capable of forming social arrangements, and taking on their dynamic properties.

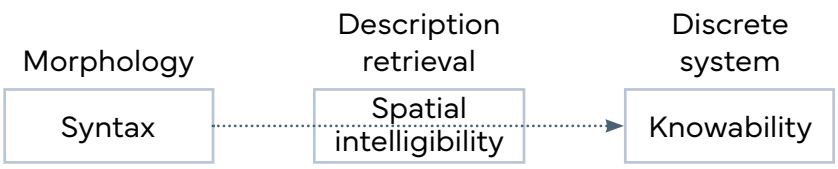



*Diagram on the morphic language*

## Design configuration in line with space's social logic

For this project, the morphic language will be used as a means in the process of designing solutions. This language is one of the key aspects of the social logic of space and aims to decipher the intuitive meaning of physical structures. Mastering this language in favour of the design can respond to the instinctive behaviour of people, and can foster a natural usage pattern from an intrinsic drive. It can be considered an inherent part of the guiding mechanisms towards interaction between different groups in a superdiverse urban context, and can be designed using Conzenian elements of streets, plots and buildings, as well as urban objects which enhance legibility of the place. These are of importance and are intrinsically connected to density, connectivity and accessibility, and the urban qualities each spatial configuration inherently holds. This theory will be deployed as a means of achieving a more inclusive city through the characteristic of legibility and diversity.

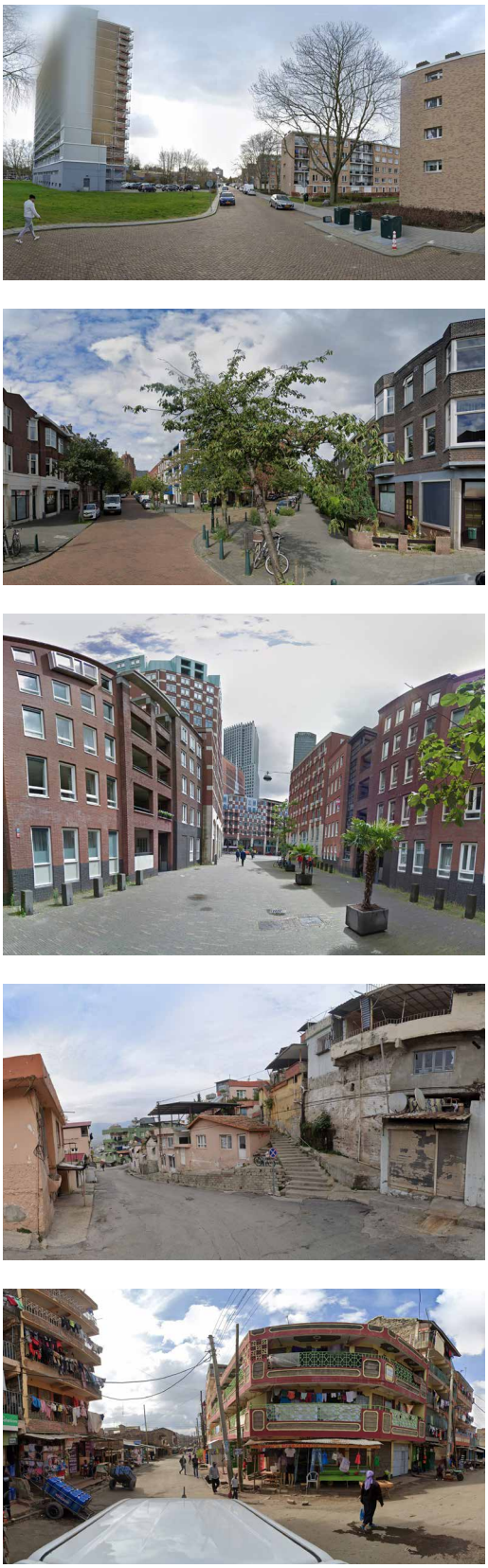


*Figure 32*

*Different screetscapes containing inherently different morphological attributs and syntaxes, retrieving a different set of knowables. Individuals from different backgrounds may thus have a different pool of knowabilities (Google Maps, 2023).*

## 3.6 Urban Density

As the scarcity of space is being addressed, there is a need to intensify the use of space. For that reason, density is seen as a means of making the inevitable consumption of land more efficient. When strategically allocated, it can be seen as a quality of urban space, as it produces differentiated spatial conditions for urban life to take place. These conditions can be offered through the dynamism between built density and voids. This involves dynamically utilising the porousness of buildings (Uytenhaak, 2008). Therefore, it does matter how densification takes place, as different spatial conditions have different ways of being perceived according to social logic. The concept of built density can be used as a means of offering differentiated spatial conditions, which in turn have the potential of offering a built context for superdiversity.

Much literature goes into the fact that the social environment is heavily influenced by urban form of which density gets lots of attention. However, as urban densities can be quantified using many different methods and measures, highly dense environments can often be constituted for highly urban environments (Social Sustainability and Urban Form: Evidence from Five British Cities).

There are different representations for measuring different kinds of urban densities. Important parameters have been mentioned in paragraph 2.6 on measuring urban density. The diagram of Spacematrix gives an impression of these densities. Spacematrix is a conceptual graph in urban design and planning that explores the relationship between spatial configuration and human behaviour. Developed by Meta Berghauser Pont and Per Haupt, this theory posits that the layout of space influences how people interact with and perceive their environment. A spacematrix can measure the scale and homogeneity of an area. In the context of built density, spacematrix suggests that density is not solely determined by the number of buildings or people in an area but is profoundly influenced by the spatial arrangement of those elements. Built density can take various forms, each with distinct spatial qualities that impact the way people experience and navigate through the urban fabric.

Different spatial qualities arise from the configuration of streets, pathways, and building layouts. For example, a dense urban area with a grid pattern may offer a different experience compared to one with a more organic, winding layout. The theory emphasizes that the spatial structure plays a crucial role in shaping social interactions, accessibility, and overall urban functionality.

In essence, the spacematrix theory highlights the multifaceted nature of built density, encouraging planners and designers to consider not only quantitative measures but also the qualitative aspects of spatial arrangement. By understanding the differentiation in built densities, and aligning these with the principles of the social logic of space, environments can be created that are not only dense but also socially vibrant, accessible, and responsive to the diverse needs of inhabitants.

## Densities in the urban fabric

The English Oxford Dictionary (2024) defines density as "*The quality or condition of being dense*", which refers to the degree of concentration of buildings and people in an urban area. It describes the closeness that aspects of the city are. Urban density includes the qualities of compactness, differentiation and accessibility of the urban fabric. These elements are influenced by the morphology. The Conzenian elements which make up an urban morphology are the plots, buildings and streets (Whitehand et al., 2009). The configuration and size of these three elements influence the aforementioned non-tangible qualities of compactness, differentiation and access.

## Social interactions and urban densities

As pointed out by Berghauser Pont & Haupt, the majority of studies conducted on the topic of social interaction and urban density research are shown to affect social interaction negatively in almost half of the studies (Berghauser Pont & Haupt, 2023). One of the papers examined the link between social interaction and neighbourhood density in a North American context, of which the results are unfavourable. The empirical results show a negative effect of density on interactions, whether this is friendship-oriented or group involvement (Brueckner & Largey, 2008). Another study found that face-to-face social interactions are more likely to happen in public spaces in both rural and urban areas, but not in (in-between) suburban areas. Hereby low and high densities seem to perform well, whereas medium densities do not (Berg et al., 2014).

The negative relation would be counter-intuitive as the potential for interactions is much higher in a context of high urban density, which has been pointed out by Mouratidis (2018). A cause for this could be found in the hypothesis by Georg Simmel. He denotes that large and dense cities impact human relationships negatively, as people become emotionally detached from others due to the abundant presence of others (Simmel, 1903). Another hypothesis is that high-density environments may require additional measures for social interactions to happen, related to the social logic of the space. If this is true, as follow-up research does support, the question is how to positively harness the increased potential for interaction to happen in a high-density environment. Therefore, the characteristic of legibility of space, through the configuration of the urban fabric and the social logic the design evokes (together with the complementary design of the public realm) is a powerfull tool in nudging for interactions among individuals to happen.

## Social equity and urban densities

According to a study done by Mouratidis (2018) urban planning and design matter to quality of life as they affect personal relationships between people. There are four factors of compactness in facilitating personal relationships which can be attributed to the structural characteristics:

1. There is more space to accommodate people living within proximity due to high centrality and density. Combined with walkability this relates to higher tie formations, contributing to overall wellbeing.
2. There is higher access to third places;
3. There is higher access to other areas within the region, due to centrality and public transport;
4. Due to more people living in an area, critical mass is higher, which allows local living to be feasible without extracting other areas from services. It allows for a higher cumulative of local businesses and services.

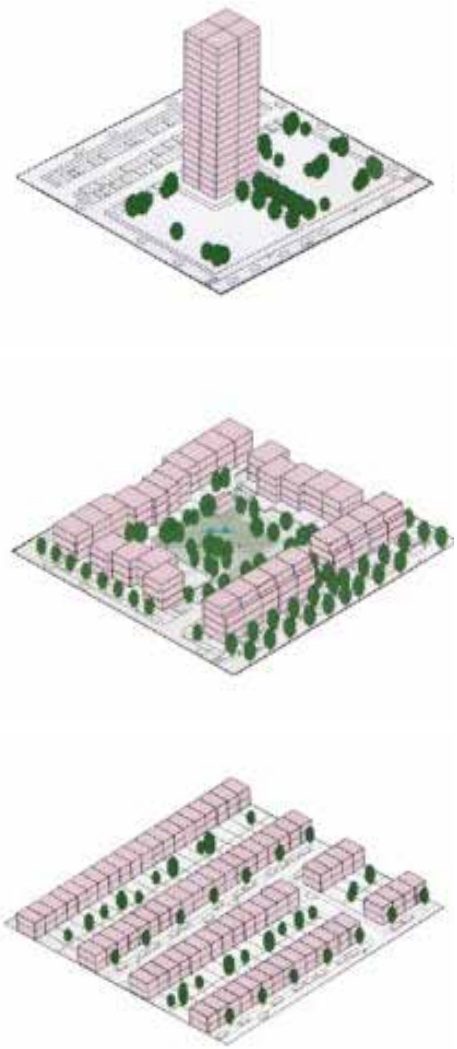


*Figure 33*
*Three types of morphology with similar density (borrowed from Stedenbouw)*

## 3.7 Superdiversity

Superdiversity is considered a contextual theory, as it theorises the spatial condition of social diversity. Superdiversity is a socio-spatial condition in which multivariable social characteristics co-exist. Simply put, superdiversity embraces the notion of many different people sharing the same area. This condition can be afforded through proximate spatial differentiation, but cannot be guaranteed by proximate spatial differentiation. As superdiversity consists of multiple layers which make up society, some layers are more dominant than others. The most important layers to address in measuring superdiversity are:

- Ethnic background;
- Socio-economic class and
- Education level.

Superdiversity is considered contextual, which cannot be constructed or modified directly. However, through indirect measures in the built density and modifying space's social logic, superdiversity can be guided towards a certain outcome. It is hypothesized there is to some extent a social logic driving superdiversity.

### How is Dutch society changing?

The main driver of this project is the population growth as projected by CBS. Like many European countries, the Netherlands makes no exception in the fact that the natural increase is virtually zero, and the population is increasingly ageing. It is a politically driven choice to balance out the low birth numbers for basic services and actions can still be met. Hence the main contributing factor to the population growth is attributed to the inflow of migrants (Mouissie & Hoorntje, 2023). The growing diversity of ethnicities, cultural backgrounds, and native language speakers residing in the Netherlands will inevitably make Dutch society more complex. These groups may not necessarily have common ground, but they will have to share the same physical ground regardless.

The Dutch society is becoming ever more diverse in a multitude of ways. With a large number of individuals of different nationalities, socioeconomic classes, and educational backgrounds, residing in the same space, Dutch cities can be considered superdiverse places. All these inherently different individuals impact how the urban space is being used and will be used. In dense urban environments, proximate diversity may lead to social tensions among seemingly very different individuals (Rustenbach, 2010). In the long run, it may impede threats to society (Van Lieshout, 2018).

### Foundations of Dutch society

Like many other societies, Dutch society is democratic, and superdiverse and values solidarity. These democratic values are deeply ingrained into society, through equality of people's values, freedom of speech and of doing, and the right to participate in decision-making processes (Ministry for Social Services and Employment & ProDemos, 2014). The democratic value, which is equally accessible to every Dutch citizen, is mentioned in the Just City theory, which theorises democracy spatially.

Superdiversity refers to Dutch society being pluralistic, meaning that there's a multitude of social diversities. The Netherlands is home to people from various ethnic, cultural, religious and socio-economic backgrounds, which contributes to the strength and richness of Dutch culture and society. This superdiversity is supported by law, enforcing inclusivity by allowing individuals to express their identities and perspectives freely, and protecting against discrimination (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2014).

The solidarity that the Dutch society is based on interdependencies among its residents. Solidarity is the principle of mutual support and cooperation among society's members. According to Durkheim, modern societies are organic solidarity through interdependence among people (Alt Shift X, 2014). This organic solidarity is one of the layers which make up cohesion in a superdiverse society. It is through the interaction of different people that a bond is built through the recognition of differences and interdependencies (Rudiger & Spencer, 2004). This form of social cohesion embodies that people are inherently different and each has their speciality to which they can contribute to society. Therefore, superdiversity is a contextual quality, making societal layers a prerequisite for society to flourish.
The Netherlands has a social safety net due to this form of solidarity among its citizens. There exists a collective responsibility for the welfare of others, with the understanding that a society where everyone has access to basic needs and opportunities benefits everyone.

Modern Dutch society consists of the aggregate of many different people residing in the Netherlands, all having interdependencies with each other. As an urbanist, it is important to consider superdiversity when designing public spaces and provide equal access to public goods and opportunities among all societal layers. It is this basic necessity which makes modern-day life possible in current-day and future society.

### Why superdiversity over super-homogeneity?

As Dutch society is superdiverse, it may not necessarily mean its spatial manifestation is superdiverse. A superdiverse society can either spatially manifest as super-homogeneous and disparate, or as spatially mixed. The level of superdiversity is thus dependent on the distributional scale, which is related to the level of clustering between the different social layers of society. In a society which is founded upon its interdependencies among a diverse range of different people, each taking part in making the whole work, it is important to not exclude one group from another, and have people enjoy the same chances as others as partakers of society. Therefore, superdiversity is a favourable form of spatial manifestation rather than super-homogeneity. Arguments in favour of superdiversity regard:

- Anti-migration attitudes among native inhabitants are sparked by a lack of societal integration of these migrants (Rustenbach, 2010).
- Primary visibility based on direct observation of different groups may mitigate prejudice, fear, stereotyping and marginalisation otherwise caused by secondary visibility (media representations), as this alters people's perception about how they think and interact with others (Hall, 1997; Schields, 2005; Cancellieri & Ostanel, 2015).
- Distrust, misunderstanding, polarization
- Unawareness
- Spatial injustices (inequalities) (have's and have-nots; privileged and disadvantaged)
- To ensure a level of vibrancy and for urban processes to function adequately, a certain mix of people based on their educational level is required.

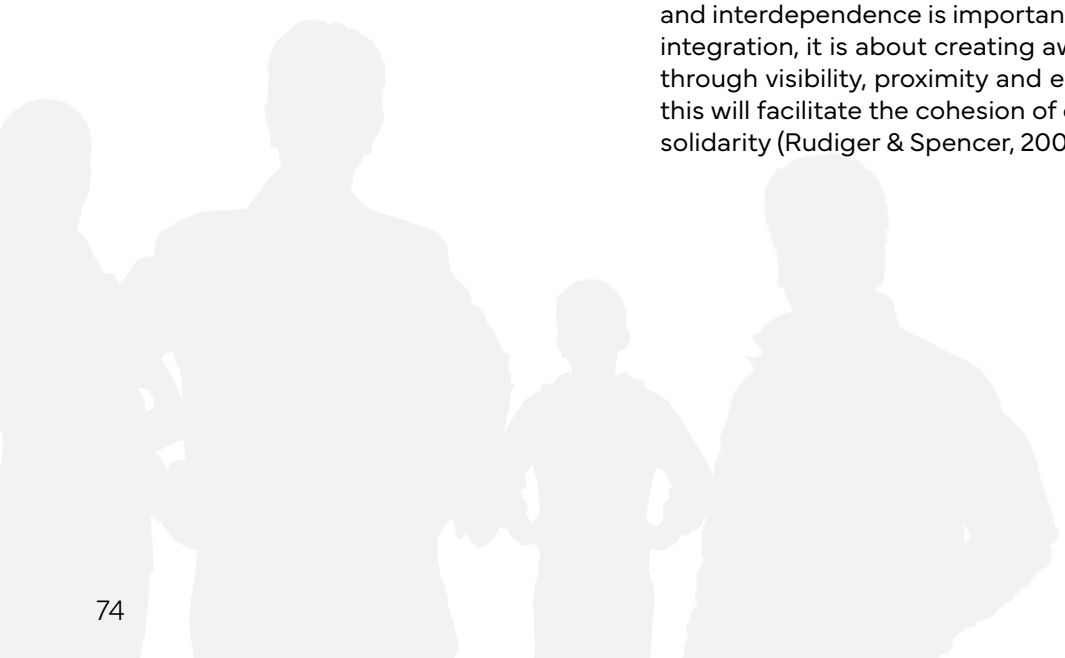
## The importance of social cohesion and inclusion

Deducting from the problem, it is the core value of social inclusion that will be fostered throughout the project, which is defined as the practice of providing equal access to opportunities and resources for people who otherwise may be excluded (Oxford English Dictionary, 2024). With the natural tendency for people of similar kinds to cluster through spatial residential processes, it is important to spatially nudge towards superdiverse solutions, fostering small-scale visibility of otherness. Setting the stage to create affordances for interaction between individuals of all layers of Dutch society, harnessing the contextual quality of superdiversity, enriches society. This can be effectuated spatially using clever design solutions. These design solutions are related to the theory of the Just City, through enabling distributional and procedural justice, and the Open City, praising visibility, interaction and cohesion.

A strong sense of community in a neighbourhood is beneficial, as it fosters inclusions, enhances safety, improves well-being, and promotes engagement among neighbours. It creates a supportive network, deters crime, reduces isolation, and encourages active participation. Nurturing a sense of community leads to a cohesive and empowered neighbourhood where residents feel connected and valued. It can go together with feelings of pride (McMillan & Chavis, 1986).

The neighbourhood fosters the creation of social ties, as there are (exceptions aside) no constrains in distance. Through interaction in local public spaces, social networks are developed. As in places of residence most interactions happen outside of work time, the types of relations that happen here reflect that. The neighbourhood is defined by the types of interaction in social networks, which are often non-initmate and convivial (Bridge, 2002). Also, the social tie networks are age-dependent, as older people (generally 60+ years of age) have a smaller range of action which also translates to proximity in social ties. According to research conducted by Thomése & van Tilburg (2000), social tie network in a neighbourhood context is good for 60% of all residents close ties, whilst within an hour's travel it counts for 78% of closest ties.

The concept of social cohesion does not necessitate the homogenisation of communities into a unified entity comprising of individuals devoid of any differences. Even in a superdiverse context cohesion can be achieved. Hereby, the building of bonds between different communities is crucial, for which recognition of differences and interdependence is important. Rather than mixing for the sake of integration, it is about creating awareness between different groups through visibility, proximity and enhancing sociability. Consequently, this will facilitate the cohesion of communities, and create a sense of solidarity (Rudiger & Spencer, 2003).



## Creating cohesion in a superdiverse context

Communities come in all shapes and sizes. However, it is the size that matters for the longevity of communities: 50, 150 and 500 are disproportionately more common than other sizes. Communities from around these sizes experience greater longevity (Dunbar & Sosis, 2018). Thus, there is a discrete statistical order of optimal community sizes.

As to community shapes, there is a certain extent homogeneity is necessary for social cohesion, while too much homogeneity causes segregation and leads to exclusionary practices. Lang advocates the design of nested areas which facilitate a population of one kind as a way of avoiding conflict, while facilitating the area as a whole for many kinds of populations (Lang, 2017). A community, homogeneous in terms of age, lifestyle, income or the presence of children have a better success rate in community initiatives. Furthermore, the community needs to have a clear edge, which can take the form of a collective identity, appearance, spatial arrangement or physical boundary (Boonstra & Boelens, 2011). This plays into the aspect of legibility, as induced by the social logic evoked by built density.

In terms of fostering socially cohesive communities and the formation of differentiated solidarities, it is important to establish local communities based on collective group affinity. Given that these optimal groups have different sizes, it is essential to cluster to the extent of meeting the range of these optimal community sizes. This implies that it is vital to provide the conditions for differentiated solidarity to occur naturally. Therefore, these conditions should afford the creation of lifestyle enclaves to maximise living satisfaction, while ensuring superdiversity to flourish in proximity.

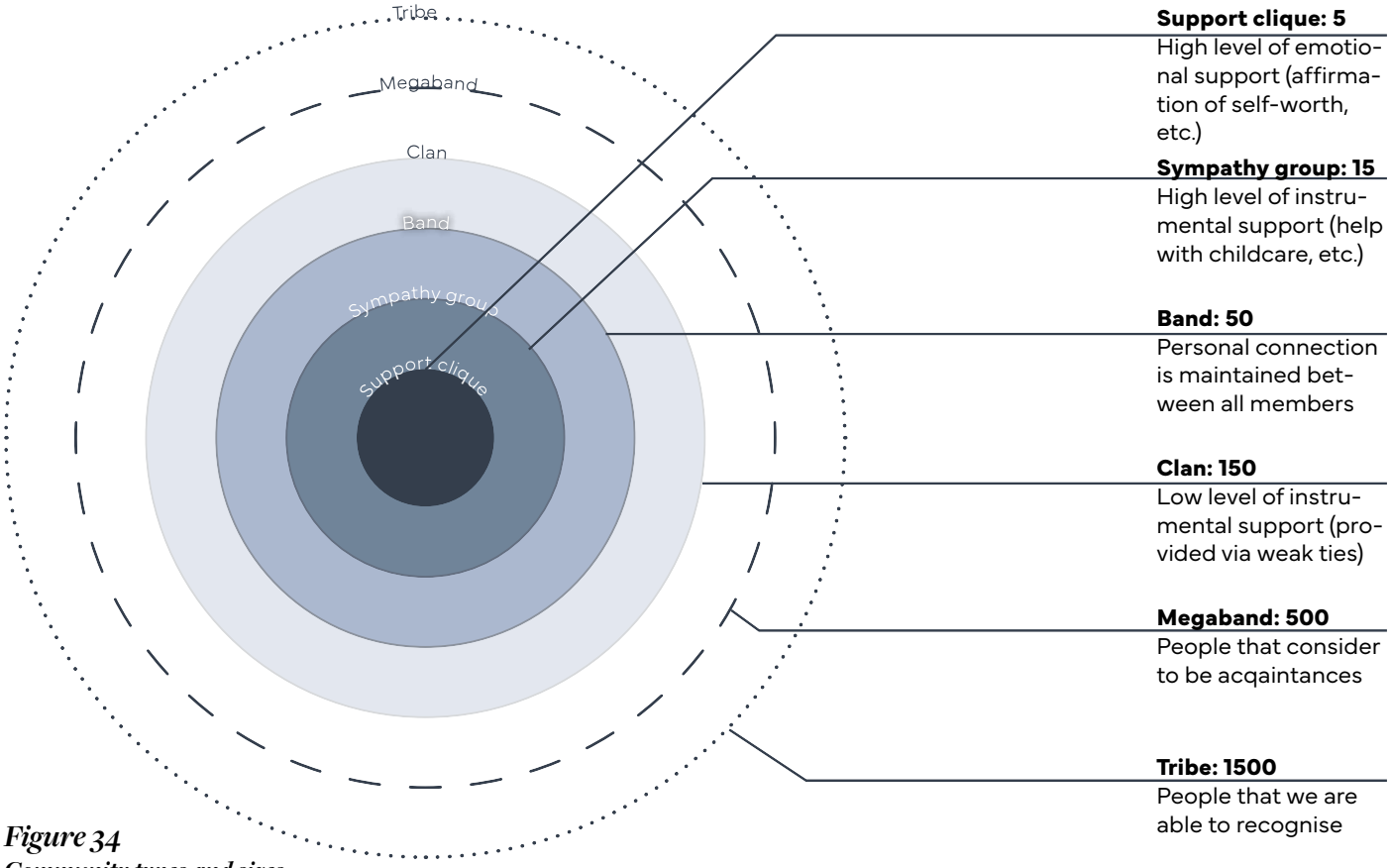



*Figure 34*
***Community types and sizes***
***(adapted from Dunbar & Sosis, 2018)***

## 3.8 Main theoretical conclusions

Concluding from the main, contextual and instrumental theories, a scheme has been set up to show the relations between the problematisation and an approach to guide towards a design-oriented solution. This scheme gives a holistic indication of the values which are to be added or enhanced to afford a superdiverse social context.

With the theories clear, the next chapter spatialises these notions in the context of the Haaglanden Region. It does this both through the social and spatial context. The social context goes into the social mix through socioeconomic class, educational level and ethnic background. The spatial context goes into the existing built density types, and how some areas have more potent into increasing density than others.

In the chapters on, zooming into the local site of Mariahoeve, the theories of the Just City and Open City, as well as the social logic of space and the 15-minute city are implemented through design. Hereby, densification happens in an inclusive way, through all the design interventions.

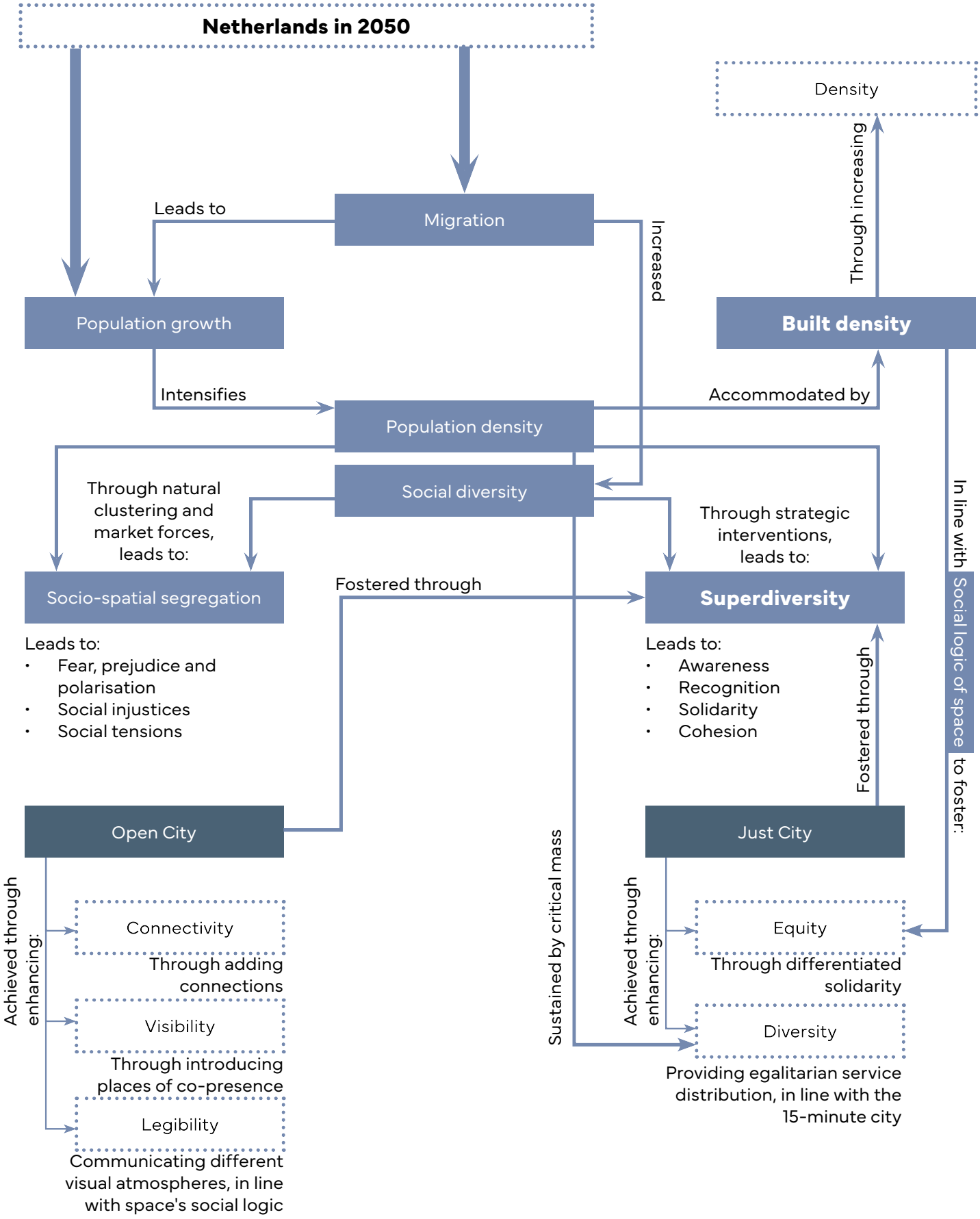


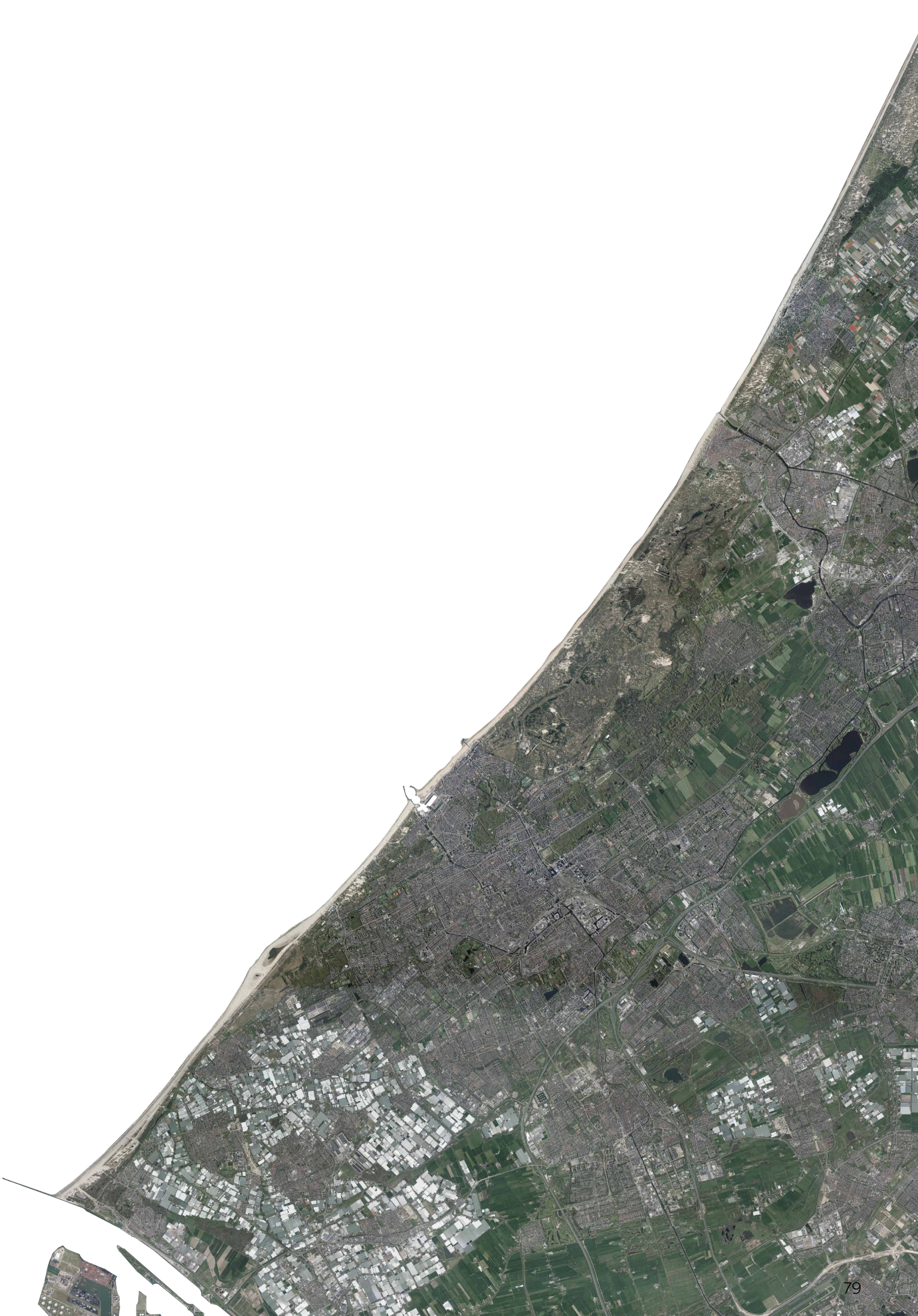

*Figure 35*
*Theoretical scheme*

# 4. Haaglanden Regional Analysis

1. Introduction to Haaglanden Region
2. History to urban development
3. Social analysis
4. Spatial analysis
5. Local site zoom-ins

This chapter will comprise of an elaborate analysis on the built densities and social context within the region of Haaglanden. The built densities will be elaborated upon according to the theories on built densities (FSI, GSI, L and OSR), whereas the social context will be elaborated upon according to the theory of superdiversity (educational level, socioeconomic class, and ethnic background).

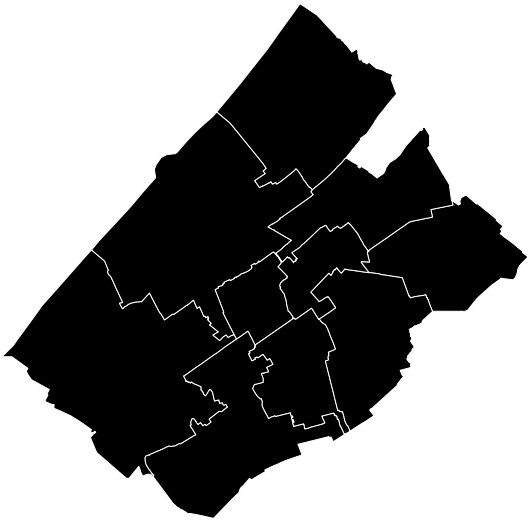
The outcome is a proper understanding of the regional context regarding superdiversity and urban density. This forms a basis for local level analysis and design exploration to be made, on the basis of the most interesting areas to zoom into.



## 4.1 Introduction to the Haaglanden Region

The region of Haaglanden is an area in the province of South-Holland, consisting of the agglomerating nign municipalities of the Hague and the surroundings. From west to east, these municipalities are shown on the right. In total the land surface area is 405 km², housing as many as 1,13 million inhabitants (CBS, n.d.). It is one of the densest regions in the Netherlands, with a population density of: 2759 inhabitant per $km^2$ .

The region (together with Rotterdam) has been dubbed the 'Patchwork metropolis' because the territorial structure can be viewed as a concatenation of homogeneous areas (Pisano, 2018). These areas all have their specific economic activities (either residential, industrial, or commercial) or social classifications (socio-economic class, ethnic background, and educational level). Therefore, each of the patches have a rather different built structure, of which some have an urban character, whilst others are deeply rural.



**Haaglanden region**
1.125.684 inhabitants
405,49 km²
2.759 inh./km²

**Westland**
112.448 inhabitants
90,74 km²
1.239 inhabitants/km²

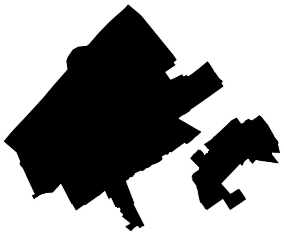
**Pijnacker-Nootdorp**
49.390 inhabitants
38,62 km²
1.279 inh./km²

**Midden-Delfland**
19.484 inhabitants
49,38 km²
395 inhabitants/km²

**Wassenaar**
27.115 inhabitants
62,40 km²
435 inhabitants/km²

**Delft**
104.574 inhabitants
24,06 km²
4.346 inhabitants/km²

**Leidschendam-Voorburg**
76.659 inhabitants
35,62 km²
2.152 inhabitants/km²



**The Hague**
553.306 inhabitants
98,13 km²
5.638 inhabitants/km²

**Zoetermeer**
125.767 inhabitants
30,05 km²
4.185 inhabitants/km²

**Rijswijk**
56.941 inhabitants
14,49 km²
3.930 inhabitants/km²

***Figure 36***
***Municipalities in the Haaglanden region***

## 4.2 History to Urban Development

Many Dutch cities have existed for centuries. Throughout the founding of these cities, until the present day, much has changed. Many aspects to a city have been progressing and evolving socially, morphologically, technically and function-wise. All these changes manifest in cities, as the outcome of the era's specific demands and ideals. This chapter contains a brief summary of notable developments and shifts in Dutch urban planning and design.

### History of Dutch Urban Development

For the most part, these cities have known little expansion between the 15th and 19th century. After the industrial revolution, and the redundancy of military walls limiting the city's expansion, a new wave of expansion occured (Rutte, 2006). With the dissapearance of a hard walled boundary, the relation between the urban and the open became more gradual and differentiated.

After the 19th century, with the emergence of rail infrastrcture, the orientation of cities shifted from waterways to rail (Abrahamse & Rutte, 2011). This came with unprecedented changes in urban contexts, as cities firstly experienced large scale impassable structures. In the interwar period, many cities expanded with the construction of working-class and middle-class neighbourhoods. These places where often quite homogeneous (Van de Beek & Van der Heijden, 1987).

After the second world war, many modernist neighbourhoods appeared in the Netherlands, designed according to the CIAM-principles. These residential ensembles often consisted of an open block morphology, in a 'stamp'-configuration, by which there was no direct relation between street and building. In sum, the main principles behind this urbanist approach were along the lines of light, air and space. During the 50s, planners and designers took a different approach to urban development. The war was over and modernist principles laid the foundations for postwar reconstruction. During the 60s, a national policy under the name of 'bundled deconcentration' was installed and implemented, which had major consequences on the Dutch urbanisation, or rather suburbanisation pattern. Many growth cores sprouted around larger Dutch cities.

After the 70s, this approach shifted towards a more small-scale suburban approach, with the typical 'cauliflower' districts, as they have been dubbed. The name references the vegetable because of the hierarchical street pattern, with a main entryway leading towards smaller streets and dead-ends, like the cauliflowers stem and branches.

During the 90s the Vinex policy got implemented which lead to many suburban developments on the outskirts of Dutch cities and villages. These are often car-oriented decentralised neighbourhoods with a low density residential character.

## History of urban development in the Haaglanden region

The most dominant settlement in terms of size in the Haaglanden Region is The Hague. After the middle ages, The Hague took this position of Delft in this region, as it was the residency of many wealthy individuals, which attracted the Dutch seat of government. This brought much significance to this city, and was a main driver of urban growth. Up to the late 19th century, all urban developments happened within the canal structure, which enclosed the village. Due to space being scarce, all communities lived within this urban ensemble, living parallel lives in the same urban stage.

Between 1880 and 1920, the population of the Hague quadrupled from 50.000 to 200.000. After the late 19th century, the city experienced a boom in construction projects to cope with the population growth. The kind of neighbourhood developments were heavily intertwined with the geographical conditions. Newly added streets followed the patterns of ditches and land reclamation, and are still present today (Oorschot, 2014). These patterns have a distinct kind of permeability and publicness to them.

The soil type influences the sorting of wealthy and working-class neighbourhoods. As the Hague is partly situated on the higher laying sand ridges, and on the lower laying peat soil, this meant part of the city was more safe and secure than the latter. This divide is embedded in the urban fabric of the city and has remained unchanged. This expresses through the architecture, services and social clustering.

In the interwar period, many garden cities sprang up in the Hague. Neighbourhoods like Duindorp, Laakkwartier and Vogelwijk were constructed during this time period, according to these principles. This went together with the construction of new main roads, like the Laan van Meerdervoort and the Loosduinseweg (Oorschot, 2014). These roads reach out to far from the city center, and have a large street profile, due to the combination of other infrastructure like tramlines and canals. During this period, the population rises to 470.000.

New residential districts like Morgenstond and Moerwijk appeared, with an open block configuration. The morphology consisted of a canvas of green and traffic space, with buildings placed loosely in this landscape. In the Hague, the Plan 2000 was presented during this period, which embraced the 'wijkgedachte'. This is a distributional principle of clustering amenities in a neighbourhood centre, to provide the neighbourhoods' residents of basic needs. This principle has been embedded in the urban fabric for all neighbourhoods since the 1950s. The spatial outcome of this plan was one of fragmentation (Van de Beek & Van der Heijden, 1987). Parallel to these developments, the national plan of bundled deconcentration initiated the growth of Zoetermeer as a growth core, which would provide a significant number of accommodations for the new baby boomer generation.

In the 90s, the neighbourhood of Ypenburg (between the Hague and Nootdorp) was constructed. This is a typical VINEX-neighbourhood with a suburban character and a large centralised shopping area.

Nowadays the main urban developments are happening within the city boundaries. NOVEX is a national policy to guiding urban development, of which the are surrounding the Hollandse Spoorlijn has been zoned as location for development. These plans are made concrete in the CID quality plan (central innovation district) by the municipality of the Hague (Ministerie van Binnenlandse Zaken, n.d.).


*Figure 37*
*Urban growth in Haaglanden region*

## 4.3 Social analysis

The social analysis on the regional scale aims to identify the manifestation of the different groups which are present in Haaglanden. These groups are differentiated on the basis of socioeconomic class, ethnic background and educational level. For this, the measuring mechanisms for diversity as mentioned in chapter 2.6 Assessing social mix and density have been applied on Haaglanden for the different categories.

### Socioeconomic class

The Haaglanden region comprises a diverse socioeconomic landscape. The area includes neighbourhoods with a mix of income levels, ranging from affluent neighbourhoods to poverty-stricken areas. As the visuals show, poverty is clustered, whereas wealth is dispersed. The visuals show that poverty is concentrated around the centre of The Hague, reaching towards the southwest. Wealth is concentrated along the coastline, reaching Wassenaar. Furthermore, there are pockets of wealth concentrated along The Hague's periphery, as well as clustered at the edges of smaller cities and villages. The A4 motorway can be viewed as a backside from both sides if viewed from an urban perspective. It is around this backside where wealth is concentrated.

The composition of classes is quite homogeneous in the Hague. The entropy index shows there is low uniform mixing between the three classes. Mostly in sparsely populated areas, the mix is well distributed, around 33 per cent per class. The dissimilarity index on the contrary shows that distribution is quite even, within a 500-metre range. The difference here is that dissimilarity index takes into account the population density, whereas the entropy index addresses the percentual distribution among classes inside the neighbourhoods themselves.

It shows the cities, especially the Hague, are rather segregated in terms of socioeconomic class. Poverty is hereby clustered in urban areas.

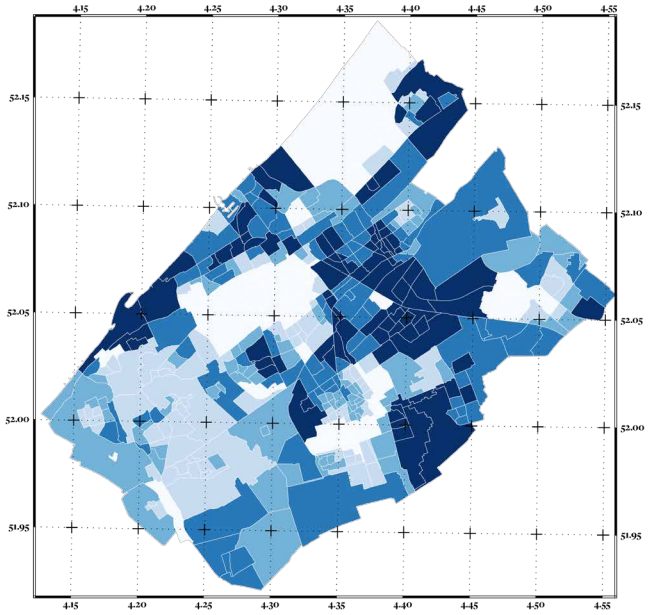



*Figure 38*
*Entropy index for high, medium and low socioeconomic classes in Haaglanden*

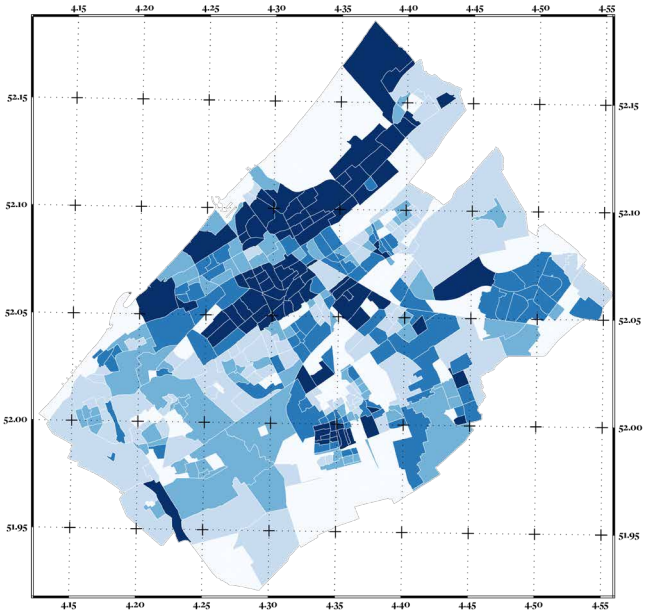



*Figure 39*
*Dissimilarity index for high, medium and low socioeconomic classes in Haaglanden with a 500-metre range*

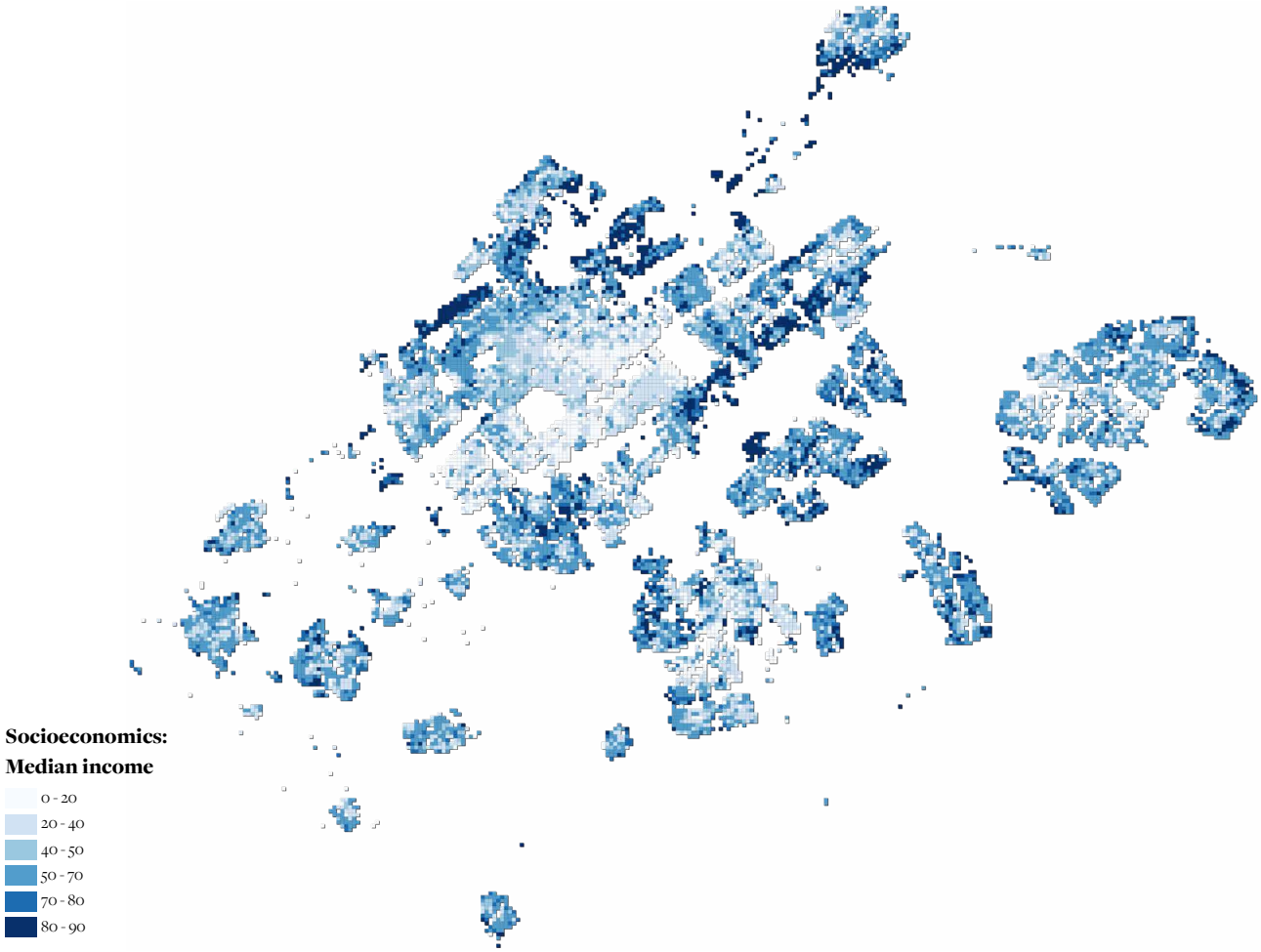



*Figure 40*
*Household distribution of median socioeconomic income in Haaglanden Region.*

## Ethnic background

The Haaglanden region is a socially diverse region in terms of ethnic background. Of all its inhabitants:

- 57% has a native background
- 17% has a Western migration background
- 26% has a non-Western migration background

The doughnut chart shows the population share by ethnic background. The map shows where the distribution of Western and non-Western individuals. There is a clear pattern visible of non-Western concentration in larger cities, especially in the Hague. Furthermore, it shows that mixing is quite rare, as the zones of overlap are limited.

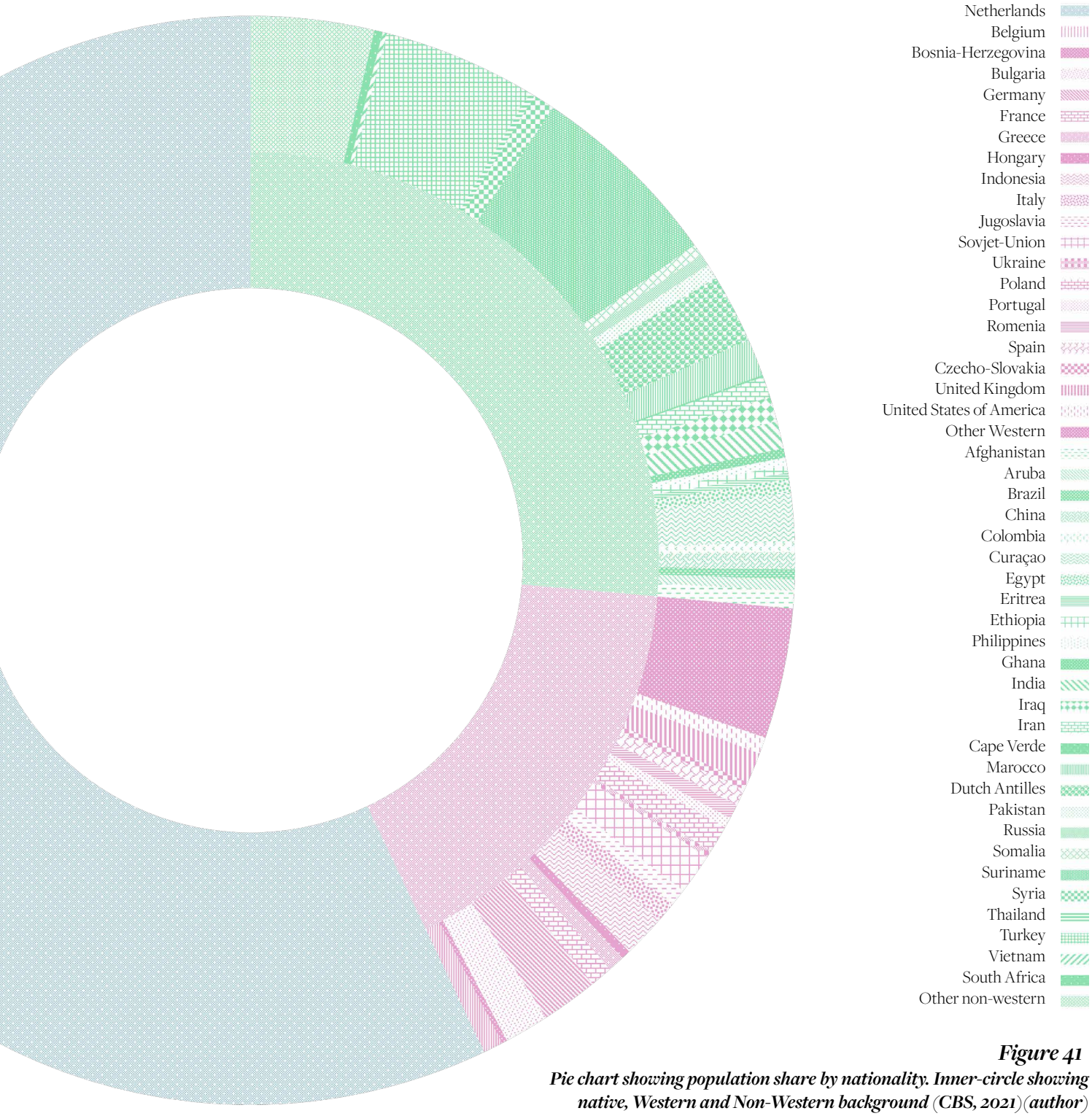



***Figure 41***

***Pie chart showing population share by nationality. Inner-circle showing native, Western and Non-Western background (CBS, 2021)(author)***

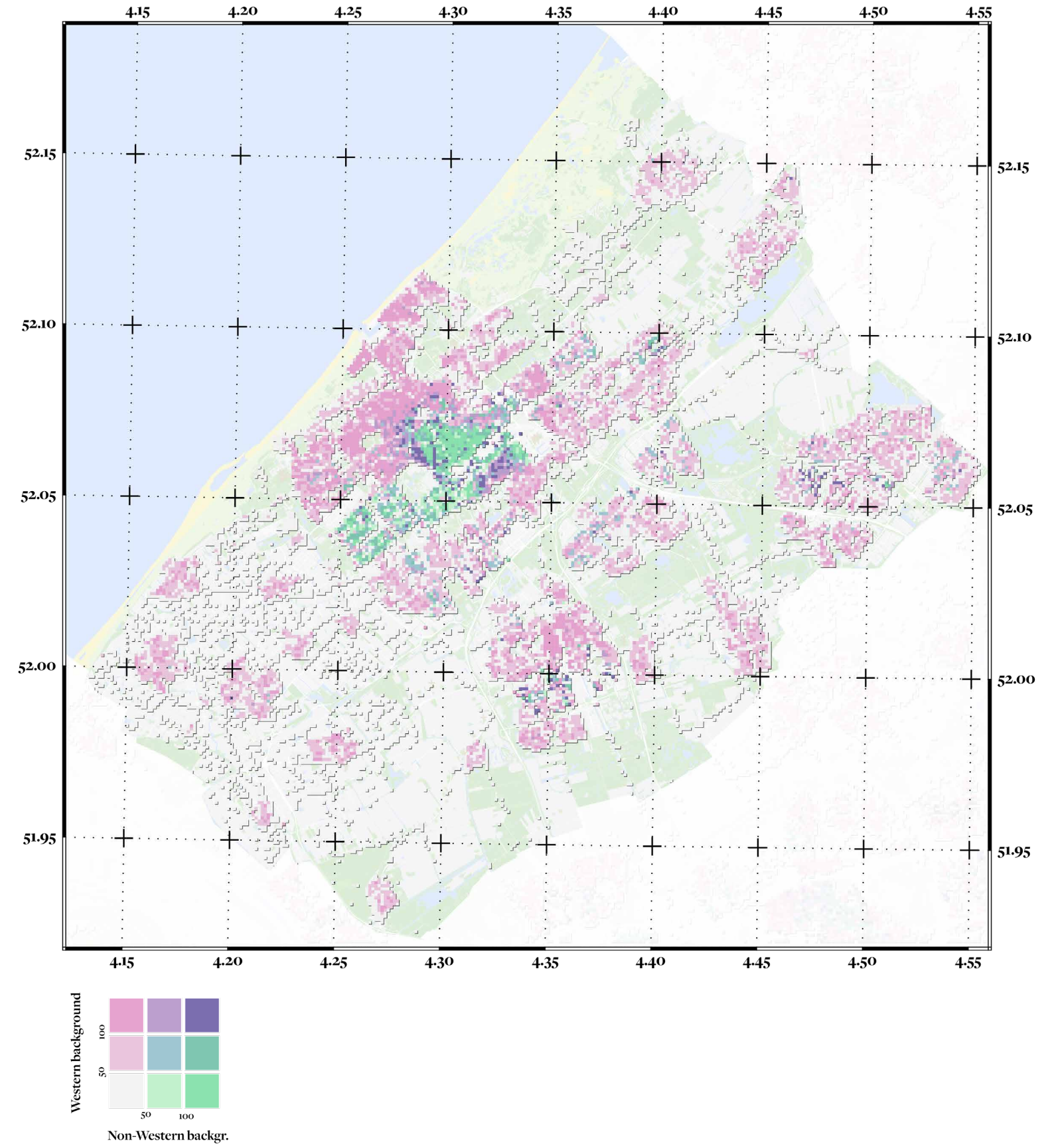



*Figure 42*
*Map of the Haaglanden region showing the distribution of individuals of a native and Western or non-Western migration background*

## Educational level

The Haaglanden region houses a diverse population with varying educational backgrounds, contributing to a vibrant and dynamic urban landscape. While residents with different levels of education coexist, discernible patterns emerge, revealing pockets of concentration with distinct educational profiles. Certain neighbourhoods have a greater concentration of highly educated individuals. In contrast, there are areas where lower levels of education are more prevalent. In some ways, the educational distribution shows an overlap between the socioeconomic distribution in the region, yet in a more nuanced form.

The entropy index shows there are some areas where the mixture of educational level is fairly evenly distributed among the different levels. This is remarkable, as it is mainly in peripheral areas, and relatively exceptional in the pre-war urban fabric. The dissimilarity index in shows a rather opposite pattern. This is the result of a higher population density in these pre-war neighbourhoods. As entropy there is low, the dissimilarity is still quite high as the probability of exposure between different individuals of different classes is high.

The interplay between diverse educational backgrounds and concentrated localities adds complexity to the social fabric of the region.

The appendix contains additional mappings on the distribution of individuals of different educational levels, based on low, medium and high educational level. It shows in terms of number of individuals per neighbourhood, as well as percentage of the neighbourhood.

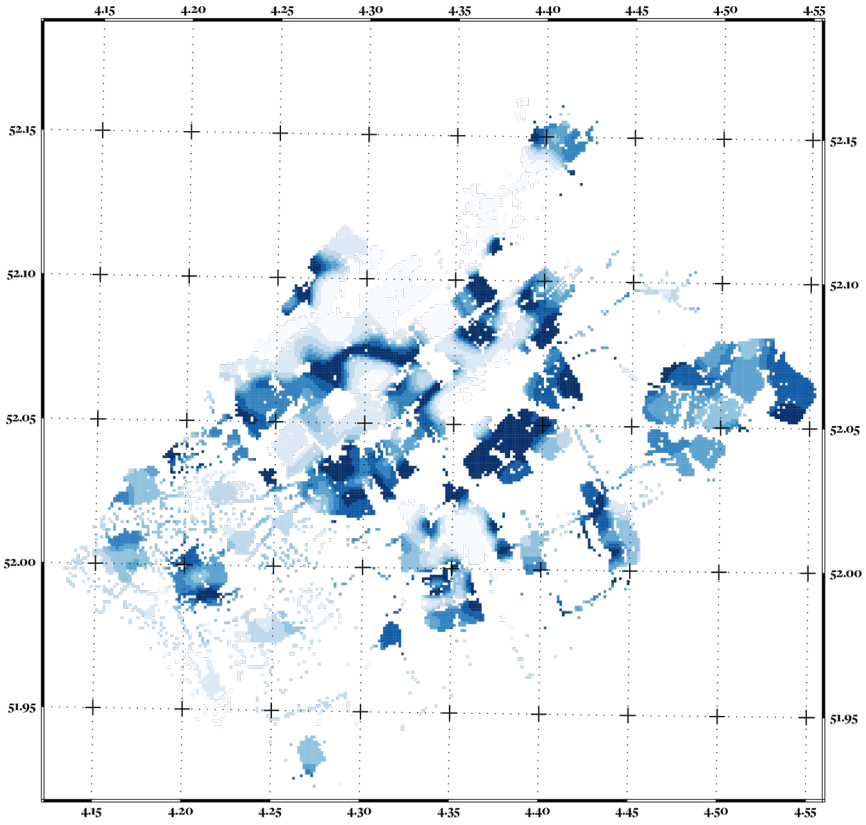



*Figure 43*
*Entropy index for high, medium and low educated individuals in Haaglanden*

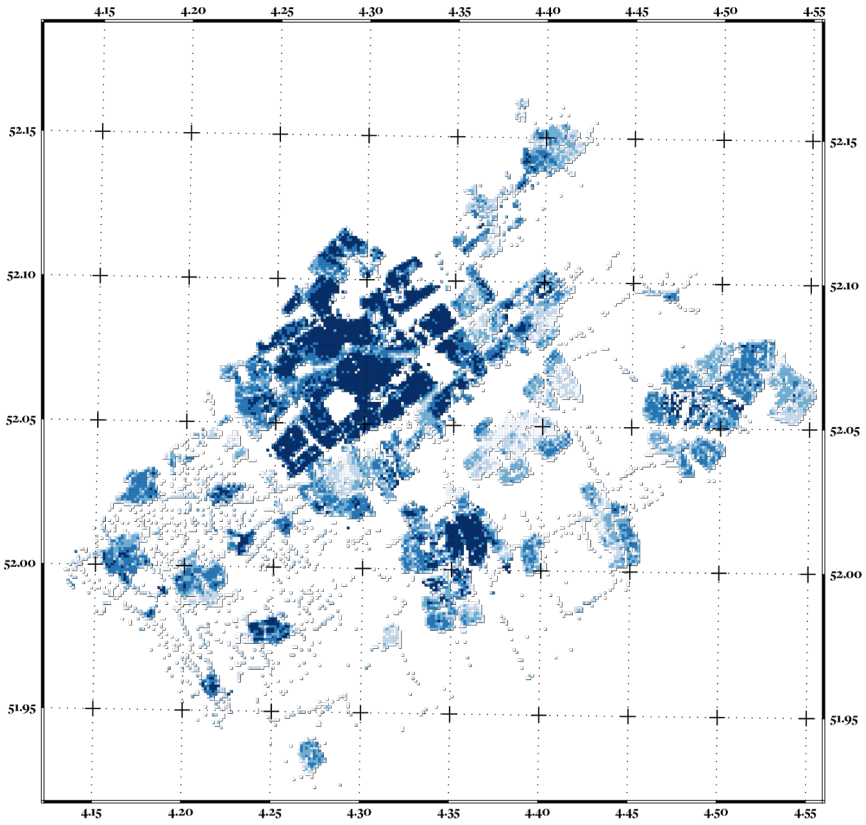



*Figure 44*
*Dissimilarity index for high, medium and low socioeconomic classes in Haaglanden with a 500-metre range*

## Superdiversity in the Haaglanden Region

Combining the three group differentials of socioeconomic class, ethnick background and educational level gives the composite diversity index for the Hague Region. The result in Figure 40 shows which areas are superdiverse, and which ones are not. In terms of superdiversity, the most superdiverse neighbourhoods are:

| | |
|---|---|
| • Haagoord | The Hague |
| • Ypenburg | The Hague |
| • Mariahoeve | The Hague |
| • Wateringse Veld | The Hague |
| • Rivierenbuurt | The Hague |
| • Kortenbos - Regentessekwartier | The Hague |
| • Oosterheem | Zoetermeer |
| • Heuvel | Leidschendam |
| • Het Loo | Voorburg |

The least superdiverse places are:

| | |
|---|---|
| • Schilderswijk - Transvaal | The Hague |
| • Vogelwijk | The Hague |
| • Benoordenhout | The Hague |
| • Clingenbosch | Wassenaar |

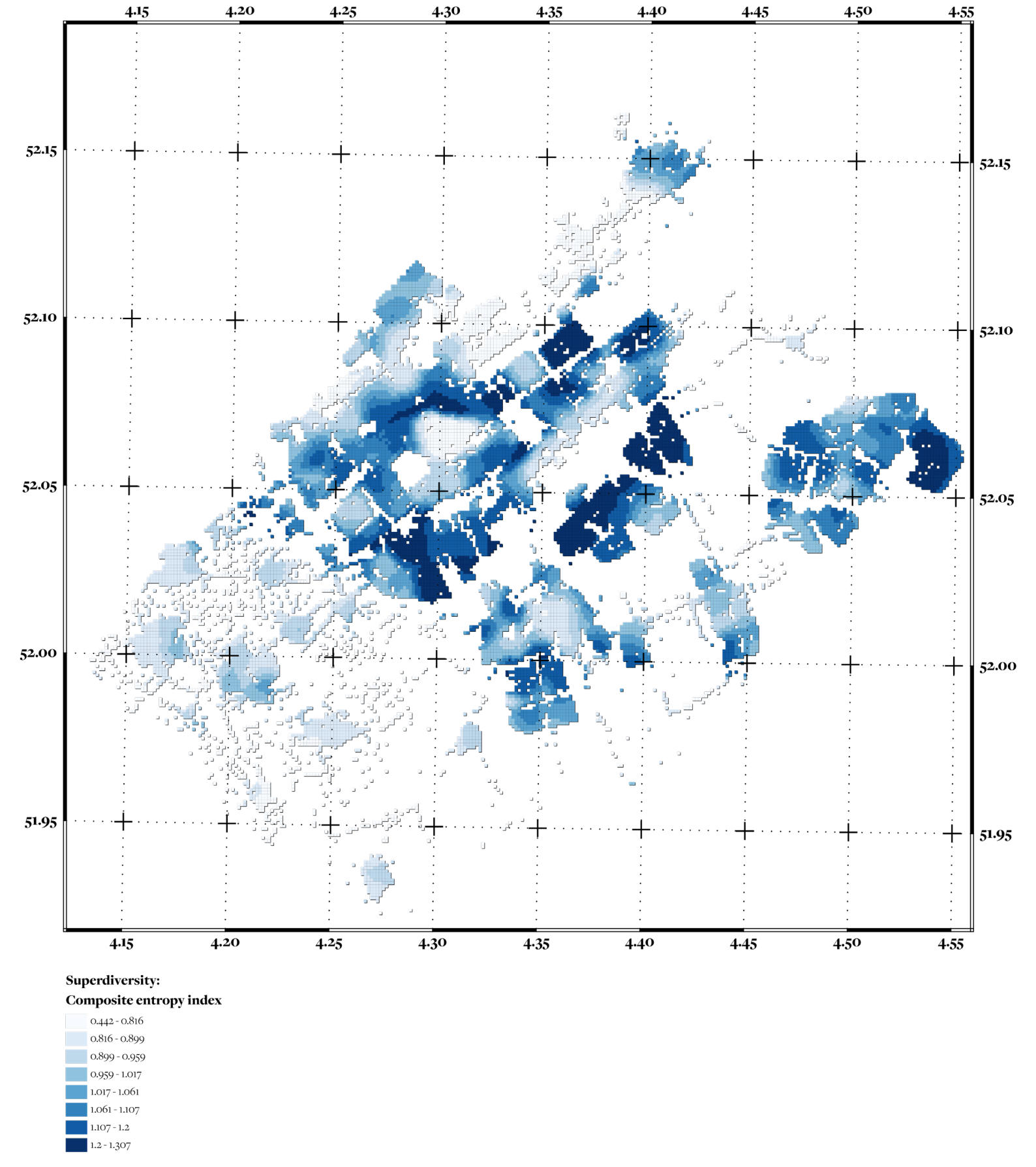



*Figure 45*
*Composite entropy index showing superdiversity for socioeconomic class, educational level and ethnic background.*

## Exposure to superdiversity in the Haaglanden Region

The superdiversity index and population density combined, as shown in the map on the right, gives a sense of exposure between different individuals in each neighbourhood in Haaglanden. It shows where co-presence is high and low. It gives a sense of exposure to the otherness.

The bar chart below indicates that there is social clustering on the basis of ethnic background in the Haaglanden Region. This is visible through the bar sizes, which refer to the percentage of individuals in one of the three background categories.
It shows that within every hectare of built environment where individuals of a certain background co-exist with that of another background. It shows that native individuals are more exposed to other natives, and non-western individuals are more exposed to other non-western individuals. The average composition in the whole Haaglanden region is shown in the right bar.
These percentages have been calculated for each 100x100 cell in the Haaglanden region. The average cell's composition for which at least one individual of a certain ethnic background is present represent either one of the bars. That is to say, if a cell has 50 residents, of which no single native resident, it has not been counted in the bar containing native cells.

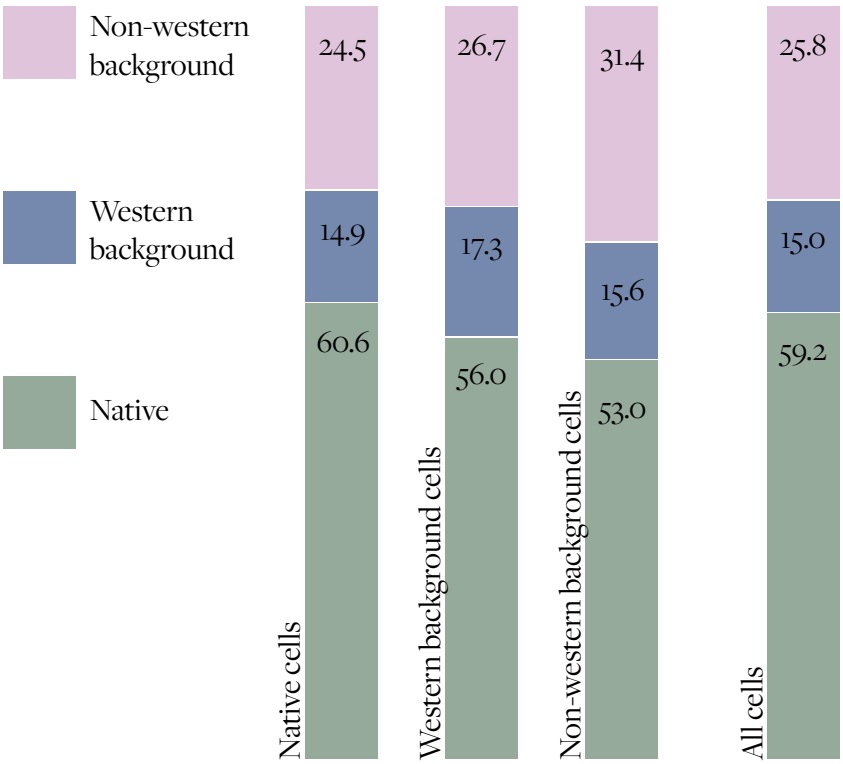
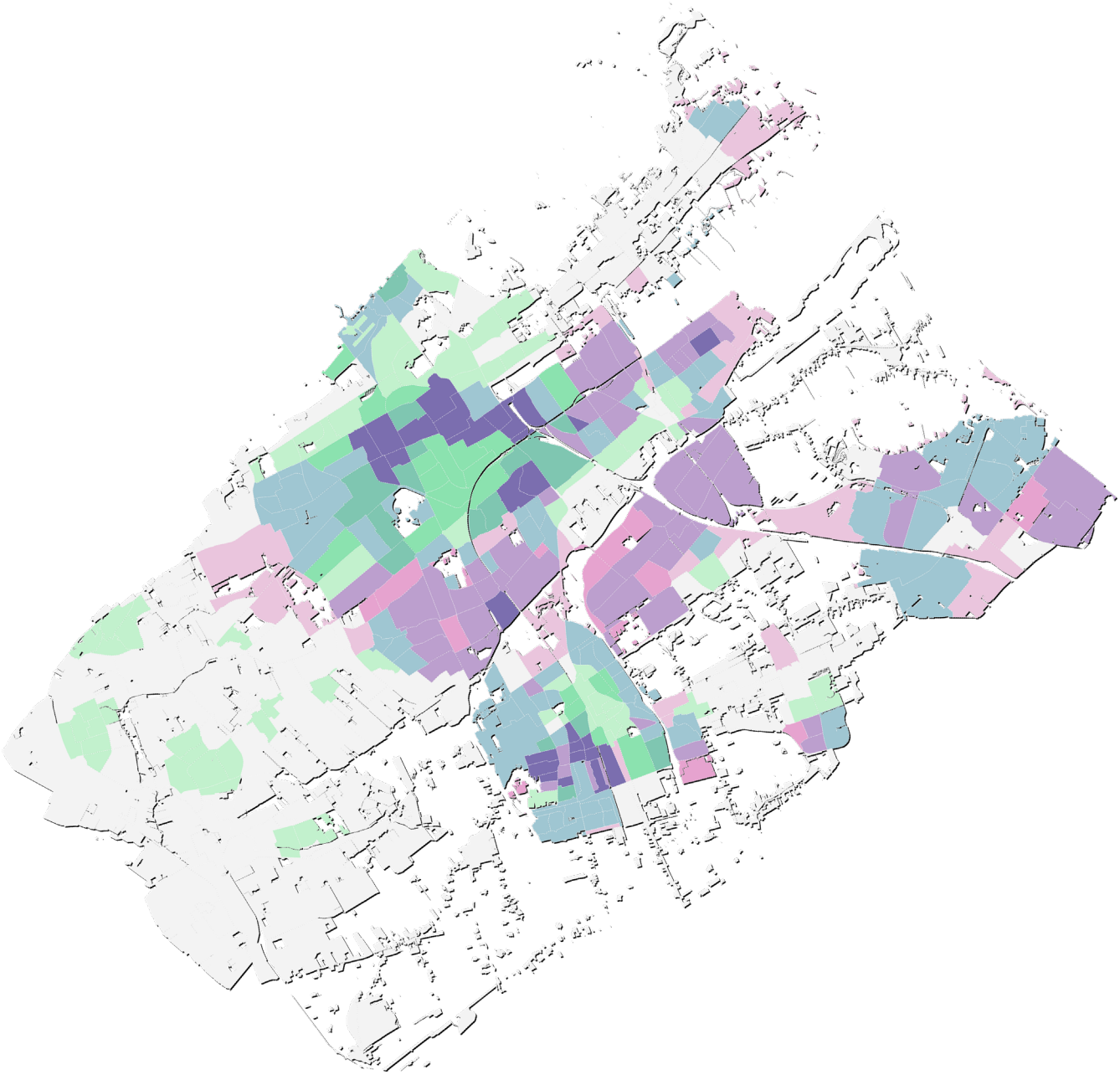



*Figure 46*

***Bar chart indicating exposure among different ethnicities per 100x100 m² cell in the Haaglanden region.***



LEGEND

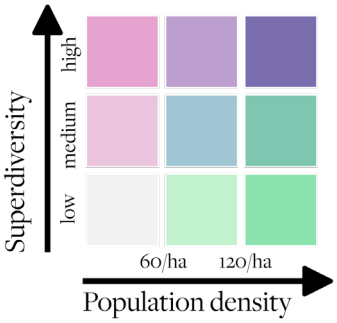



***Figure 47***

***Exposure of superdiversity in Haaglanden region (information based on CBS)***

## 4.4 Spatial analysis

This sub-chapter contains a spatial analysis on the built structures in the Haaglanden region. These spatial structures are both from an infrastructural and morphological perspective. The chapter will be concluded with schemes to which different means of densification hold potential per neighbourhood. This chapter gives an understanding on the existing spatial structures, and provides the stepping stone (combined with the social analysis) on potential zoom-in locations which are potent for inclusive densification.

### Main spatial structures in Haaglanden region

The Haaglanden Region is a densely populated region, with much infrastructure to accomodate these urban densities. The region is adjacent to the North Sea, and the ports of Rotterdam. The motorways go along the urban fabrics, but barely slice into it. The water structures in the region are ubiquitous, but not dominating. The same is for the recreative green structures. The dunes along the coastline, together with some forest patches provide nature to many inhabitants.

The region can be interpreted as a patchwork metropolis. The large single-use patches indicate there may be seperation through other uses than residential neighbourhoods. This is the case with large urban parks or industrial/commercial areas, which may inhibit interactions among both sides.

The main spatial structures, as shown isolated on the left, and combined to a composite map on the right, have influence on the space's social logic on a larger scale. Large infrastructure like train tracks slices the urban fabric and seperates both sides. In urban areas, train infrastructure seperates and creates very different areas on both sides. This influences the social context through distribution of opportunities and embedded money.

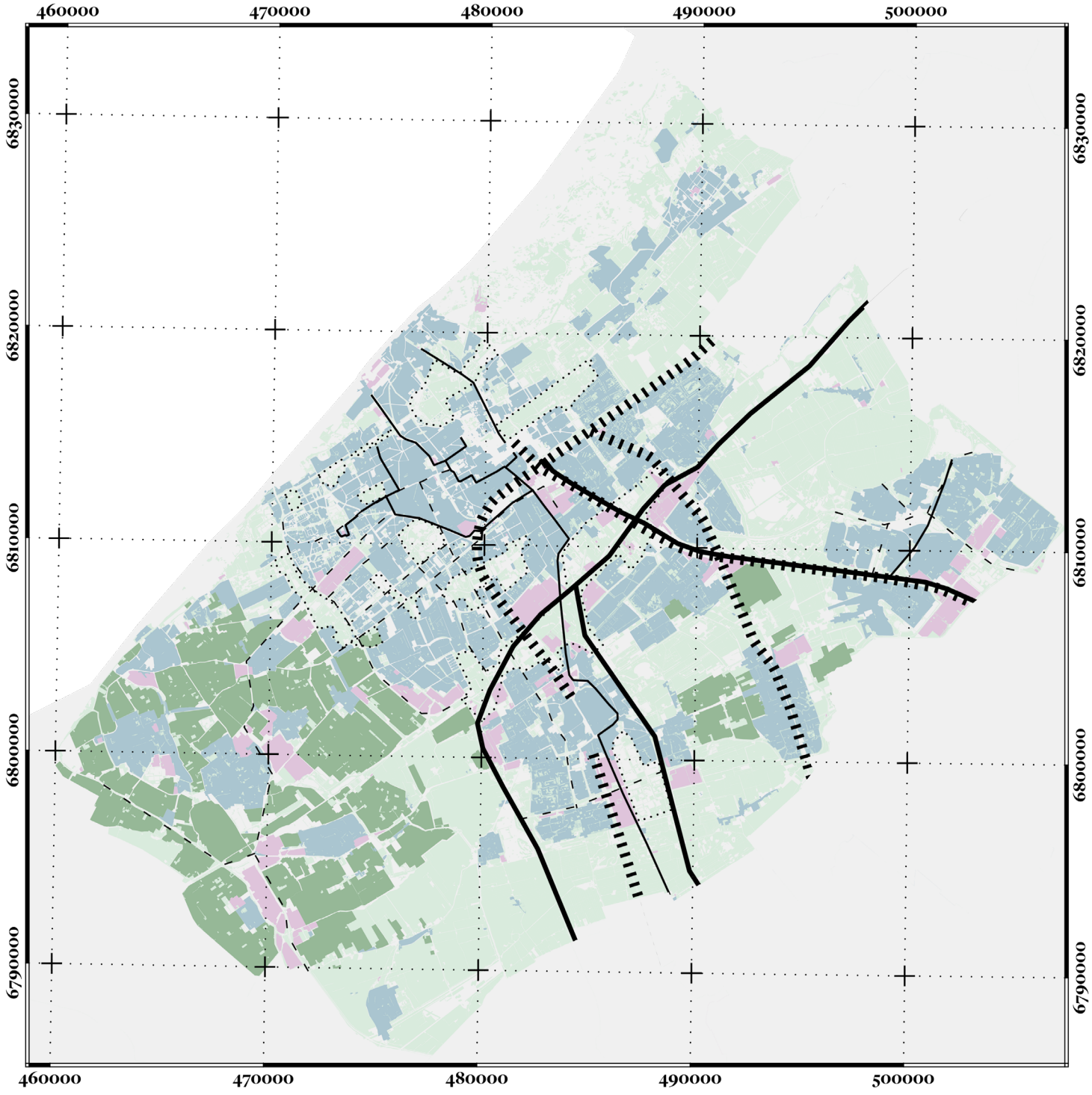



*Figure 48*
*The map above shows the borders and edges in the region of Haaglanden.*

## Urban fabric of Haaglanden Region

As the urban fabric has been developed through many ages, and with many different purposes, it has many different urban density types. The different urban densities are the result of different urban paradigms, different natural conditions (soil type and elevation), different land uses for the area related to economic forces, different spatial structures, and a palimpsest of preceding natural or manmade structures. It all leads to the structure as is shown in the map on the right.

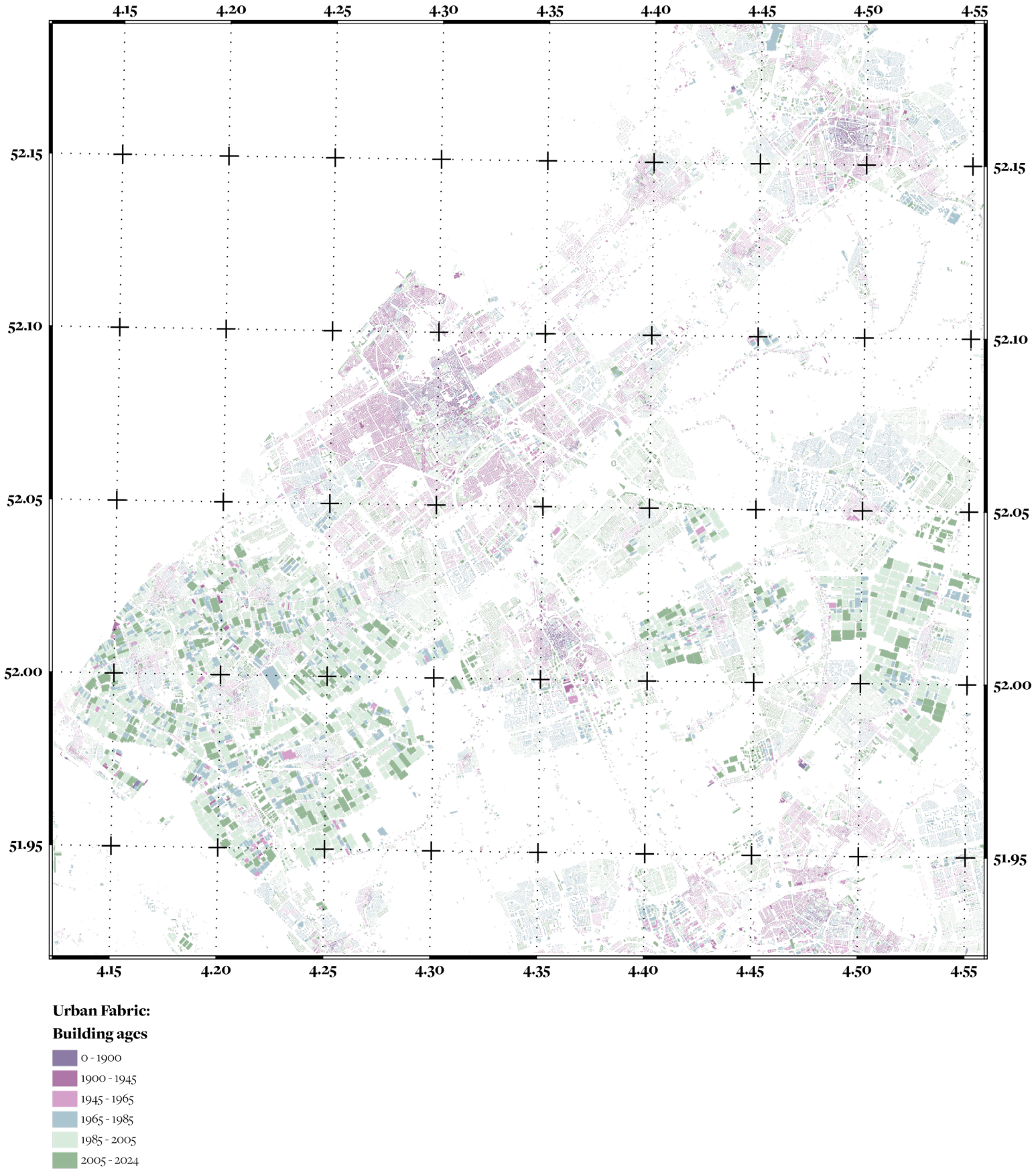



*Figure 49*
*Urban fabric: Building ages*

## Density types

There are multiple different urban density profiles in the Haaglanden region. These are shown in the map below. These density profiles have been identified based on the differentiation of FSI and GSI per neighbourhood (buurt).

The different density profiles are given below. Their structuring has been given based on frequency of their presence, for which the smaller neighbourhood entities (buurten) are used. These need not necessarily mean largest surface area is dedicated towards these typologies, as neighbourhoods differ in size.

For each of the density profiles the proximate density measures are shown. For measures regarding increasing density, and to accommodate more space in the existing urban fabric, some densities are more potent than others.

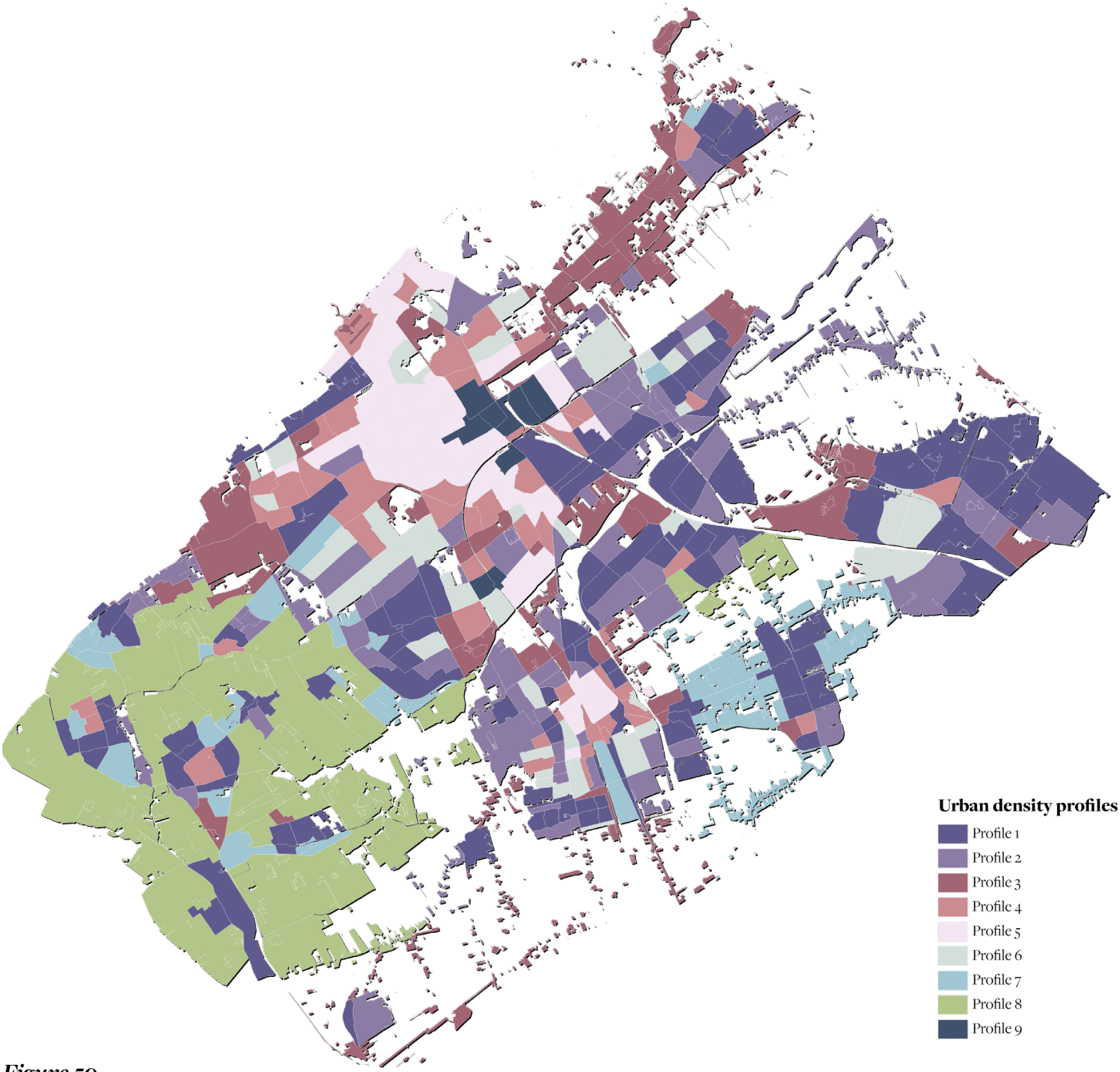



*Figure 50*
*Urban density type per neighbourhood in Haaglanden*

C1: Suburban low-rise

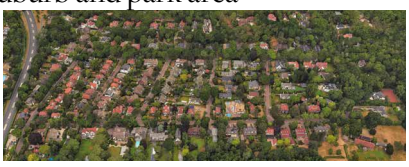
FSI: 0.50
GSI: 0.22
OSR: 1.56
L: 2.27

C2: Suburban green area

FSI: 0.36
GSI: 0.15
OSR: 2.36
L: 2.40

C3: Peri-urban suburb and park area

FSI: 0.13
GSI: 0.07
OSR: 7.15
L: 1.86



C4: Postwar dense urban fabric

FSI: 0.80
GSI: 0.25
OSR: 0.94
L: 3.20

C5: Prewar dense urban fabric

FSI: 1.10
GSI: 0.36
OSR: 0.58
L: 3.06

C6: Postwar urban mid-rise block

FSI: 0.65
GSI: 0.15
OSR: 1.31
L: 2.40

C7: Suburban business park area

FSI: 0.56
GSI: 0.38
OSR: 1.11
L: 1.47

C8: Rural greenhouse area

FSI: 0.61
GSI: 0.57
OSR: 0.70
L: 1.07

C9: Dense urban high-rise

FSI: 1.75
GSI: 0.33
OSR: 0.38
L: 5.30

***Figure 51***

***Mean density measures per urban density type***

## Urban density characteristics

This paragraph aims to identify which neighbourhood characteristics are related to inclusive densification across different urban density profiles. The focus is on finding correlations that can inform the selection of appropriate interventions for densification purposes. This sub-chapter will consist of a comparison of the different urban density profiles to certain social, spatial and socio-spatial characteristics. These are:

- Open spaces (OSR)
- Median building levels (either low, middle, or high-rise buildings)
- Mixed-use (MXI)
- Liveability
- Superdiversity
- Mean liveability

The graph below shows an indication on how the built environment relates with the social context. It gives a brief overview on the different urban and social characteristics which are related to each of the urban density clusters.

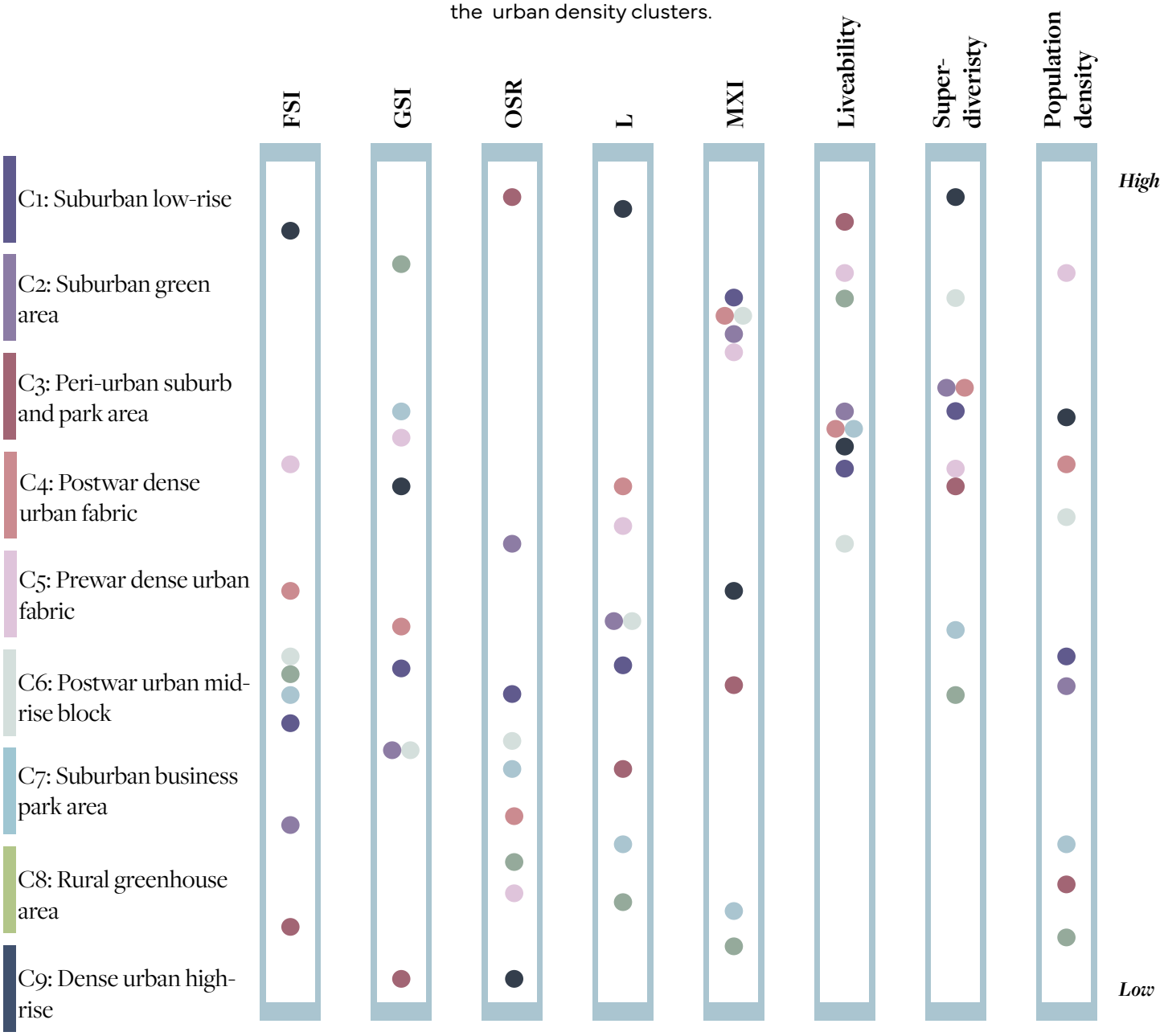



*Figure 53*

*Characteristics per urban density type*

## Densification types and suitability

There are a number of different densification modes, ranging from hard densification to soft densification. The table below displays these modes and their corresponding suitable conditions. After that, a general densification potential scheme is shown. In here, the different profiles are shown to be related to different densification measures. This ranges between hard and soft transformation to afford to accommodate more space in an existing area.

| Densification type | Definition | Suitable conditions |
|---|---|---|
| **Transformation** | Transformation consists of the demolishing of existing buildings and redeveloping the land. It offers maximum flexibility and allows for a complete transformation of the urban fabric. | • End of life-cycle conditions<br>• Serious deterioration<br>• Possibility to revitalise or improve existing urban fabric<br>• Non-privately owned spaces<br>• Older neighbourhoods |
| **Infill** | Infill consists of utilising vacant or under developed lots, as well as open spaces through adding built mass. This allows for new functions and masses to be added through filling in open space. | • Under-utilised land<br>• Large open spaces |
| **Horizontal extension** | Horizontal extension is the enlarging of an existing function through occupying surrounding open space. It allows for incremental growth and intensified utilisation of an existing plot. | • Allows for incrementality<br>• Large plots |
| **Vertical extension** | Vertical extension is the utilising of space above and/or below an existing structure. It preserves an existing building and makes use of the footprint. | • Built-up areas (open space is preserved)<br>• Low and mid-rise areas<br>• Flat roofed areas<br>• Older neighbourhoods |
| **Adapting use** | Through adapting the use, space accomodation can be optimised using the existing urban fabric. This can be done for both porosities of material and fracture. Use adaptation allows for no major transformations to be made. | • Vacant buildings<br>• Monotonous areas (high or low MXI)<br>• Built-up areas |
| **Splitting** | Splitting of existing structures allows for a certain structure to be sliced in two or more independent structures. This allows for space usage to be intensified and optimised and for other functions to be added within an existing space. | • Large plots<br>• Large grain sizes<br>• Built-up areas |

*Figure 54*

***Definition and suitable conditions for different types of densification***

## Densification potential per context

Different density profiles afford different measures of densification. As some are more suitable for densification, regarding their position in the urban fabric - or not - or the amount of open space for hard densification, some are not suitable at all. The suitability for every density profile is shown in the table below in Figure 59. It shows here that some density types are more suitable towards densification than others. Due to the non-urban nature of density types 3 and 8, they are considered suboptimal for densification. Therefore, these will be taken out of further considerations.

| | Central | Urban | Rural | Functional | Frequency | Open space | Suitable |
|---|---|---|---|---|---|---|---|
| C1: Suburban low-rise | | x | | | x | x | x |
| C2: Suburban green areas | | x | x | | x | x | x |
| C3: Peri-urban and park areas | | | x | | x | x | |
| C4: Postwar dense urban fabric | x | x | | | x | | x |
| C5: Prewar dense urban fabric | x | x | | | x | | x |
| C6: Postwar urban high-rise block | | x | | | | x | x |
| C7: Suburban business parks | | (x) | | x | | x | (x) |
| C8: Rural greenhouses | | | x | x | | | |
| C9: Urban high-rises | x | x | | | | | x |

*Figure 55*
*Environmental characteristics per urban density type*

## Potential towards densification type

Different density profiles afford different measures of densification. As some are more suitable for densification, regarding their position in the urban fabric - or not - or the amount of open space for hard densification, some are not suitable at all. The suitability for different types of densification to every density profile is shown in Figure 60 below. This is an indicatory diagram giving a generalised picture on this suitability of the different densification types as has been previously shown in the diagram below.

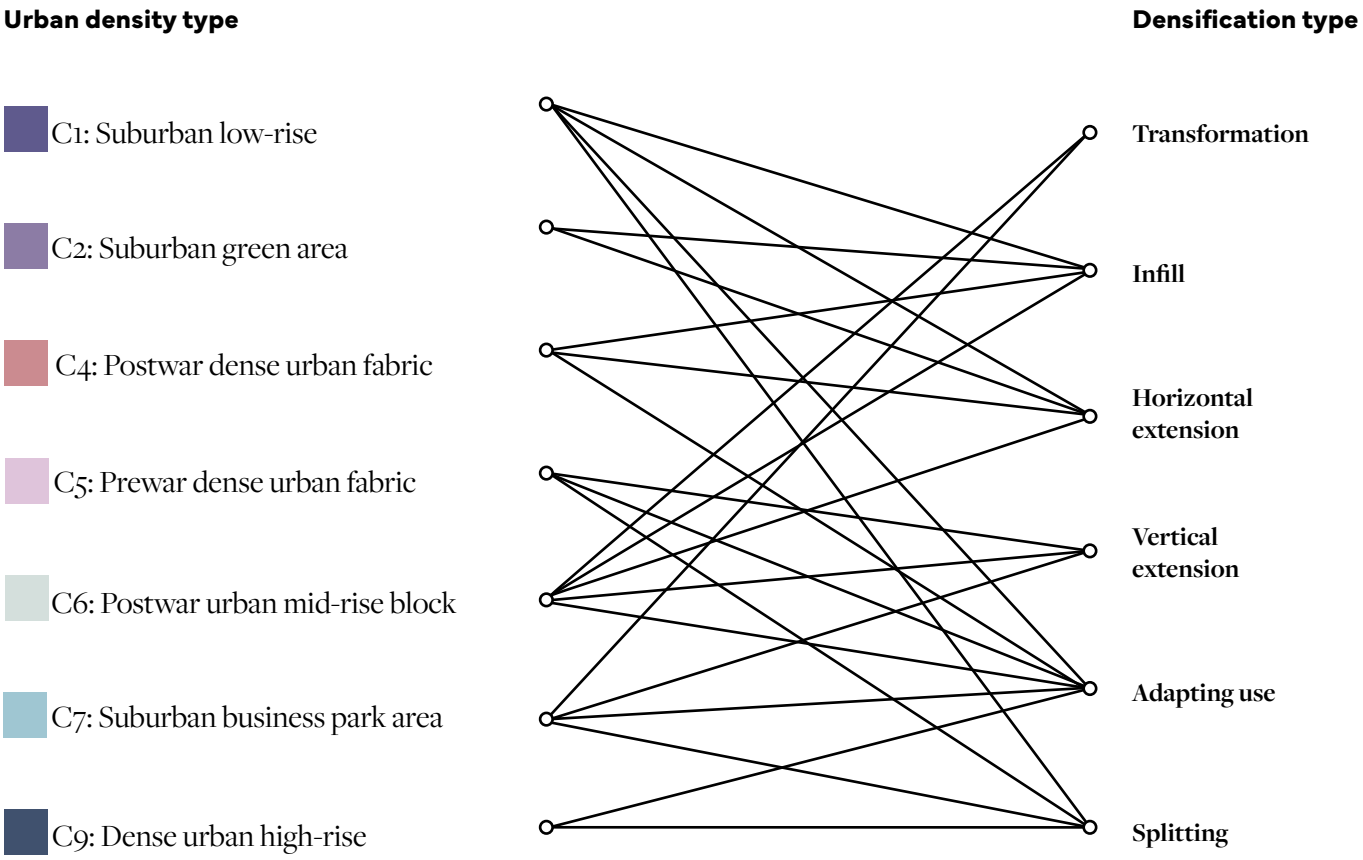



*Figure 56*
*Characteristics per urban density type*

## 4.5 Local site zoom-ins

To conduct a more comprehensive analysis and develop effective design strategies, this paragraph will elaborate on a select number of cases. This paragraph presents the conclusions of the regional analysis in a decision scheme. A few neighbourhoods in the Haaglanden region will be selected based on their spatial and social characteristics in relation to the concepts superdiversity and urban density. The spatial conditions hold strategic value in relation to the just city and the open city theories.

The purpose of this paragraph is to provide a well-supported selection of various neighbourhoods for further exploration. This exploration includes an elaboration of the different case areas through analysis and research by design. The aim is to derive patterns for inclusive densification and to develop local in-depth design proposals for each case. These design proposals incorporate the various patterns contained in the pattern language and vice versa.

The intention behind selecting multiple case study areas with inherent differences is to derive a holistic approach towards inclusive densification that addresses the needs of a superdiverse society. Inherent differences in urban densities result in varying degrees of affordance for densification, which in turn hold different strategic potentials towards densification. Therefore, the aim is to select various neighbourhoods in an urban context to allow for different approaches towards densification. This will include considering different values of FSI and GSI.

To ensure a socially sustainable approach to densification, the selection will also take into account social characteristics. These concern the degree of superdiversity and the population density. It is important to consider the unique characteristics of each neighbourhood within the range of superdiversity and monotony when planning spatial interventions to address societal changes. The densification and alteration of the urban fabric should align with the principles of the just city to mitigate segregation in a more diverse society.

The geographic position of the cases has been considered for strategic purposes, measured through openness using the open city theory. This includes how well the case is integrated into the urban fabric, whether it acts as an enclave or a porous and integrated entity. Also, the livability has been considered. The liveability score assesses the living environment based on basic needs and living comfort. Therefore, it serves as a general indicator for the just city theory.

## Strategic zoom-in locations

With regard to the different kinds of urban densities, combined with the contextual superdiversity, some locations are considered more strategic than others. As the project aim is to achieve inclusive densification, it is important to pick a relevant site to densify inclusively. To choose an area, two hybric criteria are important:

1. Urban density
   In order to maximise the potential towards densification, it is important to pick a site where many densification types are relevant. The optimal site has lots of open space to afford the introduction of more mass.
2. Superdiversity
   It is important to build upon the already existing social structures, rather than to transform radically in order for a superdiverse outcome. Therefore, it is important to pick an already superdiverse site. One where exposure is already high.

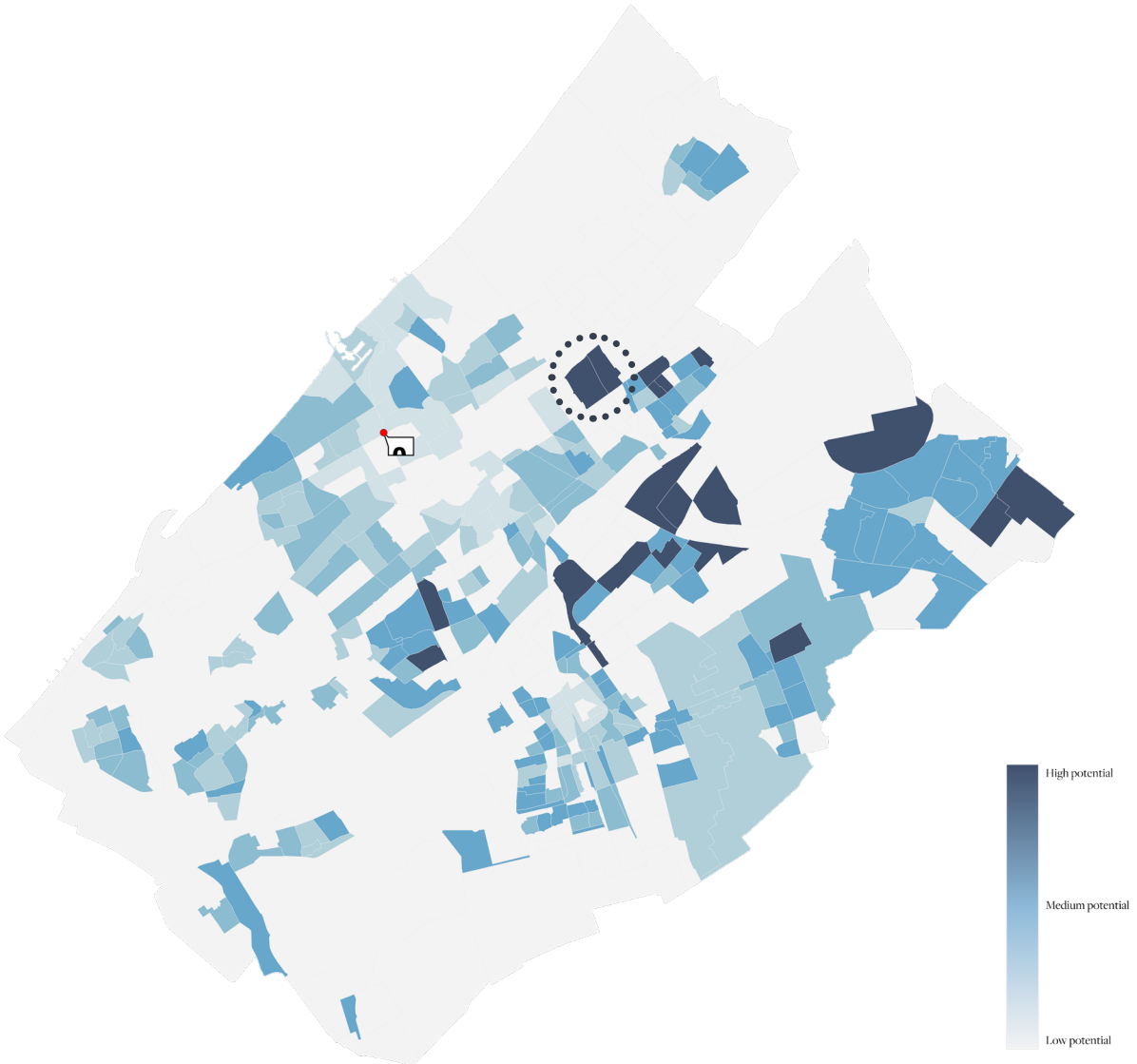
To identify which neighbourhoods are relevant, the table on the right shows which neighbourhood characteristics are aimed for, and how this can be quantified according to the formula at the page bottom.

| | Super-diversity (S) | Population density (P) | FSI (F) | GSI (G) |
|---|---|---|---|---|
| Site 1 | High | Mid | Low | Low |
| Site 2 | High | High | High | High |

Two sites have been chosen to proceed and elaborate upon. Through research and design, these two sites are relevant for the creation of the pattern language, aiming at inclusive densification.

Site 1: Mariahoeve

Mariahoeve is a relevant neighbourhood, as the potentials towards densification are high. In terms of urban density, both the FSI and GSI are low, meaning there is lots of open space in this neighbourhood. In terms of exposure, superdiversity is very high, whereas the population density is not high nor low. Therefore, potential to build upon existing social structures through increasing the built mass, accommodating more people, is highly feasible here.




**Site 1**

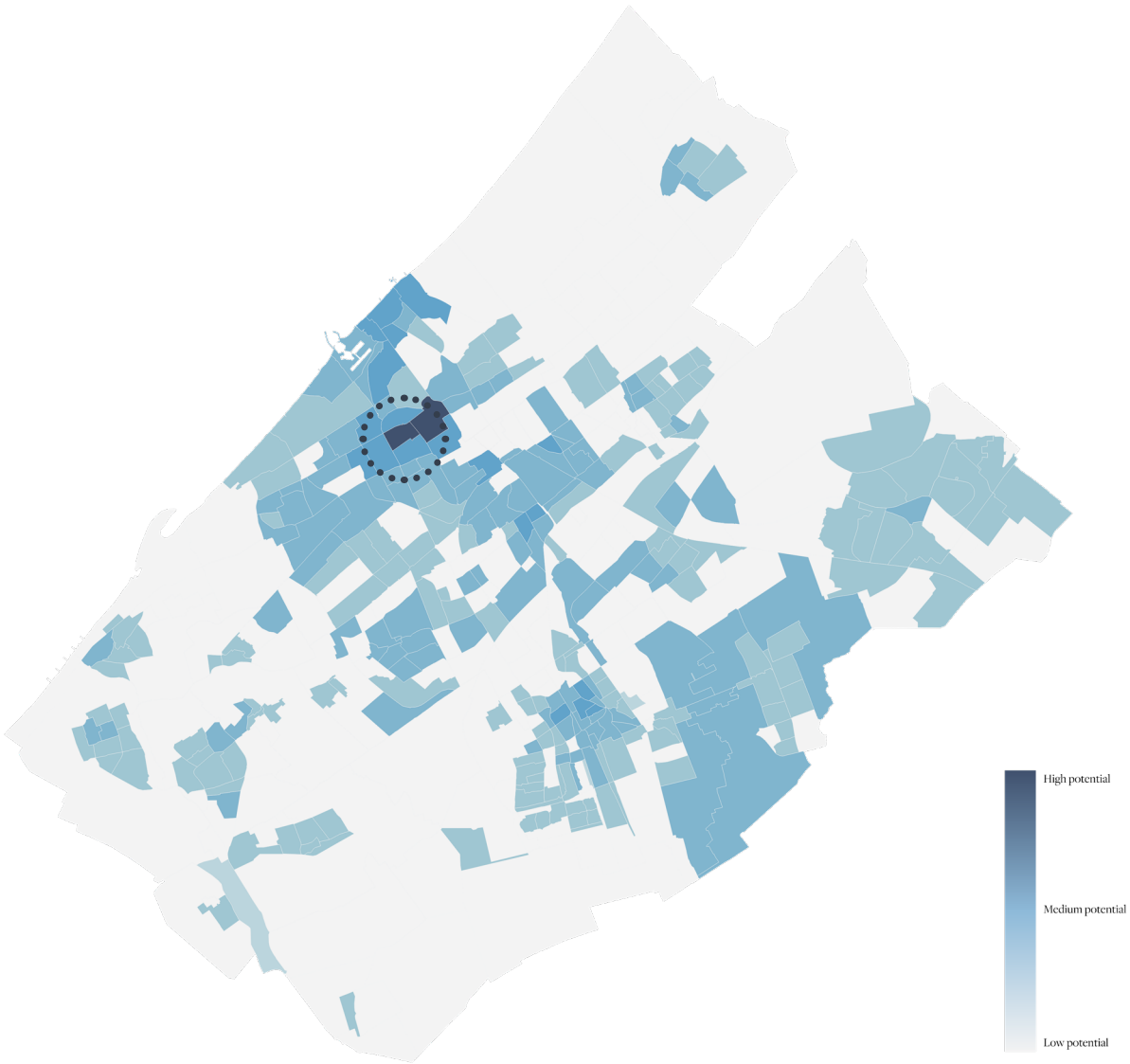
$$\left(\frac{S}{S_{max}} + \frac{P}{\left(\frac{P_{max} - P_{min}}{2} + P_{min}\right)}\right) * \left(\frac{F - F_{max}}{F_{min} - F_{max}} + \frac{G - G_{max}}{G_{min} - G_{max}}\right)$$

**Mariahoeve, The Hague**

*Figure 57*
*Quantification of potentials resulting in Mariahoeve*

Site 2: Regentessekwartier

The Regentessekwartier is a dense part of The Hague. It is a neighbourhood of co-presence, with many different individuals living side by side. For research, it is a very relevant neighbourhood, while being part of the broader context.




**Site 2** $\left(\frac{S}{S_{max}} + \frac{P}{P_{max}}\right) * \left(\frac{F}{F_{max}} + \frac{G}{G_{max}}\right)$ **Regentessekwartier, The Hague**

***Figure 58***
*Quantification of potentials resulting in Regentessekwartier*

# 5. Neighbourhood analysis

1. Introduction to Mariahoeve
2. Spatial structures
3. Built densities in Mariahoeve
4. Social analysis of Mariahoeve
5. Potentials towards densification in Mariahoeve
6. Introduction to Regentessekwartier
7. Take-aways from Regentessekwartier

This chapter gives an overall description on the neighbourhood of Mariahoeve in The Hague. Hereby the history, spatial structures and networks, as well as morphology and socio-spatial characteristics of the neighbourhood are addressed. The chapter concludes with a SWOT analysis showcasing the untapped potentials and weaknesses of the neighbourhood.


Mariahoeve
Regentesse-
kwariter

## 5.1 Introduction to Mariahoeve

The neighbourhood of Mariahoeve is located on the outskirts of The Hague, located closely to the center the Hague. The neighbourhood is a postwar neighbourhood, mainly constructed during the 1960s. The urban fabric can be characterised by the many open blocks and slabs which are freestanding in the open landscape of mainly low vegetation and grass. The neighbourhood layout consists of 6 individual islands which are seperated by large roads which act as the backsides of these morphological islands. Each of these islands varies in size, and accomodates a small local center. The services provided are arranged in a mono-functional way, according to the modernist principles at the time of construction. Centrally located in the Mariahoeve is a shopping mall, bridging the island's borders by providing daily needs to all residents of the neighbourhood.
There is a green-blue structure running through the different islands. To the southeast of the neighbourhood is the local train station "Den Haag Mariahoeve", with monofunctional offices occupying the surrounding space. The Southern border of the neighbourhood is enclosed by a railroad, connecting Mariahoeve with Laan van NOI. Allotments fill the in-between space between neighbourhood and railroad.
The Western side of the neighbourhood is mainly occupied by sports fields, forming a discontinuity between the typical prewar urban fabric of The Hague and the postwar modernist neighbourhood that Mariahoeve is.

| | Area | Population | Population density |
|---|---|---|---|
| Mariahoeve | 309 ha | 15.045 inh. | 4.869 inh./km$^2$ |


***Figure 59***
***Map of Mariahoeve***

## Historic analysis of Mariahoeve

After Den Haag Zuidwest was developed in the 1950s, there was little room for expansion within the municipal boundaries of The Hague. The site of Mariahoeve was long occupied by a railway line which connected The Hague with Wassenaar, as shown in figure 66, from the 1940s.

Due to insufficient transport demand, the railroad was disbanded, which made a free executable plan for the to-be-constructed neighbourhood of Mariahoeve in 1953. By this time, The Hague Zuidwest has received critique for its inherently monotonous layout, as an orthogonal working-class district. Engineer Van der Sluijs designed Mariahoeve with certain key principles, contrasting this critique, and according to the then present zeitgeist. These principles are:

- The 'undivided city' (ongedeelde stad), ensuring the accommodation for different societal layers (Rijksdienst voor het Cultureel Erfgoed, 2016, p. 9).
- The structure of main roads has been guiding in Mariahoeves urban fabric.
- The configuration of the buildings and the whole neighbourhood setup was done according to Scandinavian urbanism at the time.
- The plan implemented parts of the Wijkgedachte, which embraced the distribution of services and amenities in centralised locations.

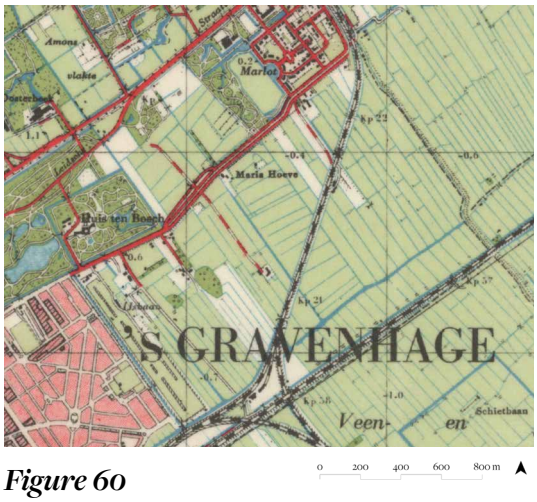



*Figure 60*

*Map of Mariahoeves context in 1930*

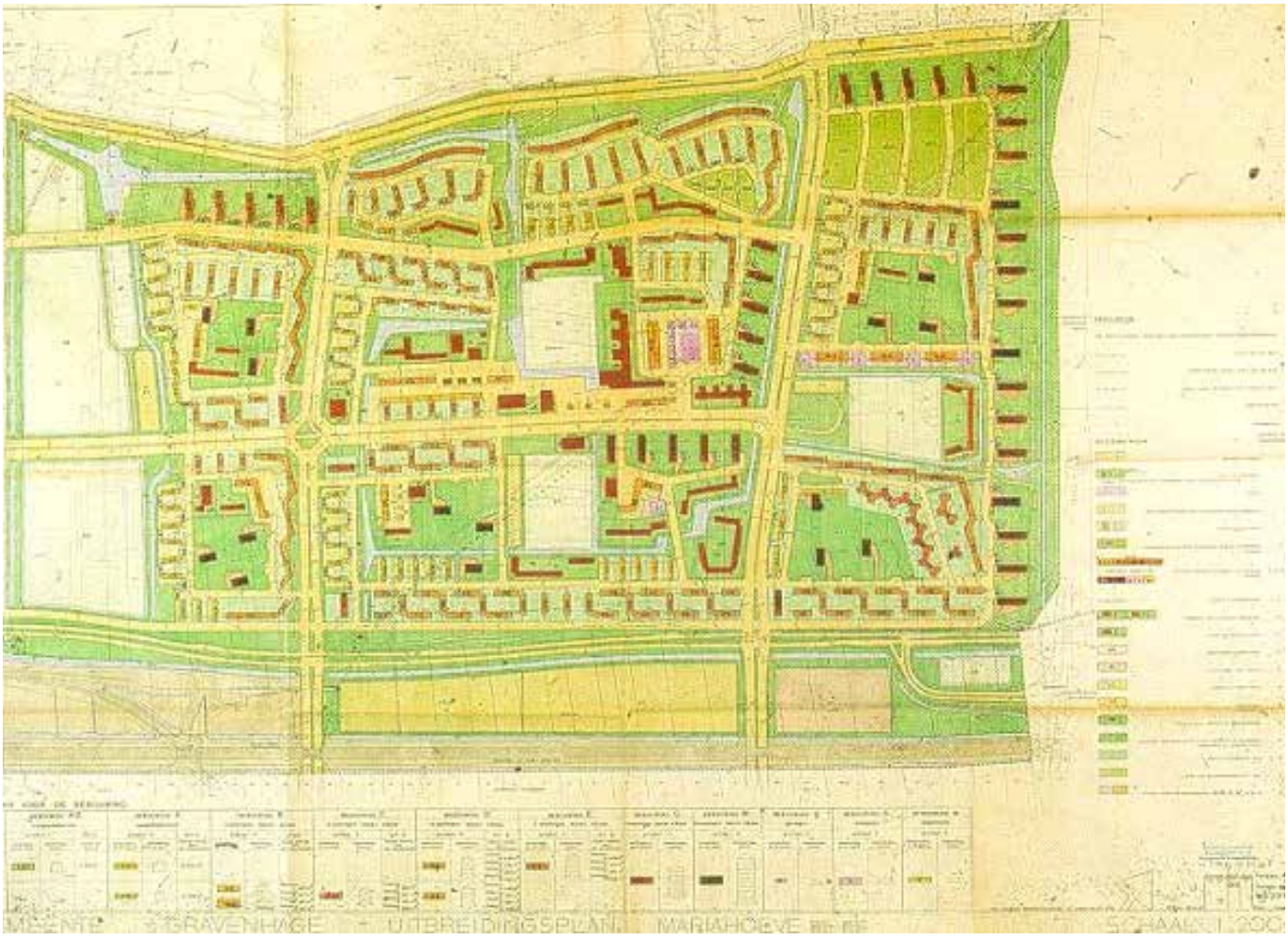


*Figure 61*

*Map of plan Mariahoeve by urban planner Van der Sluijs (Gemeente Den Haag)*

## Road structure of Mariahoeve

The focus of this paragraph is the street structure. The structure of the street network was a key factor in the design of the neighbourhood. The neighbourhood is built around six main roads, three of which run widthwise and three lengthwise. These roads create six urban pockets of varying sizes, each containing different smaller neighbourhoods. Figure 67 provides a diagram of this layout. The street profiles of these main roads are designed to accommodate traffic. The buildings within the urban islands along these corridors face inwards towards the main routes, with their backsides oriented towards the streets. Although some of these main streets were initially planned as important traffic axes on both the city and regional scales, this did not materialise in practice, resulting in some of these roads being oversized, such as Reigersbergenweg and Hofzichtlaan. Het Kleine Loo, the main street which houses multiple facilities, has a tramline in its median. This line links Leidschendam-Voorburg with the centre of The Hague.

Traffic is calm within the different islands, with many dead-ends and narrow street profiles featuring on-street parking. The streetscape is dominated by parking, and there is a notable number of garage boxes in the neighbourhood, as well as some drive-in dwellings.
The analysis of space syntax indicates that Reigersbergenweg, Het Kleine Loo, and Hofzichtlaan are the most integrated roads both locally and regionally. Depending on the aim, there me be a mismatch between the inward orientation of the buildings towards these main integrated streets.

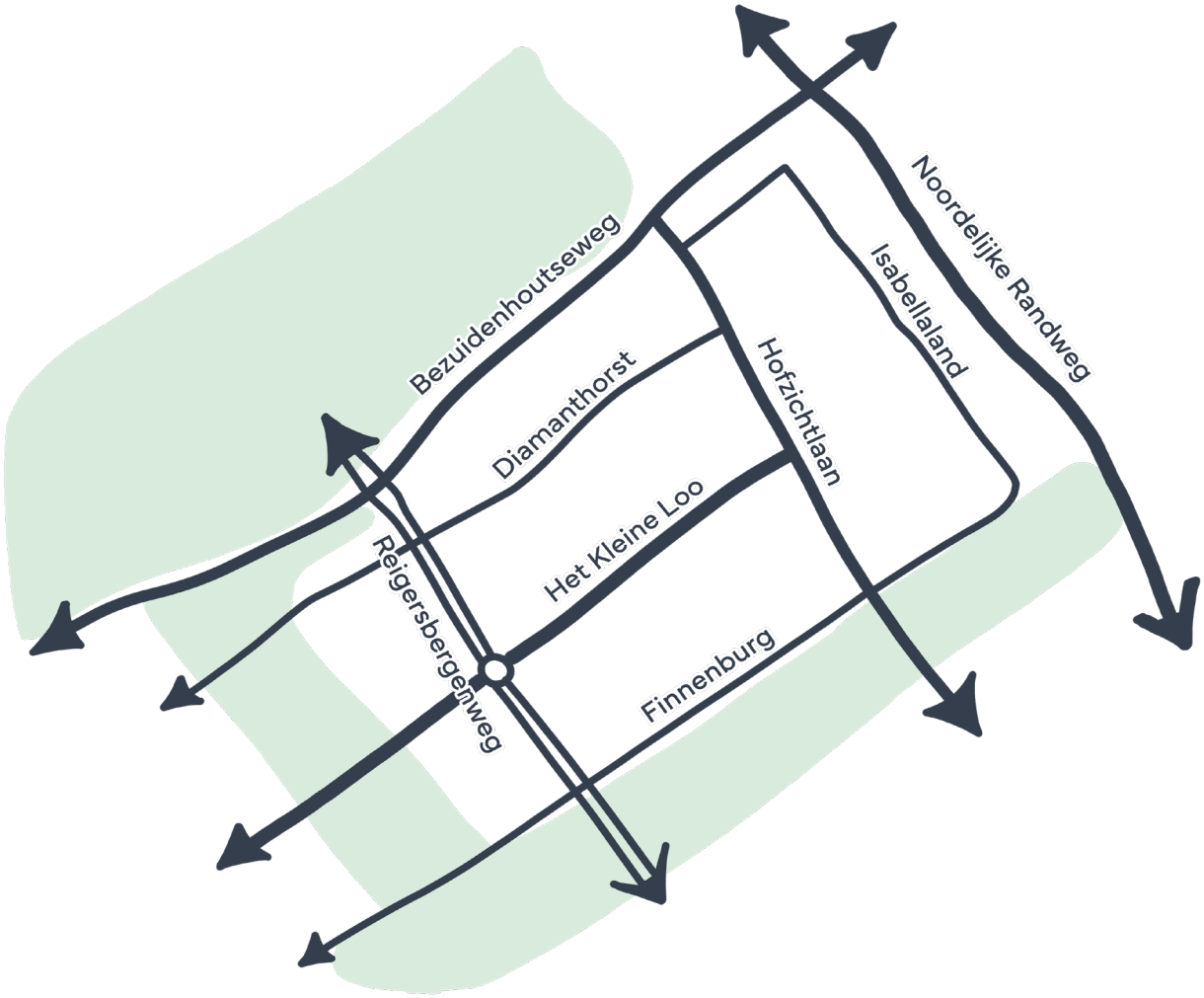



*Figure 62*
*Road structure plan of Mariahoeve*

## Green structure of Mariahoeve

Mariahoeve has a green character to it. The neighbourhood is spacious for which green has a dominant character in this space. During spring and summer, the neighbourhood is lush, whereas during colder months the neighbourhood is bare.
The green is intertwined with the road structure, in which the boundaries that the main roads form is strengthened with the green lanes and multiple trees. Within the different islands, a frequent pattern is that of three towers surrounded by low vegetation and trees. This forms a common theme.

The ubiquitous green in the neighbourhood, which is relatively low maintenance and quality, gives it a rather dull and monotonous appearance.

*Figure 63*
*Impression of green structures in Mariahoeve*

*Figure 64*
*Green structure plan of Mariahoeve*

## 5.3 Built densities in Mariahoeve

### Analysis on built densities in Mariahoeve

The neighbourhood of Mariahoeve is located on the outskirts of The Hague, located closely to the center the Hague. The neighbourhood is a postwar neighbourhood, mainly constructed during the 1960s. The urban fabric can be characterised by the many open blocks and slabs which are freestanding in the open landscape of mainly low vegetation and grass. The neighbourhood layout consists of 6 individual islands which are seperated by large roads which act as the backsides of these morphological islands. Each of these islands varies in size, and accomodates a small local center. The services provided are arranged in a mono-functional way, according to the modernist principles at the time of construction. Centrally located in the Mariahoeve is a shopping mall, bridging the island's borders by providing daily needs to all residents of the neighbourhood.

There is a green-blue structure running through the different islands. To the southeast of the neighbourhood is the local train station "Den Haag Mariahoeve", with monofunctional offices occupying the surrounding space. The Southern border of the neighbourhood is enclosed by a railroad, connecting Mariahoeve with Laan van NOI. Allotments fill the in-between space between neighbourhood and railroad.

The Western side of the neighbourhood is mainly occupied by sports fields, forming a discontinuity between the typical prewar urban fabric of The Hague and the postwar modernist neighbourhood that Mariahoeve is.

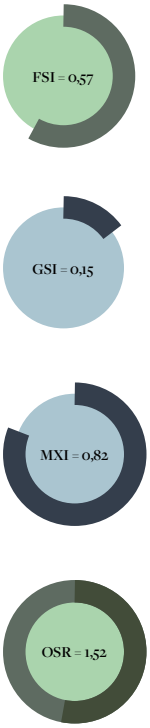



*Figure 65*
*Density characteristics of Mariahoeve*

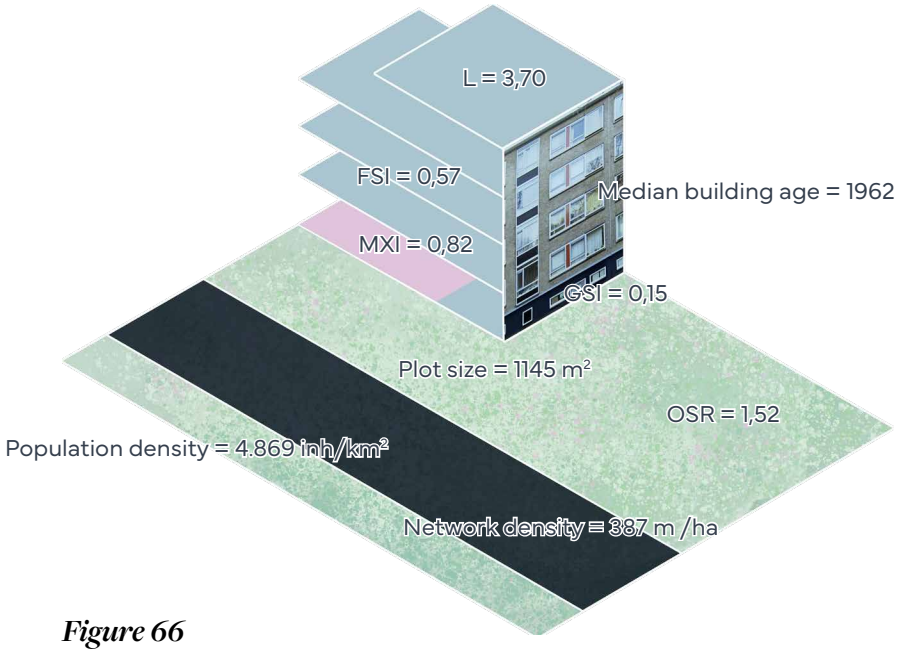



*Figure 66*
*Typical built lot in Mariahoeve*

***Figure 67***
***Impressions on built densities in Mariahoeve***

## Morphology of Mariahoeve

The morphology and the composition of the urban fabric have resemblances of postwar Scandinavian urbanism, as many references were featured in the design of Mariahoeve. It is characterised by the many freestanding buildings, which are in slab and tower configurations. The access of the built masses is not oriented towards the street, which has enabled free orientation in different slightly slanted orientations to let sunshine in. They are surrounded by greenery, of which mainly mown grass. In all the islands, there is a common spacious grass field with three 12-storey towers. All islands have a slightly differing architecture for these towers. However, all buildings that were constructed following the original plan make use of the same type of brick. The different typologies share the same architectural style, bridging the gap between the differences.

Buildings of a similar typology are clustered together. That means, buildings in terms of circulation, ownership and size, all accommodating a certain social layer, are clustered together thus strengthening homogeneity locally. On the contrary, Mariahoeve as a holistic urban ensemble serves all layers of society and could thus be viewed as superdiverse.


*Figure 68*
*Morphology categorised by building age inMariahoeve*

***Figure 69***
***Different building configurations***

| *Morphology type* | *Icon* | *Spatial characteristics* |
|---|---|---|
| *Freestanding object* |  | This type most often has no relation to the street and comes in either large towers or single-family housing. The freestanding objects are surrounded by greenery. |
| *Sequential slabs (collective or private)* |  | The sequential slabs act as open boundaries in the urban fabric. Due to the design of the inbetween spaces, there is not much activities or little permeability along of the open spaces in between. |
| *Wall* |  | The walls act as boundaries in the urban fabric. Due to the configuration there is a rather direct relation towards the street. However, often due to the large leftover spaces, and design of the buildings themselves (being unconstituted) the interactive relation lacks. |
| *(Semi-)open courtyard* |  | The (semi-)open courtyards are rather intimate spaces made forth by the enclosing morphology. The permeability and the relation to the buildings themselves are definite factors in the affordance for appropriation of the space. |
| *Single row* |  | This morphology type is bound to the street and therefor is a legible configuration. The built mass can be a singular strip, or multiple freestanding objects repeated parallel to the street. The adjacent open space is either privately owner, or collective space. |
| *Close* |  | This morphology type encloses a street through surrounding it with built mass, making it a dead end. The street either links front to front or front to back built masses, of which the built masses and adjacent open spaces are privately owned. The close is an intimate space with only specific destinations for which an intruder is easliy recognised. |
| *Open space* | | The open spaces have no built mass in them. Depending on the context, it may afford opportunity towards densification. |


*Figure 70*

*Different morphology types in the neighbourhood of Mariahoeve*

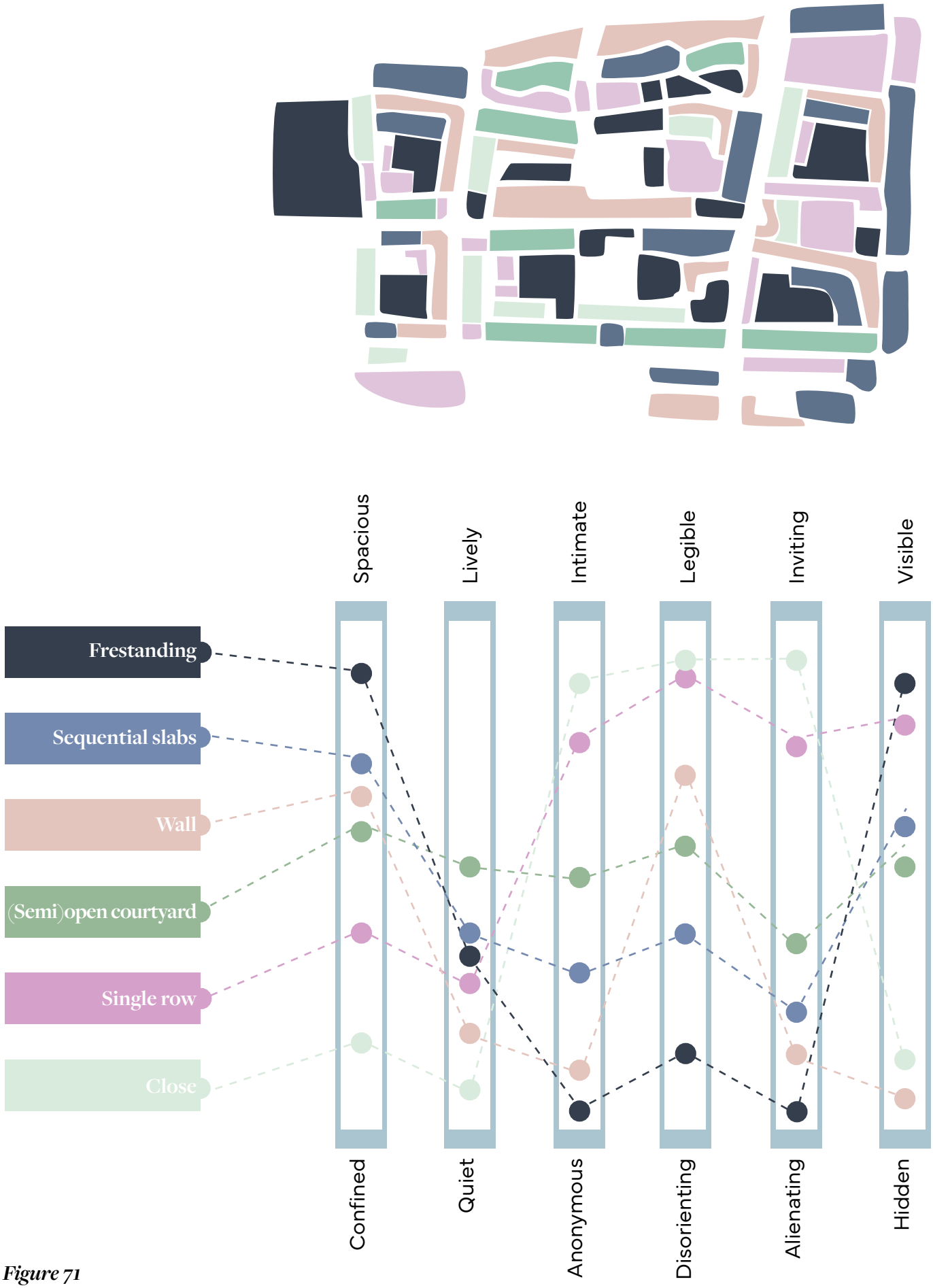



***Figure 71***

***Different urban qualities relating to the different morphologies***

## Socio-spatial analysis of Mariahoeve

As shown in previous chapter, Mariahoeve is a superdiverse neighbourhood with many individuals of different socioeconomic classes and ethnic background residing side by side. The neighbourhood is one of co-presence.

In the figure below, the social housing in the neighbourhood is shown. It shows that the different tenure types are rather scattered around, but clustered together in the same housing blocks.


*Figure 72*
*Housing corporations in Mariahoeve*

## Site interviews

Through conversations with local residents, it is evident people are aware of the superdiverse nature of Mariahoeve. Some of the sentences they have shared are shown on this page.

***Living experience in Mariahoeve***

Residents experience Mariahoeve as a quiet neighbourhood. "Things are hidden", and "it can be rather dull". On the contrary, the greenery and water are advantages, as well as the close proximity to the train station, city centre, and the natural amenities (Haagsche Bos and the dunes), as well as the shopping centre. Basic needs are within cycling distance.

***Social diversity in Mariahoeve***

Residents endorse that Mariahoeve is a very socially diverse neighbourhood. One resident went into detail, stating the diversity is rather clustered on little islands. "Originally there was lots of social rent. With the housing construction projects in the Finnenburg, there was more mix introduced to the neighbourhood, with the intention to bring bigger social diversity to Mariahoeve. That has worked." One person even stated that "Every person here is different from the other, making us connected through difference."

***Social cohesion in Mariahoeve***

Most of the people I spoke are one way or another connected to the neighbourhood as social worker, or volunteer. There are many opportunities towards The municipality of The Hague carries out several projects in the neighbourhood to combat loneliness. These projects aim to bring people together, which some believe has a more favourable effect on the togetherness in the neighbourhood.

*"Every person here is different from the other, making us connected through difference."*

- Employee at Podium Noord youth centre

*"There is a strong community here, people care for each other."*

- Employee at Buurtcentrum Mariahoeve

## 5.5 Potentials towards densification in Mariahoeve

### SWOT analysis Mariahoeve

Mariahoeve as a residential neighbourhood has many qualities related to densifying inclusively, as well as in general to it. However, it is also home to improvement. In a nutshell, the strengths, weaknesses, opportunities and threats are listed in Figure 83.

*Figure 73*
*General impression of Mariahoeve*

## Strengths

- Tranquility & peacefulness
- Superblock principle
- Green-blue structure
- Mall of Mariahoeve providing residents' needs
- Good public transit connections
- Good connection to Haagse Bos and natural amenities
- In close distance to city center
- Existing social infrastructure
- Superdiversity

## Weaknesses

- Weak connectivity to surrounding neighbourhoods;
- Dull
- Closed & inward oriented
- Non-lively streets
- No eyes on the street
- Abundance of space
- Monotonous
- Disfunctioning neighbourhood centres
- Wedged between highway, railway, estate and sports facilities
- Disorientating public space
- Services are not aligned to publicness

## Opportunities

- Densification potential
- Introducing new landuses
- Many buildings and roads nearing end of life cycle
- Overdimensioned roads
- Overcalculated buildings in terms of carrying capacity
- Many monumental trees, open spaces and art work
- Governmental plans to densify along the railway line (TOD)

## Threats

- Residents resistance to change
- Impairment of the character
- Blocking of sun
- Surrounding competition of amenities
- Gentrification
- High building costs
- Impairment of social cohesion

***Figure 74***
***SWOT diagram of Mariahoeve***

## 5.6 Introduction to Regentessekwartier

**Introduction to Regentessekwartier**
The neighbourhood of Regentessekwartier is a prewar neighbourhood, mainly constructed around the year 1900. The neighbourhood has a dense urban fabric with closed blocks with a long length-width ratio. There are two main squares (Koningplein and Regentesseplein), as well as a large urban park (sportpark de Verademing). The grain sizes in the neighbourhood are small, except for some large grained blocks on the Southern side. These are postwar buildings, of which some are fairly recently added (in 2020s). A canal called Verversingskanaal splits the Eastern part of Regentessekwartier from the Western part. Centrally in the Eastern part, a large former gas factory is located which together with the two massive chimneys count as an icon in the neighbourhood. Socially the area is superdiverse, with many societal layers living together in this densely built-up and populous urban fabric centrally located in The Hague.

| | Area | Population | Population density |
|---|---|---|---|
| Regentessekwartier | 94 ha | 13.865 inh. | 15.160 inh./km$^2$ |

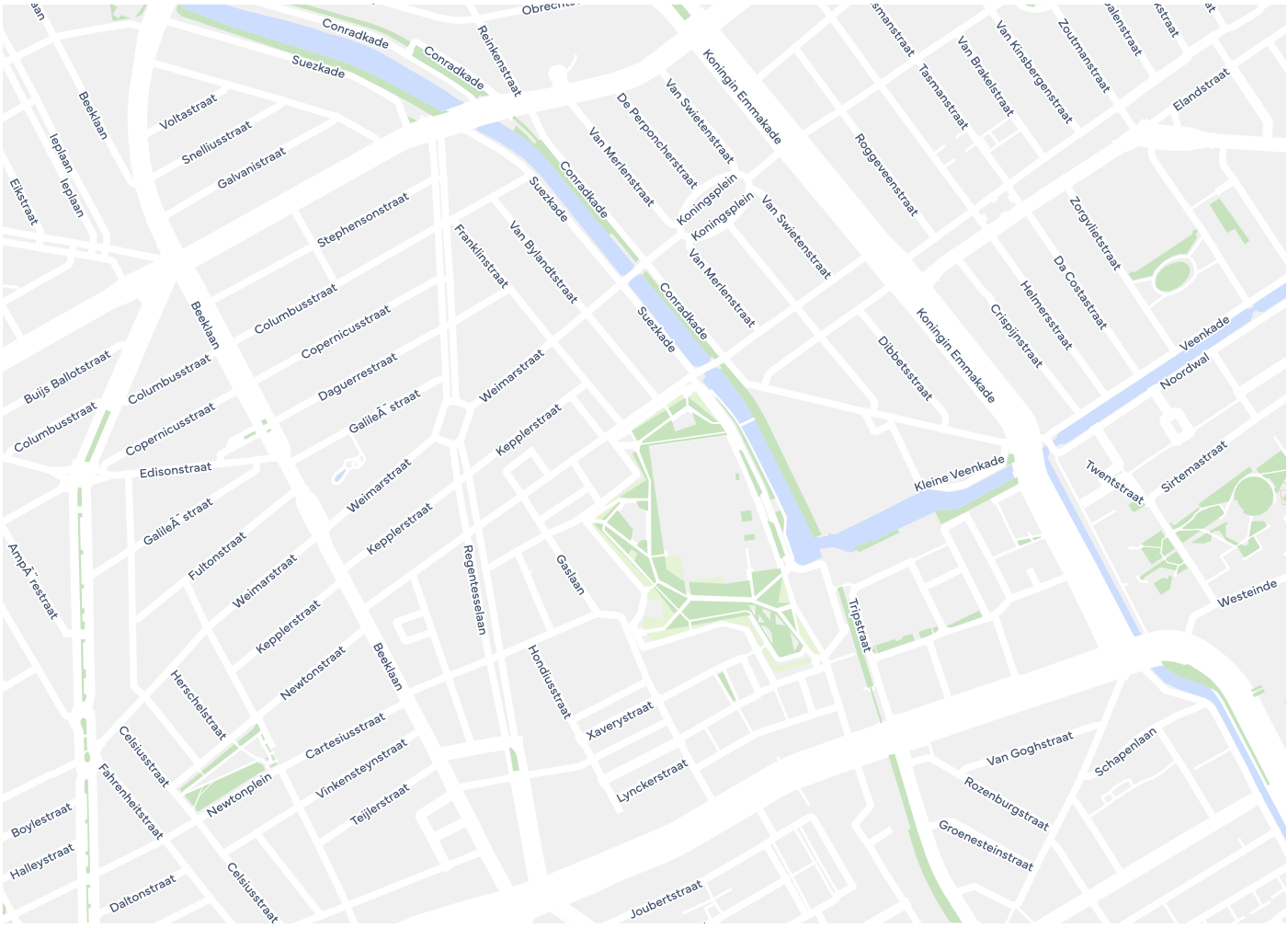
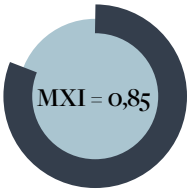



***Figure 75***
***Map of Regentessekwartier***






## Built density

The neighbourhood is a typical prewar neighbourhood that has been constructed during the 1900s. Public space and mobility infrastructure has been designed around walkability. Despite the neighbourhood being mainly a residential neighbourhood, the appearence is very diverse. It embraces many design principles for affording social diversity. There is a mix of housing types, an alternation between built density and voids, a gradual appearance of publicness aligned to built density. This publicness is aligned to the level of service mix. The neighbourhood has multiple main streets, which are corridor configurations of service allocation. Combined with the space syntax value of choice, this maximises the reach of these services.

Built density is also aligned to this service mix and space syntax, as the building layers increases around these places. This constitutes a consistent legibility of space. The inner residential parts are perceived as more quiet places, through the lower density, and plinth appearence.


*Figure 76*

**Space syntax**

The space syntax values indicate that the outer roads, as well as multiple inner roads have a high publicness value. In relation to the open city, to have these boundaries open, permeable and attractions to both sides of the boundaries (as passage territories), as is the case in Regentessekwartier is a major quality of this neighbourhood. Not only within with its main street structure, but also the outer edges of the neighbourhood.

This quality enhances visibility among different social layers which live in different parts of the urban fabric. Also the differentiated streetscapes, ranging from quiet residential to places of attraction and staying in a setting of co-presence makes this area inclusive.

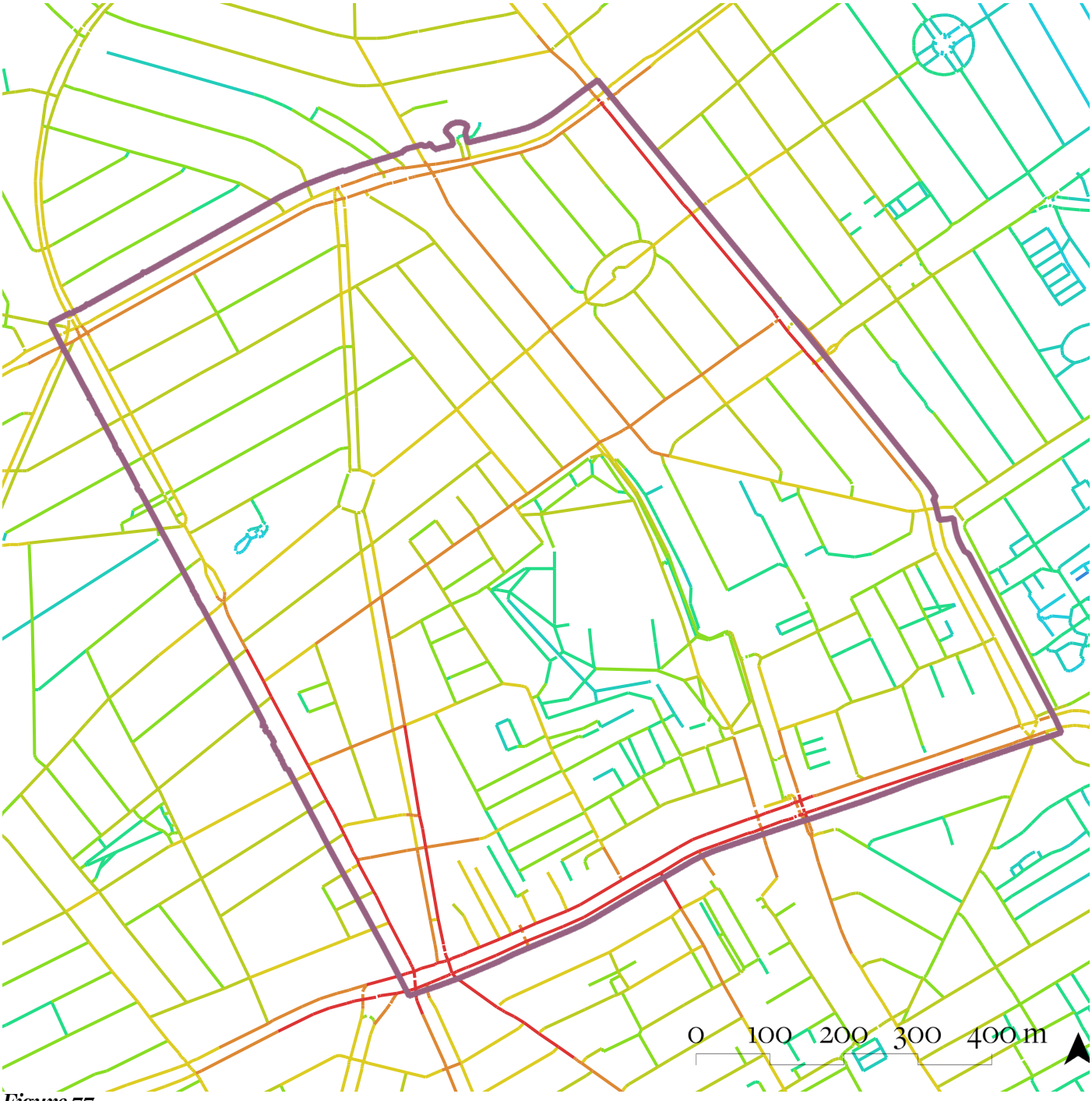



*Figure 77*

## 5.7 Main take-aways of Regentessekwartier


Comparing Regentessekwartier to Mariahoeve, a lot can be learned throughout the differences. Regentessekwartier has many spatial elements of the Open and Just City principles within its urban fabric, which are lacking in Mariahoeve.
In relation to space syntax, Regentessekwartier has a clear hierarchy of road types, ranging from single-use residential to mixed-use main streets. These are aligned to the publicness and/or depth of the street network, as shown by space syntax. Service allocation is done through a corridor configuration, maximising the reach of these services. These main streets, with their many different services for many different target audiences, are places of co-presence. It is these places where all social layers belong to fulfill their daily needs.

Different housing types, which are all directly related and enclose the street spaces, make for a socially diverse environment, as well as a differentiates streetscape.

The figures on this page give a general impression of the neighbourhood, and the strengths and weaknesses on the right summarise previous paragraph.


*Figure 78*
*General impression of Regentessekwartier*

## Strengths

- Services aligned to space syntax
- Alternation in publicness and functions
- Open city
- Well integrated within, and to other parts of the city
- Differentiated cityscape
- Lively streets
- Socially diverse
- Acting as a 15-minute city through its egalitarian distribution of amenities and public goods

## Weaknesses

- Canal and large blocks create sense of boundary
- Heavily built up, besides vertical extension and soft densification means, not many potential towards densification
- Not much greenery in the neighbourhood

***Figure 79***
***Strenghts and weaknesses of Regentessekwartier***

# 6. Strategic design characteristics

1. Introduction to characteristics
2. Densities
3. Legibility
4. Visibility
5. Connectivity
6. Diversity
7. Equity
8. Strategic structural design proposal

This chapter presents a systematic approach to intervening in the various characteristics that can guide in achieving the goal of inclusive densification in the neighbourhood of Mariahoeve.
The existing urban environment will be assessed on the basis of the six main characteristics which in turn foster the qualities leading up to inclusive densification. The enhancement of each of these qualities will be noted in the form of a pattern language. These are derived from the context of Mariahoeve. The pattern language is thus mainly formed around the context of Mariahoeve for inclusive densification.
As these characteristics can be enhanced everywhere in many ways, there is a contextual hierarchy on how this can be enhanced for a certain place. Therefore, these characteristics are strategically interpreted for Mariahoeve, in order to meet the qualities of differentiation, compactness, justice, solidarity and accessibility. The six characteristics which will be addressed in each of the paragraphs make up the paragraph structure.

***Figure 80***
***Photo: Siebe Swart RCE***

## 6.1 Introduction to design characteristics

This chapter presents an elaborated analysis on the six characteristics which are used to achieve inclusive densification. This analysis is conducted on the existing site of Mariahoeve, together with references on the enhancement of the characteristics. Hereby, patterns are derived from the analysis, and implemented on the neighbourhood scale for Mariahoeve. This resulted in different structure maps regarding built mass (urban densities) and the public realm (open spaces). The different types of components which make up this chapter are:

- neighbourhood analysis
- references
- patterns (main and secondary)

The next page shows the frames for which these components are highlighted visually.

The structure maps combined with the derived patterns guide the local designs for different strategic areas in Mariahoeve. The patterns create affordances which have the potential to enhance the qualities which aim to achieve the objective of inclusive densification.

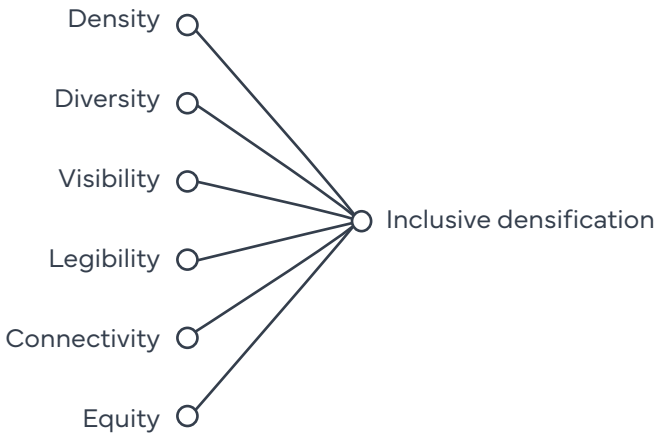



*Figure 81*

*Value scheme*

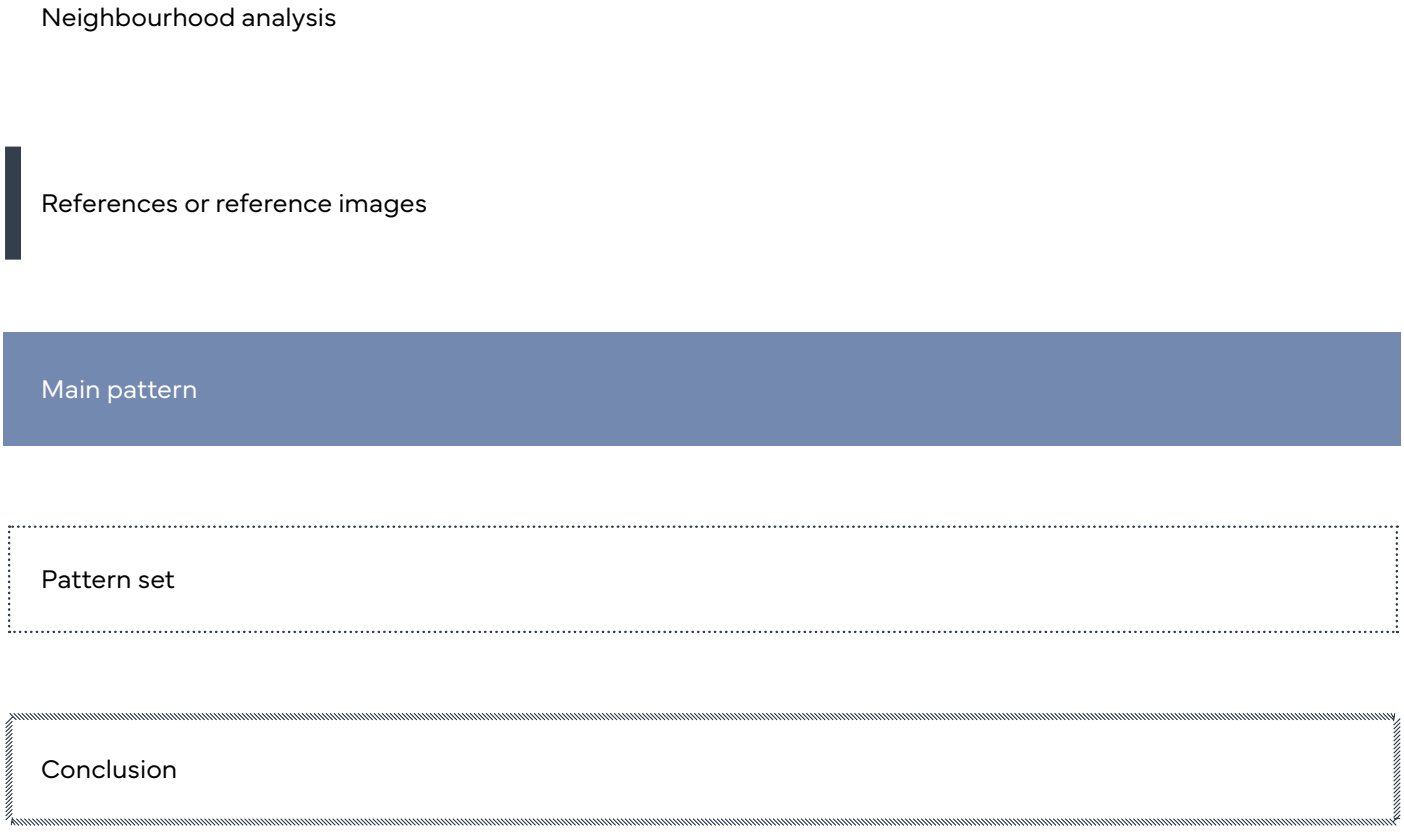



***Figure 82***

***Framing per chapter component***

## 6.2 Densities

### Urban densities

This chapter presents a number of references that address the densification challenges that have already been faced. This forms inspiration for several solutions towards densification to be made. These solutions are then translated into patterns which can be implemented in the Mariahoeve design proposal.

The references are categorised per type of densification. The means of densification range from hard densification, which requires extensive modification of the urban fabric, to soft densification, which makes use of the existing urban fabric (Pelczynski & Tomkowicz, 2019) (Jansen, 2023).

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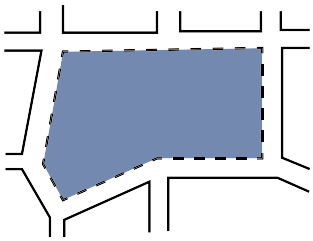
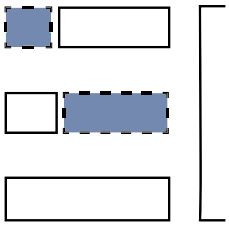
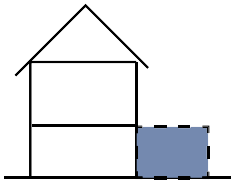


Transformation



Infill



Horizontal extension

Hard densification

### Transformation

The densification method of transformation is the hardest of its methods. Transformation is the re-doing of part of the urban fabric. It consists of demolishing existing structures, and placing something new in return. Therefore, transformation offers maximum freedom to plan development, as these can be made without regard to the existing fabric.

It shares many overlap with infill development. Transformation can aid the revitalising of underutilised or neglected areas. Existing infrastructure can be transformed, and land use can be optimised to the current needs. With this, transformation creates opportunities to accommodate more people and services than beforehand.

### Infill

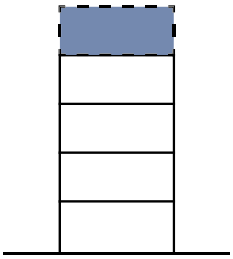
Infill is a way of densifying an existing urban fabric through the development of vacant or underutilised parcels of land. By filling in gaps between existing structures or re-purposing vacant lots, infill optimises space usage and contributes to the compactness of the urban fabric. Infill projects have the potential to create mixed-use developments, making the streetscape more differentiated and accessible.

Besides, infill can aid in accommodating a larger critical mass in an existing urban fabric, which helps in sustaining a diverse neighbourhood while preserving the character and identity of existing communities.

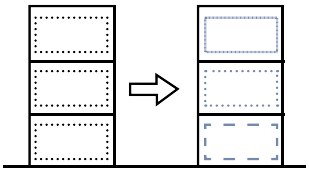
### Horizontal extension

Horizontal extension involves expanding existing buildings outward to increase their capacity and accommodate more uses or occupants within an existing plot. This can be achieved by adding new wings or building a connection between two existing structures, occupying the adjacent land or underutilised spaces. A small outward extension to give existing use a little more space for a single floor also counts as a horizontal extension. There are multiple references where different kinds of horizontal extensions have been undertaken. These range differently in scale, but do meet similar qualities in the end.

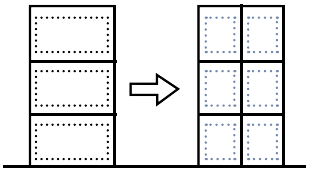
The implementation of sustainability and maintenance measures can be carried out in a way without compromising affordability of the structure. Therefore, horizontal extension is a just way of adding more mass to an existing structure and the built environment as a whole.



Vertical extension



Re-purposing



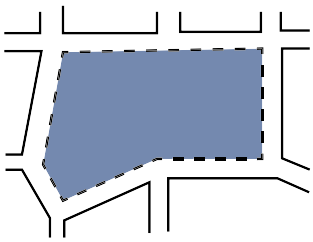
Splitting

Soft densification

**Vertical extension**
The vertical extension of existing buildings is a way to increase built density through using the existing built footprint. The extension involves adding floors to an existing structure, thereby increasing their capacity to accommodate more residents, businesses, or amenities. Thus, the number of built layers will be increased.

**Re-purposing of existing structures**
Re-purposing of existing structures aids in densification through optimising the land use. It involves the adaptation of structures for new uses, taking advantage of the underutilised or vacant structures, and responding to the current needs of the neighbourhood. It has the potential to revitalise urban areas while preserving the character. The process often involves renovation, retrofitting, and reconfiguration to meet the needs of the new uses and users. Re-purposing offers a sustainable alternative to new construction.
Re-purposing can involve the conversion of storage facilities into residential apartments or shops. Or the transformation of single-use office buildings into mixed-use developments.

**Splitting of existing structures**
Splitting existing buildings aids in densification through optimising the land use. It involves dividing existing structures into multiple units or spaces to increase their occupancy, creating additional residential, commercial, or mixed-use units within the existing built mass. Large apartments could, for example, be split into multiple units.
Splitting existing buildings can help address housing shortages, and enhance liveliness on the streets through differentiation of street functions, and reducing the grain size.



# Beatrixkwartier Haarlem

De Zwarte Hond urbanism & architecture

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

Beatrixkwartier will be an open, comfortable and recognisable area. The Beatrixdreef serves as its identity carrier, running through the area from North to South. The lively heart is an urban square, which will be well connected to the surrounding neighbourhoods. From this square a mix of programmes runs along the Beatrixdreef, gradually turning into residential functions. This Beatrixdreef will be a constituted avenue with many entrances directly linking buildings with public space, as shown in the figures right, gives an impression on the Beatrixdreef. A notable detail here is the narrow green transition strip between building and public space.

An important element in the plan is the mobility hub, which contributes both functionally and spatially to the lively heart. The mobility hub serves to enhance the area's recognisability and ensures that the area is car-free. The hub generates a pedestrian flow into the area.

The urban plan defines clear public spaces. The heart of Beatrixkwartier is emphasised by height accents in the surrounding buildings. On the west side, a composition of half-open building blocks has been chosen. This creates a finely-meshed network of slow-traffic routes (serving pedestrians and cyclists) connecting the Beatrixdreef and the new square with the surrounding neighbourhood.

***Figure 83***
***Impressions of Beatrixkwartier (Zwarte Hond)***

## Transformation

This pattern aims to tap into the urban potential by renewing non-functioning urban sites by introducing a new urban fabric. Through transformation, the existing urban fabric does not need be considered, maximizing the opportunity towards densification.

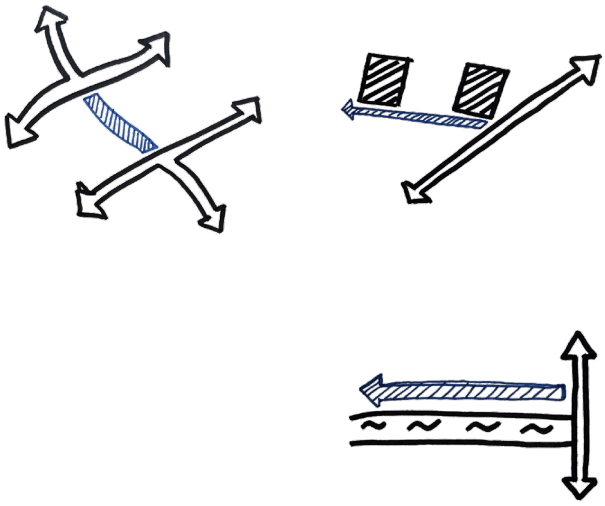
Therefore, large plots can be revitalised, introducing a contemporary urban solution to fit contemporary needs.

## How

Derived from the reference case of Beatrixkwartier in Haarlem, and partially the Picuskade in Eindhoven, there are three main steps which transformation is characterised with.

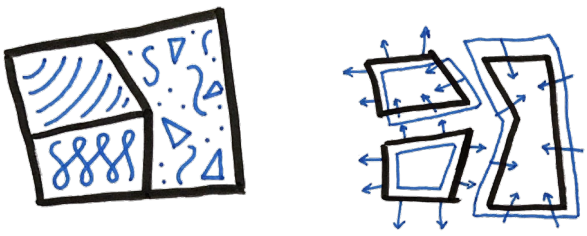
**1. Adding circulation**

Firstly the network lines are applied. This can be done according to different ways, as shown in the diagrams. Respectively, by extending existing geometry lines, and by establishing parallel lines to parallel structures, which can be building contours or (green) infrastructures.



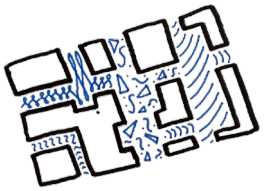
**2. Determining urban quality**

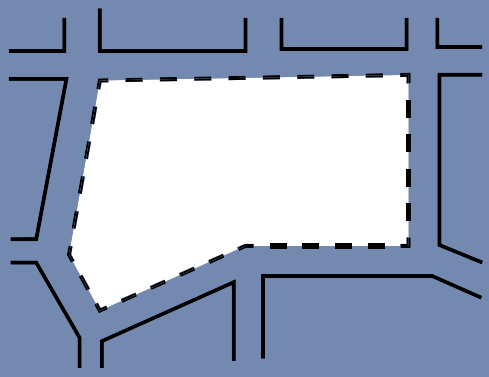
Secondly, the urban qualities need be determined and allocated per space, resulting in places differentiated by their feel. This relates to the kind of quality, and the kind of ownership value aimed to be achieved in the area.

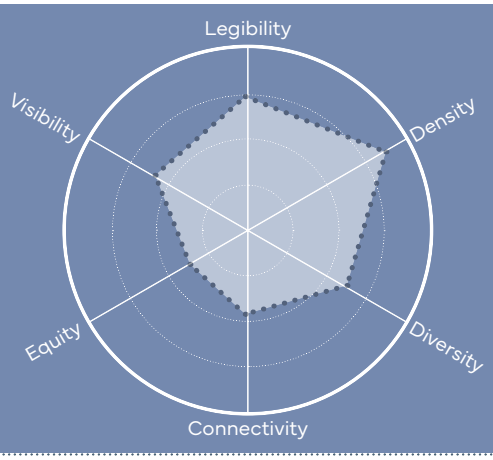


**3. Establishing built - void relation**

Thirdly, a built - void relation will be established by adding masses in accordance to the qualities which are aimed for. Spaces can become enclosed by built mass, or remain largely open. The choice can be pointed to the urban qualities aimed to be fostered. Through this step, network lines will be turned into (public) spaces.

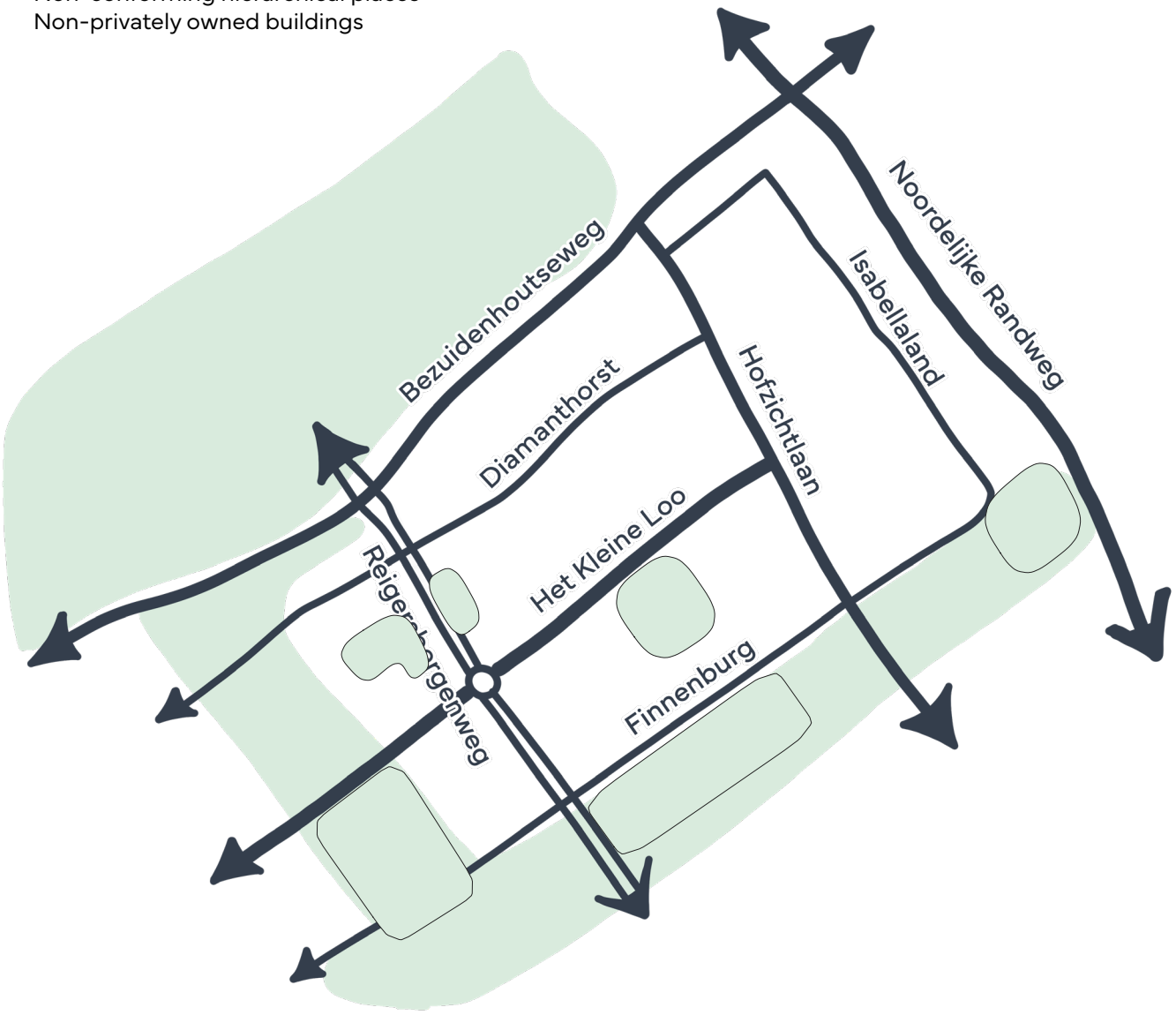


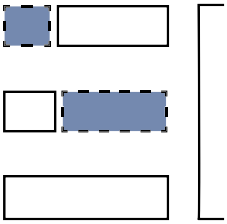





**Where**

- Dilapidated buildings
- Large under-utilized building complexes
- Brownfields
- Large open spaces
- Barriers
- Non-conforming hierarchical places
- Non-privately owned buildings





# Picuskade: Eindhoven, Netherlands

Diederendirrix

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

The Picuskade is an infill project situated in the centre of Eindhoven. The site was previously a vacant lot that had been owned by a factory. For several years, the site remained unoccupied. An old warehouse on the site was repurposed to accommodate a museum. The surrounding area of the warehouse was repurposed for the construction of several housing units. Consequently, the original site may be considered a porosity of fracture, as the original purpose on the site was deemed irrelevant and unsuitable for its current location. For the past 10 years, the site has been a brownfield.

The infill development here focused on the circulation of the terrain. Whereas the original site was a demarcated area with no permeability, the new plan extended the surrounding streets into the terrain and connected them within. This results in an increase in the value of the surrounding structures. The long line of the canal on which the site sits has been used as a parallel corridor for pedestrians and cyclists, connecting to the surrounding networks.

The inner network has an urban character. The higher building volumes are there to emphasise the larger structures which used to be there from the previous function, and to strengthen the relation with the canal. The networks are intricate and the buildings have a fine grain to accommodate a variety of functions. The dwellings accommodate different socioeconomic layers. They differ in size and character. The urban milieu is characterised by a multifaceted approach to living, working and leisure.

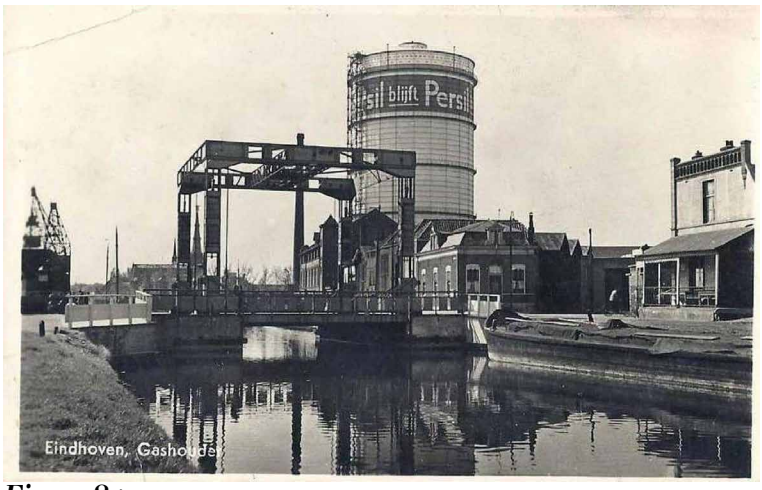



*Figure 84*

*Impressions of Picuskade (Diederendirrix)*

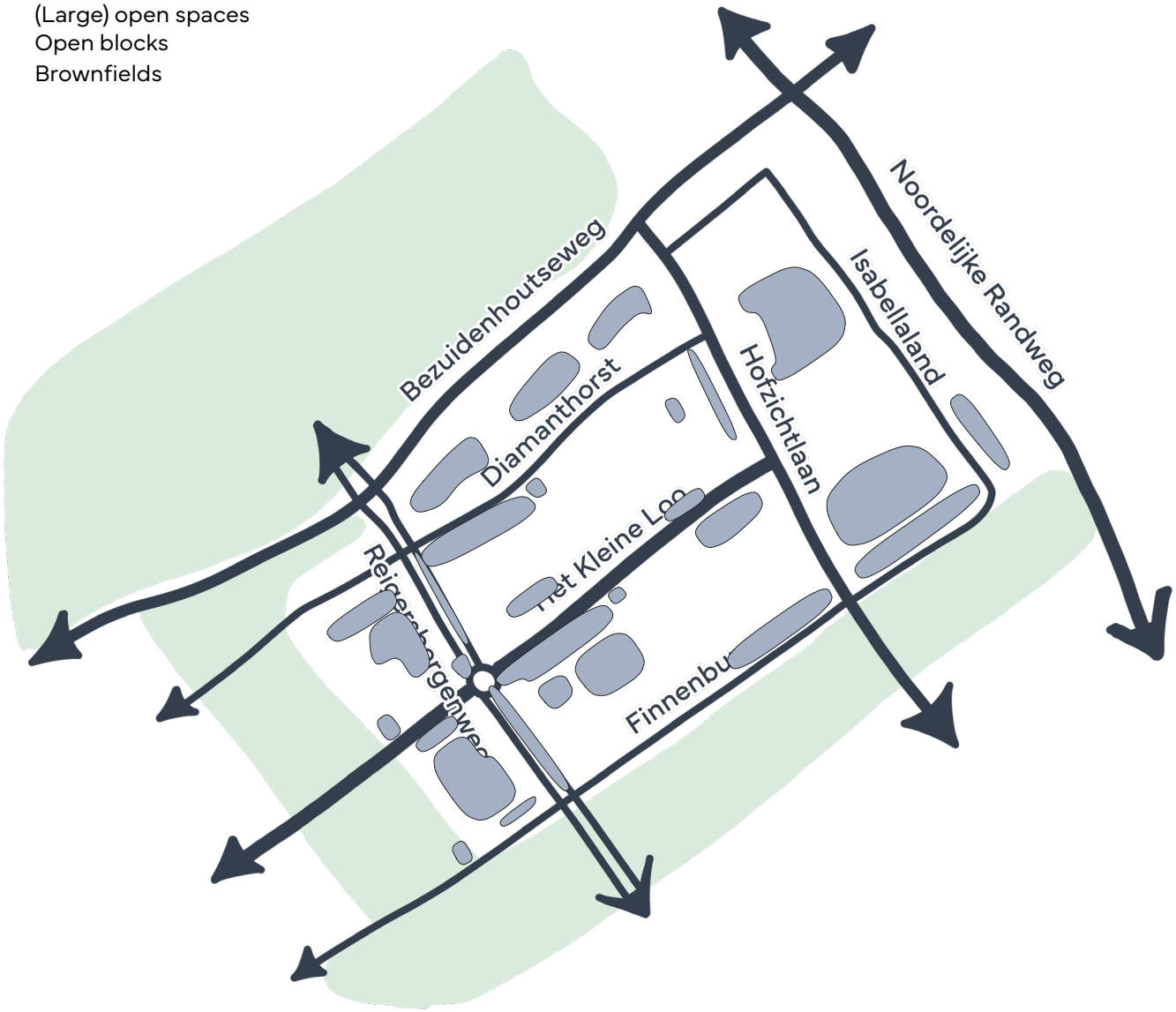
## Infill

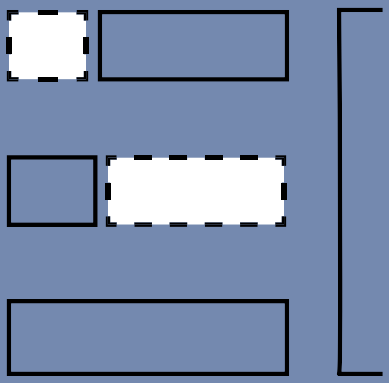
This pattern aims to densify the existing urban fabric through adding built mass in open spaces. Through this process, a better street - built relation can be established, as well as optimised use of the built environment through introducing new uses which fit better to contemporary needs.

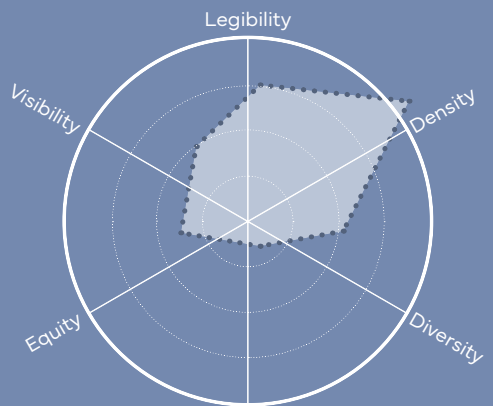
Also a strenghtened sense of ownershop could be evoked among residents, as parts of their surrounding space can potentially be blocked to non-residents.

### Where

- Lacking relation between street and built
- Non-conforming hierarchical places
- Non-privately owned buildings
- (Large) open spaces
- Open blocks
- Brownfields





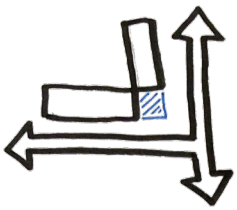



## How

There are many different approaches to infill development, depending on the scale and surrounding context. Whereas a large scale often coincides with the patterns described for transformation, the small scale often consists of identifying gaps and filling these gaps accordingly to the urban quality aimed to be achieved. Derived from site analysis and literature, there are three ways for infill to be applied in Mariahoeve.

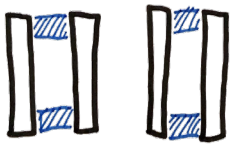
**1. Filling in corners**

Through filling in (blind) corners, the under-utilised space could be given a function. Due to the significant position, often at an intersection, it is desirable to add social programmes here.



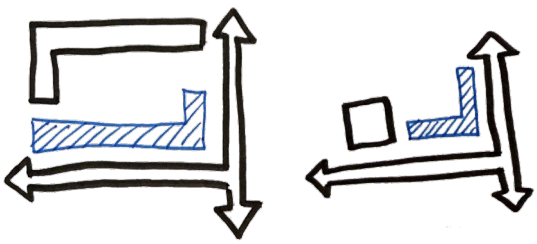
**2. Closing open blocks**

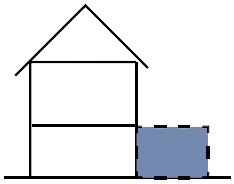
Through closing of the gaps in open blocks, the inner space can be privatised among the adjacent residents. Hereby an enhanced sense of ownership can potentially be evoked, as well as a better relation between buildings and streets.



**3. Establishing built - street relation**

The pattern of enhanced built - street relation shares commonalities with transformation. Through this, different urban qualities can be achieved through densification. Spaces can become enclosed by built mass, or remain largely open. Through this step, the newly introduced masses foster a clear connection between the street and built masses.





# La Chesnaie: Saint-Nazaire, France

Lacaton and Vassal

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

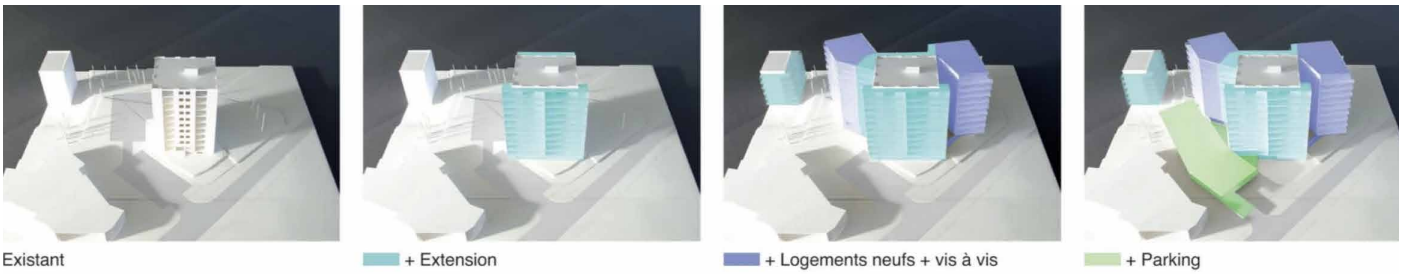
System: Place // Network

A tower block in the French city of Saint-Nazaire has undergone a transformation on the building level, consisting of large horizontal extensions. With this project, the building was made part of the PLUS programme: a tailor-made densification programme by the architects of Lacaton & Vassal. This programme has made feasible the extension of existing building structure, while adding many qualities and maintaining affordable prices.

The existing structure offered opportunity of good and affordable housing, as well as densification by adding extra mass. The building has ten floors, with four apartments per floor.

The new plan has been adapted on the basis of an interior approach. Where the original bathroom was 3 $m^2$, the new plan locates the bathroom in a former bedroom of 9 $m^2$, and adds another bedroom in a horizontally extended part which formally was building exterior. Together wih the addition of a winter garden on the outside, the building qualities have been improved by a lot, while keeping costs relativelly low.

Additionally, two wings have been added on both sides of the building. Each wing houses two apartments per floor. These have been joined through winter gardens, as well as through communal spaces between the buildings. The building now has three cores in stead of one.





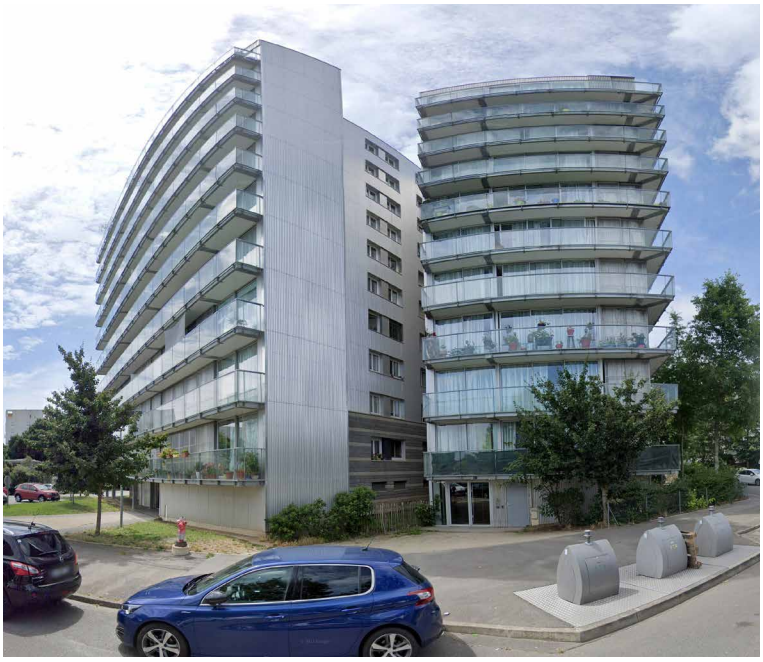
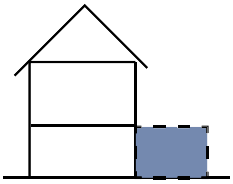


***Figure 85***
***Impressions of LA Chesnaie (Lacaton and Vassal)***



# Kruitberg: Amsterdam, Netherlands

KOVOS architecten en ingenieursbureau, Eindhoven

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

The Amsterdam Bijlmer district, a postwar neighbourhood known by its modernist layout. Due to social issues and urban decay, the neighbourhood has undergone massive transformation. Many of the high-rises have made way for low-rises. Some of the original high-rises have remained, and have been transformed to mitigate negative properties. Where the original design was flawed by the blind plinths, having no relation between public space and ground floor, having no eyes on the street, having no sense of belonging, and and having no liveliness at the plinth, the renovation tackled this issue by simply making the plinth more interesting.

The new iteration of Kruitberg has a horizontal extension of the plinth, which has been made transparant through its large windows and added entrances. This plinth houses a variety of programmes and services. The road layout has been brought closer towards the building as to make a clear connection between built morphology and layout of public space.
The other side of the flat, being in more urban depth, has transformed the closed storage facilites into small-scale housing. This is directly related to a pathway, which enables space to be appropriated. This appropriation is observable by the parked bikes and potted plants which have been put in this space. Perceived safety and quality of space have been massively improved by these interventions of extension and re-purposing. More on re-purposing in the densification means of re-purposing.

*Figure 86*
*Impressions of Kruitberg Amsterdam (KOVOS)*

## Horizontal extension

This pattern aims to densify the existing urban fabric through extendig upon existing structures. Through this, the capacity can be increased to accommodate more uses or users. Through horizontal extension, the public-private transition can be enhanced, as well as liveliness and under-utilised space.

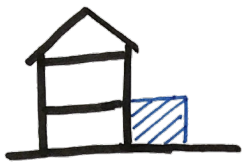
Existing uses can be intensified and upscaled. This method can go together with turning an unconstituted street into a constituted one, as well as fitting new functions in the extension.

## How

There are many different approaches to ihorizontal extension ranging from part of the facade to the the full length of the building. Depending on the context and the intention towards bringin in certain urban qualities, there are different interventions considered more potent.

**1. Extension of ground floor**

The extension of the ground floor is an extension of the building depth of the first layer.



**2. Joining extension**

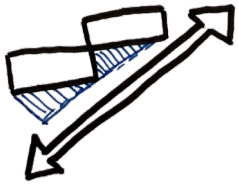
The condition of two parallel structures situated closely together brings opportunity to join up the first layer of the building together. The grain will be largened by this intervention, offering space to a larger ground-accessible user.

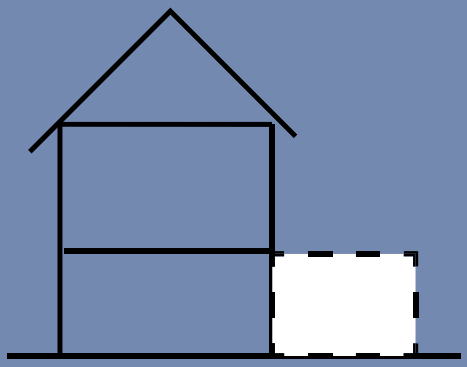
**3. Facade extension**

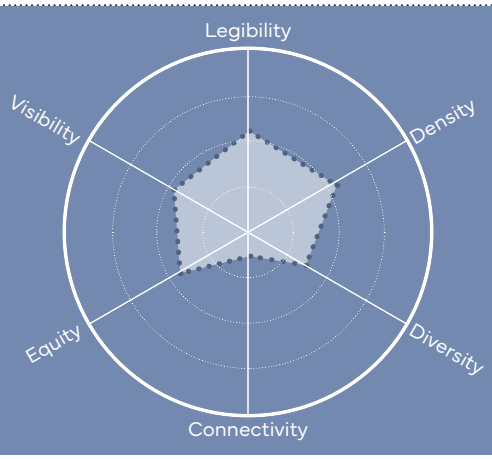
For larger structures there is an opportunity to build an outward extension over the length of the facade. The reference of Lacaton & Vassal shows a way how this can be done, through adding a winter garden structure, significantly enlarging the living space.

**4. Extending towards the street**

A way of horizontally extending an existing structure, is through lining it up to a parallel structure. The diagram shows how a building is joining up to the street in plan view. This can be done by extending the ground floor, or the whole building length.

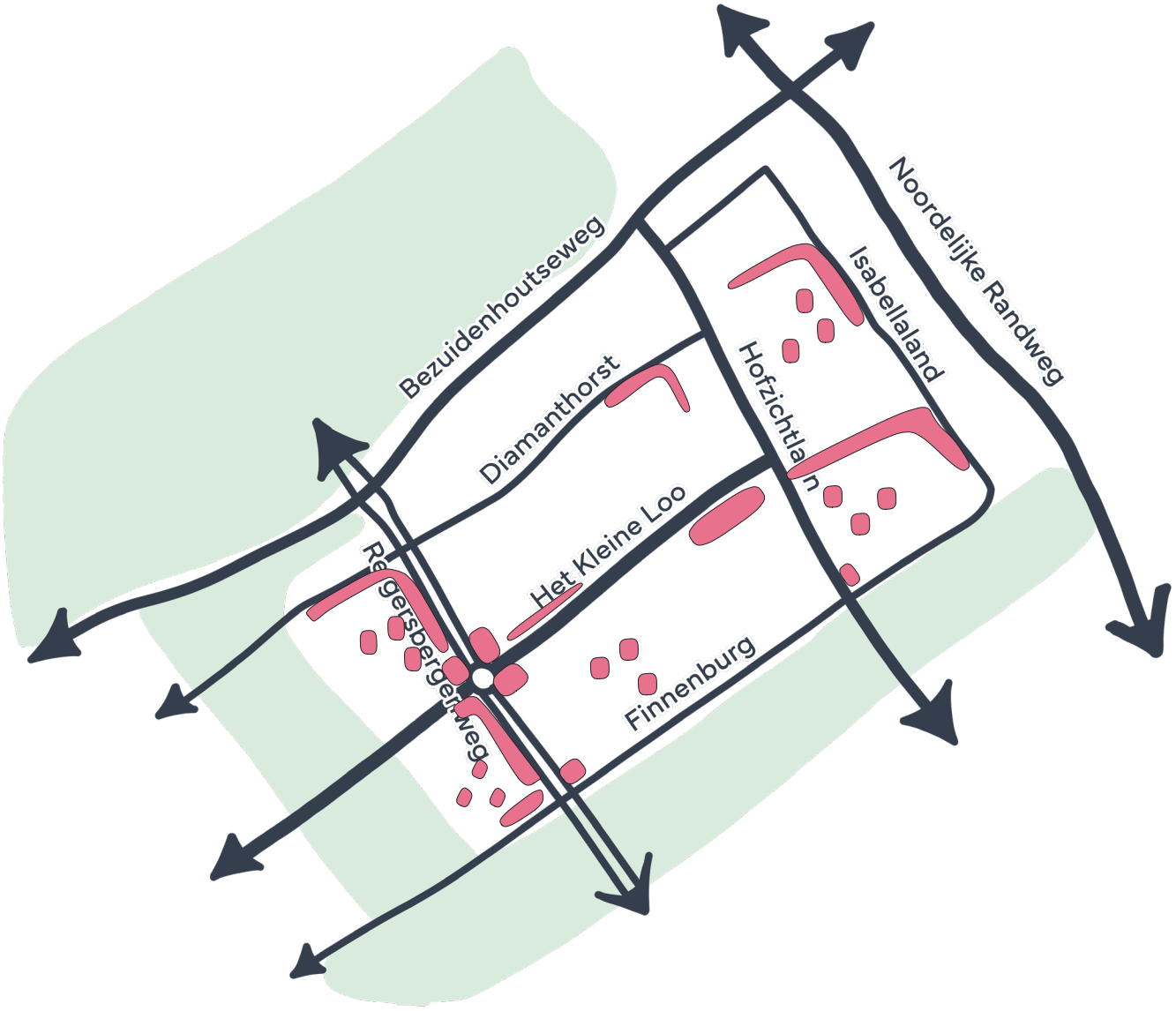


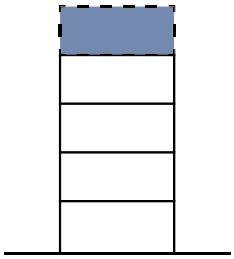





**Where**

- Vacant or under-utilised buildings (porosities)
- Vacant or under-utilised spaces
- Buildings in need of renovation
- Unconstituted streets
- Blind plinths
- Back sides





## Campanulastraat: The Hague, NL

Schaeffer

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

The traditional 1950s portico building in the Hague did not meet up to the wishes of the residents. Housing 30 apartments, each 44 m2, did not meet the needs of spaciousness. Without cutting down the number of apartments, each individual apartment could be enlarged through the realised vertical extension of the building, combined with a horizontal extension on the back side. The added layer is a lightweight construction so the existing structure can bear the added weight. The extension has been combined with sustainability measures to make the building more energy-efficient.

*Campanulastraat in April 2024, The Hague*
*(author)*

*Campanulastraat in April 2020, The Hague*
*(Google Maps)*

***Figure 87***
***Impressions of Campanulastraat***

## Vertical extension

This pattern aims to densify the existing urban fabric through adding layers on top of an existing structure. Hereby the weight-bearing capacity can be maximised to its full potential, as well as the space above the structure. The built footprint can hereby be maximised.

Streets could become more legible through their height-width ratio, together with the different senses of enclosement of the public realm, differentiating urban atmospheres.

### How

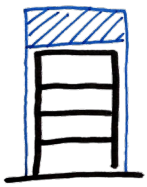
There are two ways for extending an existing structure vertically.

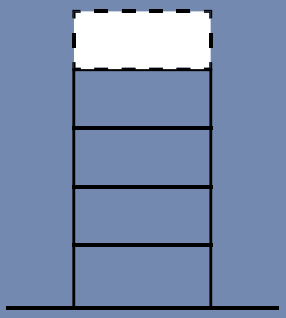
**1. Vertical extension on existing structure**

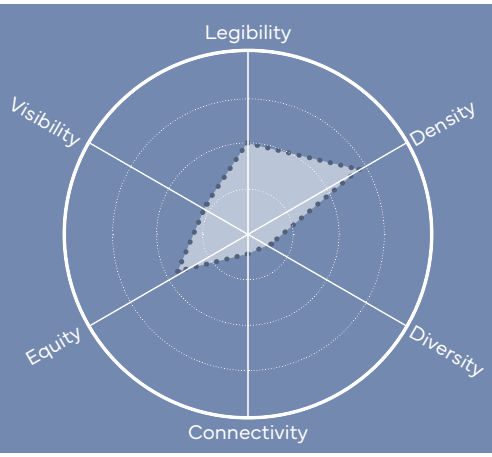
Without extra structural interventions, many overdimensioned buildings are able to support the added structure on the rooftop. Through this, a partial or full vertical extension can be realised.

**2. Vertical extension on new structure**

Buildings which are not able to support an extra structure on the top can still be extended vertically through a table-top construction. This can be combined with added balconies on the sides. Through this, multiple floors can be added to an existing structure.

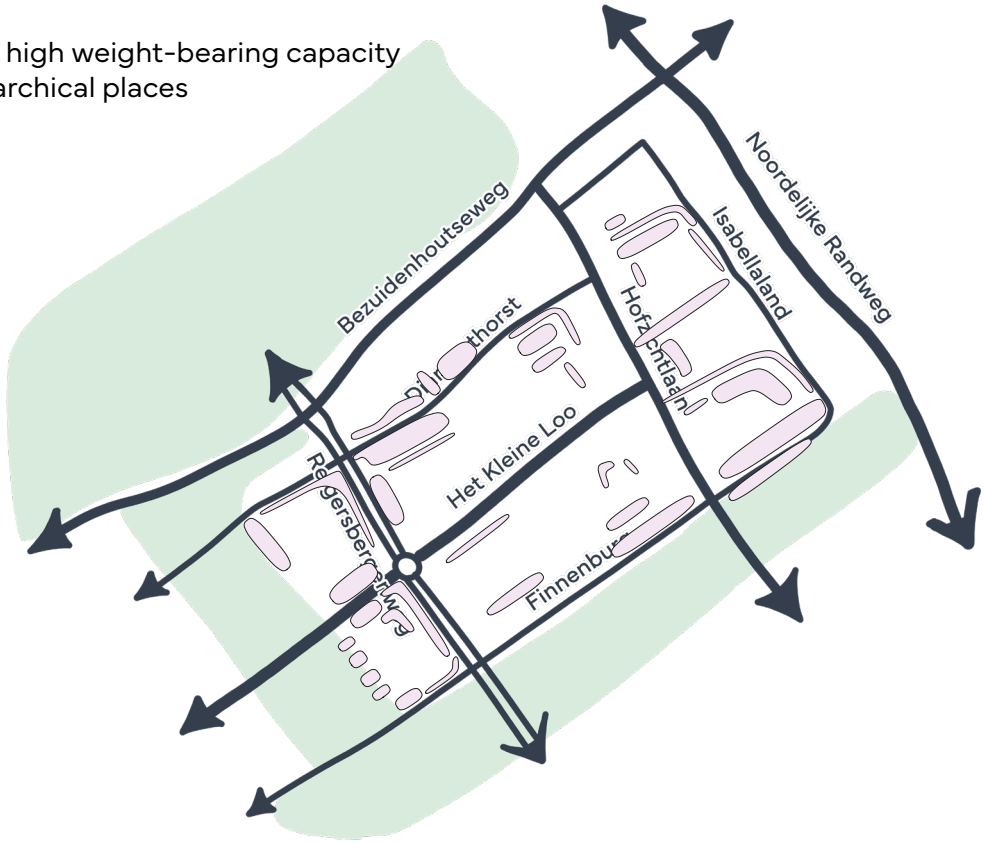


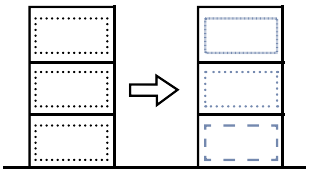





**Where**

- 1960s buildings with a high weight-bearing capacity
- Non-conforming hierarchical places
- Low-rise buildings





# Kleiburg: Amsterdam, Netherlands

NL Architects

Scale: Building // Block // Neighbourhood

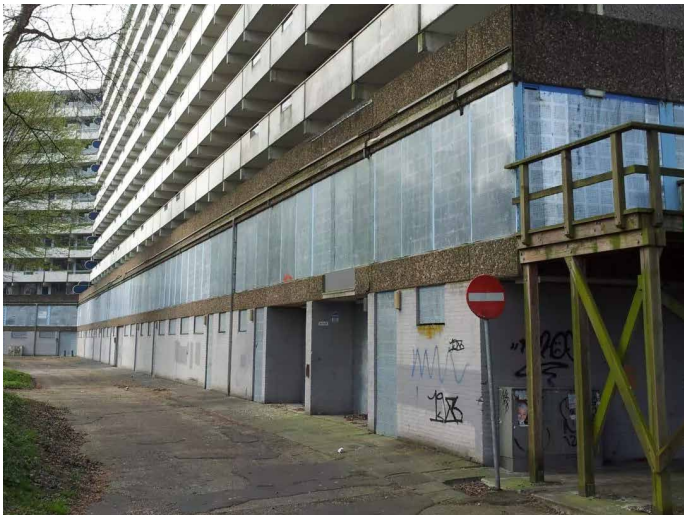
Centrality: Low // Medium // High

System: Place // Network

Like Kruitberg, Kleiburg is a partly re-purposed residential complex in Amsterdams Bijlmer neighbourhood. Originally, there used to be closed storage facilities on the first floor of the complex, together with some narrow and low underpasses. For a building stretching 420 metres in an open landscape, it acts as a barrier, being permeable for only the brave who dare to defy these socially unsafe territories.

The whole plinth has been adapted. The feel is now open and transparant, caused by the added permeability and materialisation of the facade. Thereby, a mixed programme to the first floors has been added. Besides residential functions in the plinth, there is a church, a local beer brewery, a hair dresser, and a community centre. Part of the sidewalks is appropriated by the residents on these flats, giving indication of a sense of ownership by the residents of these floors.

The renovation project of the Kleiburg flat, of which the re-purposing of the first floor was in important aspect, has won the European Mies van der Rohe price, for its clever architectural improvement.



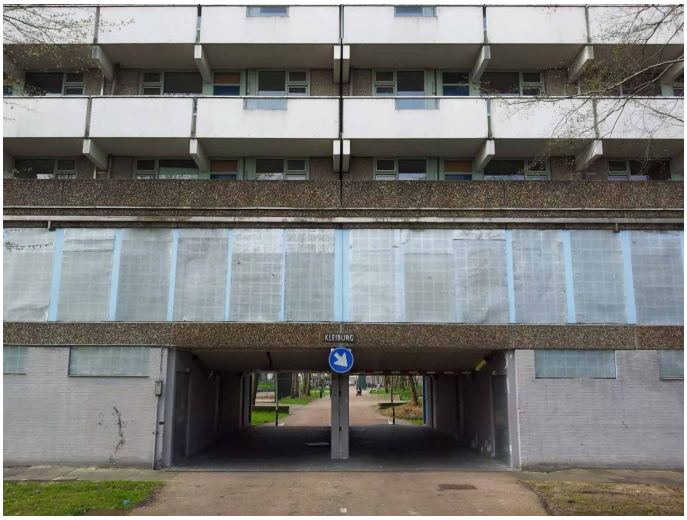



***Figure 88***
***Impressions of Kleiburg Amsterdam (https://arcam.nl/architectuur-gids/kleiburg/)***

## Re-purposing

This pattern aims to re-purpose an existing structure to mitigate porosities and under-utilized spaces. It can enhance proximity and diversity, as well as liveliness in its vicinity. Places can be revitalised whilst preserving existing structures.

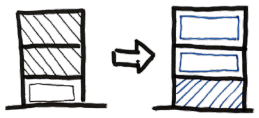
Depending on the old programmes, the new ones can maximise diversity socially and function-wise, to the kind of urban quality that the place is deemed to hold. With this, the existing urban fabric can be optimised functionally to the contemporary needs of local residents.

### How

Re-purposing of existing structures can happen partially or for the entire structure.

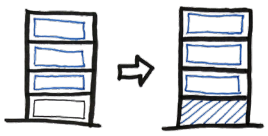
1. Partial re-purposing

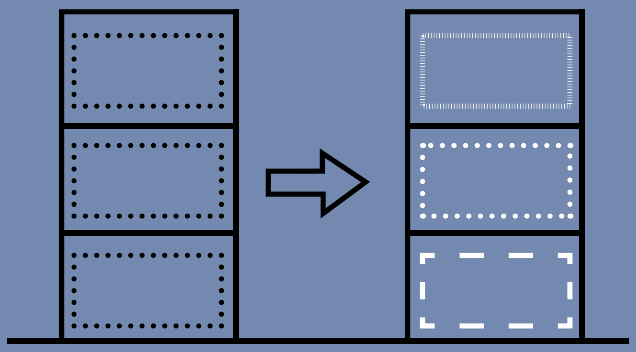
Through partial re-purposing, part of the structure can be altered in function, whilst other part remains the same. This results in a mix of programmes. For enhancing a diverse streetscape, the ground floor is an important part of the building having potential for re-purposing.

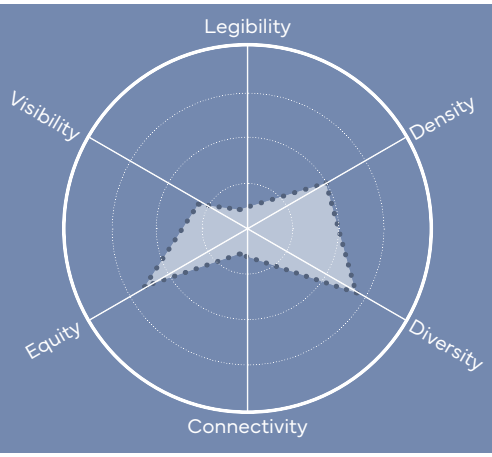


2. Full re-purposing

With the full-repurposing, the whole programme of a building can be changed into something else than its original function. A single use can be substituted for a mixed-use purpose.

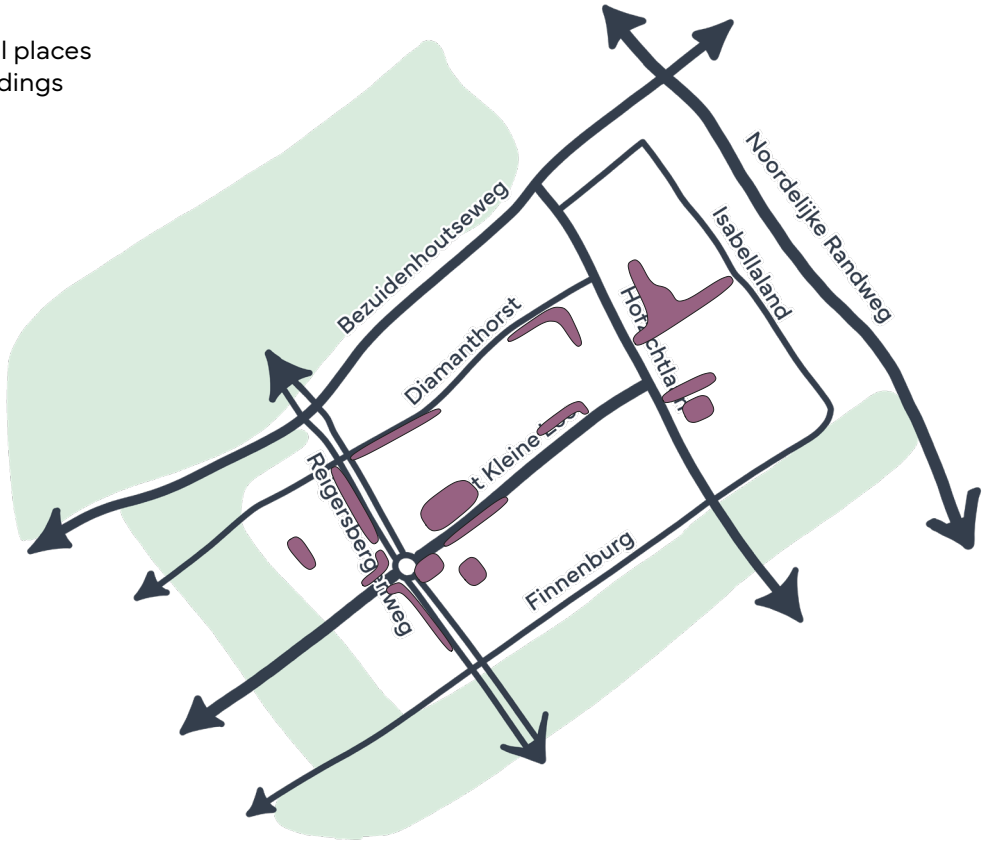







**Where**

- Non-conforming hierarchical places
- Vacant or under-utilized buildings
- Blind plinths



## Splitting

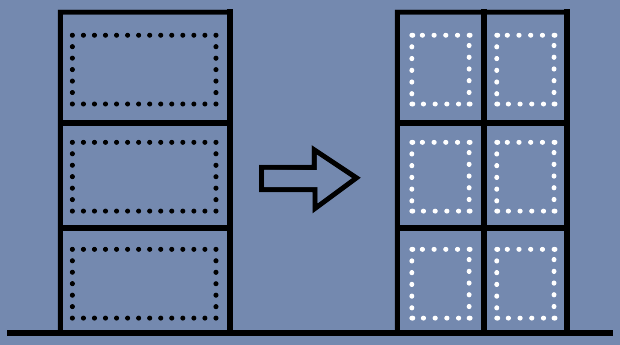
This pattern aims toincrease the capacity of an existing structure by splitting the occupants space into multiple parts. This results in multiple smaller parts to give way for multiple different occupants. Through splitting, the grain size of a structure can be reduced and (social) diversity can be maximised while preserving an existing structure.

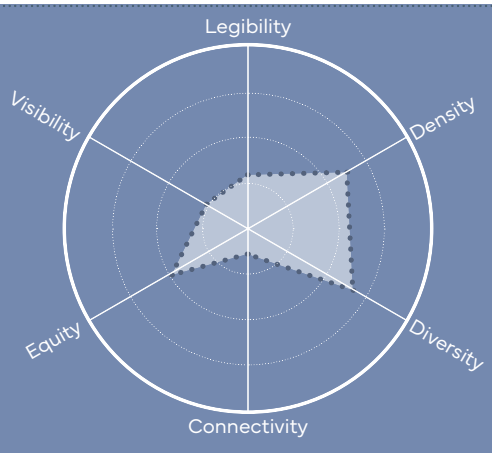
While built density remains the same, the programmatic density can be raised, tapping into the full potential of the built, and achieving a more diverse urban landscape.

## How

Splitting can happen in different ways. However the main act is to sub-divide an existing structure. This can be done horizontally, vertically, or contract-wise through subletting an existing dwelling to multiple new owners. Splitting could take the following forms:

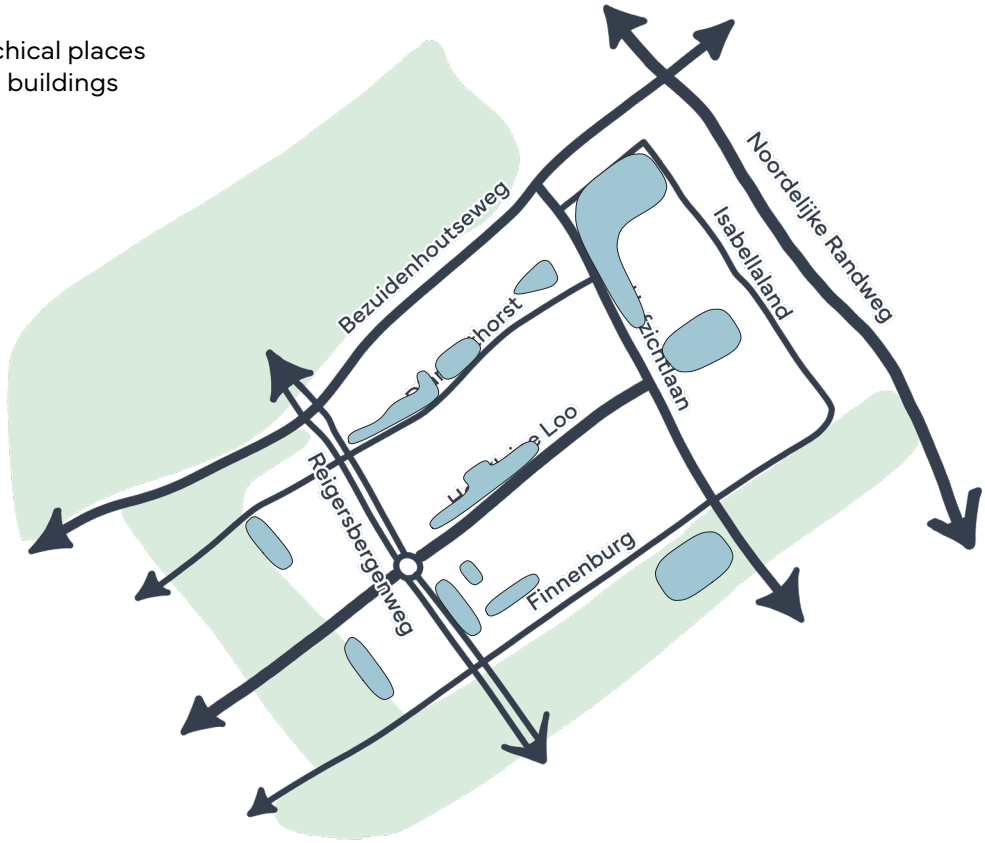
1. Horizontal splitting
2. Vertical splitting
3. Subletting






**Where**

- Non-conforming hierarchical places
- Vacant or under-utilised buildings
- Too large grains
- Large buildings



**Potentials for densification**
The different densification types all have their different suitabilities in the context of Mariahoeve. Figure 92 shows where each of the different densification types is suitable, combined.
The map indicates where densification is possible. However, it does not show where it is suitable according to the qualities aimed to be achieved.

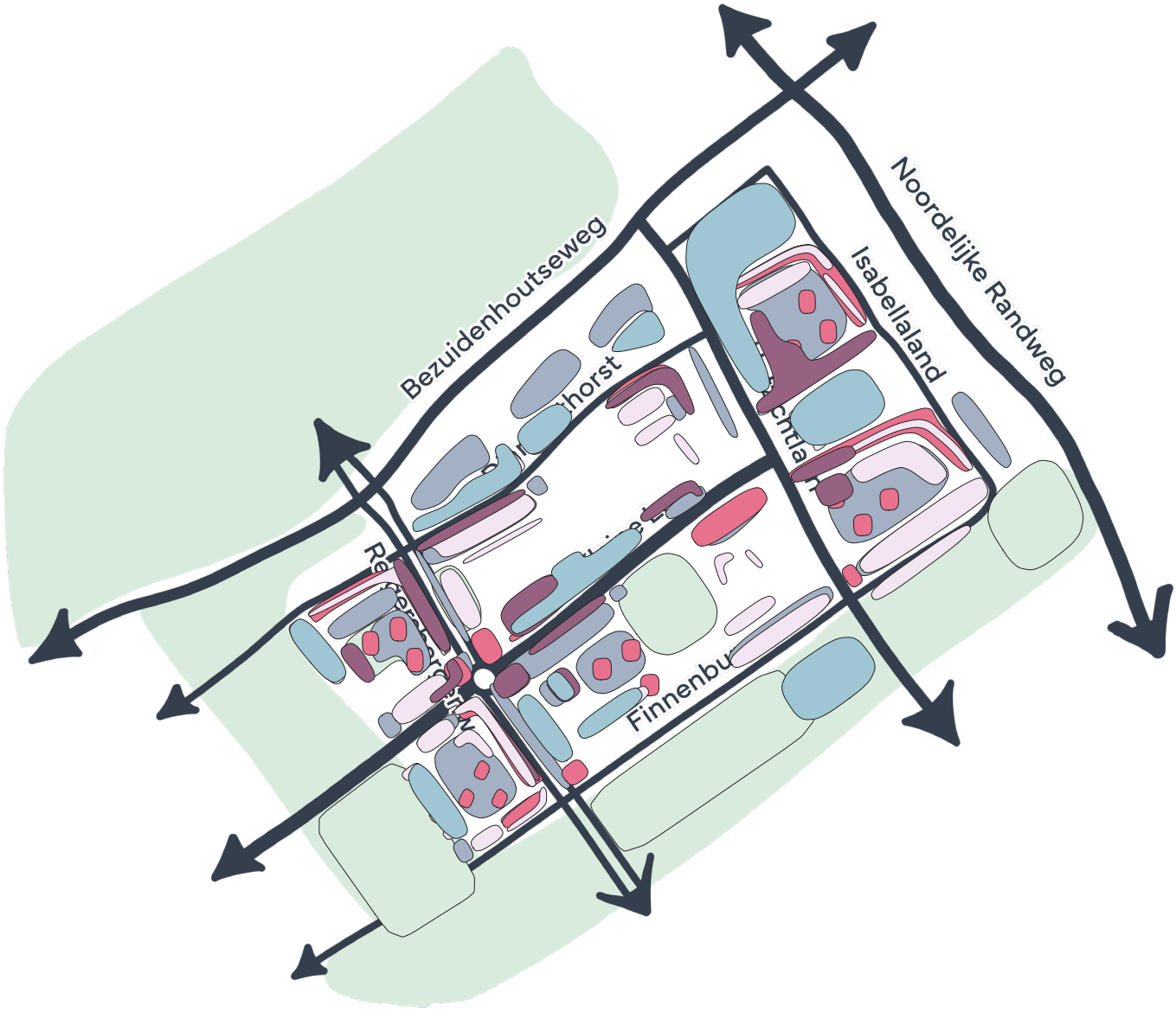



*Figure 89*
*Densification potential map in Mariahoeve*

**Framework for densification**

To align the densification to happen in accordance to the different qualities to be achieved, some areas are more potent towards densification that others. These areas are shown in the Figure 93.

The densification happens along a corridor and hinterland configuration, where the main densification in terms of enclosement of the street happens among the two corridors of Het Kleine Loo and the Reigersbergenweg. The hinterlands, now considered to be very spacious and non-demarcated, will become more built up and will have more enclosement to afford space appropriation and evoke a sense of belonging towards the adjacent residents.

The principle of differentiated solidarity will hereby be embraced in the densification structure.

Therefore, the following layers will guide the densification, and are implemented in the diagram below:

- Social diversity;
- Functional diversity;
- Legibility;
- Connectivity;
- Visibility;
- Equity.


*Figure 90*
*Map of densification structure in Mariahoeve*

## 6.3 Connectivity

**Connectivity**
Connectivity refers to the number of connections to and from a place (Marshall, 2005). This chapter goes into the attribute of connectivity, firstly by analysing this characteristic in the connectivity of Mariahoeve. Different patterns to enhance connectivity have been made through research on existing references. These will be implemented according to a road structure proposal for Mariahoeve, to which different urban qualities can be introduced.

**Structure of the superblock**
As Mariahoeve is built upon the principles of islands, each having an inside and an outside, there is a certain degree of permeability between the inside and outside of these islands. The map below illustrates the connections between the inside and outside. It is evident that there are limited connections between the two. However, cyclists and pedestrians have more connections, which means there is a higher permeability between the inside and outside of the islands depending on the mode of travel.
The islands can be viewed as a form of the superblock, which can be viewed as a spatial quality. This makes a certain degree of modifiability. The road structure tends towards calmer residential streets within the blocks. A limitation of the current structure is the placement of car entryways, which are often further into the street structure, resulting in a higher number of traffic conflict points in the neighbourhood.

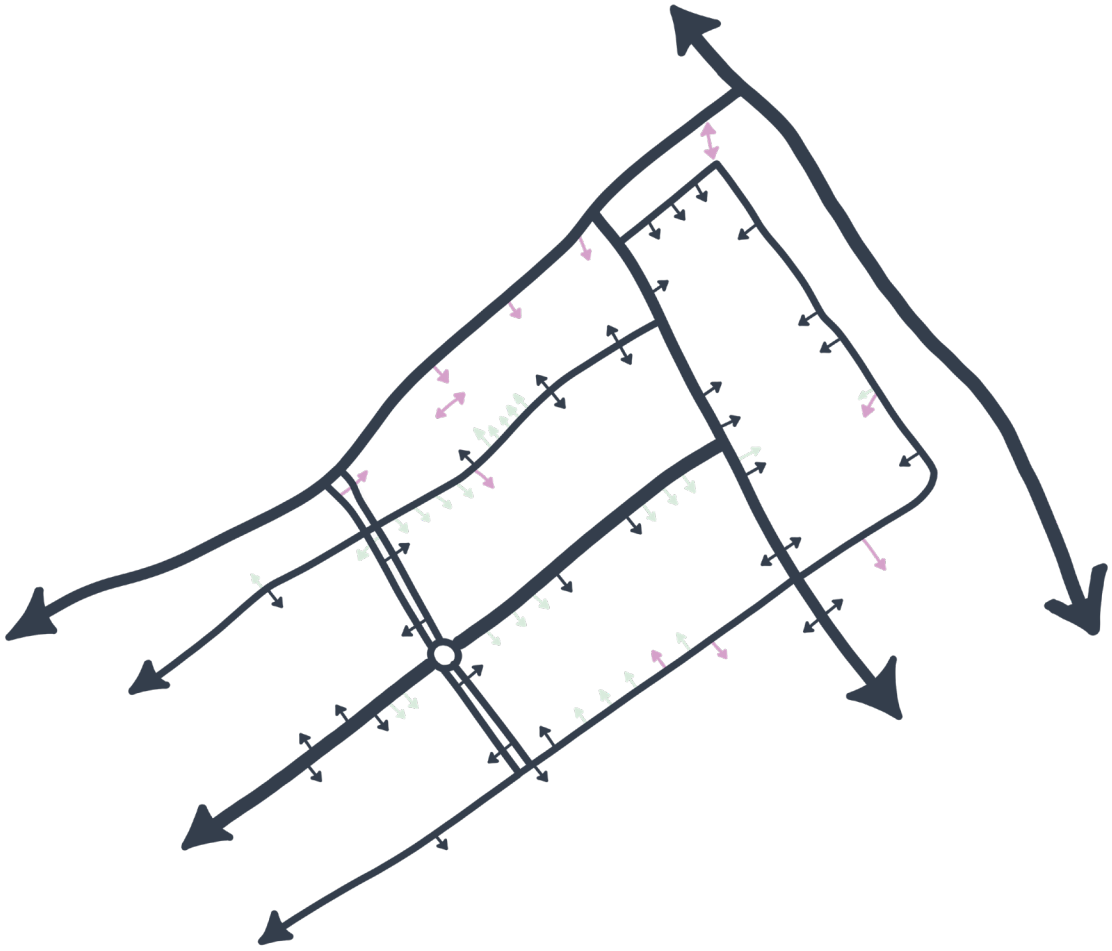


*Figure 91*
*Connectivity map of Mariahoeve*

**Permeability**
Permeability is closely related to connectivity, as it is about the trespassability of a certain area. Due to a high number of paths, the permeability among pedestrians, and to a certain extent among cyclists, is decent in Mariahoeve. On the contrary, the main roads as shown in figure 95 are rather difficult to cross. The main barriers in the area are the following:

- Tram lines
- Main roads
- Water structures
- Wide apartment block structures (wall typology)
- Inaccessable green patches

*Figure 92*
*Impression on permeability in Mariahoeve*

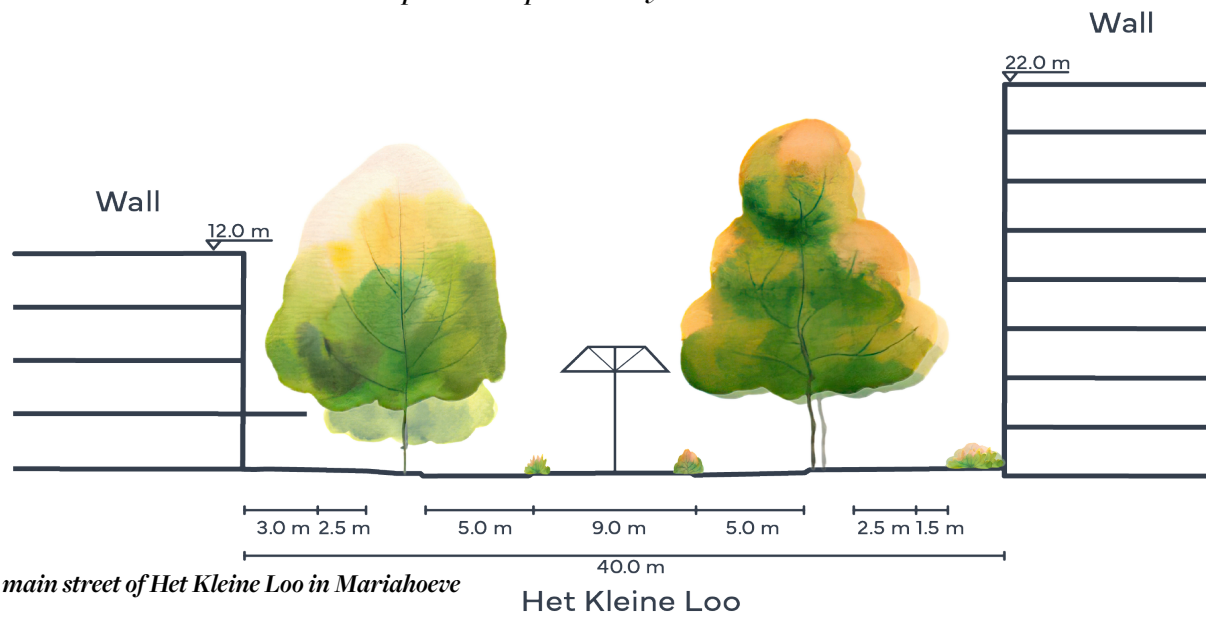
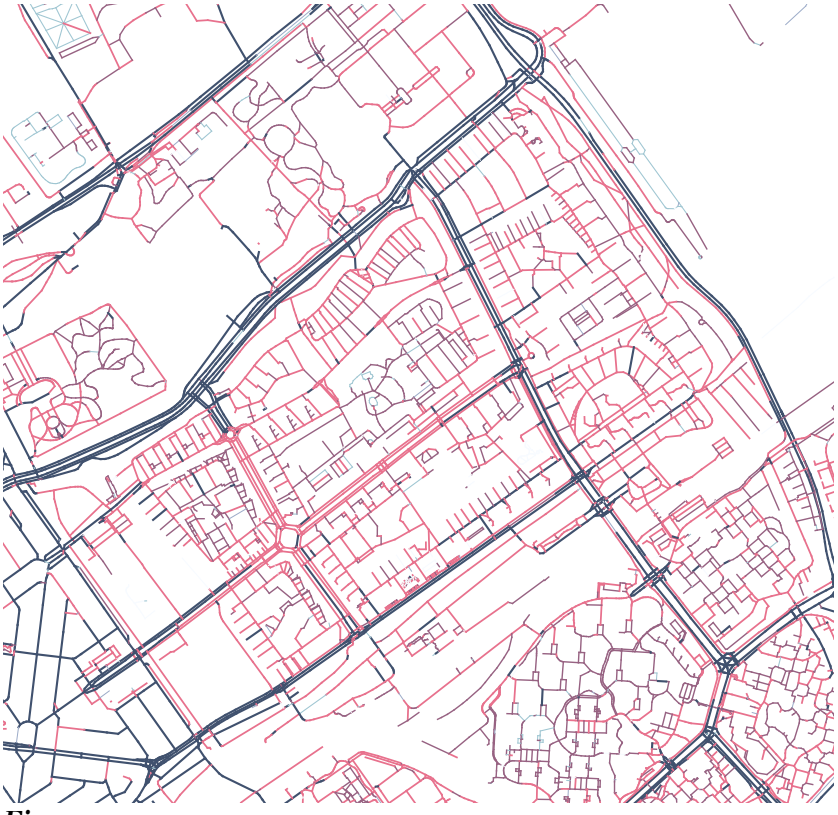



*Figure 93*
*Section view of the main street of Het Kleine Loo in Mariahoeve*


Space syntax indicates that certain roads are more integrated than others. At the local scale, with a walking distance of 800 metres, the main axes of Het Kleine Loo and Reigersbergenweg are particularly well integrated.

***Figure 94***
***Local space syntax, with an integration distance of 800 metres***




At the large scale, with a distance of 10 kilometres, the outer roads of Bezuidenhoutseweg, Hofzichtlaan and Finnenburg are the most integrated. Publicness will be further elaborated upon in the paragraph on legibility.

***Figure 95***
***Regional space syntax, with an integration distance of 10.000 metres***

In terms of street layout, there are four street types in Mariahoeve. The multi traffic corridor are basically multiple lane corridors serving through movement, whereas the single traffic corridors are single lane traffic corridors. Despite these streets acting the same, the feel is different. The residential streets are mixed mode streets. The pathways and cycle paths are for dedicated modes of mobility.

- Multi traffic corridors
- Single traffic corridor
- Residential streets
- Pathways / Cycle paths;

*Figure 96*
*Road hierarchy structure map*

Relating to connectivity, the car ownership in Mariahoeve reflects the use of the inner network, as well as the parking pressure. One in three residents owns a car.

| Neighbourhood | Car ownership |
|---|---|
| Kampen | 835 |
| Burgen & Horsten | 2160 |
| Landen | 1964 |
| Mariahoeve (Total) | 4960 |

*Figure 97*
*Car ownership in Mariahoeve*

The user intensity map in Figure 102 illustrates the average motor vehicle intensities per road in Mariahoeve for the year 2019.
It is evident that the block principle is reflected in traffic intensities. The main roads, located at the backs of each of the islands, are the most used. The numbers reflect that there is the potential to reroute traffic through the existing layout while incorporating redundancies.

It is important to note that some roads consist of two lanes per driving direction. This splits intensities of the whole road profile in half, counting only one direction rather than both. Two-directional lanes therefore have higher intensities. Despite a distorted image, the potential is there.

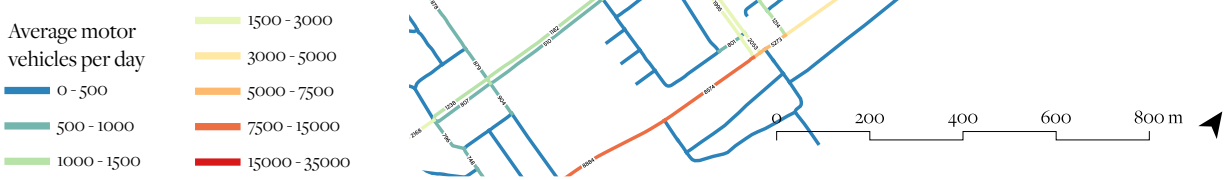



*Figure 98*
*Average motor vehicle intensity map*

## Kleiburg: Amsterdam, Netherlands

NL Architects

The 1970s high rise buildings in the Bijlmer neighbourhood of Amsterdam were typically designed as wide buildings, spanning a length of more than 400 metres. They stood in the landscape as walls, seperating the one side from the other. With renovations in the last to decades, connectivity in the area has improved drastically. This has been done by adding under-passes in the existing structures. Throught this, permeability has increased. The distance and time it takes to get around have been reduced. Besides, the under-passes have been dimensioned spaciously, making for a socially safe underpass.

## From obstruction to connector

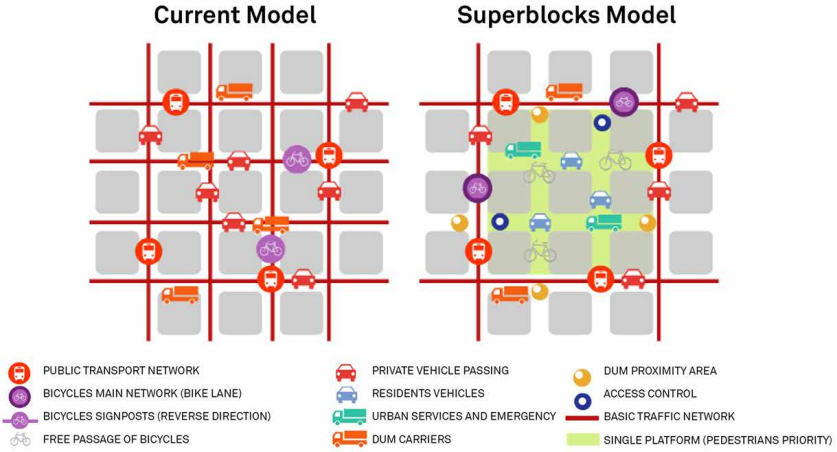
The tram lines in Mariahoeve form a major obstruction throughout the neighbourhood. Besides some crossings, the possibility to cross is meagre. This is mainly attributed to the design of the tram corridor it runs through.

References in the Hague show the tramway can be used as a pedestrian crosswalk along its whole path. The design of the reference shows no barriers. Rather, it shows the tramway in a patch of green, where people can walk their dog, and cross at any given moment. Of course, attention needs to be paid at an actual tram passing. As the tramway is a long straight line, visibility on a coming tram is strong. Together with noice signals, people are warned well before to mitigate risks.

## Superblock model Barcelona

Barcelona has succesfully implemented the superblock model. This model is suitable for Barcelona's orthogonal district of Eixample, which lends excellent opportunity towards re-routing traffic using the existing street pattern. The superblock model differentiates road types by an outer ring, serving traffic flow, and inner roads, serving slow destination traffic. Through-traffic is discouraged through design, which nudges to drive slowly. Through these design interventions, a hierarchy is created for vehicular traffic, while enabling streets to be activated and appropriated by residents.
The superblock model is a potential model for car-oriented neighbourhoods with an orthogonal or semi-orthogonal street pattern. Through re-routing vehicular traffic, spaces can be made appropriable or attractive for residents to reside in.

## SUPERBLOCKS MODEL



## Re-routing traffic circulation

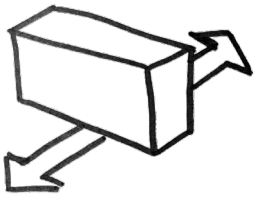
This pattern aims to enhance local connectivity through calming traffic in certain parts to favour active mobility. This action behind this pattern is through adding traffic roads to redirect traffic from existing entryways to other more suitable locations. The rationale behind this is to relieve certain streets of traffic, thereby making space for other opportunities.

### How

Through different interventions towards nudging traffic within certain paths, different streets can be structured depending on their different qualities.

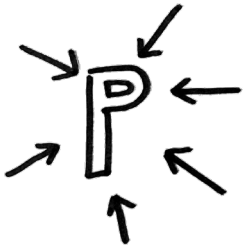
**1. Cutting of flows**

Through cutting of flows towards select forms of mobility, the circulation pattern within a certain area can be modified. This can result in selective accessability for certain modes of transport, and can relieve parts of the network.



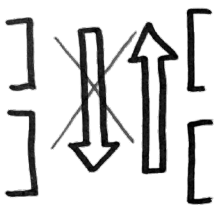
**2. Introduce centralised parking**

Centralised parking can be introduced in the forms of parking lots in the open air, or a dedicated parking facility. This facility can alter the traffic circulation in a neighbourhood and can generate a pedetrian flow from and to this facility.



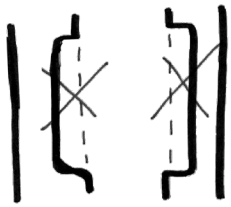

**3. Turning a street one-way**

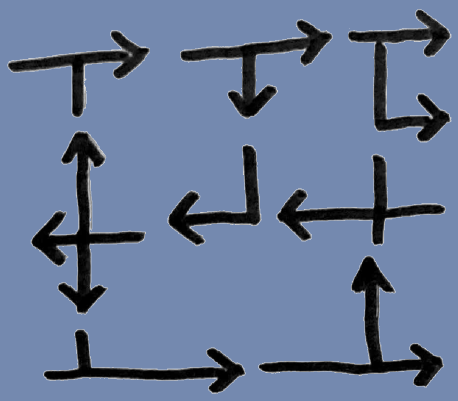
By turning a two-way street into a one-way street for motor vehicles, the circulation path could be modified in a certain way. This gives way for a certain street to be relieved from traffic, and gives space towards other functions in the street profile.

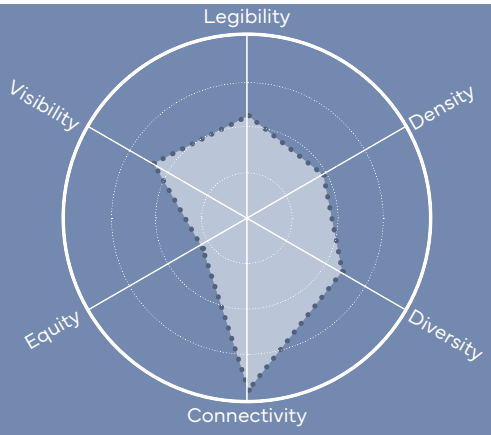


**4. Modifying street profile**

Through modifying the street profile, a street could be interpreted differently according to the logic behind the new layout. Different streets can hold different affordances to the users, resulting in different uses. This can nudge behaviour. Streets can be calmed and be given a staying quality.








**Where**
Throughout the loose grid patterned street layout that Mariahoeve has. A new hierarchy structure has been proposed, which goes together with the urban quality types, described in the following paragraph.

## 6.4 Legibility

The characteristic of legibility is heavily related to the social logic of space. It is about how the urban realm is being perceived by the affordances created by the design of the space. This perception can lead to certain behavioural outcomes, which the space affords. This can lead to certain human-built interaction, as well as social interaction. Therefore, some spaces are deemed sociable while others are not.

Legibility is related to:

- urban density as built mass creates a sense of enclosement resulting by the building footprint and the levels, which may evoke a sense of intimacy or alienation, depending on the built mass.
- connectivity as the street patterns may have a hierarchy related to publicness and accessibility to certain modes of circulation.
- diversity of function and form, which creates a sense of liveliness and differentiation. The programmatic diversity may constitute a socially diverse environment, to which many different individuals are drawn to.

Whereas Mariahoeve is a modernist neighbourhood with lots of open space and car-oriented streets, there is little intimacy and possibility to appropriate. The cross section at the bottom of the page gives an idea about the spaciousness of the neighbourhood.

This paragraph on legibility focusses on different urban qualities which are to be introduced in Mariahoeve. As of now, it is a rather monotonous neighbourhood with little variation to urban atmosphere, the different urban qualities aim to bring variation and an open city experience to the residents. These urban qualities spaces are allocated to different spaces, and which are differentiated by transition zones and strict edges.

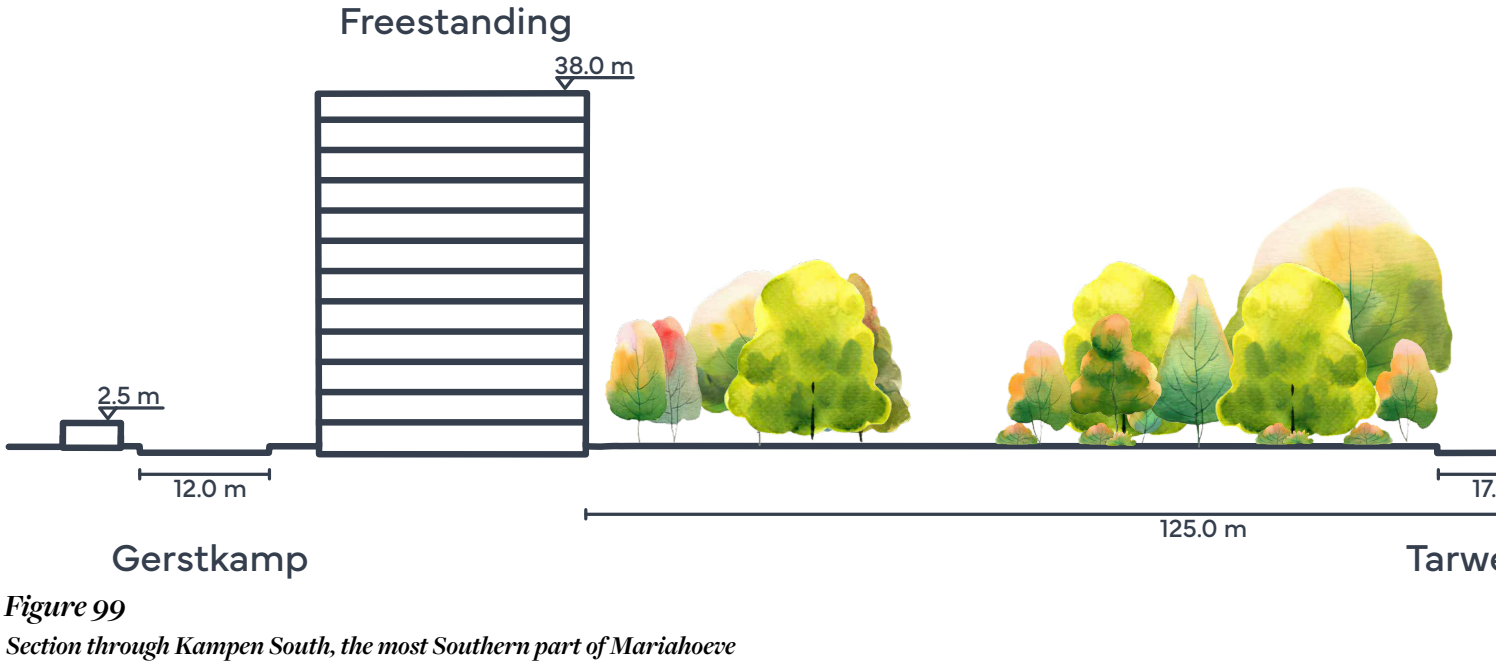



*Figure 99*

*Section through Kampen South, the most Southern part of Mariahoeve*

## Space syntax

The space syntax diagrams show that certain parts of the neighbourhood are better integrated than others. The main roads which now act as backsides of the different islands

The neighbourhood does have a hierarchy in publicness among its streets. In terms of people flows, it thus contains streets ranging from main street to back-sides and dead-ends. In terms of spatial design of these streets, there is a clear differentiation from collector roads and local roads. These collector roads are the main roads which Mariahoeve has been designed around. They are most integrated in the street layout.

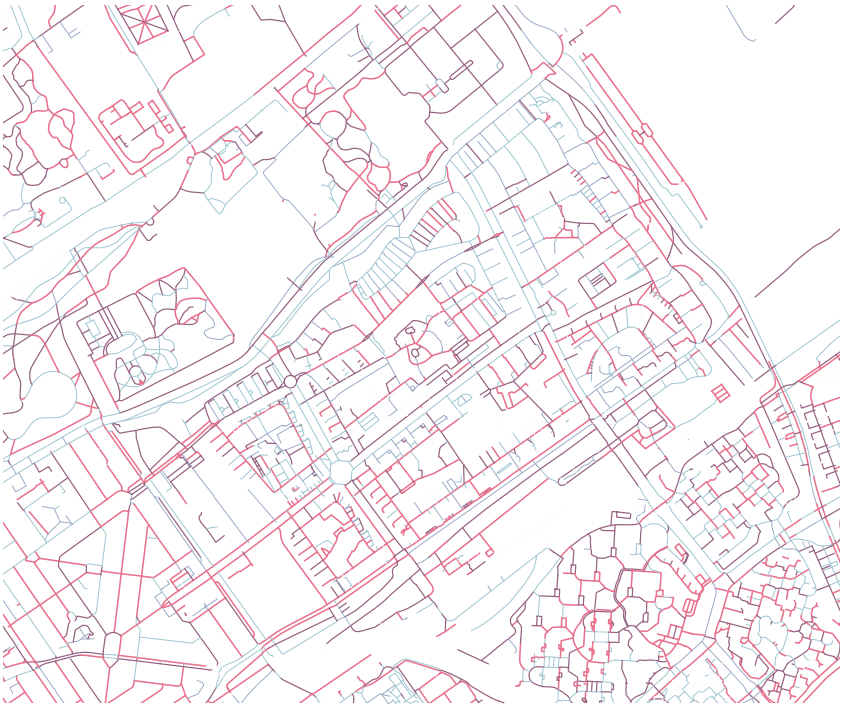
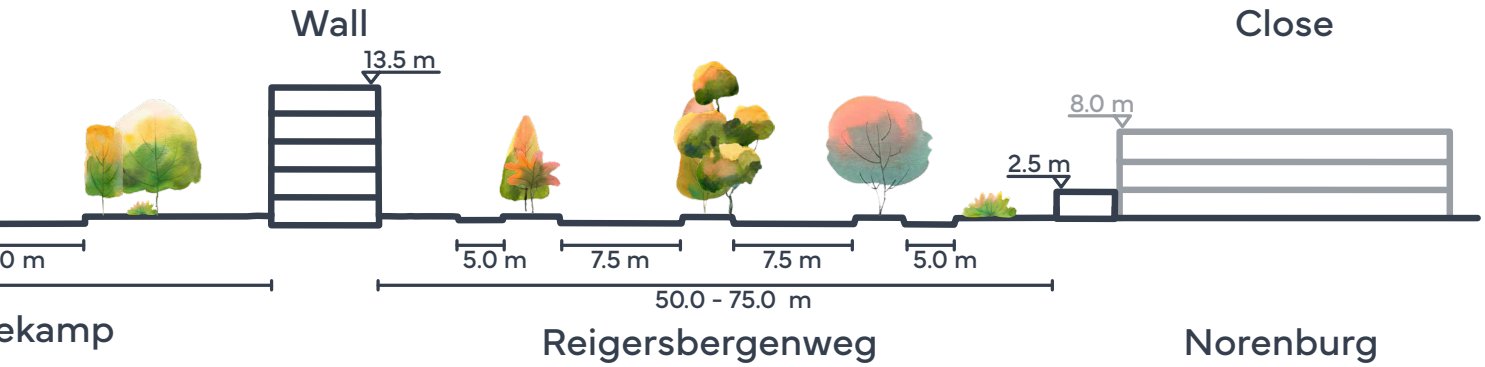



***Figure 100***

***Local space syntax, with an integration distance of 800 metres***



## Enhancing legibility

The enhancement of legibility of the neighbourhood's layout will go together with the addition of urban qualities in the neighbourhood. These qualities add differentiation to the urban spaces, and through the design of these spaces, will become legible according to one's social logic. Individuals may be able to interpret the space around them in their own way and act accordingly upon it.

### Introducing changes in spatial atmosphere

This patterns aims to enhance legibility through the introduction of different zones with different urban qualities assigned to them. These zones can guide the design of the spaces to be able to afford different social interactions with the space itself and among individuals.

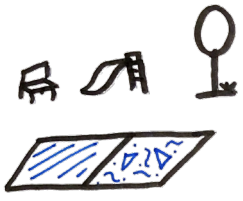
For the neighbourhood of Mariahoeve, seven different urban zones have been derived through reference studies, which will be implemented at different locations in accordance to the street pattern. The legend contains the seven types. These zones make the public realm legible and aligned according to space's social logic.

## How

Through different interventions towards nudging traffic within certain paths, different streets can be structured depending on their different qualities.

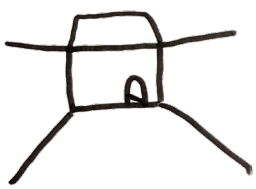
### 1. Introducing matching street furniture

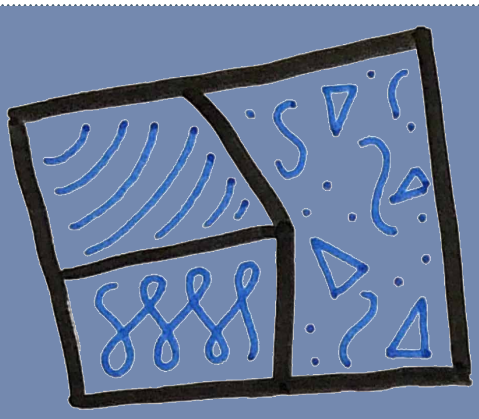
Through the addition of matching street furniture to the different urban quality zones, the space and its use can be differentiated. The furniture anticipates on the social logic of the space. Hereby, affordances can be created.

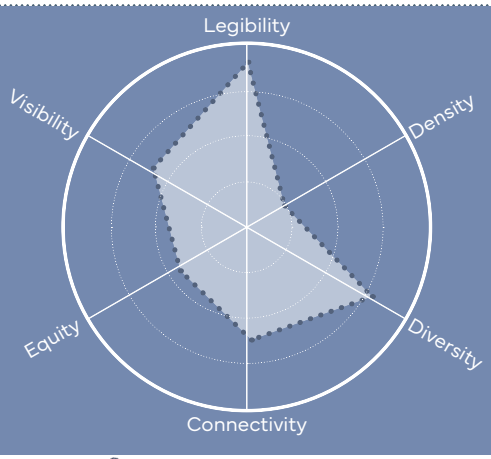


### 2. Aligning sense of enclosure

To make places feel intimate or anonymous, a certain sense of enclosure can evoke these feelings. Therefore, to align the size of the enclosure, and whether it is fully or semi enclosed or not enclosed may play into the different types of urban quality. Therefore, the built mass is an important guiding mechanism in this part of the social logic.








Urban qualities

- Sociable spaces
- Urban staying
- Green staying
- Calm staying
- Local passing
- Regional passing
- Appropriable

## 1. Sociable space

These areas, which are designated as social spaces, are specifically designed to encourage socialising and are perceived as attractors in the neighbourhood. These places are characterised by a high level of activity and a vibrant ambience. They accommodate a variety of commercial facilities, including shops, restaurants, office-like and stacked workspaces, and urban housing. These areas house a very variegated urban landscape, offering variation in building lines, as well as building types and sizes. The social diversity of the area is reflected in the differences in building volumes and materiality. These qualities are mainly embraced around urban squares and main streets, which are the least urban in depth and the most locally integrated.

The characteristic of staying is to have certain place-making qualities in the area. Depending on the street type, the design could have different kinds of characters, whilst maintaining the quality of affording people to sit down and remain in the same place for a significant amount of time. These areas target people in the whole neighbourhood rather than the near vicinity. These often run parallel to the passing areas. The staying quality would fit in green, mixed-use, quiet and lively areas, as well as places that are important in connecting place to place. Therefore, this quality can be differentiated into three types, which are described on the right hand.

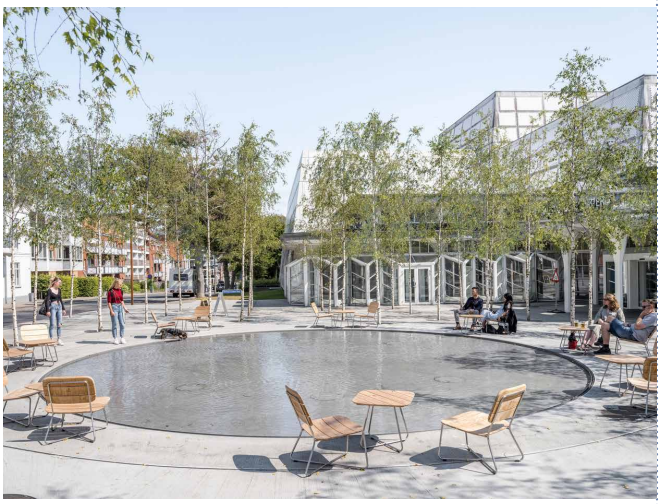
## 2. Urban staying quality

These are lively areas in an urban context and accommodate business activity, commercial facilities (shops, restaurants), office-like and stacked workspaces, and urban housing. This quality is mainly attributed to locally well connected spaces, with high publicness. This zoning type will be allocated to the main streets. The space is highly dynamic due to the day-round activity happening here.

## 3. Green staying quality

These are quiet areas in either an enclosed or semi-enclosed area. These places afford interactions in a rather quiet setting. The place is not designed to be appropriated by neighbours year-round. Rather, it does afford exceptional events. These spaces are not frequently present in the neighbourhood. The programming in the enclosing masses mainly cater residential functions.

(*Google Maps, z.d.*)

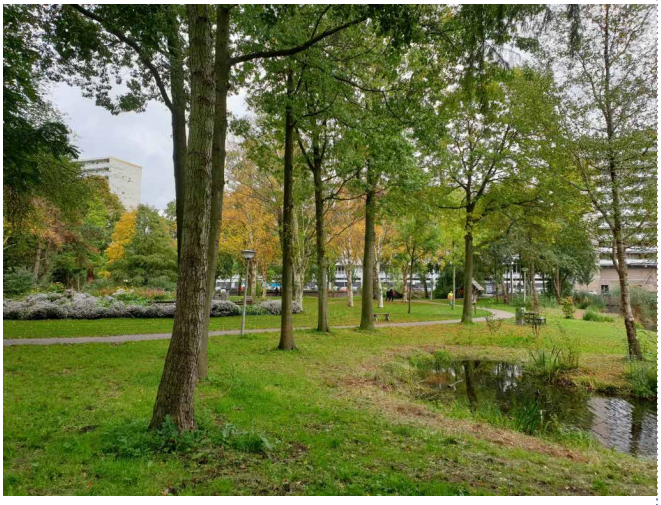


(*S. Ravesloot, z.d.*)

(*Google Maps, z.d.*)

(*Google Maps, z.d.*)

(*M. Markozci, z.d.*)



(*Author, 2023*)

## 4. Calm staying quality

These are areas characterised by the green and blue structures, as well as the openness and scale. The open land use mainly caters to programmes such as gardens and allotments, as well as playing facilities, which bring social values in proximity. The green spaces are part of a pedestrian network in the neighbourhood. The buildings that may surround these places mainly accommodate housing.

## 5. Local passing

Areas marked as passing areas are streets with the main function of giving traffic space to move and circulate through the area. This quality can be differentiated into two types:

- Local passing quality:

These areas are characterised by residential roads offering local traffic space to reach a specific destination in the neighbourhood. Typically, these areas consist of rather narrow roads for slow traffic and of sidewalks. As these areas reach into the residential areas, they afford social interactions to take place in the same location.

## 6. Regional passing

- Regional passing quality:

These areas are characterised by large roads for directing outer-neighbourhood traffic elsewhere. They have a low affordance for social interactions as the design does not afford this initially.

## 7. Appropriable quality

These areas have a locally oriented quality that renders the space appropriable to neighbouring residents. Generally, these spaces are quite intimate and instinctively enclosed, if not physically, by neighbouring buildings. In these areas, nudging interventions will be implemented to encourage residents to feel responsible for their space. Therefore, it is up to the residents to bring their own local staying quality in their perceptive semi-private realm. The territorial quality evokes the perception of belonging to the public realm and thus can be considered collective for the neighbouring residents within the perceptual territorial edges of the beholder.

## Urban quality types

As described, each urban quality type brings a distinct feel to space. In sum, the individual characteristics to the different urban quality types are described in the chart on the right.

Each of the different urban quality spaces contain different urban furniture and equipment to the built environment which create affordances for desirable behavioural outcomes. The chart at the bottom of the page shows the level of relevancy of all individual equipment per urban quality type.

The urban quality types can be designed for through the characteristics and equipment shown in the tables. The design of the spaces in the neighbourhood can be guided using the input from these tables. These will be spatialised through the patterns which are described in the following pages under different characteristics.

Urban qualities

- Sociable spaces
- Urban staying
- Green staying
- Calm staying
- Local passing
- Regional passing
- Appropriable

- **Highly relevant**
- **Relevant**
- • **Unrelated but may work**
- · **Unrelated**

1. Sociable space
2. Urban staying
3. Green staying
4. Calm staying
5. Local passing
6. Regional passing
7. Appropriable space

| | Lively | Quiet | Publicness | Mid-public | Depth | Enclosed | Semi-enclosed | Open | Intimate | Anonymous | Constituted | Unconstituted | Function mix | Large area size | Medium area | Small area size | Large grains | Medium grain | Small grain size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | x | | x | | | | x | | | x | x | | x | | x | x | | x | x |
| 2. | x | | x | x | | x | | | | x | x | | x | x | x | | | x | x |
| 3. | | x | | x | x | | x | x | | | x | x | (x) | x | x | x | x | x | x |
| 4. | | x | | x | x | x | x | | x | | x | | | | x | x | | x | x |
| 5. | | x | | x | | | x | | x | | x | | | | x | x | x | x | |
| 6. | | x | | x | | | x | | | x | x | x | | x | x | | x | x | |
| 7. | | x | | | x | x | | | x | | x | | | | | x | | x | x |

*Figure 101*

*Different urban characteristics to urban quality types*

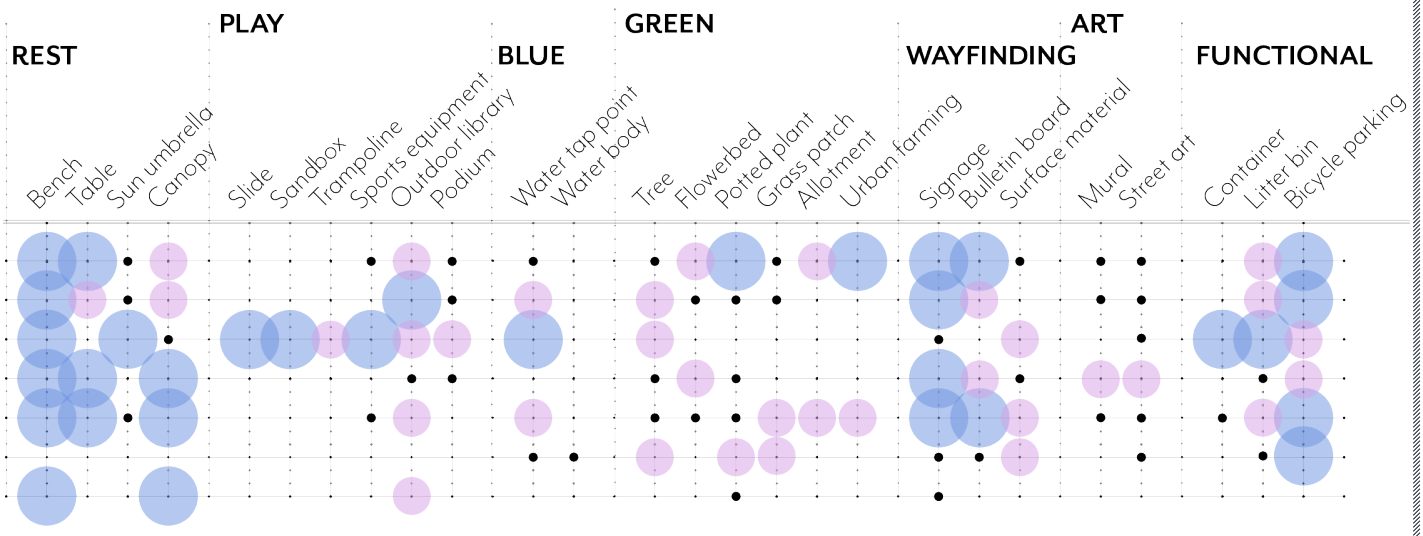



*Figure 102*

*Different urban furniture to urban quality types*

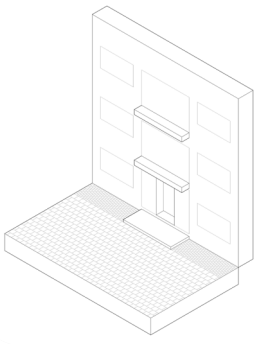
## Introducing passage territories

A transitional space between places of different urban qualities is a place that provides the sensory experience of moving from one type of space to another. Related to the open city concept, it is important to have transitional spaces as these are the rather ambiguous zones where many peculiarities related to urban life happen. It is the physical space where differentiation meets. These transitional spaces can be transitions between indoor and outdoor, as well as between two different outdoor spaces. Some of these spaces are somewhat ambiguous, while others are highly legible, indicating the nature of the space and its intended use. These transitional spaces can accommodate diverse qualities and can be perceived as a gradual transition from one space to the other. These transition spaces can be situated between seemingly distinct types of space. Their form may vary considerably. A transition from one space to another can be marked by a clear delineation, or through a gradual transition space. It is imperative that individuals are able to perceive the changes in the environment. In particular, with the additional measures to enhance connectivity and legibility, these transitional spaces will become more prevalent in the neighbourhood. Such spaces would prompt individuals to behave in a manner consistent with the logic of the space. Consequently, the legibility of these spaces, as well as these transitional spaces, must be clearly defined through design.

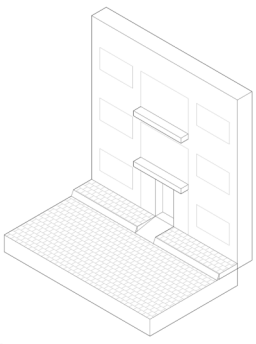
**1. Introducing gradients of ownership**

By introducing different gradients in ownership, different uses of the space can be afforded. If spaces belong to a select group of individuals, it encourages a sense of belonging over the space. This nudges individuals to take care over the space.

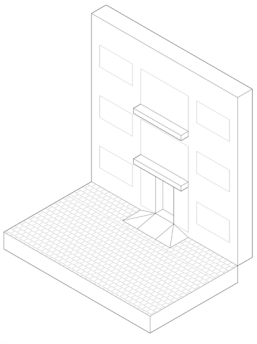
This could be implemented through demarcating the zones physically. This can be done through differentiating in materiality. Three ways of doing this are shown in the below diagrams:



Differentiation in paving material



Differentiation in height



Demarcating (paving) element

## Introducing transitional spaces

The neighbourhood has many different types of spaces and areas. Many of the buildings in Mariahoeve exhibit a clear division between private and public domains. This is mostly by land division, as well as the building façade.

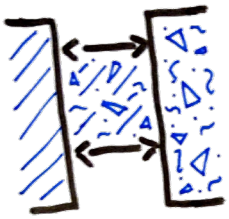
To enhance the legibility of these transition spaces, differentiation could take place in line with ownership and materialisation.

Types of transition spaces:

- Between two separate areas (indoor and outdoor);
- Between two static areas/zones (urban quality zones);
- Between natural and artificial zones;
- Between urban and peri-urban and non-urban.

**2. Disguising discontinuities**

As some existing passage territories are major boundaries which create a sense of disconnection, it is important to disguise these discontinuities through re-interpreting it as a zone of transition. This is related to the open city concept.



**3. Making density gradients**

A place hierarchy based on density gradients differentiates places. Through consistent use of the density gradients, the different places become more legible.

For places with a high attraction value, it is important to have a higher perceived density, whereas calm areas may have a lower perceived density.

## 6.5 Visibility

Visibility is based on a person's ability to observe the physical environment through the eye. By guiding sighlines through building enclosure, and putting certain elements in sight, people's perception of the environment can be altered. This can modify a persons' awareness of certain matters which are visible in the built environment.

For creating awareness of the presence of the otherness, visibility among different social layers is important, as described in the theoretical chapter on superdiversity. Therefore, it is important to put certain elements in sight and in proximity to each other.

Visibility of social groups is in a certain way intertwined with liveliness of an area. This is in turn related to constituted and unconstituted streets, meaning whether there is on-street access from the inside and outside of buildings. Also, dead plinths and back-sides do not contribute to the area's inherent characteristic of visibility. Also a low density of entrances leads to a low visibility.

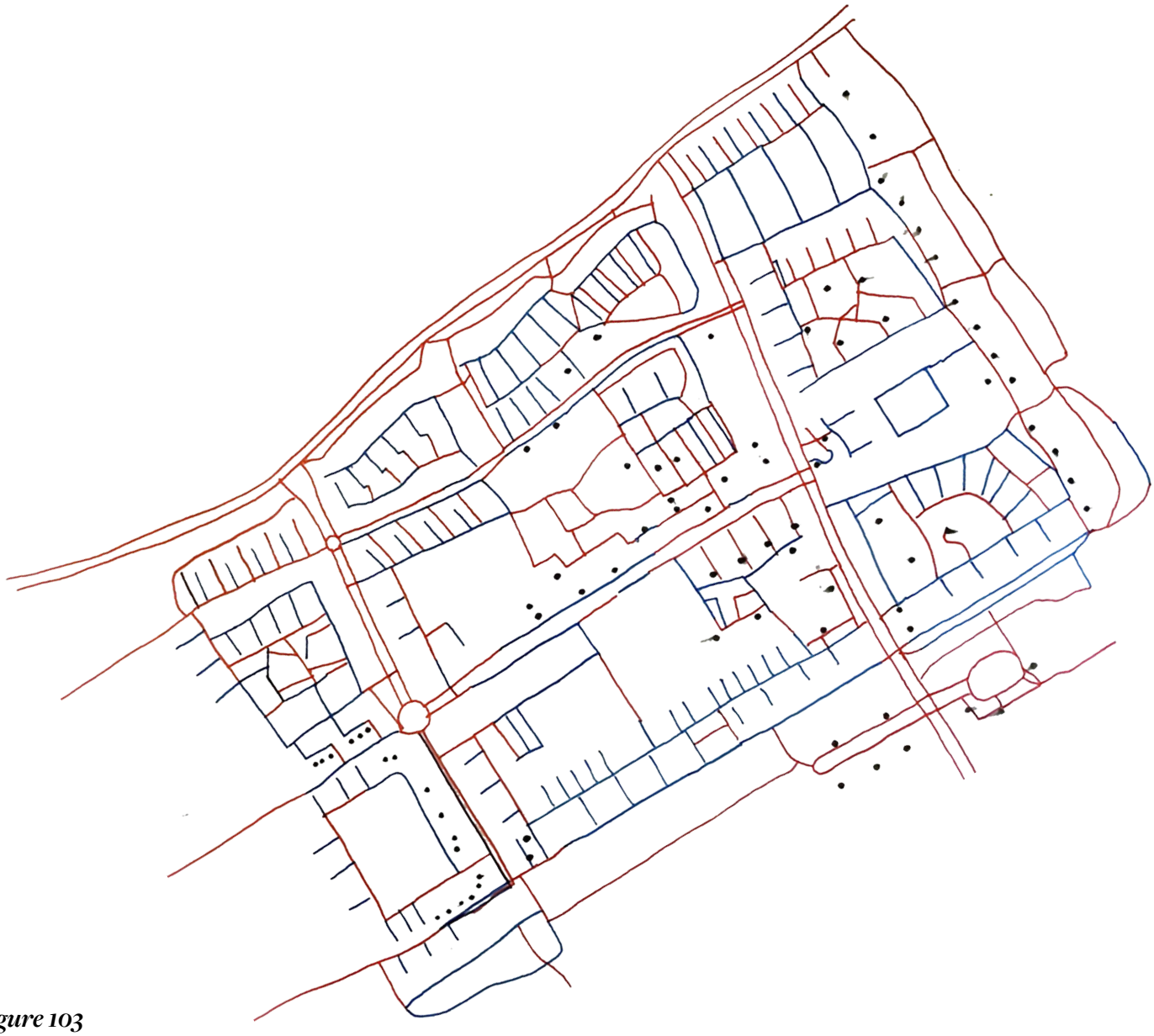


*Figure 103*
*Street constitution in Mariahoeve*

Mall of Mariahoeves daily activities happening on the inside without spillover outside. The plinth is dead, with no open façade.

The street is constituted, but the entrances are obstructed by vegetation.

Street profile with on the left a wall typology hindering sight and on the right open courtyards enabling sight and enabling permeability.

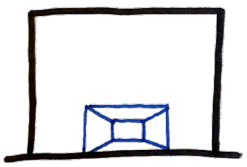

The Reigersbergenweg, acting as backside with the buildings facing the street from the back. Local neighbourhood centres are hidden from sight, in further urban depth.

## Enhancing visibility

To enhance visibility, exposure to physical and social differentiation is essential. Visibility of social groups is in a certain way intertwined with liveliness of an area, as well as the sense of ownership over parts of the public realm. This is in turn relates to constituted and unconstituted streets, meaning whether there is on-street access from the inside and outside of buildings. Also, dead plinths and back-sides do not contribute to the area's inherent attribute of visibility.

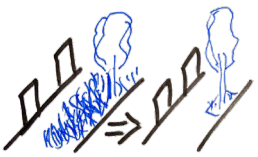
**1. Modifying built mass**

Visibility can be enhanced with the mean of strategic densification, meaning to apply built mass to create or limit sight. Through opening up certain parts of a built mass, both connective and visibility are enhanced. Also through enclosure of the street, a more targeted sight will be made, as the viewlines are guided by the contours of the building masses. Therefore, built mass plays a role in the increasing or limiting of sightlines.



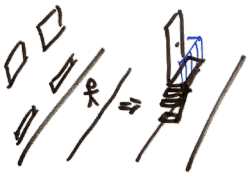
**2. Getting rid of obstructions**

Some street objects posess the trait of limiting sight among an otherwise open area. This is especially true for on-street parked cars, as well as relatively tall vegetation blocking views. Getting rid of these objects in significant places where it does matter to increase sight, visibility of the otherness can be enhanced.



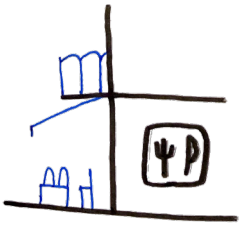
**3. Making constituted streets**

Unconstituted streets are non-lively and evoke a sense of unsafety. There are no eyes on the street. Unconstituted streets limit the visibility of individuals, as the street has no or little destinations to it. The more destinations, the more entrances there are, and the more lively it becomes. Therefore, making streets constituted enhances visibility among individuals and enhances sociability.



**4. Spilling into public realm**

Whether a building houses a residential or service function, visibility can be enhanced by spilling its function over into the public realm. This means a restaurant could accommodate a terrace on part of the street, whereas dwellings could have a small strip the residents can appropriate, or by added balconies. Visibility is enhanced through such measures. Especially with transpatial services (like a church, targetting similar individuals), it is important to enhance visibility to create awareness of the presence of these individuals.



**5. Clustering differences**

Part of the open city praises the clustering of differences to make for a differentiated streetscape. People of all kinds therefore have a shared destination. Through this shared destination, visibility of the other is enhanced, while visibility of the diverse streetscape creates an awareness to the superdiversity in the neighbourhood. Through clustering, differences are present in the same visual field.

**6. Affording unplanned uses**

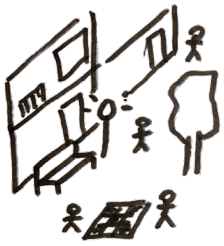
Derived from the open city concept, creating affordances for unplanned uses makes a place multiplicit. This multiplcity enhances visibility.


**7. Appropriating spaces**

Through the appropriating of spaces, a select group of individuals feels a sense of ownership over a space. This increases presence of this group in the public realm, which would enhance the visibility of these individuals. This can be done through the pattern of introducing gradients in ownership.

**8. Place-making**

Through place-making, a sociable quality can be introduced to an otherwise non-sociable area. Therefore, turning a space into a place. Visibility of the other can in turn be enhanced if combined with the clustering of differences, and the spilling into the public realm. The place-making element introduces an extra dimension of the place being a destination.



## 6.6 Diversity

Building functions

- Residential
- Mixed-use residential
- Education
- Office
- Shops
- Industry
- Meeting facility
- Mixed-use
- Other

### Amenities and service distribution in Mariahoeve

The design and planning of Mariahoeve embraced the Wijkgedachte principle for the distribution of services and amenities. This was implemented through a hybrid approach of decentralised centralisation. Each sub-neighbourhood has its local neighbourhood centre, providing basic amenities such as hairdressers, dentists, cafes, restaurants, and shops. These amenities are conveniently located within walking distance of most dwellings in the sub-neighbourhoods. Despite good intentions, many of the neighbourhood centres don't function well, and

The Mariahoeve Mall is located centrally and offers a wide range of services and amenities to meet the needs of residents in the neighbourhood and beyond. These include personal care, supermarkets, luxury goods, sports facilities, health facilities, and specialist shops.


*Figure 104*
*Programmatic diversity of building functions in Mariahoeve*

## Land uses

The majority of (semi-)public space is dedicated to open green and low vegetation, contributing to the green character of the neighbourhood. This is complemented by other land uses which contribute to a diverse public realm. Despite there being lots of green, the use is limited. Through observation it is visible that Park the Horst, acting as central park in the neighbourhood, as well as playgrounds and sports courts were attracting (mostly younger) residents. However, the ubiquitous green in the area attracted few to no people. Therefore, regarding the social value, the green acts as nothing but a visual experience to the residents, as well as minimising heat stress.

The disconnect between the prewar and post-war neighbourhoods is clearly visible by the difference in land uses. Where the prewar neighbourhoods are largely blank (Bezuidenhout and Marlot), the postwar neighbourhoods have many green patches acting as buffer zones between the different built structures. Combined with the road structure, these land uses strengthen the disconnect between the islands.

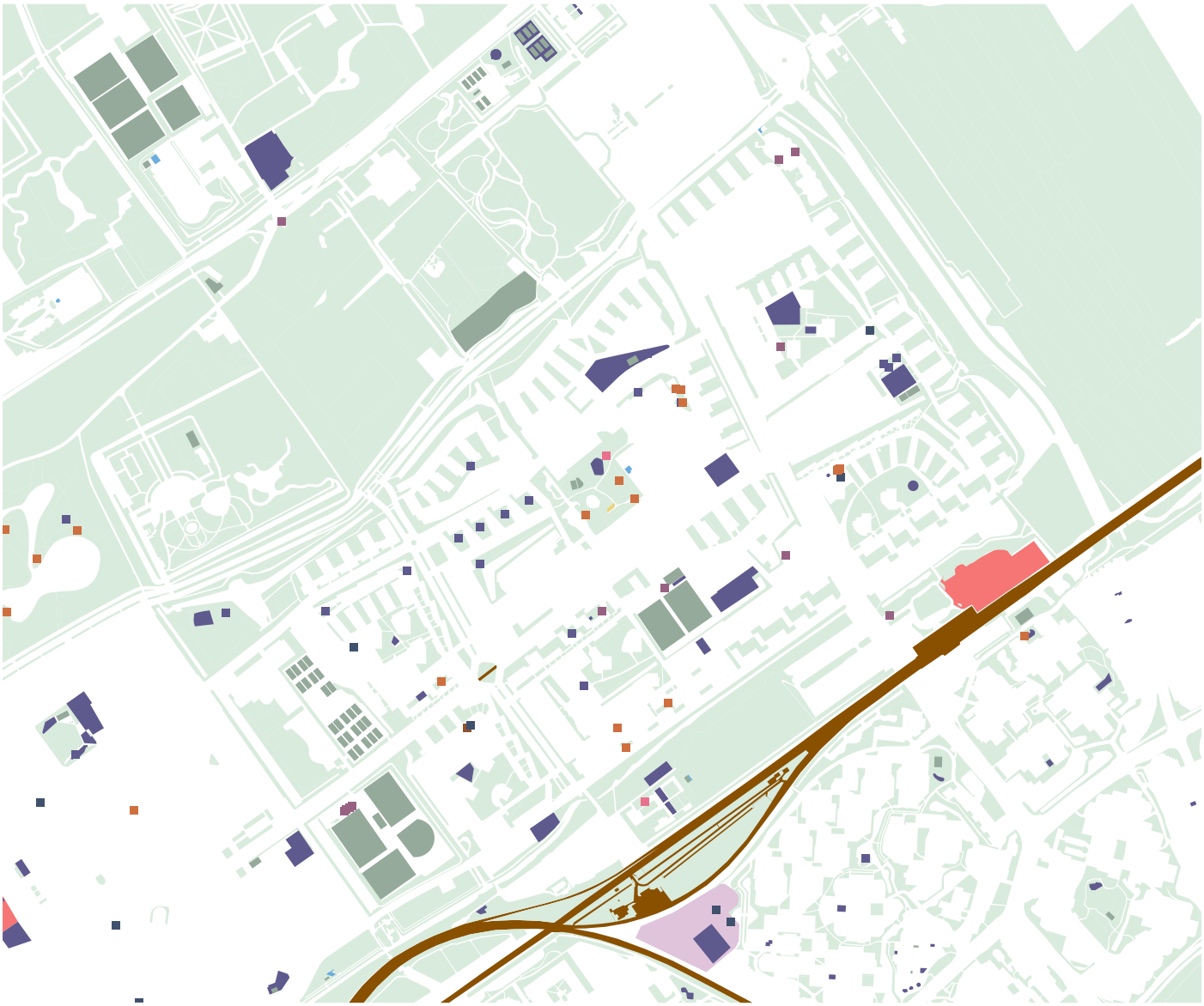



*Figure 105*
*Programmatic diversity of outdoor functions in Mariahoeve*

## Enhancing diversity

To enhance diversity, it is important to provide the conditions for a differentiated streetscape to flourish. A precondition for these differentiated streetscapes to function accordingly, is to have enough critical mass to sustain the diversity. Therefore, it is important to densify the area for diversity to naturally occur in the places it matters most.

The wijkgedachte contrasts what the open city stands for. Rather than putting basic amenities central in the island for maximum convenience towards the inhabitants of the island, it is important to put these on the edge between two islands to enhance inter-visibility between the different islands. Therefore, the passage territory, or transition space is an important location for function mix to be allocated towards.

*Figure 106*
*Vacant buildings at the local centre at Haverkamp*

*Figure 107*
*Dated local centre at Denenburg*

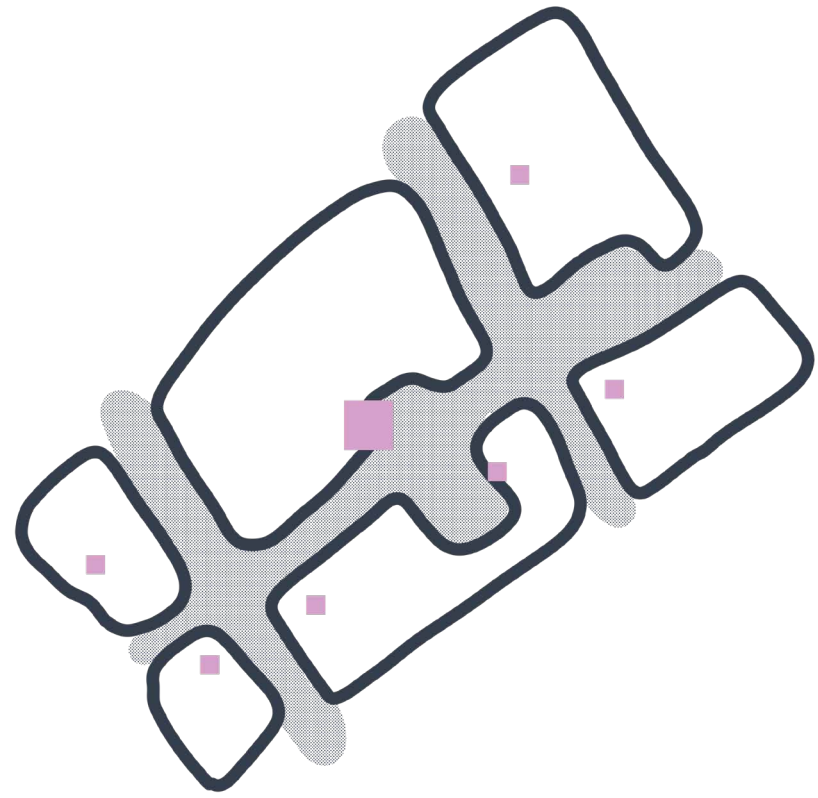



*Figure 108*
*Islands, passage territories and service centres in Mariahoeve*

To make Mariahoeve an open neighbourhood (relating to the open city), it is a strategic decision to turn the passage territories in between the islands into corridors of services. Rather than being a repellor of urban life, the spaces could be re-interpreted as attractors of urban life. The visibility of the other can be provoked by the mix of functions which are provided in these spaces.
The image shows a proposal of a design intervention of the mall of Mariahoeve. This proposal exposes the inner life to the public realm by removing parts of the buildings. Shop fronts will therefore directly be accessible from the street, and may have a spillover effect.

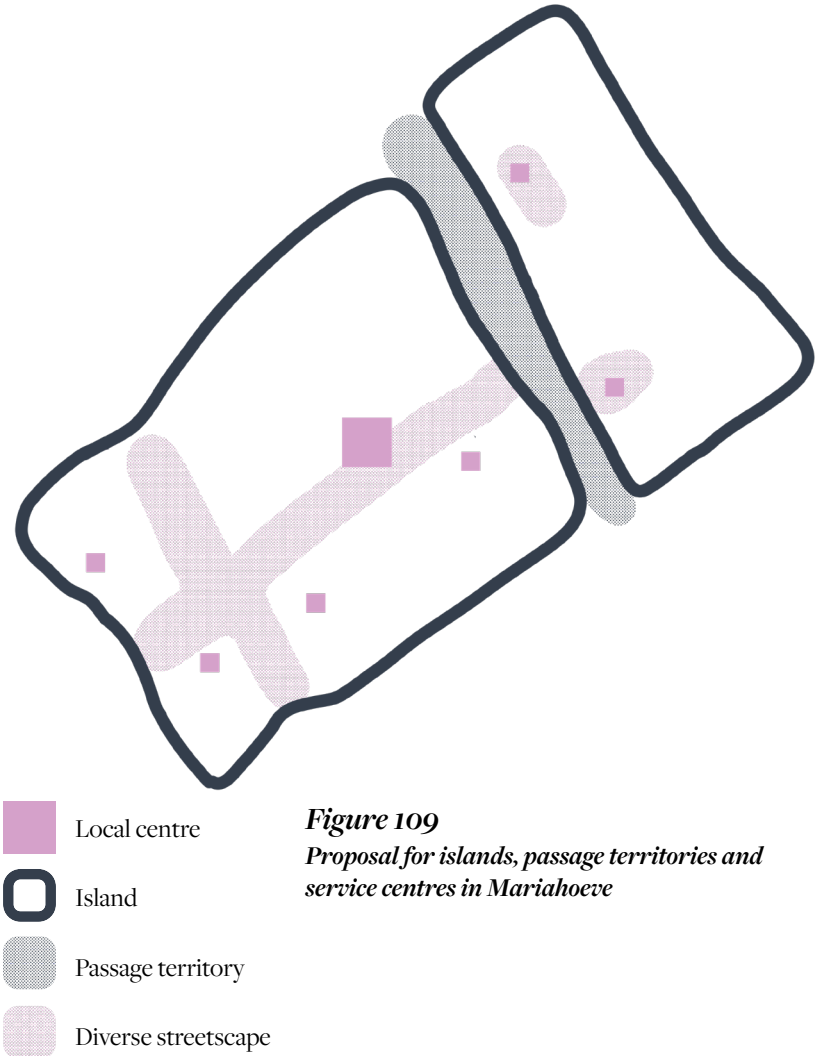



***Figure 109***
***Proposal for islands, passage territories and service centres in Mariahoeve***

***Figure 110***
***Design proposal for revitalisation of Mall of Mariahoeve (Wijkberaad Mariahoeve, 2023)***

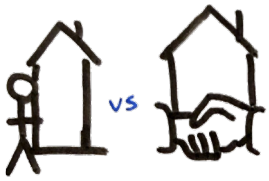
There are different ways to enhance diversity. To make the places as shown in figure 115, which are deemed relevant for diversity to flourish, a set of patterns has been derived from research to make these places diverse. These patterns are shown below.

**1. Mixing of building grain sizes**

As diversity is a proximity-based condition, grain sizes play a role in the creation of diversity. This implies that mix has a relation to size. The smallness of the grain size is therefor important in diverse areas because it is the basis of multiple ownership, as well as multiple programmatic affordances which in turn makes a place more diverse (Talen, 2008).

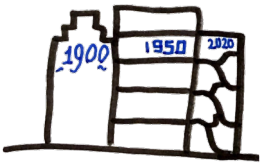
**2. Mixing of housing ownership types**

In order to foster social diversity in terms of demographics, socio-economics and backgrounds, it is important to provide accommodation for rather different people in close proximity of each other. Therefor, different types of housing tenures make for diverse neighbourhoods.



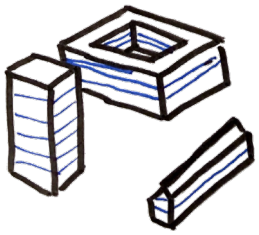

**3. Mixing of building ages**

To enhance diversity of function and social diveristy, the mixing of building ages guides towards the mixed conditions which are prerequisite. A mix of building ages aids in ensuring a mix of tenures and price ranges. This relates to residential and non-residential uses, as well as for owners and renters.




**4. Mixing of housing types**

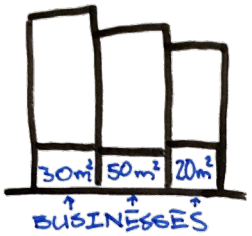
Diversity can be enhanced through mixing housing types in an area. Hereby, the physical form enhances social diversity (Talen & Lee, 2008, p29), as different types of housing appeal to different kinds of people.
Mixing housing unit types can occur through the different means of densification. Different housing types are for example: gallery flats, tower flat, row houses and detached houses.



**5. Mixing housing and working**

As the proximity of different land uses makes for a heterogeneous urban environment, the mixing of living and working contributes to a diversity of uses. Stimulating this mix improves the flexibility of the place, by providing small-scale services.

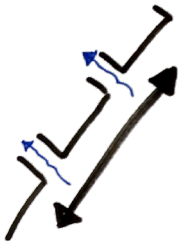
**6. Providing small business spaces**
Related to smaller grain sizes, the providing of small spaces for businesses to exist is important for a diverse street to exist. Therefore, to enhance programmatic diversity it is important to allow for this diversity to be accommodated.



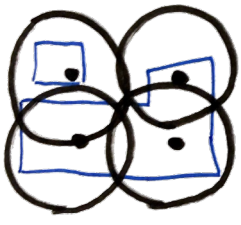

**7. Mixing vertically**
The vertical mixing of different functions creates a multi-layered streetscape. Rather than stacking of similarity, it is important to layer functions. This allows for diversity to happen in the same building.


**8. Mixing horizontally**
The horizontal mixing of functions creates a differentiated streetscape with many different programmes to be accommodated side-by-side. This is related to the visibility pattern of clustering differences, for which the affordance of horizontal mix is a prerequisite. As well as for the sociable and urban staying quality types.

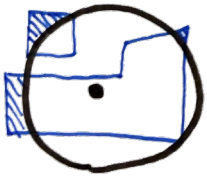

**9. Fronts and hinterlands**
It is important to differentiate between front sides where diversity can flourish, and hinterlands which allow for the diversity to happen.



**10. Egalitarian distribution**
Egalitarian distribtution relates to the just city as it strives to bring every individual, despite their exact location of living, the same qualities. In terms of service distribution, it aims to provide every person the same opportunity to resources and goods.



**11. Utilitarian distribution**
Utilitarian distribution aims at providing the greatest access to the greatest number of individuals. Despite good intentions, it does leave out a minor part of individuals. Therefore, a utilitarian approach must always be complemented by compensations for the minority that is being left out.



## Urban quality type differentiation

Responding to the different urban quality zones, it is important to design with differentiation of facilities and uses. This differentiation should achieve a diverse streetscape.

The two tables below show respectively the different programmes which are deemed relevant per urban quality type. This relates to the 15 minute city concept, as it aims to provide a variety of choices to the residents within proximity. Combined with the diversity structure plan in figure 114. As the structure plan is configured around two corridors, it is a rather egalitarian approach for the inhabitants of the surrounding islands.

The land uses constitute a variegated public realm, playing into the diverse nature of the urban quality structure plan. Different land uses are relevant at different locations. This also enhances legibility of the public realm, and encourages certain behaviour to take place.

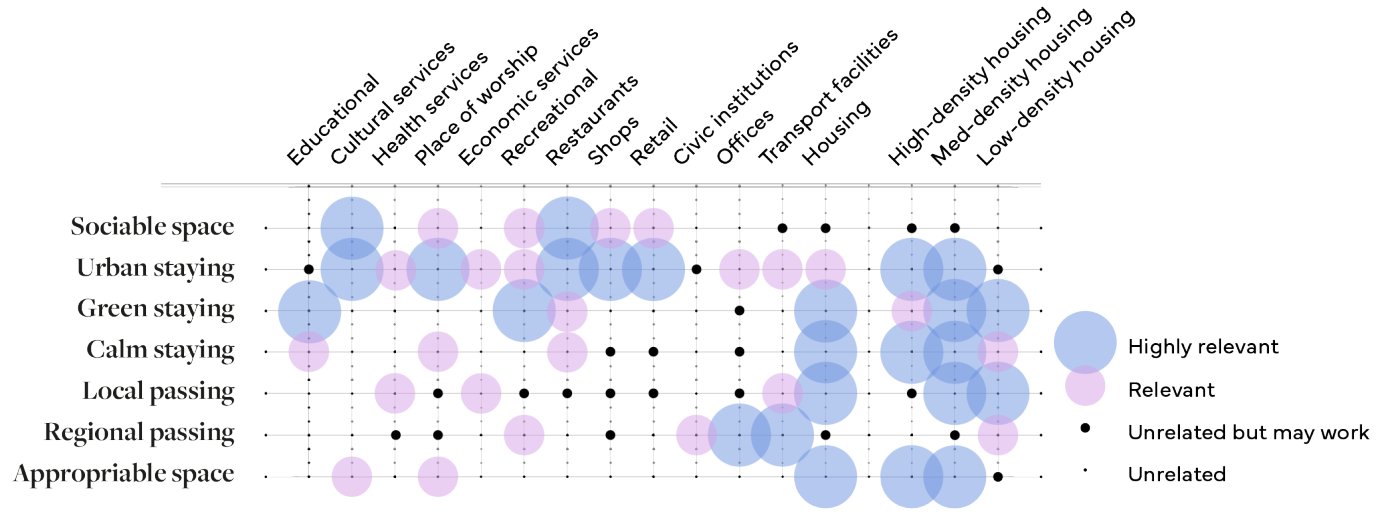



*Figure 111*

*Suitability of different urban service types per urban quality type*

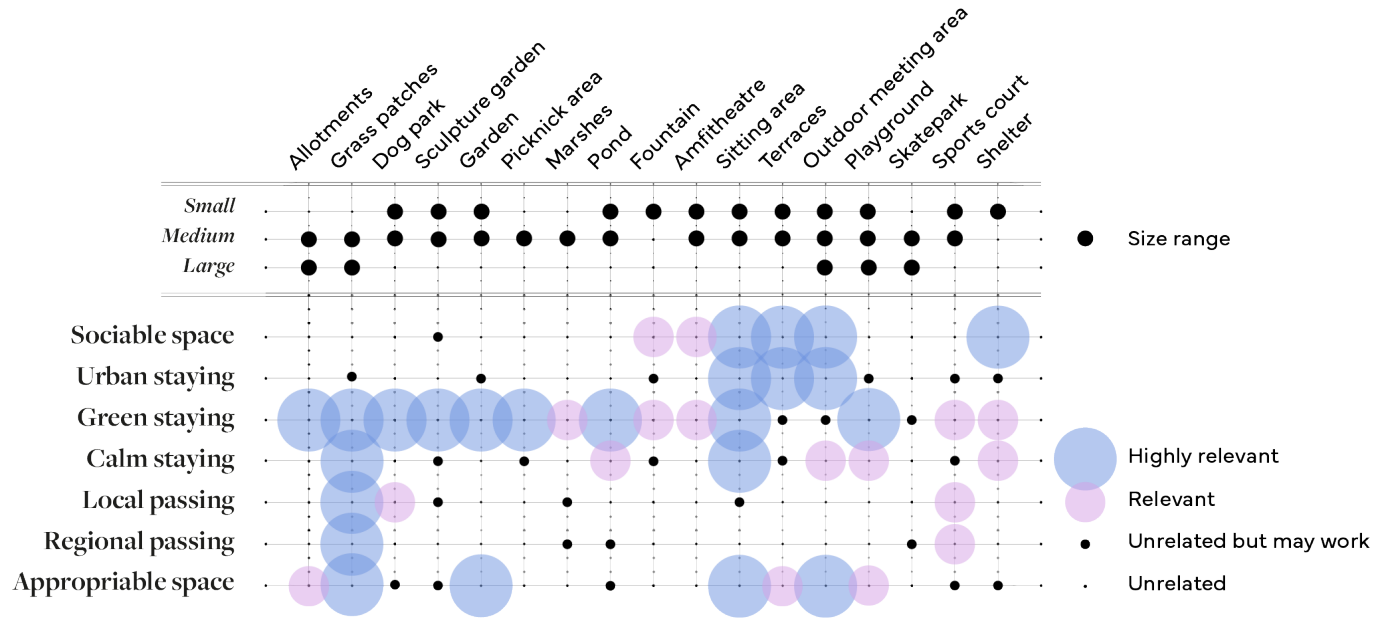



***Figure 112***

***Suitability of different urban outdoor land uses per urban quality type***

## 6.7 Equity

Through enhancing the five aforementioned characteristics, the neighbourhood will become more equitable. However, to guarantee that the neighbourhood will remain functioning equitable towards all layers of a superdiverse society, it is important to come up with complementary policies which protect the housing pool against market forces, and which address the dynamic needs of the residents. Therefore, a set of complementary policies is important to make the neighbourhood function truly inclusively through and after the process of densification.
The policies are founded upon research conducted regarding the just city, as well as reference cases by Lacaton & Vassal, which provide an equitable funding scheme for densification.

### Rhabillé: Bordeaux, France

Lacaton and Vassal

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

Lacaton & Vassal's project of Rhabillé in Bordeaux is a reference project on how can be dealt with the improvement of quality for the existing residents whilst densifying their surroundings. The neighbourhood of Quartier du Grand Parc houses many 1960s apartment buildings. The tower blocks faced demolition, but by the innovative approach by the architects of Lacaton & Vassal, for which they received the Mies van der Rohe award in 2019, the blocks were preserved and renovated (Funding and Investment, n.d.). J.P. Vassal states: "*In a period of scarcity like the present one we cannot propose demolition*" (Druot et al., 2007).

The approach consisted of adding an extra winter garden to the façade of the building for which future energy consumption would drastically decrease. This added extra space for the existing residents, for which there was no need to displace. Rents did not increase due to the clever funding scheme, which consisted of a long-term view. Because of the cut in energy consumption, as well as not having the need to demolish the building and replacing it with a new one, the costs of adding a second façade outweighed the alternative. Therefore, preserving the existing structure and building upon it is an equitable way of densifying an existing neighbourhood (Lacaton & Vassal, n.d.).

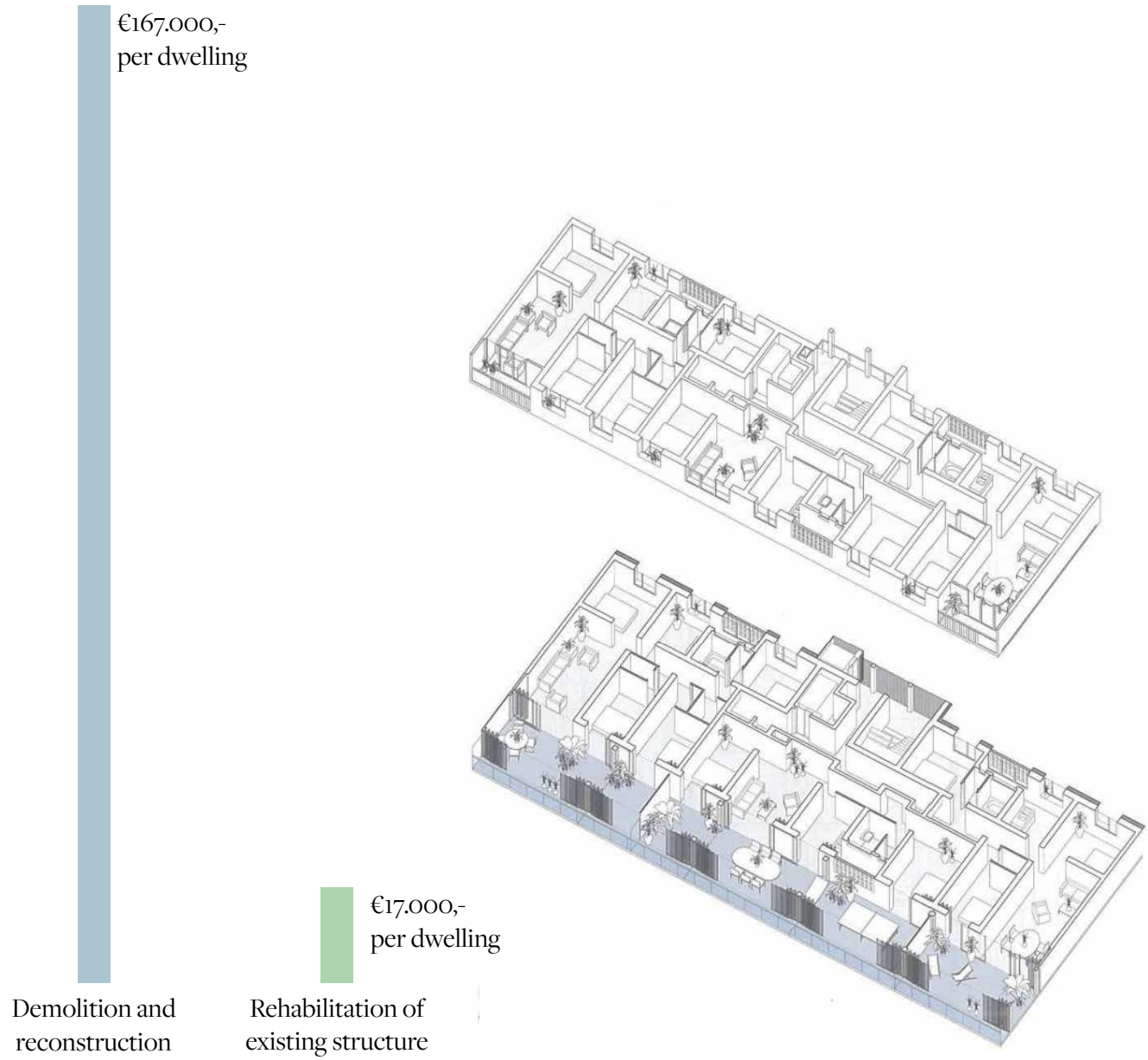



***Figure 113***

***Funding scheme for reconstructing vs rehabilitating existing structures (Druot et al., 2007) (Lacaton & Vassal, n.d.)***

## Vrijburcht: Amsterdam, Netherlands

Stichting Vrijburcht

Scale: Building // Block // Neighbourhood

Centrality: Low // Medium // High

System: Place // Network

Another way of enabling affordability while also fostering solidarity among residents, is the upcoming trend of co-housing. While in the Netherlands, this is fairly new, this practice is considered more mainstream in Germany and Austria. Co-housing (or collective housing) is the practice of developing housing (and services) fitting the needs of a pre-established group of neighbours. It is a bottom-up development, initiated by the neighbours themselves.

The case of Vrijburcht in Amsterdam was initiated by a group of neighbours who wanted to construct their own housing complex at the city's periphery. By tailoring housing, businesses, and services, the rents would be made lower due to lower construction costs. The group members were all involved in the decision-making process, which made it complex, but in the end democratic and afforable.
To manage the financial risks involved with the project, a back-up contract with a housing corporation was signed as insurance. It was agreed upon that the vacant housing would then be bought by the corporation itself, while they also provided services to the complex. Although all houses would be sold well before completion, the contract was still necessary to ensure a streamlined realisation (Miazzo & Kee, 2014).
Throughout the process, the group of to-be neighbours would got to know eachother and develop a sense of reliance and trust among. This can be considered a healthy anchor point in bringing a sense of solidarity in a new to-be realised neighbourhood.

A downside of co-housing is that it could lead to a closed community. In Vrijburcht, the facilities added to the complex are targeted to the whole neighbourhood. The local cafe, day-care and theatre bring people together and bring beloved services to the whole neighbourhood it is located in.


***Figure 114***
***Vrijburcht Amsterdam (https://theatervrijburcht.nl)***

## Enhancing equity

The main strategy for enhancing equity in Mariahoeve, is to differentiate housing based on:

- Affordability
- Tenure types
- Housing types

Through this, the principle of differentiated solidarity can be effectuated, which Iris Marion Young opts for as to achieve a just city. Different housing types, tenure types and affordability types provide accommodation for many different individuals, belonging to different social layers. If to cluster in a small-scale and fluid way, group affinity can still be maintained within a superdiverse context. Providing these solidarities with a collective spatial territory on the interior and the interior can facilitate this solidarity. Therefore, differentiatiated solidarity can be achieved in any given context, if taken into account the principles of designing for social diversity in a small-scale clustered strategy.

Housing types goes into a mix of gallery housing, terraced or row houses, tower flats, corridor housing, duplex housing, detached homes and quadrant housing. To ensure that the preference of many individuals is being met, it is important to allocate different types of housing in the area, combined with different tenure types and addordability ranges.

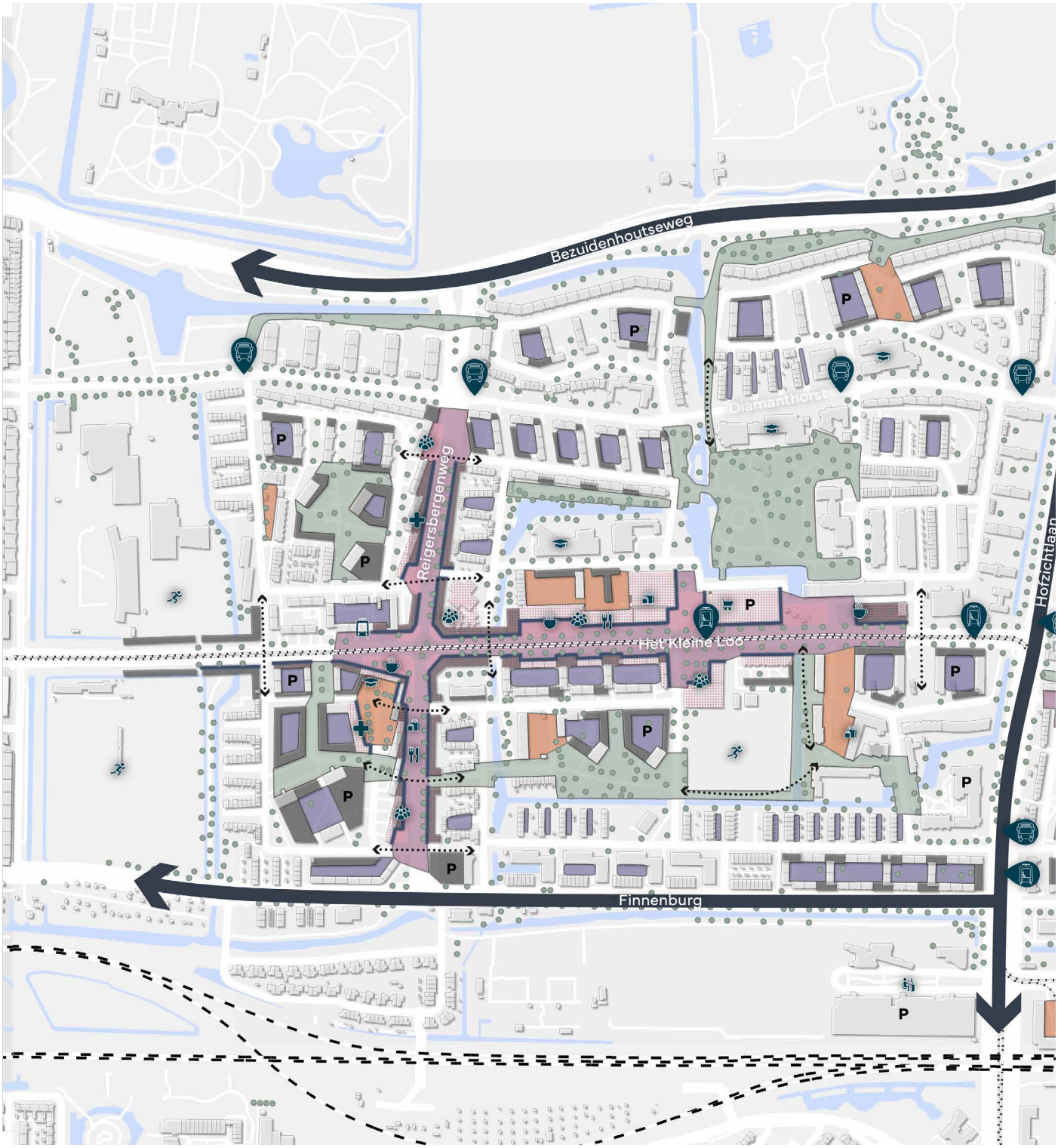
To ensure optimal community sizes for these differentiated solidarities, it is important to not have too many, nor too little dwellings on an 'island'. To align it with the quantitative approach of this theory, it is important to cluster around 20 to 30 dwellings, or 60 - 80 dwellings, or 200 - 250 dwellings. That is to create the affordance of a band, clan or megaband in terms of community sizes.

| | |
|---|---|
| **Co-housing** | As mentioned on the previous page, co-housing is about developing a collective living structure. This could be a courtyard structure, an apartment complex, terraced houses or quadrant dwellings. The development and construction happens at the responsibility of the group of residents which are intended to reside in the structure. This process ensures that there is a community when the development is finished, which is beneficial for the sense of solidarity. |
| **Flexwonen** | Flexwonen is a type of residency which revolves around the temporary living duration of its occupant, often lasting up to 2 years. This is for example beneficial for status holders which are yet to get a designated dwelling, or a just-divorced individual, urgently needing a temporary home. For short but urgent problematic circumstances, flexwonen offers a solution for the time being.<br>Because of the dynamic nature of inviduals living in a flexwoning, not every location is deemed suitable for flexwonen to be allocated. In terms of affordability, flexwonen would be in the low to medium range afford the accommodation of a wide variety of individuals. |
| **Work-home** | A work-home is a flexible type of structure which can both function as a working area, as well as a place of residence. It be both at once, or one of the two. The work-home structure is relevant to places where individuals can voluntarily start their own business. |
| **Owner-occupied homes** | As for many individuals, owner-occupied homes are viewed as long-term investment which makes them desirable for some. Research shows owner-occupiers share a sense of responsibility over their living environment, while also investing in their property through maintenance (Smets & Sneep, 2015). Therefore, providing enough owner-occupied homes can benefit the appearence of the neighbourhood. These homes can range from low to high affordability, and often being at a higher end.<br>Allowing for self-build via co-housing can benefit the affordability compared to the achieved quality. |
| **Rental homes** | Rental options guarantee that the most economically vulnerable have access to a quality home. Ensuring that affordability stays more or less the same for a prolonged period, makes the rental system equitable towards the individuals residing in it.<br>The rental homes can be either social rent, middle rent, or high rent, and can be owned by a housing corporation (like Hofwonen or Staedion), or a landlord. As some people are forced to live in a rental home due to financial reasons, and others rather due to preferences, having enough rental homes of varying affordability in the neighbourhood makes it equitable. |

## 6.8 Strategic structural design proposal

The structure plan of Mariahoeve is an integrated plan, combining all main structures regarding the enhancement of the desgin characteristics. This includes:

- proposed density structure (& courtyards)
- proposed connectivity structure
- proposed urban quality types
- proposed main street structure
- proposed service allocation
- proposed active plinths



In Mariahoeve, densification will mainly happen by closing the open blocks and adding additional massing. Together with allocating function mix along main streets, a clear hierarchy in terms of main and residential streets is established. Principles regarding design for social diversity have been implemented, as well as the principle of differentiated solidarity. This principle aims for superdiversity by facilitating locally socially homogenous structures by steering towards housing clusters based on affordability. Facilities on main streets are varied to make the street a destination for all layers of society. These are the streets where there is visibility of superdiversity.


Proposed urban qualities
- Sociable quality
- Main street
- Green staying
- Calm staying
- Territorial quality
- Tram stop
- Bus stop
- Amenity
- P Centralised parking
- Added connectivity
- Main traffic street
- Water
- Mixed use function
- Railway
- Tramway
- Street
- Active plinths
- Trees
- Densification site
- Existing building

0 100 200 300 400 m

*Figure 115*

# 7. STRATEGIC INTERVENTIONS TOWARDS INCLUSIVE DENSIFICATION



This chapter addresses the main strategies which guide towards inclusive densification in the context of Mariahoeve. These strategies take as starting point the six neighbourhood characteristics. In the previous chapter, these six characteristics have been elaborated upon, through analysing the potentials towards enhancement of each of these in the area. In turn, altering these characteristics in line with the main strategies will enhance the different qualities which in turn will lead to an inclusively densified Mariahoeve.

## 7.1 Introduction

This chapter spatialises the theories through stitching together the enhancement of the six design characteristics. These are:

- Density
- Connectivity
- Legibility
- Visibility
- Diversity
- Equity

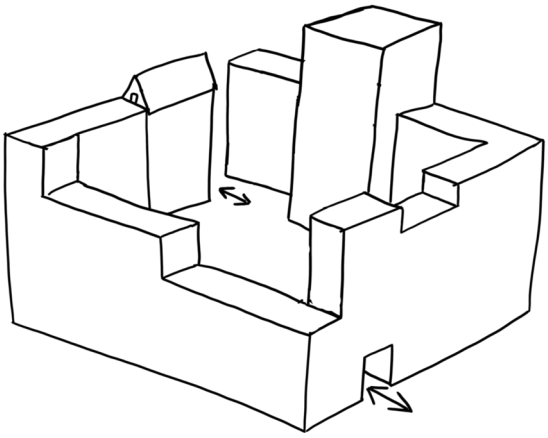
It is based on the conclusions of the previous chapter. The three main strategies are based on references, design by research and theories. These strategies are shown on the right page, and are:

1. The main street
2. The solidarity islands
3. The connectors

With these strategies, the neighbourhood becomes integrated from within, and becomes inclusive as a whole. Further elaboration on these follow in the next paragraphs.

1.


2.



3.

## 7.2. The Main Street

### What is a main street?

The main street is a democratic space, making it accessible to all. It is a place of visibility for a broad public. Hence, it serves as a place for recognition and awareness of the otherness' presence. People share a co-presence in these everyday urban spaces. The democratic and non-territorial traits of these spaces make them inclusive. The main street is a mixed street, which can be considered an arena for interplay between citizens. It should provide essential public services for transactions and interaction among citizens (Legeby et al., 2014) (Sennett, 2017). The main street takes an important part in the public realm, and can nurture solidarity by bringing people together, fostering cohesion and community engagement through participation in public life (Sim, 2019). The configuration of the main street is important for the interplay between individuals to be afforded. It comes down to design and its embedded social logic.

A condition for the main street as diverse corridor to truly function accordingly is to have these streets be most connected in the street pattern. In other words, it should be provided within easy access as we go about our day-to-day routines, and should therefore be "easier to get to than other streets" (Vaughan, 2007). With this, the cross streets are of importance as guiding individuals towards the main streets from urban depth. Hence, making connectivity an important characteristic of the main street.

A truly inclusive main street should be inviting towards all societal layers. Therefore, it is important to have the high street free of significant dominant territoriality, as this relates to social exclusion, combined with a variegated programming to reach all social layers. Visibility of the otherness is afforded through the mixed programme, which in turn afford various social processes decisive for inclusivity to take place. Typically, the main street is a corridor structure along which a wide variety of programmatic diversity is accommodated. The diverse programming provides numerous destinations along the street, which collectively make the street a lively and diverse entity that is a destination in itself for people of different classes and backgrounds.

### Strategic locations for the Main Street

The strategy of the main street is spatialised through the streets of Reigersbergenweg and Het Kleine Loo. The conditions of these streets prove to be well from a space syntax perspective. Locally these streets are well integrated to the rest of the street layout. Together they form a cross throughout the neighbourhood, with connecting and permeating to the inner residential parts. The Reigersbergenweg can be considered a cross street of Het Kleine Loo. The latter has been designed as a main street from the initial design by Van der Sluijs, at which local services are accommodated. This main street is rather introvert, with little exposure towards the main street itself. Therefore, the streets of Het Kleine Loo and Reigersbergenweg are potent in revitalising and reconfiguring into a lively and diverse street. A street where all social layers come together in the public realm.

## Ambition for the Main Streets

The two main streets will be democratic spaces where individuals of all social layers come together in a public realm dominated by co-presence of otherness. It is the place where visibility and awareness among all its inhabitants is evoked through observations, interactions and transactions. The design and configuration of these streets is done in a way to afford the quality of sociability and liveliness. It affords multiple things happening at the same time. Throughout the process of densification in the neighbourhood, enough critical mass will be created to afford the liveliness in the streets to enhance local living for all social layers.

The diversity of people is reflected by the diversity of programming in the building plinths. These plinths will accommodate many spaces for different functions, varying in size and form, to allow for diversity to inhibit these places. The different sizes and tenures, with their affordability, make the whole composition just and accessible towards shopkeepers and shoppers. The buildings will be turned extravert, facing and exposing towards the streets, rather than being introvert structures. The differentiated nature of the streets will be exposed from different viewpoints. With added permeability and connectivity measures, the streets will be better connected to the inner residential parts of the neighbourhood. Furthermore, the streets will be better enclosed by built mass, to make the whole more legible and to accommodate a diverse mix of functions.

In short, the main streets will be diverse urban corridors where individuals have interactions and transaction, and live their daily lives locally.

*Figure 116*

*Impression of a mixed use street (https://globaldesigningcities.org/publication/global-street-design-guide)*

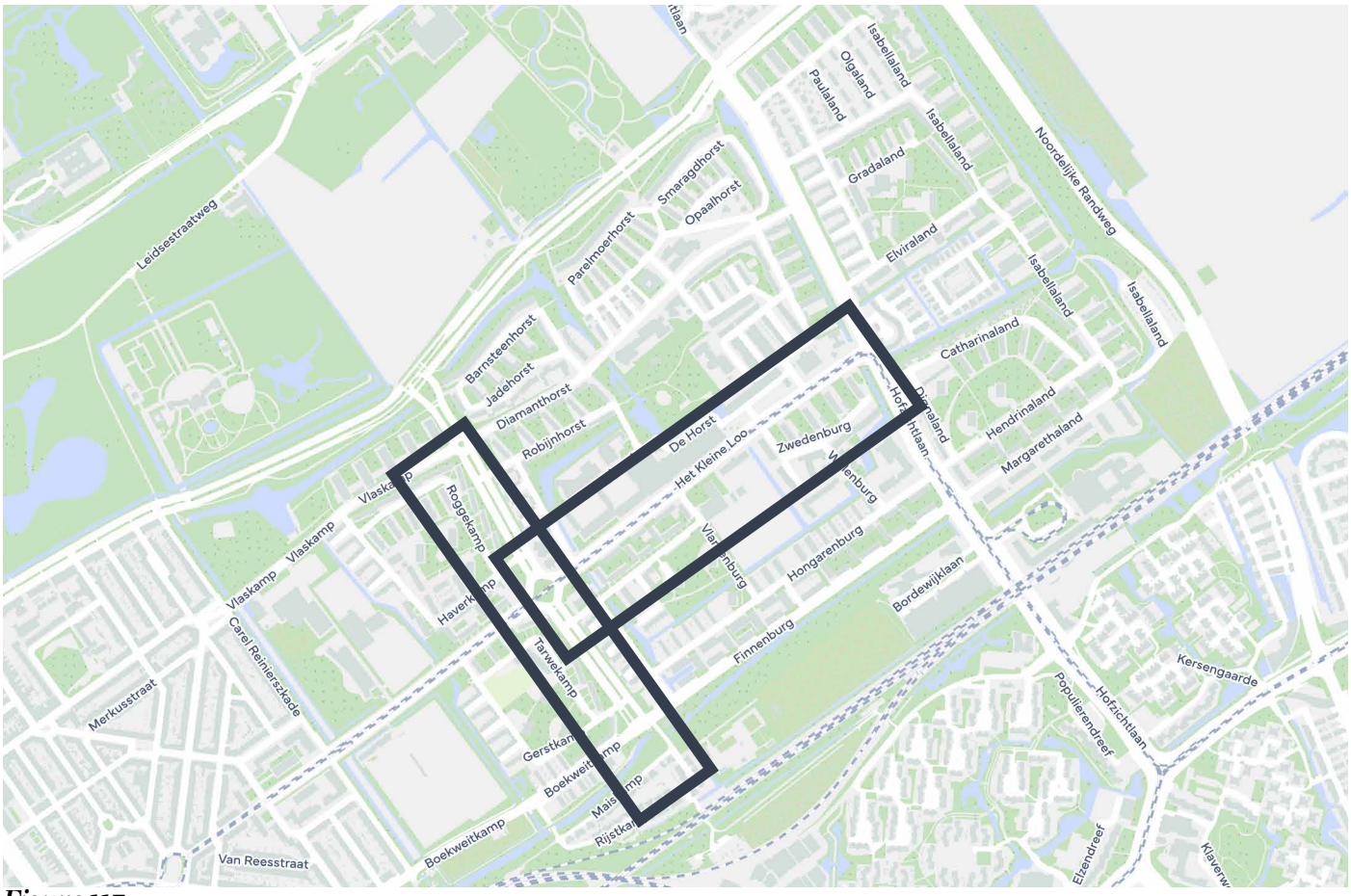



*Figure 117*

*Potential main street locations in Mariahoeve*

## 7.3. Islands of Solidarity

### Clusters of differentiated solidarity

In terms of fostering socially cohesive communities and the formation of differentiated solidarities, it is important to establish local communities based on collective group affinity. Differentiated solidarity allows the space for residents to locally cluster voluntarily. In the process of voluntary settling, people tend to sort themselves out into lifestyle enclaves (Putnam, 2000; p.225).

Simultaneously differentiated solidarity affirms that superdiversity exists through the sum of all the rather homogeneity-focused clusters. Therefore, advocating for the best of both, locally clustered homogeneity in a context of superdiversity is important. Differentiated solidarity would be an ideal scenario for inclusion, advocating for voluntary spatial group differentiation. Group affinity is spatially allowed for hereby, while taking into account the diversity of views, perspectives, beliefs, and stances within society. Social relations are spatialised through proximate clustering of similarity and superdiversity.

The clusters come in sizes ranging around 50, 150 and 500 like-minded individuals, as these would experience greatest longevity and are deemed optimal sizes. These clusters are nudged through a quantified approach towards clustering a certain amount of dwellings, and therefore households, together. Programmatically, the dwellings in terms of affordability would be in a similar range, preventing an awkward mix with no contextual sense (Talen, 2008).

### Strategic locations for the Solidarity Islands

Using the densification methods of infill and horizontal extension, many freestanding buildings can be transformed into (semi) enclosed courtyard structures. These are mainly in the inner parts of the neighbourhood.

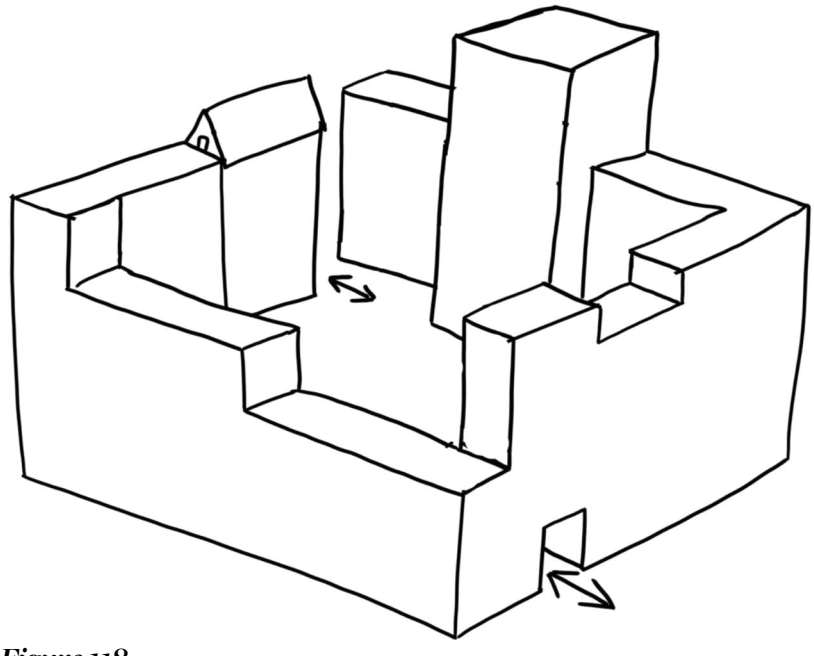


*Figure 118*
*Courtyard configuration*

## Ambition for the Solidarity Islands

The morphological entity of the urban block in a courtyard configuration provides an optimal configuration for differentiated solidarity. The courtyard offers an enclosed and intimate space which adjacent neighbours perceive as their own, and affords appropriation of the space. Therefore, the enclosed space becomes collective to the residents. As the social composition of differentiated solidarity, comprising of more or less likeminded people, the configuration affords the quality of being sociable and appropriable. Furthermore, the social composition of the community would facilitate the achievement of high success rates in community initiatives. The courtyard configuration provides space for these initiatives to take place in the shared territory. The territory, enclosed by blocks inhabited by like-minded individuals, is controllable with no additional cost (Sim, 2019).

The many clusters of differentiated solidarities are spatialised through the many (semi) enclosed spaces, configured through a courtyard morphology. The cumulative of this spatialisation is a differentiated neighbourhood, which is just as it provides accommodation for different social layers to sort within, in proximity. It creates legibility in public and collective spaces, as well as the urban atmospheres which can be perceived. Visibility of otherness is locally afforded.

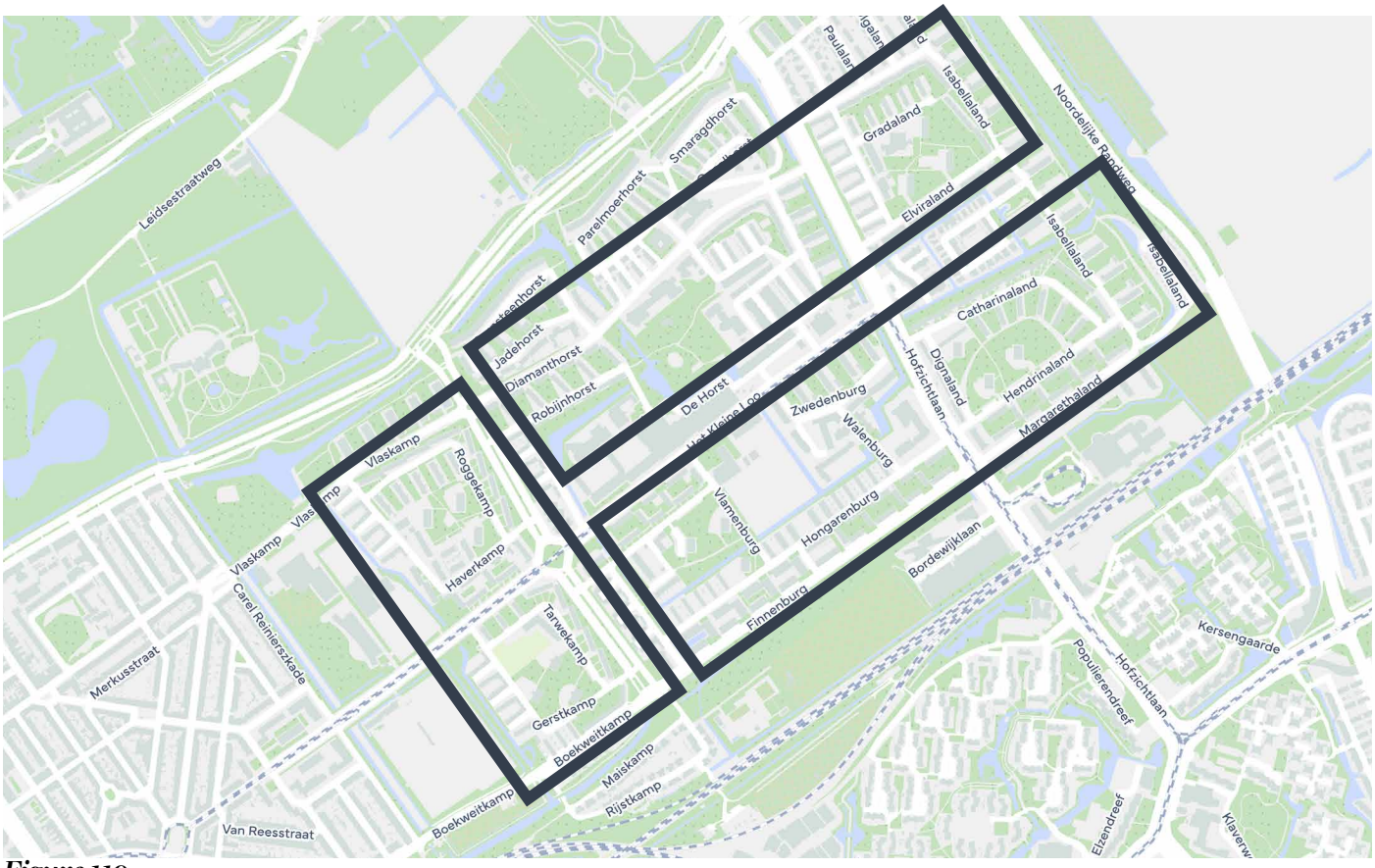



*Figure 119*
*Potential locations for solidarity islands*

## 7.4. Connecting the islands

### Connectors of differentiation

The proposed network for connecting the islands of differentiated solidarities comprises a system of network lines that interweave through the neighbourhood. This network prioritises active transport, while limiting access to vehicles. For pedestrians and cyclists, Mariahoeve will become a seamlessly connected neighbourhood in which all the courtyards, freestanding structures and open spaces will be interweaved with each other. This maximises local connectivity, which enhances local living. For vehicles, the network emphasises the grid as disconnected islands, for which the main perimeter roads facilitate the entries to these islands. Interconnections within are made rather uneasy if not completely removed for motor vehicles. For the whole network, spaces will have an urban quality types allocated to them. The main types are:

1. Sociable
2. Staying
3. Passing
4. Appropriability

With these strived qualities, the network is designed to be differentiated and legible, for which the urban furniture and land uses will be in line with the strived qualities. These qualities enrich the overall quality of the neighbourhood's experience to any trespasser. Important spaces in the network are at strategic locations, such as public squares where sociability is the main strived quality. Here, a co-presence of all different individuals exists, raising awareness of the other in a setting where residents can gather and socialise in sight. These locations enhance the sense of community and provide opportunities for interaction and transaction among residents from different the islands.

In sum, the strategy of connecting the islands details a network of roads and pathways which serves as the backbone of the neighbourhood. This network prioritises active mobility while enhancing connectivity, sociability and appropriability.

## Ambition for the Connectors

The objective of this strategy is to enhance connectivity, accessibility, and social interaction throughout the neighbourhood by creating a network that links the courtyards with other courtyards and with the main streets. The network lines are configured like corridors for residents to circulate freely. The network stitches the differentiated spatial conditions together, thereby enriching the urban experience for residents who roam through the network. Through this, it stimulates urban peculiarities and a sense of belonging among all its residents.
In the context of inclusive densification, this strategy is relevant as it addresses the need to create a cohesive and interconnected urban environment that accommodates diverse lifestyles while enhancing social cohesion in Mariahoeve. Mariahoeve will therefore be opened up and considered a paragon of the Open City.


*Figure 120*
*Urban quality zones*

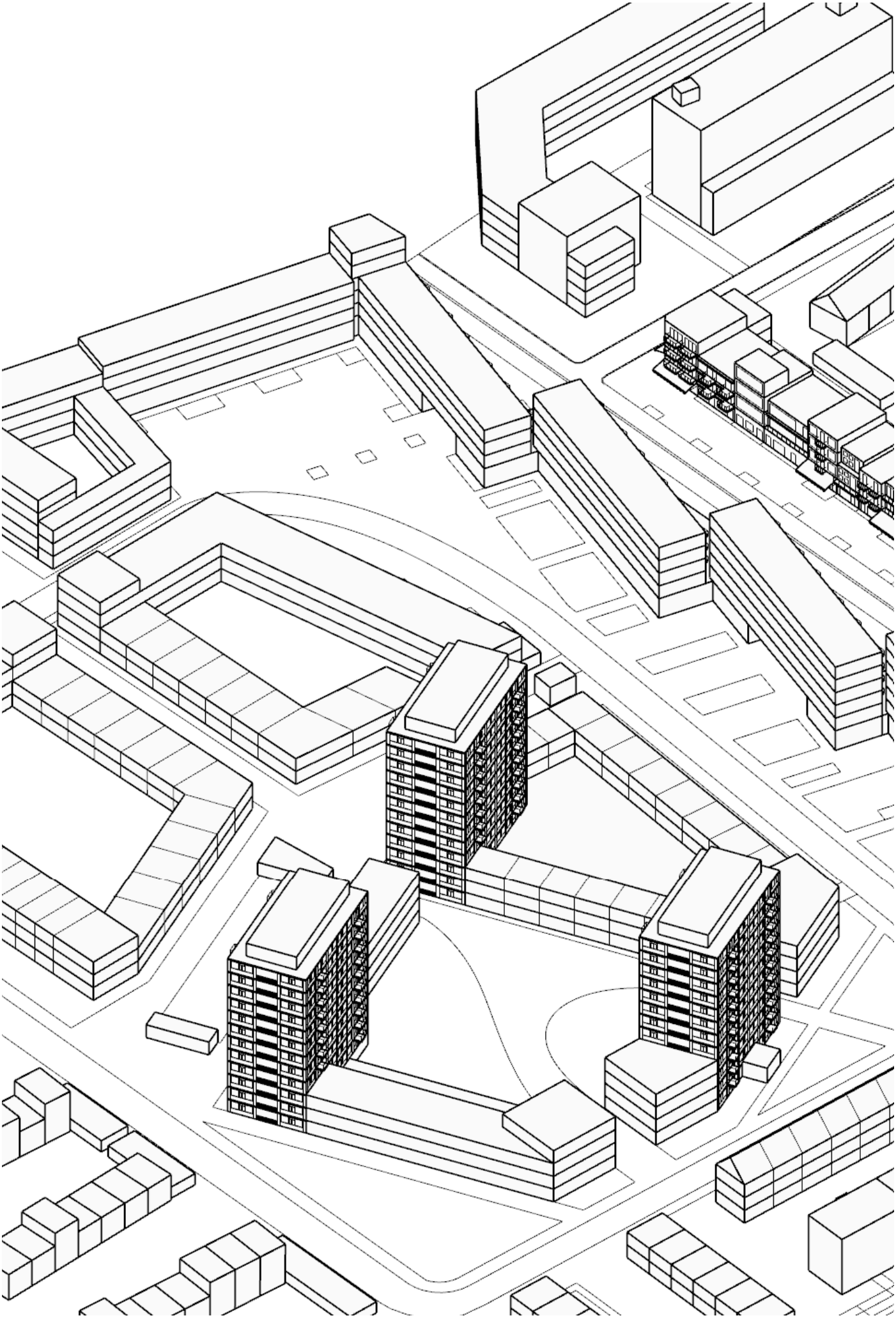
# 8. Design proposals towards inclusive densification

1. Strategic location
2. Main design principles
3. Detailed design plans
4. Evaluation

This chapter contains the design proposals in which inclusive densification is achieved according to the followed methodology. The manifestation of different patterns which have been derived through the enhancement of the different characteristics, each leading towards inclusive densification, have resulted in the design proposal as of which Reigersbergenweg and its hinterlands have been densified.

***Figure 121***

***Axometric view of design proposal for Reigersbergenweg and the hinterlands, as shown from the South***



## 8.1 Strategic location

### Introduction to Reigersbergenweg and hinterlands

The Reigersbergenweg, which will be acting as a main street will be, together with the hinterlands, further elaborated upon in the local design. In order for the street to fully flourish as part of an open and just city, it is important to show this through design. Proposals in achieving inclusive densification is relevant through transforming the now traffic corridor into a democratic space where people of all social layers can fulfill their daily needs. The hinterlands are hereby of importance to show how densification can happen in an inclusive way to achieve a critical mass to sustain the diversity happening in the main street. The calm character of the residential area will hereby be preserved, while adding the qualities of sense of place, appropriability, connectivity and legibility.

Throughout this chapter, it is shown how a monofunctional non-place is transformed into an inclusive place. It shows how a typical postwar neighbourhood can be densified inclusively.


*Figure 122*

*Birds eye view of Reigersbergenweg and Hinterlands from the East (Google earth)*

## Introduction to this location

As of 2024, the neighbourhood consists of a very spacious and loosely configured urban fabric. There are freestanding towers, slab apartments and closes of row houses. There are two connections between the interior and the exterior. One of which from Reigersbergenweg, and one from Het Kleine Loo. The map on the right shows the existing structures. The image below shows a satellite view.


*Figure 123*
*Map of Reigersbergenweg and hinterlands*

*Figure 124*
*Satellite view of Kampen South neighbourhood from the Southeast (Google earth)*

## 8.2 Main design principles

For the design of the main street of Reigersbergenweg and the hinterlands, multiple design principles are taken into account.

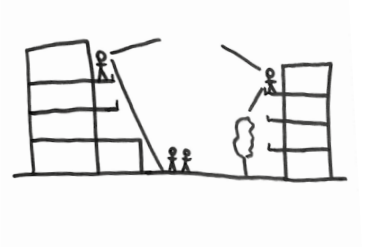

**Adding mass**
The layer of densification consists of adding new mass to the area. The adding goes together with the addition of qualities. Streets will obtain a clearer relation with the buildings, will be constituted, and more legible. The configuration of the masses is to enclose spaces which are meant to be appropriated by the residents.


**Densification type**
The different types of densification happening in the area are infill development, as well as horizontal and vertical extension. This follows the pattern of potential locations per densification type, and guided by the qualities to be achieved.

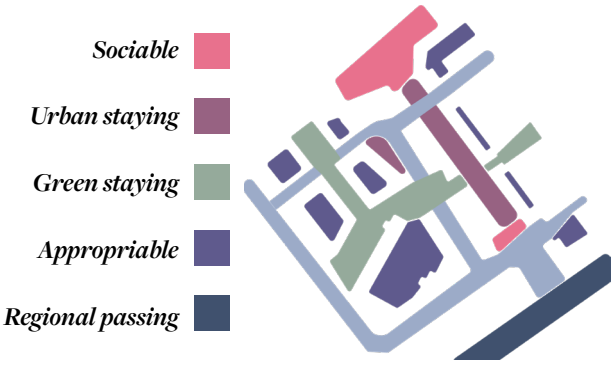

**Function mix**
There are three levels of function mix, of which the lowest is monofunctional. Here it is only residential functions. The semi-mixed buildings generally house residencies, whilst it can also contain locally oriented functions (like a GP or school). The mixed buildings house a variety of functions.


**Density gradations**
Density gradations have been added in the area to introduce a hierarchy network of public realms. The main streets are enclosed spaces with a higher density of building layers, whilst the inner residential spaces are generally lower (with the exception of the taller existing structures).

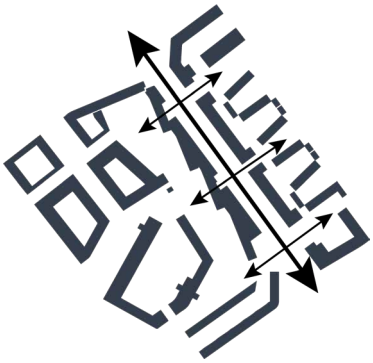
**Inside - outside relation**
Not only are spaces on the direct outside made to hold the quality of appropriability, also balconies are added to existing façades to enhance visibility of individuals amog each other.



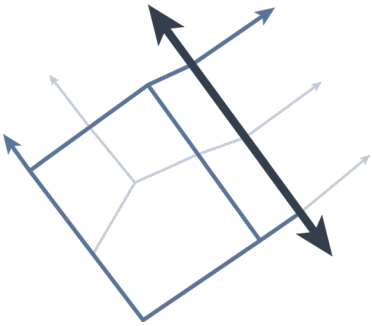
**Urban quality**
Different types of urban quality are to be introduced in the area which determine the kind of design outcome the areas are intended to have. Programmatic zoning will be introduced to guide these qualities.



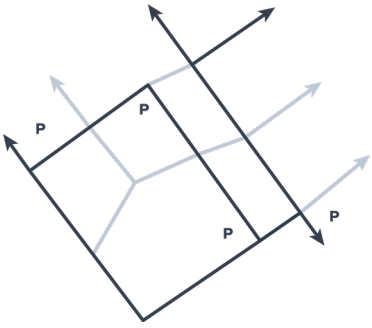

**Connectivity**
The urban fabric will become more permeable through the added connections which will be introduced. Therefore, connecitivy will be enhanced. The main street of Reigersbergenweg will count 6 cross intersections, rather than 2.



**Publicness**
The main street will be, as should, most public. The inner areas are calmer, and the small pedestrian streets are in depth.



**Circulation scheme**
Traffic will be discouraged from passing through the area. On-street parking will be moved towards centralised parking facilities, generating pedestrian flows and enhancing visibility in the public realm as obstructions are limited.



The design configuration and the urban quality types of the area are important for guiding the design proposal. The diagram on the right shows the building masses as proposed, in relation with the urban quality types. These types are allocated through zoning.
The section below gives an indication of the density gradations. Whereas the main street has a higher enclosure through built mass, the hinterlands are more intimate with lower leveled buildings. The exception here being the existing tower structures, which are to be maintained. The main street has levels ranging from 3 to 7 layers. The hinterlands mainly 2 to 4, with the exception of 12 layers for the towers.

*Sociable*

*Urban staying*

*Green staying*

*Appropriable*

*Semi-private*

*Local passing*

*Regional passing*

*Back-side*

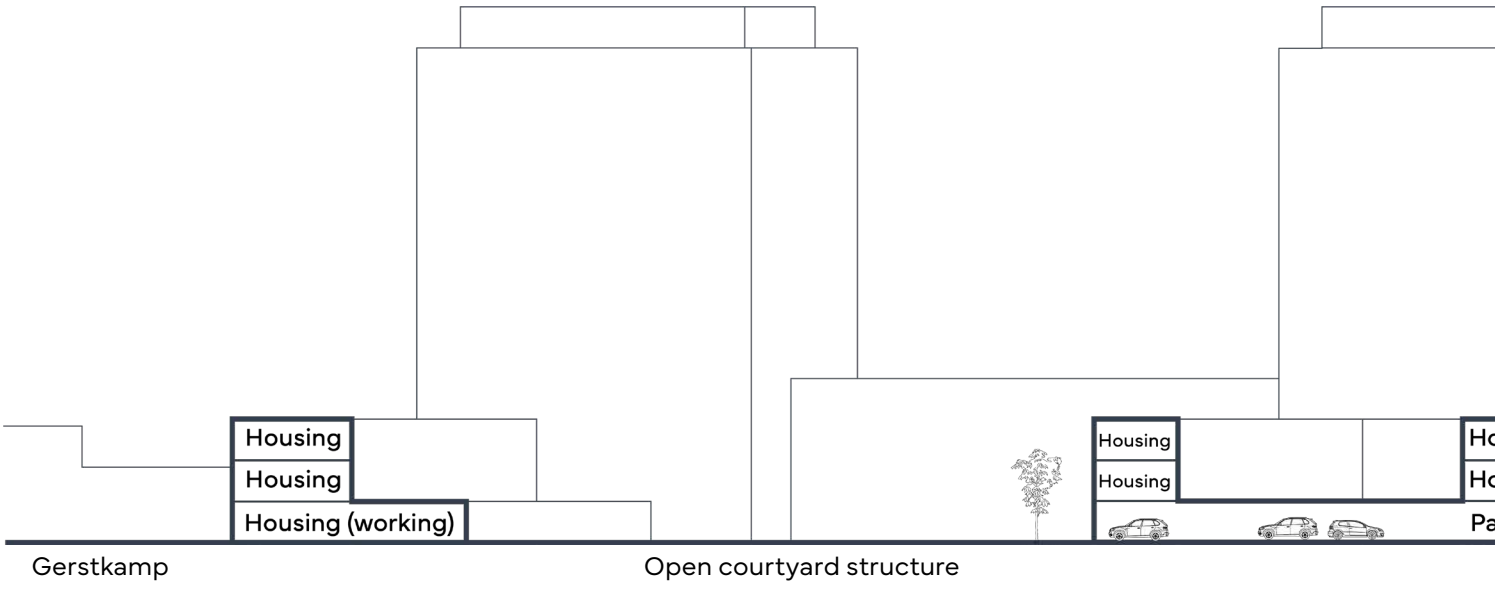



*Figure 126*
*Section from West to East*

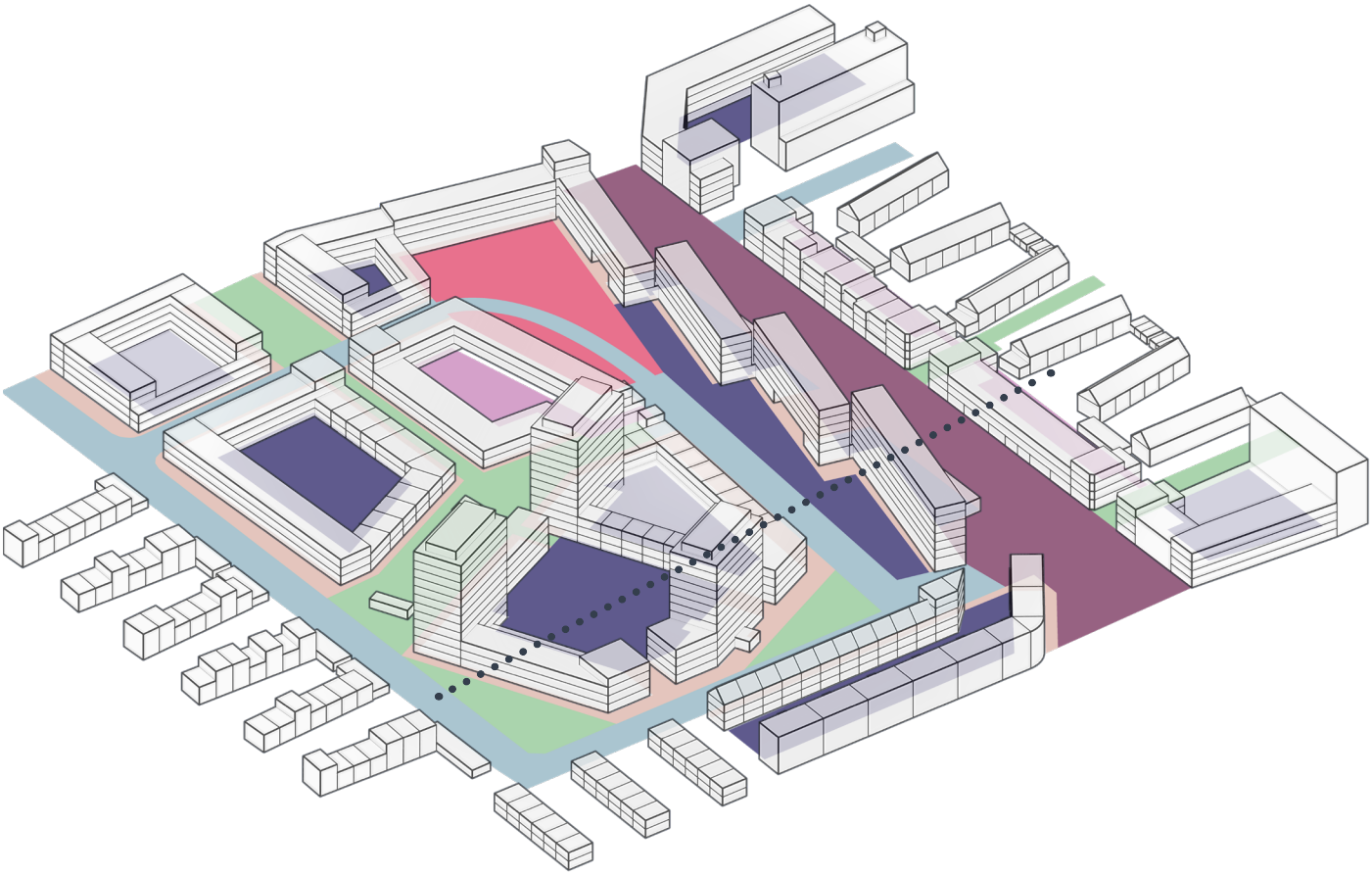
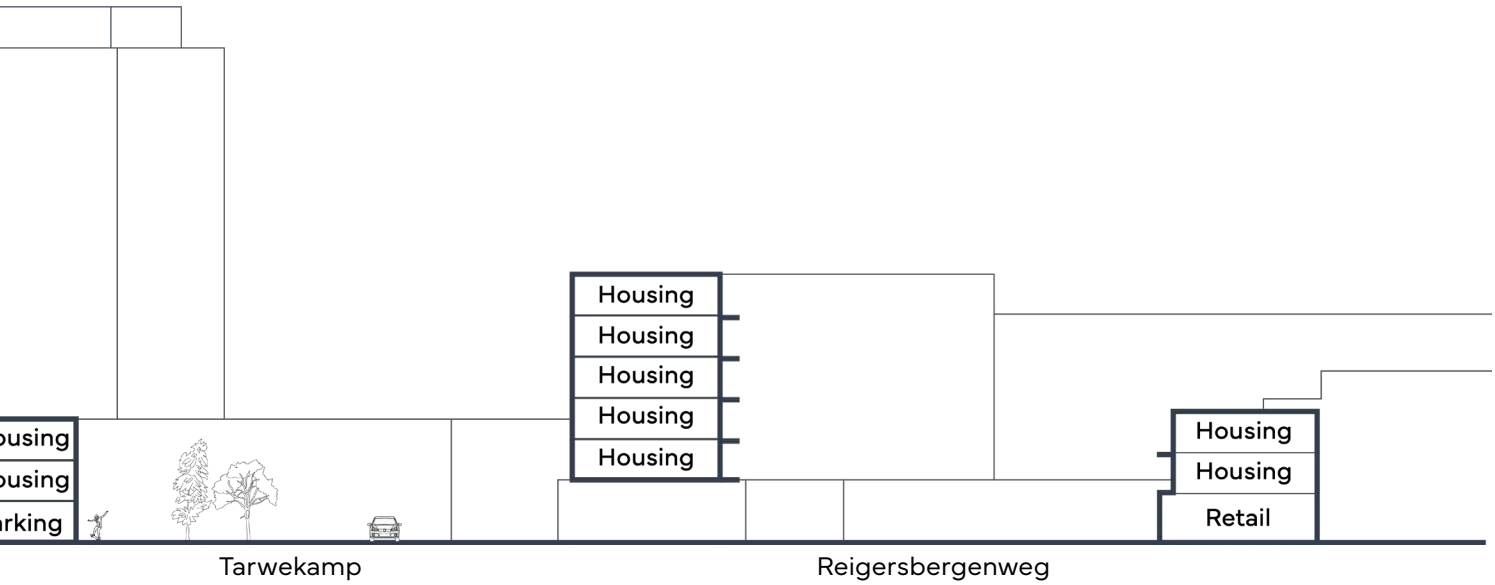


*Figure 125*
*Urban quality types in relation to building masses.*
**The dotted line indicates the section line for the below section*



## 8.3 Detailed design plans

### Housing types

In regard of design for diversity, which is part of the just city, and affords superdiversity, there are many different housing types. The diagram on the right shows the housing types in a plan. These include:

- Co-housing:
  This type of housing will be developed at an empty plot by the individuals participating in this process of co-housing. Through the courtyard configuration, the individuals have their own shared territory, as well as their semi-private space on the structure's exterior, facing the streets. To mitigate the risk of the individuals being a closed community, it faces on the Eastern side an intimate street with outside neighbours, as well as a green lane on the Southern side with allotments and gardens. Here, people from other parts of the neighbourhood can come together to participate in gardening. Thus, visibility is preserved.

- Work-home:
  This type of home is allocated along places with a higher publicness. This is along the inner square where existing services are located (Tarwekamp), as well as the Northern side between Tarwekamp and Het Kleine Loo. As the latter connects both these streets with a middle and high publicness, it is suitable to turn these existing homes into work-homes. Individuals who'd like to start a business here get the choice to do, while others who rather stay put can. Whenever the existing residents move out the spaces may still be transformed into working spaces, or hybrid work-home spaces.

- Flexwonen:
  Different flexwonen dwellings are situated along the main street of Reigersbergenweg. This street has a high publicness, and therefore a dynamic nature of people passing-by. Thus, due to the pace of change, it is more difficult for cohesion to exist here. It is this place, where flexwonen dwellings are deemed most relevant, as this type of housing contributes to the dynamic nature of these streets. It may contribute to the co-presence to be achieved along these streets.

- Rental or owner-occupied units:
  Besides the housing types as described above, there are different ranges of affordability and different contracts towards occupancy. These not necessarily congregate with housing types. Some are social rent, others are middle or high rent. Some are owner-occupied with a medium affordability, whilst others are owner-occupied with a high affordability. The design proposal ensures mix of affordability and therefore equity.
  The mix that has been designed for, shows gradual affordability levels throughout the neighbourhood. Low affordability gradually phades into middle affordability, which in turn gradually phades into higher affordability. This constitutes a fluid whole of differentiated solidarities enforced by affordability.


*Figure 127*

*Building types*


***Figure 128***
***Plan view of design proposal for Reigersbergenweg and hinterlands***


Norenburg
Norenburg
Boekweitkamp
Nieuwe Veenmolenpad
Boekweitkamp

## Structure plan of Reigersbergenweg and hinterlands

The map shows a design proposal of the Reigersbergenweg and its hinterlands, the neighbourhood of Kampen South.

In terms of built mass, a layer of densification has been added in the form of infill, vertical and horizontal extension, as well as re-purposing of existing structures. This has resulted mainly in courtyard structures in which residents can take ownership of space and collectively take accountability over the space.

As described in the strategies, the Reigersbergenweg will become a main street, and both smaller and larger scale design interventions have been implemented in order for the place to be diverse and legible as a lively place.

Combined with the interventions towards connectivity, the area is more permeable as it allows for more cross circulation of flows. The proposed structure benefits participants of active mobility (pedestrians and cyclists). Car users will be discouraged to drive within the urban fabric, as the streets are more narrow, and on-street parking is limited. In order to cope with parking in a sustainable way, centralised parking facilities have been introduced in the neighbourhood. Therefore, the car is mostly taken out of the public realm, leaving more space to be appropriated by residents, as well as improving visibility on the streets.

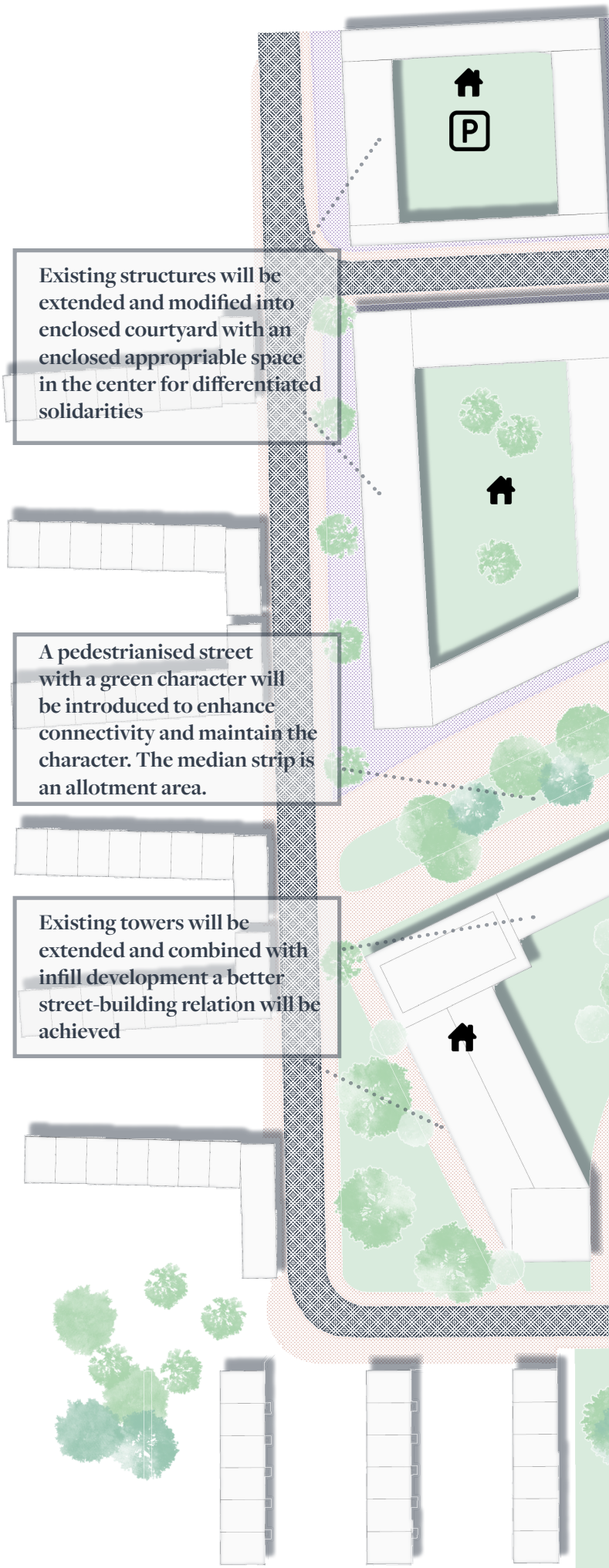
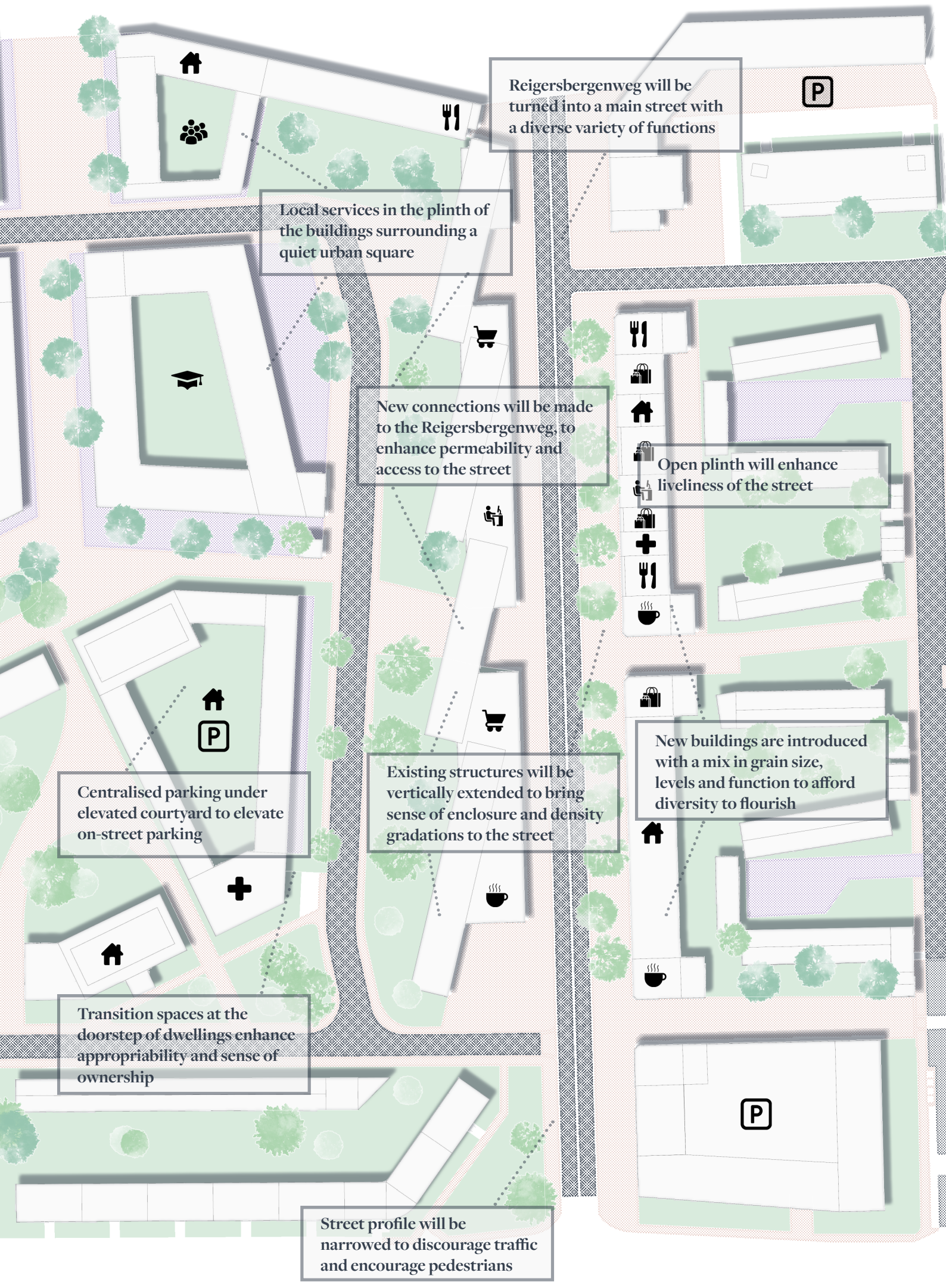



*Figure 129*

*Design proposal of Kampen South*


Reigersbergenweg will be turned into a main street with a diverse variety of functions
Local services in the plinth of the buildings surrounding a quiet urban square
New connections will be made to the Reigersbergenweg, to enhance permeability and access to the street
Open plinth will enhance liveliness of the street
Centralised parking under elevated courtyard to elevate on-street parking
Existing structures will be vertically extended to bring sense of enclosure and density gradations to the street
New buildings are introduced with a mix in grain size, levels and function to afford diversity to flourish
Transition spaces at the doorstep of dwellings enhance appropriability and sense of ownership
Street profile will be narrowed to discourage traffic and encourage pedestrians

## Tarwekamp square and Reigersbergenweg

The plan on the right shows the Tarwekamp square and the Reigersbergenweg. It shows hoe the new structures fit within the modernist context.

The connection between the two streets is through an underpass connecting the different places. The paving element is continuous throughout the different spaces, and corresponds with the publicness of the spaces. The main streets and the rather public square share the same paving element. The street paving nudges toward slow driving, as the street can be considered a shared space with pedestrians.

Each of the buildings is provided with a stoop element at the doorstep. This makes the space appropriable. The square itself has a function towards the facilities which are inthe surrounding buildings. For example, to facilitate art projects for which sufficient outside space is important, the square can partly be occupied in order for the projects to be undertaken. In short, the square creates affordances for the surrounding facilities to profit from. The narrative hereby is non-linear and open-ended, as an open city should be.

The square itself has a playground, grass patches, benched, trees and pergola structures. These are static elements which can make the use of space more tailored towards certain uses and audiences.

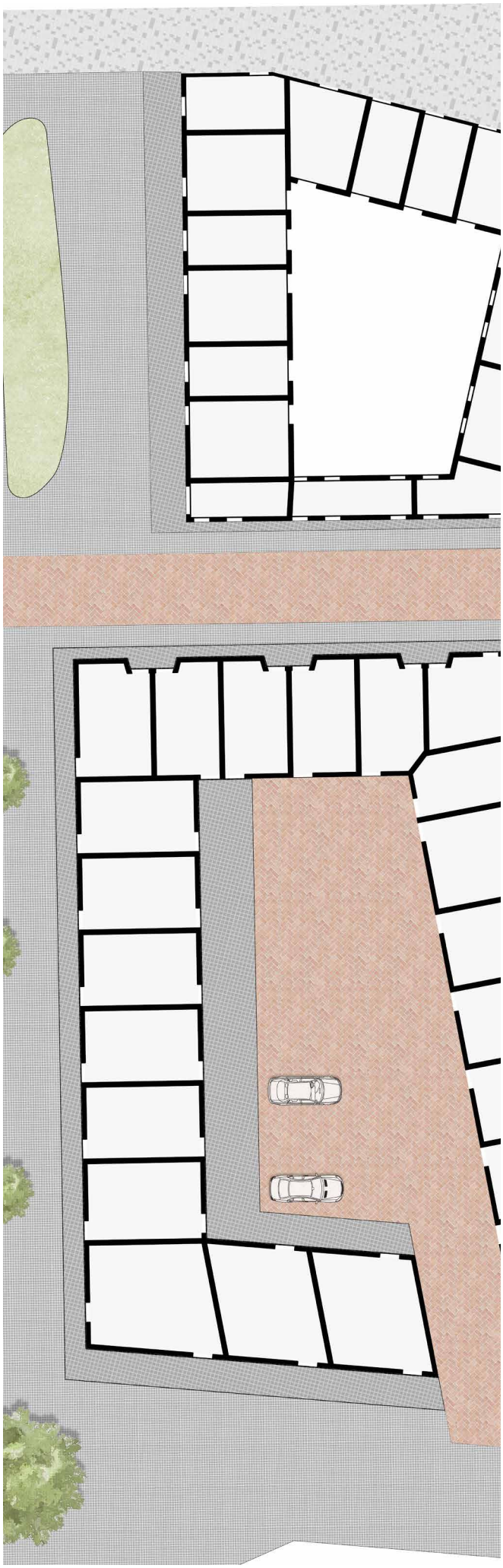


*Figure 130*
*Design proposal of the square on Tarwekamp*

## Dynamic nature of Reigersbergenweg

The axonometric shows the diversity which takes place in the proposal for the Reigersbergenweg. The configuration of a main street has been implemented here, for which lively plinths of varying sizes have been juxtaposed in a direct relation to the street. The mixing of grain sizes, building sizes and programmatic mixing (both vertically and horizontally), allows for social diversity in the street. Not only as destination, but also as place of residency.

Sidewalks have been dimensioned wide, to maximise affordances of the space. Businesses can claim the space and make it their own as to which the inside function can spill over into the public realm. This increases visibility of the function, as well as the users.

The street is considered a democratic space, as there are many different functions housed along it. It makes it interesting for many different individuals to visit a particular destination. Therefore, visibility among different individuals gets encouraged.

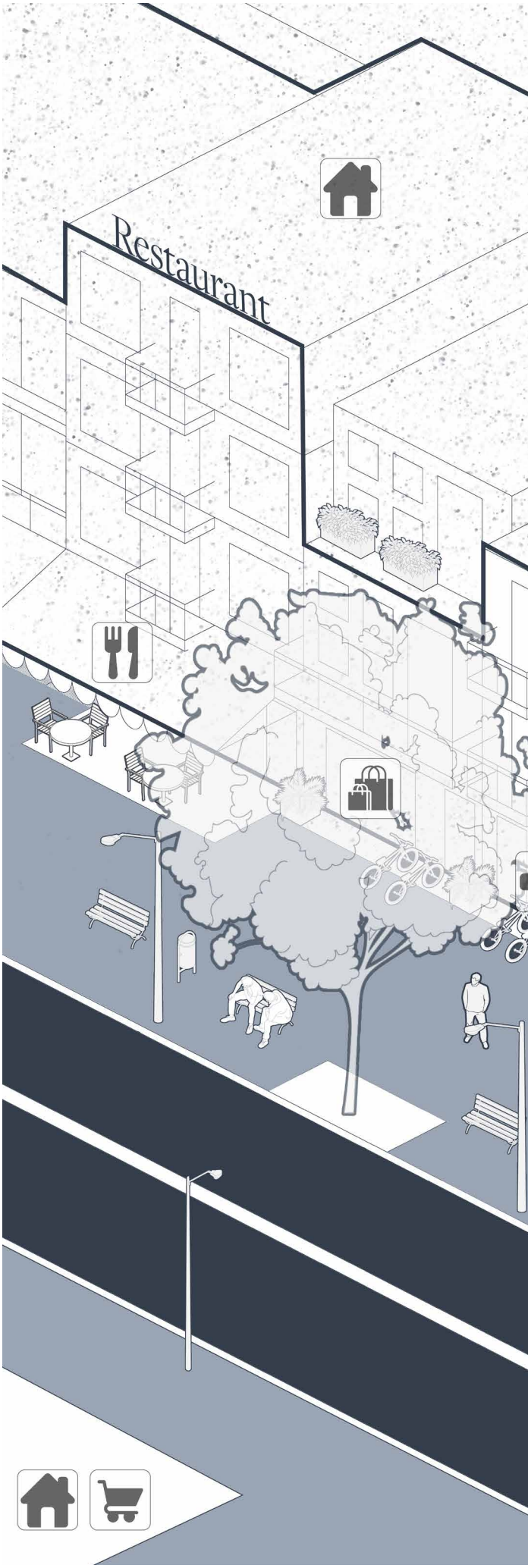
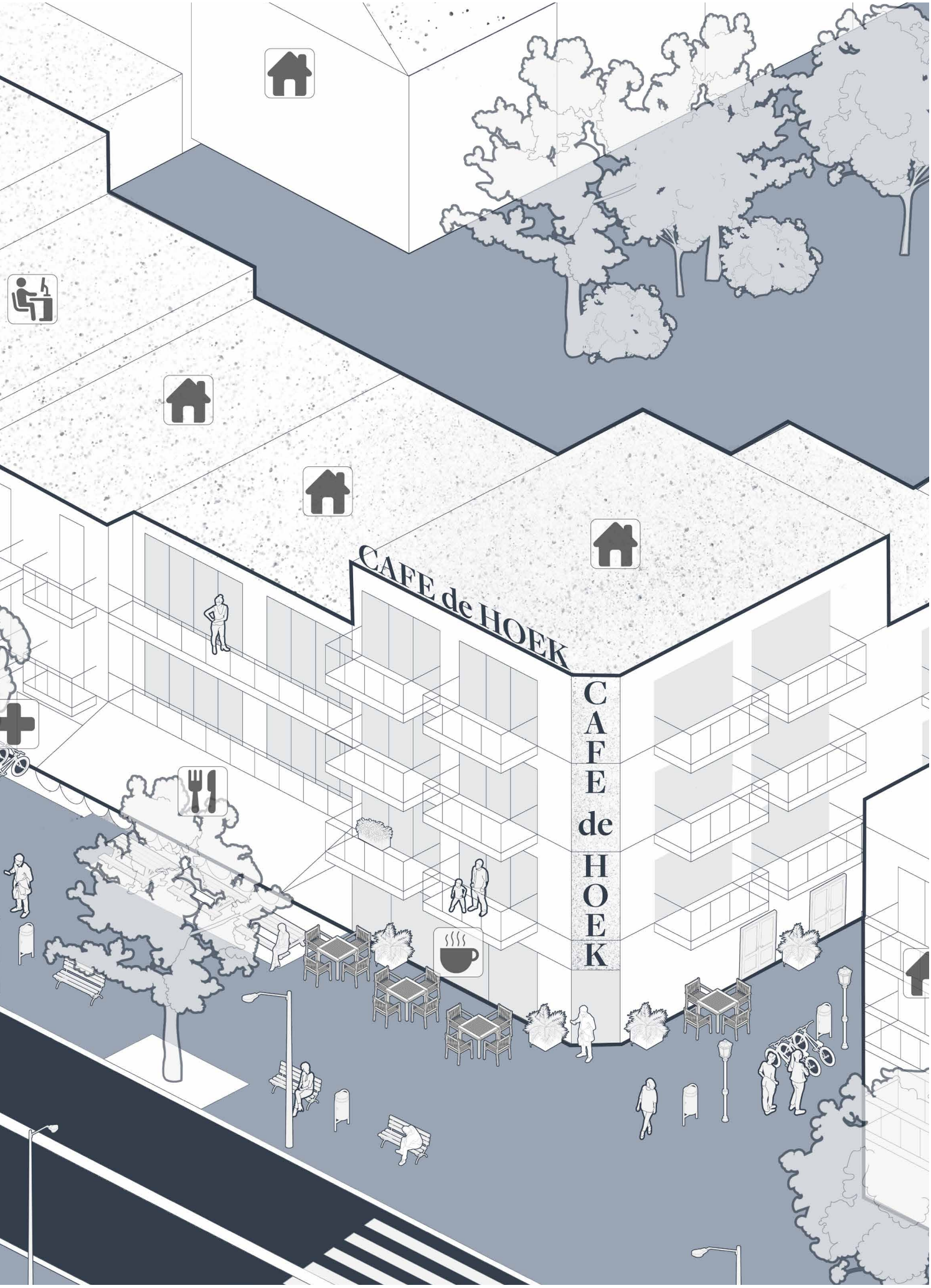



*Figure 131*

*Design proposal of Reigersbergenweg as main street*


CAFE de HOEK
CAFE de HOEK

## 8.4 Evaluation

Based on the evaluation spider chart, the design proposal can be subjectively evaluated upon. The six design characteristics here act as individual criteria. These are shown in and around the spider chart on the right.

**Density**
The main street will be densified through infill and vertical and horizontal extension. The hinterlands will be densified through the enclosement of otherwise open blocks or freestanding towers. These will be turned into (semi-)enclosed masses. The open character will in parts remain. The next page shows an image of what the newly added masses are (in blue).

**Diversity**
Through the mixing of building functions and urban quality types, the streetscape as well as service provision becomes variegated, allowing for diversity to flourish.

**Connectivity**
Connectivity is enhanced through the added connections to and from the main streets. These are based on the extension of surrounding streets which otherwise bend or turn into dead ends. Through this the main street, as well as the hinterlands become a more permeable area.

**Equity**
Through the mixing of housing types and affordability, and the implementation of the principle of differentiated solidarities, the place becomes equitable towards all layers of society. This is because it allows for all these layers to co-exist in this neighbourhood, based on providing choice.

**Visibility**
Visibility of co-presence is enhanced through the exposing of differences among the main street. From a space syntax approach, the already most integrated parts will be turned into a lively and sociable places. Through the addition of different housing and services, otherness is mixed.

**Legibility**
In terms of legibility, the site will have a clear hierarchy of publicess. The main street will be a clear front side, whereas the inner neighbourhood will remain having a residential character. Combined with enclosement through built mass, residents perceive the enclosed space as their own. Differentiation in paving materials further communicates ownership and space type.

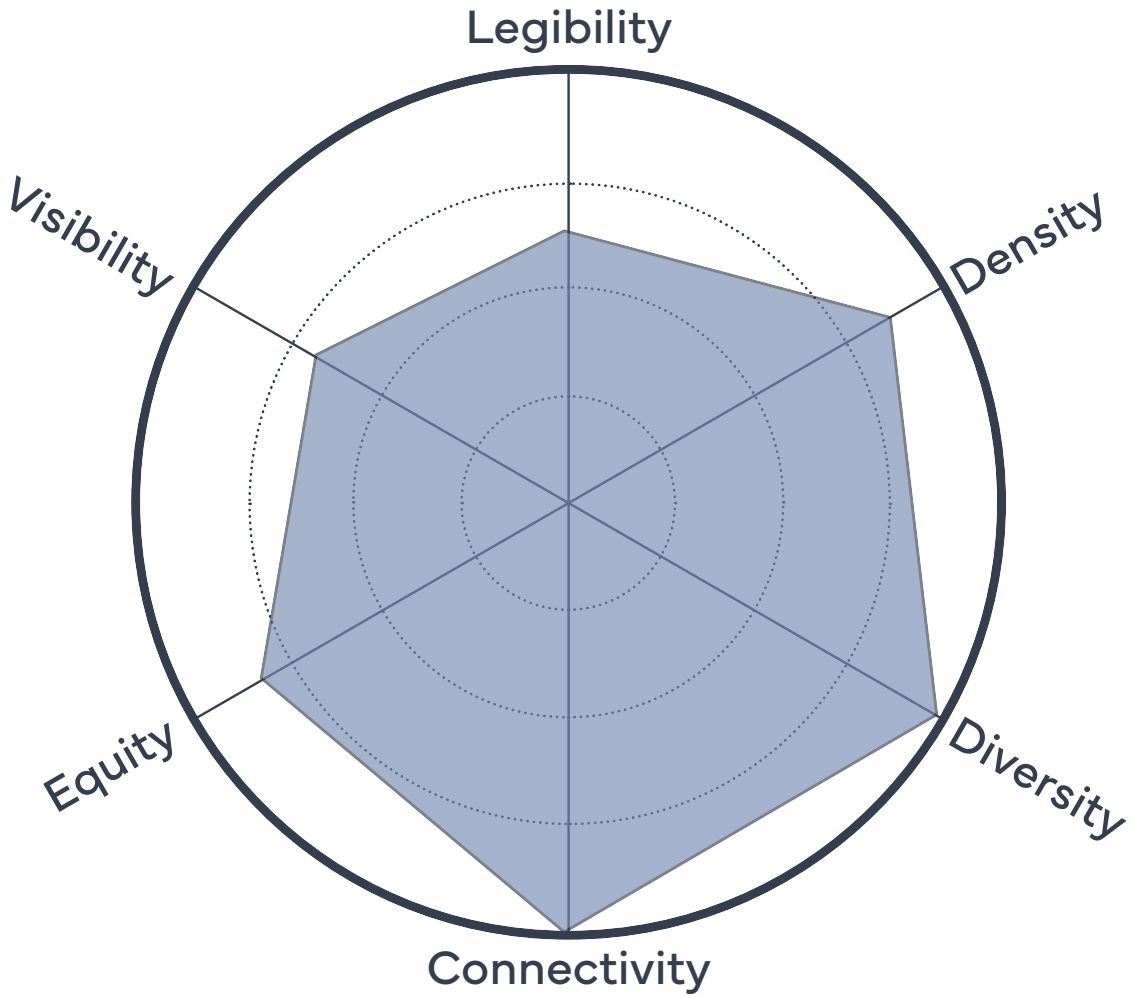



***Figure 132***
***Evaluation chart***

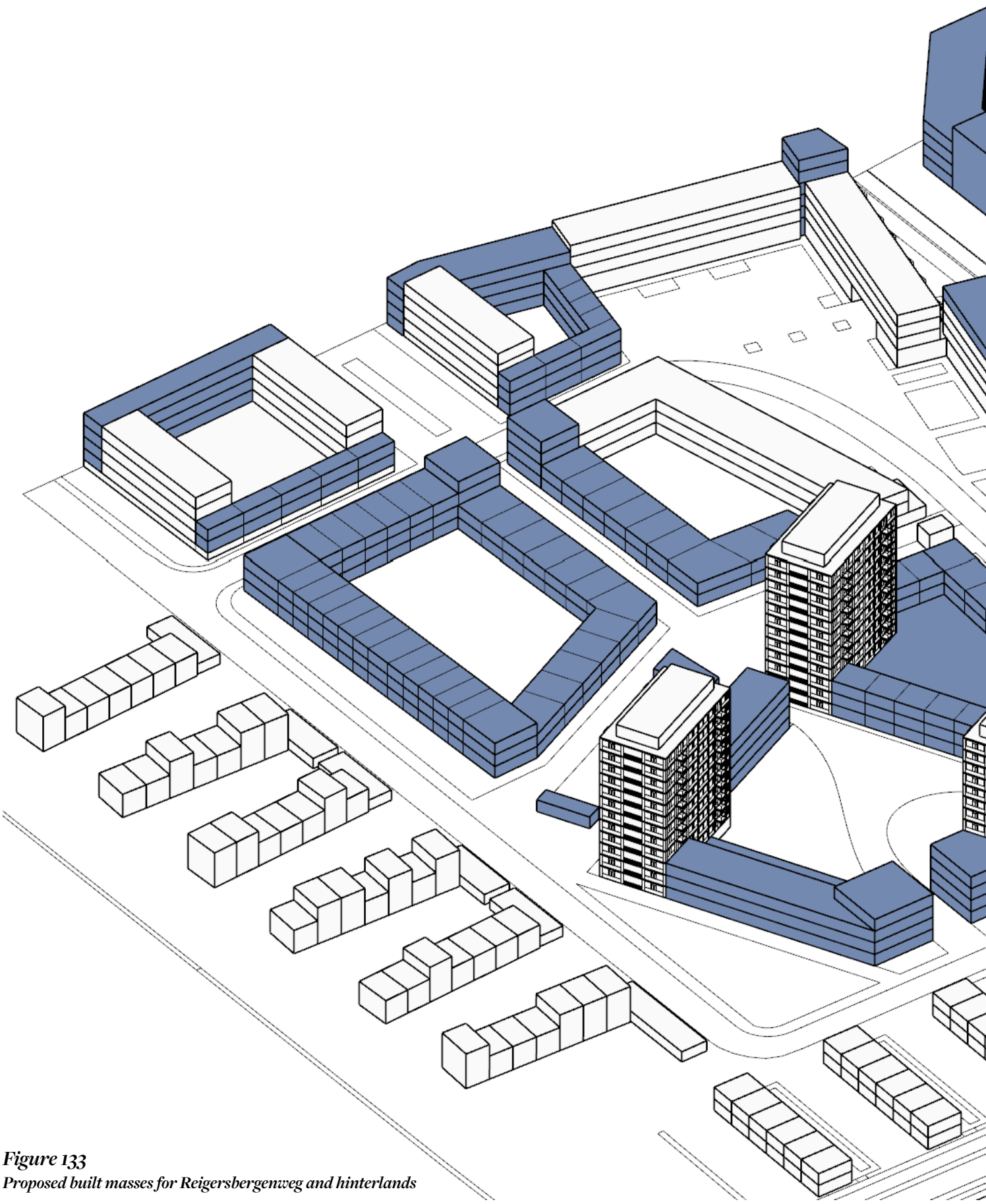
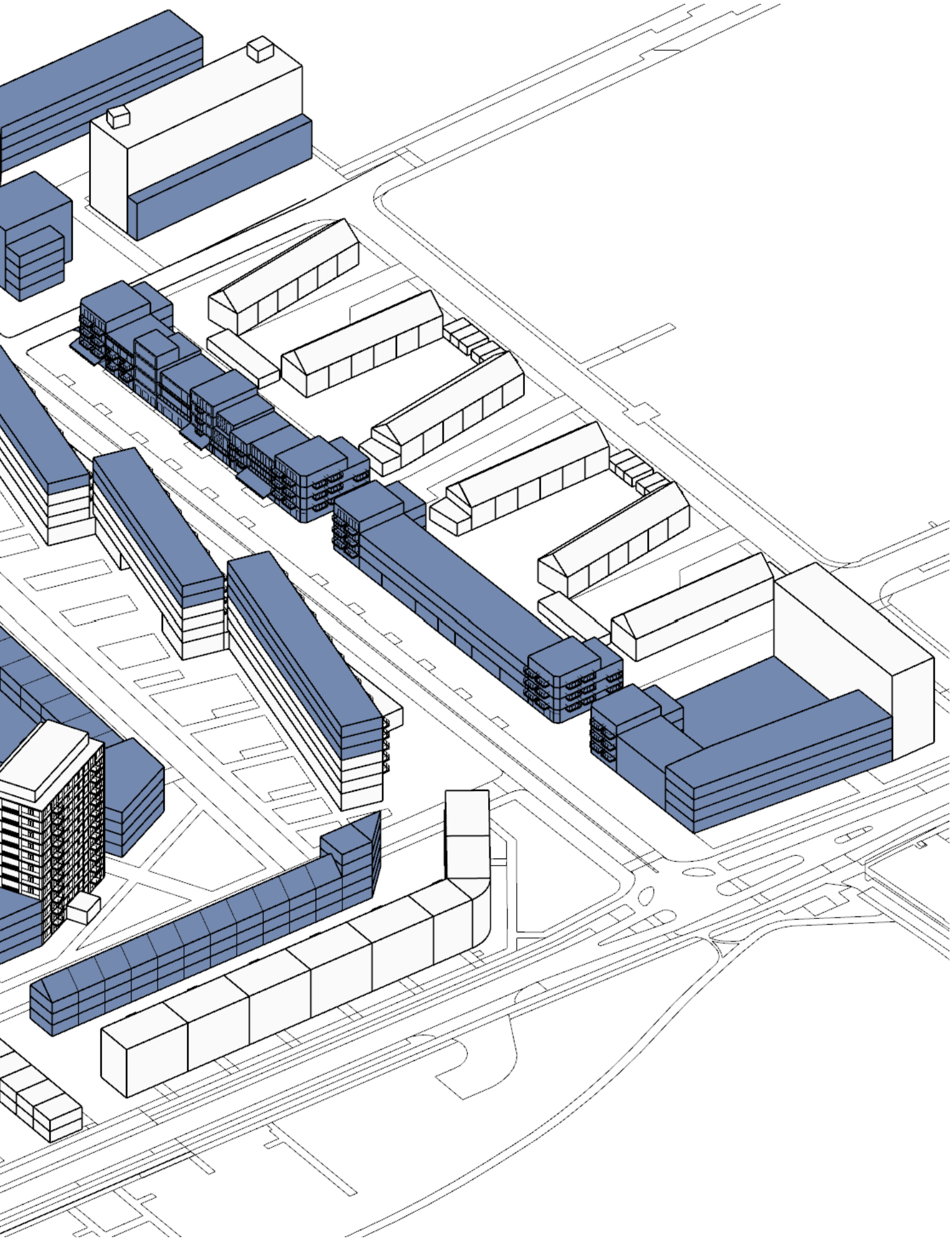


*Figure 133*
*Proposed built masses for Reigersbergenweg and hinterlands*



# 9. Conclusion and reflection

1. Conclusions
2. Reflections

## 9.1. Conclusions

The main question as formulated at the start of this thesis is:

*How can the Haaglanden region be densified whilst enhancing inclusivity and cohesion in superdiverse urban contexts?*

Through the strategic implementation of masses, while enhancing the spatial characteristics of connectivity, legibility, visibility, diversity and equity, cities can be densified inclusively. It is hereby important to create a compact and differentiated cityscape, providing access to different individuals. To foster communities which are solidary with each other, as well as providing spatial justice to all these communities is of equal importance. Only then the city can be densified inclusively.

### 1. How do the notions of superdiversity, density and inclusivity relate and spatially manifest in the region of Haaglanden?

Superdiversity is about the presence of many different individuals belonging to many different societal layers. The closeness of this presence constitutes the degree of superdiversity, as there are many different individuals in proximity of each other. This relates to density as density is the condition for diversity to happen. It affords the space to accommodate many individuals, provided that density is of a high enough degree.

An inclusive space allows for diversity to happen voluntarily, without injustices towards liveability or distribution of resources and opportunities. Therefore, superdiversity as a condition of proximate social diversity is a substitution of spatial inclusivity. It means that all societal layers make use of the same space, mitigating any injustices like segregation.

While the Haaglanden is a superdiverse region, it is also a region of contrast. This is visible in the municipality of The Hague, where privileged and less privileged are separated spatially. The urban fabric pairs this with social injustices, making the city rather segregated. Despite this, there are superdiverse areas within the city, which are often at the edges and in-between spaces.

## 2. How can morphological characteristics contribute to inclusion?

Related to theories, there are six main characteristics which relate to the urban morphology which can enhance inclusivity. These are:

1. Density;

As previously mentioned, density is the accommodator of superdiversity. For a place to be truly superdiverse it needs this density to allow for it to be inclusive. Diversity allows for a place to be compact and differentiated, allowing for inclusivity to be accommodated.

2. Connectivity;

Regarding the open city, and its inherently desegregating qualities, connectivity is about how well the street pattern connects between places. The higher the connective a place is, the more accessible it becomes to more people. It allows for proximity to be altered, as network distances can change without changing Euclidean distances.

3. Legibility;

In a superdiverse context, legibility of space is an important characteristic to allow for diversity to flourish in a just and cohesive way. As spaces have an inherent social logic embedded in the design of the space, this can be guided in a way such that superdiversity will be visible, as well as fostering a sense of belonging provided that spaces have a sense of appropriation. An inclusive space makes individuals feel belonged, regardless of social layer.

4. Visibility

Visibility is an important aspect to superdiversity and cohesion as creates recognition and awareness of the other, as well as evoking a sense of safety. Visibility is an important characteristic as to mitigate prejudice, fears and stereotyping of individuals of other social layers. For an society to be inclusive, it is important to mitigate tensions for it to function appropriately. The condition of being co-present is a sign of inclusivity.

5. Diversity

Diversity relates to programmatic diversity. This relates to the 15 minute city concept, as combined with density constitutes compactness, which is intertwined with differentiated spatial conditions. Differentiation is the degree of diversity. The condition of being diverse is inclusive, as it gives choice to the individual being in close proximity. Therefore, it is important to bring diversity in proximity of every individual, as far as feasible practices allow.

6. Equity

Being the main quality of the just city theory, which focusses on spatial justice, equity is about the justice brought by distribution of resources and goods, as well as democratic and participatory decision-making. This would make a space inclusive, as it strives for egalitarian solutions.

### 3. What strategies create a more dense and inclusive urban environment in terms of urban form, function distribution, and social processes in Haaglanden, in accordance with space's social logic?

In sum, there are three main strategies which have been implemented in the Haaglanden region, targeted on the neighbourhood of Mariahoeve, is:

- The main street
  The main street is a democratic space. It is a place of visibility for a broad public. Hence, it serves as a place for recognition and awareness of the otherness' presence. People share a co-presence in these everyday urban spaces. The democratic and non-territorial traits of these spaces make them inclusive. The main street is a mixed street, which can be considered an arena for interplay between citizens. It should provide essential public services for transactions and interaction among citizens. The main street takes an important part in the public realm, and can nurture solidarity by bringing people together, fostering cohesion and community engagement through participation in public life. The configuration of the main street is important for the interplay between individuals to be afforded. It comes down to design and its embedded social logic.

- Clustering of differentiated solidarities
  In terms of fostering socially cohesive communities and the formation of differentiated solidarities, it is important to establish local communities based on collective group affinity. Differentiated solidarity allows the space for residents to locally cluster voluntarily. In the process of voluntary settling, people tend to sort themselves out into lifestyle enclaves.

  The morphological entity of the urban block in a courtyard configuration provides an optimal configuration for differentiated solidarity. The courtyard offers an enclosed and intimate space to which adjacent neighbours perceive according to their inherent social logic as their own. This affords appropriation of the space. Therefore, the enclosed space becomes collective to the residents.

- Connecting the islands
  The objective of connecting islands or enclaves is to enhance connectivity, accessibility, and social interaction throughout the neighbourhood by creating a network that links the courtyards with other courtyards and with the main streets. The network lines are configured like corridors for residents to circulate freely. The network stitches the differentiated spatial conditions together, thereby enriching the urban experience for residents who roam through the network. Through this, it stimulates urban peculiarities and a sense of belonging among all its residents.

  In the context of inclusive densification, this strategy is relevant as it addresses the need to create a cohesive and interconnected urban environment that accommodates diverse lifestyles while enhancing social cohesion.

### 4. Which spatial design interventions enhance inclusivity and densify locally in the Haaglanden Region?

To answer this question, the topics of densification and inclusivity will be answered independently, after which they will be addressed together.

There are different means of densifying. These range between hard and soft densification, and are respectively:

- Transformation
- Infill
- Horizontal extension
- Vertical extension
- Re-purposing
- Splitting

Densification remains a tailor-made solution, as contexts may differ, although they may share resemblances. The inclusivity aspect of densification is about the programmatic diversity which can be housed in the newly added masses. This can be strategically implemented as to improve existing urban conditions which are in need of improvement. For example, oftentimes postwar neighbourhoods have been designed around the automobile, in a decentralised and monofunctional way. This has created the injustices of lack of sufficient access to basic needs. Combined with the often spacious planning of the neighbourhood, there is room to densify while enhancing inclusivity through diversifying the monofunctional neighbourhood by densifying.

Besides the programmatic approach, a morphological approach to inclusivity, as generated by densification, is the enclosing of space. This relates to the social logic of space. It is the way how the built mass and voids are dynamically interplaying with each other, for which people perceive and act upon the different atmospheres in a different way. This would evoke a sense of ownership over space, and collectively a sense of solidarity among individuals.

Besides this, the strategic injection of density by aligning it to space syntax contributes to co-presence by contributing to publicness and liveliness and thus to visibility. Needless to say, provided this is accompanied by the necessary diversity of housing supply.

### 5. Which urban planning principles complement the spatial design interventions to preserve inclusivity in the Haaglanden Region?

As of the just city, procedural justice is an important aspect of preserving inclusivity in the long term. While densification means adding a long lasting structure to the urban fabric, the programmatic function may change over the course of the lifespan of the building. This function change, accompanied by the estimated monetary value of the property is prone to fluctuation. This fluctuation may cause injustices to a rather broad group of societal layers, while it may only benefit a small portion. Zoning policies, as mentioned in the theory chapter on the Just City, may enforce an operational solution towards injustices regarding the fluctuating affordability of housing. To ensure that inclusivity is protected, the affordable housing pool must by all means be protected from negative driving market forces.

### 6. How can the success of densification projects in achieving inclusion and cohesion be measured and evaluated over time?

An evaluation scheme has been developed to illustrate the contribution of a given design intervention (pattern) towards the enhancement of one of the six design characteristics. This scheme gives an indication on how a certain design intervention may improve the existing urban environment through different dimensions which are considered important for an inclusive environment.

Superdiversity and its dynamic nature can be measured through the data has been and will be gathered by CBS regarding the different social layers. Through this, spatial injustices regarding segregation, or justices regarding cohesive mixing can be quantified, acting as a proxy towards inclusivity.

Through practice, democracy can play part in evaluating cohesion and inclusion over time on a local scale. Through this, residents can let their voice be heard and engage in neighbourhood participation. Therefore, social infrastructure is all the more important, as it allows people to come together and share their thoughts.

### 7. To what extent are the interventions in Haaglanden transferable to other Dutch neighbourhoods?

The project outcomes are a design and a pattern language. Where the design is a tailored context, which cannot (and should not) be replicated elsewhere, the pattern language does hold elements of transferability. The pattern language consists of a variety of singular design interventions which can be implemented at site-specific locations. Whereas transferability is not particularly assessed for the purpose of being transferable in the wider context, the pattern language does give a listing of possible and potential locations for the design intervention to be implemented in the selected site itself. In this process, the range of different possible locations for implementation of each singular design intervention has been generalized through extended specification. And although the generalization is not possible with only one reference study, it is possible through extended hypothesising. That means, for example the pattern of densifying through horizontal extension is applicable to the following contexts:

- Vacant or under-utilised buildings (porosities)
- Vacant or under-utilised spaces
- Buildings in need of renovation
- Unconstituted streets
- Blind plinths
- Back sides

This approach would enable the pattern to be transferred to locations that exhibit the aforementioned characteristics.
Furthermore, where transferability would be relatively straightforward to other postwar neighbourhoods of a similar design, some patterns could be transferred to a wide range of locations. This is because the potential implementation sites are not related to context, but to characteristics (like unconstituted streets in the example). However, true one on one transferability is not an outcome of the thesis, as this would require an extensive research to triangulate findings. For hypothesis testing and theory building, which is a preliminary form of transferability, the thesis has provided significant backing.

## 9.2. Reflection

A caveat is that this reflection aims to answer the predefined questions. These questions dive into the methodology and how it came to be for this distinct R&D project. This is important, as the methodology functions as the backbone of the project. Therefore, the reflection will concentrate on the decisions made during the development of the methodology and the reasons behind those decisions, supported by research.

**1. What is the relation between my graduation project topic, the studio topic, and the Urbanism master track, and my master's programme (MSc AUBS)?**

The graduation project explores the topics of superdiversity, segregation, inclusivity, and densification, and their potential impact on how we will live together. According to CBS, the Netherlands will have a population of 20 million by 2050, of which the main contributor is migration. Due to an ongoing process of urbanisation, most of this population growth will manifest in its cities, which already account for the densest places. The region of Haaglanden is already superdiverse, and with an increase in a diverse range of unique individuals, it will do so even more. Furthermore, increasing diversity may lead to more segregation than it already is. Given limited space, it is urgent to accommodate this growth in an inclusive way.

I chose the intensives of Urban Fabrics, as it looks at an urban context from a socio-morphological perspective. As the intensive is design-oriented, and has an experimental and data-driven nature, it has provided me insights on how to identify issues raised in the built environment. I gained familiarity with many different methods, some of which are considered very relevant to the process of my graduation project. The reference analysis, design experiments, mapping (ethnographic), observational techniques, urban biography and typology making all take place in the methodology. The methods will aid in understanding local socio-spatial conditions in specific relevant sites within the Haaglanden region. This approach is supported by a continuous process of inductive and deductive reasoning, guided by a theoretical framework. The derived information is considered crucial for the formation and implementation of design and planning solutions. To back up the design and research-oriented findings, a pattern set will be developed, according to the insights I gained following the Pattern Language intensive. Certain design and planning interventions on different scales (from local to city), derived through the implementation of different methods, will be formulated as individual patterns. These are related to the reciprocal relation between physical and social.

To my understanding, touching upon social and spatial topics through applying a combination of different methods (switching through scale, deploying different modes of reasoning for design and research, and constructing a composite methodology) makes this particular graduation project considered fit within the Urbanist master track. Touching upon the realms of sociology, politics and psychology, the project is considered multi-disciplinary. The outcome of the project is an integrated solution for the built environment which to my understanding is the core of what the MSc AUBS programme consists of.

**2. What is the relation between research and design in your graduation project?**

The relationship between research and design is extensive in my project. The first part of the project is based on a deductive approach, in which extensive research has been undertaken to grasp an understanding of the notions of superdiversity, segregation, inclusivity, and densification. Through deduction, the research has been / will be put in a spatial context in the region of Haaglanden. Here, deductive is the mental process of making logical inferences. Valid inferences are recognized when there are no counterexamples, meaning that the assumptions hold true and the conclusion follows logically (Johnson-Laird, 2009). Thus, several local sites will be appointed as interesting cases for further in-depth analysis based on the theories. These are interesting as certain social and spatial conditions related to the themes manifest here. This first part is roughly the first semester long.

The second semester will consist of a hybrid between deductive and inductive approaches. This will take place through the use of several local sites. These locations act as further local scale analysis on the themes, from which patterns can be derived through inductive reasoning. Hayes et al. describes this as "inductive reasoning involves making predictions about novel situations based on existing knowledge" (Hayes et al., 2010). Additionally, the local sites act as areas which will be researched by design. Inductive reasoning is often initiated through the process of research by design, which can result in the derivation of patterns and theories from a specific site. As Roggema has put it: "Research by design is a type of academic investigation through which design is explored as a method of inquiry" (Roggema, 2016).

One local site will be picked as a focus site for which design proposals will be made, addressing the themes. This site will be chosen based on certain characteristics related to density, superdiversity and inclusivity. Combined with in-depth theories and research by design, this area will see deductions and inductions being made, as design ideas will be implemented, as well as the conducting of research by design.

Both ways of reasoning lead to the development of a composite pattern language consisting of both deductive and inductive patterns. In the final stages of the project, inductive reasoning is also brought about by conducting a transferability analysis, as well as a reference analysis.

### 3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

During the course of the thesis I noticed I neglected the narrative driven part. I was stuck in the data and the analysis, without much progress on what to do with the research. I decided to work parallel on a report besides the analysis to frame and design the process more in a way as to being coherent and significant in achieving the aim of inclusive densification. Throughout the process I would be able to answer the research questions, as they were naturally tackled through the course of the design and research. Whenever I felt stuck I asked to myself "what is the information I need in order to fit best my aim of inclusive densification, and answer the main and sub research questions?"

The same I did by wrapping up the regional analysis phase, and to conclude by picking a relevant site for achieving the aim of the thesis. Using all the information I had gathered, I tried to find a way to mould this in a scheme for choosing the most relevant sites to zoom in to. I did this by combining different characteristics regarding density, as well as superdiversity, for which two different sites came out to be most relevant. As the information I needed was found in the core of my graduation topic (inclusive densification), relating the conclusion of the analysis back to what it revolves around seemed for me the most accurate way to conclude the chapter, and continue the research and design process.

In summary, what I value most in assessing the value of my way of working, is relevancy and consistency. And although I do sometimes experience difficulties in maintaining consistence, it is at those times I think it is most relevant to reflect upon and make decisions regarding the course of the project. I assess my way of working through asking the question if the matter I am working on is relevant towards the main problem and the aim I want to achieve. I worked parallel on my report, to structure my way of thinking.

**4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?**

Within the course of the project, the assessment of the academic and societal value happened at an early stage, from which the project has grown. The project revolves around a concatenation of trends: population growth, diversification of society, land scarcity and urbanisation. The relevance lays in addressing these trends, while aiming for an inclusive approach, mitigating the effects of social injustices. Through current affairs, as shown through newspaper headings, this relevance has been showcased.

The research consists of a literature study and analysis on the Haaglanden region and Mariahoeve neighbourhood. Through this, new links between the physical and social environment have been sought, to grasp a better understanding of the facilitating and shaping role that physical spaces can have on society. This has then been translated into physical design interventions. Through the pattern language, different design interventions have been either hypothesised or backed by research. Through interpreting and spatialising, existing knowledge has been given an extra dimension in terms of urban design.

In terms of scoping the problem and approach to addressing this problem, it has been challenging to address the complexity and holisticity and remain concise. Six different theories, each with their different core qualities have been analysed and backed-up by literature to grasp an understanding of the matter. In total there were six different characteristics which were to be analysed and enhanced through design for to achieve inclusive densification. It has been challenging to interlink all notions. Through the value scheme, linking theories, characteristics, qualities and main objective (inclusive densification) this has been aimed to convey comprehensively. However, looking back at the process, curbing down complexity in multiple stages in the project would have made the challenge more modest. That is to not strive for analysing four different case study areas (as I was planning to do), but just to stick with one. Less is more, in that sense.

Through reflecting on the process, a key lesson is the importance of simplicity and focus. A more modest approach as concentrating on a single case study area instead of four, would have resulted in a less complex and more manageable project. I think the principle of "less is more" is important to embrace later on, as the process of research and design could have been more streamlined, to which the project could have achieved more clarity and impact.

### 5. How do you assess the value of the transferability of your project results?

The project outcomes are a design and a pattern language. Where the design is a tailored context, which cannot (and should not) be replicated elsewhere, the pattern language does hold elements of transferability. The pattern language consists of a variety of singular design interventions which can be implemented at site-specific locations. Whereas transferability is not particularly assessed for the purpose of being transferable in the wider context, the pattern language does give a listing of possible and potential locations for the design intervention to be implemented in the selected site itself. In this process, the range of different possible locations for implementation of each singular design intervention has been generalized through extended specification. And although the generalization is not possible with only one reference study, it is possible through extended hypothesising (Flyvbjerg, 2006). That means, for example the pattern of densifying through horizontal extension is applicable to the following contexts:

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### 6. How could community engagement play a larger role in the development of the design?

As the topic of inclusive densification is a rather social topic, it is important to engage the community when addressing their shared context. The question here assesses my approach towards reaching out to the residents of Mariahoeve: the neighbourhood I used as case to work on.

An existing tool towards participation and community engagement is the ladder of participation. This is a hierarchical framework of the level of participation, ranging from a passive to a highly interactive approach. The level directly related to the influence of the community in the design process (Cornwall, 2008).

If I position the course of the thesis project within the participation ladder, it has mainly stuck in informing and consulting. I spoke to several people on the street and in community centres about the neighbourhood. In the process, a lot of information was exchanged, both from my side (informing) and from the side of the residents (consulting). Active co-producing did not come into play, despite attempts to do so. For this reason, I got stuck within the bottom half of the participation ladder. Informing and consulting are acts of tokenism is, and tends to be, a symbolic effort to be inclusive towards residents (Arnstein, 1969).

On the other hand, related to Open City theory, open spaces are left in the public realm where residents can decide what goes there. For this reason, outside the project, attention was still given to the participatory aspect of neighbourhood development. Although this part is being forwarded from the project, I think for now this is the best solution.

I attempted to volunteer at the community centre for a day. In this, I would attend a neighbourhood dinner, and lend a hand to the organisers in the organisational work involved. During the dinner, I would question residents aintbout the neighbourhood and its social diversity, paired with improvements they envision. However, prior to the idea, I was shown the door due to a bureaucratic error. In the remaining time, I decided to leave this part behind and continue with the design based on the information I gathered from references, theories and analysis. This conscious decision resulted in the lack of the participatory dimension in the process. For this reason, I got stuck in the lower part of the ladder.

Looking back, I learned to ask residents about their neighbourhood, current events and personal needs at an earlier stage. I did this a number of times, and although minimal preparation went a long way, conducting this step more often could provide me the basis to move up the ladder and get to know the neighbourhood better from the inside. From my point of view, it is important to become an insider in a short period of time. I do this by staying curious and giving myself room to make mistakes early on, as I did, and then having enough time to have a second or third iteration/approach ready.

### 7. Where do ethics come into question within the strategy of clustering based on differentiated solidarity?

The aim of the project is to densify inclusively. In order to achieve this aim, it is important to address the components of affordability and social mix within a superdiverse context, while maintaining social cohesion. To answer the question of how we will live together in the year 2050, as an urbanist, the answer cannot be disassociated from virtue ethics. As the topic is a social topic, aiming to look into how an inclusive and socially cohesive superdiverse city can be achieved, mitigating the effects of segregation and social injustices, it is likely that choices made may, despite good intentions, have injustices embedded in them.

As one of the main design strategies is to create pockets of differentiated solidarity, it is important to remain critical of the implementation of this strategy. Differentiated solidarity advocates for a voluntary, fluid, and indistinctly demarcated spatial group differentiation. This strategy has been implemented in the design through the fluid clustering of affordability. Hereby, the strategy considers the socio-spatial composition of housing, as this relates to one of the layers of superdiversity, which would aim at making pockets of likeminded individuals in the neighbourhood. This approach is related to research on the Just City, by political theorist Iris Marion Young, and the Open City by sociologist Richard Sennett. This composition of building affordability is an important mean through which the quality of differentiated solidarity can be afforded. The size of this composition has been related to the theory of optimal community sizes, and places a restriction on the size of clusters in order for it to flourish. Through the fluid clustering of affordability, superdiversity would exist in proximity. The presence of superdiversity raises awareness of all social layers in society, to which all individuals are exposed.

It is necessary to remain wary of functioning as a social engineer when aiming to achieve a social mix which is deemed optimal for achieving social cohesion. However, through determining the composition, and thus to cluster different individuals based on categorization, the absolute choice to be made by the people themselves on where to live is limited. Guiding towards clusters of likeminded individuals through design is an ethically risky proposition. This would prohibit the free choice people have in participating in a kind of solidarity, as the composition of these solidarities are predetermined. It falls within virtue ethics, as the question focuses on how we live together in a context of superdiversity, to which a subtle nudging force to ensure superdiversity is important to achieve superdiversity, and to protect the area from segregation (Jaeger, 2001).

The clustering of housing allows for selective mobility to take place on a local scale, without impairing the superdiverse nature of the neighbourhood. As this is a natural driver in the dynamic nature of social diversity, it has been embraced as a basic premise in the design. On the contrary, the clusters could overshoot its purpose and take over a form of insularity, which is a negative by-product of the spatial configuration, affecting local democracies, and strengthening segregation.

The questions I subsequently would ask would be whether the measures I have taken can be considered sufficient for the visibility of the other to take place? Would it be sufficient for superdiversity to flourish while maintaining social cohesion? Would the fluid clustering for differentiated solidarity turn into insularity?
A way of overcoming this is to implement the democratic principles of the just city in the development of the exact composition to which individuals are exposed to, in terms of social mixing. The participatory aspect is hereby valuable. It is impossible to say how the plan would function in practice. Therefore, as part of the open city concept praises, is the non-linear narrative, and the open-endedness of urban development. The experimental nature of this (kind of) project does not end by the inauguration of the realised plan. It continues after. Things may not work, while other things turn out to be very positive. It is the magic of creating affordances in a complex system that a city with all its urban life is. So pairing up democracy with the spirit of experimentation, the neighbourhood has the potential to evolve and adapt to meet the evolving needs of the community, ensuring that it remains inclusive and responsive to the needs of all.

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# 11. Appendix

1. Literature research
2. Extended site analysis
3. Catalogue of strategic interventions / Pattern language
4. Design sketches

## 11.1 Literature research

### Housing preferences in social diversity

Despite the housing preferences between people from migrant backgrounds and natives are quite similar, the priorities are different. For instance, an owner-occupied house is deemed more important for a native than for a person with a migration background. The attached value to the neighbourhood shows a higher level of importance for a person with a migration background compared to a native (Kullberg et al., 2009). Therefore, there is a need to understand the underlying social logic to understand the deeper layers of segregation. Hillier and Vaughan argue that the formation of urban layout matters in determining how urban spaces acquire social meaning and have social consequences to which individuals attach value (Hillier & Vaughan, 2007).

### Social segregation through selective mobility

Selective mobility is partly determined by an individual's familiarity and relatability between people and place. This often drives clustering between people in an intragenerational timeframe. Households by choice, tend to settle in or move to neighbourhoods with like-minded people in terms of income and ethnicity (Van Ham et al., 2016). This collective group affinity may result in spatial clusters of lifestyle enclaves (Talen & Lee, 2018). Also, the probability of an individual choosing a place of residence tends to be similar to the place where they grew up (Feijten et al., 2008). This increases the likelihood of intragenerational sorting of like-minded individuals through spatial configurations. However, contradictory driving forces to these distributive patterns are - despite many residents of segregated neighbourhoods who desire better housing, transportation access, and public parks - that some individuals may be hesitant to integrate with unfamiliar individuals who may not fully appreciate their cultural institutions and social networks (Young, 2002; p218). Therefore, the concept of differentiated solidarity may aid in overcoming this phenomenon of natural clustering based on affinity.

Another part of selective mobility is the realization of the desire to move out of a certain neighbourhood. This kind of sorting is heavily influenced by market conditions. In comparison to natives, non-Western minorities are less likely to achieve their desire to move out of their neighbourhood, regardless of the neighbourhood characteristics. This inability to move out of neighbourhoods with a high ethnic minority concentration is often maintained through discriminatory market practices and affordability. The consequence of these processes is an increase in segregation levels (Boschman et al., 2016). As minority populations are often of a lower economic class, they tend to populate poorer areas. Hence, socioeconomic segregation is the result of poverty and inequality, together with the urban housing market (Van Ham et al., 2016)(McAvay & Verdugo, 2021).

## Social segregation through distribution of public goods

According to Richard Florida (2017; p. 137), the distributional patterns of public goods and opportunities can be considered the main factors driving residential clustering in terms of socioeconomic class. The four factors he mentions are:

- Proximity to the urban core;
- Proximity to public transport;
- Proximity to knowledge-based institutions (e.g. universities);
- Proximity to natural amenities (aesthetically pleasing locations, e.g. parks and waterfronts).

Florida's conclusions are based on a North American context, which may differ from a European context. Despite the context difference, the core of these factors contain attributes towards accessibility, education and multiplicity of amenities, which is each an own form of public good.

There is however the danger that improving living conditions in (former) impoverished areas may bring undesirable patterns in selective mobility, as to influence the migration patterns in the community. It may attract individuals from outside the area to settle there. As Young states, *"It is fair to say, moreover, that at least to a certain extent, the predominantly white neighbourhoods and communities often have such amenities because the segregated neighbourhoods do not"* (Young, 2002; p207). This pattern is evident in North American cities (The Guardian, 2019). Therefore, it is important to be aware of signs of gentrification when dealing with the upgrading of certain neighbourhoods.

According to Massey (1990), an increase in poverty amongst a minority group leads to a concentration of deprivation in a segregated city. Deprived clusters, in turn, attract high crime, high mortality rates, high welfare dependency and lower-quality schools. Wealthier citizens have the privilege of moving, as they have more choices competing in the housing market, whilst the poor stay put (Florida, 2017)(Van Ham et al., 2016)(Haandrikman et al., 2021). Segregation thus undermines the principle of equal opportunity for all, for example by inhibiting equal competition in the housing market, as well as limiting access to public goods in the vicinity (Young, 2002; p205).
In short, liveability may then be at stake for a select group of individuals. Therefore, it is important to be aware that segregation has the potential to create a self-perpetuating cycle, which may require ongoing vigilance to prevent reaching a critical point.

To enhance equity, it is important to ensure distributional justice in urban planning and design. The following principles should be met to raise standards in a just way:

1. It is recommended that fares for intracity transit be kept at a reasonable level to support low-income individuals who rely on public transit. Governments can affect income distribution by taxing automobiles and by designating transit support. The low-income individuals who are not covered by public transit, but rely on commutes by car should receive tax deductions.

2. Large infrastructure or neighbourhood developments should be examined thoroughly and provide benefits to low-income individuals, as well as make room for incrementality and multiple ownership in the project. These benefits can be achieved through the provision of employment opportunities, public amenities, and a living wage. Additionally, it is crucial to encourage public participation in the process (Fainstein, 2010; p173).

3. Households or businesses should by no means be involuntarily relocated, only for exceptional circumstances. If deemed necessary for the construction of public facilities, to improve housing quality, or to accommodate additional population densities, it is important to ensure that adequate compensation is provided to the dislocated individuals. This compensation should be sufficient to enable them to occupy an equivalent dwelling or business site, regardless of whether they are renters or owners, and should not be based solely on the market value of the lost location (Fainstein, 2010; p173).

4. Economic development programs should give priority to the interests of employees and, where feasible, small businesses, which generally are more locally rooted than large corporations (Fainstein, 2010; p173). All new commercial development should provide space for public use and when possible should facilitate the livelihood of independent and cooperatively owned businesses, as these are deemed very important for sustaining a socially diverse mix of individuals (Talen, 2008).

For the improvement of procedural justice, it is important to enlarge democracy. The following principles should be met to raise standards in a just way:

1. The key values of a democratic city include equal opportunity, freedom of movement, and the elimination of discriminatory barriers in contemporary urbanised democracies (Young, 2002).

2. Institutionalised citizen participation provides local knowledge and greater democracy, but it does not create more equitable outcomes per se. It does tend to be dominated by the most articulate, educated, and well-to-do. It can lead to insularity, and in extreme cases to corruption and cronyism.

3. Plans should be developed in consultation with the target population if the area is already developed. The existing population, however, should not be the sole arbiter of the future of an area. Citywide considerations must also apply.

4. In planning for as yet uninhabited or sparsely occupied areas, there should be broad consultation that includes representatives of groups currently living outside the affected areas.

## Factors facilitating and obstructing social interconnections

Second and third places are similar in contributing to segregation in a path-dependent way. For the workplace, it may relate to the effects of labour market segmentation, as well as the proximity between place of work and residency, and the network effect (Piekut, 2021). The latter creates segregation based on existing social contacts between people. Some individuals find employment through their social network. As many people tend to have a relatively homogeneous social network, this can result in a rather homogeneous workplace. Also, research conducted by Piekut concludes that residential segregation positively correlates to workplace segregation (Piekut, 2021). The effect of labour market segmentation segregates people through the division between the primary secondary sector, for which the lower educated often find a job in the secondary sector (Åslund & Skans, 2010). This sector consists of low-wage jobs requiring no or little education, in contrast to the primary sector. Many immigrant workers acquire themselves a position in the secondary sector, among other immigrants and low-skilled natives (Piore, 1986). Homogeneous workforces often experience more trust and cooperation between individuals, whereas heterogeneous workforces may experience conflicts, but are more adaptable and innovative (DiTomaso et al., 2007).

For leisure and social (i.e. third places) segregation, the same underlying mechanisms as for workplace segregation exist (Heringa et al., 2017). Leisure time segregation is also linked to residential segregation, as most people spend their free time in areas close to their home (Piekut, 2021). These third places often congregate a homogeneous group of people. For instance, a mosque brings people of a certain religion together, mainly from a similar cultural background. Despite it not actively excludes people who do not practice this religion, it does alter interaction patterns between inter-ethnic communities. A wider range of meeting places, with each group having their own represented space, can further facilitate segregation as inter-ethnic interactions are less likely to occur in such settings (Heringa et al., 2017).

Thus, offering choice to a certain extent facilitates segregation through the natural tendency of homophilic interactions and tie-formations. To have inter-ethnic interactions only happen in public space, where contacts are superficial, may reinforce prejudice and possibly intolerance. In turn, it may threaten social cohesion in socially diverse urban societies (Vertovec, 2007).

Another trend influencing segregation through social interconnections, that has been evident in the Netherlands for the past 50 years, is the increasing proportion of highly educated women (NOS, 2015). The Dutch are consciously looking for a partner with a similar level of education. According to Jan Latten, young people are becoming more critical about who their partner will be, and more concerned about improving themselves by finding a partner with at least the same qualities. Online dating platforms facilitate this development. In particular, dating for the more educated reduces the number of couples from different educational levels. In the long run, this increases the contrast between families, as there are more 'super couples'. In these, both are highly educated, have good jobs and high incomes. The success of the children is thus strongly affected, as is the contrast between the disadvantaged and the advantaged (Van Lieshout, 2018).

This process in part goes together with another driver of segregation, that of schools. Schools are highly segregated in the Netherlands (Boterman, 2013)(Van Ham, 2023). According to research conducted by Boterman (2013) in Amsterdam, this is due to three aspects:

1. Cities are superdiverse;
2. Public and private education is almost fully funded by the state;
3. Parents are free of choice in selecting their child's school.

The latter also shows that the relation between proximity to the school is inferior for the choice of some parents. Larger superdiverse cities offer a larger range of schools with different types of education. Some of these types appeal more to some parents than others. The choice of school have influence on the children later in life, as they acquire their first social relations, and develop themselves.

Another cause of segregation, which is related to social interconnections, but is influenced by the spatial characteristics of urban clusters, is that of car-dominancy which produces decentralisation. Especially if taken into account the privilege of owning a car is not as mainstream for the lower class residents, who have to rely on public transport. It may boast clusters based on the proximity of natural amenities and knowledge institutions (Florida, 2017).
According to Zef Hemel (2023) The Hague is the most car-friendly city in the Netherlands. This is mainly due to the fact that public transport accessibility is weak outside the city's central area. Rather, a walkable local environment can boast the quantity of spatial social formations, as walkability boasts sociability (Sim, 2019). An additional element to this is that repetitive interaction between people can build trust among them (Latham & Layton, 2019). A highly walkable environment may therefor influence the level of segregation, especially in an environment with many small homogeneous clusters. As in the Netherlands, often streets are homogeneous, the neighbourhoods can be considered an aggregation of many different streets, which make for a heterogeneous whole. Walkability can bridge this gap. The physical design of a neighbourhood can therefor influence local scale sergegation.

## Psychological mechanisms towards space's social logic

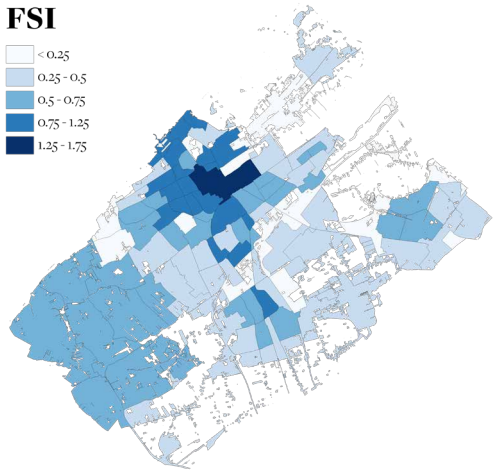
In every society, individuals learn principles and develop behaviours accordingly, even if they contradict the accepted norms of order (e.g. jaywalking). These intuitive principles are called knowables, and the ability to behave according to this normative behaviour is what is called knowability, which is the recognition of spatial patterns. This knowability is related to whether an individual is capable of reducing the morphology to combinatorial principles. These principles are called syntax and are considered the most important property of a morphic language (Hillier & Hanson, 1984). However, with increasing superdiversity, people with different backgrounds may have a different way of reading space. This is due to the differences in knowables. Some of these principles are however universal but differ related to an individual's exposure to certain morphological attributes. Research has pointed out that in the early stages of development, children first acquire concepts related to proximity, separation, spatial succession, enclosure, and contiguity (Hillier & Hanson, 1984; p47). All the syntaxes in the urban realm, which are not (or delibaretely made) contradictory, makes the urban realm legible. In a superdiverse context, a sense of intuition may differ per person. It is important to acknowledge that different individuals have different visual-spatial awareness and differing abilities towards perceiving spatial cues in public spaces (Knowles, 2012).

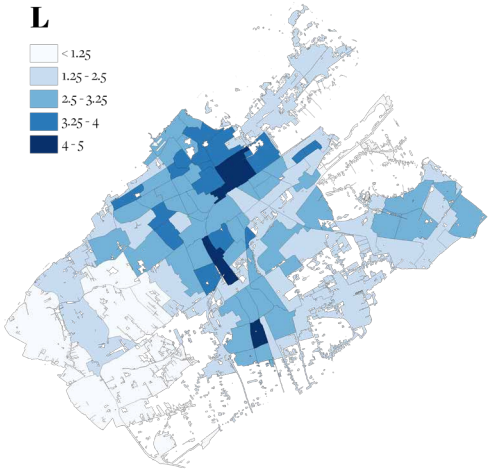
The syntaxes enable the brain to retrieve descriptions of them, for which normative behaviour is evoked. The collective behaviour of individuals towards syntaxes is called a discrete system, which establishes internal order. This collective behaviour and its reproducible order is called an arrangement, of which the syntaxes are the basic forms of order. Essentially, an arrangement extends spatial integration into the realm of transpatial integration. Individuals who enter into different kinds of relations in space-time can reproduce these relations by retrieving descriptions of the ordering principles of these relations (Hillier & Hanson, 1984; p51).

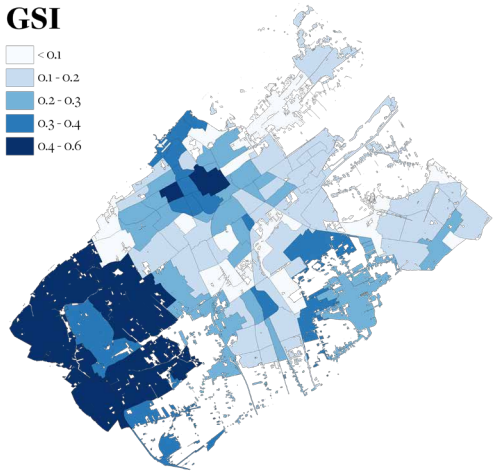
Within the discrete system, every individual has an inherent mechanism towards retrieving descriptions from space, through the syntaxes. The description retrieval mechanism is an individual's ability to sense its spatial context. These descriptions, if retrieved stably, hold meaning towards the individual (Hillier & Hanson, 1984; p50). Through the accumulation of these relational identities in space-time, societal patterns can arise which can also become built into the morphology by description retrieval. Even the most arbitrary human creation is not prone to the syntactic laws. Therefore, the morphology can be manipulated to evoke certain behavioural outcomes through retrieving knowability (Hillier & Hanson, 1984; p54).

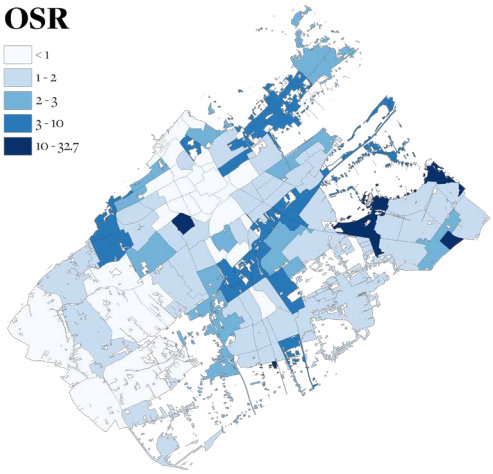
The theory considers both space organisation and social encounter patterns as morphic languages, as both construct a social theory on morphology and as both require understanding the relationship between the syntactic principles (Hillier & Hanson, 1984; p50).

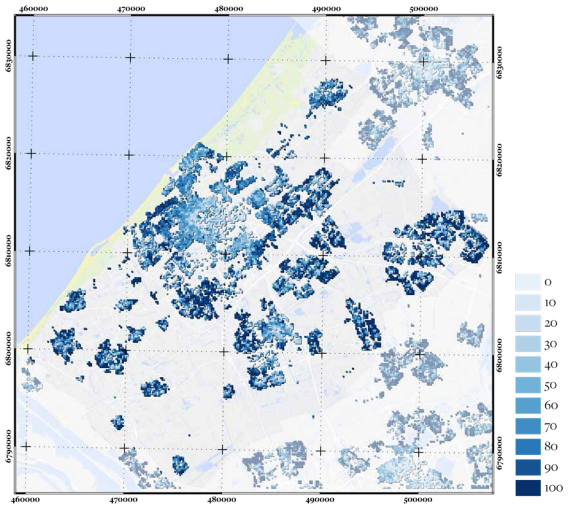
## 11.2 Spatial analysis



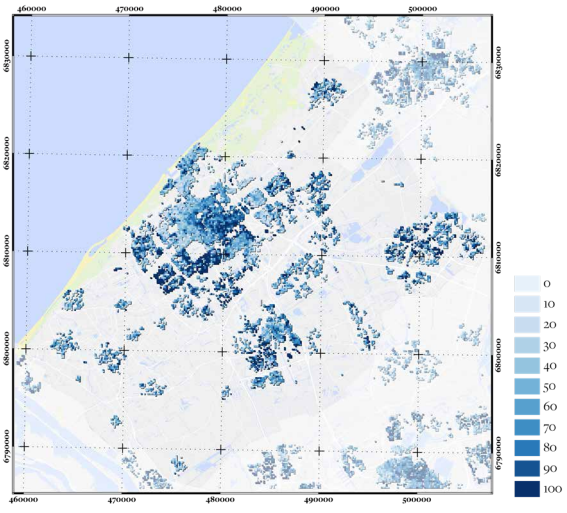



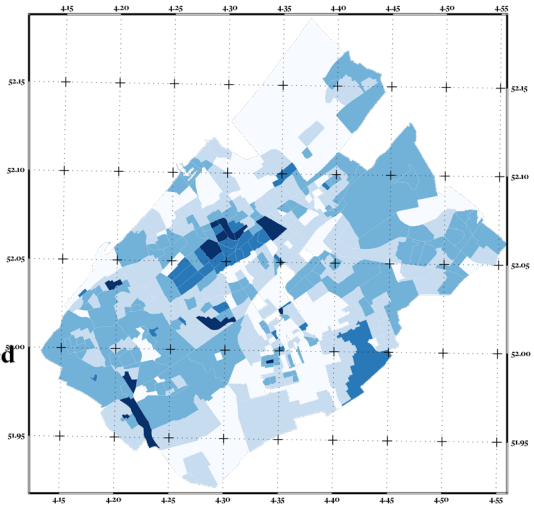

*Percentage of owner-occupied homes*




*Percentage of rental homes*

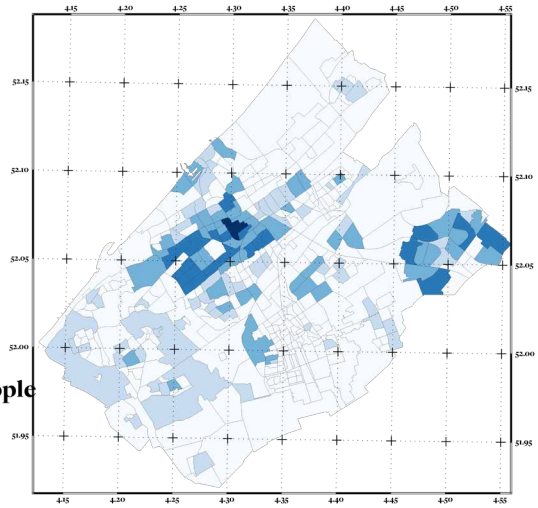
**Percentage of low-educated people**

< 10%
10% - 20%
20% - 30%
30% - 40%
40% - 60%



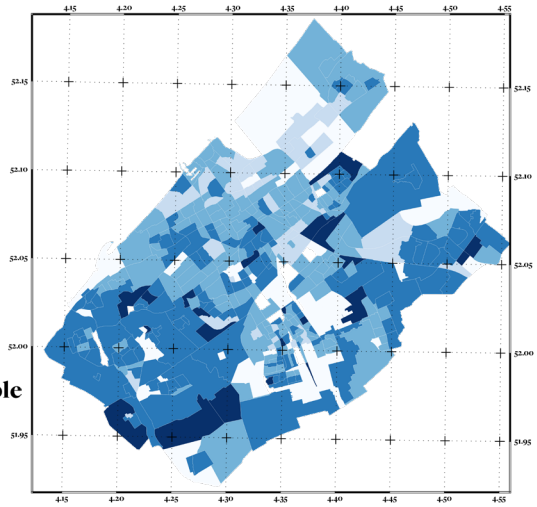

**Nr. of low-educated people**

0 - 500
500 - 1000
1000 - 2000
2000 - 4000
4000 - 6000



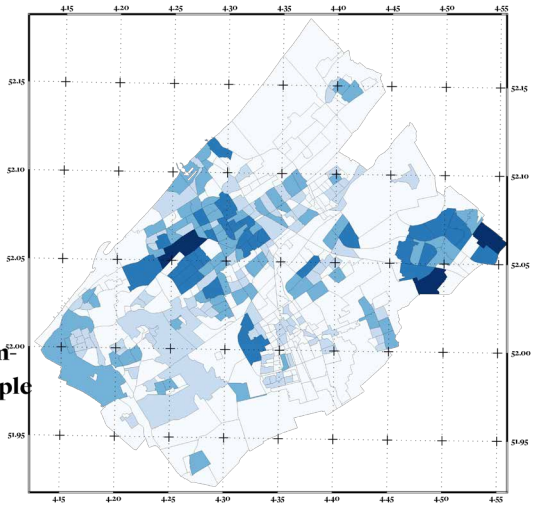

**Percentage of medium-educated people**

< 10%
10% - 20%
20% - 30%
30% - 40%
40% - 60%



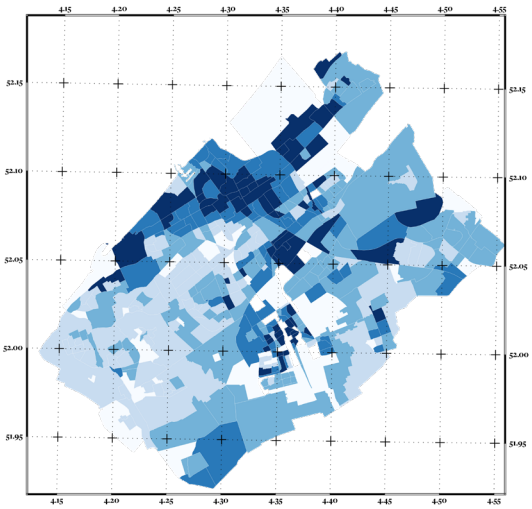

**Nr. of medium-educated people**

0 - 500
500 - 1000
1000 - 2000
2000 - 4000
4000 - 6000



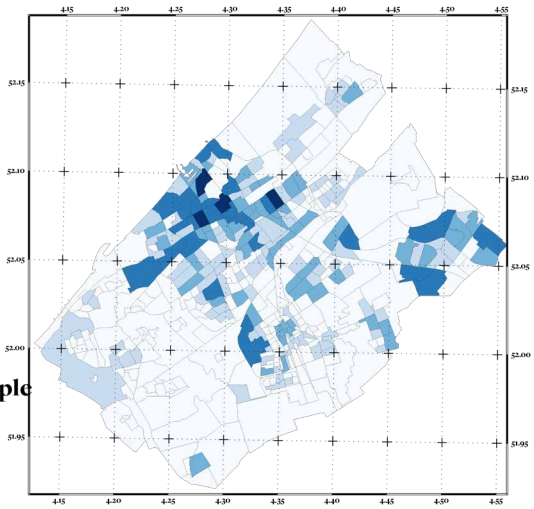

**Percentage of high-educated people**

< 10%
10% - 20%
20% - 30%
30% - 40%
40% - 60%

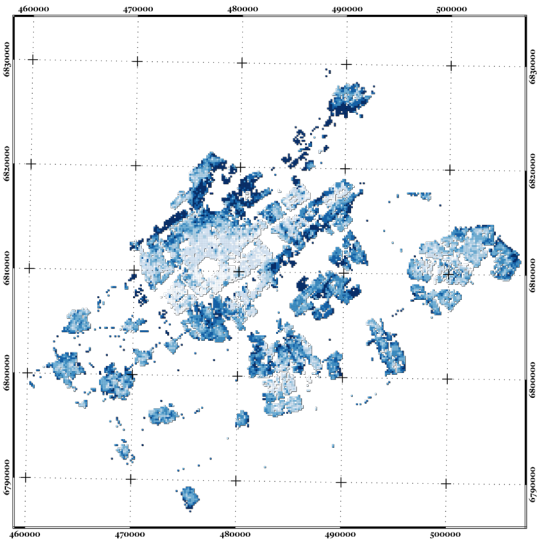



**Nr. of highly-educated people**

0 - 500
500 - 1000
1000 - 2000
2000 - 4000
4000 - 6000




*Proportion of individuals from different educational levels in the Haaglanden Region.*




*WOZ value in Haaglanden*

## Distribution of embedded wealth

Related to socio-economic diversity, wealth is also embedded in the spatial structure. This spatial structure of distribution of wealth affords the distribution of socio-economic classes. The social and the physical exert influence.

The map left shows the WOZ value in the region of Haaglanden. This value indicates the housing stock value in a certain area. The neighbourhoods with the lowest average WOZ values are:

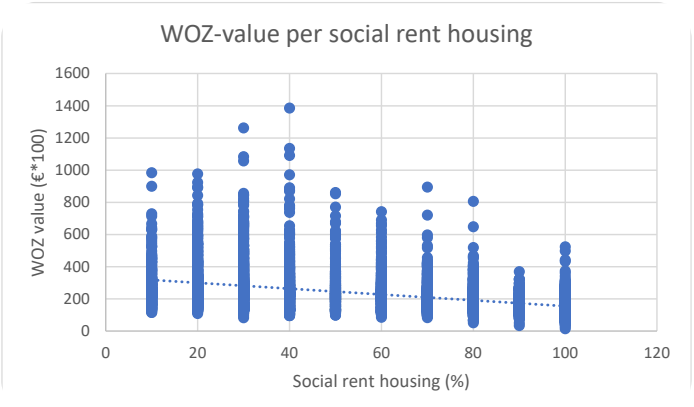
1. Moerwijk Oost - Hague 106
2. Rivierenbuur Zuid - Hague 113
3. Rode Dorp - Delft 114
4. Moerwijk West - Hague 114
5. Moerwijk Noord - Hague 115

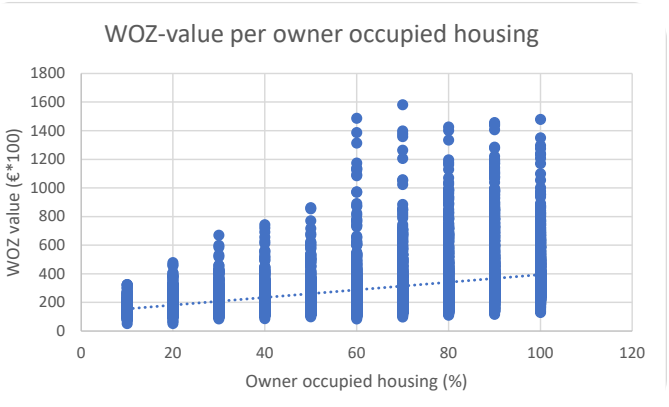
The neighbourhoods with the highest average WOZ values are:

1. Clingenbosch - Wassenaar 898
2. De Paauw - Wassenaar 818
3. Nieuw-Wassenaar - Wassenaar 677
4. Waalsdorp - Hague 632
5. Leeuwenbergh - Leidschendam 620

The charts in Figure 51 indicate that the percentage of social rent housing and/or owner occupied housing has a correlation with the WOZ value in a neighbourhood. Therefore, it shows spatial justice is in part at stake as there is embedded money in the urban environment to those who can afford to surround themselves with.

The image on the right page shows a 1:60.000 satellite image of the wealthiest and most poverty-stricken neighbourhoods in the Haaglanden region. The measure for these neighbourhoods is the average WOZ value. There are 14 neighbourhoods with an average WOZ value below €129.000, and 13 neighbourhoods with an average WOZ value above €500.000. A pattern that can be seen is that wealth is rather scattered at the periphery, whilst poverty is fairly concentrated in urban areas.




*WOZ value per housing type*

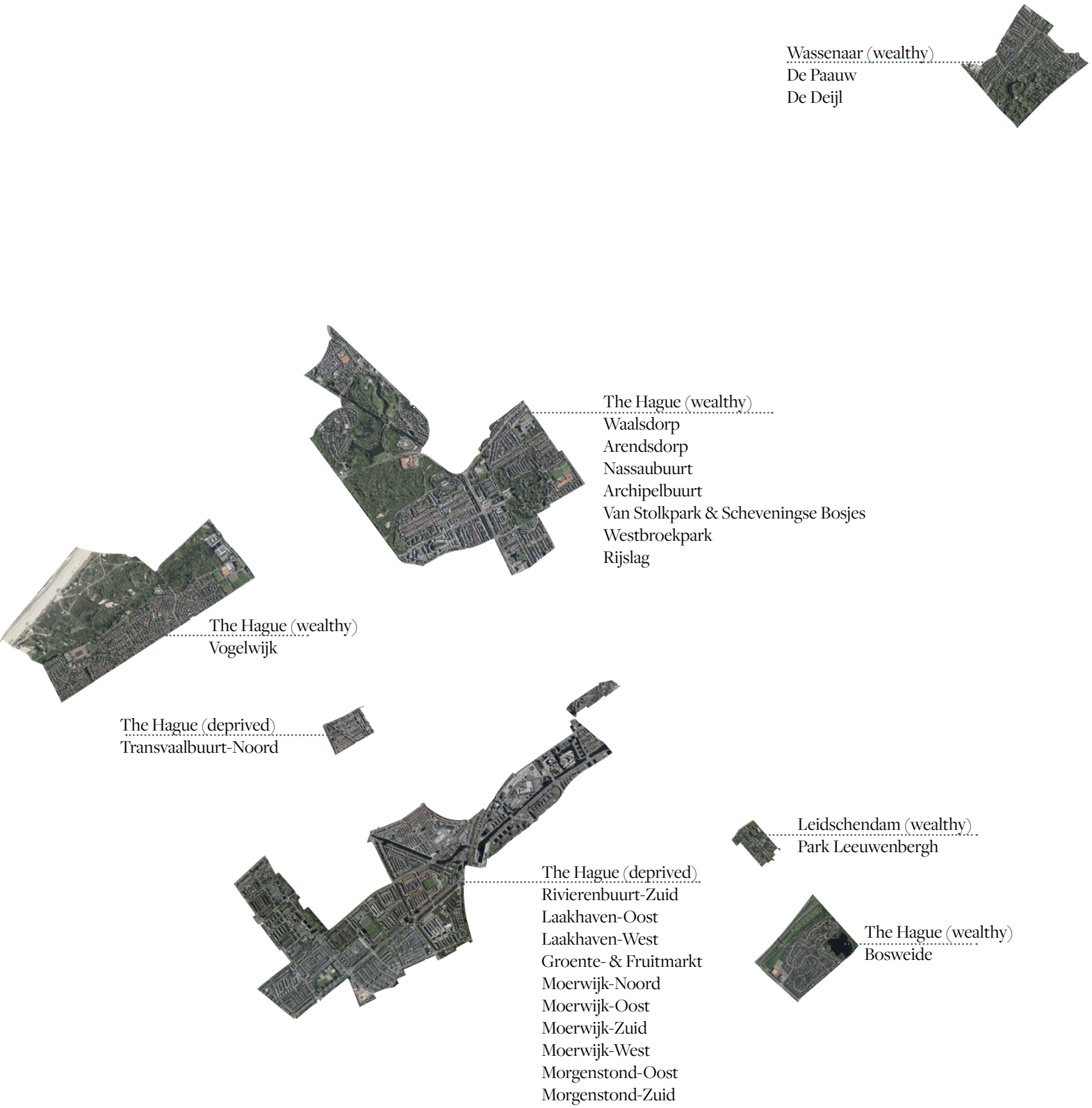
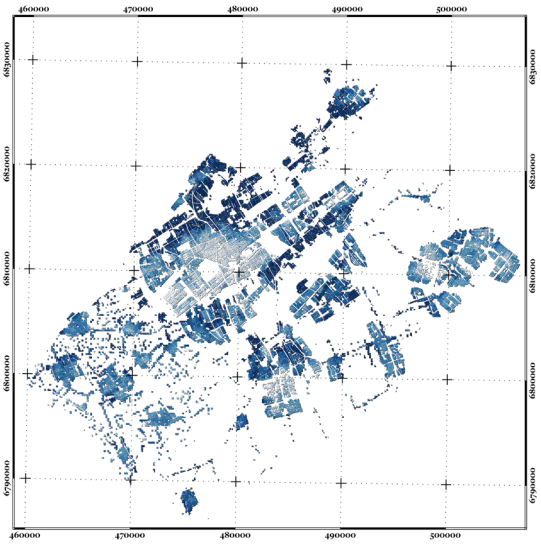



***Figure 52***
***Satellite image of the most privileged and disadvantaged neighbourhoods in the Haaglanden region***




*Liveability score in Haaglanden*

## Liveability in Haaglanden

The liveability score assesses the living environment based on basic needs and living comfort. This includes social cohesion, amenities, housing stock, physical environment and safety. Therefore, it serves as a general indicator for the just city theory.

The map on the left shows the liveability score in the region of Haaglanden. The neighbourhoods with the lowest score are:

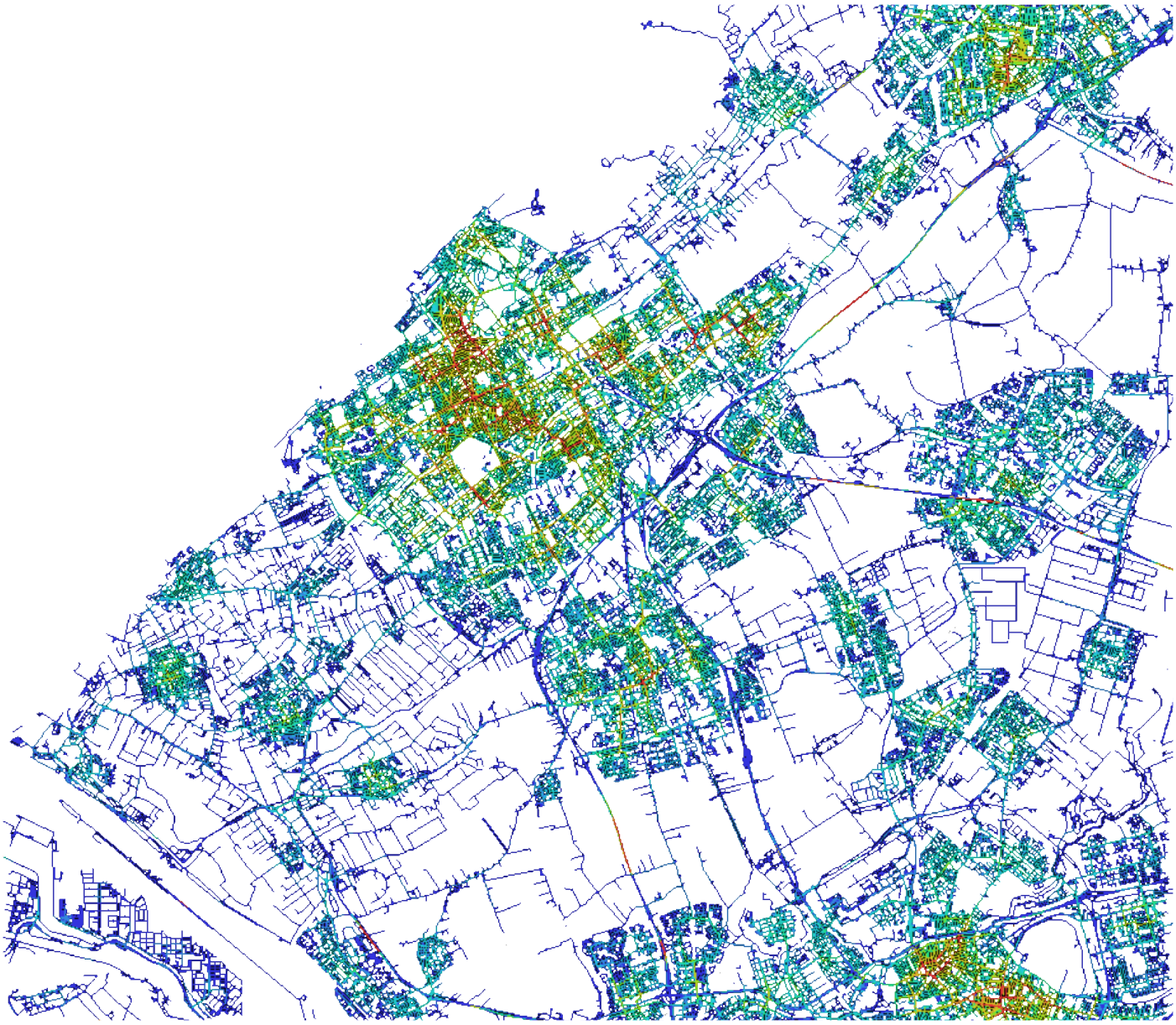
1. Transvaalkwartier-Zuid - Hague 2.4
2. Gillisbuurt - Delft 2.6
3. Transvaalkwartier-Midden - Hague 2.9
4. Oostbroek-Zuid - Hague 3.0
5. Fledderusbuurt - Delft 3.1

There are 30 neighbourhoods with the highest score of 9. Many of these are situated in the Hague and Wassenaar, alongside the sea in the dunes. These liveability scores show a clear correlation with where wealth is situated. Both through socio-economic class and WOZ value.

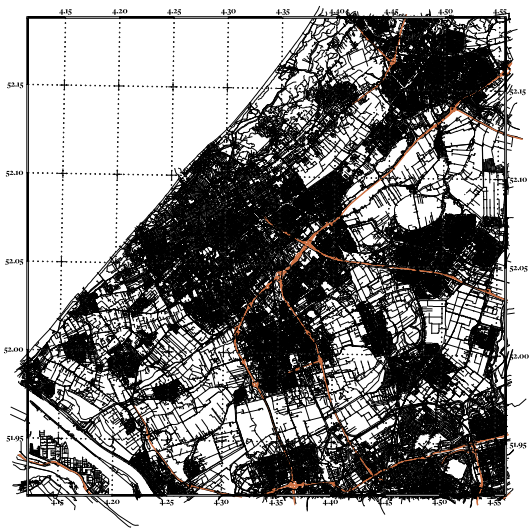
## Space Syntax

Related to the open city concept and the social logic of space, the space syntax theorises which parts of the street network are the most integrated within the whole of the network. Hereby, it measures the depth of the individual streets in relation to the whole network. Naturally, the city centres are the most integrated streets. These are the front sides where most publicness is situated along.

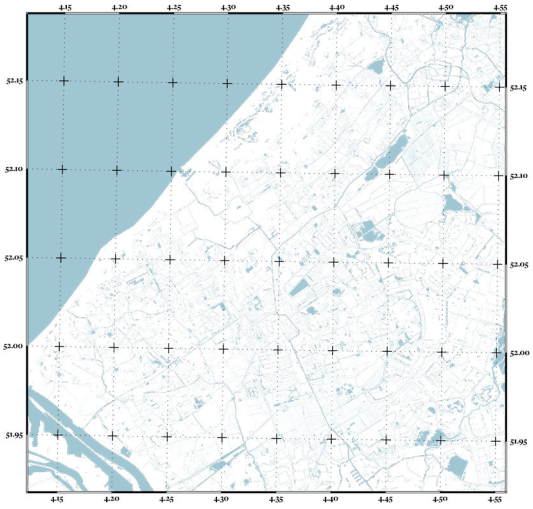
Figure 54 shows with a distance value of 1000 metres which streets are most and least integrated. The Hague has a network of streets which contribute to the access of many services, as these are conveniently located along these highly intergrated lines. The same counts for smaller cores and centres of suburban neighbourhoods. Service distribution is often aligned with space syntax, as the most integrated lines are often the most accessible to greatest majority of people.



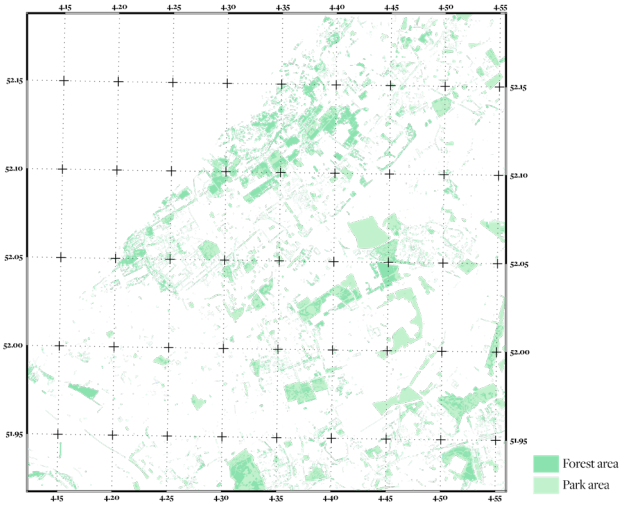
*Space syntax integration 1000m*



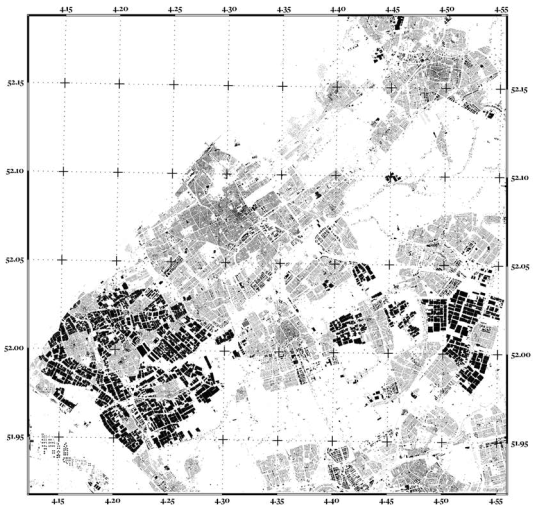

*Road structures*



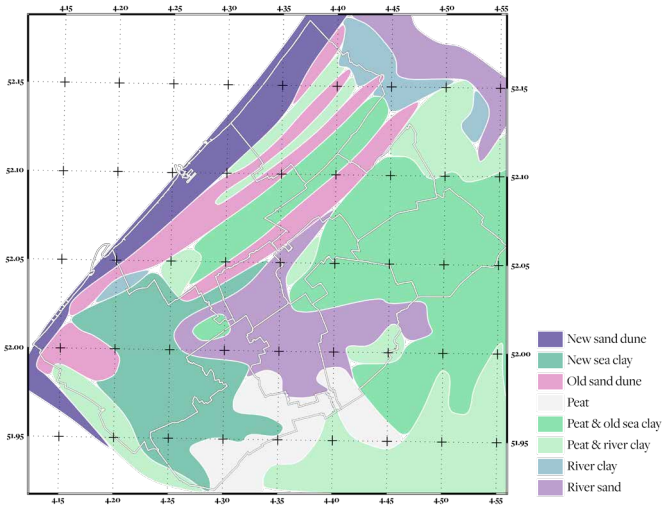

*Water structures*



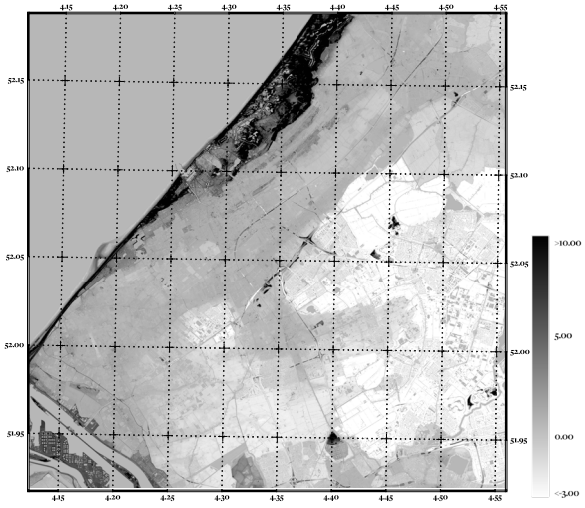

*Recreative green structures*




*Urban fabric*

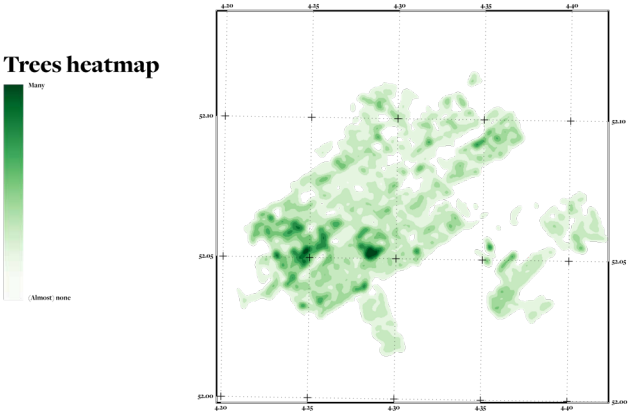


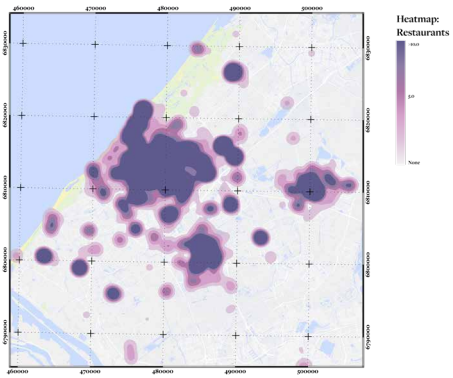

*Soil types*

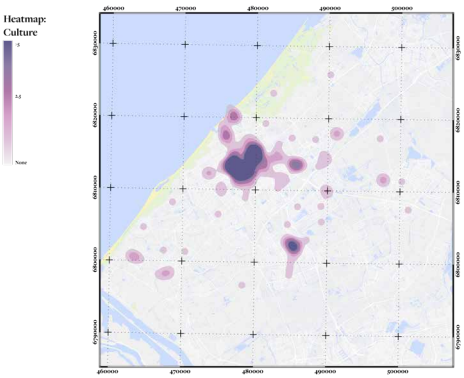


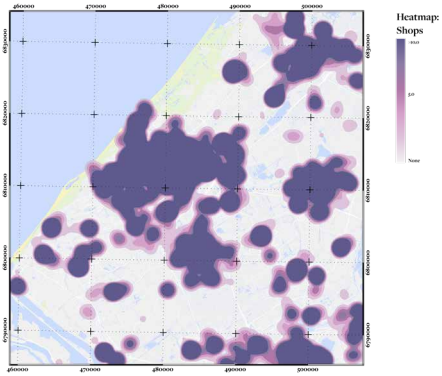

*Elevation levels*

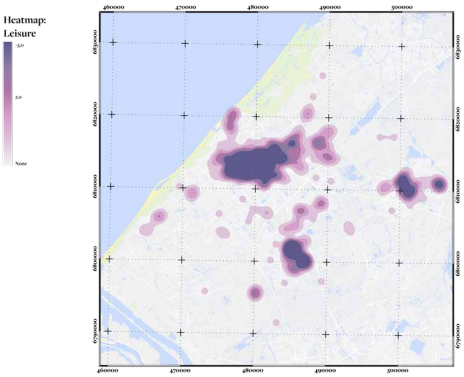
Heatmap of amenities & services

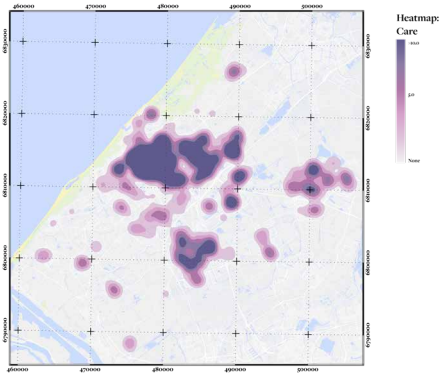


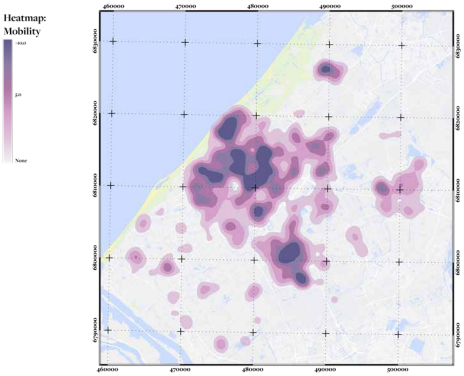



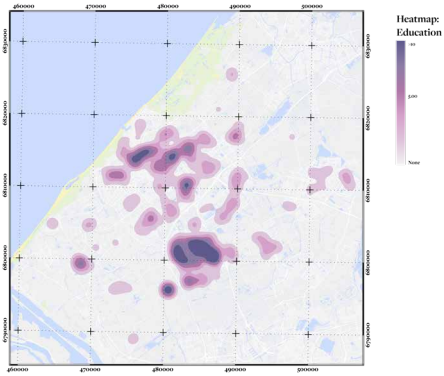



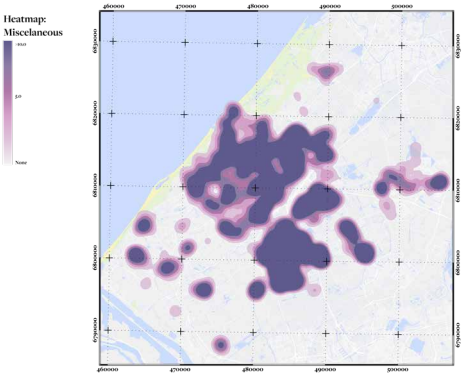



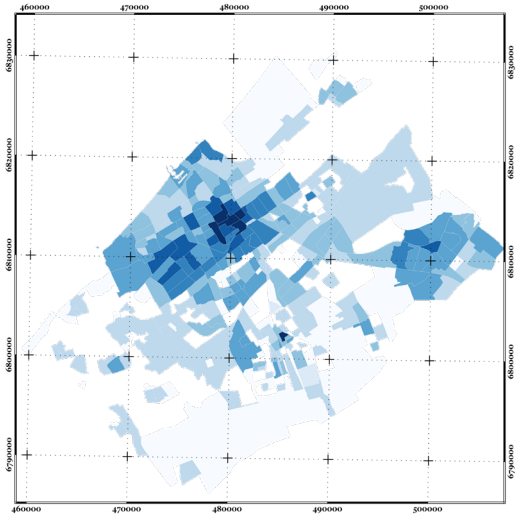



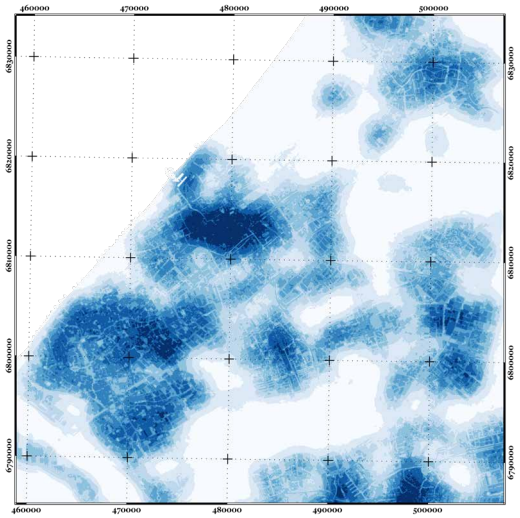



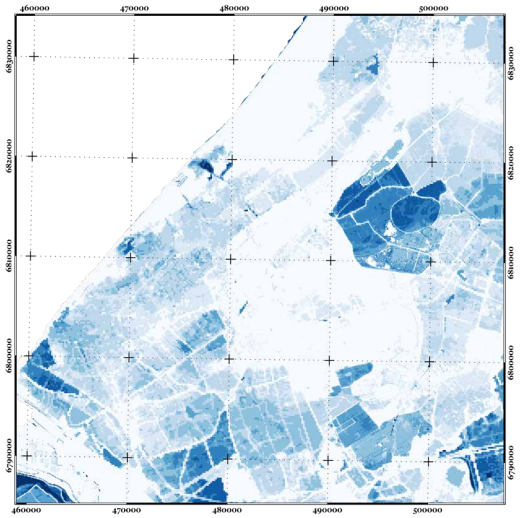



It's clear that wealthier areas tend to have less crime, a lower urban heat island effect, and a lower risk of flooding, while less affluent areas generally experience more crime, a higher urban heat island effect, and a greater risk of flooding. Also, it's worth mentioning that subsidence is no longer a concern in The Hague, but vulnerability to subsidence begins at a distance of 6 to 10 kilometers inland from the sea.

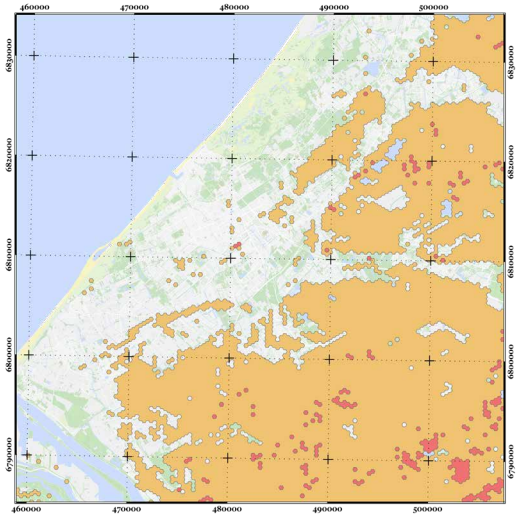
*Haaglanden crime frequencies*



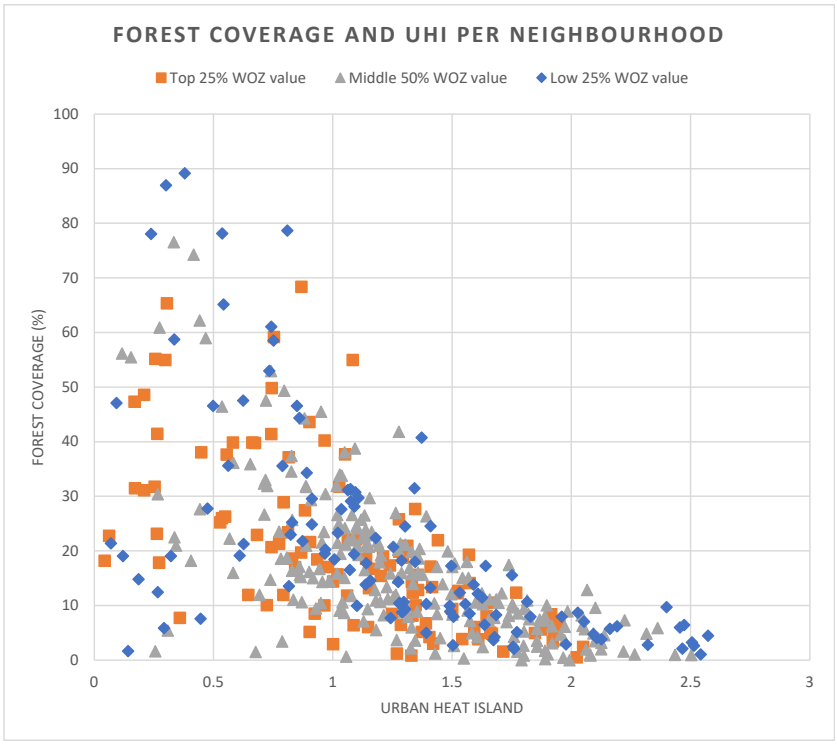

*Haaglanden UHI*




*Haaglanden flood risk (dike breach)*



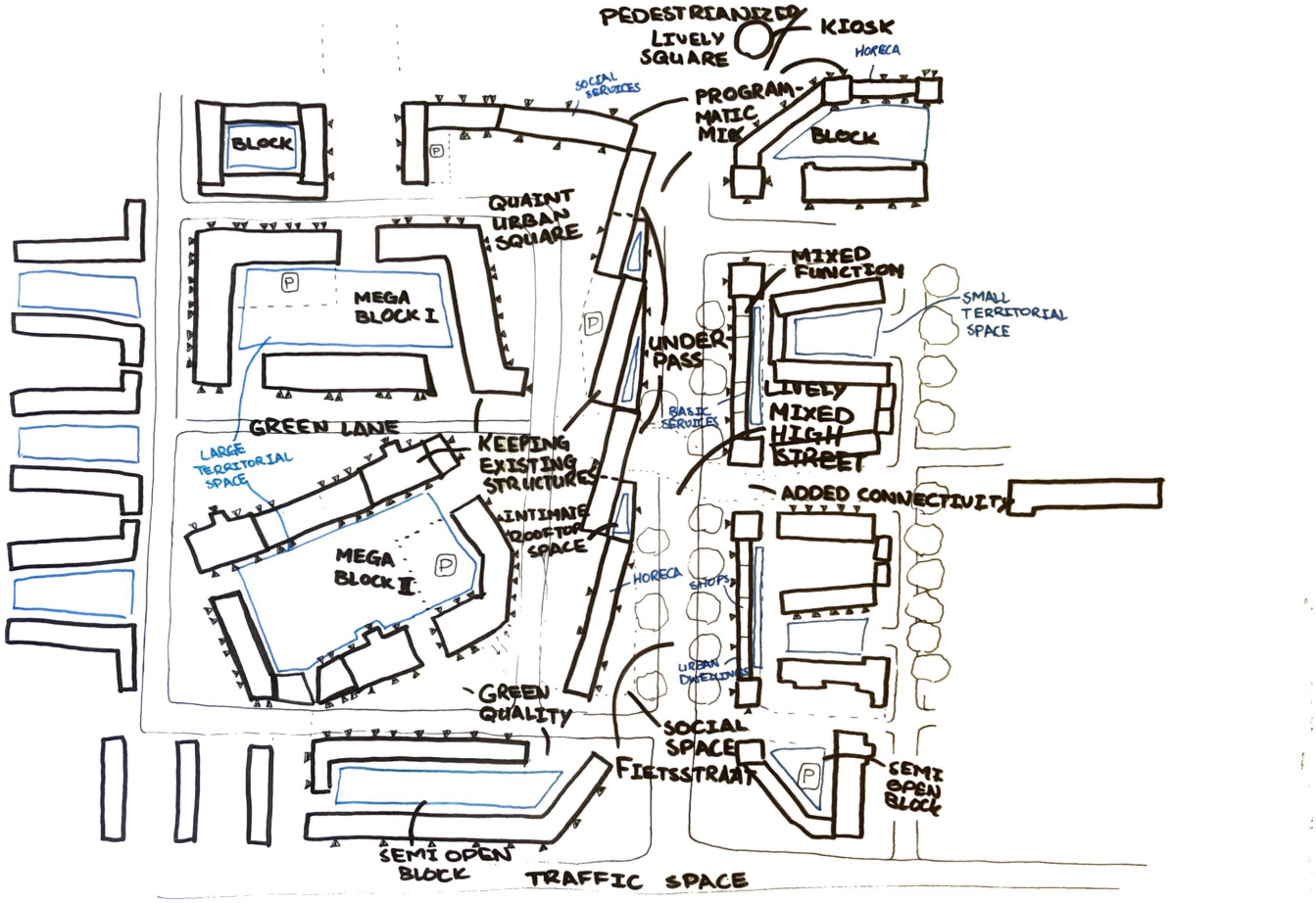

*Haaglanden subsidence risk*



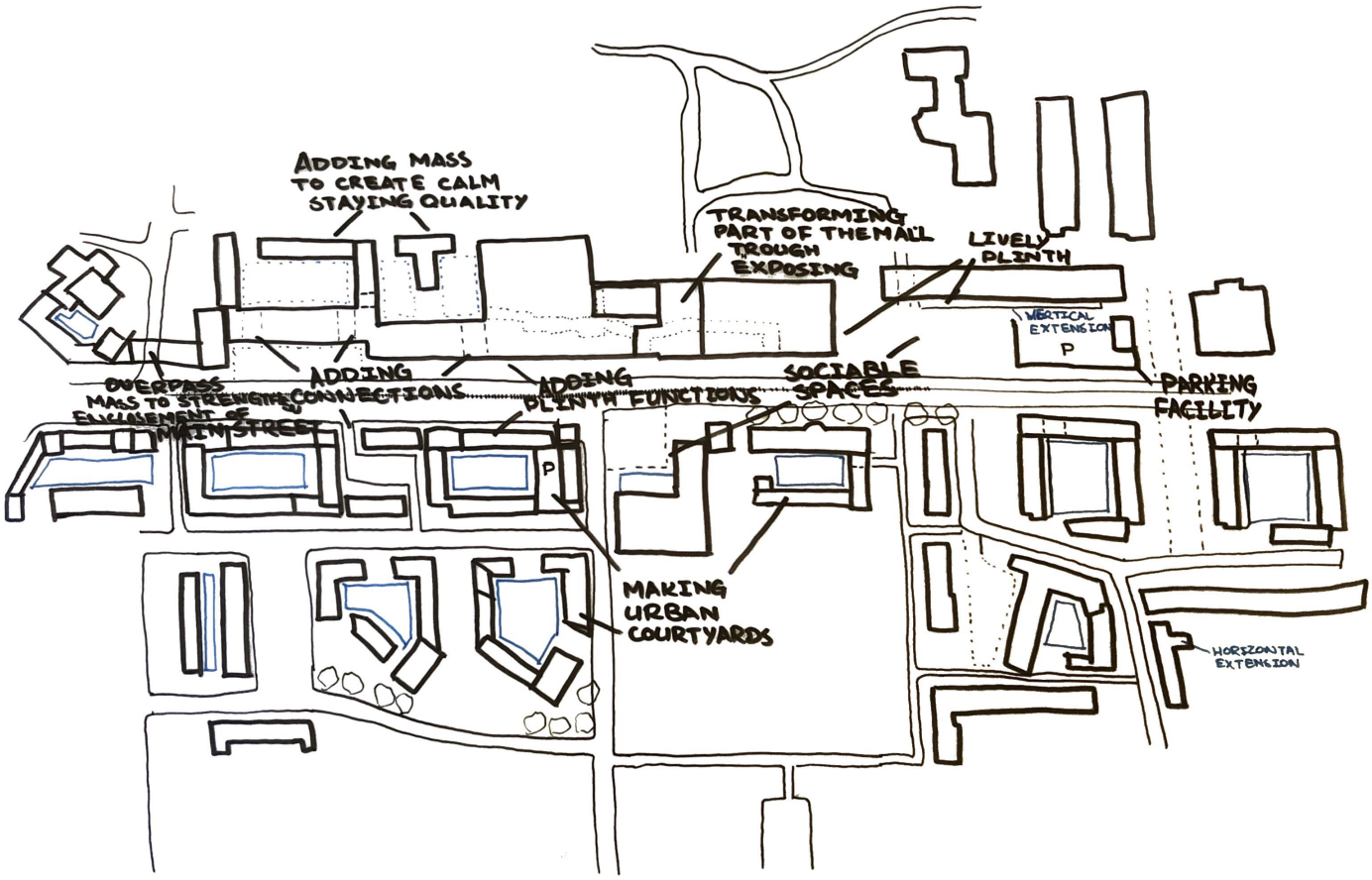
## 11.3 Design sketches

For the densification of Mariahoeve, the densification structure plan and urban quality plan have been used as foundations. Elaborated design proposals have been made for the Southernmost parts of Mariahoeve, including a main street (which is now a traffic corridor. This will be called the Reigersbergenweg and hinterlands.
The second plan is the already main street of Het Kleine Loo, running through Mariahoeve as a central spine. Inclusivity will here be enhanced through the measures surrounding connectivity (and permeability), visibility,legibility and diversity. All while being densified. Reigersbergenweg acts as a cross main street, branching off of Het Kleine Loo.

For the first, the main strategies as mentioned in chapter 6 will be implemented, combined with the patterns which have been derived through the design research. The second has not been elaborated further upon.



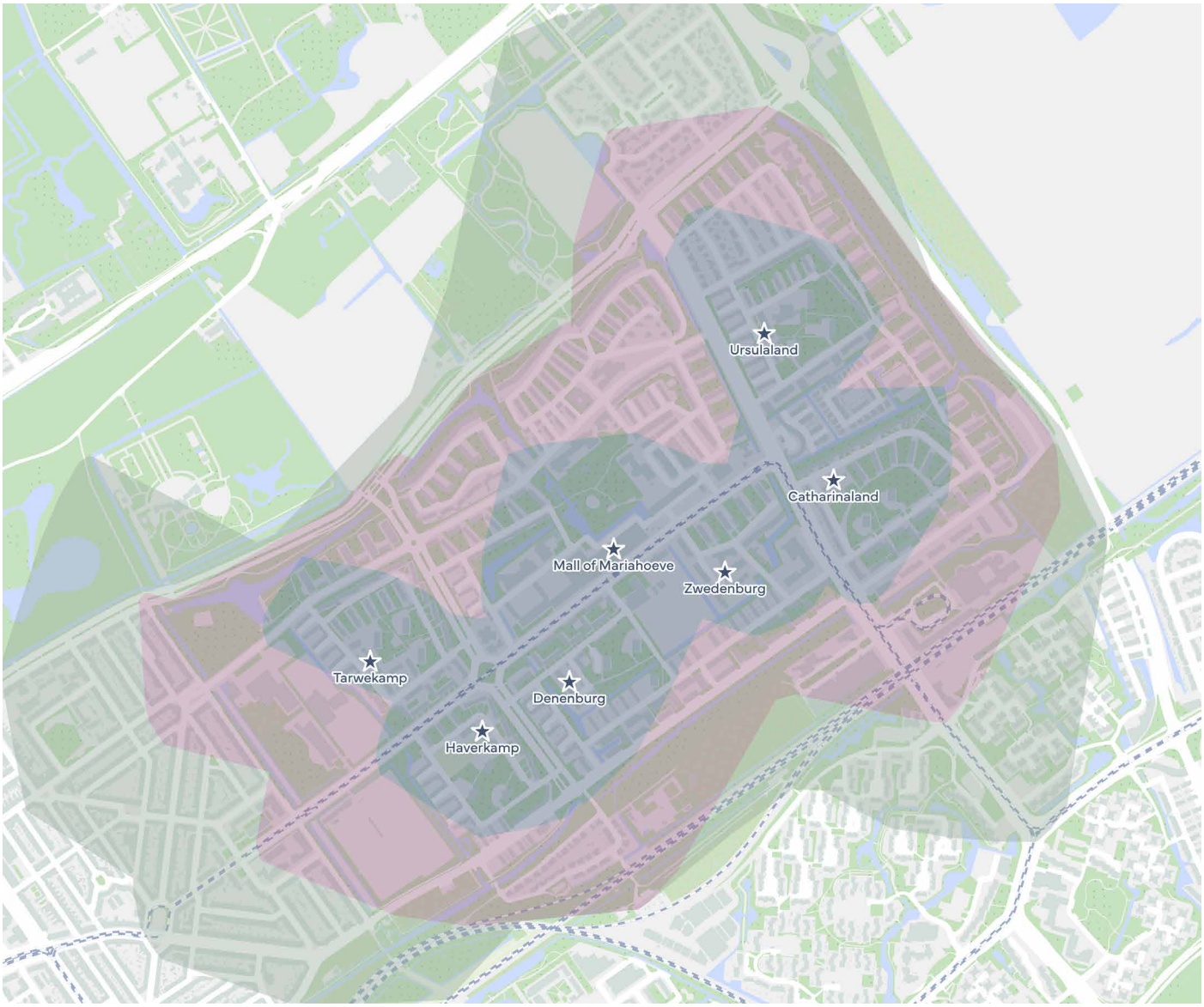

*Sketch of Reigersbergenweg and hinterlands*

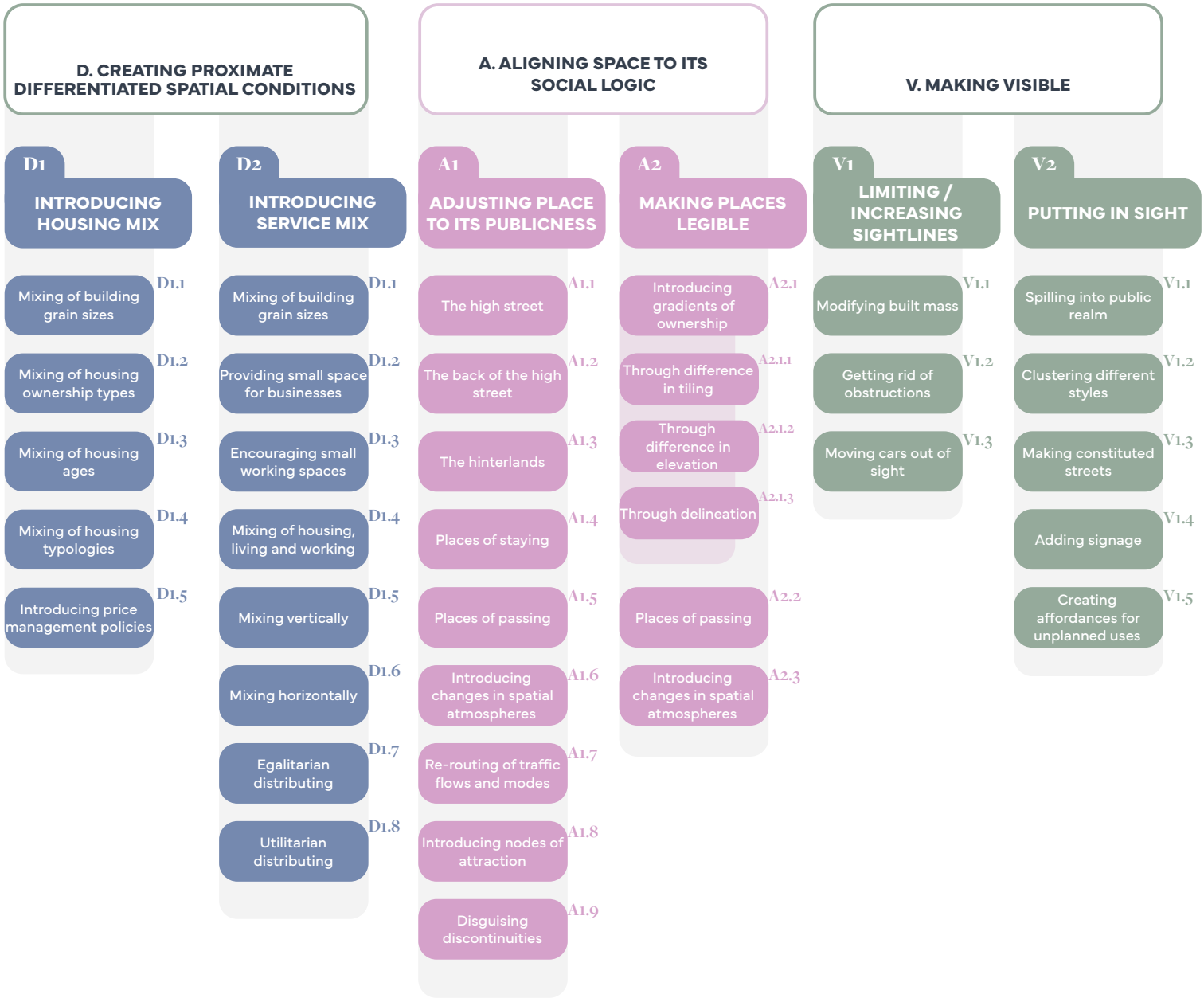



*Sketch of Het Kleine Loo as main street*

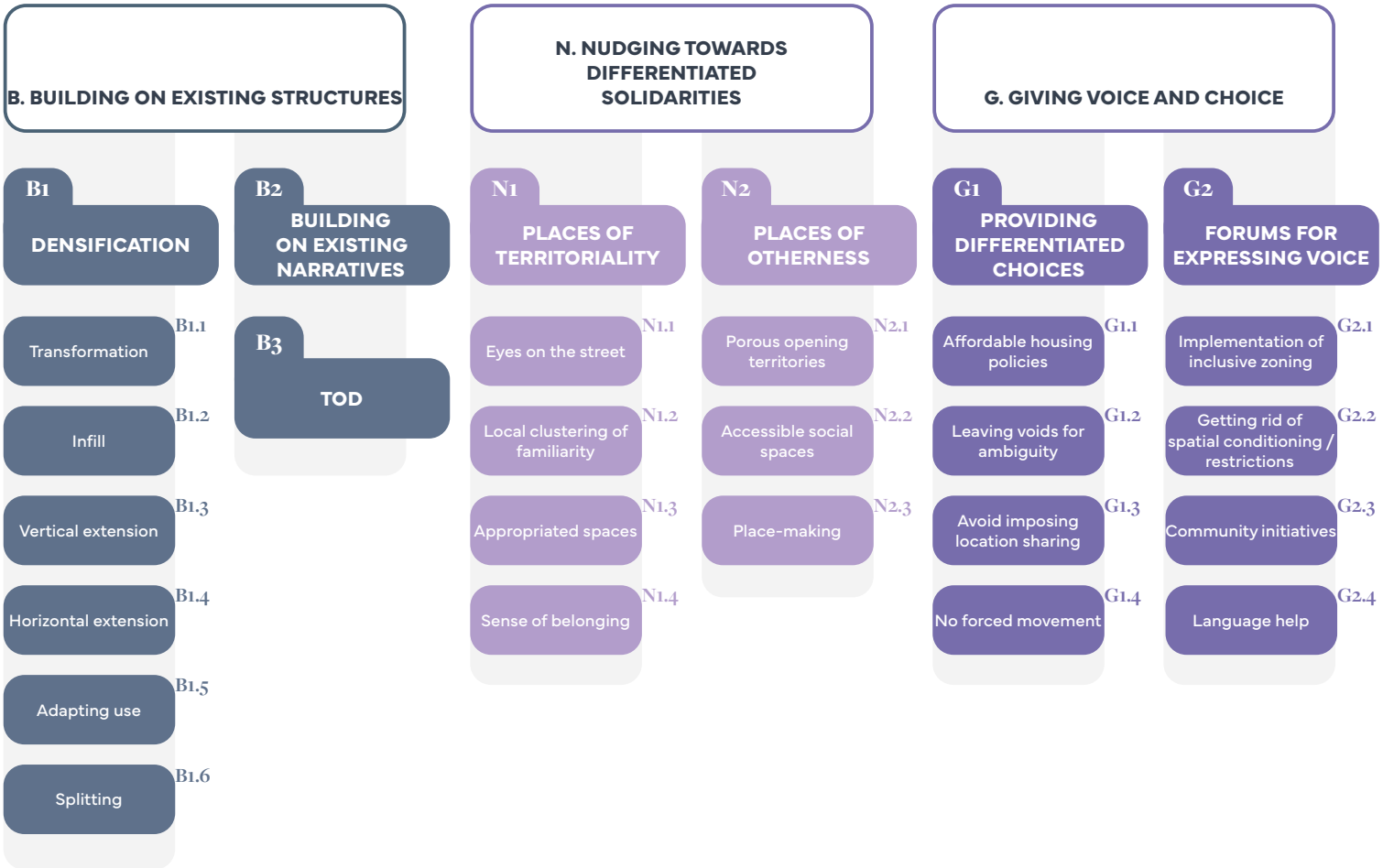
**Proximity to local centres**
Due to the monofunctional and disconnected design of Mariahoeve, the proximity between origin and destination is not everywhere as close as being considered a 15-minute city.
The map map below shows different isochromes which are linked to the different local centers in Mariahoeve. This is on 5, 10 and 15 minute walking distance with a speed of 4km/h. The map shows some of the northern parts require longer to access the main facilities.

Isochrones
- 5 minutes
- 10 minutes
- 15 minutes




D. CREATING PROXIMATE DIFFERENTIATED SPATIAL CONDITIONS
A. ALIGNING SPACE TO ITS SOCIAL LOGIC
V. MAKING VISIBLE
D1
INTRODUCING HOUSING MIX
Mixing of building grain sizes
D1.1
Mixing of housing ownership types
D1.2
Mixing of housing ages
D1.3
Mixing of housing typologies
D1.4
Introducing price management policies
D1.5
D2
INTRODUCING SERVICE MIX
Mixing of building grain sizes
D1.1
Providing small space for businesses
D1.2
Encouraging small working spaces
D1.3
Mixing of housing, living and working
D1.4
Mixing vertically
D1.5
Mixing horizontally
D1.6
Egalitarian distributing
D1.7
Utilitarian distributing
D1.8
A1
ADJUSTING PLACE TO ITS PUBLICNESS
The high street
A1.1
The back of the high street
A1.2
The hinterlands
A1.3
Places of staying
A1.4
Places of passing
A1.5
Introducing changes in spatial atmospheres
A1.6
Re-routing of traffic flows and modes
A1.7
Introducing nodes of attraction
A1.8
Disguising discontinuities
A1.9
A2
MAKING PLACES LEGIBLE
Introducing gradients of ownership
A2.1
Through difference in tiling
A2.1.1
Through difference in elevation
A2.1.2
Through delineation
A2.1.3
Places of passing
A2.2
Introducing changes in spatial atmospheres
A2.3
V1
LIMITING / INCREASING SIGHTLINES
Modifying built mass
V1.1
Getting rid of obstructions
V1.2
Moving cars out of sight
V1.3
V2
PUTTING IN SIGHT
Spilling into public realm
V1.1
Clustering different styles
V1.2
Making constituted streets
V1.3
Adding signage
V1.4
Creating affordances for unplanned uses
V1.5

# ICATION PATTERNS



**Strategic traffic flow proposal**

To enhance connectivity, a proposal for the road structure regarding motor vehicle access has been done. Therefore, the pattern of re-routing traffic flows and modes is implemented on the neighbourhood scale. This will impact local design.

The new proposal has been made regarding:

- Average motor vehicle intensities;
- Space syntax local and regional integration;
- Street profiles;
- Road entries.

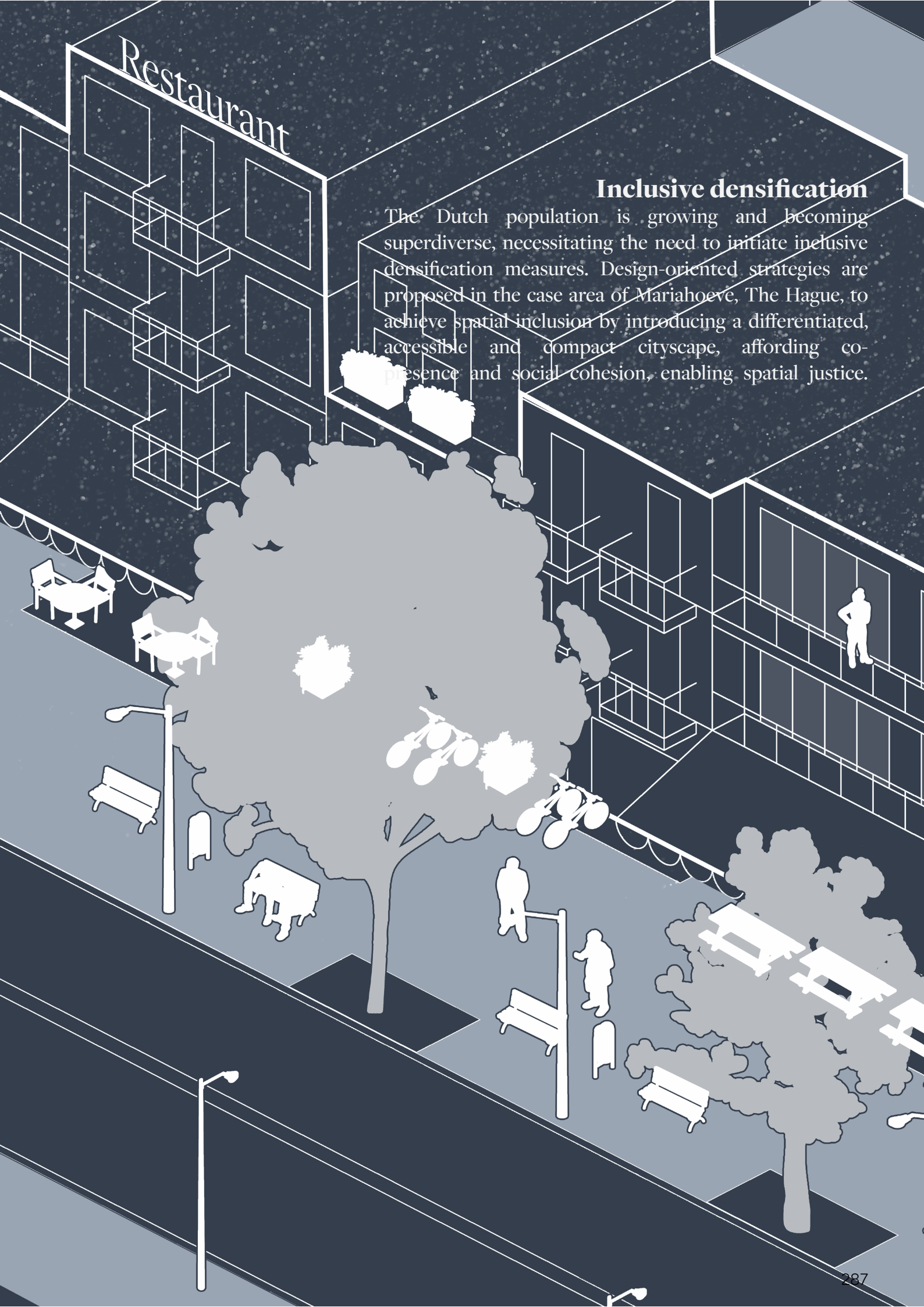
*Existing motor vehicle circulation*

According to the intensity map, many vehicles entering the neighbouhood from Bezuidenhout in the West pass right through Mariahoeve to reach the Hofzichtlaan in the East. This traffic makes use of the inner main streets Het Kleine Loo and Diamanthorst. As result, this leads to many vehicles passing through Mariahoeve, strengthening the island effects through limited permeability. In the traffic flow proposal it is the basic premise to move this traffic towards the outer roads of Bezuidenhoutseweg in the North, and Finnenburg in the South. These roads are and will be major through-traffic roads, whereas the inner roads will be downgraded to cater local traffic.

**Connectivity proposal**

To enhance connectivity, different patterns with regard to the flow of motor vehicle and pedestrian modes and permeability of the existing road structure are addressed. This means to add extra connectors to the existing road structure in certain ways, as well as making barriers porous.

*Proposed motor vehicle circulation*




## Inclusive densification

The Dutch population is growing and becoming superdiverse, necessitating the need to initiate inclusive densification measures. Design-oriented strategies are proposed in the case area of Mariahoeve, The Hague, to achieve spatial inclusion by introducing a differentiated, accessible and compact cityscape, affording co-presence and social cohesion, enabling spatial justice.