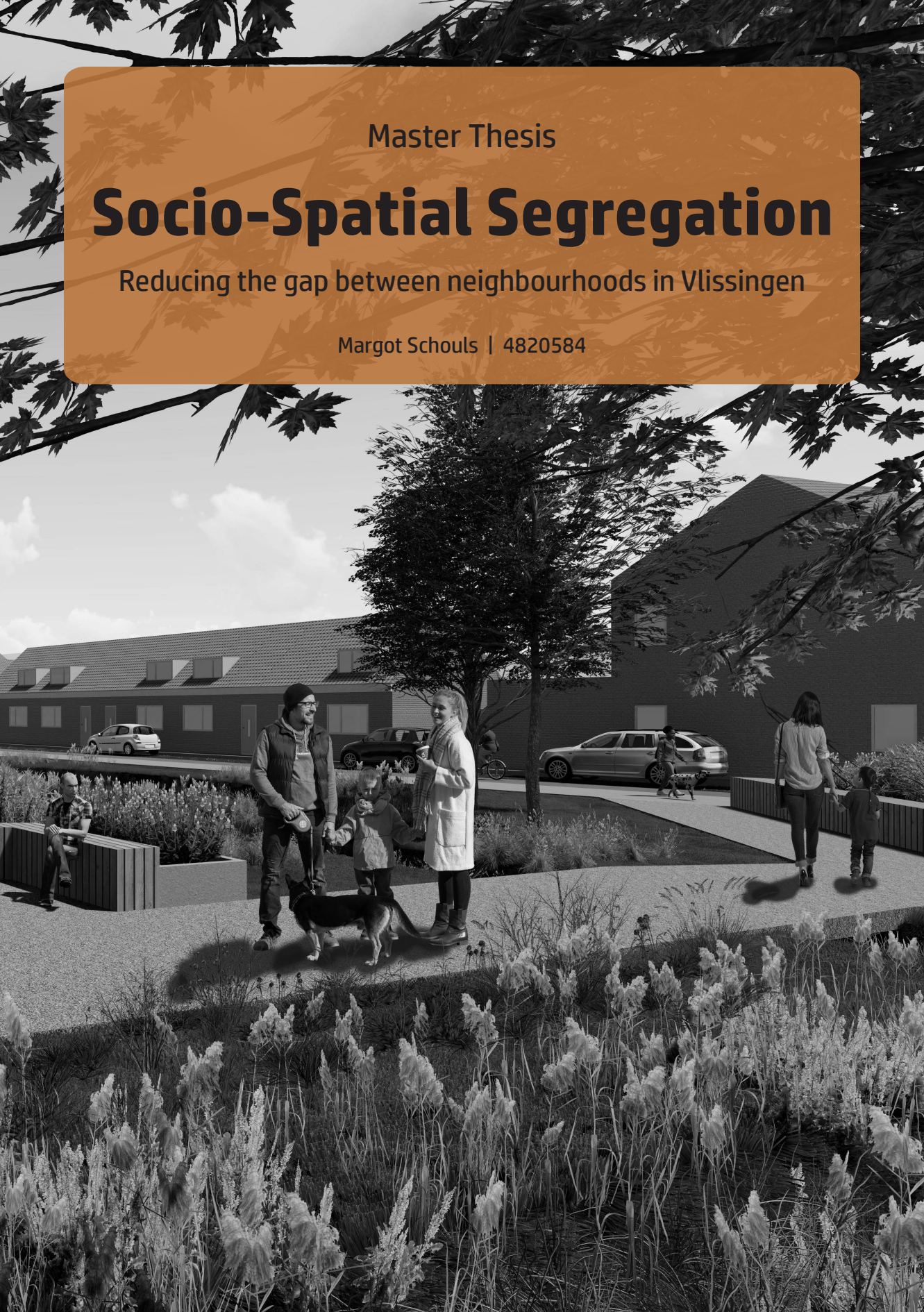
Master Thesis

Socio-Spatial Segregation

Reducing the gap between neighbourhoods in Vlissingen

Margot Schouls | 4820584



Colophon

Technical University of Delft
Master Thesis
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Socio-Spatial Segregation
Reducing the gap between neighbourhoods in Vlissingen
Master Thesis

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Motivation

The main motivation of the graduation project is the location, Vlissingen. I have lived in Middelburg for about nine years, which is very nearby Vlissingen. It is about 20 minutes by bike. Still, my visits to Vlissingen were very limited. That is odd, because there are many activities in Vlissingen that many people, like tourists, like to visit. These activities are for example the historical city centre for shopping, the Boulevard with its restaurants and cafes, the beach and some other activities like a game hall or naval museum. I feel like it has to do with the other options in the province. I really love the city centre of Middelburg with all its cafes, restaurants and historical buildings. Therefore, I never felt like visiting the city centre of Vlissingen. The same goes for the beach of Vlissingen. There are many beaches in Zeeland that I rather visit than the one in Vlissingen.

The Boulevard was the only location in Vlissingen that I actually visited once in a while. There is often a very strong wind at the Boulevard, which I really enjoy. Also during storms I go to the boulevard, to see the waves coming out of the sea to burst onto the stone of the boulevard, which is really impressive to see.

Thus, I visited Vlissingen very rarely, while there are enough reasons to visit the city. One of the reasons why, is the reputation of Vlissingen. This is especially the case for people living in Middelburg, because there has always been a kind of rivalry between the two cities. For me, as someone who lived in Middelburg, my perception of Vlissingen is biased. In Middelburg, people always think of Vlissingen as an industry city with its harbour, and as a city where many relatively poor people live and where crime is often a problem. It almost feels like people in Middelburg think that Vlissingen is not good enough for them.

The interest for my graduation project started from these different perspectives on Vlissingen. A city with many qualities and activities that attracts tourists on the one hand, and a city with many industries, poor people and crime on the other hand. Especially the reputation that many poor people live in Vlissingen caught my attention, because when I think of Vlissingen, I visualise the Boulevard with the many high rise flats and luxury apartments. With this in mind, I wanted to look into the income inequalities in Vlissingen as a starting point for my graduation project.

Figure 1.1. Photo of the beach of Vlissingen in summer. Source (Blauwe Vlag, n.d.)



1.

Problematisation

1.1 Problem Field
1.2 Problem Analysis
1.3 Problem Statement

1.1 Problem Field

Income inequality
Coming from the interest about the income inequality in Vlissingen, it is interesting to look into the income inequality trends worldwide.

Figure 1.2 shows the growth of income inequality according to the share of the top 1 percent incomes. The graph shows data of a few countries worldwide that indicate that the income inequality has grown in these countries since 1970. Therefore it can be stated that the income inequality has grown globally in the last few decades.

The growth of economic inequality resulted in socioeconomic polarization and spatial segregation, especially in urban areas. Over two-thirds of the urban population lives in cities where the income gap has widened in the last three decades. This is not only a challenge in developing and emerging countries, but also in developed countries. The degree of segregation by income has risen in many European cities, including Madrid and Vienna. This is a problem, because it results in the common perception that the quality of public and civic life is in alarming decline worldwide (Schreiber et al., 2016).

Segregation
The are multiple reasons why this spatial segregation by income has grown, but the main reasons are globalization, the withdrawal of government support, economic restructuring and the lack of investment in social housing.
The job market changed dramatically in the transition from a manufacturing to a service-based economy. Employment contracts are less permanent, people more often need more than one job to get around and the service-based economy cannot accommodate all people who lost their jobs from the de-industrialization process.
Next to that, cities and municipalities reduced or stopped their investments in social housing and affordable housing. This results in a rapidly decreasing housing stock that is fit for low-income households, which is only increasing the segregation between low- and high-income groups in urban areas. High-income groups move to neighbourhoods with for example high quality schools, while low-income groups are displaced to the edges of cities (Schreiber et al., 2016).

Research shown that segregation results in economic disadvantage, reduces educational opportunities, impedes social mobility, and affects unemployment rates. It also has a negative correlation with school dropout rates and crime (Annunziata et al., 2021). With this in mind, it is interesting to look into income inequality related to segregation in the graduation project.

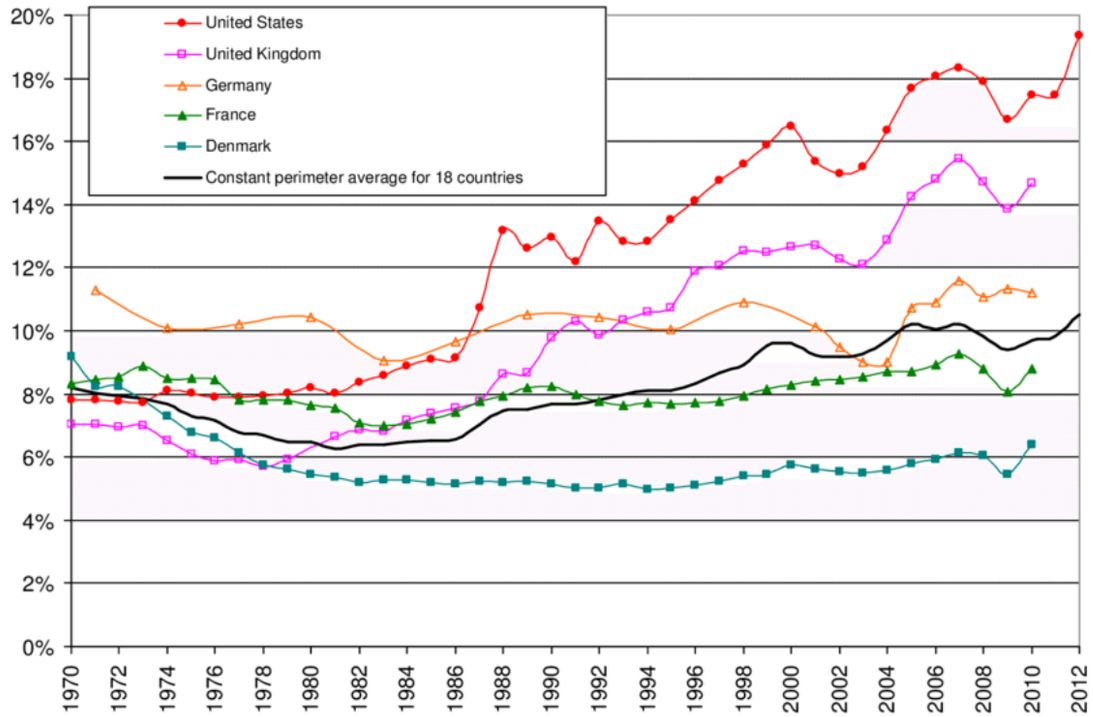


Figure 1.2. Evolution of the top 1 percent income share, which indicates global income inequality growth.
Source (Godechot, 2016)

1.2 Problem Analysis

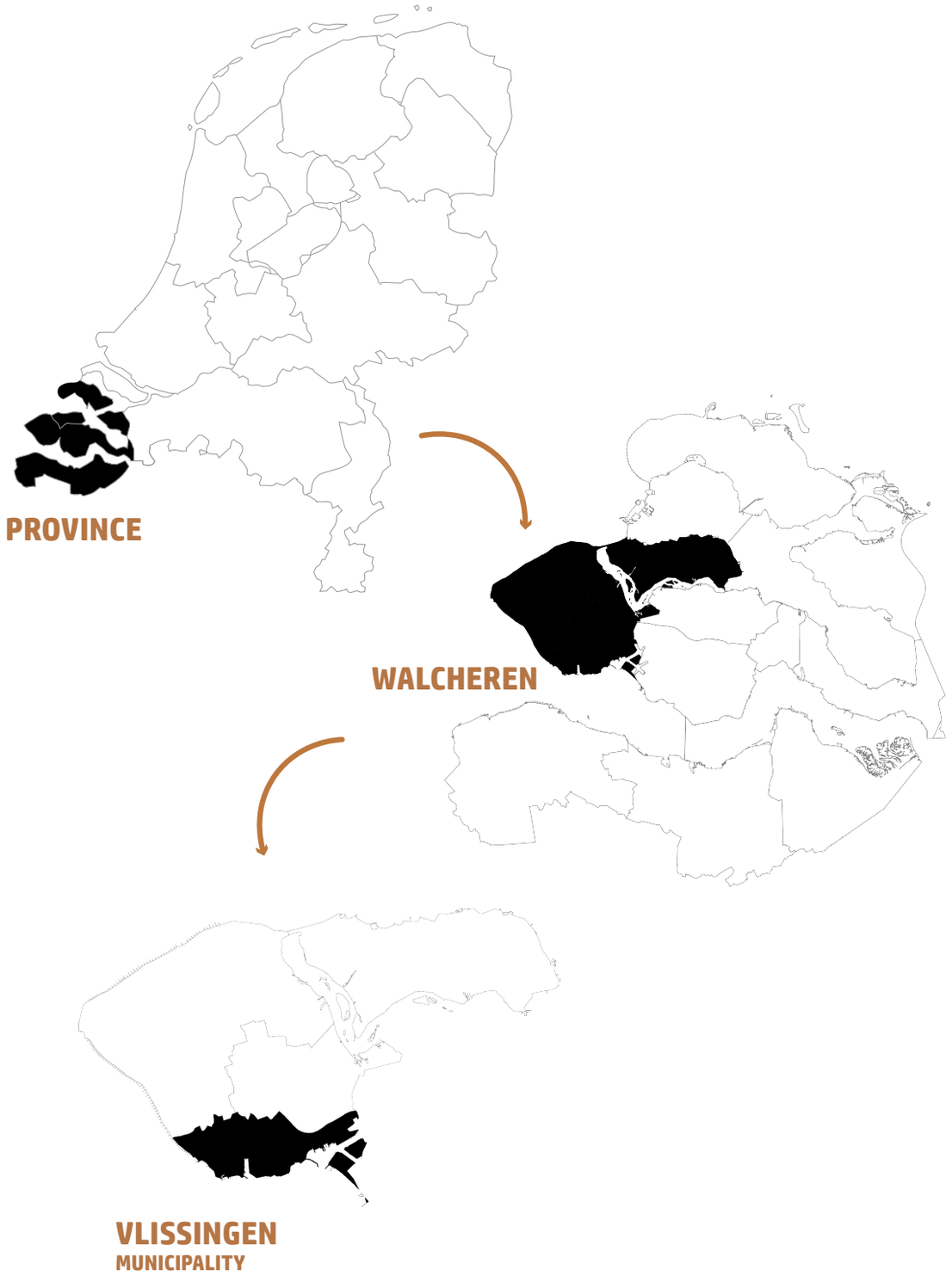


Figure 1.3. The location of the municipality of Vlissingen

Vlissingen

When looking to income inequality and segregation in Vlissingen, it is important to first get an idea about what kind of city Vlissingen actually is.

Vlissingen is a mid-sized coastal city in the southwest of the Netherlands. It is located in the province of Zeeland and is one of the municipalities in Walcheren, as visible in Figure 1.3. The municipality of Vlissingen includes a big harbour with many industries. Vlissingen, Terneuzen and Ghent together form the North Sea Port and is the third most important harbour of the Netherlands, next to Amsterdam and Rotterdam (Gemeente Borsele, 2018).

The city of Vlissingen, marked in Figure 1.4., is known for its tourism, since many people are attracted to the beach, Boulevard and the historical city centre. The tourism sector is growing in Vlissingen, which is an important trend for the municipality. The municipality of Vlissingen expects a growth of 33% of residential tourists and 40% of daily visitors in 2030 (Gemeente Vlissingen, 2020). This would mean that tourism will become an even more important source of income for the city.

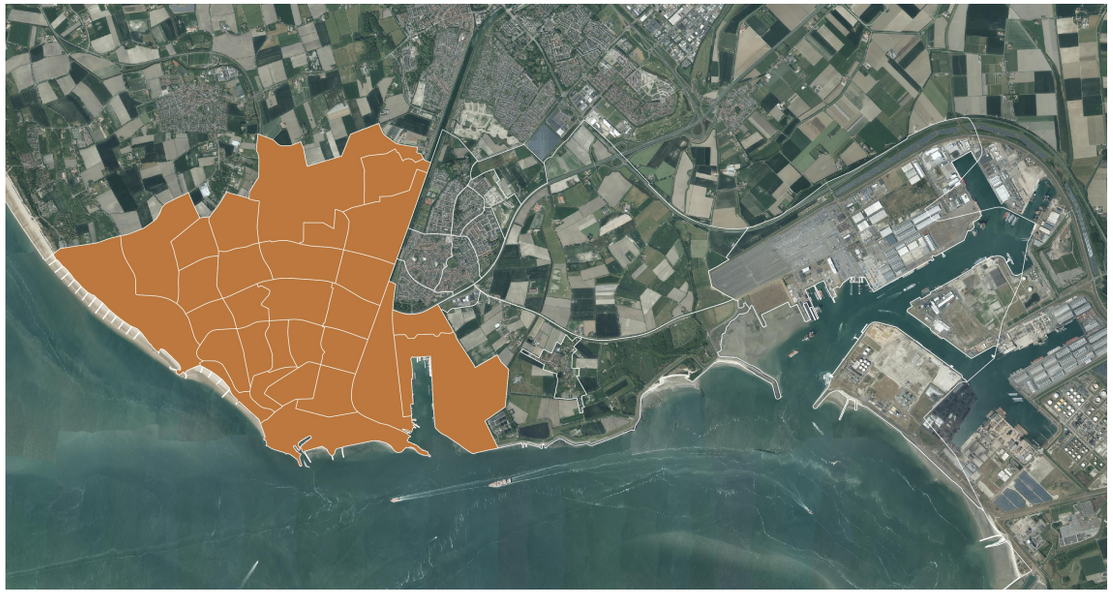


Figure 1.4. The location of the city of Vlissingen.

Financial Problems

Since the municipality of Vlissingen has had its main focus on tourism growth, there has been a lack of attention going towards the inhabitants of the city. According to Meur (personal communication, December 9, 2022), a project manager of the municipality of Vlissingen, the municipality failed to maintain many public spaces within neighbourhoods due to financial problems. The municipality is now trying to catch up this maintenance with money they received to compensate the military basis that was promised to the city a few years ago, but eventually did not happen. This creates an opportunity to upgrade neighbourhoods that have been neglected for a while.

More information about Vlissingen is put in the Appendix. Appendix 1 gives information about the history of Vlissingen with an indication on the prosperity through the years and Appendix 2 gives information about the social context of Vlissingen in comparison to the Netherlands and Zeeland.

Socio-spatial segregation

When looking at income inequality Vlissingen, there are big differences in income per neighbourhood, as is visible in Figure 1.5. The richest neighbourhood is located along the coastline and has an average income per person per year of €36.400. The poorest neighbourhoods, marked in darker brown, have an average income per person per year of €17.800 and just under €20.000 (AlleCijfers, 2023c). This means that there is a difference of over €18.000 between the richest and poorest neighbourhoods, while they are only a ten minute walking distance apart.
Thus, it can be concluded that low-income and high-income social groups concentrate themselves in different neighbourhoods in Vlissingen. This phenomena fits with the definition of socio-spatial segregation:

Socio-spatial segregation describes the concentration and residential separation of different social groups (Annunziata et al., 2021).

In the case of Vlissingen, the social groups differ in income. Socio-spatial segregation is a problem, because it leads to negative effects for poor social groups living in deprived neighbourhoods. Examples of these negative effects are that socio-spatial segregation results in economic disadvantage, reduces educational opportunities, impedes social mobility, and affects unemployment rates. It also has a negative correlation with school dropout rates and crime, according to Annunziata et al. (2021). Other examples are that socio-spatial segregation can lead to social unrest, rioting, increased crime, and a decrease in trust between separated societal groups (Musterd et al., 2016). In other words, socio-spatial segregation affects the opportunities of poor social groups living in deprived neighbourhoods.

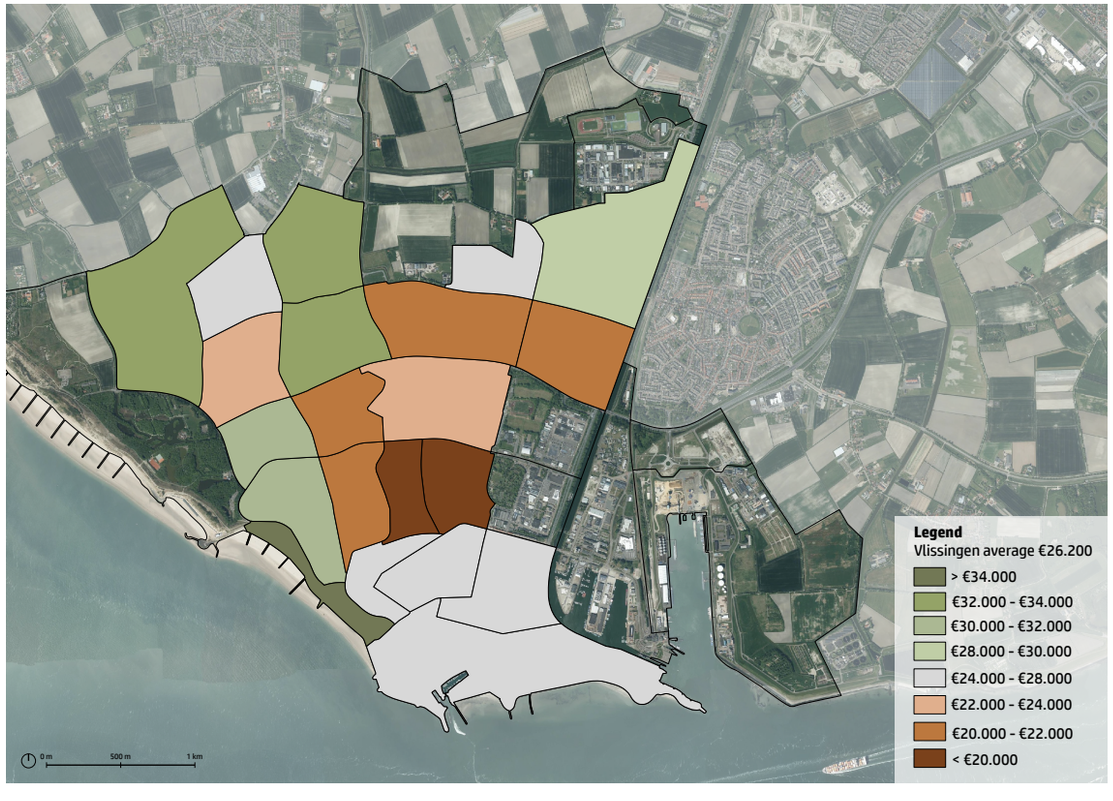


Figure 1.5. The average income per person per year in the residential neighbourhoods in Vlissingen. Own map based on (AlleCijfers, 2023c)

As the name already suggests, there is a social and a spatial part of socio-spatial segregation. *Social segregation* is about the lack of contact and interaction between different social groups. *Spatial segregation* is about the spatial separation of social groups. Social and spatial segregation are two different phenomena that do not necessarily influence each other. However in the case of Vlissingen, spatial segregation influences social segregation, because the spatial separation of different social groups explains the lack of interaction between these people.

The most important indicators of both social- and spatial segregation are visible in Figure 1.6. and are based on literature about socio-spatial segregation (Andersen, 2019; Annunziata et al., 2021; Bolt et al., 2010; Tammaru et al., 2018; and Musterd et al., 2007).

For social segregation, demographics are an important indicator to define the difference between the social groups. For Vlissingen in general, the demographics are described in Appendix 2. For spatial segregation, important indicators to define the spatial separation are based on the characteristics of the living environment. The spatial indicators however do not directly reflect spatial segregation, because that is most visible in the income inequality map. The spatial indicators are meant to show differences in the characteristics of the living environment that are possible explanations or manifestations of socio-spatial segregation. When analysing the social and spatial indicators in Figure 1.6. per residential neighbourhood of Vlissingen, it will result in indicating the most deprived neighbourhoods.

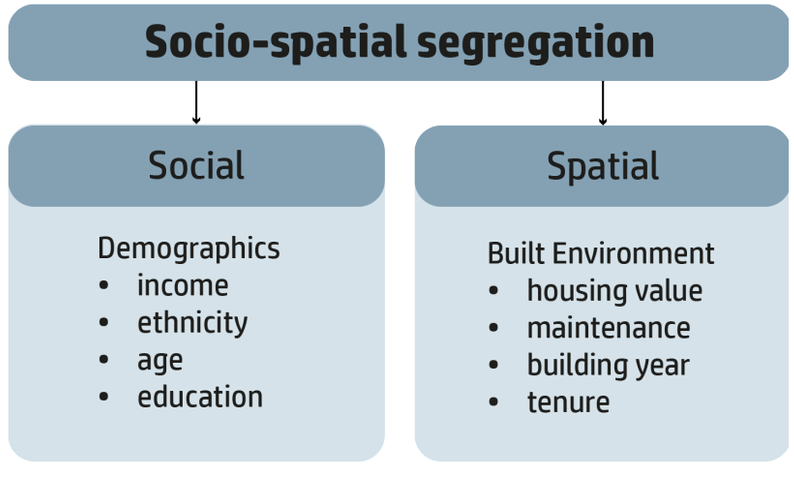


Figure 1.6. The relevant indicators for socio-spatial segregation.

Social - income and ethnicity

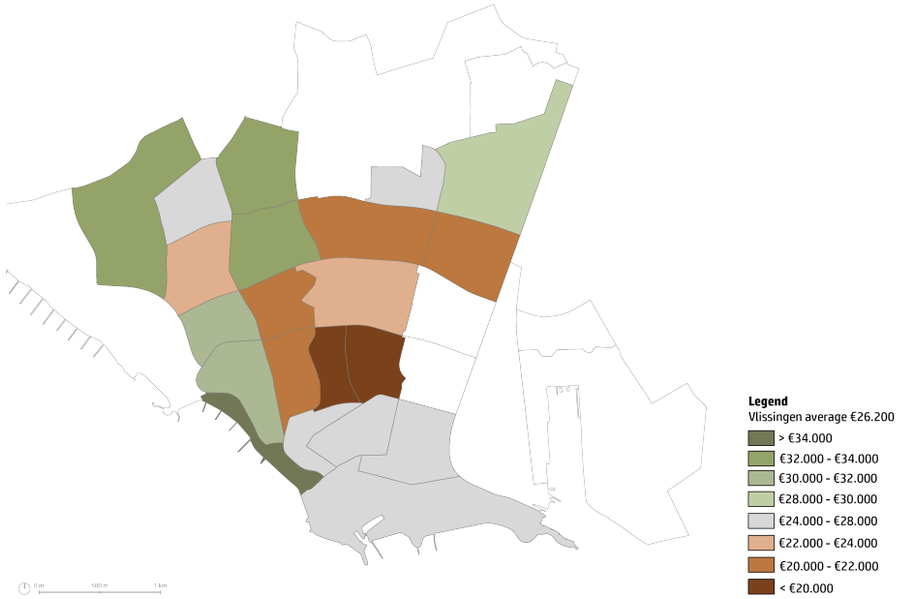


Figure 1.7. Social indicator of income. Own map based on (AlleCijfers, 2023c)

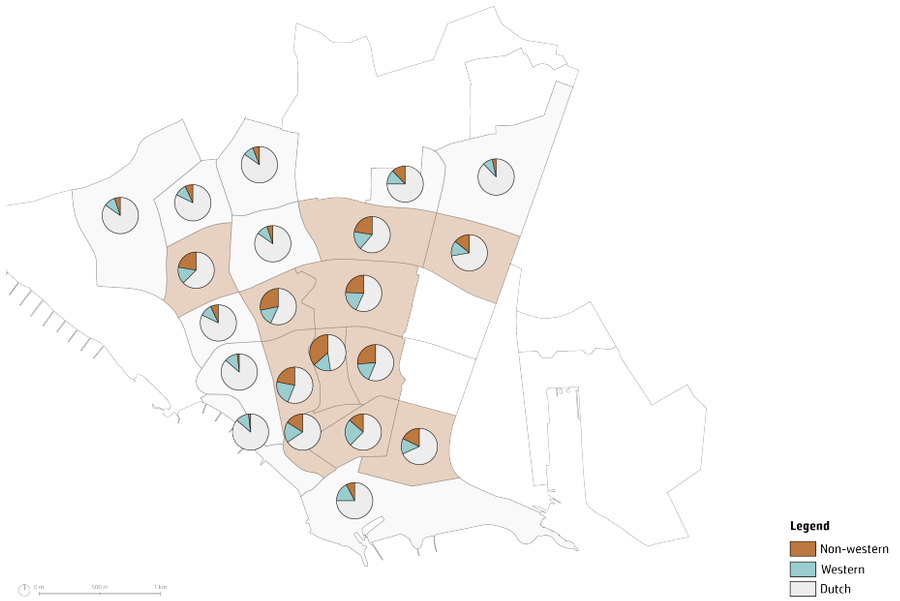


Figure 1.8. Social indicator of ethnicity. Own map based on (AlleCijfers, 2023c)

The income map shows that there are some very big differences in income between neighbourhoods, as discussed before. The lowest incomes, marked in brown, seem to be clustered in the middle, between the edges of Vlissingen.
This is also visible in the ethnicity map. The map shows the percentages of people with a migration background. The neighbourhoods with the highest percentage native Dutch people are located along the edges of the city and in the city centre, which is located in the south along the coastline. The other neighbourhoods, marked in red, the percentage of people with a migration background is above 25 percent.

Social - age and education



Figure 1.9. Social indicator of age. Own map based on (AlleCijfers, 2023c)

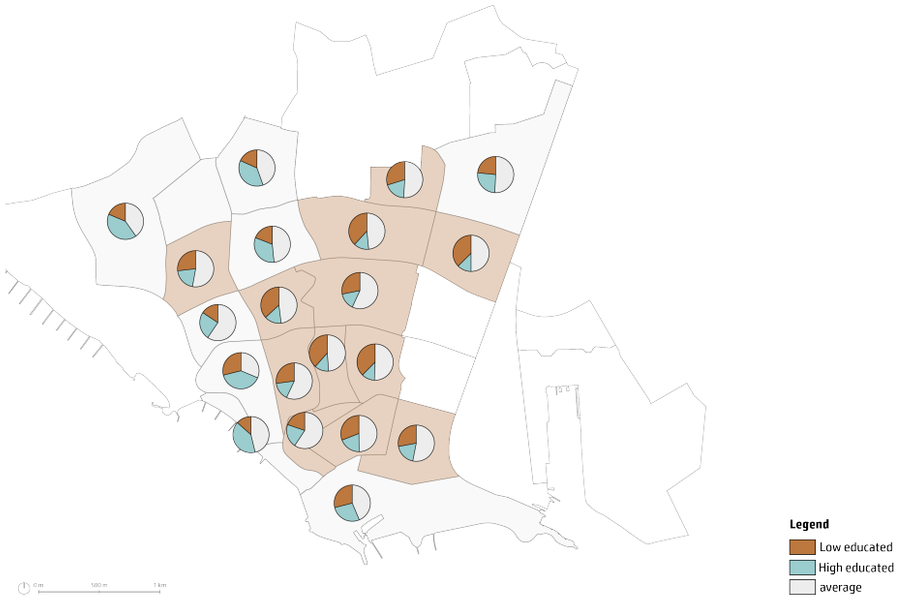


Figure 1.10. Social indicator of education. Own map based on (AlleCijfers, 2023c)

The age map is harder to draw conclusions from. The ages are very diverse in most neighbourhoods. It is however noticeable that the ages are higher along the coastline. The neighbourhoods with a higher percentage of families and children are marked in red.
The education map shows that again the neighbourhood along the edges of the city include a relatively high percentage of over 25 percent of high educated people, while in the cluster between those edges this percentage is lower, and the percentage of low educated people higher. This last cluster is marked in red.

Spatial - housing value and maintenance

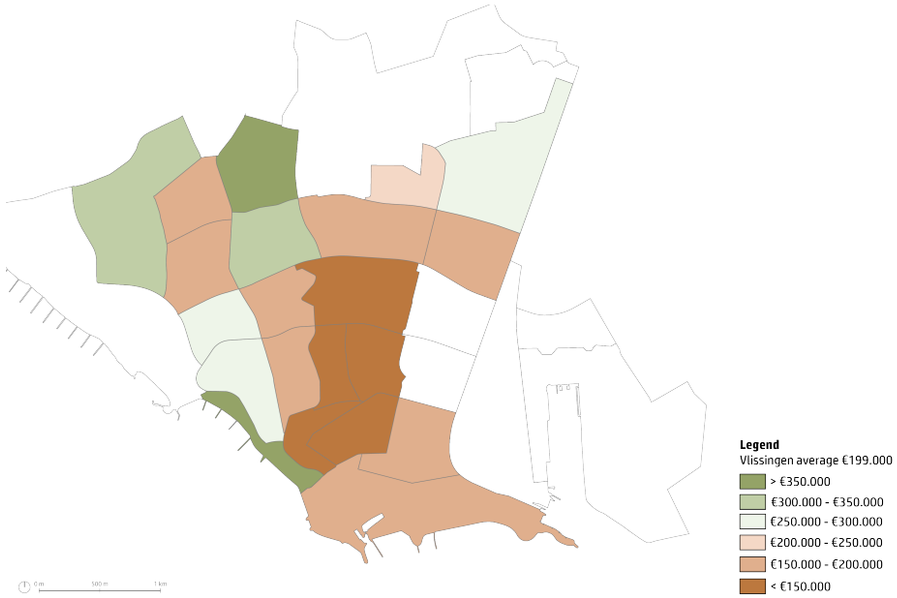


Figure 1.11. Spatial indicator of housing value. Own map based on (AlleCijfers, 2023c)



Figure 1.12. Spatial indicator of maintenance. Own map based on (RIGO Research en Advies, 2017)

For the spatial factors, Figure 1.11. shows the housing values per neighbourhood. The average WOZ value is €200.000 or lower in a big part of Vlissingen, but in the middle cluster it is even lower than €150.000.
The maintenance map is based on a research where inhabitants could rate their neighbourhoods from a grade 1, being badly maintained, to 10, being well-maintained (RIGO Research en Advies, 2017). Therefore this data is more about perception than actual numbers. The photos are taken in the neighbourhoods marked in red and show that the public spaces are empty and badly maintained.

Spatial - building year and tenure

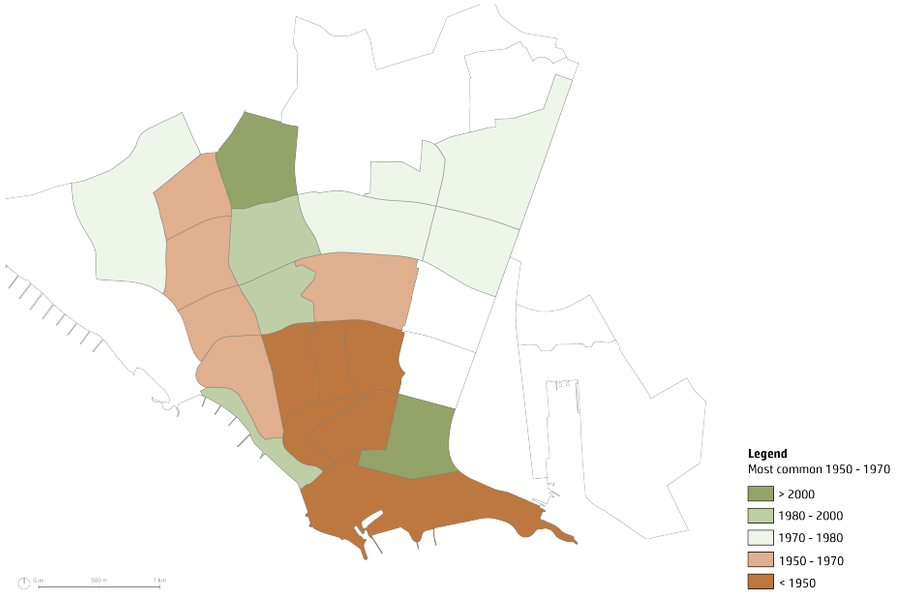


Figure 1.13. Spatial indicator of building year. Own map based on (AlleCijfers, 2023c)

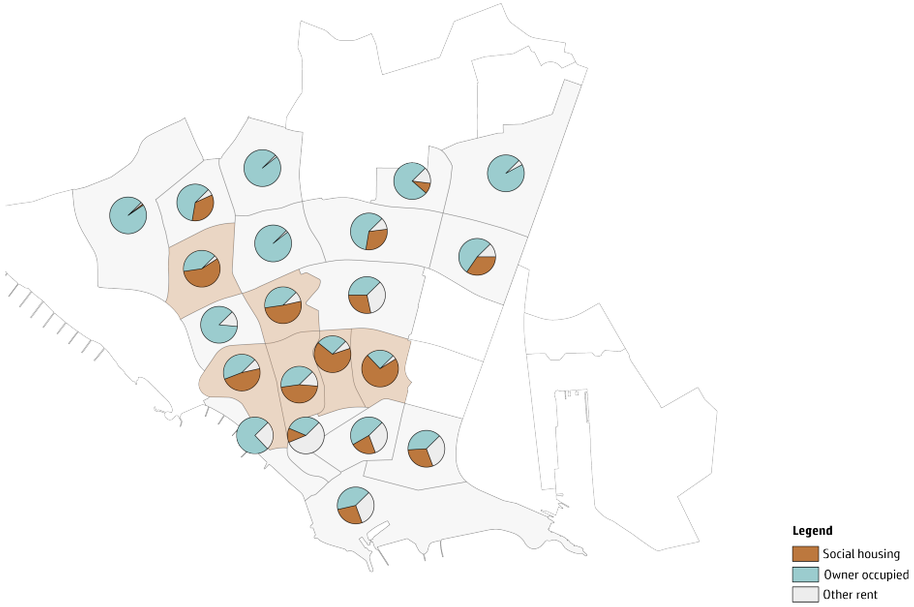


Figure 1.14. Spatial indicator of tenure. Own map based on (AlleCijfers, 2023c)

The building year map shows that the neighbourhoods with a newer housing stock are located along the edges of Vlissingen and that the neighbourhoods with the oldest housing stock, marked in red, are the city centre and some connecting neighbourhoods around it. The boulevard area along the coast is quite historic, just like the city centre, but has been almost completely rebuild after World War II.
For tenure, the map shows that there are a few neighbourhoods, marked in red, that consist for more than 50% out of social housing. There are also some neighbourhoods along the edges of Vlissingen with no social housing at all.

The most deprived neighbourhoods
The social and spatial indicators result in defining the deprived neighbourhoods of Vlissingen. The most important cause of socio-spatial segregation in Vlissingen is the indicator about income inequality. Therefore the neighbourhoods with the lowest average incomes are considered the most deprived. These neighbourhoods are marked in Figure 1.15..

Socially it means that the social groups living in the most deprived neighbourhoods have relatively low incomes, have a higher percentage of people with migration backgrounds, have a higher percentage of families and children, have a relatively high percentage of low educated people, and a relatively low percentage of high educated people.

Spatially it means that in these neighbourhoods the housing values are relatively low, the public spaces are badly maintained, there is older housing and the percentage of social housing is relatively high. In other words, the most deprived neighbourhoods have a bad quality living environment compared to the neighbourhoods where rich social groups live.

As discussed before, living in deprived neighbourhoods affects the opportunities of the poor social groups. Next to that, the poor social groups are living in a bad quality living environment. Therefore the main focus of the thesis will be on the opportunities and living environment of poor social groups living in deprived neighbourhoods.

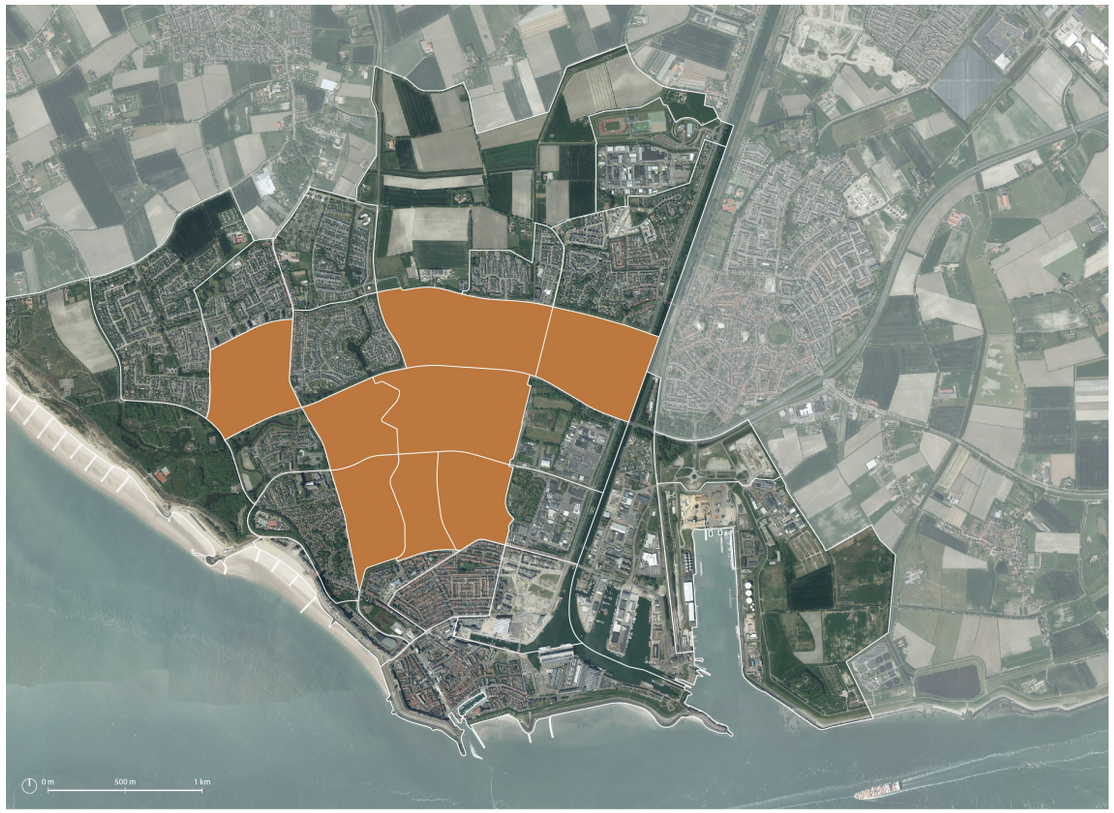
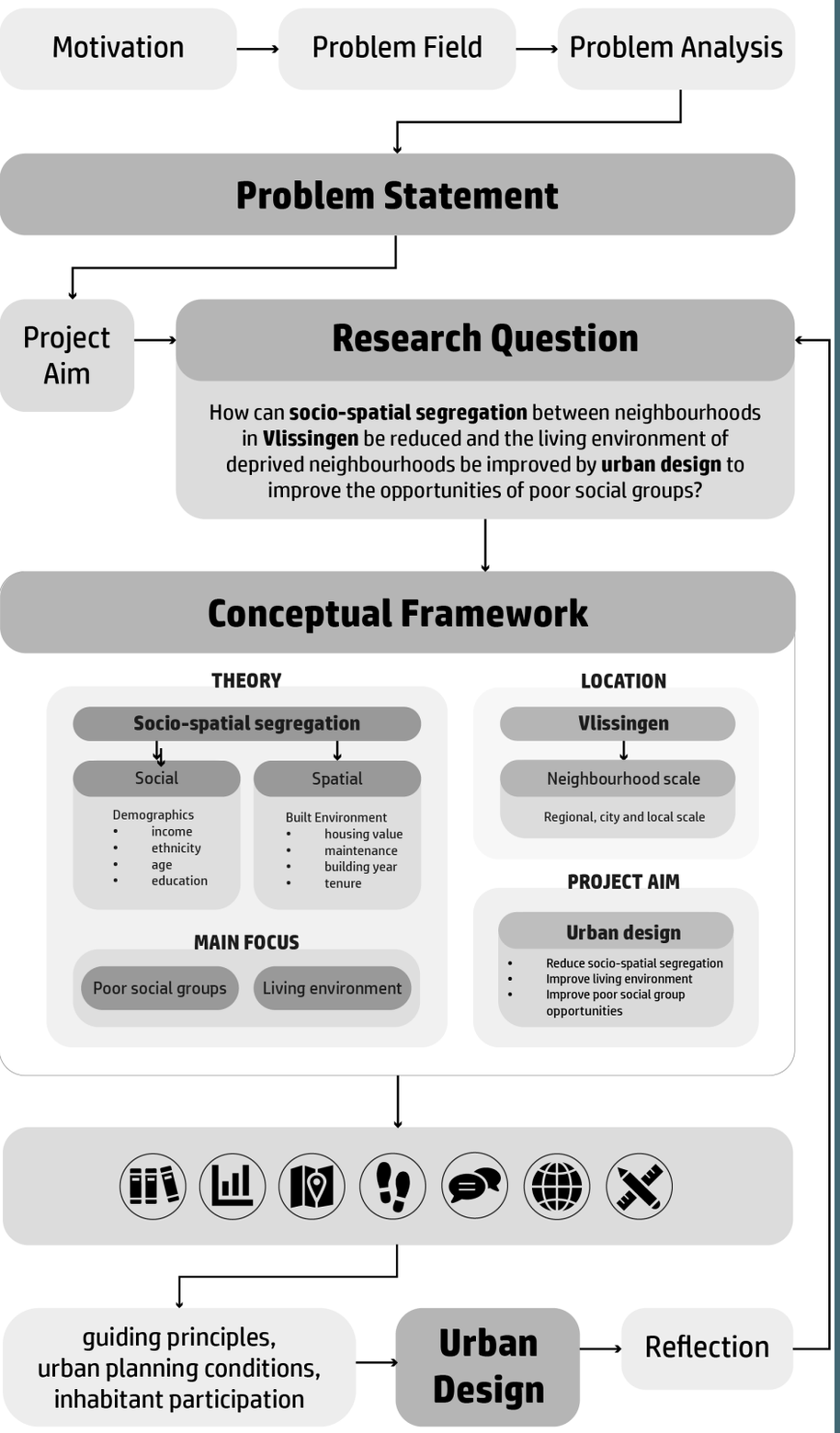


Figure 1.15. The most deprived neighbourhoods based on the problem analysis

1.3 Problem Statement

In Vlissingen, there is socio-spatial segregation between neighbourhoods. This is especially visible when looking at the income inequality in the city. The difference in incomes between the richest and poorest neighbourhood is over €18.000 per person per year, while they are only a ten minute walking distance apart. Socio-spatial segregation leads to negative effects for poor social groups living in deprived neighbourhoods, such as economic disadvantage, reduced educational opportunities, impaired social mobility, higher unemployment rates, and higher crime rates. Next to that, the poor social groups live in a bad quality living environment. Therefore, socio-spatial segregation is a problem that needs to be reduced to improve the opportunities of poor social groups living in a bad quality living environment in deprived neighbourhoods in Vlissingen.



2.

Methodology

2.1 Project Aim
2.2 Research Questions
2.3 Conceptual Framework
2.4 Theoretical Underpinning
2.5 Methods
2.6 Project Framework

2.1 Project Aim

Project Aim
The aim of the graduation project is to reduce socio-spatial segregation between neighbourhoods in Vlissingen to improve the opportunities of poor social groups living in a bad quality living environment in deprived neighbourhoods in Vlissingen.

There are probably more possibilities to reduce socio-spatial segregation, but this thesis will focus on reducing socio-spatial segregation between neighbourhoods on the one hand, and improving the living environment of poor social groups on the other hand.

On the city scale, socio-spatial segregation between neighbourhoods need to be reduced. On the neighbourhood scale, the living environment of the most deprived neighbourhood need to be improved. Both scales are necessary, because the gap between the richest and poorest neighbourhoods on itself is also a problem. Only improving the living environment of a deprived neighbourhood will not solve the overarching problem of socio-spatial segregation (Wilkinson & Pickett, 2010). Next to the city and neighbourhood scale, there are also the regional and district scale to take into account during the analysis. Thus, a multiscalar urban design will be the final product of the graduation project.

Relevance
There is many literature about socio-spatial segregation and about social mix, where different social groups are mixed within a neighbourhood, as opportunity to reduce socio-spatial segregation (Annunziata et al., 2021; Andersen, 2019; Bolt et al., 2010). The literature often seems to focus on the economic benefits of social mix, where rich social groups are placed within neighbourhoods where poor social groups live. The social mix strategies are either to make sure that the rich social groups increase the average income of a neighbourhood, or to make sure that the rich social groups are beneficial for the local entrepreneurship or market exchange. However, social mix could also lead to gentrification, where a rich social group takes over a place and poor social groups are driven away. This is also a topic that is discussed a lot in literature (Hochstenbach, 2016; Annunziata et al., 2021).

The graduation project could contribute to this literature, because the approach is different. The main focus of the project will be on the poor social groups that are currently living in deprived neighbourhoods in Vlissingen. Social mix could be a possibility to reduce segregation, but it must be a solution that creates benefits for the current inhabitants and not for the economy. Thus, the focus of the graduation project is on the living environment and opportunities of poor social groups and not on the economical benefits.

Something else that will be explored in the graduation project is if socio-spatial segregation only results in negative effects. Literature often discusses segregation as a problem that leads towards negative effects for people living in deprived neighbourhoods. However, there might be some positive effects related to socio-spatial segregation as well.

Related to this is the concept of 'sense of belonging'. This concept will also be explored further in the thesis, because it explains idea that people feel like they belong to a certain place and thus do not perceive any problems of segregation. This could be an interesting point of view, because poor social groups might not experience any problems with their living environment or with socio-spatial segregation.

Ethical considerations
With a topic such as socio-spatial segregation, it is easy to be biased. Socio-spatial segregation is a problem and leads to negative effects for people living in deprived neighbourhoods. That is what the literature tells us. It is however important to realise that many writers of literature address problems with their reports. Thus, the positive effects are not often addressed. It is important to include the positive effects of socio-spatial segregation in the literature review to limit the bias in the graduation project.

Next to that, people are easily biased about how others live and feel in their living environment. As a researcher, the situation of the poor social groups might seem worse than the rich social groups, but they might not perceive it that way. As discussed before, people could feel like they belong in certain neighbourhoods, even though these neighbourhoods have a bad reputation. It is important to include the concept of 'sense of belonging' in the theory to limit the bias in the graduation project. Related to this, it would be interesting to add a bottom-up approach in the thesis as a counterpart to the top-down approach coming from theory.

2.2 Research Questions

MAIN QUESTION

How can **socio-spatial segregation** between neighbourhoods in **Vlissingen** be reduced and the living environment of deprived neighbourhoods be improved by **urban design** to improve the opportunities of poor social groups?

Main question
The main research question consists of three main elements. Reducing **socio-spatial segregation** is the main goal of the graduation project, as discussed in the project aim. **Vlissingen** is the location of the project. A multiscalar **urban design** is the final product of the graduation project. The final urban design should reduce socio-spatial segregation between neighbourhoods and improve the living environment of deprived neighbourhoods to improve the opportunities of poor social groups.

Sub-questions
The sub-questions below are formulated to answer the main research question. The questions are divided in three categories. The first one is diagnosis, which consists of the questions to research the context of the current situation. The first diagnosis question is already answered in the problem analysis. The second category is opportunity. These questions are about possibilities on how to solve the problem of socio-spatial segregation. The final category is design with questions about the multiscalar design interventions.

SUB-QUESTIONS

Diagnosis
- What factors currently contribute to socio-spatial segregation between neighbourhoods in Vlissingen?
- What are the effects of socio-spatial segregation?

Opportunities
- What guiding principles are needed to reduce socio-spatial segregation?
- What urban planning conditions need to be included in a future urban design?
- What is the vision of the inhabitants that needs to be included in a future urban design?

Design
- What design interventions are necessary on the city scale to reduce socio-spatial segregation between neighbourhoods?
- What design interventions are necessary on the neighbourhood scale to improve the living environment of poor social groups?

2.3 Conceptual Framework

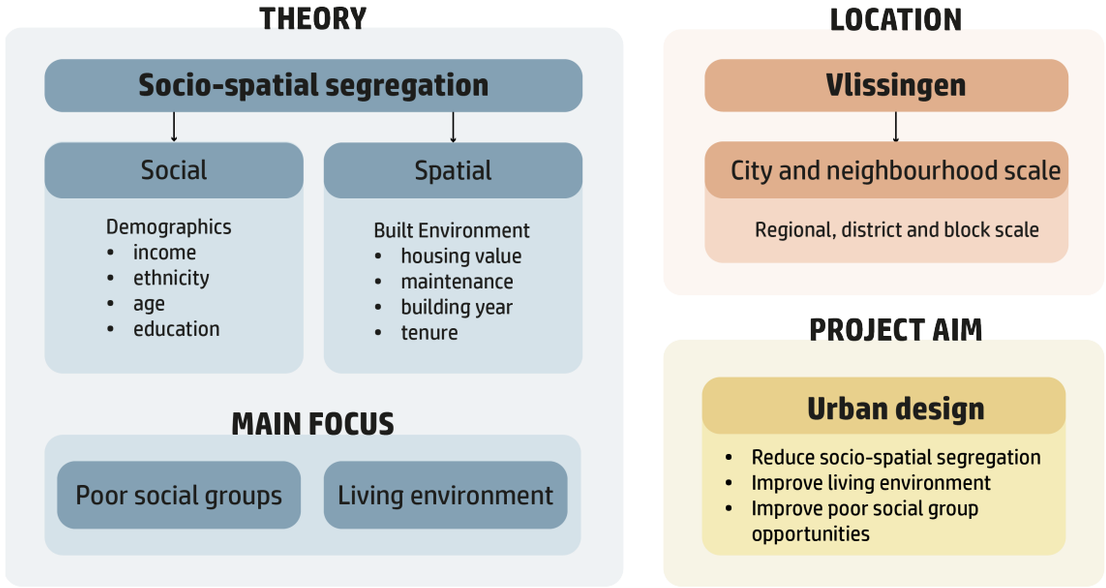


Figure 2.1. Conceptual framework

The conceptual framework in Figure 2.1. shows the concept of the graduation project. It is divided in three main aspect that are also highlighted in the main research question.

The first one is the theory about socio-spatial segregation. Socio-spatial segregation consists of social segregation, which describes the lack of interaction between social groups, and spatial segregation, which describes the spatial separation of social groups. As already discussed in the problem analysis, important indicators for social segregation are ethnicity, household composition, income and education. Important indicators for spatial segregation are housing value, maintenance (or quality of public spaces), building year and tenure.

The main focus of the graduation project is on the opportunities of poor social groups and the (bad quality) living environment of the deprived neighbourhoods.

The second aspect is the location, Vlissingen. The graduation project is multiscalar and will focus on socio-spatial segregation between neighbourhoods in Vlissingen, the city scale, and on the living environment of deprived neighbourhoods, the neighbourhood scale.

The last aspect is the project aim. The final product of the graduation project will be a multiscalar urban design that reduces socio-spatial segregation between neighbourhoods and improves the living environment of deprived neighbourhoods to improve the opportunities of poor social groups.

2.4 Theoretical Underpinning

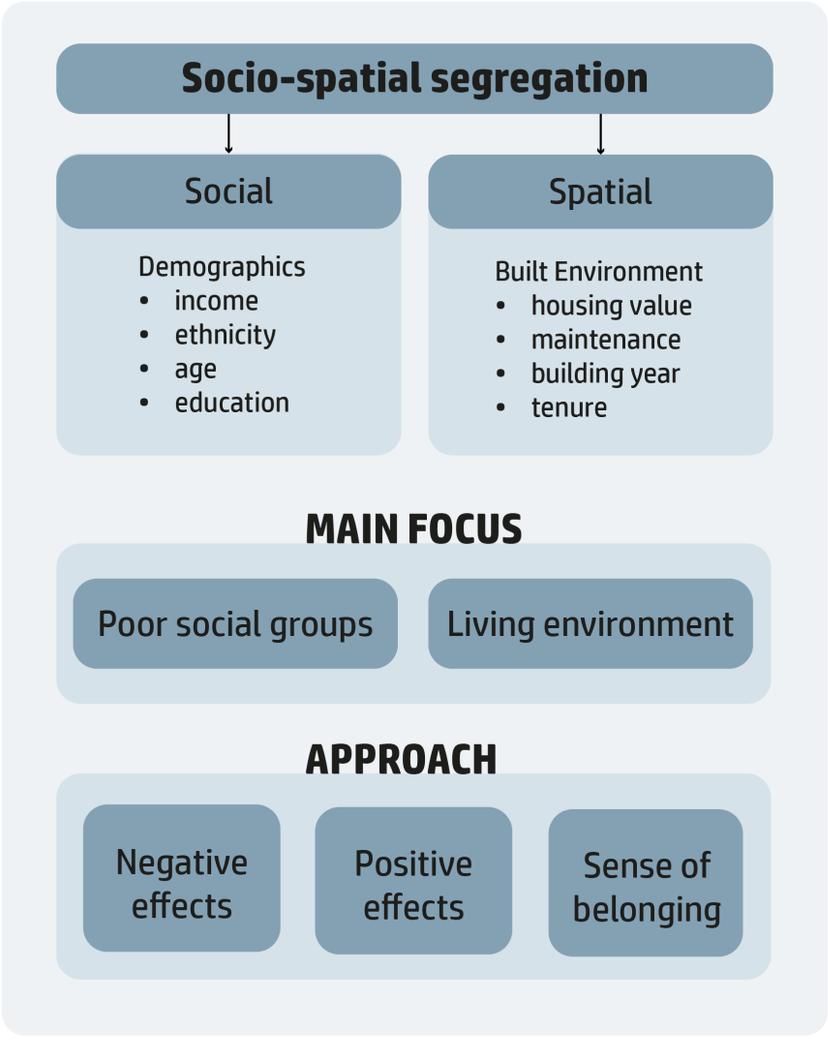


Figure 2.2. Theoretical framework

Theoretical framework

The theoretical framework in Figure 2.2. shows the scope of the theory that will be used in the graduation project. It has some overlap with the conceptual framework.
As already discussed, socio-spatial segregation consists out of social segregation and spatial segregation. Social segregation is about the lack of contact and interaction between different social groups. Spatial segregation is about the spatial separation of social groups. Social and spatial segregation are two different phenomena that do not necessarily influence each other. However in the case of Vlissingen, spatial segregation influences social segregation, because the spatial separation of different social groups explains the lack of interaction between these people.

The most important indicators of both social- and spatial segregation are visible in the theoretical framework in Figure 2.2. and are based on literature about socio-spatial segregation (Andersen, 2019; Annunziata et al., 2021; Bolt et al., 2010; Tammaru et al., 2018; and Musterd et al., 2007).

For social segregation, demographics are an important indicator to define the difference between the social groups. For spatial segregation, important indicators to define the spatial separation are based on the characteristics of the living environment. The spatial indicators however do not directly reflect spatial segregation, because that is most visible in the income inequality map. The spatial indicators are meant to show differences in the characteristics of the living environment that are possible explanations or manifestations of socio-spatial segregation.

The main focus of the graduation project is on the opportunities of poor social groups and the (bad quality) living environment of the deprived neighbourhoods.

Musterd has written much about (socio-spatial) segregation and many of his reports, also written with others, are relevant for the graduation project. Therefore there are many references coming from Musterd. (Musterd, 2008; Musterd, 2020; Musterd et al., 2005; Musterd et al., 2016; Musterd et al., 2007; Musterd et al., 2002)

In addition to the conceptual framework, the theoretical framework includes the different approaches on socio-spatial segregation, as discussed before in the project aim paragraph.

The approach of the thesis is divided in negative effects, positive effects and sense of belonging. As discussed before, most literature about socio-spatial segregation is about the negative effects. The literature about the negative effects discuss problems like urban decay and negative neighbourhood effects (Andersen, 2019; Van Ham et al., 2012).

Another approach on socio-spatial segregation is on the positive effects. This is harder to find in literature, but a very interesting addition to the thesis. The most important writers that have included positive effects in their reports on segregation are Musterd et al. (2002) and Gordon et al. (2006).

The last approach that will be included in the graduation project is on the concept of ‘sense of belonging’. As discussed in the project aim, sense of belonging is about the idea that people feel like they belong to a certain place and thus do not perceive a problem of segregation (Wilson, 1997).

2.5 Methods

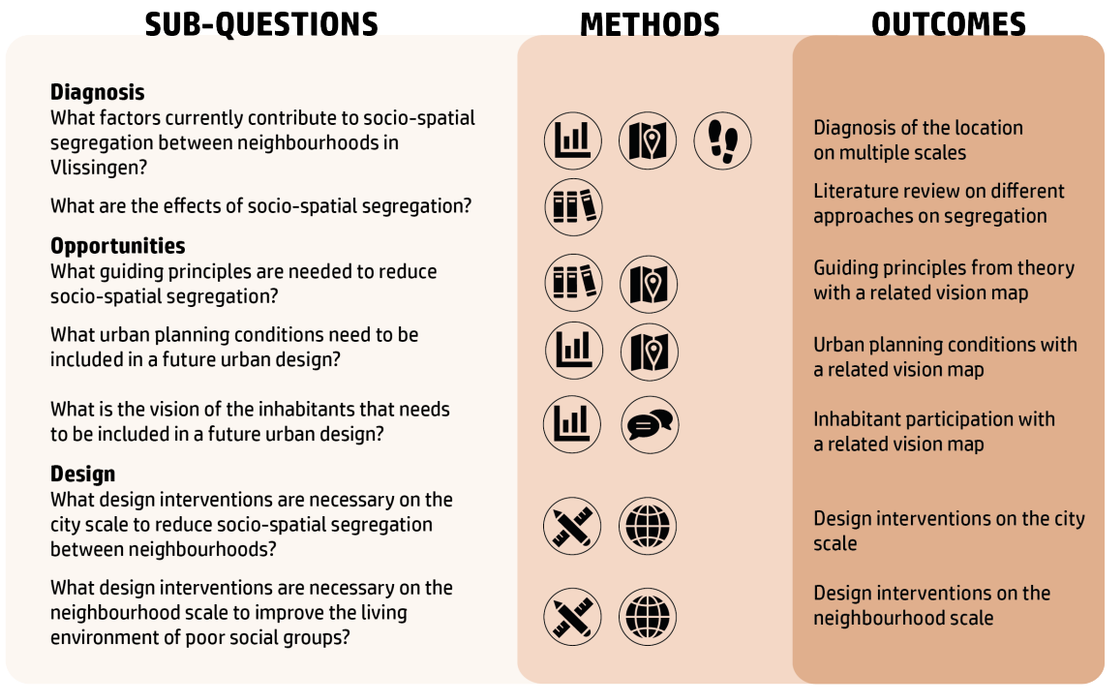


Figure 2.3. Methods and expected outcomes of the sub-questions

The methods used in the thesis are related to the sub-questions to answer the main research question. The first sub-question can be answered by data review, spatial analysis and fieldwork. This results in a diagnosis of the location on multiple scales and is partly already done in the problem analysis. The second sub-question is the literature review on socio-spatial segregation.

The third sub-question will lead towards the guiding principles for the design, but will also include spatial analysis related to these guiding principles that will result in a vision map. The fourth sub-question is about the more general urban planning conditions that also need to be included in the future urban design and the fifth sub-question is to add a bottom-up vision coming from the inhabitants living in a deprived neighbourhood

The last sub-questions are about the final multiscalar urban design. The guiding principles, urban planning conditions and inhabitant participation coming from the opportunity sub-questions are the input for the final urban design. The design sub-questions are divided in the city and neighbourhood scale and will be answered by doing design experiments and the use of references.

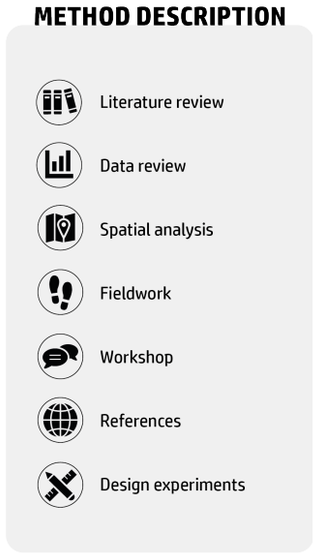


Figure 2.4. Methods description

2.6 Project Framework

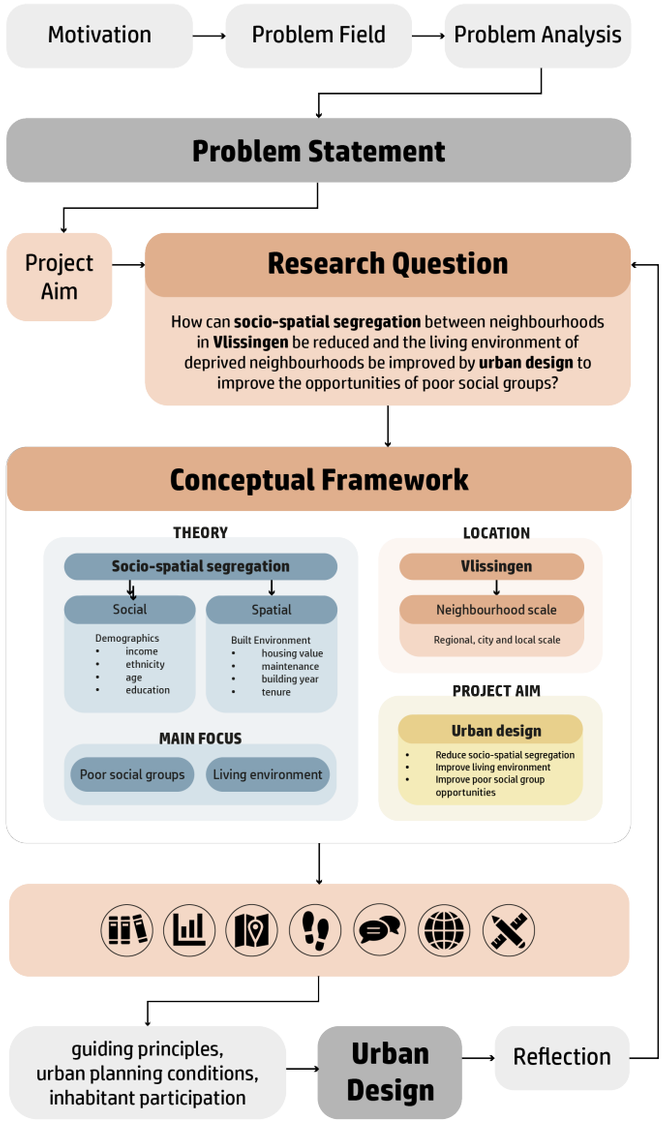


Figure 2.5. Project framework

The project framework shows the structure of the thesis and how it results in a final design and reflection. It summarises the first two chapters about the problematisation and methodology. The motivation for the graduation project, the problem field and problem analysis have led to the problem statement of the thesis. That problem statement resulted in the project aim, which directly leads to the main research question.

To answer the main research question, the sub-questions follow the conceptual framework. The methods needed to answer the sub-questions give the input to start designing. This input consists out of guiding principles, urban planning conditions and inhabitant participation. During the design process, it is important to keep reflecting. That could influence the scope of the thesis.



Source (Superlinear, 2016)

3.

Segregation Theory

3.1 Socio-Spatial Segregation
3.2 Negative Effects
3.3 Positive Effects
3.4 Sense of Belonging

3.1 Socio-Spatial Segregation

Segregation is the opposite of integration and of what a city should be, according to Annunziata et al. (2021): “a place of interaction and encounters that happen in a dynamic, diverse and socially mixed urban environment that facilitates social mobility and emancipation and, in so doing roots social justice in space.” Segregation is a term that is often used in literature and is a quite a broad concept. To narrow down the scope of the thesis, the focus will be on socio-spatial segregation.

Socio-spatial segregation describes the concentration and residential separation of different social groups (Annunziata et al., 2021).

This definition includes two different components of segregation, which are social segregation and spatial segregation.



Social segregation
Social segregation describes the lack of contact and interaction between different social groups. Social groups differ in ethnicity, income and race, according to Annunziata et al. (2021), but it could also be described as differences in demography (Musterd, 2020). Demography describes social characteristics and includes ethnicity, income and race, but also other characteristics like age and household composition. Income inequality, where the incomes between different people and households are unevenly distributed, is often considered to be the most critical factor for segregation (Tammaru et al., 2018). Andersen (2019) categorizes social differences in socio-economic status, family status and ethnicity. The socio-economic status is not only about poverty or a general lack of resources, but also about the integration of people in the labour market, income and education. Ethnicity in Europe related to social segregation is mainly about cultural differences, which often results in migrants being the most deprived social group (Andersen, 2019).
This is also visible in The Netherlands, where the labour market participation of migrants is significantly lower than the non-migrants (Musterd et al., 2007). This has partly to do with factors such as language competency in Dutch and whether the migrant was educated in The Netherlands or not. Also the level of education is generally lower for migrants than for non-migrants. However, there are some promising positive developments going on in The Netherlands, because the gap between migrants and non-migrants has narrowed down over time. Especially due to the integration of second-generation migrants who are young and higher educated.

Spatial segregation
Spatial segregation described the spatial separation of social groups. It means that different social groups have settled in different parts of cities (Andersen, 2019).
The report by Annunziata et al. (2021) states that spatial segregation is especially relevant in residential areas. This is the domain where many people, but especially children, the elderly and those with part-time jobs or without a job, spend most of their daily time (Musterd, 2020). Therefore the place of residence has a relatively big impact on the quality of life of individual households.

According to some, spatial segregation follows social segregation (Musterd et al., 2016). Poor social groups are often concentrated in disadvantaged neighbourhoods, due to the lack of choice and the presence of easily accessible and affordable housing. Rich social groups also tend to concentrate themselves, but they do so voluntarily. They often drive the increase of spatial segregation in urban regions, as they have the most freedom to realize their housing and neighbourhood preferences (Tammaru et al., 2018).
The preferences of people for living in different neighbourhoods can vary between households with different needs and lifestyles, but there are always some common values that result in some neighbourhoods being seen as more attractive than others (Andersen, 2019).
Some of the characteristics of neighbourhoods can increase spatial segregation. For example more green spaces in neighbourhoods is seen as more attractive and therefore often leads to higher housing prices. This has stimulated the use of greening in urban redevelopments because of market-driven endeavours (Musterd, 2020). Therefore urban redevelopments are not always inclusive for poor social groups. Thus, spatial segregation is largely influenced by the development of spatial differentiation in cities (Andersen, 2019).
Another example of an important characteristic of a neighbourhood related to spatial segregation is the homogeneity of the housing stock. According to Bolt et al. (2010), the homogeneity of the housing stock has resulted in significant concentrations of poor social groups in certain urban districts.

Processes that cause segregation
There are some processes related to income inequality that could cause socio-spatial segregation. An example of such a process is the residential mobility within urban regions. People change of neighbourhoods, because their incomes increase or decrease. As discussed before, the residential mobility of rich social groups affects both the level and geography of socio-spatial segregation, since money buys choice on the housing market (Tammaru et al., 2018).
Another example of a process is the geography of housing and its differentiation, attracting, forcing or constraining the residential mobility of households. When there is more affordable housing clustered in a neighbourhood, it will also lead to more poor social groups (Tammaru et al., 2018). Therefore socio-spatial segregation often seems to occur in homogeneous environments.

Mutual process
According to Andersen (2019), socio-spatial segregation can also be approached as a mutual process. A good example of a mutual process is physical inequality. As discussed before, socio-spatial segregation is largely influenced by the development of spatial differentiation in cities. Spatial differentiation leads to socio-spatial segregation, while socio-spatial segregation creates spatial differences. The same goes for the neighbourhood scale. Households shape their environment, while environments trigger certain household behaviours (Musterd, 2020).

3.2 Negative Effects

The next three paragraphs are going into the three different approaches on socio-spatial segregation, which are the negative effects, positive effects and the concept of 'sense of belonging'. The paragraphs answer the sub-question: 'What are the effects of socio-spatial segregation?'

Socio-spatial segregation in literature is mostly addressed as a problem, which leads to negative effects. Examples of these negative effects are that socio-spatial segregation results in economic disadvantage, reduces educational opportunities, impedes social mobility, and affects unemployment rates. It also has a negative correlation with school dropout rates and crime, according to Annunziata et al. (2021). Other examples are that a rising spatial inequality can lead to social unrest, rioting, increased crime, and a decrease in trust between separated societal groups (Musterd et al., 2016).

Urban decay

According to Andersen (2019), socio-spatial segregation is related to urban decay. He describes urban decay as the exclusion of places: "As the character of a neighbourhood gradually changes and physical signs of decay become apparent, middle-class residents leave and are replaced by low-income and excluded groups who cannot afford high-quality housing and neighbourhoods. As a consequence, property values decline, investments cease and the neighbourhood decays further. When the process has passed a certain point, crime and insecurity become common, and emigration speeds up."

The process of urban decay results in negative changes for neighbourhoods, which contribute to a further decay. These changes can be divided into physical changes, social changes, financial changes and organisational changes. The physical changes are about the quality of buildings, facilities and open spaces. Social changes are about crime, conflicts and other problems that lead to low status and bad reputation. Financial changes are about the disproportion between rent and housing quality. Organisational changes are about the lack of social resources which influences the community. (Andersen, 2019)
Thus, when neighbourhoods are deprived due to urban decay as a result of those changes, the 'ordinary' people tend to flee to other parts of the city, creating space for poor social groups. Therefore this process of urban decay is increasing socio-spatial segregation.

It is however not always clear how neighbourhoods end up in a process of decline in the first place. There are some processes within neighbourhoods that could initiate urban decay. For example the process where physical decay changes the norms of people on how to use an area, the process where insecurity increases and social cohesion reduces, the process where the amount of private and public services reduces, or the process where a stigmatisation of the neighbourhood leads to difficulties in for example getting a job (Andersen, 2019).
It seems that urban decay causes socio-spatial segregation. In reality, the processes of urban decay and socio-spatial segregation are mutual, as already discussed in the socio-spatial segregation paragraph. People create and modify urban spaces while at the same time being conditioned by these changes (Andersen, 2019).

Neighbourhood effects

According to some, living in a deprived neighbourhood often limits residents' chances of escaping poverty and isolation due to poor social networks, limited local resources and constrained job opportunities (Bolt et al., 2010). This phenomenon is also called neighbourhood effects. The neighbourhood effect is the belief that the concentration of poor social groups has negative effects on life choices and opportunities (Annunziata et al., 2021), or as Lawton (2012) describes "The isolation of poorer groups leads to, and intensifies, social problems".

Neighbourhood effects are for example affect educational achievement, school dropout, deviant behaviour, social exclusion, health, transition rates from welfare to work, and social and occupational mobility (Ham et al., 2012). Other neighbourhood effects are high unemployment rates and limited employment horizons, high levels of crime and disorder and health inequalities (Roberts, 2007).
Sampson (2003) confirms that crime and violence seem to concentrate in deprived neighbourhoods, especially those characterised by low incomes, the racial segregation of minority groups, and the concentration of single-parent families. These are risk factors which increase the chance of violence in a neighbourhood.

Socio-spatial segregation often seems to occur in homogeneous environments, as discussed in the socio-spatial segregation paragraph. "Children growing up in such environments are less likely to develop a sense of empathy for people from other walks of life and are ill-prepared to live in a diverse society. The other becomes alien to the child's experience, witnessed only through the sensationalising eye of the television." (Carmona et al., 2010).
This means that socio-spatial segregation does not only result in negative effects for social groups, but does also influence the characteristics, behaviour and personality of those social groups.

In some neighbourhoods, the percentage of social housing is really high. In these neighbourhoods, there is often a large concentration of homogeneous housing. Here, neighbourhood effects are stronger and tenants experience high levels of disadvantage. An important part of the problem here is a negative reputation.
Neighbourhoods with negative reputations are thought to have numerous impacts on the opportunities and prospects of residents, which are access to employment, educational opportunities, the shaping of residents' social networks and reactionary behaviours (Van Ham et al., 2012). For example a spatial concentration of unemployed people subsequently leads to negative role models for youngsters, which would reduce their efforts to improve their skills and thus would result in a reduction of their labour market opportunities (Musterd et al., 2005). This is also confirmed by Hochstenbach (2016) who mentions the assumed underlying causal mechanisms for neighbourhoods effects, being for example a lack of positive role models living in a neighbourhood, a negative work ethic, the lack of useful local social networks, and the stigmatization of neighbourhoods.

3.3 Positive Effects

So far, the thesis has only focussed on socio-spatial segregation as a problem with negative effects. It would however make sense that it does not result in negative effects only. There are also some positive effects related to socio-spatial segregation. This is however not often discussed in literature.

Local developments
According to Musterd et al. (2002), it is believed by some that there are three different spheres of integration. These are market exchange, redistribution by the welfare state and reciprocity. The spatial concentration of social groups can benefit from each of these spheres. An example is a neighbourhood with an ethnic concentration. In such a neighbourhood, ethnic entrepreneurship is very likely to be successful.
This positive effect of socio-spatial segregation is also mentioned by Gordon et al. (2006). Socio-spatial segregation can lead to developments of local facilities to meet specialised needs. This is not only a positive effect for the advantaged, but also for some disadvantaged minority groups.

Interaction
Socio-spatial segregation could also contribute to the interaction between people (Musterd et al., 2002). A tight community network between people living in similar conditions can result in the mutual exchange of voluntary services such as cutting hair, mowing a lawn or painting a house.
According to Sturgis et al. (2014), the positive effects of contact appear to be greater in conditions of equal status between groups, when group identity is salient, when behaviour is oriented towards the achievement of common goals, and when contact is supported by social institutions. This means that contact and interaction between people is of higher quality when people are similar, which is the case with concentrated social groups in deprived neighbourhoods.
Socio-spatial segregation can contribute to a stronger social cohesion or at least social order because of those reasons, but this is very dependent on the context of a neighbourhood (Gordon et al., 2006).

Culture
Another possible positive effect of socio-spatial segregation is the role of spatial concentrations of ethnic groups on culture. Spatial concentrations can have an important expressive function to maintain the cultural traditions of certain ethnic groups. When ethnic groups are concentrated in the same neighbourhood, it is easier to maintain ethnic networks where people benefit from each other and offer support to one another. It could be stated that “ethnic neighbourhoods function as a safe haven in a hostile environment and they may provide alternative channels for social mobility.” (Bolt et al., 2008).

3.4 Sense of Belonging

This paragraph goes into the concept of ‘sense of belonging’. Meanings of places are rooted in the physical setting and in activities, but they are not a property of them. Instead, they are a property of human intentions and experiences of those places (Carmona et al., 2010). In other words, people have their own meaning of a place, which is called sense of place.

Sense of place
According to some, a sense of place is affected by perceptions of its physical characteristics, by the feeling and behaviour of its residents, and by the interactions between them (Bayón et al., 2018).
The term place in ‘sense of place’ does not mean simply a geographic location. It includes many other factors that give the place its unique character. Examples of these factors are opportunities for seclusion and quiet, opportunities for exploring, opportunities to effect change, but also complexity, diversity, opportunities for immediate encounters with the natural world, and opportunities for memorable moments (Wilson, 1997).

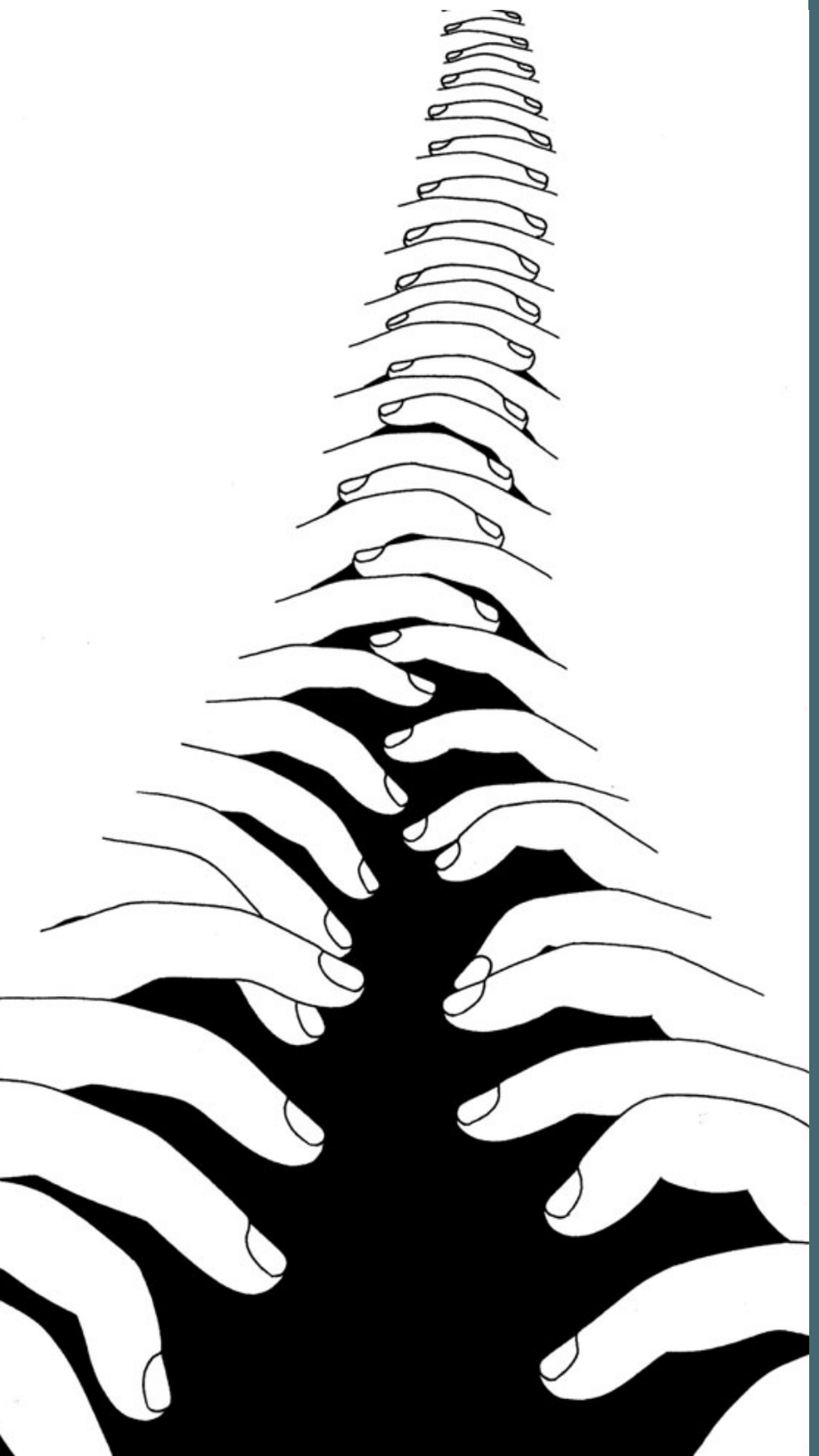
Places shape people. When people grow up at a certain place within a certain culture, they develop other attitudes, values and behaviours than people growing up at a different place within a different culture (Wilson, 1997). The same goes for differences between children growing up in a city centre and in a rural environment. The children differ in what they fear, like or dislike, as well as what skills they develop through their own experiences.

“Just as we shape our environments, they shape us” (Wilson, 1997)

However, not all environments are equal. For example some places are more inviting for children to be actively engaged, while other places are not (Wilson, 1997).

Sense of belonging
Sense of belonging is part of the ‘sense of place’ concept and goes into the perception of people that they belong to a certain place. The distinction between ‘being-in-place’ and ‘being-out-of-place’ is relevant for understanding how people coming from different social groups experience a place. People construct their own urban geography. Biographical characteristics and personal experiences are important in this process, but race, gender, or class are also important factors that influence the perception and experience of a place (Bayón et al., 2018).

With this in mind, it is imaginable that deprived neighbourhoods do not always affect the satisfaction of residents. Some residents might feel like they are ‘being-in-place’ and have a sense of belonging to a certain place. They could feel like they belong to their living environment and are emotionally attached to the area.
This approach gives an extra layer to socio-spatial segregation and its effects, because the ‘problem’ of socio-spatial segregation might not always be perceived as a problem. When people feel like they belong in a certain neighbourhood, it is possible that they do not experience any problems. This might influence their opinion on possible changes in their living environment. This is something to keep in mind during the design process.



Source (Petzold, 2019)

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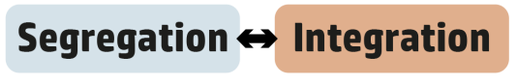
From Segregation to Integration

4.1 Integration
4.2 Threats of Social Mix
4.3 Diversity
4.4 Interaction
4.5 Guiding Principles

4.1 Integration

Integration
Socio-spatial segregation is the problem of the graduation project that needs to be solved, but when looking into literature about possible solutions to reduce socio-spatial segregation, it is only about social mix (Musterd & Ostendorf, 2007; Bolt et al., 2010; Annunziata et al., 2021).

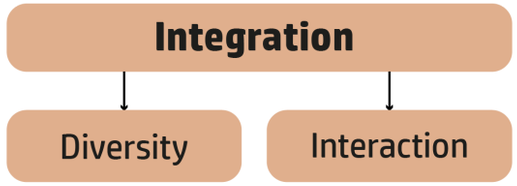
The solution needed to reduce socio-spatial segregation should be integration, since this is the opposite term for segregation. Although integration is such a broad term that any design solution could still be possible. Social mix could still be a part of the design solution for the Vlissingen context, but there are more opportunities to reduce socio-spatial segregation.



The problem in the Vlissingen context is that poor social groups all seem to live in the same few neighbourhoods. In other words, there is a lack of a diversity of people in these neighbourhoods.
Social mix is one of the opportunities to create diversity. Diversity contributes to integration, when done correctly, and is therefore a possible solution to reduce socio-spatial segregation, or as Talen (2007) writes it; “Diversity is the antidote to separation”.

It is known from earlier studies that bringing diverse social groups together in mixed neighbourhoods does not automatically result in intensive interaction or networking (Musterd, 2020). Even though the spatial segregation is solved in this case, the social segregation could still be a problem when there is a lack of contact and interaction between the different social groups. Therefore the other important part of the integration solution is interaction.

To conclude, integration is the main goal to counteract socio-spatial segregation. To reach this main goal of integration, it is separated in two subgoals: diversity and interaction.



Diversity
Social mix is an effective strategy to reach diversity within neighbourhoods. Social mix is a strategy where a variety of housing typologies and tenures in a neighbourhood contributes to a more diverse neighbourhood. Not only because the actual houses are different, but also because different houses attract different kinds of people. This diversity of buildings in form and scale could, when designed in the right way, make the neighbourhood visually more interesting and could provide a greater scope for local distinctiveness and character (Carmona et al., 2010).

Social mix also helps to avoid negative stigmatisation of neighbourhoods (Musterd, 2008). Those stigmas could develop when poor social groups are living together in deprived neighbourhoods, like similar to the context in Vlissingen. The direct relation between the levels of mixing and negative stigmatisation are however not clear. Only that a very homogeneous space is more often related to a negative stigma.

Other advantages of using social mix as a strategy are discussed by Carmona et al. (2010). Social mix is described as the variety in house prices and tenures. One of the advantages is that this variety provides a better balance of the demand for community services and facilities, because different people have different demands. Another advantage is that the variety creates the opportunity for ‘life-time’ communities, because with different house prices and tenures people could move towards a different home within the same neighbourhood. Next to that, a diverse neighbourhood is more robust than a homogeneous one, has a stronger surveillance because of people coming and going throughout the day and evening, and enables community self-help where people help each other with small tasks. This last one is interesting, because the same was described for homogeneous neighbourhoods. According to Musterd et al. (2002), a tight community network between people living in similar conditions can result in the mutual exchange of voluntary services. It seems that the quality of interactions between people depend on a balance between a diverse and homogeneous neighbourhood, because a hyper diverse neighbourhood might result in people being too different to interact with each other.
Other research also showed that people in socially mixed areas have better contacts with residents in their environment than people in homogeneous areas, when done correctly (Musterd, 2008). Therefore, diversity and interaction are strongly related and both important to counteract socio-spatial segregation.

Interaction
When stimulating a diversity of people, it is important that these people will interact with each other. There are many design strategies possible to increase interaction between people, but when reading about strategies related to diversity, they can be divided in three main strategies. These are social cohesion, connectivity and (urban) vitality.

Social cohesion is important to stimulate a community feeling with high quality interactions in the neighbourhood. There are more weak and one-off interactions and there are strong and more structural interactions between people (Peters et al., 2010). Most interactions are weak and one-off, but it is strongly dependent on social cohesion. People do not have many intensive social interactions with people they do not know, because most people feel comfortable within their own social group and do not feel the need to interact with others. With a strong social cohesion in an area, people can easily connect with each other because many people will already be familiar to them.

Connectivity is about the physical elements that create either connections or barriers between, but also within, neighbourhoods. A well-connected network makes it easier for people to visit each other, either at home or in public space (Cooper et al., 2014). When people use public spaces more often to walk or cycle towards the direct surroundings of the neighbourhood, the amount of encounters and thus interactions will also increase.

Vitality is about the activities in public spaces to make sure people will use the public spaces. Gehl (2010) wrote: “If there is life and activity in city space, there are also many social exchanges. If city space is desolate and empty, nothing happens.”
Thus, vitality is also an important strategy to stimulate interaction between people.

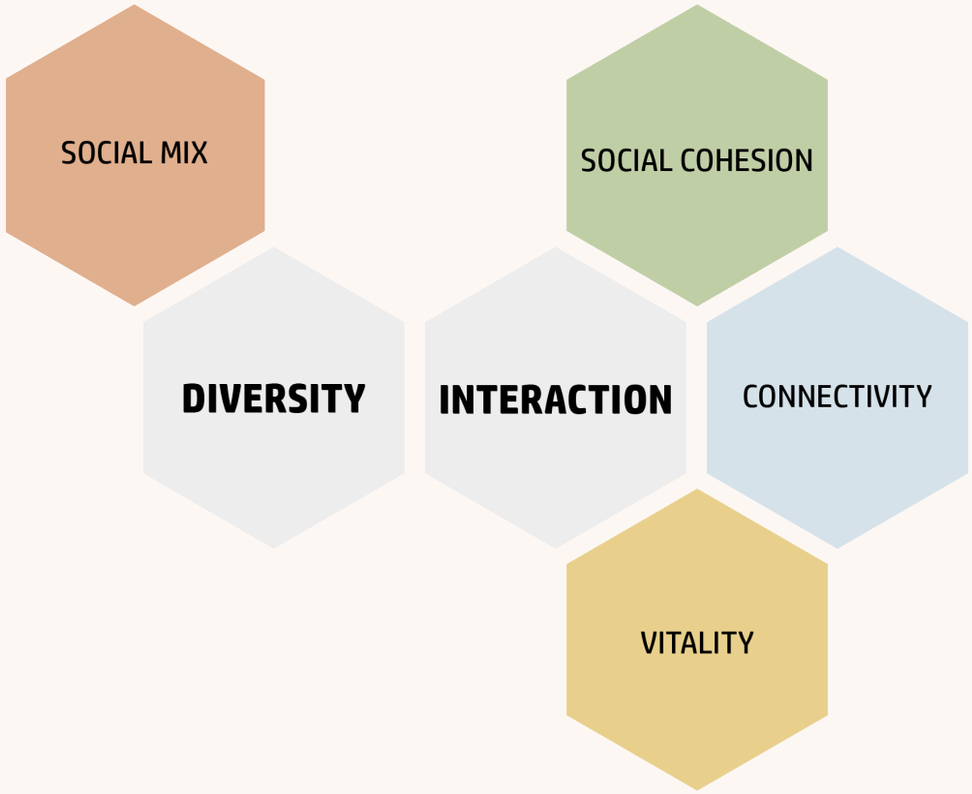


Figure 4.1. Strategies for diversity and interaction

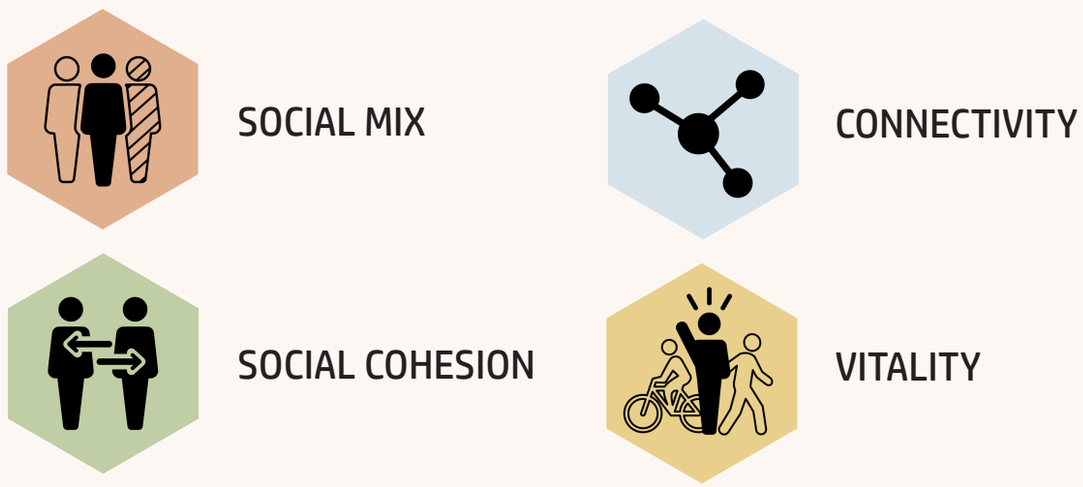


Figure 4.2. The four strategies

Thus, to achieve integration to counteract socio-spatial segregation, there needs to be diversity and interaction. To achieve these goals there are four strategies: social mix, social cohesion, connectivity and vitality.

4.2 Threats of Social Mix

When using social mix as a strategy, it is important to also look into the threats. Social mix is discussed many times in literature and opinions about the effects of social mix differ. The positive effects of social mix are already discussed, and now this paragraph will go into the threats.

Quality of interaction

The first threat is about the quality of interactions between people. According to Musterd (2008), several scholars argue that social mix will create only local societies in which different people will not interact with each other. In other words, relations between different social and ethnic groups are parallel rather than integrative (Lawton, 2012). Even in highly mixed neighbourhoods, specific social groups may only have contact within their own group (Musterd et al., 2007). This is not because of discrimination or culture, but because of large differences in terms of life styles. People have too little in common to reach a sufficient high level of interaction (Musterd, 2008).

This results in the fact that social mix cannot be assumed to enhance social cohesion (Bolt et al., 2010). Therefore the thesis does not only focus on diversity of people to counteract spatial segregation, but also on the quality of interactions between people to counteract social segregation.

Neighbourhood reputation

The second threat is about the reputation of a neighbourhood. Overall, literature discusses the effects of social mix on a neighbourhood reputation in a positive way. However, if the reputation is less connected with social dimensions and more with for example the physical characteristics of housing estates, social mix might not reduce an existing negative reputation (Musterd, 2008). Negative reputations are often related to social housing because of the social composition of residents that often leads to higher frequencies of social problems, crime and vandalism (Anderson, 2019). Bloemenbuurt in Vlissingen is also a neighbourhood with many social housing estates and is also dealing with a negative neighbourhood reputation. In this case, social mix might be an opportunity to improve the neighbourhood reputation.

Gentrification

The third threat is related to gentrification. Gentrification is a term used for the strategy where rich social groups are placed within an area of poor social groups. Therefore gentrification is a way to stimulate social mix, because different income groups are also different social groups. A positive viewpoint on gentrification is that stimulating immigration of rich social groups into areas where poor social groups live, will improve the tax base of the municipality and contribute to further investments in housing rehabilitation. It is believed by some that the poor social groups will also benefit of this growth and improvement (Anderson, 2019).

A negative viewpoint on gentrification is that it indirectly promotes urban decay because poor social groups are displaced from the gentrified areas and concentrated in other parts of the city where succession and decay accelerate. Gentrification could therefore lead to an increase of socio-spatial segregation and urban decay in cities (Anderson, 2019).

To avoid a further socio-spatial segregation and urban decay in Vlissingen, it is important that the main focus of the design should be on the current inhabitants of the deprived neighbourhoods and their

opportunities and living environment. The poor social groups should not be displaced from their neighbourhood. This means that it is undesirable to put larger or more expensive housing in lower-income areas through demolition and replacement or by restoring housing previously divided into smaller apartments (Talen, 2007). Thus, the differences between the current and new inhabitants in the neighbourhood should not be too big when stimulating social mix. In the case of Vlissingen, it is preferable to attract middle income groups instead of high income groups, and to make sure that many of the current inhabitants can stay as well. This way, the inhabitants are not pushed away and replaced.

Social mix policies

The last threat is about social mix policies. Social mix policies are not always effective, because they are often market-oriented and do not always take into account other factors such as the historical trajectories of inequality (Annunziata et al., 2021). Therefore the underlying source of the problem of socio-spatial segregation is not being solved and thus might eventually return.

Policies with a strong focus on demolition, such as the Dutch urban restructuring policy, makes it especially difficult to move within a neighbourhood (Bolt et al., 2010). In this case, social mix does not lead to improved opportunities for poor social groups, but to a so-called solution where the lower classes have to embrace the values and norms of the middle classes (Bolt et al. 2010).

Thus, social mix policies often sell public interventions as combatting poverty, but they do not address the structural causes that lead to socio-spatial segregation in the first place (Annunziata et al., 2021). Therefore the social mix policies needed to support the urban design need to take into account the context of Vlissingen and its structural problems.

In the design process it is important to avoid these threats as much as possible. Social mix needs to stimulate diversity, but this needs to be done in a balanced way to make sure that people will interact with each other. To avoid the threats mentioned above as much as possible, guiding principles based on theory will help to find the right balance for social mix.

In Figure 4.3., the theoretical framework that is showed earlier in the thesis is now supplemented with the opportunities and threats to reduce socio-spatial segregation.

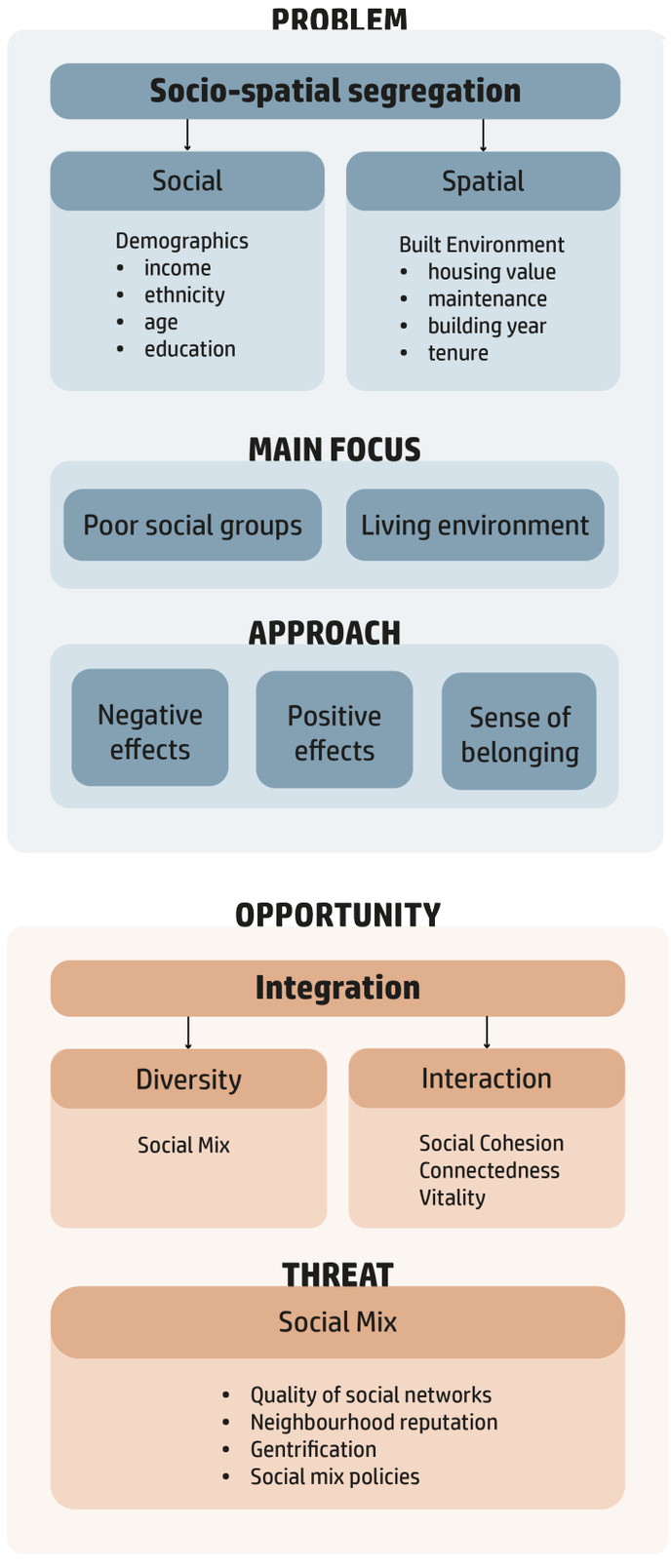


Figure 4.3. Theoretical framework supplemented with opportunities and threats

4.3 Diversity

The next three paragraphs are about the two goals, diversity and interaction, and what guiding principles are needed to reach those goals. Therefore these paragraphs answer the sub-question: 'What guiding principles are needed to reduce socio-spatial segregation?'

Social Mix

Social mix is not always successful. There are some guiding principles needed to integrate social mix into the design in a successful way.

Firstly, the scale on which tenures are mixed is very important. In an old urban design of False Creek (Vischer, 1986), the designers used the enclave concept where neighbourhoods, also seen as communities, were divided in a few enclaves with an public activity node in between that was accessible for all enclaves, visible in Figure 4.4. The enclaves are small and consist of only a few housing blocks. In this enclave concept, the urban designers recommended to mix tenures between the enclaves but not within. Thus, the enclave itself maintained a social homogeneity. In the example of False Creek the residents seemed to be content with this type of mix, but the neighbourhood was completely new-build and residents knew beforehand that they were going to live in a mixed neighbourhood. Therefore it is not clear whether this kind of mixing is really effective to stimulate a community feeling within a neighbourhood.

More recent literature about social mix often seems to reference towards the 'different types of tenure mix' by Groves (2003). He defined four different strategies to mix tenures: the integrated strategy where tenures are mixed side by side, the segmented strategy where tenures are mixed in blocks, the segregated strategy where tenures are mixed in concentrations, and the monolithic strategy where tenures are not mixed.

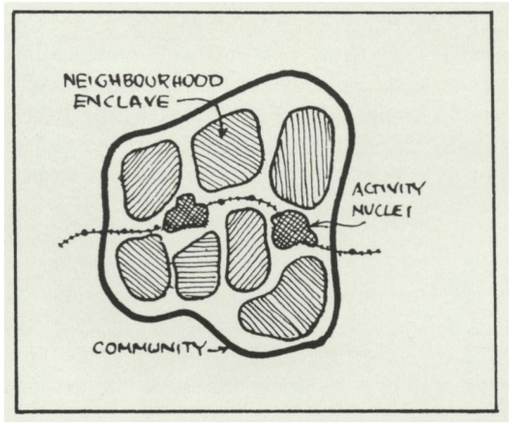


Figure 4.4. The enclave concept.
Source (Visscher, 1986)

The example of Vischer (1986) of the enclave concept is comparable with the segregated strategy. Groves (2003) concluded that the integrated model, where tenures exist side by side, has been more successful in achieving a socially cohesive neighbourhood than the other models of tenure mix.

There seem to be many writers that agree with the conclusions of Groves. For example Carmona et al. (2010) states that the recommended way to mix tenures is along streets, because the street is the strongest social unit. Another writer that agrees with Groves is Lawton (2012). He states that tenure mix must take place at the level of the street to avoid problems of stigmatization of lower social groups. He also concludes that social mix does not necessarily result in strong relationships between different groups, but interaction between groups is more likely to occur when tenures are mixed in close proximity to each other.

Another important aspect Groves (2003) mentions, is that the different tenures need to be indistinguishable in terms of their appearance. It means that, when mixing tenures in close proximity, people from the outside cannot see a difference between tenures. Roberts (2007) describes it as a 'refined architectural treatment'. It is important to blur the distinctions between tenures, because when social housing is as attractive or even more attractive than owned properties, the resident satisfaction with mixing is higher (Levin et al., 2014), which is important to make social mix a successful strategy. There are also other, non-architectural, elements that lead to differences in appearance, such as the presence of cars, carports and garages. Even differences in public space could provide an indication of wealth or the lack of it. That also needs to be taken into account in a future design.

The first guiding principle is therefore to make sure that tenures are mixed side by side and are indistinguishable in their appearance.



side by side tenures
are indistinguishable

Secondly, it is important to create a hierarchy between private and public space (Levin et al., 2014). This hierarchy is going from the private and semi-private to the semi-public and public. The different areas must be provided for residents to feel free to stay with their own social group or to move between areas to socialise with people from other groups. This way, all different tenures are connected with each other by public space and thus different people are also connected. Carmona et al. (2010) adds that the hierarchy can be even stronger when looking into density. Density should increase when going from private to public.

When creating semi-private and semi-public spaces, it is important that it is clear for whom the space is designed. In the example of the enclave concept (Vischer, 1986), the semi-private spaces were largely unused, because the spaces were designed for a specific use, while the inhabitants were very diverse. Therefore the semi-private spaces were only fit for very specific kinds of people. This should be taken into account when designing (semi-)public spaces.

The second guiding principle is thus to create a hierarchy between private and public space.



hierarchy between
private and public

4.4 Interaction

Social cohesion
When mixing tenures and people, it is important that there is social cohesion to create a community feeling that stimulates people to interact with each other. There are some guiding principles that help to stimulate social cohesion.

Urban parks are interesting to add in the area (Peters et al., 2010). Urban parks are inclusive places where people of different ethnicities spend their leisure time. This is different than nature areas located outside of the city, because these areas are hardly visited by people with a migration background. Therefore, these are not very inclusive. Urban parks are more inclusive and therefore interesting to stimulate social cohesion. Urban parks serve as a vital public space where opportunities for intercultural interaction exist (Schreiber et al., 2016).

The interactions differ on different urban park scales (Peters et al., 2010). A small urban park in a neighbourhood where almost all of its visitors live nearby stimulates feelings of comfort, public familiarity and attachment. In this case, the visitor can easily connect to the place and to other visitors. A bigger urban park outside of the neighbourhood functions more as a 'world of strangers' and attracts a bigger variety of people. People feel welcome because these urban parks are open and accessible, but the interactions will mainly be short because people are less likely to talk to other people they do not know. Therefore both urban park scales have their qualities, but the smaller scale urban parks are most likely to increase social cohesion.

However, not every implementation of an urban park will work. Physical characteristics of a park, like the presence of vegetation, size, type of green spaces and facilities directly influence the amount of social cohesion. Every location and context is different and therefore every urban park is different. Another aspect that influence social cohesion in parks are the perception of people related to greenness, proximity, and safety. For example some parks are perceived as places with little overview and thus as places for criminality. Also behaviours in green spaces, such as the frequency and duration of a visit and the activities taken place, also influence the amount of social cohesion. For example, poor layout and location of the green spaces could lower the desire to engage in the green spaces (Wan et al., 2021). These are all aspects to take into account during the design process.

To conclude, the fitting guiding principle is to create urban parks on different scales, while taking into account the context of the area.



urban parks

The next guiding principle is about a mixed use neighbourhood. It means that there are certain facilities or functions within neighbourhoods apart from a residential function. Not only do neighbourhood facilities serve the needs of residents and therefore promote the area more generally, but the locations of the facilities are also active public spaces. These public spaces make the neighbourhood more socially active and stable, providing a better chance for informal, voluntary control (Talen, 2007). Therefore mixed use is not only about the actual facilities and amenities, but also about functions given to public spaces.

Facilities can be small businesses that create jobs, like shops and restaurants (Carmona et al., 2010), but also schools, childcare and buildings used for religion. Especially for people with a migration background, education and religion play an important role for social cohesion in a neighbourhood (Kalmijn, 2021). It is important that these facilities are connected to their surrounding residential fabric (Carmona et al., 2010).

Another viewpoint on facilities and neighbourhoods is that the main focus should be on a better connection with other neighbourhoods for employment and local services, rather than relying on the more limited choice in their own neighbourhood (Roberts, 2007). This is also an interesting viewpoint for the Vlissingen context, since the city is relatively small and therefore many facilities outside of the neighbourhoods are still nearby.



mixed use
neighbourhood

Connectivity
Interactions between people take place in public spaces. A strong connected network will increase the amount of people in public spaces and thus encounters and interactions. Connectivity is therefore necessary. There are some guiding principles to stimulate connectivity.

The first one is to stimulate walkability (Gehl, 2010). Areas that prioritize walking and cycling are typically leading towards more social interactions and could help residents who are unable to afford a car to overcome transport poverty (Schreiber et al., 2016). To stimulate walkability, networks between and within neighbourhoods need to be well-connected. Networks with more connectivity will encourage more walking behaviour and thus will create more opportunities for people to interact with one another through encounters on the street (Cooper et al., 2014).

When designing for walkability it is preferable to create alternate routes (Talen, 2007). These routes are important links within and between neighbourhoods (Legeby, 2009). Alternate routes stimulate a 'good circuitry', which creates an efficient movement. It means that there need to be multiple connections between all types of spaces. The best way to create these alternate routes is to make them compact, direct and logical (Gehl, 2010).

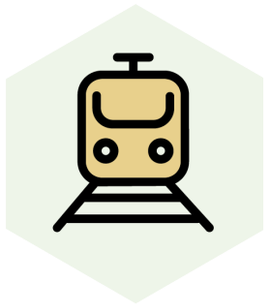
However, walkability is not always perceived as desirable. According to a neighbourhood analysis by Van Dyck et al. (2011), the neighbourhood satisfaction was negatively influenced by walkability. This is because walkability was associated with the perceptions of less aesthetics, more pollution, less overall safety and more crime. In this case, people related walkability to very dense areas. High

concentrations of individuals on a small area could lead to perceiving more unsafety, crime, aesthetic-related problems like litter, and noise-, smell- or air pollution, and thus consequently influence neighbourhood satisfaction. Therefore a neighbourhood should not be too dense, to prevent negative associations with walkable areas.



walkability

The second guiding principle is to create a strong public transport network (Schreiber et al., 2016). The public transport network is strongly related to walkability, because the access towards public transport is often preferably a pedestrian- and cyclists friendly environment. A strong public transport network also helps to improve the connections between residence and facilities in- and outside the neighbourhoods. More investments in public transport could therefore possibly reduce the use of cars within or outside the city. This is however not a guarantee and should not be directly assumed in the design process.



access to public transport

The third guiding principle is to get rid of boundaries between neighbourhoods. Boundaries are supposed to bound and give shape and identity, but ideally they are supposed to function like seams and lines of connection rather than barriers (Talen, 2007). It should be avoided that certain areas or people are excluded from neighbourhoods with its facilities. When there are certain barriers that disrupt connectivity, there is a need to create paths through these barriers (Carmona et al., 2010). This way, social and institutional ties that link residents across neighbourhoods are not segregated from each other (Sampson, 2003). This means that in the Vlissingen design the deprived neighbourhood should not be treated as an island, but as an area embedded in the city and its surroundings. The connections of the neighbourhood with its surroundings are as important as the connections within the neighbourhood.



connected neighbourhoods

Vitality

The last strategy is about vitality. Vitality in public spaces means that people will actually use public spaces, which increases the amount of interactions. There are some guiding principles to stimulate vitality.

The first one is to add activities in public spaces. An active public space is ‘alive’ with many different groups of people using it (Gehl, 2010). To achieve this, there are multiple factors to take into account.

Streets can have a great impact on the vitality of an area. They are not only used as transportation, but also as a fundamental shared public space (Schreiber et al., 2016; Carmona et al., 2010). Streets can facilitate numerous social, cultural, and economic activities that stimulate interaction (Schreiber et al, 2016). Therefore street networks, as already discussed in the connectivity part, are a very important design tool to increase the amount of interactions.

Public spaces are most frequently used by people if it is located within 3 to 5 minutes walking distance from their residence (Talen, 2007). This means that public spaces should be integrated on a small scale within neighbourhoods to increase activity and thus interactions. When designing public spaces, it is important to see the relationship between the space and the people who live and work around it. This way, the functions given to a public space fit with the needs of the people using it.

When designing the public space itself, there needs to be room for activities. Small interventions, like adding enough benches, could already influence the way people use the space and thus influence activity (Schreiber et al., 2016). An example of a public space activity could be a playground. According to Roberts (2007), playgrounds have an important role as arenas for social interaction between residents of different tenures. Other possible activities are community gardens that could contribute to social cohesion and thus interactions (Schreiber et al., 2016). It is however important that the activities fit with the needs of the users. Otherwise the public spaces will be remain largely unused, like the case of False Creek where in some areas the need of inhabitants was different than the use given to the public spaces (Vischer, 1986).

Another important factor when it comes to activity in public spaces is to avoid fast traffic. According to Gehl (2010), fast traffic results in lifeless cities. There is more activity in urban neighbourhoods when people move slowly. That is not only because of the feeling of safety, but also because of the noise. Therefore cars need to reduce their speed along public spaces.



activity in public spaces

The second guiding principle is the concept of ‘eyes on the street’. This concept is about the fact that the presence of others indicates that a place is acceptedly good and safe (Gehl, 2010). When people feel safe in public spaces, they are also more likely to use the spaces and thus activity and the amount of interactions increase.

Important factors to take into account are elements that could block the view, but also building facades. Facades of for example facility buildings are not only important areas where indoor and outdoor life come together, but are also eyes on the street. Therefore facades of public buildings should be open and inviting for people.



eyes on the street

4.5 Guiding Principles

The theory in the last two paragraphs have led into guiding principles for the urban design, as is visible in Figure 4.5.. When taking into account these guiding principles in the design, it should be possible to create a design that will reduce socio-spatial segregation between neighbourhoods in Vlissingen and to improve the living environment of deprived neighbourhoods. These guiding principles are based on theory and meant to support the design experiment process to make sure that the final urban design will actually reducing socio-spatial segregation instead of just improving the current living environment.



Figure 4.5. The guiding principles based on the theory.

Theory Concepts

Figure 4.6. shows the goals and strategies that are discussed in the theory. Integration is the goal to counteract socio-spatial segregation. The related subgoals to achieve this goal are diversity and interaction. The related strategies to these subgoals have led to the guiding principles.

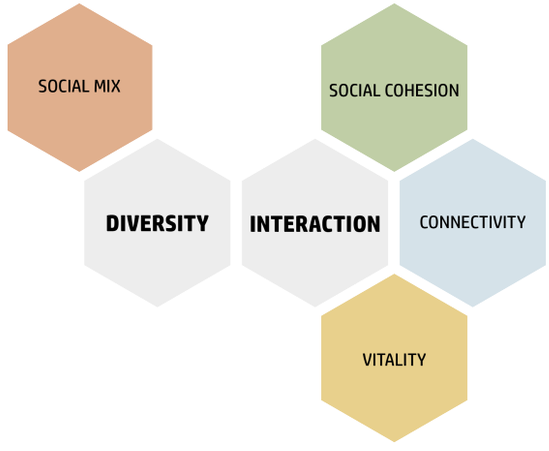


Figure 4.6. Strategies for diversity and interaction

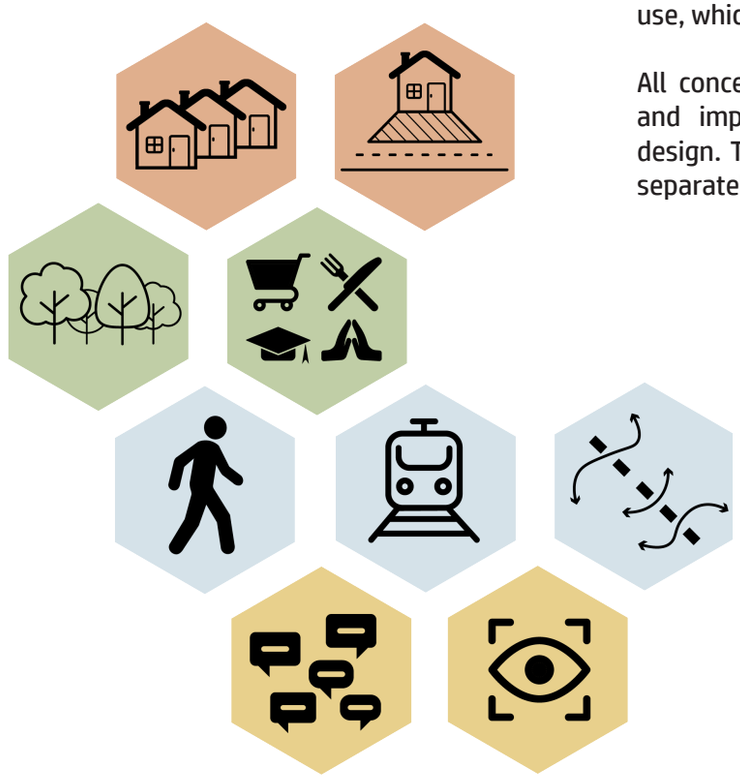


Figure 4.7. Guiding principles ordered according to strategies

When organising the guiding principles according to the strategies, shown in Figure 4.7., it is visible that most guiding principles are to stimulate connectivity. However, most guiding principles influence multiple strategies.

For example creating a mixed use neighbourhood with many facilities does not only stimulate social cohesion. A mixed use neighbourhood also stimulates social mix, because different facilities attract different people into the neighbourhood. Next to that, the public spaces at the facilities contribute to vitality, because people actively use the facilities.

Another example is the hierarchy between private and public. It does not only contribute to social mix with ordering social groups into more private of more public spaces, but it also contributes to connectivity. A clear hierarchy creates a better orientation and thus a more ‘readable’ network that people use, which will lead to an increased vitality.

All concepts are connected to each other and important for an integrated urban design. Therefore they should not be seen separately, but as related concepts.

Multiscalar guiding principles

Figure 4.8. shows the guiding principles ordered by scale. The guiding principles can be integrated on different scale levels and most of them on multiple scale levels. For example the guiding principle about walkability networks is multiscalar, just as the guiding principle about urban parks. On a smaller scale the activity of public spaces need to be designed on both the neighbourhood scale and block scale, because activity is influenced by the design interventions on a small scale, but also by the location of the public spaces in the urban fabric.

The multiscalar aspect of urban design is important to keep in mind while designing. Changes of one scale always influence the situation of the other scales. However, Figure 4.8. helps to define the most important guiding principles per scale.

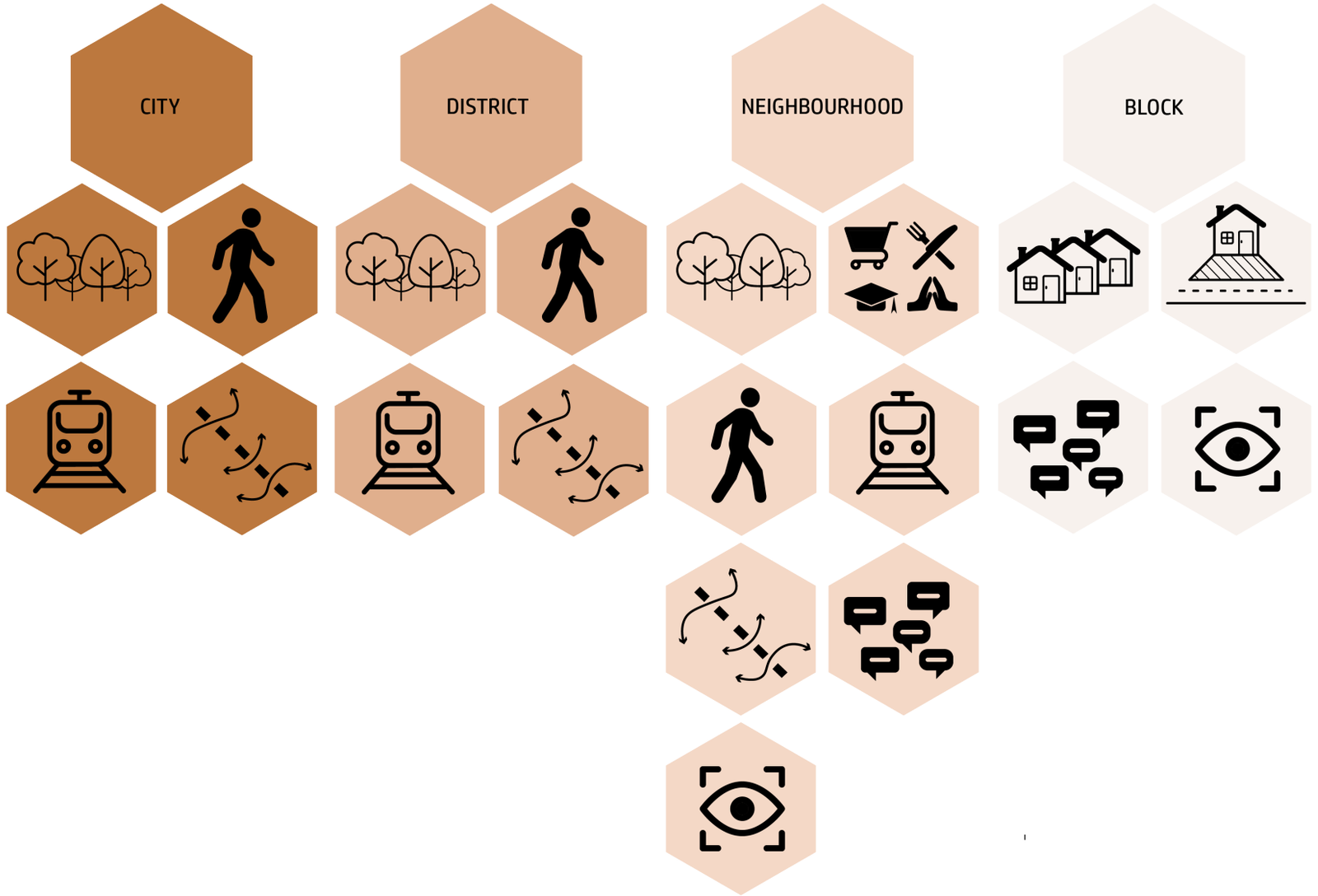


Figure 4.8. Guiding principles ordered according to scale



5.

Guiding Principles Application

5.1 Guiding Principles Analysis Vlissingen

5.2 Guiding Principles Vision Vlissingen

5.3 Guiding Principles Analysis Bloemenbuurt

5.4 Guiding Principles Vision Bloemenbuurt



Figure 5.1. Base map of Vlissingen

5.1 Guiding Principles Analysis Vlissingen

With the guiding principles defined by theory, they can now be applied to the context of Vlissingen, on the city scale. The guiding principles that are relevant for the city scale are shown below. The next few pages will go into the spatial analysis related to these guiding principles. The related guiding principles are shown with the icons next to the maps.

Figure 5.1. shows the base map of Vlissingen to situate the maps that will be discussed in the guiding principles analysis. Vlissingen is a coastal city, which results in the fact that the city centre is located in the south, along the coast. The map also shows that Vlissingen is located next to Oost-Souburg, a village that is part of the municipality of Vlissingen. Next to that, the northern part of Vlissingen, located above Sloeweg, used to be West-Souburg. Nowadays this is part of Vlissingen and not a separate village anymore. Though Sloeweg still seems a barrier between the two parts of the city.



urban parks through the scales

stimulate walkability

accessible public transport

connected neighbourhoods

0 m 250 m 500 m

Urban parks

The first guiding principle is about urban parks. Urban parks are an effective way to stimulate interaction between people in public spaces. The scale and structure of an urban park is however different in every context and determines if an urban park is successful or not.



Figure 5.2. Urban parks



Figure 5.3. Images of the urban parks. Source: (Google, n.d.)

In Vlissingen there is one main urban park, called Nollebos. The translation suggests that it is a forest, but it actually looks and feels like a park, as visible in image 1. The other urban parks in Vlissingen are much smaller and really seem to function as parks for inhabitants in the surrounding neighbourhoods. Figure 5.2. shows that there is quite a big part of Vlissingen without urban parks, especially in the east and south. In this area there is an opportunity to add urban parks in a future design.

Connectivity - Walkability

The walkability guiding principle is important for the connectivity within Vlissingen. The walkability routes are the connectors between neighbourhoods, parks, the city centre and other amenities. These streets are public spaces where people encounter each other and possibly interact.

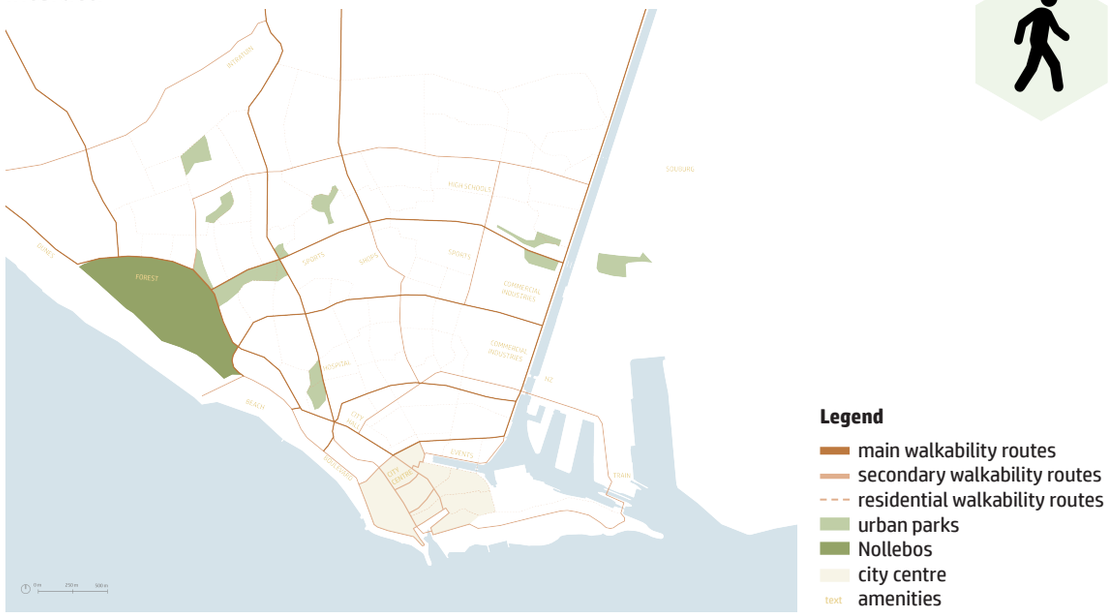


Figure 5.4. Walkability in connection with urban parks and amenities

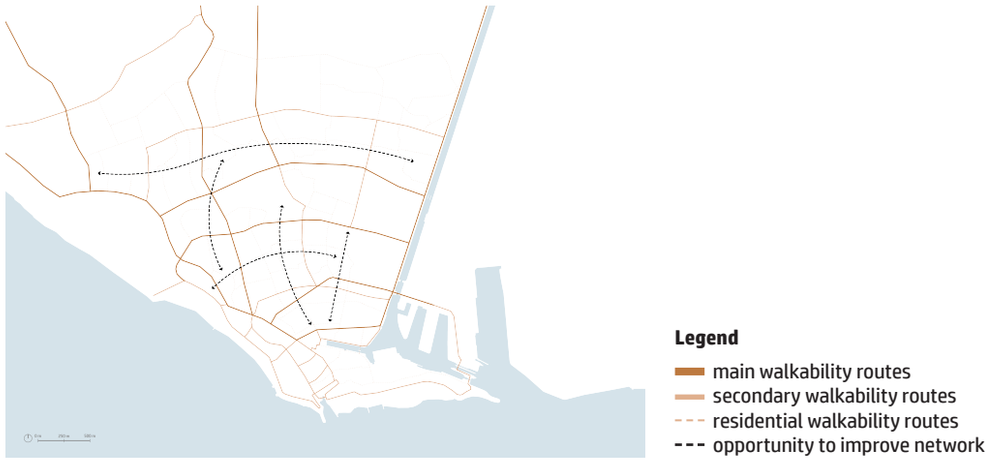


Figure 5.5. Walkability connections that could be improved

In the current situation there are many routes where people can walk and cycle. Figure 5.4. shows the main walkability routes within Vlissingen that connect neighbourhoods with urban parks, the main amenities of Vlissingen and the city centre. The walkability routes seem to form a strong network. However, there are some connections that could be improved in a future design to optimise the walkability network. These connections are marked in Figure 5.5.

Connectivity - Public transport

The accessibility of the public transport network is important for the connectivity within and outside of Vlissingen. A strong public transport network could help to connect residential areas with amenities within or outside of Vlissingen. Next to that, it could help to reduce car use within the city, which improves the walkability network as well.



Figure 5.6. Public transport Vlissingen



Figure 5.7. Public transport region

Currently, the public transport network in Vlissingen is not optimal. The train station is located quite far away from the city centre, which is not ideal for people who would like to travel towards work outside of the region. Next to that, the amount of bus stops within the city could be improved. When looking at a larger scale in Figure 5.7., it is clear that Vlissingen and Middelburg are well-connected to each other. However Middelburg seems much more connected to its surroundings than Vlissingen with for example a bus connection towards the port.

Connectivity - Car roads

An important characteristic when looking at connections is the car road network. This analysis shows the main car roads that connect Vlissingen with its surroundings, but also within the city.



Figure 5.8. Car roads Vlissingen

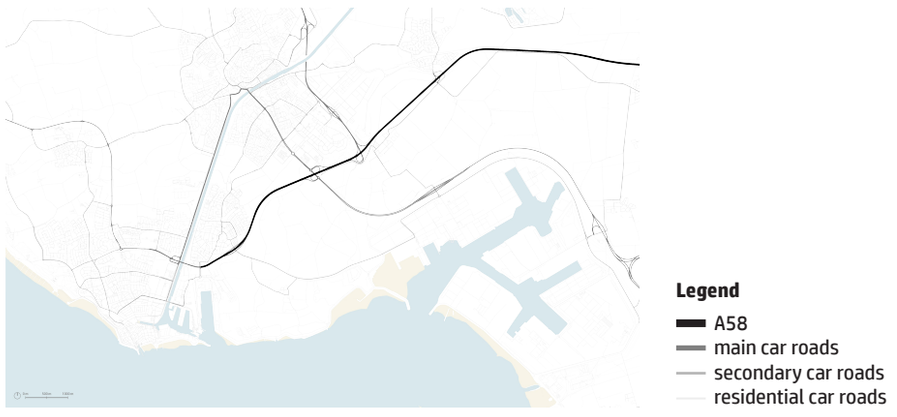


Figure 5.9. Car roads region

In the current situation there are quite some car roads that are important connectors within Vlissingen. The most important north south connectors are Burgemeester van Woelderenlaan, Koudekerkseweg and Nieuwe Vlissingseweg. The most important east west connectors are Sloeweg, President Rooseveltlaan and Paul Krugerstraat. The car roads that connect Vlissingen with its surroundings are Burgemeester van Woelderenlaan (towards Dishoek), Koudekerkseweg (towards Koudekerke), Nieuwe Vlissingseweg (towards Middelburg), Sloeweg and A58 (for outside the region). With that in mind, either President Rooseveltlaan or Paul Krugerstraat are less important car roads for Vlissingen and might be interesting to reduce car use to improve the walkability of Vlissingen.

5.2 Guiding Principles Vision Vlissingen

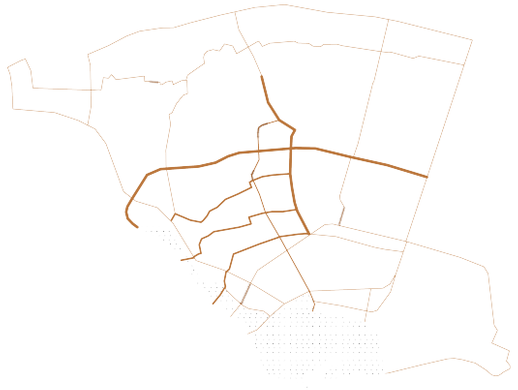


Figure 5.10. Guiding principles vision map for Vlissingen



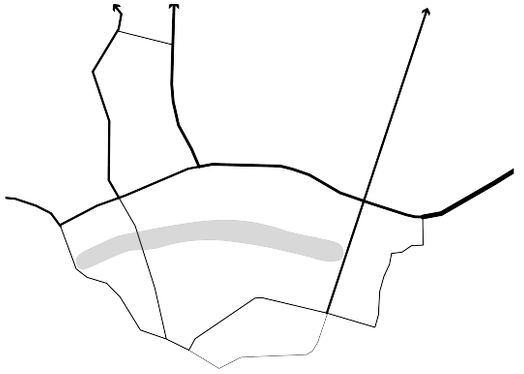
Urban parks
The vision map shows that there is an opportunity to add a few extra urban parks in Vlissingen. The locations of the new urban parks are based on the current green structure to make sure that the addition of these urban parks are realistic. Thus it are already green spaces, but without the function of an urban park. The green spaces are now a big wet landscape contributing to the ecology of Vlissingen, a motocross track, and a low quality park. Therefore (parts of) these green spaces have a high potential of changing into an urban park.

The locations of the new urban parks are however not entirely filling the gap mentioned in the analysis. That has to do with the possibilities to create space for such an urban park. In the southeast part of Vlissingen, the neighbourhoods are more dense and thus do not have enough space left for an urban park on the city scale. In this area might be more interesting to look into the integration of smaller urban parks, on the neighbourhood scale.



Walkability routes
The vision map shows the most important walkability routes with the currently missing links. In the analysis it was already shown what walkability connection could be stronger. Those connections are now included in the vision map to optimise the walkability network.

The most important walkability routes are marked in a darker colour. These routes are important connectors of the most deprived neighbourhoods with their surrounding neighbourhoods, but also with the urban parks, Boulevard, city centre and other amenities. Therefore these routes need some extra attention in the future design. On the city scale, the guiding principle about walkability is really about networks. However, on a smaller scale it is important to look into the different street profiles to make sure the walkability network is actually stimulating people to walk more often.



Car roads
The most important car roads are shown in the vision map. The analysis already showed the car roads that are important connectors within and outside of Vlissingen. The conclusion of the analysis led to the opportunity to change a main car road into a more pedestrian and cyclist friendly road. This road is President Rooseveltlaan, marked in the vision map. President Rooseveltlaan is not as important as the other main car roads in Vlissingen and could therefore be turned into a more pedestrian and cyclist friendly road. The car use will be reduced to create more space for pedestrians and cyclist. This way, the road will become a more important connector for the walkability network within the city, to connect neighbourhoods with each other.



Public transport
Looking at the public transport, there analysis showed that the network in Vlissingen is not optimal. The location of the train station is not ideal, but very hard and expensive to change. Therefore the bus becomes more interesting to improve the public transport network. In the current situation there are some missing links in this network that should be improved in a future design to optimise the public transport network. There is an opportunity to add a new bus route with bus stops to improve the connectivity of residential areas with amenities within or outside of Vlissingen. This route also connects with the port, located outside of Vlissingen. Many people in Vlissingen work at the port, but currently there are no busses that Vlissingen with the port. If people would like to use public transport to their jobs in the port, they need to travel via Middelburg.

Bloemenbuurt

The next step is to look into the guiding principles on the neighbourhood scale. In the problem analysis, there were a few neighbourhoods marked that are described as the most deprived neighbourhoods of Vlissingen, as is visible in Figure 5.11. In Appendix 3, the choice of the neighbourhood to elaborate is explained. This neighbourhood is Bloemenbuurt.

Bloemenbuurt is the poorest neighbourhood of Vlissingen and originally built with the Garden City concept. More about this concept will be explained later on, in the urban planning conditions chapter. The social context of the neighbourhood will also be explained later on, in the inhabitant participation chapter.

Bloemenbuurt is located very centrally in Vlissingen, as is visible in Figure 5.12. It is nearby the city centre of Vlissingen, the Boulevard, Nollebos and many other amenities like commercial industries, sport facilities and schools.

The next page will zoom in on Bloemenbuurt.

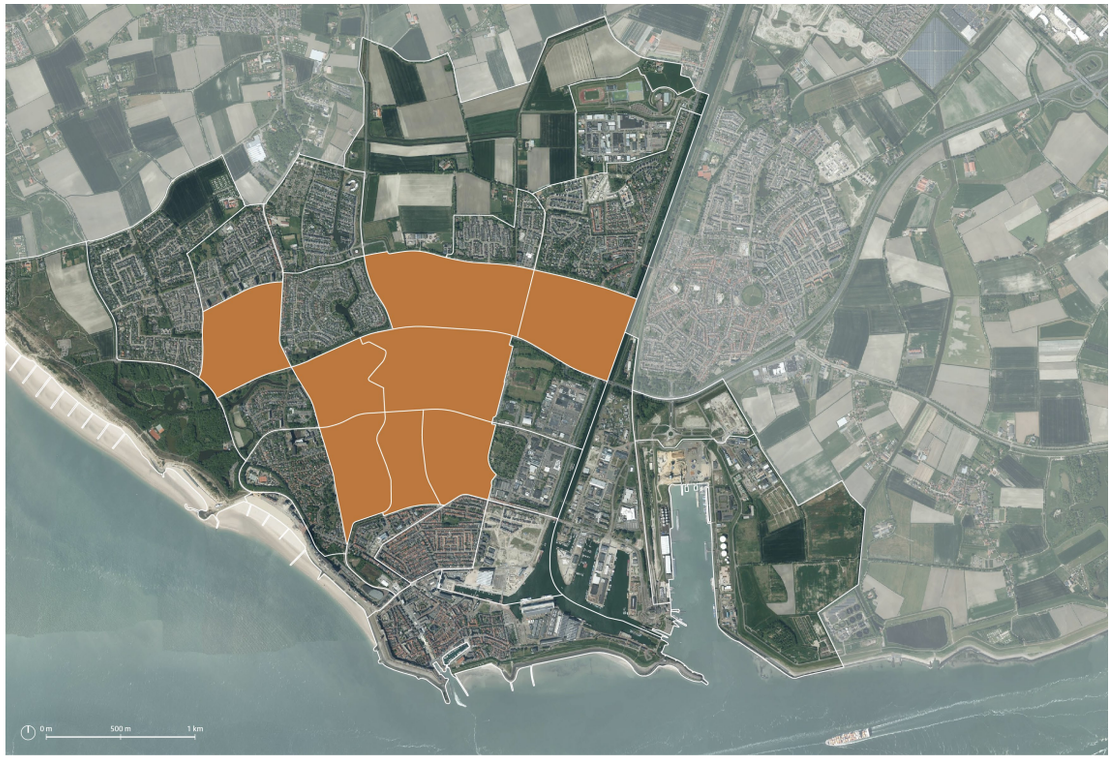


Figure 5.11. The most deprived neighbourhoods based on the problem analysis



Figure 5.12. Bloemenbuurt embedded in Vlissingen

President Rooseveltlaan
Irislaan
Anjelierenlaan
Beatrixlaan
Bloemenlaan
Paul Krugerstraat
Singel
0 m
100 m

Figure 5.13. Base map of Bloemenbuurt

5.3 Guiding Principles Analysis Bloemenbuurt

The base map of Bloemenbuurt is visible in Figure 5.13. to situate the maps that will be discussed in the guiding principles analysis. It shows that Bloemenbuurt is located between the main car roads President Rooseveltlaan in the north and Singel and Paul Krugerstraat in the south. Bloemenbuurt is located next to a canal in the west and a graveyard in the east. The structure of the neighbourhood is quite dense with narrow streets with few, relatively big, public spaces. The relevant guiding principles for the neighbourhood scale are shown below. At the bottom, there are also guiding principles relevant for the block scale that will be integrated in the paragraph as well.



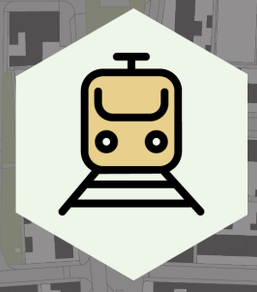
urban parks through the scales



mixed use neighbourhood



stimulate walkability



accessible public transport



connected neighbourhoods



activity in public spaces



eyes on the street



side by side tenures are indistinguishable



hierarchy between private and public



Urban parks

The first guiding principle is about urban parks. Urban parks are an effective way to stimulate interaction between people in public spaces. The scale and structure of an urban park is however different in every context and determines if an urban park is successful or not.



Figure 5.14. Grass structures



Figure 5.15. Urban parks within walking distance of Bloemenbuurt

Within Bloemenbuurt there are no urban parks. Only empty grass structures with in some cases trees or plants. There is however one urban park located within a 10 minute walking distance of the neighbourhood. The biggest urban park of Vlissingen, Nollebos, is a 20 minute walk from Bloemenbuurt or 5 minutes by bike. It can be concluded that there is a big area without any urban parks in which it would be interesting to add an urban park for people to interact with each other.

Mixed use neighbourhood

The guiding principle about a mixed use neighbourhood is about amenities within a residential neighbourhood like Bloemenbuurt. The amount and locations of amenities influence urban life in a neighbourhood, which is relevant to stimulate interaction between people.



Figure 5.16. Amenities within Bloemenbuurt

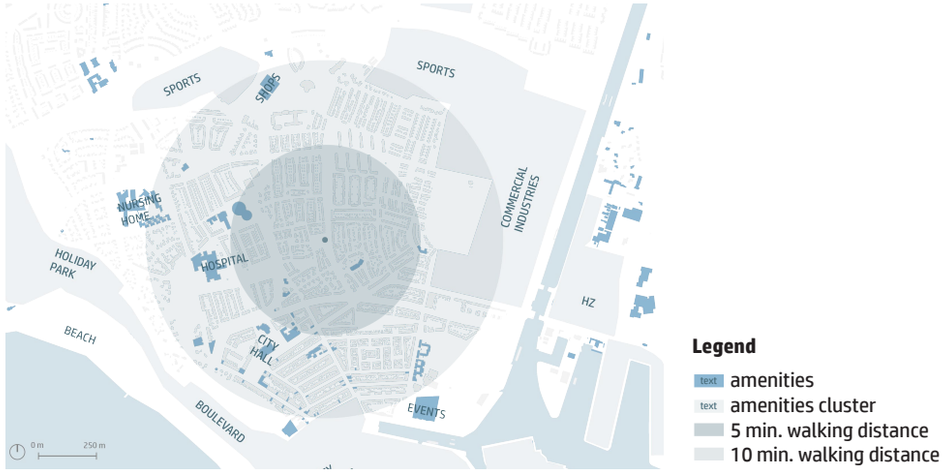


Figure 5.17. Amenities within walking distance of Bloemenbuurt

There are not many amenities within Bloemenbuurt. Only some healthcare related amenities like a dentist and physio, a cafe, a pet store and a B&B. There are however quite some amenities within walking distance of the neighbourhood. This is especially towards the city centre in the south. In the north of Bloemenbuurt there are less amenities. It is however the question if adding amenities in Bloemenbuurt would succeed, because of the wide range of amenities in the south. Therefore it would be more interesting to focus on the accessibility of the already existing amenities.

Connectivity - Walkability

The walkability guiding principle is important for the connectivity of Bloemenbuurt. The walkability routes are the connectors of Bloemenbuurt with the surrounding neighbourhoods and amenities. The streets are public spaces where people encounter each other and possibly interact.

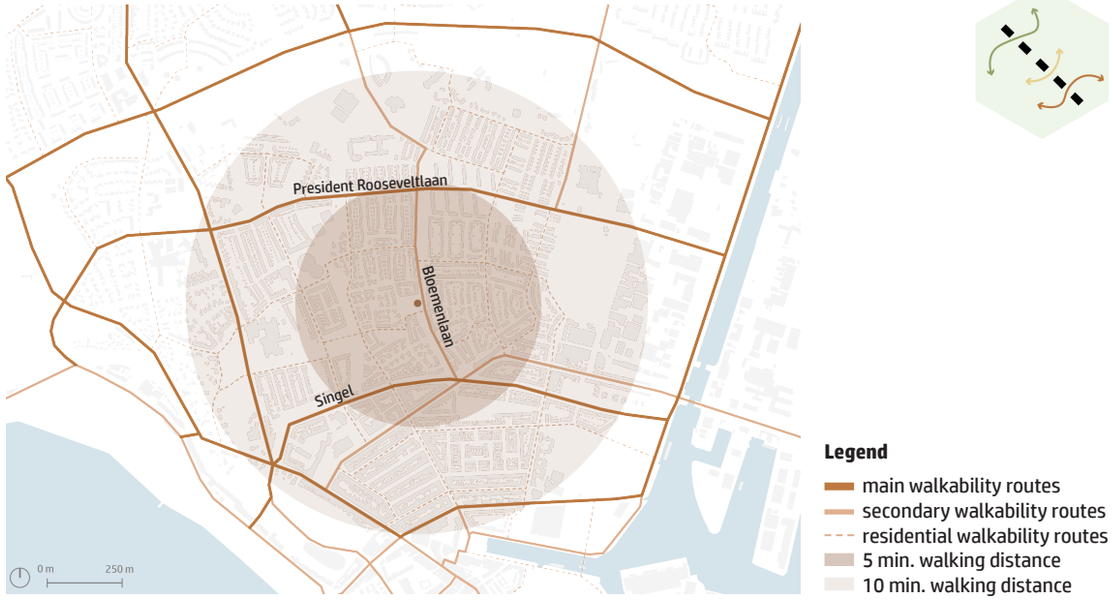


Figure 5.18. Walkability routes within walking distance of Bloemenbuurt

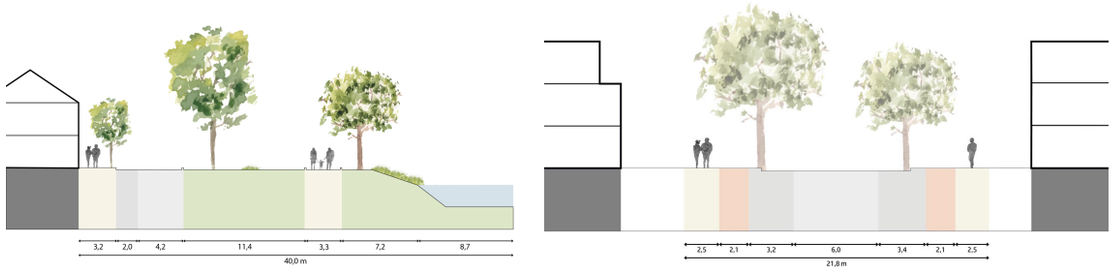


Figure 5.19. Section of Singel (left) and President Rooseveltlaan (right)

There are two main walkability routes within 5 minute walking distance of Bloemenbuurt, named President Rooseveltlaan and Singel. Both routes have an east west orientation and connect Bloemenbuurt with the Boulevard, beach and Nollebos. Singel, as the name states, is a pleasant route along the water and already a qualitative walkability route, as visible in Figure 5.19. President Rooseveltlaan is however quite car-oriented. Therefore it is an opportunity to change this towards a more pedestrian friendly street. Next to that, there could be more pedestrian friendly routes between the neighbourhoods in Vlissingen. Within Bloemenbuurt, the most important walkability route is Bloemenlaan. This street connects the neighbourhood with President Rooseveltlaan and Singel, and is therefore the most important entrance and exit of Bloemenbuurt when looking at the connectivity of the area.

Connectivity - Public transport

The accessibility of the public transport network is important for the connectivity of Bloemenbuurt. Especially in combination with the walkability network in the area. A strong public transport network could help to connect residential areas with amenities outside of the neighbourhood or city. Next to that, it could help to reduce car use within the neighbourhood, which improves the walkability network as well.



Figure 5.20. Public transport

The only available public transport within Bloemenbuurt is the bus. There is a bus stop in the north and one in the south of the neighbourhood. The bus stops are at the President Rooseveltlaan and the Paul Krugerstraat. Figure 5.20. shows that the bus is not going through the neighbourhood. Logically, Bloemenlaan would be a great opportunity to add a new bus route in the area. However, that would result into a barrier within the neighbourhood, because Bloemenlaan than would need a broader car road that is harder to cross for pedestrians. Therefore the main focus will be on the accessibility of the already existing bus stops, since they are already within a 5 minute walking distance.

Connectivity - Car roads

An important characteristic when looking at connections is the car road network. This analysis shows the main car roads that connect Bloemenbuurt with its surroundings, but also within the neighbourhood.

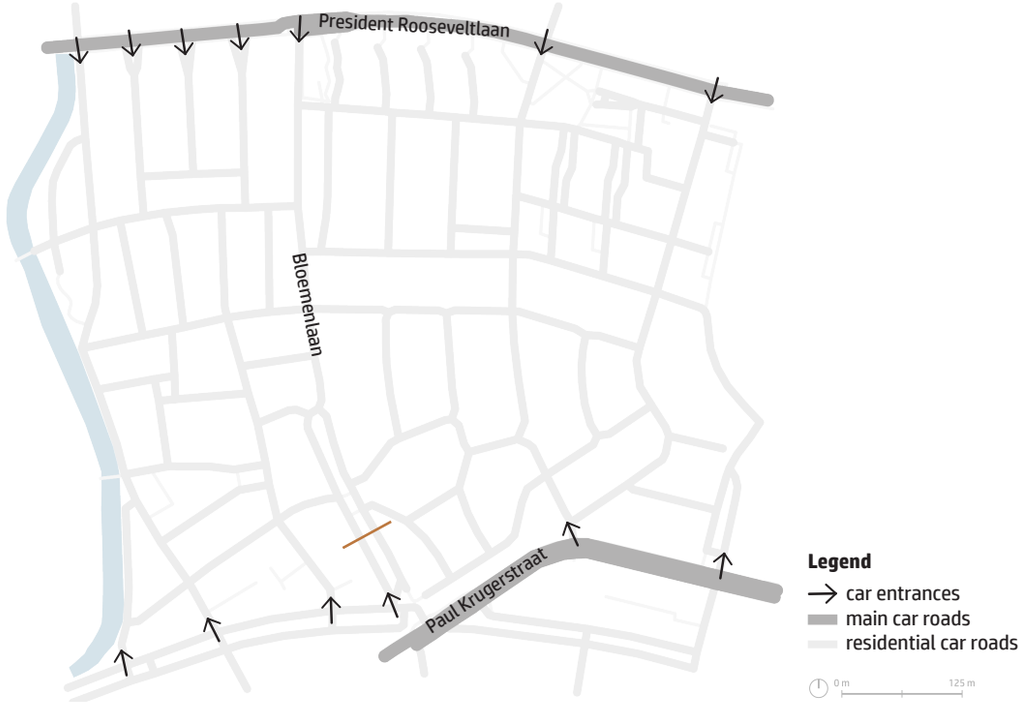


Figure 5.21. Car roads and car entrances

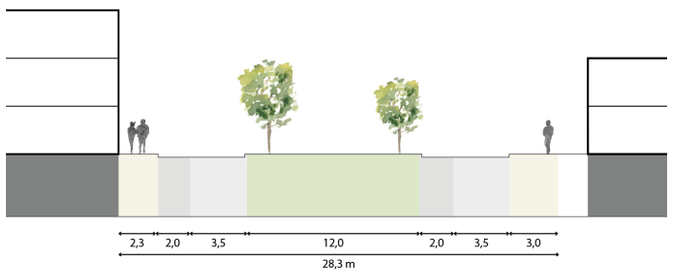


Figure 5.22. Street profile of Bloemenlaan

There are two main car roads in the north and south of Bloemenbuurt that connect the neighbourhood with its surroundings. Bloemenlaan connects these main roads within the neighbourhood. The street profile of Bloemenlaan shows that it is a broad street. It is structured as a lane with grass and trees between the two sides of the car road. Therefore this car road seems to function as the main entrance of the neighbourhood. Figure 5.21. shows all car entrances of Bloemenbuurt. There are currently a lot of car entrances going into the neighbourhood, which results in many cut-through traffic. This can be improved in a future design.

Connectivity - Borders

When looking at connections of Bloemenbuurt, it is also important to look at the borders. What are the spatial elements that form the borders of Bloemenbuurt and do they function as connectors or barriers?



Figure 5.23. Borders of Bloemenbuurt

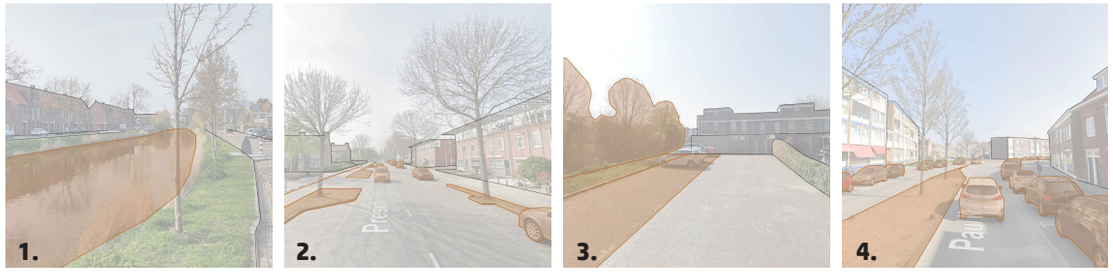


Figure 5.24. Eye perspectives of each border. Source image 2, 3 and 4 (Google, n.d.)

Bloemenbuurt is defined by a few borders. Border 1 is a broad canal, approximately 15 meters, with two bridges over it. These bridges are only for pedestrians and cyclists and are the only connectors in the west. Border 2 is currently a main car road with a 50 km/h car speed. Therefore the street is not easy to cross for pedestrians and cyclists. The same goes for border 4. Here, there is an extra barrier in the middle of the street. The car roads function as connector when looking at cars, but also as barrier for pedestrians and cyclists. Border 3 is a graveyard that is not accessible from Bloemenbuurt, because it is enclosed by greenery.

Activity in public spaces

The guiding principle about activity in public spaces is relevant for the strategy of vitality. If people are able to actively use public spaces, it will stimulate urban life in the neighbourhood. To make sure that urban life is stimulated, the activities should fit with the inhabitants of the neighbourhood.



Figure 5.25. Functions of public spaces within Bloemenbuurt



Figure 5.26. Activities in public space. Source gardening top view (Google, n.d.)

There are some activities in the public spaces of Bloemenbuurt. The activities can be divided in sports, playgrounds and gardening. Other public spaces are either streets or empty grass. Two big public spaces with only empty grass are marked in Figure 5.25. In these areas there is a big opportunity to add activities to improve the vitality in the neighbourhood. There are some playgrounds in the neighbourhood, but there is a big gap of activity in the southeast area. Here, there is an opportunity to add public spaces with activities. Within three building blocks in the north, there are some community gardens hidden behind fences. The gardens are hard to find and private. Even online they are untraceable. To make sure the gardens will be used in the future, it is necessary to advertise online to attract more people to use them.

Eyes on the street

For the guiding principle of ‘eyes on the street’, it is interesting to look at whether or not the fronts of buildings are facing public spaces. According to the guiding principle, people feel safer when they feel like there is social control. When people feel safe, interaction is more likely to happen.



Figure 5.27. Building fronts and less visible places.



Figure 5.28. Eye level perspectives on two public spaces without fronts facing them

The map shows all the fronts of the buildings. This gives an indication where people have ‘eyes on the street’ from inside people their houses. The areas marked in red in Figure 5.27. are spaces where there are no fronts facing the spaces. In other words, at these spaces people might feel less safe. There are not many areas without fronts facing the public spaces, but especially in the north there is one big public space without ‘eyes on the street’. This area is also shown in Figure 5.28.. The public space is quite big and, combined with the lack of fronts, it might feel unsafe for people. Therefore there could be extra attention going towards this area.

Tenure

The related guiding principle about tenure is about whether tenures are mixed within the neighbourhood and if they are indistinguishable. This is important in a diverse neighbourhood to make sure that the resident satisfaction about social mix is higher.



Figure 5.29. Social housing. Own map, based on (AlleCijfers, 2023a; AlleCijfers, 2023b)



Figure 5.30. Photos of tenures in Bloemenbuurt. Source (Google, n.d.)

Both the map and diagram in Figure 5.29. show that the percentage of social housing in Bloemenbuurt is high. This means that the neighbourhood is quite homogeneous when looking at tenure. With the idea of diversity in mind, it is an interesting opportunity to diversify tenures in a future situation. The current architecture of the social housing consists mostly of post-war housing, visible in photo 2, and pre-war housing, visible in photo 4. When comparing this architecture to the owner-occupied housing in photo 1 and 3 there is clearly a difference. Photo 1 shows a detached bungalow-like house with a big garden and photo 4 shows a modern architecture. Here, the tenures are distinguishable. With the opportunity to add new tenures in the area, it is important that the architecture of social housing and owner-occupied housing will be indistinguishable.

Hierarchy between private and public

The guiding principle about the hierarchy between private and public is about the transition between a building and the adjacent street. The guiding principle states that there is preferably a soft transition between them.



Figure 5.31. Photos of different hierarchies. Source (Google, n.d.)

The photos in Figure 5.31. show the most common hierarchies between private and public in Bloemenbuurt. Photo 1 shows that the transition from private to public is harsh, because there are no gardens in between. Photo 2 again shows a harsh transition without front gardens, but in this case the private building is a high-rise. Photo 3 again shows a street without front gardens. However in this case the transition seems softer due to the semi-public greenery in the street. Photo 4 shows a street where one side of the street has front gardens for a softer transition and the other side has not. Photo 5 is a street with small front gardens for a softer transition and photo 6 as well, but here the front gardens are even bigger. When adding new housing in a future design, there are preferably front gardens to soften the transition between private and public.

5.4 Guiding Principles Vision Bloemenbuurt

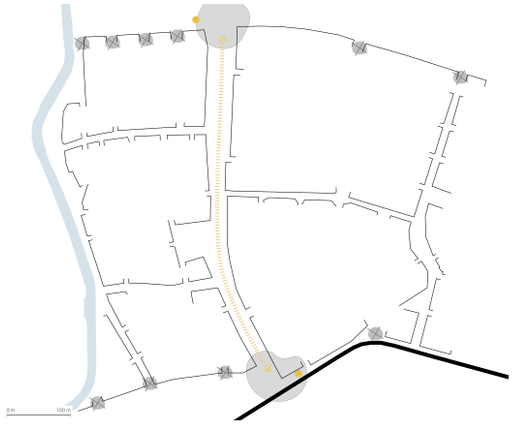


Figure 5.32. Guiding principles vision map for Bloemenbuurt



Urban park and public spaces
The vision map shows that the main north south connection, Bloemenlaan, has the opportunity to become a linear urban park, because the street is already very broad and includes a grass strip. A linear urban park also is more safe due to the fact that there are more ‘eyes on the street’ coming from the buildings on either side of the park.

Next to that, activities need to be added in the current public spaces to stimulate urban life in the neighbourhood, which will increase the interaction between people. Currently there are not many public spaces, and the existing ones are often empty with only some grass or simple greenery. The few public spaces that do include an activity already need to be renewed, because most of the street furniture in these areas are really old and in need for a replacement. With all the public spaces it is again important that there are ‘eyes on the street’ with the fronts of buildings facing these spaces.



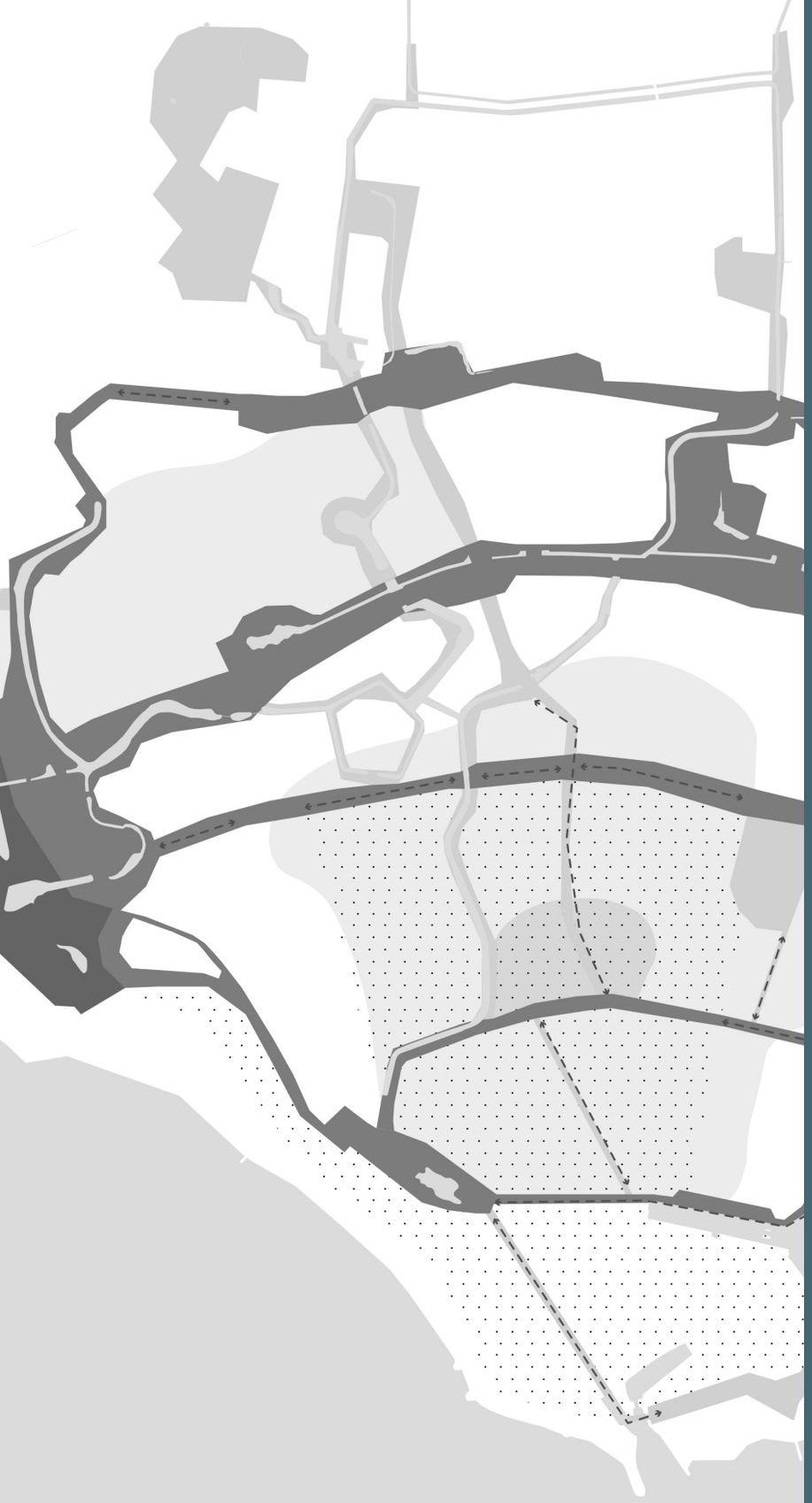
Car entrances and public transport
The vision map shows that there will be one main car road going through Bloemenbuurt, which is Bloemenlaan. The only car entrances of the neighbourhood will be located there. All the other car entrances will be turned into pedestrian and cyclists entrances only. By creating one main entrance for Bloemenbuurt, the orientation will improve. Next to that, the walkability of the neighbourhood will be stimulated, because the car use is discouraged by closing off most of the car entrances. With this change, cut-through traffic is also being reduced. It is however important to keep the car speed low at Bloemenlaan, because it is located next to the linear urban park. There need to be thresholds to slow down the car traffic.

Bloemenlaan is also important for the accessibility of the public transport, because it connects to the bus stops in both the north and south of the neighbourhood. Therefore, the walkability at Bloemenlaan is important.



Walkability and amenities
The most important walkability routes are marked in the vision map, with Bloemenlaan, President Rooseveltlaan and Singel being the most important ones for the neighbourhood. It is important that these street profiles are pedestrian friendly. The walkability routes connect to the walkability network on the city scale and are important to connect Bloemenbuurt with its surrounding neighbourhoods, the urban parks, city centre, Boulevard and beach, and other amenities.

The vision map shows that the current amenities in Bloemenbuurt will be kept. There are no new amenities added within the neighbourhood, because most amenities are already located nearby the neighbourhood. Therefore the main focus will be on the walkability routes going towards those amenities. However, the community centre in the area will be moved next to the pet store, along Bloemenlaan. The community centre is currently located on a very hidden place, within a building block. It would make more sense to move the community centre along the most important street of the neighbourhood to make sure all residents can find it.



6.

Urban Planning Conditions

6.1 Conditions Analysis Vlissingen

6.2 Conditions Vision Vlissingen

6.3 Conditions Analysis Bloemenbuurt

6.4 Conditions Vision Bloemenbuurt

6.1 Conditions Analysis Vlissingen

This paragraph is going into the urban planning conditions on the city scale. The urban planning conditions are relevant to include in a future design, because it describes important themes like water storage and the urban heat island effect. Therefore this chapter answers the sub-question: 'What urban planning conditions need to be included in a future urban design?'
Figure 6.1. again shows the base map of Vlissingen with the most important streets to situate the maps that will be discussed in the urban planning conditions analysis.



Figure 6.1. Base map of Vlissingen

Urban heat island effect

The urban heat island effect is an important urban planning condition, because it influences the health and well-being of the inhabitants of Vlissingen. During heatwaves it is important to keep the temperature low to make sure people experience as little inconvenience as possible. Due to climate change, this will only become more important.

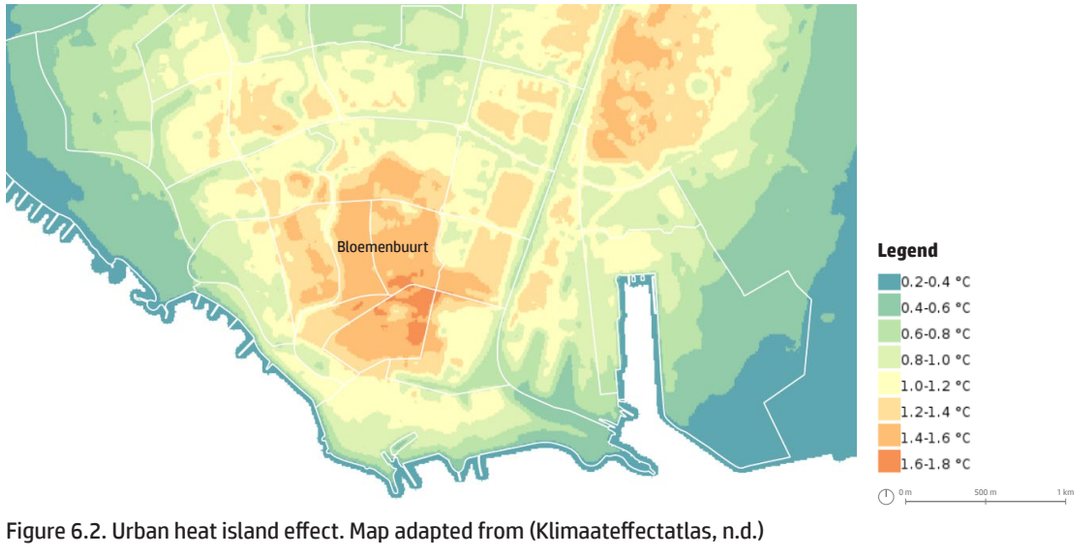


Figure 6.2. Urban heat island effect. Map adapted from (Klimaateffectatlas, n.d.)

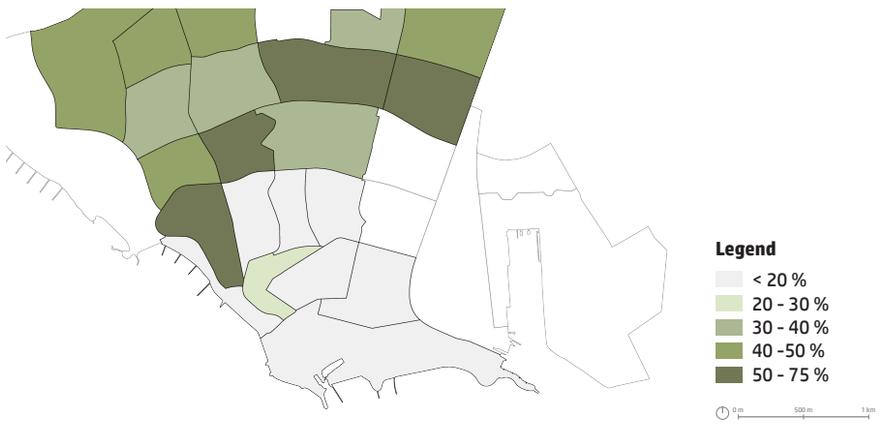


Figure 6.3. Greenery in public space. Map adapted from (Klimaateffectatlas, n.d.)

Figure 6.2. shows the urban heat island effect in Vlissingen. It is visible that the highest temperature is around Bloemenbuurt. Surprisingly in the city centre, located in the south, the temperature is not that high. This is probably due to the fact that it is located along the coastline. Figure 6.3. shows the percentage of greenery in public spaces per neighbourhood. In this map the city centre and boulevard have a low percentage, because of their density, but also the neighbourhoods with the highest urban heat island effect. Here, the high urban heat island effect is probably because of the lack of greenery. Therefore these areas need more greenery in a future design.

Water depth

The information about water depth is also important as an urban planning condition. The water depth map shows the depth of the water in the streets after rainfall. This information tells us what areas need extra attention with water storage and disposal. Due to climate change, this will only become more important in the future.

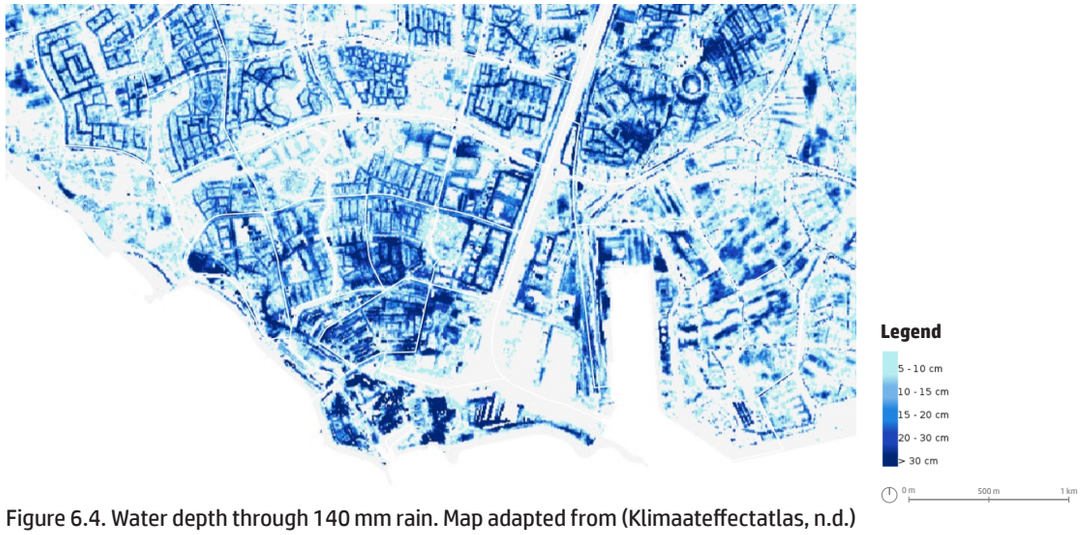


Figure 6.4. Water depth through 140 mm rain. Map adapted from (Klimaateffectatlas, n.d.)

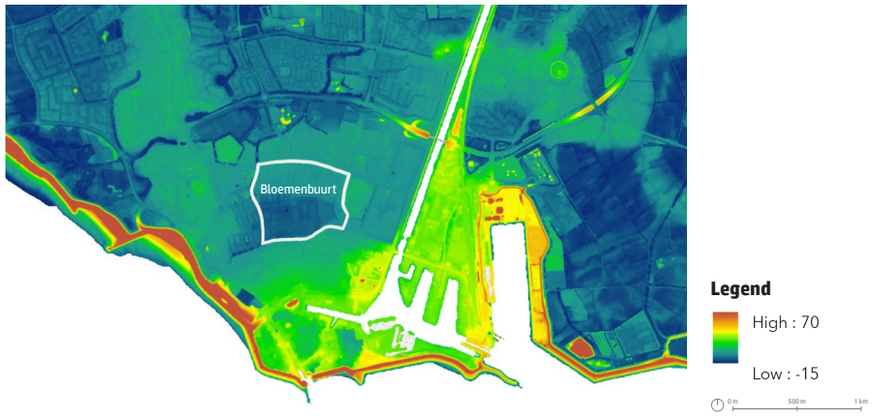


Figure 6.5. Height map. Map adapted from (AHN, 2023)

Figure 6.4. shows the water depth after a rainstorm of 140 mm. It is visible that the water depth is deepest in the same areas that were marked in Figure 6.3. with the lowest percentage of greenery in public spaces. It are again the city centre and a cluster around Bloemenbuurt that have the most problems with the storage and disposal of water. Figure 6.5. shows the height map of Vlissingen with Bloemenbuurt marked in white. It is clear that the southwest area of Bloemenbuurt is the lowest part of Vlissingen. This clarifies the water problems visible in Figure 6.4. Therefore, this area will need extra attention in a future design to make sure the water storage and disposal will not cause any problems.

Ecology

Vlissingen needs a strong ecology network to increase the biodiversity in the city. This is important, because the biodiversity in Vlissingen has been reduced a lot through the years.



Figure 6.6. Ecology network with missing links

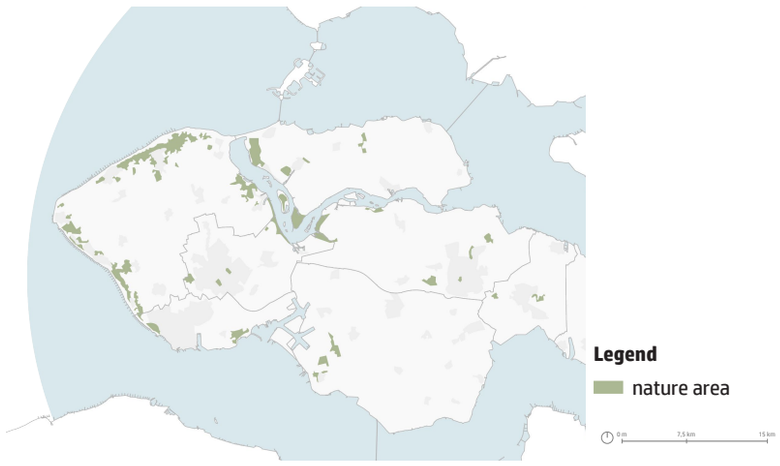


Figure 6.7. Forests in Walcheren and the region

Figure 6.6. shows the ecology network, based on all green spaces in Vlissingen with an ecological value. Whether a green space has an ecological value or not is decided by an analysis, visible in Appendix 4. The map shows that there is one main structure with an east west orientation, adjacent to Nollebos. Figure 6.7. shows that Nollebos is connected with the other nature areas in the region, which is important to increase biodiversity. Transversal to this main structure within Vlissingen, there is a secondary structure. Together with the tertiary structure, this forms the ecological network of Vlissingen. In this network there are however some missing links. These should be added in a future design to optimise the ecology network, which increases the biodiversity in Vlissingen.

6.2 Conditions Vision Vlissingen



Figure 6.8. Urban planning conditions vision map for Vlissingen



Ecology
The vision map shows the main structure of the ecology network. There are some missing links that need to be added in the future design to improve the ecology network, which will help to increase the biodiversity in Vlissingen.

Water
Related to the ecology, it is important that all water structures in Vlissingen are kept. The water structures are important for the ecological value and thus the biodiversity in the city, but also for the disposal and storage of water during heavy rainstorms.



Greenery
The vision map also shows some aspects related to greenery. There are some neighbourhoods in Vlissingen where the amount of greenery in public spaces is very low. Thus in these neighbourhoods there is an opportunity to increase the amount of greenery. Next to that there is quite a big area with a high urban heat island effect. In these areas it is also important to add more greenery to lower the temperature. Lastly the lowest area of Vlissingen is marked, because there are some serious water problems there. In this area, which is also part of Bloemenbuurt and thus will be part of the small scale urban design, there also needs to be more greenery to improve the disposal and storage of water.

6.3 Conditions Analysis Bloemenbuurt

This chapter is going into the urban planning conditions for both the neighbourhood scale. The urban planning conditions are relevant to include in a future design, because it describes important themes like water storage and the urban heat island effect. Therefore this chapter answers the sub-question: 'What urban planning conditions need to be included in a future urban design?'
Figure 6.9. again shows the base map of Bloemenbuurt with the most important streets to situate the maps that will be discussed in the urban planning conditions analysis.



Figure 6.9. Base map of Bloemenbuurt

History

The history of Bloemenbuurt is an urban planning condition, because it tells the story of the neighbourhood. The history should always be taken into account in an urban design for an area, because it gives a certain character to the location.



Figure 6.10. Bombing at Bloemenbuurt. Source (Zeeuws Archief, 2003)

Bloemenbuurt is originally design with the idea of the Garden City by Ebenezer Howard. The neighbourhood was divided in two parts, called Tuindorp (garden village) and Tuinstad (garden city), separated by Bloemenlaan. Tuindorp, the west part, was built in 1917 to create more housing for workers at Scheldekwartier, a shipyard company. At that time, Scheldekwartier was really important for the prosperity of Vlissingen and was growing rapidly. Therefore the city had a high demand for new housing. With the Garden City concept, the houses in Tuindorp were small, while the gardens were big. Next to that, the neighbourhood was built by housing corporations and thus all housing was social housing. This resulted in affordable housing for the workers of Scheldekwartier. Later on, around 1922, Tuinstad was built in the east with the same concept as Tuindorp. (Zeeuws Archief, 2002)

With the knowledge that Bloemenbuurt was originally built by housing corporations, it explains why nowadays the percentage of social housing is relatively high. Apparently most houses owned by the housing corporations were never sold to the inhabitants. Therefore the housing is still really affordable in the neighbourhood, which attracts social groups with lower incomes.

After World War II, almost half of Tuindorp, the west part of Bloemenbuurt, was destroyed. Figure 6.10. shows the bombs that exploded in the area. Tuindorp is located next to the canal. The other half of the west part remained, but was demolished later on, in 1956 (Zeeuws Archief, 2002). That is a pity, because the original character of the Garden City concept got lost with these demolitions, as is visible in Figure 6.11..



Figure 6.11. Eye level perceptive Tuindorp, around 1920 (Zeeuwse Ankers, 2022) and nowadays (Google, n.d.)

The only original pre-war houses that are left, are located in the east part, in Tuinstad, as is visible in Figure 6.12.. Therefore these houses are preferably kept with the future design for the neighbourhood. Next to that, it would be an added value for Bloemenbuurt to bring back some of the characteristics of the old Garden City concept. This way, the character and reputation of the neighbourhood could improve.



Figure 6.12. Eye level perceptive Tuinstad, around 1930 (Zeeuwse Ankers, 2022) and nowadays (Google, n.d.)

Urban heat island effect

The urban heat island effect is an important urban planning condition, because it influences the health and well-being of the inhabitants of Bloemenbuurt. During heatwaves it is important to keep the temperature low to make sure people experience as little inconvenience as possible. Due to climate change, this will only become more important.

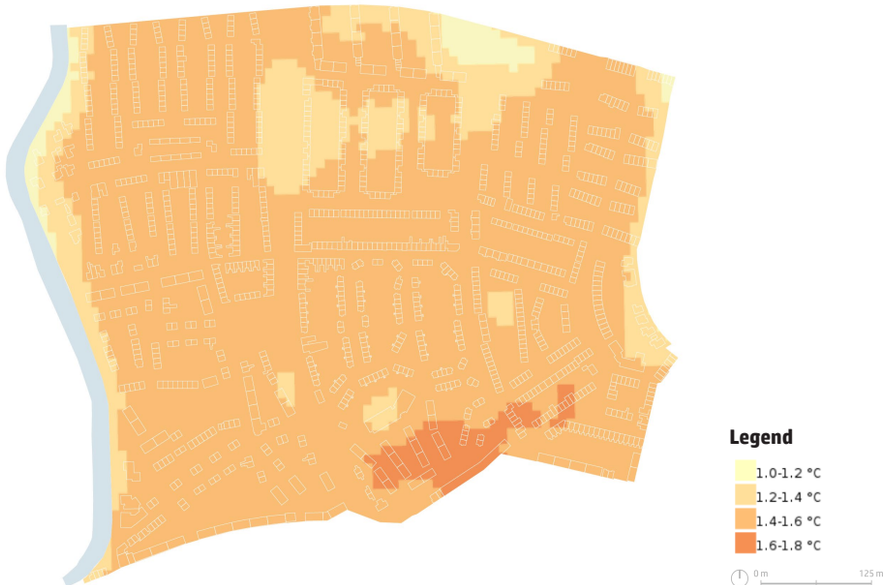


Figure 6.13. Urban heat island effect. Map adapted from (Klimaateffectatlas, n.d.)

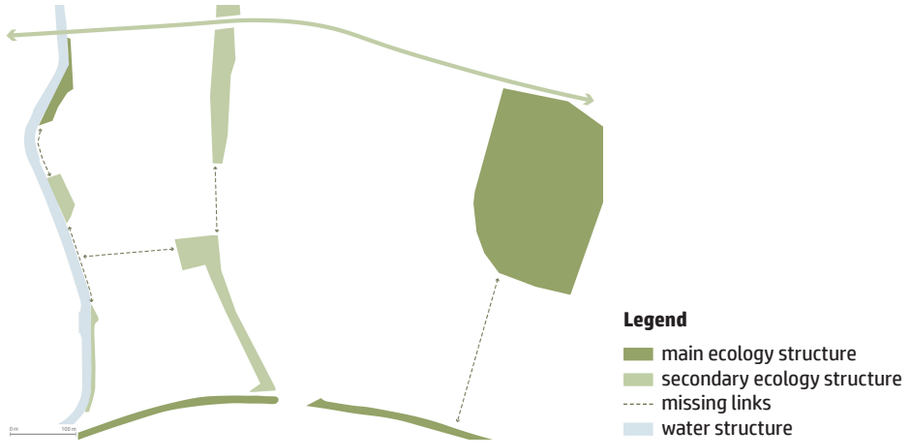


Figure 6.14. Green network with missing links

Figure 6.13. shows that the urban heat island effect is high in the entire neighbourhood, but especially in the southeast area. Figure 6.14. shows the green network in Bloemenbuurt with its missing links. These missing links should be added in a future design to optimise the green network in Bloemenbuurt to increase the biodiversity in Vlissingen. The green network map shows a lack of greenery, which explains the high urban heat island effect in the neighbourhood.

Water depth

The information about water depth is also important as an urban planning condition. It tells us what areas need extra attention with water storage and disposal. Due to climate change, this will only become more important in the future.

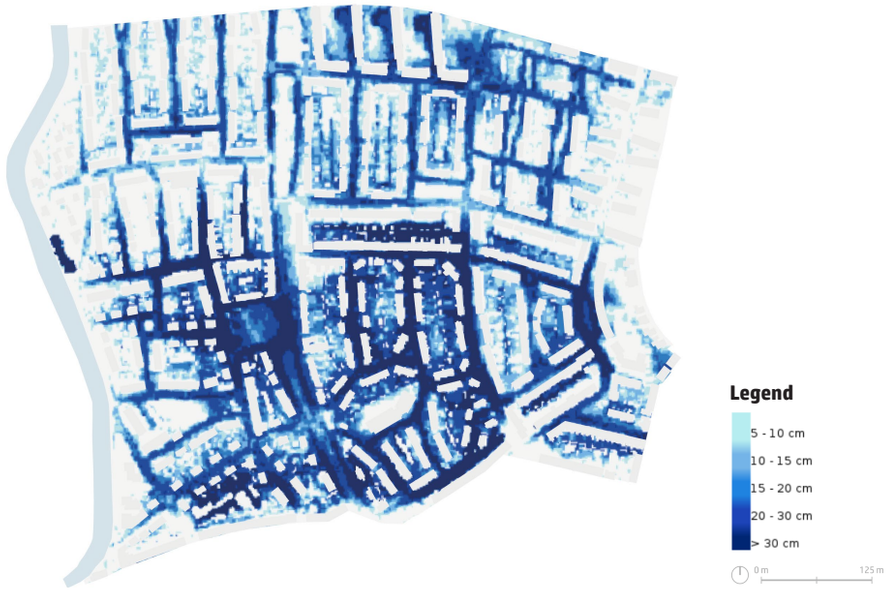


Figure 6.15. Water depth through 140 mm rain. Map adapted from (Klimaateffectatlas, n.d.)

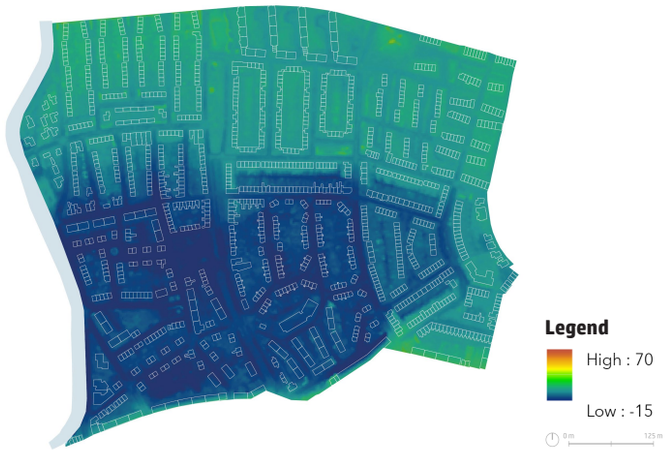


Figure 6.16. Height map. Map adapted from (AHN, 2023)



▲ John Meulmeester in de deuropening waar het water dit keer net niet naar binnen vloeide. © Dirk-Jan Gjeltema

Angst voor weer een overstroomde woonkamer houdt bewoners Bloemenbuurt Vlissingen uit hun slaap

Figure 6.17. News about floodings. Source (De Jong, 2022)

Figure 6.15. shows the water depth within Bloemenbuurt after a 140 mm rainstorm. It is visible that the southwest area has most problems with water storage and disposal. Figure 6.16. explains this problem, because the southwest area is the lowest area of the neighbourhood. The water problems are quite big, because there have been multiple floodings into the houses, according to the news article in Figure 6.17.. Therefore a future design should reduce the water problems in the area.

Building year

The building year of the housing in Bloemenbuurt is also an urban planning condition, because it indicates what buildings have a historical value and which buildings are quite new. This is relevant information when redesigning the neighbourhood, because often the oldest housing need renovations to become more sustainable.



Figure 6.18. Building year. Own map, based on (NGR, 2023b)

Figure 6.18. shows the building years in Bloemenbuurt. It is noticeable that the newest part of the neighbourhood is located in the east. There are some parts that are mixed with some pre-war and post-war building blocks, but a big part of the neighbourhood still consists of pre-war housing. However the original houses built with the Garden City concept are only located in Tuinstad, which was discussed in the history. In a future design the historical housing is preferably preserved, but maybe renovated to fit with the housing preferences of nowadays.

Building typologies

The building typologies of the housing in Bloemenbuurt is also an urban planning condition, because it indicates how homogeneous the neighbourhood is. This is relevant information when redesigning the neighbourhood for diversity, because adding different housing typologies will also attract different people.



Figure 6.19. Building typologies. Own map, based on (NGR, 2023b)

Figure 6.19. shows the building typologies in Bloemenbuurt. It is visible that a big part of the neighbourhood consists out of row houses. These building blocks seem to overlap with the pre-war building blocks of Figure 6.18., but in the building typology map also the new built area consists out of row houses. Therefore the neighbourhood is quite homogeneous in building typologies, which creates the opportunity to change some of the row houses into other typologies.

6.4 Conditions Vision Bloemenbuurt

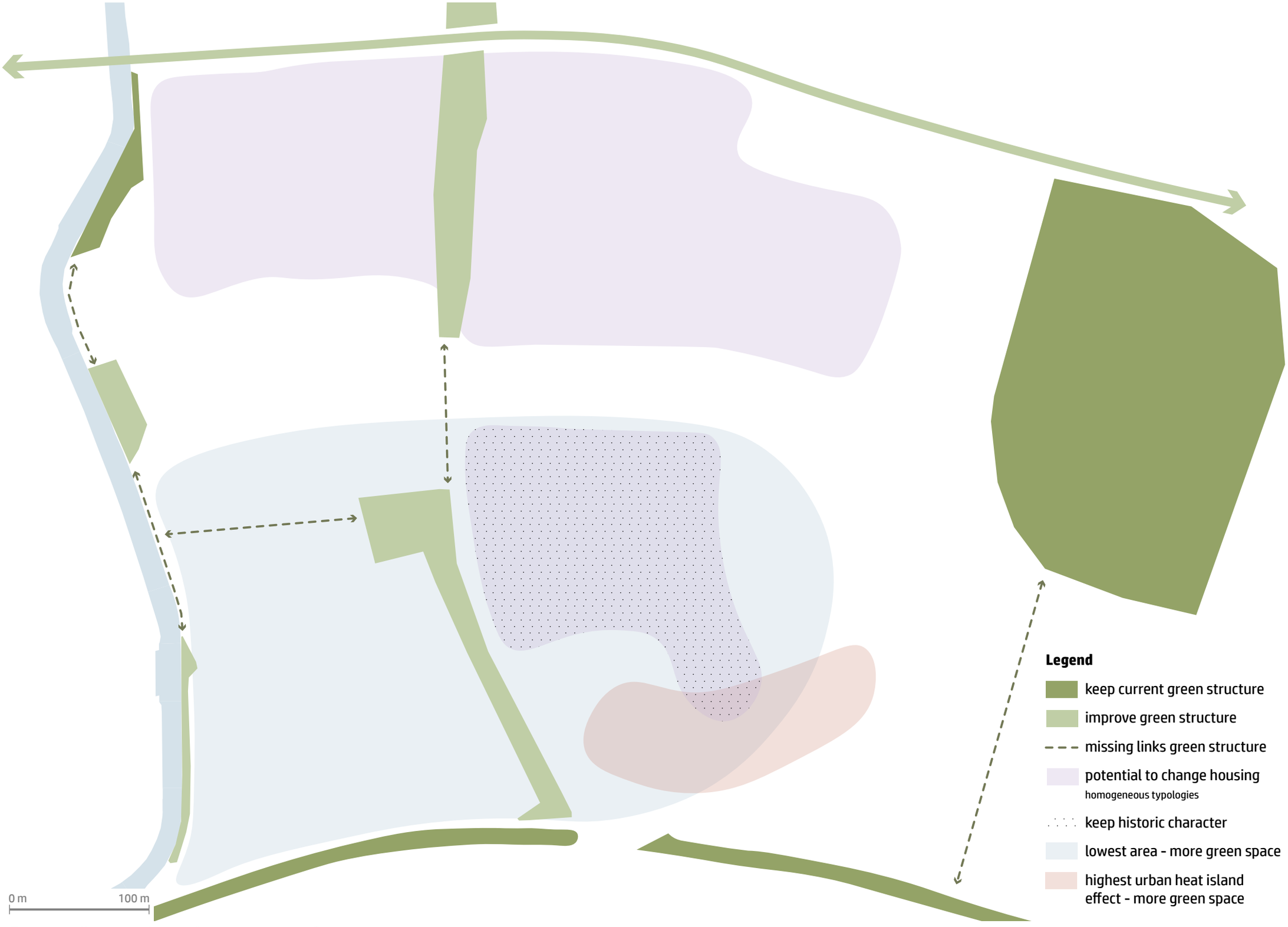
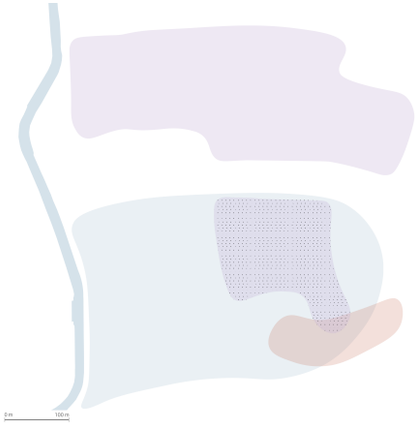
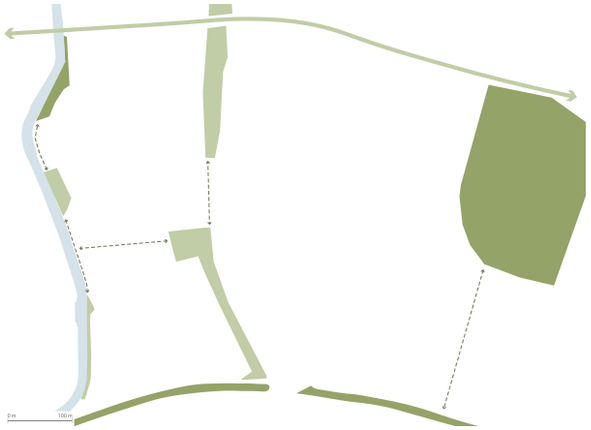


Figure 6.15. Urban planning conditions vision map for Bloemenbuurt



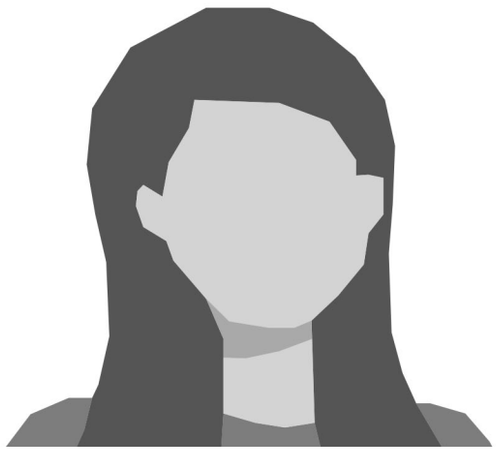


Building blocks and greenery
The vision map shows that there are some areas with a high potential to change the building blocks, because these areas consist of homogeneous building typologies. Therefore these building blocks have the highest potential to change. Next to that, there is an area in the neighbourhood that still includes pre-war houses. It is important to keep these historical characteristics in the neighbourhood to improve the character and reputation of Bloemenbuurt.
There are also two marked areas related to greenery. The blue area shows the lowest part of the neighbourhood with many water problems and the red area shows the highest urban heat island effect. It is important to add more greenery in these areas to improve water storage and disposal and to reduce the urban heat island effect.

Ecology
The vision map shows the ecology network within the neighbourhood and the missing links. The big area in the east is the graveyard that forms the border of the neighbourhood. This area consists of many plants and trees and is thus important for the ecology in and around Bloemenbuurt. Next to that, the street called Singel in the south is currently the main connector to the bigger ecology network. The missing links need to be included in the future ecology network to increase the biodiversity in Vlissingen. Next to that, the quality of some of the already existing green structures need to improve to increase the biodiversity as well, because currently some of these green structures only consist of empty grass.









7.

Inhabitant Participation

7.1 Participation Project
7.2 Workshop
7.3 Inhabitant Profile
7.4 Inhabitant Vision Bloemenbuurt

7.1 Participation Project

The inhabitant participation chapter includes aspects that are relevant to include in a future design. It is about a bottom-up approach to make sure the inhabitants are heard before making an urban design. Therefore this chapter answers the sub-question: 'What is the vision of the inhabitants that needs to be included in a future urban design?'

The municipality of Vlissingen is already working on a redesign of Bloemenbuurt. A few years ago there was a promise for a military basis in the municipality, but this never happened. The municipality then received money as compromise. Appendix 1 about the history of Vlissingen describes that the municipality went bankrupt after the economic crisis in the Netherlands. The municipality was struggling with maintaining public spaces and some neighbourhoods therefore did not get a lot of attention. Thus, the municipality of Vlissingen is currently using the money they received to upgrade public spaces that have been neglected for a while.

Bloemenbuurt is one of the areas to be redesigned. The sewing system and other underground pipes and cables needed to be replaced, but with the amount of (compromised) money that became available there was an opportunity to make it an integral project (M. Meur, personal communication, December 9, 2022). Next to that L'Escaut, the housing corporation that owns most of the housing in Bloemenbuurt, got subsidy to build gas-free housing. This is also integrated in the project. There are many parties involved in the project, but next to that the municipality wanted to include the opinion of inhabitants as well. Therefore they started a participation project in 2019.

The amount of participation is not really decided yet, but in 2019 the municipality started with asking questions to residents about what they would change to their neighbourhood. The municipality wanted to include the inhabitants in the beginning of the process and they also gave them the opportunity to react to the draft design of the first phase, but the municipality is still doubting if they want to include the inhabitants more in a later stage of the design process. Meur, a civic designer working at the municipality of Vlissingen on the participation project (personal communication, December 9, 2022), mentioned that the municipality is currently only focussing on improving the current public spaces of the neighbourhood, but that they are not really changing the actual structure of the area. L'Escaut wants to demolish some parts of the neighbourhood to build gas-free houses, because renovation is too expensive in these cases. There is an opportunity for social mix in these areas, but there was still a lot unclear about the actual elaboration on this topic. They were still looking for the right party to elaborate on this opportunity. With this in mind, the design in this thesis can be very relevant for the municipality.

Coming back on the participation project of the municipality, the first ideas of inhabitants can give some interesting input for the design. Since the questions were asked in a very informative way in the beginning of the design process, inhabitants could really inform the municipality with all kinds of changes they would like to see in the design.



Figure 7.1. Conclusion inhabitant input. Own map based on (Juust BV, personal communication, November 2021; Juust BV, personal communication, November 2022)

Figure 7.1. shows the conclusion of two different (confidential) documents made by Juust BV which include the results of the participation project with the inhabitants.
The inhabitants mentioned some dangerous crossings, some places where cars drive too fast, some areas where the quality of the greenery can be improved and some general sources of nuisance.
Other than the factors in the map, there are also some more general things the inhabitants would like to see improved.
Firstly they want more attention for lighting to improve safety in the evening.
Secondly they preferably do not want firebreaks anymore, because of the nuisance with youth, criminality and litter.
In relation to litter some inhabitants also mention that many front gardens are poorly maintained and that there should be more waste bins.
Thirdly they want more functions in public space. Some people mention meeting places with shade for the older inhabitants. Other inhabitants mention places for children to play or for youth to exercise or sport.
Lastly some inhabitants are missing a community building or youth centre.

7.2 Workshop

The municipality participation project is a more general way for inhabitants to say what they want to see differently in their neighbourhood, and it is mostly focussed on keeping the current structure of the area. In the thesis the neighbourhood is being redesigned in relation to socio-spatial segregation, which means that the redesign is not only about Bloemenbuurt, but also its relation to the surrounding neighbourhoods and the city. Therefore the redesign is more visionary than the redesign coming from the municipality and all involved parties.

To get an idea on how inhabitants would like to see their neighbourhood with this more visionary idea in mind, a workshop was organised in the new location of the community centre in the neighbourhood. The idea behind this workshop was to get an idea of how inhabitants experience their living environment and to get some feedback on certain design solutions. The workshop is done with four inhabitants of Bloemenbuurt, shown on the right in an abstract way to keep them anonymous.

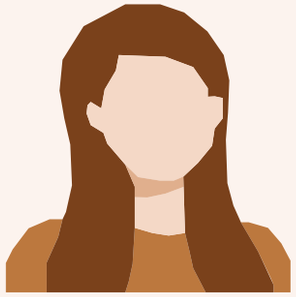
The participating inhabitants are only four people living in Bloemenbuurt, and are therefore not representative for the whole neighbourhood. Their input is however still an interesting addition to the design process, since it gives an idea about how inhabitants of Bloemenbuurt make use of their living environment and how they react to certain changes.



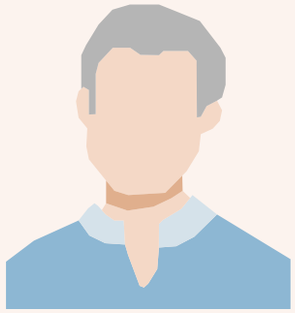
Krista
mom of teenagers
works in education



Ms Bertijn
retired



Ilona
starter
works in education



Walter
retired
works at the
community building

After explaining the graduation project in a very simplified way, the first question for the inhabitants was to name their favourite thing about Bloemenbuurt. They had to write it down on sticky notes to make sure their answers would not be influenced by each other. Their most important answers are stated below. The answers are translated from Dutch to English.

"Where I live it is really quiet during the daytime. I can hear it when the birds are singing." - Ilona

"I had some prejudices about the neighbourhood, because it is really multicultural. I have to say that I actually really like that about the area!" - Ilona

"I live nearby everything. Nearby the city centre, nearby the beach and nearby many stores." - Krista

"I really feel at home. My husband and I are living here for over 52 years now." - Ms Bertijn

"Everyone knows each other in the neighbourhood" - Walter

Next, the inhabitants got the opportunity to mention some factors about the neighbourhoods that they do not like as much and what they would like to see differently.

"There are not many opportunities for children to play. I do not have or want children myself, but still the neighbourhood could be more child friendly." - Ilona

"There is a lot of overdue maintenance and a lack of space for children. There is a playground not far from here, but it was built about 25 years ago and never changed since." - Krista

"Even though I feel very safe myself, there is a lot of criminality in the neighbourhood. I do not feel like it is prioritised a lot, because there are actually people shooting here and people are murdered here." - Krista

"Many front gardens are a mess. They are full of trash and used to park bikes." - Ms Bertijn

"There is a lot of nuisance when it is raining. There are many gardens with only concrete tiles, which results in the green gardens getting all the water problems." - Walter

After there were some more questions about their experience and perceptions in Bloemenbuurt, there were also some questions about possible changes in and around the neighbourhood in the future. The main conclusions will be discussed in Figure 7.4., but two of the examples of possible changes are shown here.

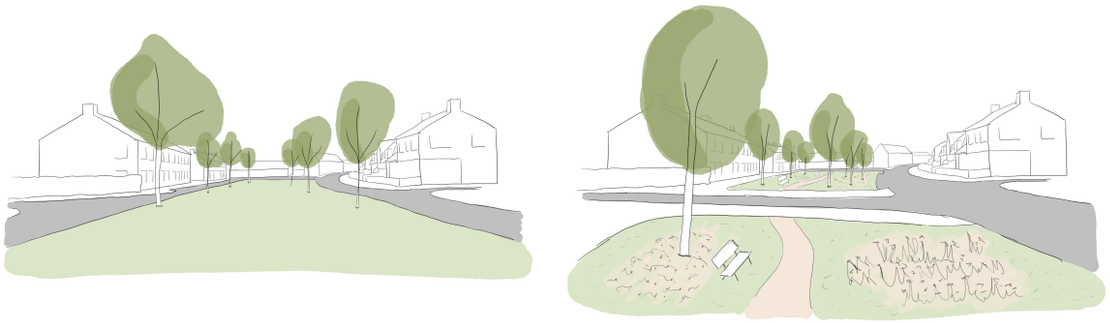


Figure 7.2. Sketch of Bloemenlaan as an urban park

First of all the opportunity to change the Bloemenlaan into an urban park. The reactions were overall positive, especially the reactions of Krista and Ilona. They could really visualise the street as a park. All inhabitants were however sceptical whether it could work in the neighbourhood, because of vandalism. When asked why vandalism is such a problem, it seemed to be a combination of boredom and indifference about the neighbourhood. This should be taken into account in the future design.

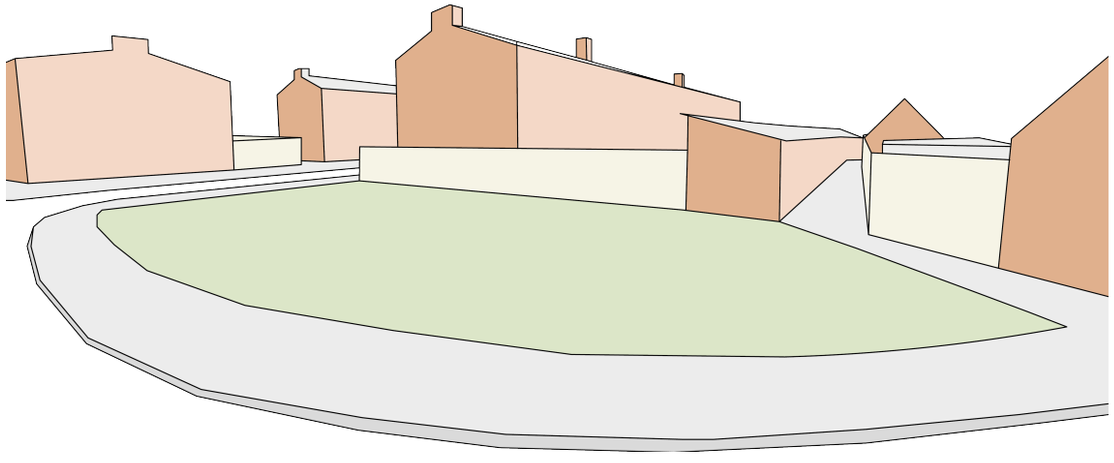


Figure 7.3. Sketch of an empty public space

Then an empty public space was shown to inspire the inhabitants to come with a possible infill. The inhabitants mainly mentioned that the neighbourhood needs to be more child friendly. Therefore they would like to see playgrounds for children, or at least a safe place for children. Other than that, the inhabitants mentioned greenery and small pocket parks as a nice added quality for the neighbourhood.



Figure 7.4. Conclusion of the inhabitant input from the organised workshop

Figure 7.4. shows the conclusion of all the input coming from the workshop. Some things overlap with the input from the municipality participation, like the water problems and that some green areas need to be improved.
Next to that, the inhabitants mentioned that they like the quietness of the neighbourhood. They like the accessibility of all amenities in Vlissingen by foot or by bike. They like all the different cultures within the neighbourhood and although the reputation of the area is not great, all inhabitants feel safe and at home in Bloemenbuurt.

Things they would like to see differently are the poorly maintained public spaces, the amount of litter next to waste bins and in firebreaks, the parking problems in the neighbourhood and the problem of vandalism.

Then there were also some more visionary ideas as a reaction to some design solutions. The inhabitants liked the idea of creating a park at Bloemenlaan. They would like the neighbourhood to be a more child friendly environment and better maintained. They were however a bit sceptical on beautiful public space designs, because of the vandalism problems in the neighbourhood. Lastly the inhabitants are very enthusiastic about social mix. This is, according to them, a way to stimulate social control and to reduce the criminality in the neighbourhood.

7.3 Inhabitant Profile

The municipality participation project and the workshop give information about how inhabitants would like to see their living environment in the future. However the information is not very representative for all inhabitants. There are always groups of people that live in the neighbourhood that are harder to reach and that do not let themselves be heard.
The input from both participation projects are mostly from the viewpoint of native Dutch people, mostly living in owner occupied houses. It is important to take into account the other inhabitants as well, since they are also living in the area and deserve to be heard as well.
Therefore this paragraph goes into the characteristics of all inhabitants of Bloemenbuurt. With this information in mind, there might be a different viewpoint on some of the design solutions in the design process.

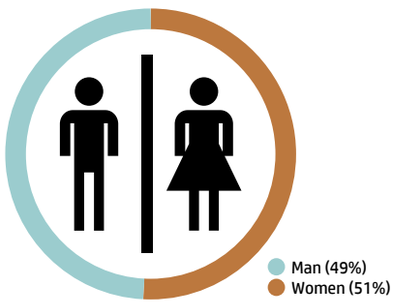


Figure 7.5. Man or women. Source (AlleCijfers, 2023a; AlleCijfers, 2023b)

The percentage man or women in Bloemenbuurt is very average and almost fifty percent each.

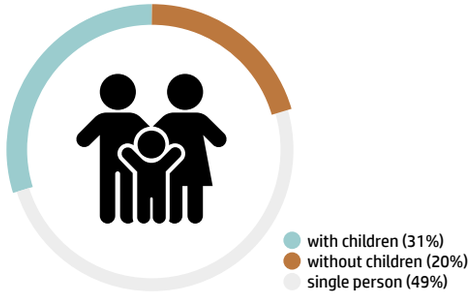


Figure 7.6. Household composition. Source (CBS, 2023)

The data about household composition shows that there are many single person households. Next to that, there are more families with children than without.

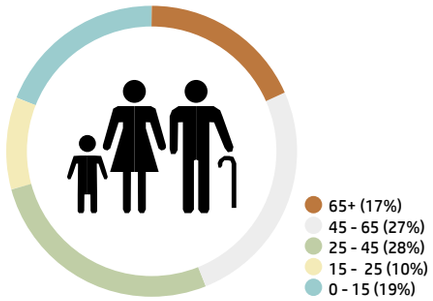


Figure 7.7. Age. Source (AlleCijfers, 2023a; AlleCijfers, 2023b)

Age is very diverse in the neighbourhood, but overall there are many inhabitants in the age between 25 and 65. There are also relatively many children. It seems that there are quite some families in Bloemenbuurt and not that many youngsters or starters.

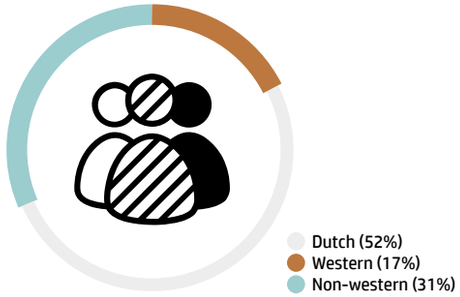


Figure 7.8. Migration background. Source (AlleCijfers, 2023a; AlleCijfers, 2023b)

The migration background data shows that there are relatively many people with a migration background living in Bloemenbuurt. Especially people with a non-western background. The highest percentage of the non-western backgrounds is coming from Morocco (28%) (AlleCijfers, 2023a; AlleCijfers, 2023b).

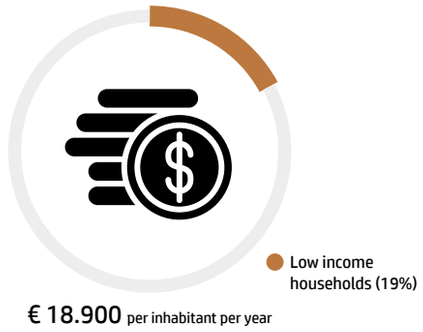


Figure 7.9. Low income households. Source (AlleCijfers, 2023a; AlleCijfers, 2023b)

The data above shows the percentage of low income households in Bloemenbuurt. This percentage is, compared to the average of the Netherlands (7%), relatively high (AlleCijfers, 2023a).
The average income per person per year is quite low in comparison to other neighbourhoods in Vlissingen, which was also the reason to choose Bloemenbuurt as neighbourhood to research in this thesis.

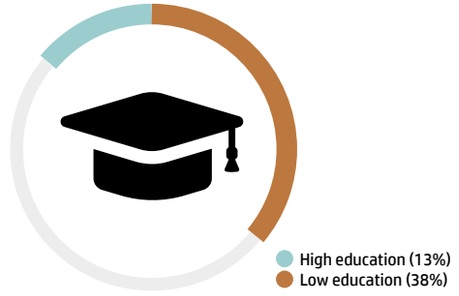


Figure 7.10. Education. Source (AlleCijfers, 2023a; AlleCijfers, 2023b)

The data about education shows that the percentage of low educated people (or the practical educated people) is quite high. The percentage of high educated people is relatively low.

When looking into all this data, it is noticeable that there are people from all ages living in Bloemenbuurt in quite some different household compositions. Therefore the design should be inclusive for all inhabitants.
There are quite some people with a migration background in Bloemenbuurt. These people were however not as involved in the participation projects as the native Dutch people. Therefore these are the people that should not be forgotten when designing.
The inhabitants have a relatively low income and are mainly lower educated. This data was however already known, since it is also one of the reasons why the neighbourhood is more deprived.

7.4 Inhabitant Vision Bloemenbuurt

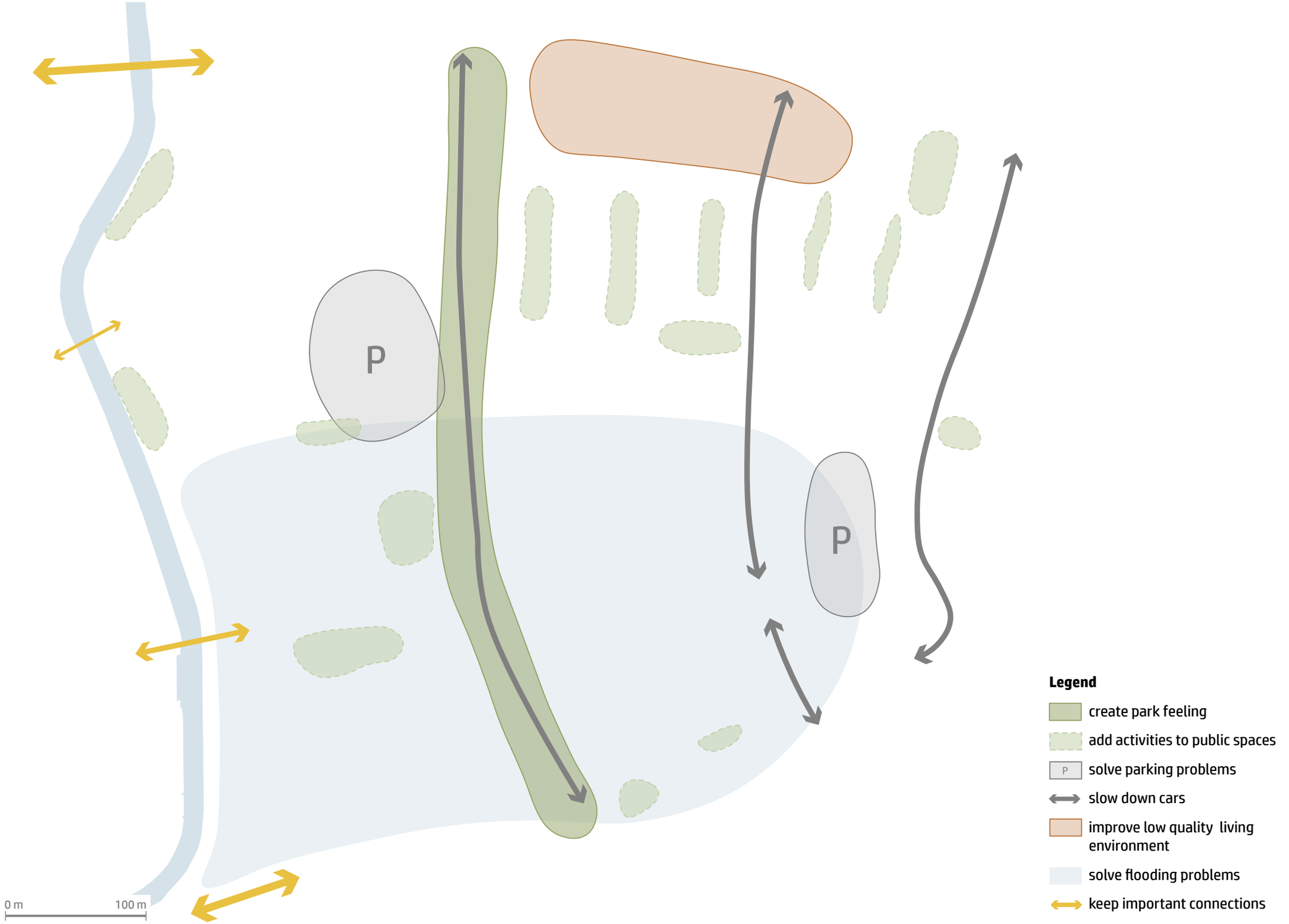
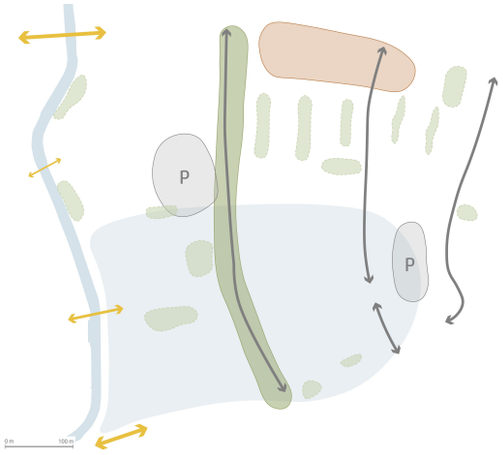


Figure 7.11. Inhabitant participation vision map for Bloemenbuurt



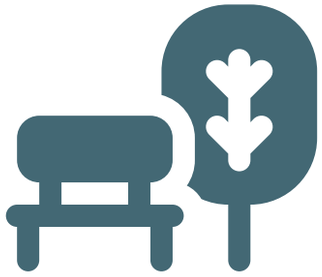
Vision map

The vision map shows that Bloemenlaan has the potential to turn into a park. Next to that, cars need to be slowed down in the street. This is also the case for some streets in the east, like Irislaan and Beatrixlaan. Next to that, the quality of the public spaces need to be improved, because in the current situation many public spaces are old and badly maintained. Some inhabitants suggested meeting places with shade for older inhabitants, while others would like to see playgrounds or areas to exercise for children and youth. The inhabitants also experience some water problems in the blue marked area that need to be solved in the future design. Some other small parts of the vision map are the area in the north that should be improved, the parking problems at the marked areas and the important connections that need to be kept towards the west.



Safety

There are also some other aspects that need to be included in the vision that cannot be put in a map. The first one is to create a safe neighbourhood. Inhabitants would like to see more lighting to improve the safety at night. Next to that, the firebreaks should be closed and only accessible for the adjacent residents. This is because of the nuisance of youth and criminality in the firebreaks.



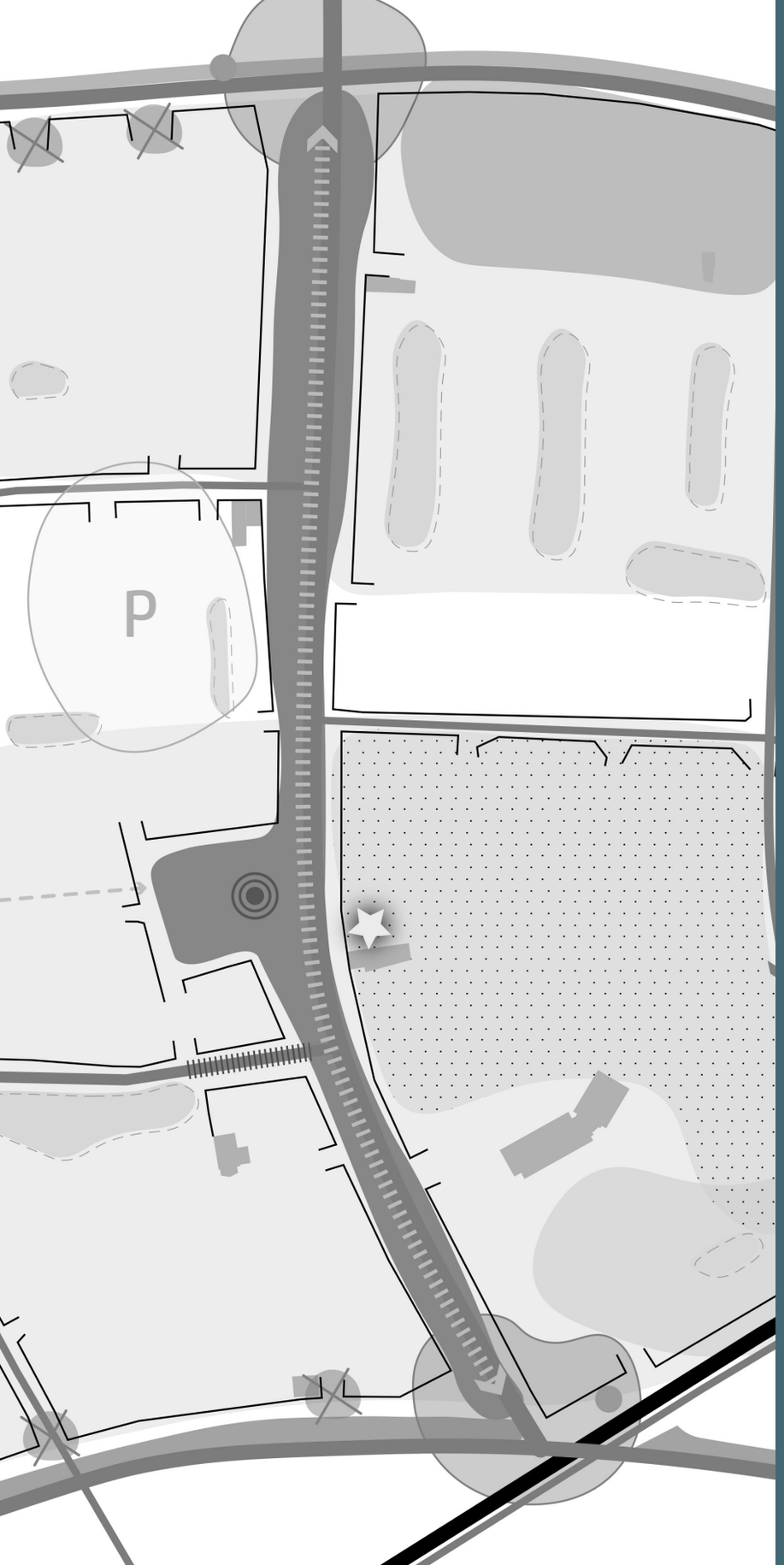
Public spaces

Many inhabitants mentioned that the overall quality of the public spaces and neighbourhood could be improved. Some again mentioned the firebreaks as a place with a lot of litter. Others mentioned that the amount of waste bins need to increase. There were also some inhabitants that get annoyed by the fact that many front gardens are poorly maintained. Next to that, there is a problem with vandalism in the neighbourhood. Because of that problem many materials and street furniture are ‘Hufterproof’. In other words, many public spaces are designed in a way that youth cannot vandalise it, which is not giving the neighbourhood a very friendly character.



Social mix

Most of the inhabitants in the workshop were very enthusiastic about social mix. This is, according to them, a way to stimulate social control and to reduce the criminality in the neighbourhood. This might however be different for the inhabitants described in the ‘inhabitant profile’ paragraph. Therefore social mix need to be handled carefully in a future design.



8.
Vision

8.1 Completed Vision for Vlissingen
8.2 Completed Vision for Bloemenbuurt

8.1 Completed Vision for Vlissingen



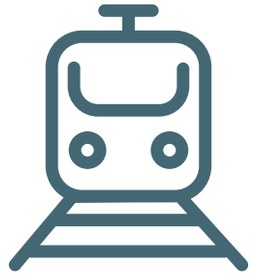
Figure 8.1. Vision map to reduce socio-spatial segregation between neighbourhoods in Vlissingen



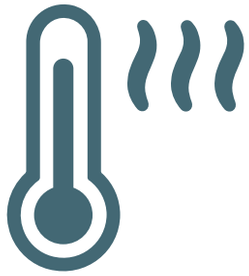
Greenery
The vision map in Figure 8.1. is a combination of the vision map based on the guiding principles and the vision map based on the urban planning conditions. The map includes the main green structure with the missing links that should be added in a future design to optimise the green network in Vlissingen. This way, the biodiversity in Vlissingen will increase. Next to that, the opportunities to add new urban parks in the city are included in the vision map. The new urban parks do not fill the gap in the southeast, because of the lack of space to add new parks here. Therefore, it is more interesting to look into urban parks on a smaller scale in this area.



Walkability
The vision map also shows the most important walkability routes that need to be improved with the missing links that need to be added in a future design. It also shows that one of the main car roads will change to a more pedestrian and cyclist friendly road. By improving the walkability network, the neighbourhoods in Vlissingen will be better connected. This is also important for the amenities of Vlissingen. When the amenities are embedded in the walkability network, people are encouraged to walk more often. This will lead into more encounters and thus interaction between people.



Public transport
The opportunity for the new bus route is also included in the vision map. This new route will improve the public transport network, because it better connects the neighbourhoods of Vlissingen with each other and important amenities. It also adds a connection towards the port located outside of the city. The accessibility of the public transport is highly dependent on the walkability network.



Urban heat island effect
Lastly the areas with the highest urban heat island effect are marked. In these areas there needs to be more space for greenery to lower the temperature. The neighbourhoods with a low percentage of greenery in public space are also marked. There needs to be more space for greenery in these areas as well. Related to this, the lowest area of Vlissingen needs some extra attention. In this area also needs to be more space for greenery to improve the water disposal and storage.

8.2 Completed Vision for Bloemenbuurt



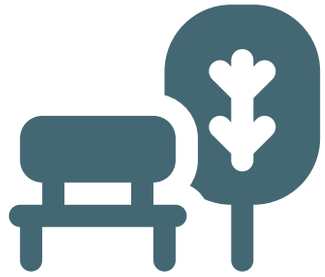
Figure 8.2. Vision map to improve the living environment of Bloemenbuurt to reduce socio-spatial segregation between neighbourhoods



Greenery
The completed vision map for Bloemenbuurt is a combination of the vision map based on the guiding principles, the vision map based on the urban planning conditions and the vision map based on inhabitant participation. The map includes the main green network with the missing links that need to be added in a future design to increase the biodiversity. It also shows the opportunity to turn Bloemenlaan into an urban park. Next to that, the lowest area of the neighbourhood and the area with the highest urban heat island effect are marked. These areas need more space for greenery to lower the temperature and to improve the water storage and disposal.



Walkability
The vision map also shows the most important walkability routes that need to be improved with the missing links that need to be added in a future design. These routes are connected to amenities outside of the neighbourhood. The few amenities within the neighbourhood are kept as much as possible in the design. Bloemenlaan is not only important for the route towards amenities, but also towards the public transport. Therefore this route is important for the walkability network. Related to this, the amount of car entrances are reduced to only two main entrances in the north and south. This is not only to improve the walkability, but also to improve the orientation with one strong main entrance.



Public spaces
The map also shows that public spaces need to include activities. In the current situation the public spaces are either empty or poorly maintained. Next to adding activities, there need to be fronts of buildings facing the public spaces to improve safety and stimulate interaction. With all the input coming from the guiding principles, urban planning conditions and inhabitant participation, the functions of public spaces can be divided in themes for the design interventions. The first theme is ‘safety’, which includes all interventions needed to create a safe living environment. The second theme is ‘Garden City’, which is meant to keep and bring back the Garden City concept in the neighbourhood to improve the character and reputation of the area. The last theme is ‘activity’, which is about the actual activities people can do in public spaces to stimulate urban life in the neighbourhood.

SAFETY

GARDEN CITY

ACTIVITY



Social mix
Lastly the areas with the highest potential to change are marked. In these areas there is an opportunity to add more space for greenery and to create a social mix within the building blocks. The marked areas consist of social housing, homogeneous row housing and pre-war housing. It is however important to keep the historical building blocks to make sure the neighbourhood keeps the original character of Bloemenbuurt.



9.

Urban Design

9.1 Urban Design Vlissingen

9.2 Urban Design Bloemenbuurt

9.1 Urban Design Vlissingen

The urban design on the city scale is based on the vision map in the vision chapter. This paragraph about the urban design on the city scale answers the sub-question: 'What design interventions are necessary on the city scale to reduce socio-spatial segregation between neighbourhoods? '

Figure 9.1. shows all design interventions on the city scale. On this scale, the design interventions are about networks. With the vision map in mind, the most important networks to reduce socio-spatial segregation in Vlissingen are the green network, walkability network, car road network and public transport network.

0 m 250 m 500 m

Legend

- main walkability routes
- main car roads
- new bus route
- urban parks
- main green structure
- secondary green structure

Figure 9.1. The urban design for Vlissingen to reduce socio-spatial segregation

Green network

Figure 9.2. shows the green network with the, now included, missing links that were marked in the vision map. The connected green network stimulates biodiversity in Vlissingen. That ties in well with the vision of the municipality, together with KuiperCompagnons (2021), about adding public greenery and increasing biodiversity in the city. When green structures are connected, it supports the healthy and ecological function of green.

The new urban parks are also visible in Figure 9.2.. The urban parks are located more outside of the residential neighbourhoods and therefore function more as a 'world of strangers', which attracts a big variety of people. People feel welcome because the urban parks are open and accessible, which increases the amount of interactions. The interactions will mainly be short because people are less likely to talk to strangers (Peters et al., 2010). To conclude, the addition of the new urban parks are important to stimulate the amount of (short) interactions between people to reduce socio-spatial segregation.

Walkability network

Next to that, the map shows the improved walkability network. The green network overlaps with the walkability at some places. In these streets, the greenery helps to improve the quality of the walkability route to stimulate people to walk more often. This way, the amount of encounters will also increase, which helps to reduce socio-spatial segregation. The sections of some of the walkability routes will be explained later.



Figure 9.2. The green and walkability network

Walkability network

Figure 9.3. shows the walkability network with the most important amenities in Vlissingen. The walkability network is important for the connectivity within Vlissingen to connect neighbourhoods, parks, the city centre and other amenities. These streets are public spaces where people encounter each other and possibly interact. Next to that, the locations of amenities are often active public spaces where people interact (Talen, 2007). To stimulate the amount of encounters and thus interactions between people, it is important to make sure that amenities are embedded in the walkability network. This is also visible in Figure 9.3., where all amenities are accessible by the walkability network.



Figure 9.3. The walkability network with the most important amenities of Vlissingen

Sloeweg

President Rooseveltlaan

Paul Krugerstraat

Legend

- main car roads
- new bus route
- existing bus routes
- bus stops
- railway

0 m 250 m 500 m

Public transport network

Figure 9.4. shows the public transport network within Vlissingen. The accessibility of the public transport network is important for the connectivity within and outside of Vlissingen. A strong public transport network could help to connect residential areas with amenities within or outside of Vlissingen.

The new bus route that is added in the public transport network is the darkest yellow route in Figure 9.4.. This route improves the connectivity and accessibility of the train station, city centre, boulevard, some neighbourhoods located in the north, and the port. With this new bus route, the port is accessible by public transport for inhabitants of Vlissingen, which will help to reduce car use of workers going towards the port.

Car road network

The car road network is also visible in the map. The President Rooseveltlaan is turned into an important walkability route and is not a main car road anymore. Sloeweg and Paul Krugerstraat will compensate the traffic coming from President Rooseveltlaan, because both car roads are currently not used optimally. All neighbourhoods will still be connected to a main car road to make sure people can enter and exit Vlissingen efficiently.

Figure 9.4. The public transport and car road network

Middengebied
The most interesting part of the urban design is shown in Figure 9.5.. It is a district, called Middengebied. This part of Vlissingen shows the different networks between Bloemenbuurt, Nollebos, the beach and Boulevard. Therefore the next pages will zoom in on Middengebied.

0 m 250 m 500 m

Figure 9.5. Middengebied embedded in Vlissingen

Legend
trees, bushes
dunes
grass
beach
buildings

0 m 100 m 200 m

Figure 9.6. The current situation of Middengebied

Legend
main walkability routes
trees, bushes
dunes
wild grasses, flowers
grass
beach
buildings
0 m
100 m
200 m

Figure 9.7. The urban design for Middengebied



Figure 9.8. The most important part of the green network in Middengebied

Green network

As discussed before in the green network on the city scale, the biodiversity of Vlissingen will increase with the connected green structures. It is however important that the quality of the current green structures improves to increase the biodiversity even more. That ties in well with the vision of the municipality, together with KuiperCompagnons (2021), about improving the current green structures in Vlissingen. Short-cut grass will host fewer species than wild grasses and flowers. Therefore the most important part of the green network, shown in Figure 9.8., is changed into more biodiverse green structure. The current short-cut grass areas in this green network changed into wild grasses and flowers.



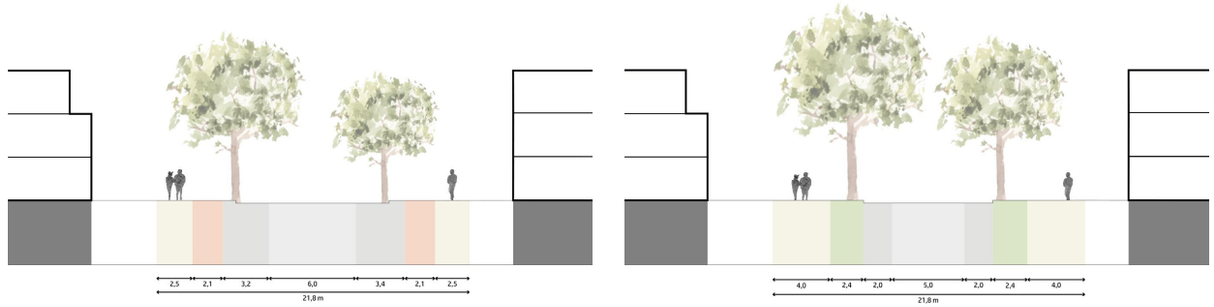


Figure 9.9. Section of President Rooseveltlaan, before and after

Walkability network

The walkability network is important for the connectivity within Vlissingen to connect neighbourhoods, parks, the city centre and other amenities, as discussed before on the city scale. Therefore the marked walkability routes in Figure 9.7. need to be improved to stimulate people to walk more often to their destinations. This way, there will be more encounters and thus interaction between people, which will help to reduce socio-spatial segregation.

President Rooseveltlaan has become an important route in the walkability network. The section in Figure 9.9. shows that the street has changed from a more car-oriented street into a more pedestrian friendly street. By reducing the speed of the cars from 50 km/h to 30 km/h, the car road can be more narrow and also a shared space with the cyclists. To make sure cars do not speed up anyway, it is important to add speed bumps. With this different street profile, there will be more space for greenery and pedestrians to stimulate people to walk more often.

Other possible ways to create a more pedestrian friendly street are shown in Figure 9.10.. The examples show that a possible solution is to get rid of some parking spaces along the street to create more space for pedestrians. This example is however not always preferable, because it depends on the balance between the car use and the available parking places in the street. The other example is to change the car road from two-way traffic into one-way traffic. This way, the car road can become more narrow, which creates space for pedestrians.

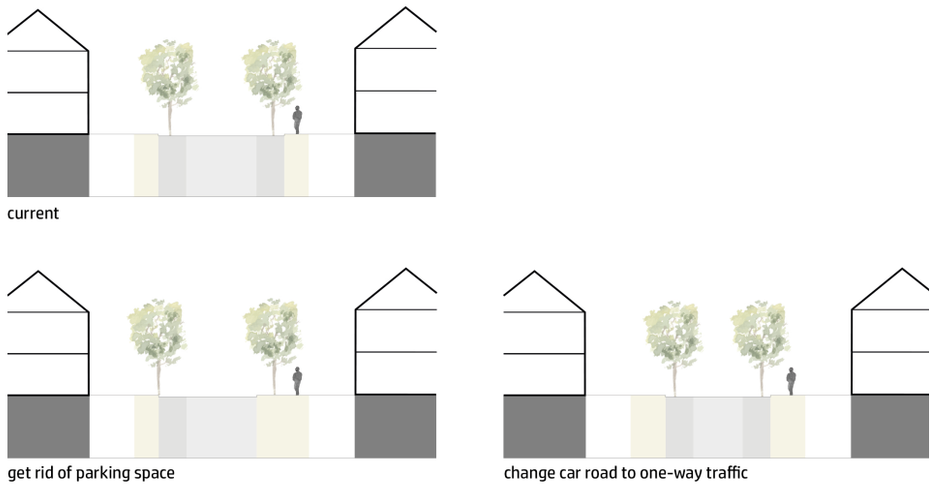


Figure 9.10. Examples on how to improve walkability routes

Bloemenbuurt
Coming from the district scale, it is time to go into the neighbourhood scale. The urban design for Bloemenbuurt as a result of the vision map for Bloemenbuurt in Chapter 8 will be explained in the next paragraph.



Figure 9.11. Bloemenbuurt embedded in Middengebied urban design

9.2 Urban Design Bloemenbuurt Garden



Figure 9.12. The current situation of Bloemenbuurt

Bloemenbuurt Garden

Since Bloemenbuurt is still a relatively big area to redevelop, a smaller part of the neighbourhood will be chosen to elaborate an urban design for. This area will be the lowest part of Bloemenbuurt, marked as the darkest blue colour in Figure 9.14., because it comes with some extra challenges of water storage and disposal.

Next to that, the area is also the originally designed neighbourhoods, named Tuindorp and Tuinstad, as discussed in the history of Bloemenbuurt in Paragraph 6.3.. Therefore this area was originally designed with the Garden City concept. With this in mind, the area will from now on be called 'Bloemenbuurt Garden'.

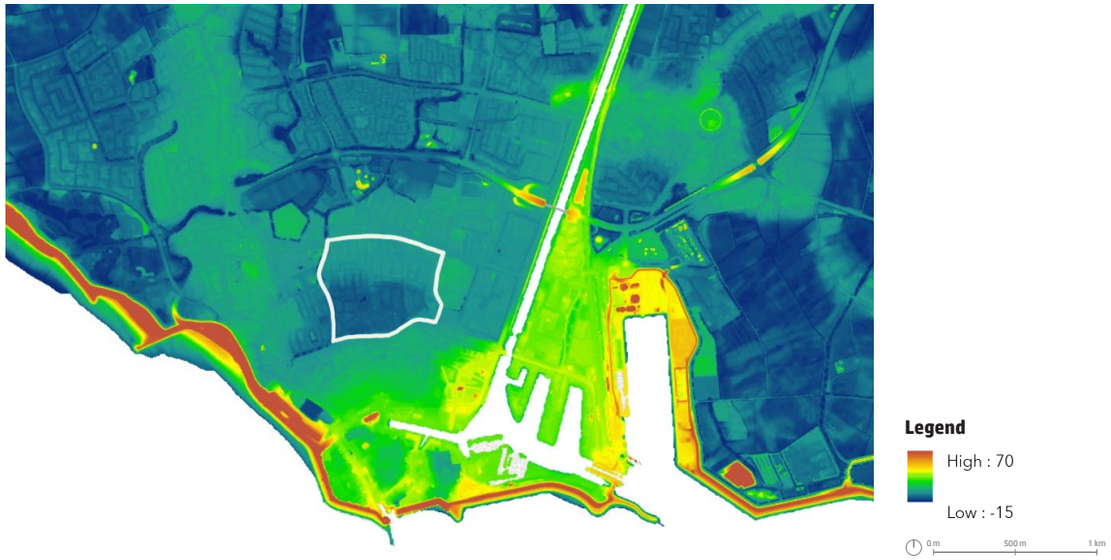


Figure 9.13. Height map of Vlissingen. Map adapted from (AHN, 2023)

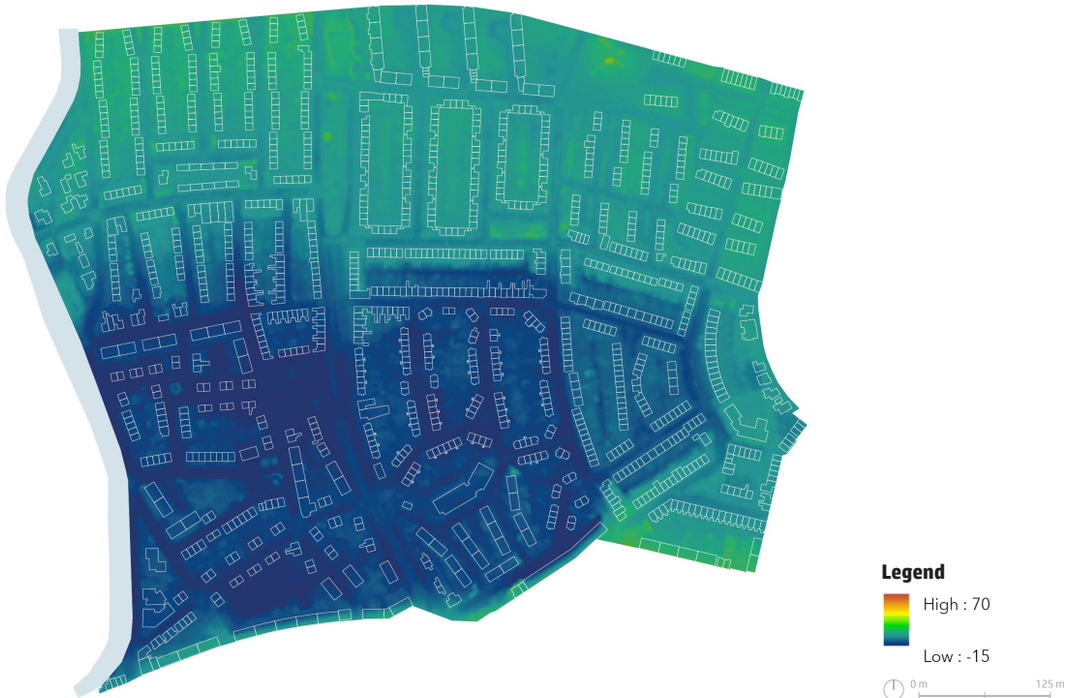


Figure 9.14. Height map of Bloemenbuurt. Map adapted from (AHN, 2023)



Figure 9.15. The current situation of Bloemenbuurt Garden

Figure 9.15. shows the current situation of Bloemenbuurt Garden and Figure 9.16. shows the urban design for Bloemenbuurt Garden. The urban design is based on the vision map to improve the living environment to reduce socio-spatial segregation in Paragraph 8.2. and includes all the input coming from the guiding principles, urban planning conditions and inhabitant participation. This paragraph, about the urban design on the neighbourhood scale, answers the sub-question: 'What design interventions are necessary on the neighbourhood scale to improve the living environment of poor social groups? '



Figure 9.16. The urban design for Bloemenbuurt Garden



Figure 9.17. Walkability network in Bloemenbuurt Garden



Figure 9.18. Changed location of community centre and the location of the bus stop

Walkability network

Figure 9.17. shows the walkability network within Bloemenbuurt Garden. The walkability routes within the area connect to the walkability network on the city scale, which helps to improve the connectivity between neighbourhoods. This ties in well with the guiding principle about connecting neighbourhoods. One way to improve the walkability is to reduce car use in the neighbourhood. Therefore all car entrances that used to connect Bloemenbuurt Garden with Singel and Paul Krugerstraat, are turned into only cyclists and pedestrian entrances. There will be one main entrance for cars, which is at Bloemenlaan. This way, there will be less cut-through traffic and cars that drive too fast in narrow streets.

As discussed in the analysis in Paragraph 5.3, the walkability network also helps to improve the accessibility of amenities, which are very active public spaces. Inhabitants from the workshop mentioned that they have all the amenities they need nearby and that they do not want any new amenities in the area. With that in mind, it is questionable whether adding new amenities in Bloemenbuurt Garden would be successful. Therefore the main focus of the guiding principle about a mixed use neighbourhood is on the accessibility of the amenities outside of the neighbourhood. To improve the accessibility, the walkability network is connected to all amenities.



This was already shown in the city scale paragraph. When the amenities are embedded in the walkability network, it increases the amount of people using the walkability routes. Thus, the amount of encounters and interaction will increase. This will help to reduce the socio-spatial segregation. There is however a change of the location of the community centre, as is visible in Figure 9.18.. Currently the community centre is located just outside the area of Bloemenbuurt Garden in a building that is hidden in a block. It is hard to find, while the community centre should be the hub of the area. According to Walter, a man who works at the community centre (personal communication, April 11, 2023), the community centre organises all kinds of activities and is a place where people can go to with their questions. Therefore the location should be in the centre of Bloemenbuurt Garden, along the most important walkability route, Bloemenlaan.

The walkability network is also important for the accessibility of the public transport. The accessibility of the public transport network is important for the connectivity of Bloemenbuurt Garden with its surroundings. In Bloemenbuurt Garden there is one bus stop in the south that needs to be accessible for the whole area, as is visible in Figure 9.18.. Therefore the most important walkability route for the public transport is Bloemenlaan, which also connects to the other bus stop nearby in the north. The whole are of Bloemenbuurt Garden is within 5 minutes walking distance from the bus stop, which makes it accessible for the whole area.

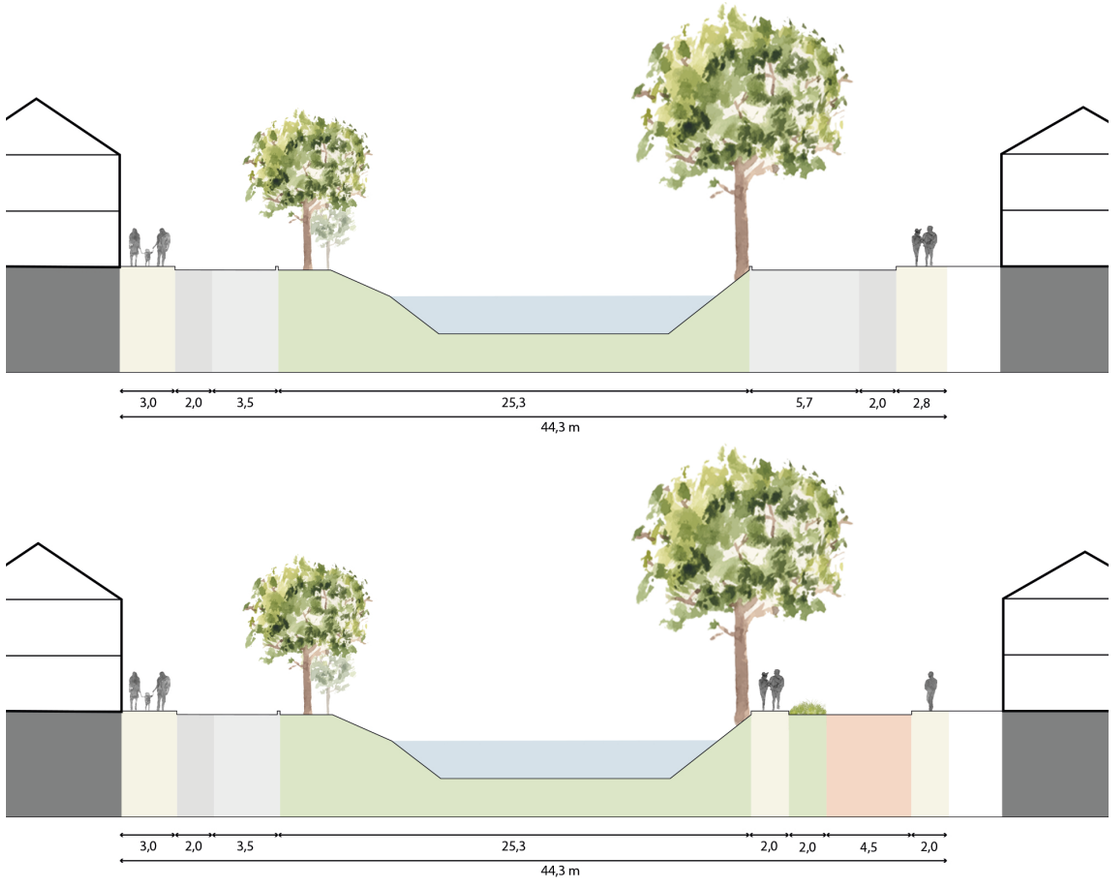


Figure 9.19. Section of Rozengracht, before and after

Rozengracht

One of the walkability routes is Rozengracht, along the canal. The canal is a quality of the area, as is visible in Figure 9.20., but currently not used optimally. There is an opportunity to change Rozengracht into a more pedestrian friendly street, instead of a car-oriented street. Since the parking spaces are never full in Rozengracht, there is an opportunity to change them into space for pedestrians. Next to that, the car road should change into a cyclist road to give priority to cyclists instead of cars and to slow down cars. The change of Rozengracht is visible in Figure 9.19.. By improving the walkability routes, people are stimulated to walk more often, which increases the amount of encounters between people. Therefore the amount of interactions will increase as well, which helps to reduce socio-spatial segregation between people.

The eye level perspective in Figure 9.21. shows the change of Rozengracht. There is now a pedestrian path right next to the canal to make sure that people can have a nice walk along the water. Next to that, there is greenery added on the other side of the pedestrian path. This way, people can walk through a green route towards their destination.

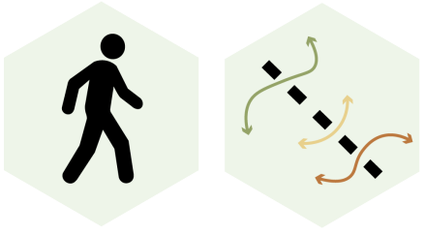




Figure 9.20. Current situation of the canal





Figure 9.21. Eye level perspective of Rozengracht, before (Google, n.d.) and after

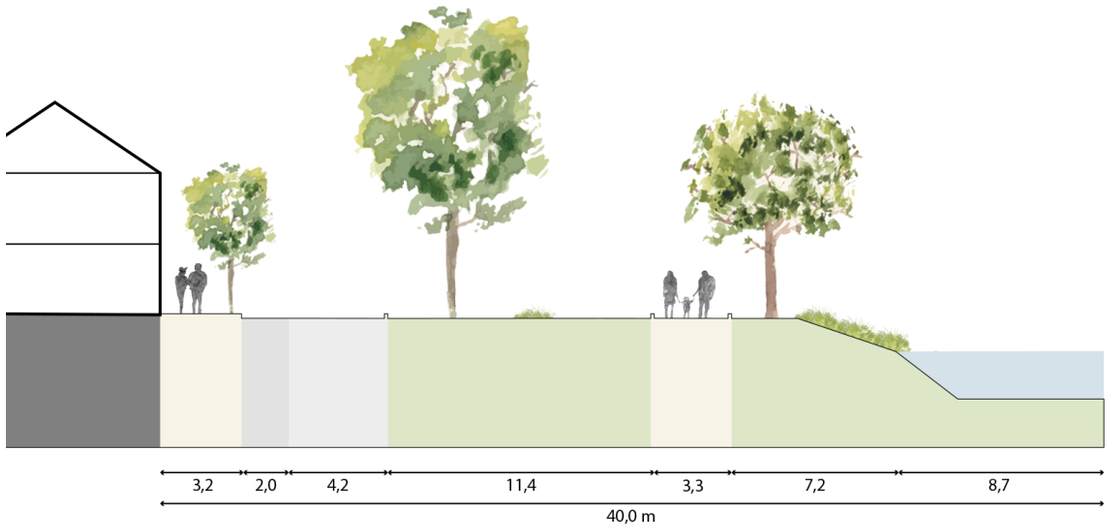


Figure 9.22. Section of the current situation of Singel

Singel

The walkability network also includes Singel, the street in the south of Bloemenbuurt Garden. Singel is not only important for the walkability, but also for the green network in Vlissingen. As the section in Figure 9.22. and pictures in Figure 9.23. show, Singel is a green street and partly located along the canal. Therefore the quality of this street is included in the walkability network on the district and city scale. One of the most important walkability routes within Bloemenbuurt Garden is Bloemenlaan. This route connects to Singel and has a broad street profile with a big green structure in the middle, as is visible in Figure 9.24.. Therefore Bloemenlaan has the potential to change into a more park-like street to improve the quality of the walkability route, but also to connect to the green network. Bloemenlaan is already quite green, but the empty grass and small trees do not really contribute to the ecological value of the green network. By changing Bloemenlaan into an urban park, people are stimulated to walk more often, which improves the walkability network, but the street will also increase in its ecological value with more wild grasses, plants and flowers, and trees.

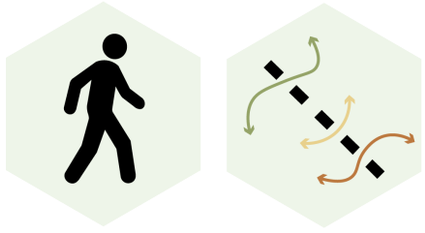




Figure 9.23. Pictures of the current situation of Singel



Figure 9.24. Picture of the current situation of Bloemenlaan

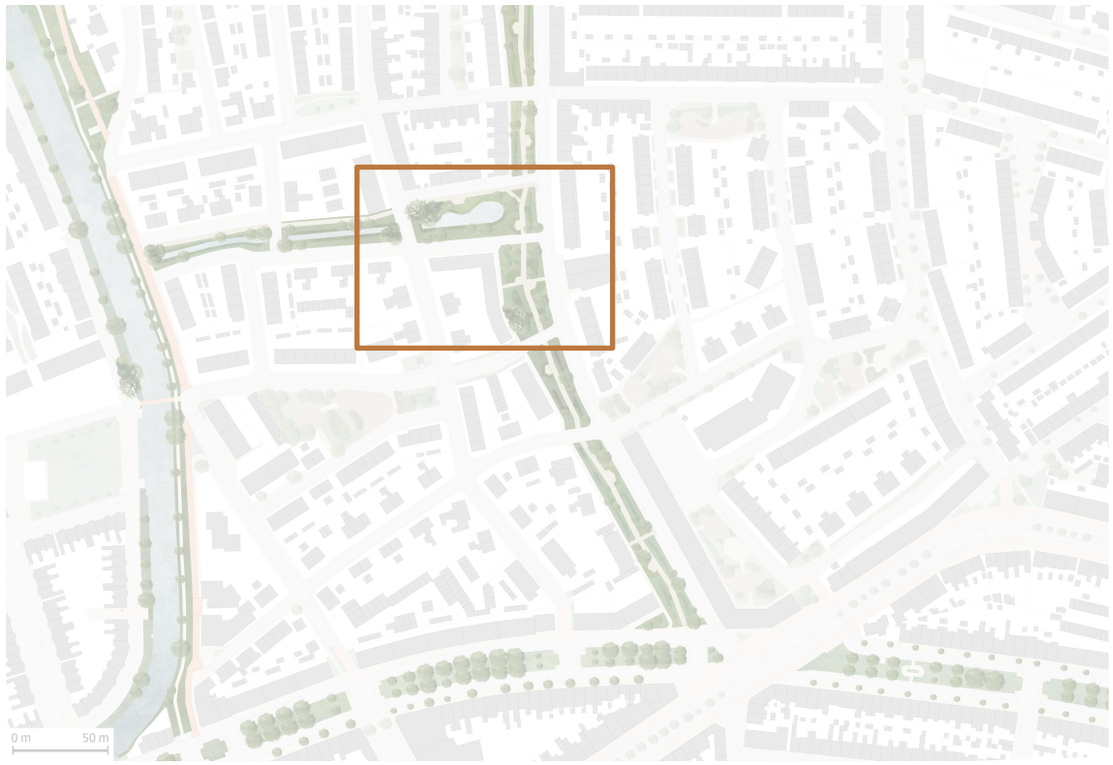


Figure 9.25. Location of the zoom-in of Bloemenlaan

Urban park

With the potential of changing Bloemenlaan into a more park-like street, it is turned into an urban park. The urban park within Bloemenbuurt Garden has a different character than the urban parks that were added on the city scale, outside of residential neighbourhoods. The urban park within Bloemenbuurt Garden is more oriented on the inhabitants living nearby. It stimulates feelings of comfort, public familiarity and attachment. The visitor can easily connect to the place and to other visitors, because they recognize the other visitors from their neighbourhood (Peters et al., 2010). This way, social cohesion in Bloemenbuurt Garden is stimulated, which helps to reduce socio-spatial segregation.

Figure 9.26. shows the change of Bloemenlaan into an urban park. The urban park partly follows the current green structure in the neighbourhood, but the new green structure is more linear. This is to follow the walkability network, but also to make sure that there is enough overview. There are some problems with criminality in the area and crime is especially happening on less visible places. To prevent that crime will happen in the urban park, the green structure is relatively narrow. This way, there is more social control from people living in the housing next to the urban park. This is also part of the ‘eyes on the street’ guiding principle.





Figure 9.26. Zoom-in on Bloemenlaan, before and after

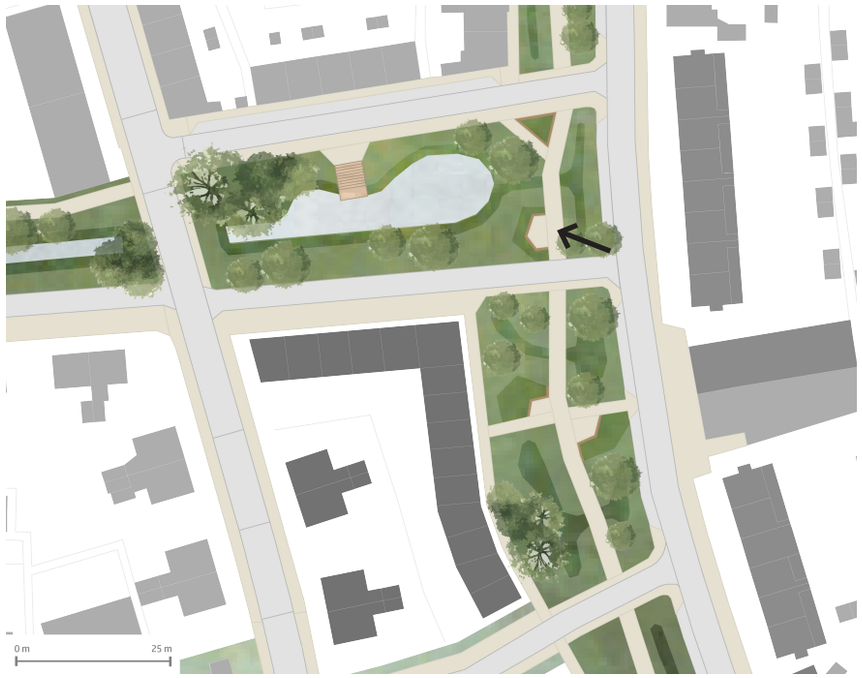


Figure 9.27. Location of the eye level perspective

The eye level perspective in Figure 9.28. shows the character of the urban park. It shows how the, currently quite empty, green space is turned into a park. The location of the current green structure used to be the location of a primary school, which results in a relatively big green structure. Next to a few trees, a few plants at the edges, and some stones in the middle, the green space is empty. Therefore there is a big opportunity to turn the big green space into a park.

The new eye level perspective in Figure 9.28. shows benches, combined with planters where people can sit down. The benches are facing each other to stimulate people to talk with each other. This way, the benches will hopefully increase the interaction between people to reduce socio-spatial segregation. Next to that, the eye level perspective shows that there will be more trees, wild grasses and plants. This helps to increase the biodiversity of the area.



Figure 9.28. Eye level perspective of the urban park, before (Google, n.d.) and after



Figure 9.29. Location of the eye level perspective

The eye level perspective in Figure 9.30. also shows the urban park character with the new wild grasses, plants and flowers, and trees. In this eye level perspective there is again a bench visible where people face each other to stimulate interaction. Other than that, the eye level perspective shows the new added housing on the left. This housing is also marked with the darkest grey in Figure 9.29.. The housing follows the architecture of the historical housing that is left in the neighbourhood, which will be discussed later, and are facing the park with the front facades. As explained before, this is important to improve the social control in the urban park. On the right in the eye level perspective, a part of the new added wadis is visible. There are many wadis added into the urban park to make sure that the disposal and storage of water is as optimal as possible.



Figure 9.30. Eye level perspective of the urban park, before (Google, n.d.) and after

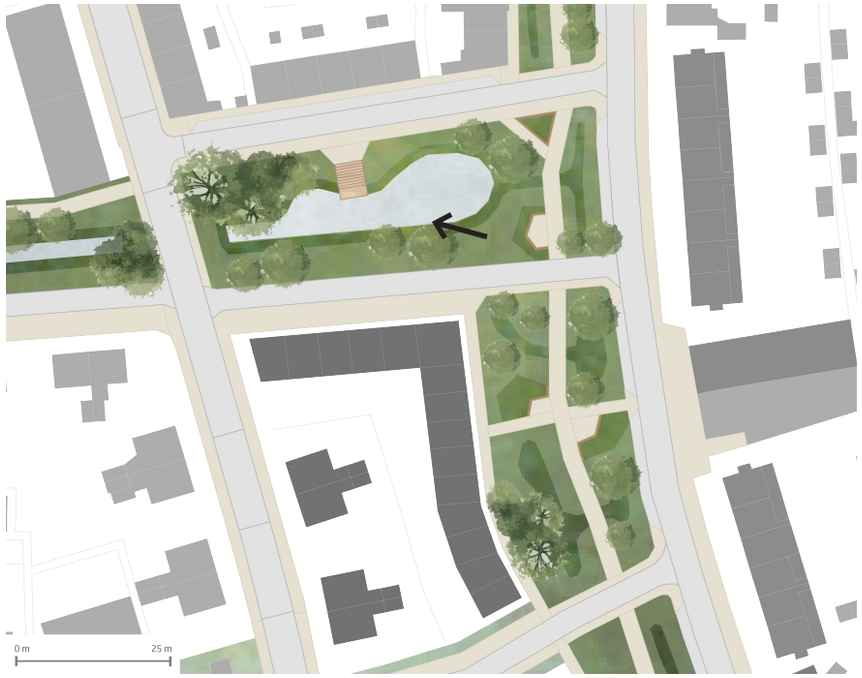


Figure 9.31. Location of the eye level perspective

The eye level perspective in Figure 9.32. shows the new water structure in Bloemenbuurt Garden. It connects to the already existing canal, as shown in Figure 9.33., to optimise the water disposal in the area. Other than that, the new water structure also provides for more water storage in Bloemenbuurt Garden. There are no calculations on how much water storage and disposal is needed to fully solve the problem of flooding in the area, but with the new added water structure and wadis it can be stated that the water storage and disposal is at least improved. In the areas where the water problems are highest, there is more space created for water, greenery and wadis to reduce the problems as much as possible. In the most ideal situation, the whole area of Bloemenbuurt Garden need to be heightened to fully solve the water problems. This would however result in demolishing the whole neighbourhood and is thus not the preferable solution. Not only because of the costs, but also because of the value of historical housing and the existing character of the neighbourhood.

The water itself is an added quality for the area that people can enjoy. There is a pedestrian path going along the water in the north that contributes to the quality of the walkability network. People can enjoy the water even more with the decking in the water. The decking is connected to the pedestrian path with a stairs that is also functioning as seating, which will hopefully stimulate people to meet with others. This way, social cohesion is stimulated to reduce socio-spatial segregation.





Figure 9.32. Eye level perspective of the new water structure



Figure 9.33. The new water structure connected to the already existing canal



Figure 9.34. Location of the zoom-in of a new added public space

Activity in public spaces

Figure 9.34. highlights all the public spaces with activities in Bloemenbuurt Garden. The public space in the west already exists, but the other ones are new. The east of Bloemenbuurt Garden used to be very dense with narrow streets and did not include any public space with activity. With the guiding principle in mind about activities in public spaces, there are four new public spaces added to the area, also to create space to reduce water problems and the urban heat island effect. The public spaces have a semi-public character, because the activities will fit well with the inhabitants living nearby. The semi-public character of the public spaces fits with the guiding principles about the hierarchy between private and public, because it is a soft transition coming from private housing towards the public urban park.

The public space in Figure 9.35. will be elaborated in the thesis. The other public spaces are not completely designed yet. Since the success of the public spaces are completely dependent on the usage of the inhabitants, it is important to include them. The design for the public space in Figure 9.35. is based on the inhabitant input from both the participation project of the municipality and the workshop. It is however the question if the public space will actually be used by the inhabitants once it is completed. Thus, the thesis only focusses on one public space for now, because the elaboration of the other public spaces depend on whether or not the first public space will be successful.





Figure 9.35. Zoom-in on a new added public space, before and after

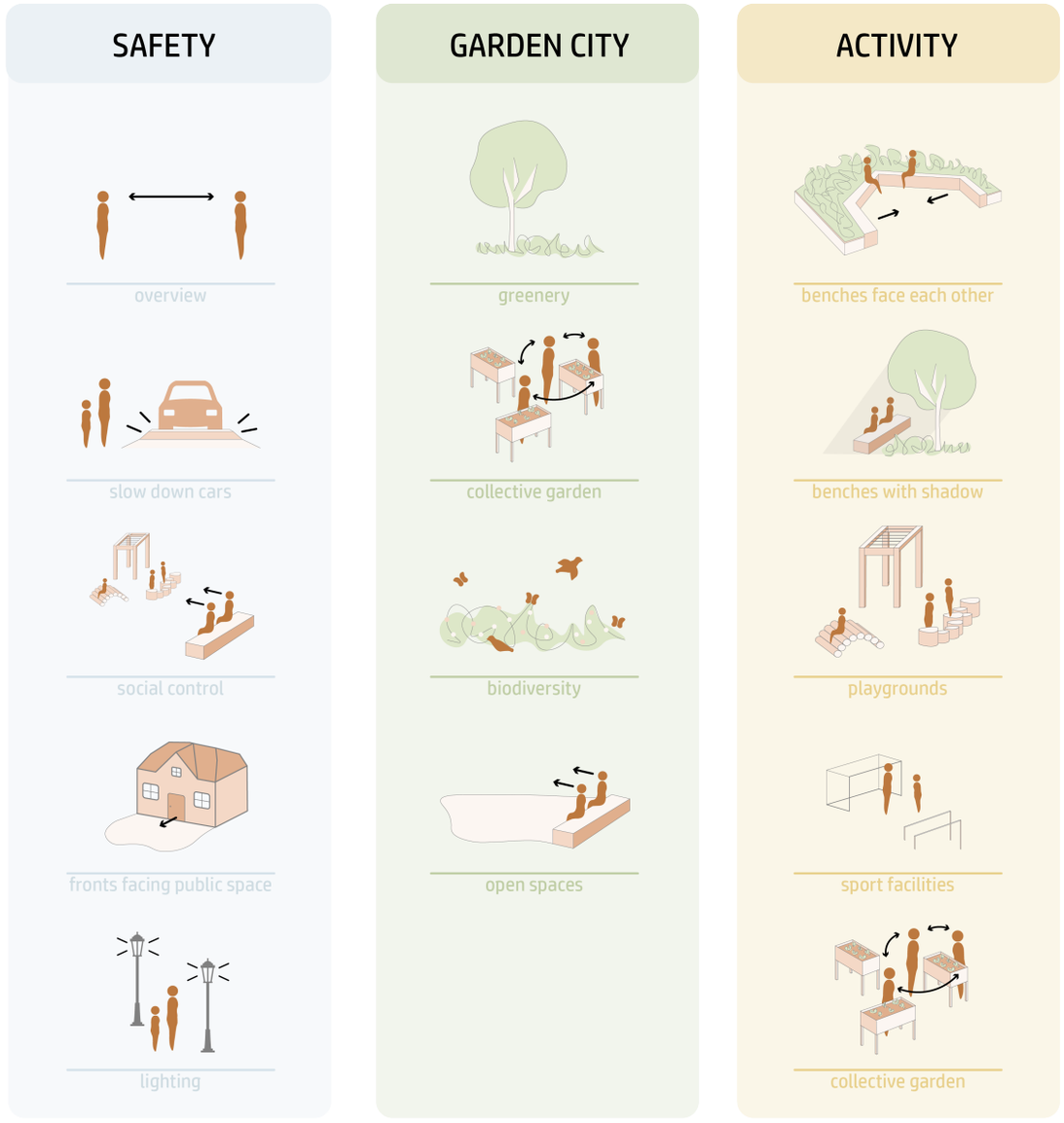


Figure 9.36. Design interventions per theme used in the public space design

Design interventions

In the vision map of Bloemenbuurt in Paragraph 8.2, there were three different themes mentioned for the design of the public spaces within the neighbourhood. These themes are ‘safety’, ‘Garden City’, and ‘activity’. The design interventions used in the public space design are described in Figure 9.36..

Safety

For safety, the design interventions are meant for people to feel safe in the public space. Inhabitants in the workshop mentioned that they would like to have a safe place for children to play. With the problems of crime in the neighbourhood in mind, it is an extra reason to make sure that the public space is safe. To do so, people need to have overview. The amount of objects that could be blocking the view need to be limited to increase the social control in the area. Next to that, cars driving on the road along the public space need to drive slow to create a safer place for children. To do so, there need to be thresholds on the road. Another way to increase the social control is to add benches in the public space for parents to sit and watch their children. This way, parents can pay attention to what is happening, but also meet other parents which stimulates interaction as well. Related to social control, the next design intervention is about the fronts of housing facing the street. This way, people can always watch the public space from inside their houses. This ties in with the guiding principle of ‘eyes on the street’. The last design intervention is to make sure that there is enough lighting in and around the public space to reduce the chance of crime.

Garden City

For the Garden City theme, the design interventions are meant to bring back the old character of the neighbourhood. The first intervention is to add greenery into the public space. The second intervention is to add a collective garden. There are community gardens in the north of Bloemenbuurt, outside the Bloemenbuurt Garden area, that used to function as a shared food facility. The community gardens are currently private, hidden between building blocks and unfindable on the internet. These gardens need more marketing to give them a boost, but next to that, the addition of collective gardens in the public spaces can bring back the idea of a shared food facility. It is however not to facilitate the whole neighbourhood with food, but more focussed on the activity and social cohesion it brings into the area. The next design intervention is to increase the biodiversity by adding wild grasses, plants and flowers, and trees. Lastly the Garden City concept often includes open spaces in the neighbourhood. This is implemented in the public space by keeping the overview, which was already explained in the safety theme.

Activity

For the activity, the design interventions focus on the actual activities people can do in the public space. The activities need to fit with the inhabitants living nearby to make sure the public space will be used. Therefore the interventions in this theme are based on the input coming from the participation project of the municipality and the organised workshop. The first intervention is about seating, which functions as a meeting place for people. The benches face each other to stimulate people to talk to others. The second intervention is also about the benches, but in this case to create places with shadow for the elderly. Next to that, there need to be playgrounds in the public spaces to create a child friendly environment. For the youth in the area, it is desirable to add sport facilities in the public spaces. This will probably also help to reduce vandalism in the neighbourhood, because the youth in the area have something to do. Currently the youth is often bored, according to the inhabitants in the workshop. This design intervention is however not included in the elaborated public space design, but need to be included in some of the other public spaces. Lastly, the new added collective gardens are also an activity for many different people in the neighbourhood.



Figure 9.37. Locations of the eye level perspectives

The character of the public space is shown in the eye level perspectives in Figure 9.38.. The public space is meant for inhabitants living nearby and therefore the activities need to fit well with their needs, as discussed before. If the activities fit with the inhabitants needs, they will use the public space and meet other inhabitants. This way, the social cohesion and interaction between people will increase, which helps to reduce socio-spatial segregation.

The first two eye level perspectives show a playground, which is relatively big. That is because of the high demand for child friendly public spaces. The elements in the playground are simplistic to stimulate children to use their fantasy on how to use them. The playground consists of natural materials like wood to fit with the Garden City character of the neighbourhood. With the benches along the playground and with the fronts of the new housing facing the public space, there will be enough social control for the children to play carefree with each other.

The third eye level perspective shows the collective garden. There are some planters where people can grow their own food. In the first public space design there are not that many planters added, because it is hard to tell how the concept of the collective garden will turn out. The success of the collective garden completely depends on the inhabitants and how they would use the planters. If it turns out to be successful, the collective garden stimulates interaction and social cohesion.

In all eye level perspectives it is visible that there is greenery in the public space with wild grasses, plants and flowers, and a few trees. The greenery fits with the Garden City character and also helps to increase the biodiversity and reduce the urban heat island effect in the area. Next to that, the greenery and wadi, visible on the right in the second eye level perspective, help to improve water storage and disposal. There are not too many trees to keep the public space open, to make sure there is always enough overview.







Figure 9.38. Eye level perspectives of the public space

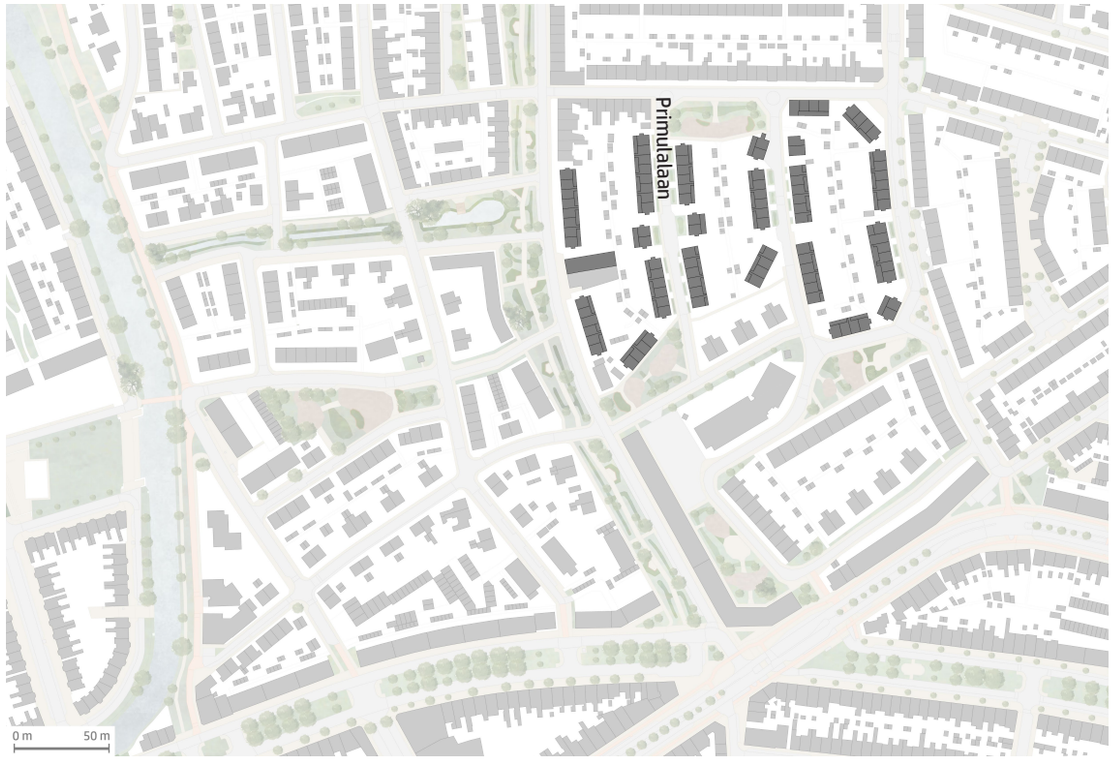


Figure 9.39. Renovation of the historical housing

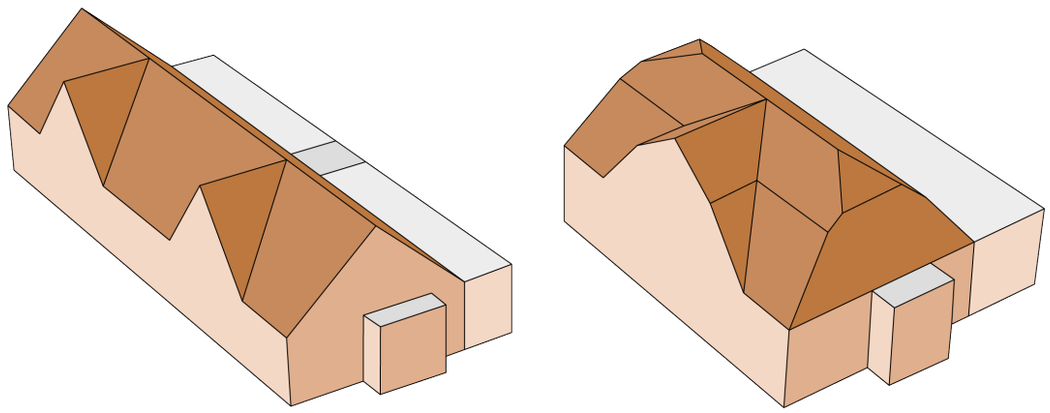


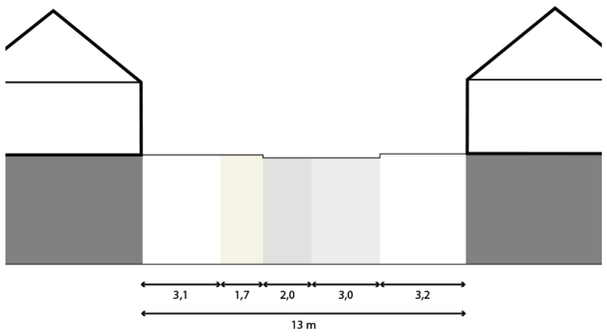
Figure 9.40. Concept of the renovation



Renovation

The housing marked in Figure 9.39. is the historical housing that is left in Bloemenbuurt Garden. The housing were built with the Garden City concept and therefore are an added value to the neighbourhood. Because of the Garden City concept, the houses are relatively small and the gardens relatively big. To fit with the current needs of people, it is preferable to expand the historical houses towards the back, like the concept in Figure 9.40.. This is possible, because all the marked houses in Figure 9.39. are social housing, owned by L'Escaut. Another opportunity is to turn parts of the front gardens into wadis, as is visible in Figure 9.41.. This is again only possible because L'Escaut is the owner of all the historical housing. The wadis are needed to reduce water problems in the street by improving the water storage and disposal. This is necessary to do, because there have been floodings into the houses with heavy rainstorms. The wadis also make the street more attractive with the greenery and help to reduce the urban heat island effect. Next to that, the wadis soften the transition from private to public, which fits well with the guiding principle about hierarchy.

Next to that, the housing need some improvements to fulfil the sustainability requirements of nowadays. Altogether, the renovation costs will be relatively high. Renovating is however important, not only as a sustainable solution, but also to keep the historical value of the pre-war housing in the neighbourhood. When the renovations are done, some of the houses owned by L'Escaut can be sold to realtors to change from social housing into owner occupied housing. This way, tenures can be mixed within the same street and are indistinguishable. That is the most successful way to create a social mix, according to the guiding principle about mixing tenures.



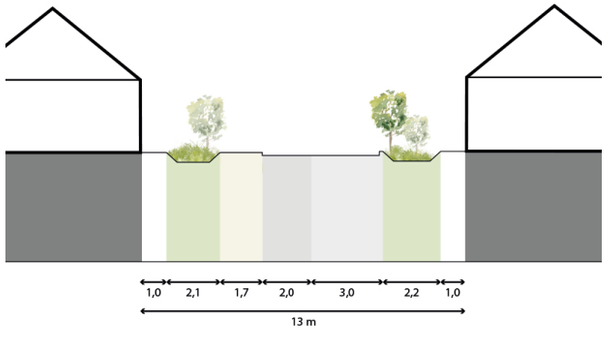


Figure 9.41. Section of Primulalaan, before and after





Figure 9.42. Eye level perspective of Primulalaan, before (Google, n.d.) and after

Figure 9.42. shows the eye level perspective of the change in Primulalaan. Next to the new added wadis, the parking places are changed into a semi-hardened surface. This is again to improve the water disposal in the street. The new added wadis in front of the housing give the street a green and friendly character, fitting with the Garden City concept. This is also a positive effect for some of the inhabitants, because there were some inhabitants who were irritated by the fact that many front gardens look terrible. For other inhabitants who like to maintain and use their front garden it will however be less positive, because they need to give up most of their front garden to create space for the wadi.

Figure 9.43. again shows the new added public space. The housing in the north is historical housing that will be renovated, but in the south there is new housing added. The architecture of this housing will reference to the architecture of the historical housing, as is visible in Figure 9.44.. This way, the character of the Garden City concept will be stimulated in Bloemenbuurt Garden.



Figure 9.43. Zoom-in on the new added public space





Figure 9.44. The historical housing (Google, n.d.) and the reference of the new built housing

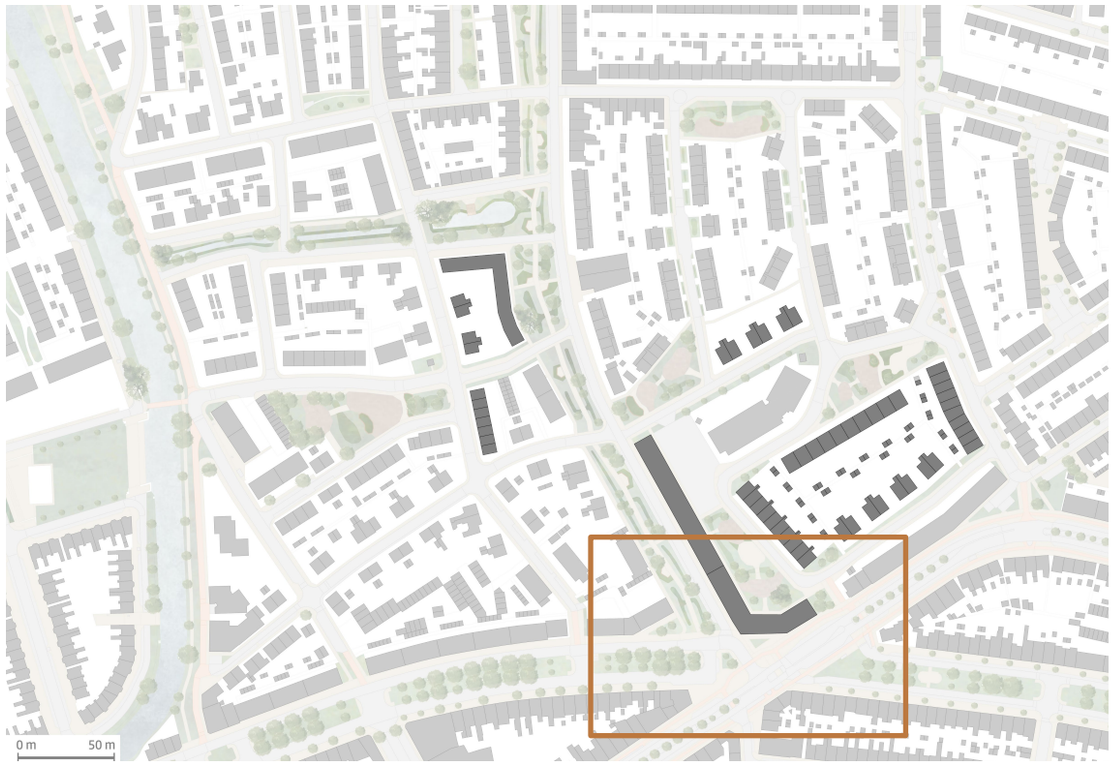


Figure 9.45. All new built housing in Bloemenbuurt Garden

New built housing

Figure 9.45. highlights all the new built housing in Bloemenbuurt Garden. All houses reference to the historical housing with their architecture, visible in Figure 9.44., except for the big building mass in the south of the neighbourhood. This building ties in with the other buildings that are located along the main car roads in the south. The new added building mass therefore helps to create a clear entrance into the neighbourhood, which is also visible in Figure 9.46..

The new built housing will all consist of mixed tenures. This way, tenures can be mixed within the same street and be indistinguishable at the same time. Next to that, there are different housing typologies added in the neighbourhood, like semi-detached houses, row houses and apartments, to attract different kinds of people. With social mix it is however always the question if the different people in the neighbourhood will interact with each other. All the guiding principles about interaction are meant to make sure the social mix will be as successful as possible, but there are some extra things to take into account.

The social mix will probably be more successful when the new target groups that are attracted into the neighbourhood have a modal income or less. This way, the difference between the people living in social housing and the people moving into the owner occupied housing is limited. When people differ too much, a successful social mix is more difficult. Next to that, the amount of new built housing and owner occupied housing is limited in Bloemenbuurt Garden. This is intentionally done to make sure that the inhabitants currently living in the area are not driven away.



Figure 9.46. Zoom-in on the entrance of Bloemenbuurt Garden



Figure 9.47. Zoom-in on the entrance of Bloemenbuurt Garden

In the current situation there is already a very strong ‘wall’ in the south of Bloemenbuurt Garden. This is a quality of the neighbourhood, because it creates a strong façade along the main car roads. When going into the neighbourhood, the housing becomes lower and more intimate which fits more with the original Garden City concept. The strong wall however stops at the main entrance of the neighbourhood, at Bloemenlaan. Therefore it is an opportunity to add a new building mass here to continue the strong facades along the main roads.
The new building mass along the entrance of Bloemenbuurt Garden is four levels high along Paul Krugerstraat in the south and then lowers to three levels along Bloemenlaan. The four levels along Paul Krugerstraat fit with the other building mass along the street, which is also four levels high. The three levels along Bloemenlaan fit with the building mass across the street, which is also three levels high. This is also visible in Figure 9.48.. The new building mass consists of different kinds of apartments with different tenures to add social mix within the building. When looking at the 3D model, it is visible that the borders of Bloemenbuurt consist of bigger building masses and the housing located inside the neighbourhoods are lower and smaller. This ties in well with the guiding principle about hierarchy, because the character of the building mass along the main roads fits with the more public character of the roads. Within Bloemenbuurt the character is more intimate and private, which fits with the smaller housing.



Figure 9.48. 3D model of the building masses of Bloemenbuurt Garden, before and after

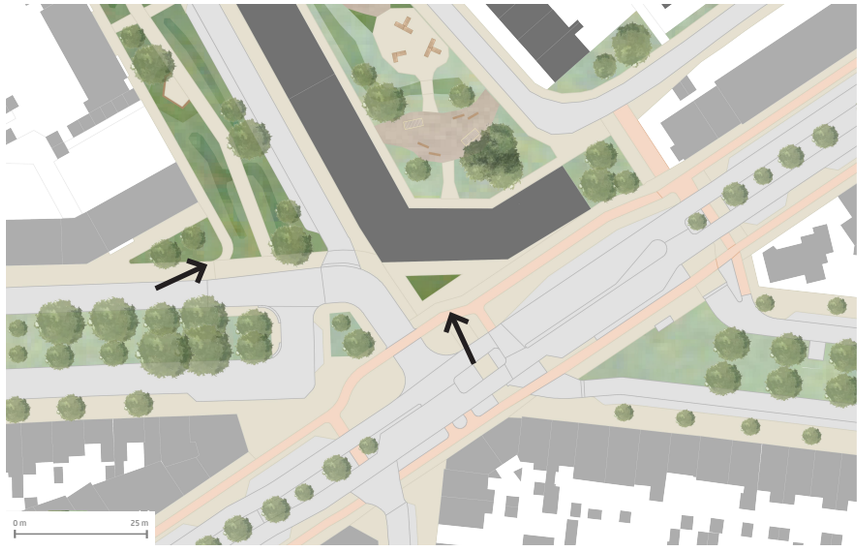


Figure 9.49. Locations of the eye level perspectives

Figure 9.50. and 9.51. show the new entrance from two different perspectives. The eye level perspectives visualise that the new building mass creates a strong entrance. In current situation, the entrance is not as clear with different kinds of housing with different orientations and with fences facing the street. The architecture of the new building fits with the architecture of the already existing buildings along Singel and Paul Krugerstraat. The building therefore has a more modern and open facade. The colour of the brick is the same as the other building along Paul Krugerstraat, visible in Figure 9.52. to make sure the new building mass looks like a modern continuation of the already existing architecture along the street.



Figure 9.52. F acade at Paul Krugerstraat (Google, n.d.)





Figure 9.50. Eye level perspective of the entrance, before (Google, n.d.) and after





Figure 9.51. Eye level perspective of the entrance, before (Google, n.d.) and after

Figure 9.53. shows the urban design for Bloemenbuurt Garden with all design interventions that are discussed. In total there are 130 houses demolished to create space for greenery and for new housing. Eight of these houses are owner-occupied and need to be bought out by the municipality to create space for greenery. The other 122 are owned by L'Escaut and thus easier to demolish with their approval. In total there will be 144 houses added to Bloemenbuurt Garden, which means that there will be an addition of 14 houses in the neighbourhood. Not much with the current demand for new housing in The Netherlands. However, socio-spatial segregation is now reduced and the living environment improved. Therefore the addition of 14 houses is still positive, when looking at all the greenery and public spaces that are added in the neighbourhood.
The percentage of greenery in Bloemenbuurt Garden is increased from 9% to 14%. This is important to reduce water problems and the urban heat island effect. There could be a bigger increase of the greenery percentage, but that is at the expense of either housing or public space activities, which is not preferable.

Maintenance

The success of the urban design is partly dependent on the maintenance of public spaces by the municipality. Currently this maintenance is not optimal, because it has been a low priority by the municipality due to financial problems. Therefore it is important that this will improve in the future. According to Meur (personal communication, December 9, 2022), the municipality now has more money available to improve the maintenance, but it is important that a high quality of the maintenance will stay in the future. If this is not possible, the neighbourhood will eventually become unattractive. That is something to take into account with the finalised urban design.



Figure 9.53. Urban design for Bloemenbuurt Garden



10.
Conclusions

10.1 Conclusion and Discussion

10.2 Reflection

10.1 Conclusion and Discussion

Conclusion

The graduation started with an observation about income inequality between neighbourhoods in Vlissingen, which can be described as socio-spatial segregation. Socio-spatial segregation describes the concentration and residential separation of different social groups and affects the opportunities of poor social groups living in a bad quality living environment in deprived neighbourhoods, which led to the following research question;

'How can socio-spatial segregation between neighbourhoods in Vlissingen be reduced and the living environment of deprived neighbourhoods be improved by urban design to improve the opportunities of poor social groups?'

The main focus of the graduation project was on reducing socio-spatial segregation between neighbourhoods on the city scale, and improving the living environment of poor social groups living in deprived neighbourhoods on the neighbourhood scale. Both aspects were needed to improve the opportunities of poor social groups. The opportunities affected by socio-spatial segregation are related to economic disadvantage, reduced educational opportunities, impeded social mobility, unemployment rates, and crime rates.

The solution to reduce socio-spatial segregation was divided in the goals of diversity and interaction. Strategies to reach those goals are social mix, social cohesion, connectivity, and vitality. These strategies resulted in guiding principles that needed to be integrated in the urban design.

Next to the guiding principles, there are also urban planning conditions to take into account in the urban design, such as the urban heat island effect and ecology values. Also input coming from inhabitants are integrated in the urban design to add a bottom-up approach.

The first part of the urban design focusses on reducing socio-spatial segregation between neighbourhoods. The improvements of the networks, such as the walkability and public transport network, help to better connect neighbourhoods with each other and important amenities in Vlissingen to limit the gap between poor and rich neighbourhoods.

The second part of the urban design focusses on both reducing socio-spatial segregation between neighbourhoods and improving the living environment of Bloemenbuurt, the most deprived neighbourhood in Vlissingen. In general, it is important that all design interventions contribute to stimulating interaction between diverse social groups in Bloemenbuurt. These interventions are for example a collective garden and playgrounds to increase the social cohesion, and an urban park to stimulate people to walk more often, which increases the amount of encounters and interaction.

To conclude, an improved connection between neighbourhoods in Vlissingen and an improvement of the living environment within Bloemenbuurt have contributed to reducing the socio-spatial segregation between neighbourhoods in Vlissingen. This way, the opportunities of poor social groups living in Bloemenbuurt are improved.

Discussion

There are some limitations in the graduation project. The first one is the amount of relevant social and spatial indicators to segregation. In the thesis there were four indicators included on both the social and spatial part, but there were many aspects discussed in literature that could have made the problem analysis of the thesis stronger. Next to that, it is quite difficult to directly link social and spatial indicators to segregation. The relation is not always very clear or strong.

Another limitation is the bottom-up part of the project. Some inhabitants are hard to reach when organizing a participation project or workshop. Therefore it are often the same people who will let themselves be heard. It is however important to not forget the inhabitants that are less visible and that do not let themselves be heard, because they are also living in that same neighbourhood. With many design interventions they would probably have a similar opinion, like the increase of greenery is a positive thing, but social mix might be more complicated. Therefore the amount of social mix is very subtle and only mixed with middle income social groups instead of rich social groups.

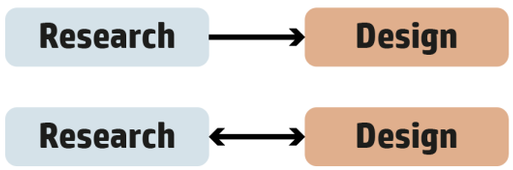
For a future research project it could be interesting to create a design for a different deprived neighbourhood. At first this was also the intention for this thesis, but due to a lack of time this did not happen. It could be interesting, because a neighbourhood can have similar social problems while the spatial characteristics are completely different. When applying the methods of the thesis to another context, it is important to know that the guiding principles coming from theory are more general and applicable to other contexts, but the urban planning conditions and inhabitant participation are context specific.

10.2 Reflection

What is the relation between your graduation project topic, your master track (Ar, Ur, BT, LA, MBE), and your master programme (MSc AUBS)?
Segregation is very related to the urbanism master track, since the concept on its own is almost always used in an urban context. When looking for literature about segregation, many papers use the term urban segregation or spatial segregation. This is because social groups concentrate themselves at certain spaces in the city, which makes segregation a spatial and thus urban concept.
This relation with urbanism also creates the relation with the master programme in general. The urban design is a multiscalar urban redevelopment and aims to be sustainable and inclusive. These topics are relevant for all master tracks.

How did your research influence your design/recommendations and how did the design/recommendations influence your research?
The research influenced the design very much, because the guiding principles coming from the research were the input for the design interventions. The design influenced the research during the first design experiments. During these experiments, I felt like I did not have enough information yet on of the neighbourhood itself. Therefore I added the urban planning conditions and inhabitant participation for extra input for the design.

How do you assess the value of your way of working (your approach, your used methods, used methodology)?
A compliment I received during my P2 was that I tried very hard not to be biased. This is something I tried include in my whole graduation project. Therefore I feel like my approach on segregation and the project is quite strong. Next to that, my way of working is very structural. This has some positive and negative sides. It is positive that it is really clear how the guiding principles, urban planning conditions and inhabitant participation led towards an urban design. On the other hand, this also takes away some of my own preferences and experiments on what is a good urban design that fits the context of the neighbourhood and Vlissingen. In other words, it was harder for me to really add some spatial qualities and personality in the urban design. Therefore, in a future design process, it would be better for me to try to switch between research and design more often instead of elaborating a design in chronological order to improve the quality of the design, as shown below.



How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?
Segregation is a topic that is already discussed a lot in literature and urban designs. I do think my approach is slightly different than most literature. I am less biased than some writers when looking at the problem of segregation, because I also include the positive effects and 'sense of belonging'. Other than that my main focus is on the poor social groups and their living environment instead of the rich social groups. This is especially visible in my implementation of social mix. Many designers and authors approach social mix as a way to create economic benefits for a deprived neighbourhood, while I try to use it as a way to increase diversity and interaction. I think these aspects are quite strong in my graduation project.
The implication of my graduation project could however be stronger. As discussed before, it was harder for me to really focus on spatial qualities and personality in the design. Therefore some design interventions might be a bit standard or common. This could be stronger in a future design process.

How do you assess the value of the transferability of your project results?
My graduation project is quite specific for the Vlissingen and Bloemenbuurt context. However, the guiding principles coming from theory are very general for all contexts that are facing a socio-spatial segregation problem. These guiding principles are therefore quite valuable for other researchers and urban designers. It is however important that in a different context, it is still valuable to include urban planning conditions and inhabitant participation to improve the quality of the urban design.

How do you assess the value of including the opinion of inhabitants?
For me it was very important to add a bottom-up approach next to all the top-down input coming from the theory and spatial analysis. Although the outcomes of the workshop I did are not directly changing the urban design, it was still very informative to learn about how the inhabitants use and perceive their living environments. The input coming from the inhabitants was very helpful for me to understand the influence from the changes you make as an urban designer. Therefore the workshop indirectly still influenced the final urban design. In other words, the value of the inhabitant participation is high when you redevelop their living environment.

How do you assess your final urban design?
Overall I am really happy with how the urban design turned out, even though I was struggling with adding spatial qualities and personality into the design. I can really see the urban design happening in Bloemenbuurt if, of course, money and policies were no issue. These aspects were not included in the graduation project, but are very important when creating an urban design in practise. Therefore the results of the thesis might not be very realistic. The only thing that I find hard to assess is the actual success of the urban design and whether it actually will stimulate diversity, but especially interaction in Bloemenbuurt. I do think the idea of first developing one public space to see how inhabitants react will help to make sure the public space designs will stimulate interaction.



11.

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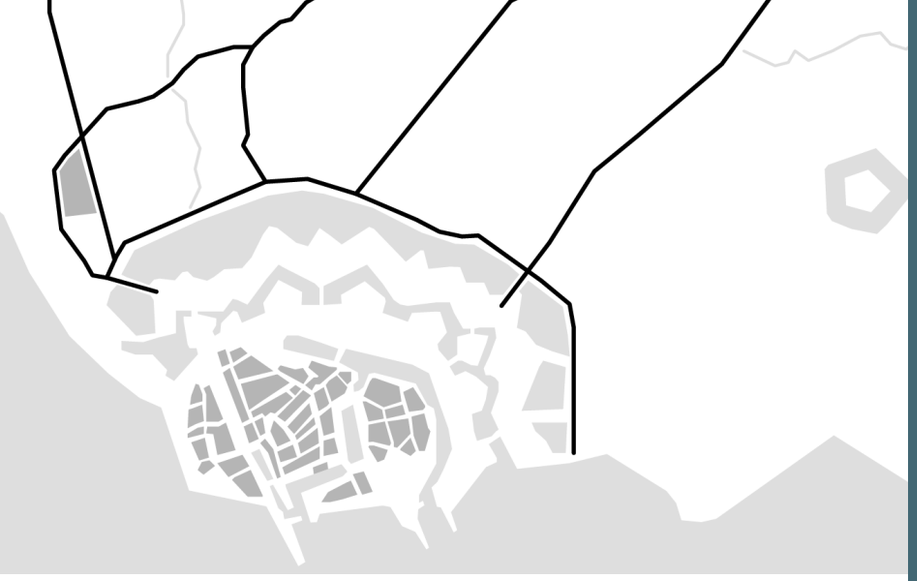
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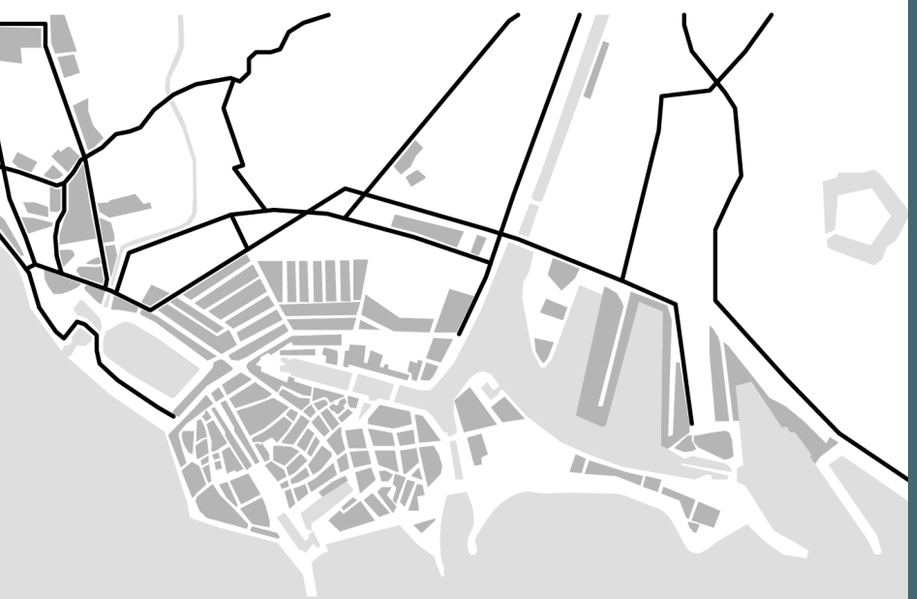
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12.

Appendix

Appendix 1 History
Appendix 2 Social Context
Appendix 3 Choice of Neighbourhood
Appendix 4 Ecology Analysis

Appendix 1 - History



Landscape change of Walcheren through the years. Own maps, based on (Wikipedia, 2023b; Oude Landkaarten, n.d.; NGR, 2023a)

History of Walcheren

Middelburg was the most important and biggest city on Walcheren, but was not located at the sea like the smaller cities Vlissingen and Veere. Therefore it was important for Middelburg to mitigate the ambitions of those cities. To do so, a canal was dug in the 16th century from Middelburg towards the 'Sloe', the most nearby waters of the Westerschelde. With this canal, goods could be directly transshipped to Middelburg.

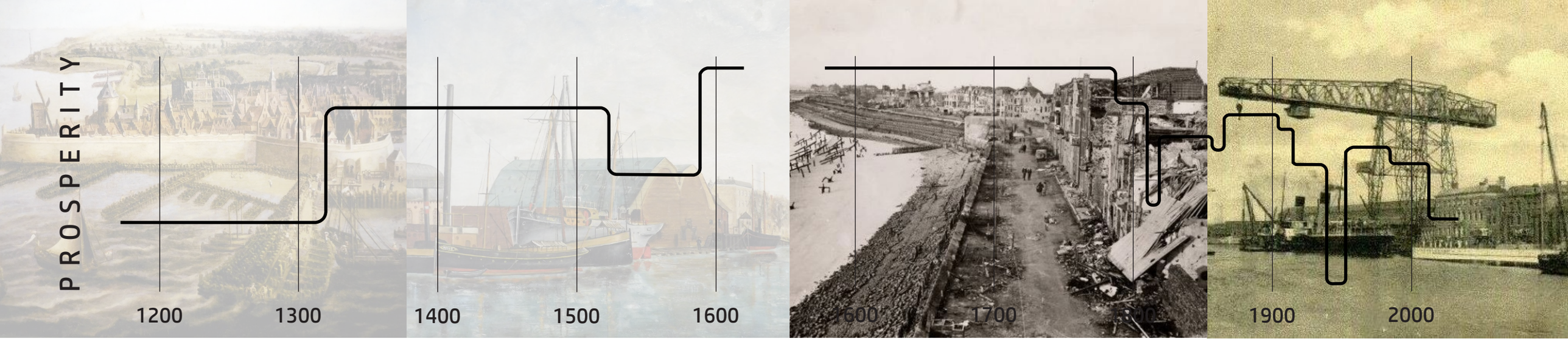
In the beginning of the 17th century, Middelburg became the headquarters of the WIC and developed towards one of the most important cities, but the city had problems with the silting up of the Sloe area. Middelburg tried to keep the canal between the city and the Sloe, but it became to expensive to keep the connection accessible. In 1817 a new canal was dug towards the north, next to Veere, to connect Middelburg with the Oosterschelde. This unfortunately did not increase the economic profits for Middelburg, because the Westerschelde was more important for the shipping industry.

Therefore Dirk Dronkers came with a solution around 1840. Middelburg needed a new harbour at the Westerschelde, located next to Vlissingen, with a canal that would connect Middelburg with this harbour. Next to that, a railway would connect the harbour on international levels with Germany. All to increase the economic profits for Middelburg. The city would even compete with Rotterdam and Amsterdam, the biggest harbours of the Netherlands. However the government did not have enough money to realise these plans, due to the separation of Belgium and the Netherlands. Therefore the plans of Dronkers were not realised until 1872, when the railway between Vlissingen and Bergen op Zoom was built, and until 1873, when the canal between the harbour and Middelburg was dug.

The results were however not as Dronkers had predicted. The situation in Zeeland did improve, but not as much as Dronkers had hoped. Therefore Middelburg could not compete with Rotterdam and Amsterdam. The city that profited most from the new infrastructures was Vlissingen.

In the 20th century, industrialisation became important for the reconstruction of the Netherlands. In 1958 the Sloe area became interesting for new developments. De Schelde, which was the biggest shipyard in Vlissingen, wanted to expand into the Sloe area. In 1964 the new expansion was already built and after that some other companies, like Total, followed. The economic profits were high, until at the end of the 20th century, when an energy crisis and big failed projects resulted in the bankruptcy of De Schelde. The shipyard became part of Damen Shipyards Group and moved out of the city centre of Vlissingen to only function in the Sloe harbour, which is nowadays called Vlissingen-Oost. The harbour is still important for Vlissingen, but not as important as it used to be.

Text based on (Van den Burg, 2015)



The prosperity of Vlissingen through the years. Images from (Staatspareltjes, 2019)

History of Vlissingen

Vlissingen was already known in the year 620 as a place for fishing. After years of fishing, it became a village in the year 917. When count Willem III owned Vlissingen, he made sure that there were harbours built in the village. With this development, Vlissingen got city rights in 1315 and became prosper. Vlissingen was an important centre for fishing, trading and shipping, but also privateering and slave trading. Vlissingen kept growing and was prosper for quite some time, until the Spanish domination around 1500. When the Spanish wanted to built a citadel, the inhabitants of Vlissingen did not agree and took over in 1572.

After the Spanish left, Vlissingen went through a period of economic growth. Antwerp was part of enemy territory and therefore Vlissingen was an important harbour city. In the 17th century, during the Golden Age, Vlissingen was very prosper. The trade was growing because of the VOC and WIC, but also privateering kept being important for the economy of Vlissingen. Shipyard Admiralty of Zeeland provided the ships for these activities.

When in 1795 France was allowed to use the harbours of Vlissingen because of The Hague Convention, the prosperity of Vlissingen declined. In 1809 Vlissingen was under siege by the British during the Napoleon wars. There was a lot of damage to the city because of the many shootings, but also because of a flood. Vlissingen was a fortress city at that time.

In 1814 the French left Vlissingen and the Royal Marine settled. The Royal Marine came with a shipyard for new constructions, repair and equipping of naval ships. There were more job opportunities and the economy started to grow again.

In 1868 the Royal Marine left and Vlissingen was no longer a fortress city. Because of that, the city could expand. The economy grew again because new harbours, a canal and railway were built and because the shipyard De Schelde settled.

In the beginning of the 20th century, the prosperity declined a little because of World War I and an economic crisis, but the real decline in the economy was because of World War II. The strategic location of Vlissingen was interesting for war and therefore the city was greatly damaged by bombs and inundation, where areas were flooded on purpose.

After the war, Vlissingen was being reconstructed. The city expanded and Vlissingen-Oost was being built. Next to that, tourism became bigger and bigger in the city. The prosperity was growing again.

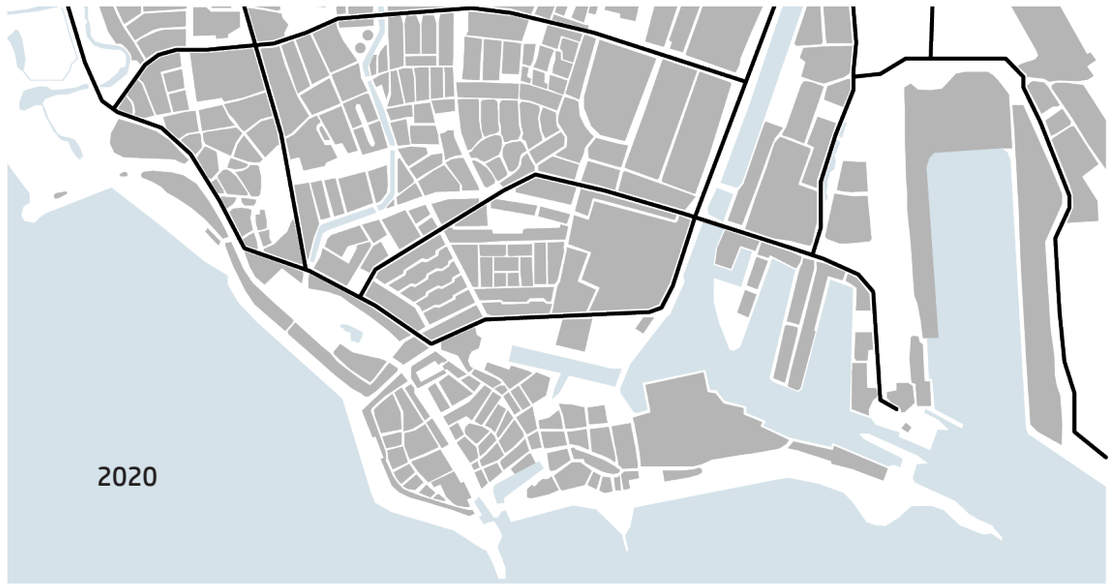
When at the end of the 20th century De Schelde went bankrupt, the prosperity of Vlissingen declined a little again. In 2008, during the economic crisis in the Netherlands, the municipality of Vlissingen became bankrupt. Vlissingen invested a lot in tourism and new neighbourhoods after that, but still seems to be looking for a new way to stimulate economic growth. An example is the settling of a military basis, which never happened. As a compromise, the municipality wants to build a prison. There are also plans for a new nuclear power station, where the municipality wants to profit from. However, the economy of Vlissingen did not benefit from these plans yet.

Text based on (Gemeente Vlissingen, n.d.; Wikipedia, 2023a)











Morphology of Vlissingen through the years. Own maps, based on (Topotijdreis, n.d.)

The map of 1850 shows Vlissingen in the period of time it was a fortress city. The water structure shows this very clearly with the characteristic star formed canal.

Then, in 1873, the canal between Vlissingen and Middelburg was dug. The map of 1900 also shows the new harbours in the east.

The old water structure disappears in the map of 1920. The city starts to expand towards the north and with its industries towards the east.

After World War II, the city is expanding again and a new big harbour is built in the east. The industry is now flourishing and new neighbourhoods are built to provide housing for all the workers that now came to Vlissingen.

The last map shows the situation as it is nowadays. The city expanded even more towards the north and the industry function moved outside of the city. The buildings at the old harbours are now in transition.

Appendix 2 - Social Context

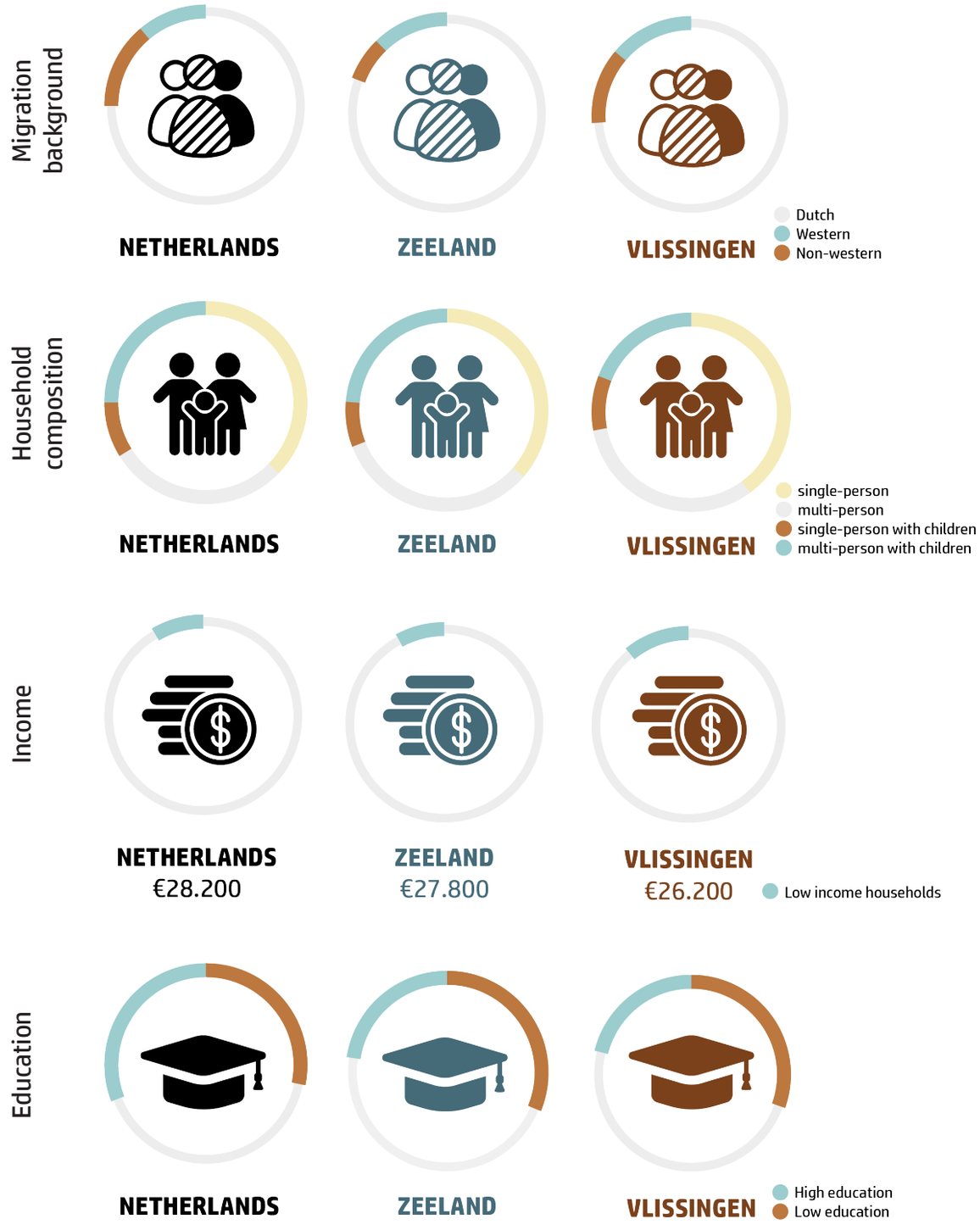
The social context shows some demographics of inhabitants of Vlissingen that are relevant for the topic of socio-spatial segregation. These are migration background, household composition, income and education. It is interesting to compare Vlissingen with the province of Zeeland and with the Netherlands to see if the data about Vlissingen is similar.

Migration background
When looking at the percentages of people with a migration background, it is visible that Vlissingen has a relatively high percentage of people with a migration background. Especially when comparing to the average of Zeeland. Compared to the Netherlands, the percentages are quite similar. The conclusion is that Vlissingen is a multicultural city, especially compared to other villages and cities in Zeeland.

Household composition
The household compositions seem to be similar at all scales, but in Vlissingen there is a higher percentage of single family households. This means that there are relatively many people without partners and without children in Vlissingen. Next to this, the percentage of single family households with children seems to be relatively high compared to the average of Zeeland. This means that there are relatively many single parents in Vlissingen.

Income
When looking at incomes, the percentage of households with a low income are shown. This percentage is quite high in Vlissingen. Also the average income shows that the incomes in Vlissingen are relatively low in comparison to the average of Zeeland and the average of the Netherlands. The difference with the Netherlands is around €2.000 and with Zeeland around €1.500.

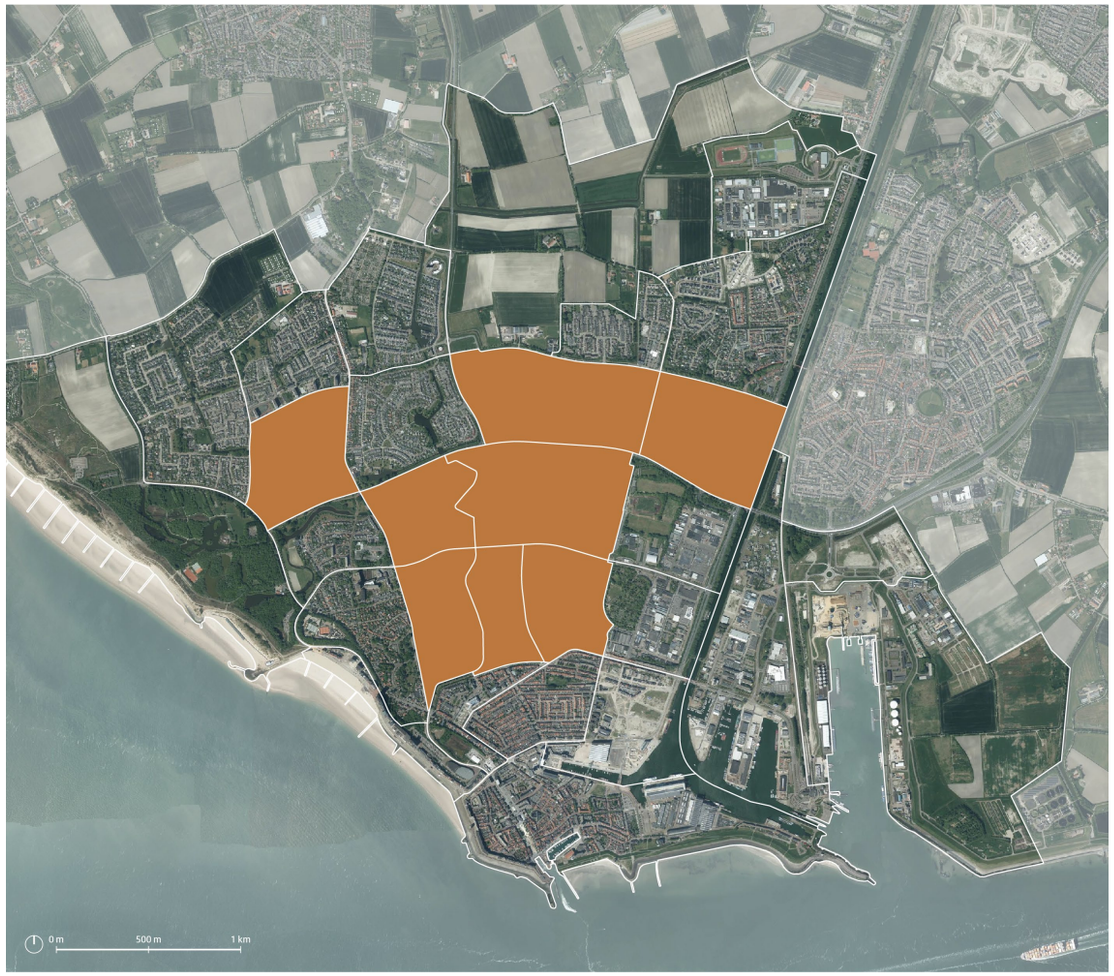
Education
The percentages of education seem similar on all scales, but especially the high education percentage is relatively small in Vlissingen compared to the Netherlands and Zeeland. This means that there are more moderate and low educated people living in Vlissingen, which also influences the data about income.



Demographics of Vlissingen compared to the Netherlands and Zeeland. Based on (CBS, 2021; CBS, 2022; AlleCijfers, 2023c; AlleCijfers, 2023c; AlleCijfers, 2023e)

Appendix 3 - Choice of Neighbourhood

In Appendix 3 the most deprived neighbourhoods, according to the conclusion of the problem analysis, are analysed. When looking at segregation, the neighbourhoods have similar characteristics, but their morphological and spatial characteristics differ. The chosen characteristics to compare are location, public spaces, building typologies and mobility system. The neighbourhood characteristics are first described seperately and are than compared to finally choose one neighbourhood to elaborate.



The most deprived neighbourhoods of Vlissingen

Paauwenburg Zuidoost



Location



Public spaces - 49% of neighbourhood
Greenery is 48% of public spaces



Building typologies



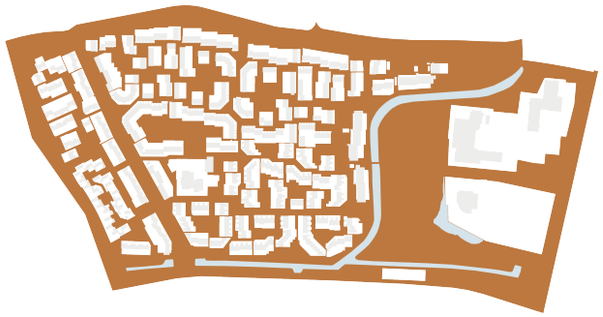
Mobility

Paauwenburg Zuidoost is located next to the forest in the west of Vlissingen. The percentage of public spaces and greenery are average in the neighbourhood.
The building typologies map shows that there are quite some different typologies in the neighbourhoods. The main typologies are row houses and detached houses. In the north and south there are some apartment buildings.
When looking at the mobility system, it is visible that there are many dead ends within the neighbourhood. The car roads within the neighbourhood are therefore mostly residential. The barriers on the east and south side of the neighbourhood are secondary roads.

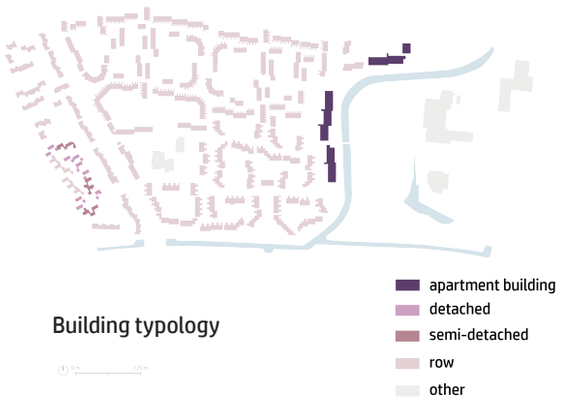
Bossenburg-Weyevliet



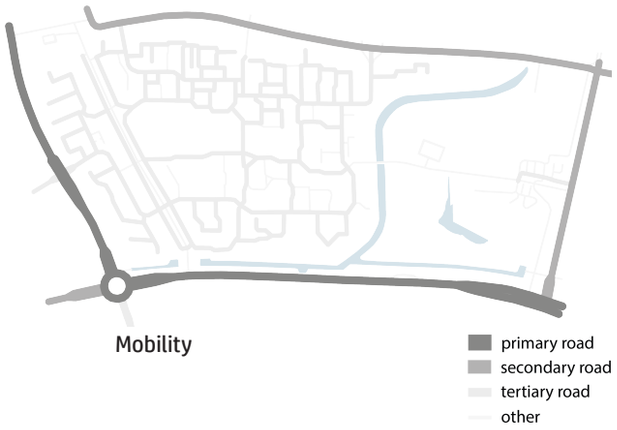
Location



Public spaces - 61% of neighbourhood
Greenery is 48% of public spaces



Building typology



Mobility

Bossenburg-Weyevliet are two areas combined into one neighbourhood. In the east there is an area with some high schools in it and in the west there is an residential neighbourhood. The percentage of public spaces of the neighbourhood is relatively high and the percentage of greenery is quite average. A big part of the public spaces is a large motorcross area next to the high schools.
When looking at the building typologies it is visible that there are mostly row houses. The structure is quite organic and the houses all seem to be kind of the same. Only along the water structure in the east there are some appartment buildings.
The map of Vlissingen shows that the neighbourhood is located relatively far away from the city centre in the south and this is also visible in the mobility map. The neighbourhood is framed by two primary roads in the south and west, which are important connectors between Vlissingen and the rest of the province. The barriers in the north and south of the neighbourhood are secondary roads. Within the neighbourhood there are no main connectors and the high schools are mainly accessible by cycle paths.

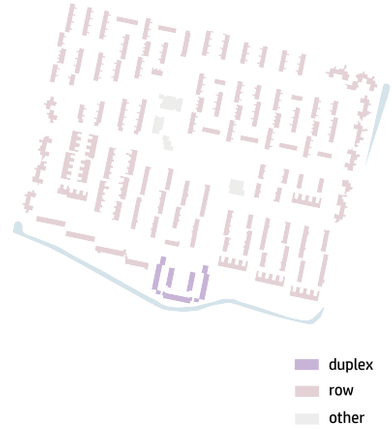
Westerzicht



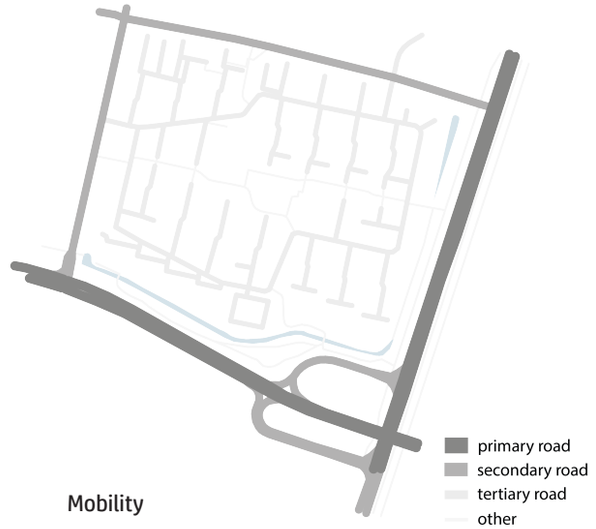
Location



Public spaces - 66% of neighbourhood
Greenery is 50% of public spaces



Building typologies



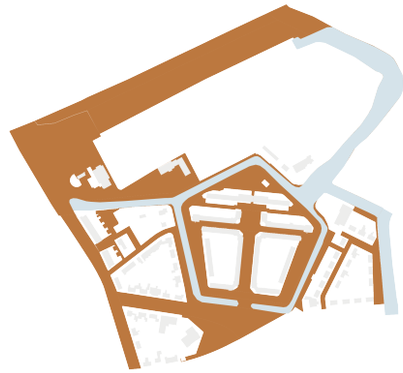
Mobility

Westerzicht is also located further away from the Vlissingen city centre. The percentage of public spaces is really high in the neighbourhood, just as the percentage of greenery. This is mainly because of the park in the south and the green structure along the primary road in the east.
The building typologies map shows that almost the entire neighbourhood consists of row houses, except for one block of duplex houses in the south. Therefore the neighbourhood looks very homogeneous.
The mobilty map shows that there are two primary roads framing the neighbourhood in the east and south. The barriers in the north and west are secondary roads. The neighbourhood is only accessible by two car roads in the north and west. Therefore there is no other traffic going through the neighbourhood other than residential.

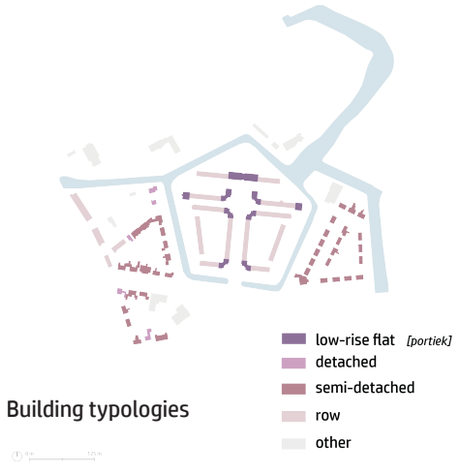
Het Fort e.o.



Location



Public spaces - 47% of neighbourhood
Greenery is 54% of public spaces



Building typologies



Mobility

Het Fort e.o. is an old fortress that was transformed into housing. The neighbourhood consists of the old water structure of the fortress and some sport fields in the north. The percentage of public space is average, but the percentage of greenery of this public space is relatively high.
There are not that many houses in the neighbourhood, since the area is quite small, but there are still some different housing typologies. The main typologies are row houses and semi-detached houses.
When looking at the mobility system, most barriers of the neighbourhood are secondary car roads. The other barrier is the water structure in the east. Within the neighbourhood there are no main connectors, but just residential roads.

Hercules Segherslaan e.o.



Location



Public spaces - 47% of neighbourhood
Greenery is 47% of public spaces



Building typologies



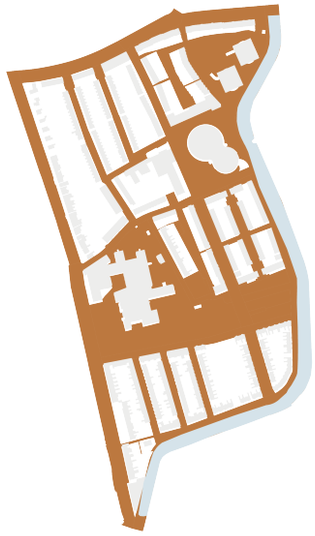
Mobility

Hercules Segherslaan e.o. is located on the east side of the water structure, next to Het Fort e.o.. The percentage of public spaces and greenery is quite average in the neighbourhood. In this neighbourhood there are also sport fields that create a big empty area in the public spaces map.
Looking into the building typologies, there are some apartment buildings, town houses, but also (semi-)detached houses. It can be concluded that the neighbourhood has very diverse typologies.
The mobility map shows that in the north and south of the neighbourhood there are some bigger car roads that connect the neighbourhood with the rest of the city. Within the neighbourhood there is no clear hierarchy between car roads. Some roads are only residential because they have a dead end, and other roads are entrances for the sport fields.

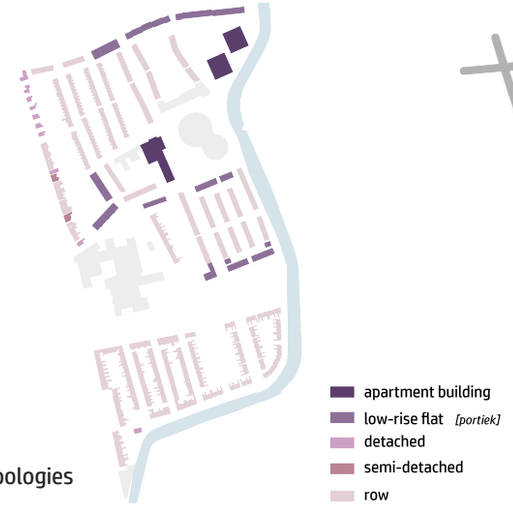
Bonedijkestraat e.o.



Location



Public spaces - 53% of neighbourhood
Greenery is 22% of public spaces



Building typologies



Mobility

Bonedijkestraat e.o. is a neighbourhood located relatively nearby the city centre of Vlissingen. The hospital of Vlissingen is located in this neighbourhood. The percentage of public spaces is average and also contains the large parking lot of the hospital. Therefore the percentage of greenery is really low within the neighbourhood.
The neighbourhood is quite small and mainly consists out of row houses. In the north there are also some other typologies.
Bonedijkestraat e.o. has two different barriers. The east and south barriers are formed by the old water structure and the west and north barriers are formed by two secondary car roads. Within the neighbourhood there are mainly residential roads, but also connectors for the primary school and supermarket in the north.

Bloemenlaan e.o.



Location



Public spaces - 34% of neighbourhood
Greenery is 28% of public spaces



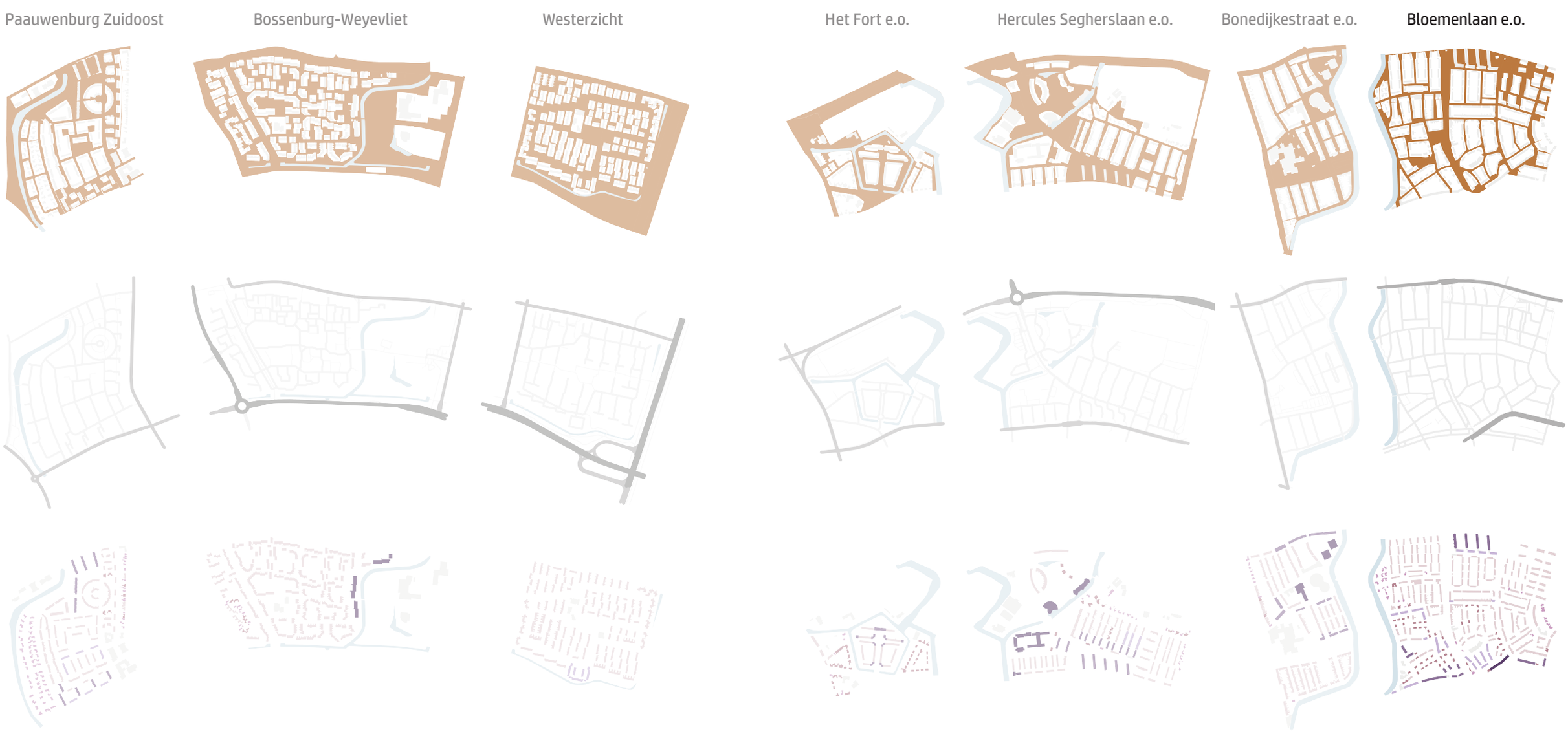
Building typologies



Mobility

Bloemenlaan e.o. is also located relatively nearby the city centre of Vlissingen. The percentage of public spaces in the neighbourhood is really low compared to the other neighbourhoods and also the percentage of greenery is relatively low. There are some bigger public spaces along the main car road and in the north, but furthermore the public spaces are quite small.
The building typologies map shows that there are many typologies within the neighbourhood. The most common typology is the row house. Along the car roads in the north and south, there are some apartment buildings and within the neighbourhood there are more low-rise typologies.
The mobility system shows two secondary car roads in the north and south of the neighbourhood. There is however also a tertiary road that functions as main connector, which is the north-south connection called Bloemenlaan. The other roads function as residential roads.

Neighbourhood comparison



As discussed in the introduction of this Appendix, one neighbourhood will be chosen to elaborate. The locations of the neighbourhoods are different, but this is no characteristic that could be changed in a future design. Therefore the comparison is focused on the other three analysed characteristics; public spaces, mobility and building typologies.
When looking at public spaces, there are some big differences between the neighbourhoods. Bossenburg-Weyevliet and Westerzicht contain a lot of public spaces, while Bloemenlaan does not. The other neighbourhoods are more average.
The mobility system of all neighbourhoods are quite similar. All neighbourhoods have a main connector as a barrier and residential roads within the area. Next to that, Hercules Segherslaan e.o. and Bloemenlaan have some tertiary roads within the neighbourhood that function as a main connector.

The building typologies differ between the neighbourhoods. The neighbourhoods that are located further away, like Bossenburg-Weyevliet and Westerzicht, are more homogeneous compared to the other neighbourhoods. The most diverse building typologies are in Hercules Segherslaan e.o. and Bloemenlaan e.o..
When looking at all these aspects, it is interesting to elaborate on Bloemenlaan e.o.. This neighbourhood has the least public spaces of all neighbourhoods, has a main connector going through the area, and has relatively diverse building typologies. Bloemenlaan e.o. actually consists of two neighbourhoods, the east and west part of the Bloemenlaan (main car road). Together they are usually called **Bloemenbuurt** by the inhabitants. This name will be used in the thesis to describe the neighbourhood.

Appendix 4 - Ecology Analysis



Analysis of the ecological value of green spaces. Source images (Google, n.d.)

