NEIGHBOURHOOD PERFORMANCE

Enhancing public life and urban morphology in Nieuwe Westen and Middelland

Colophon

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PREFACE

When I started my master in Urbanism in Delft, still not quite sure if I chose the right master, I was not aware of my interest within this field. This changed in the last quarter of my first year. During my internship at the municipality of Rotterdam I got aware of the complex role of the municipality in the development of the urban environment. At the same time my elective course showed me the micro scale of the city during public life study fieldworks. During this course I got interested in how the physical environment influences the behaviour of people and the social structure of a neighbourhood. These interest became the basis of the motivation for this project.

At the case of this graduation project, Nieuwe Westen and Middelland, I discovered a large gap between the policy of the municipality and a spatial implementation that takes into account the micro scale of the districts. With this project I tried to find a way to fill this gap and expand my knowledge on these subjects. The teachers who helped me to discover my interest within the field of urbanism during that last quarter were also the ones who helped me explore these subjects during my graduation project. Therefore I would like to thank Egbert and Maurice, because with their help I was able to make this project what it is today.

I. INDEX

I. RESEARCH FRAMEWORK

1. MOTIVATION OF THE STUDY

There are three motivations for this project. The first motivation is on the basis of existing research, the second on the possibility of a better design of public space, and the third on experience in practice.

1. There have been done several attempts to reduce social and ethnical segregation at the scale of neighbourhoods or buildings, to bring people of different groups together. In articles that evaluate these kind of projects, there is often concluded that these projects are unlikely to have a direct positive influence on the socio-economic situation or on the social networks of the original residents. (Eijk, 2010, p. 322; Manley, Ham, & Doherty, 2011, p. 14) Research on this topic might not assign a positive influence to the mixing of a population, but in the current situation the population in many neighbourhoods in the Netherlands is already mixed. And next to the current composition of the population, renewal or expansion projects in neighbourhoods can, although it might not be their main aim, have an influence on the future composition of the population.

2. Although groups of residents might not have a direct positive influence on each other's socio-economic situation, they do anyway interact at public spaces in their neighbourhood. This can show a possible negative effect of a mixed population, because the lifestyles, living standards, norms and values of the different groups might not match with each other. Furthermore the physical environment can have an influence on how these groups of residents behave and interact. (Ittelson, Rivlin, Proshansky, & Winkel, 1974, pp. 1-16) Therefore the knowledge of the interaction, behaviour and lifestyles of the residents and the physical form can be useful to contribute to a better design of public space. By adapting the physical environment according to the needs, behaviour and preferences of the population their quality of life can be improved.

3. The role of the municipality in development of the city is very complex and they have to deal with many actors and stakeholders. In a project addressing the subjects mentioned above, the municipality would also have to deal with a great amount of actors and stakeholders. Therefore the formation of policy and the establishment and implementation of programs is a complex and interesting topic for this kind of project.

To explore these themes within the time and possibilities of a graduation project, a suitable project location in Rotterdam is selected. The location consists of two mixed districts in Rotterdam where the municipality is currently executing a program, namely: Nieuwe Westen and Middelland. The municipality of Rotterdam wants to attract more 'promising families'. Therefore they have started the project 'kansrijke wijken' and selected nine 'promising districts'. Last year(2015) they have started a catalyst project with the program in three districts, namely Nieuwe Westen, Middelland and Oude Noorden. The districts will be adapted to make them more attractive for the promising families.

2. INTRODUCTION TO ROTTERDAM NIEUWE WESTEN AND MIDDELLAND

This chapter will first give a short introduction to the location Nieuwe Westen and Middelland and then give a short overview of the policy of the municipality for this location.

2.1 Location

Nieuwe Westen and Middelland are two districts relatively close to the city centre of Rotterdam. The districts are located west to the centre of Rotterdam in the area Delfshaven.

Figure 1: Nieuwe Westen and Middelland and its location in the city of Rotterdam, the Netherlands

2.1.1 History

Nieuwe Westen and Middelland are both built before the second world war. The urban plan was made by Gerrit de Jongh around 1900. The houses along the wide boulevards and avenues were built for the leading citizens. The houses at the smaller streets were built for the less affluent citizens. The more dense housing along the Nieuwe Binnenweg and the Middellandstraat is built before 1900 (Gemeente Rotterdam, 2014a, 2014c).

2.1.2 Population

Nieuwe Westen has a population of 19145 residents with a density of 15467 people per square kilometer and in Middelland the population is 11555 people with a density of 16981. The density of both districts is way higher than the average density of Rotterdam. The percentage of non-western immigrants of both districts is higher than the average in Rotterdam (CBS, 2014). Therefore the population of both district is really divers in culture. The biggest part of the population has a low income. In both districts this share is higher than the average of 51% in Rotterdam (Gemeente Rotterdam, 2014a, 2014c).

2.1.2.1 Life styles

The municipality of Rotterdam uses the four different lifestyles of SmartAgent to get an insight in the lifestyles of its inhabitants. In the book 'Leefstijlen: Wonen in de 21ste eeuw' the definition of a lifestyle is given. According to this definition cultural preferences are the result of the social route that somebody followed. That social route results on certain moments in someone life in a relatively fixed pattern whereupon people organize their daily life. This relatively fixed pattern can be called a lifestyle (Reijndorp & Projektgroep het Oude Westen(Rotterdam), 1997, p. 13). SmartAgent distinguishes a yellow, green, red and a blue lifestyle.

Yellow: In the yellow lifestyle involvement and harmony are key. People with this lifestyle attach high value to social contacts in the neighbourhood and at work. This kind of people are open and concerned about others.
Green: In the green lifestyle security and certainty are key. People with a green lifestyle live a calm and peaceful life while moving in a small circle of friends, neighbours and family. This group attaches high value to privacy.
Blue: In the blue world ambition, control and performance are key. People with this lifestyle are very ambitious and a successful carrier is an important goal. They attach value to luxury and are sensitive to status.
Red: In the red lifestyle freedom and flexibility are key. People with a red lifestyle are open minded and attach high value to independency. For this kind of people there is more in life than work, family and the neighbourhood. They want to involve in cultural development and travelling the world. In the world of marketing this lifestyle is also described as the early adopter (SmartAgent).

According to the data of the municipality all the lifestyles are currently represented in Middelland and Nieuwe Westen, but they do not match the average percentages of Rotterdam:

Lifestyle	Nieuwe Westen	Middelland	Rotterdam
Yellow	24%	16%	30%
Green	23%	14%	28%
Blue	17%	20%	19%
Red	36%	50%	24%

(Gemeente Rotterdam, 2014a, 2014c)

Inhabitants with a red lifestyle are clearly dominant at both Nieuwe Westen and Middelland.

2.1.3 Housing

Most of the houses are built before the second world war and they vary from two to five floors. In Middelland the share of social rent housing is 38 %, slightly less than the average of Rotterdam (Gemeente Rotterdam, 2014c). In Nieuwe Westen the share of social housing is 49%, that is slightly more than the average of 46% in Rotterdam (Gemeente Rotterdam, 2014a).

2.2 Policy of the municipality : program 'promising districts'

The municipality wants to make Rotterdam an attractive city to live in with a strong economy. The strong economy is needed to invest in an attractive city for living, working and staying for residents and visitors. And the other way around a high quality of life will contribute to a favourable business climate. To reach this goal the municipality wants, as introduced in chapter 1, to attract more 'promising families'. A promising family is a family with at least one child under 18 years, with no parent that receives social assistance living in a house that has a WOZ-value of at least 160.000 euro. In case one of the parents is subscribed at the UWV this parent has at least an HBO diploma. Therefore they have started the project 'Kansrijke Wijken' and selected nine 'promising neighbourhoods'. They have started with the program in 2015 with a catalyst project in three neighbourhoods, namely Nieuwe Westen, Middelland and Oude Noorden. The goal of the program is to make these districts more attractive for promising families, wherefore the share of promising families in these neighbourhoods will have to rise with 10%. The program will be discussed more thoroughly in Appendix 1. A summary of the program is given in figure 2.

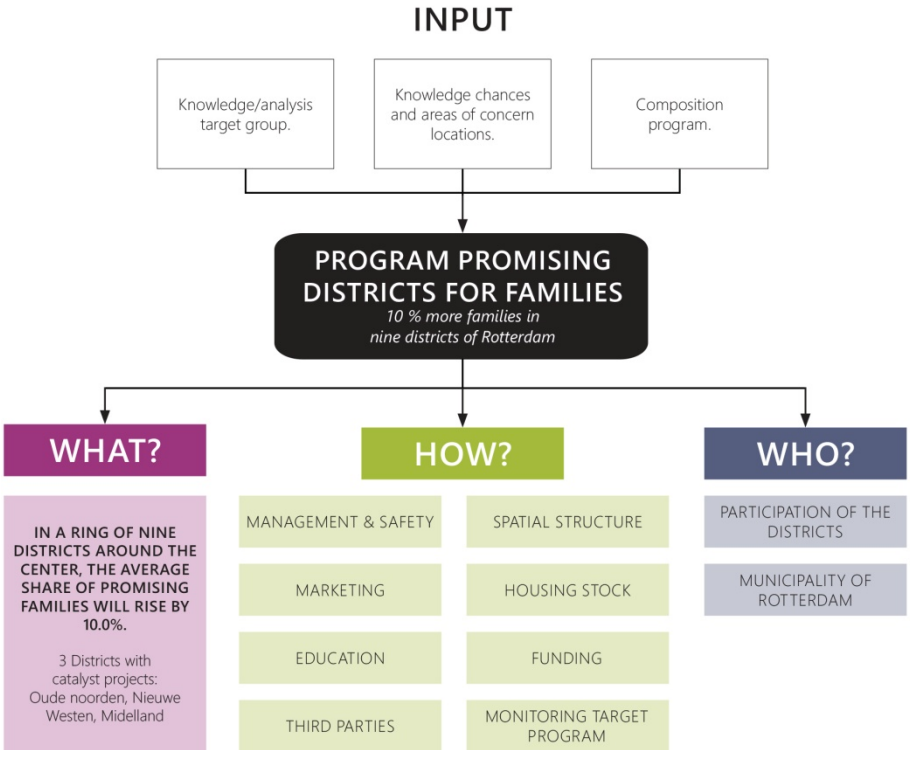


Figure 2: Overview of the program 'Kansrijke Wijken'

2.2.1 Conclusions of the analysis

From the analysis of the program in Appendix 1 several problems can be found. The first possible problem is that the program is very complex. More than 10 programs currently contribute to the program and it not very clear what will exactly need to happen where.

There is also no clear spatial concept for the neighbourhoods. The spatial interventions that the municipality does address in the program are vague and need a further definition.

Furthermore the program does not have a different approach for the different neighbourhoods, while the neighbourhoods all have an unique structure and population.

And besides that, the municipality mainly focuses on the desired residents, while the program could also have an influence on the current residents and their living environment. Because the target group of the municipality are families with kids they would probably fit in the yellow or green lifestyle. This is a different lifestyle than the prevalent red life style of the current population in the area. Only keeping in mind the target group the desires and behaviour of the biggest part of the current population will not be taken into account.

The last possible problem is that the municipality only gives a target number and some money and the rest will eventually has to be realized with the help of the residents and organizations of the districts. So the program relies for a great part on bottom-up initiatives. This is a trend that you can currently see in the field of urban design and planning: the municipality gets a more facilitating role instead of the role of the client or executor. At the same time there are more and more bottom-up projects. These projects are mostly small and temporary (Luijten, 2011, pp. 50,51). The problem of this kind of implementation of the program could be that the bigger picture of the districts will be lost. There might be structural 'problems' in the urban fabric or with the amenities in the district, which make the districts less attractive and not suitable for promising families.

3. PROBLEM DEFINITION

From the conclusion of the last chapter three possible problems can be defined. The first one is that the analysis of the program 'Kansrijke Wijken' made clear that the program does not include a clear concept idea for the different districts. (1) Secondly the program also misses a clear view on a possible spatial intervention. (2) The last point that may cause problems is that the program 'Kansrijke Wijken' mainly focuses on the 'desired' future residents.(3)

1. The fact that the program misses a clear view on an overall concept for the three different districts might ignore that these three districts are not identical. The three districts have a different population, housing stock, history and morphological structure. Because of these unique characteristics, the program could need a totally different approach for the three different districts.
2. The lack of a view on the needed spatial intervention kind of ignores the fact that the urban fabric and physical structure of a neighbourhood can have a significant influence on the behaviour of residents. If the physical environment influences people's behaviour it might also influence 'the quality of life', which the municipality wants to improve. Another problem of this defect is that it is hard to implement the program on a spatially structured way. Separate operations in neighbourhoods might not complement or even counteract each other.
3. The strict focus on the desired future residents of the municipality does not exclude that the program also can have an influence on the current residents of the districts. If the program does not include the desires of the current residents, the implementation of the program might have a negative influence on the quality of life of the current residents.

3.1 Problem statement

The municipality of Rotterdam wants to attract promising families towards Nieuwe Westen and Middelland by improving the quality of life of the districts. However, the program of the municipality to reach this goal is very complex, not spatial and it does not include the wishes of the current residents. Therefore the current program could create an unclear new situation which does not meet the desires of the current population.

4. RESEARCH APPROACH

Urban design is mostly recognized as an interdisciplinary field (Moudon ACA 362). To solve the possible problems defined in the last chapter, research at the location will be done on two concentrations of inquiry of this interdisciplinary field: Public Life Studies and Urban (typo)morphology. To find the link between the morphological structure and the public life, these themes need to be explored in both theory and practise. To structure these findings the F(M)OP method of Ali Guney will be used.
By researching the public life and the morphology (and their interrelation) of Nieuwe Westen and Middelland the required information can be gathered to make a spatial design that could improve the quality of life for the current and (by the municipality desired) future residents. This section will discuss this approach and the reasons behind it in more detail which will eventually result in a theoretical framework.

4.1 Public Life Studies

To prevent that the program will have a negative influence on the current population, their current use and behaviour can be analysed through Public Life Studies. By observing the current public life in the neighbourhood, the problem/successful areas of the neighbourhood can be determined. During these observations people will be counted and their behaviour will be mapped and analysed. By comparing the current situation with the needs of the future inhabitants the biases and matches can be found.

4.2 Urban Morphology

To understand the structure of the area the Urban Morphology of the location will be analysed. The Urban Morphology will be analysed on different scales. The location in its surrounding environment, the location itself, the building blocks, the streets and its squares.

4.3 Form Operation Performance

To structure the findings in theory and practise of Urban Morphology and Public Life Studies a conceptual framework can be used. Ali Guney introduced the following adapted version of the F(M)OP analysis method of Tzonis (Guney, 2008, p. 108). Guney adapts this scheme in a method for design reversing form, operation and performance. The most important difference with the method of Tzonis is the affordance relation between the form, operation and performance.

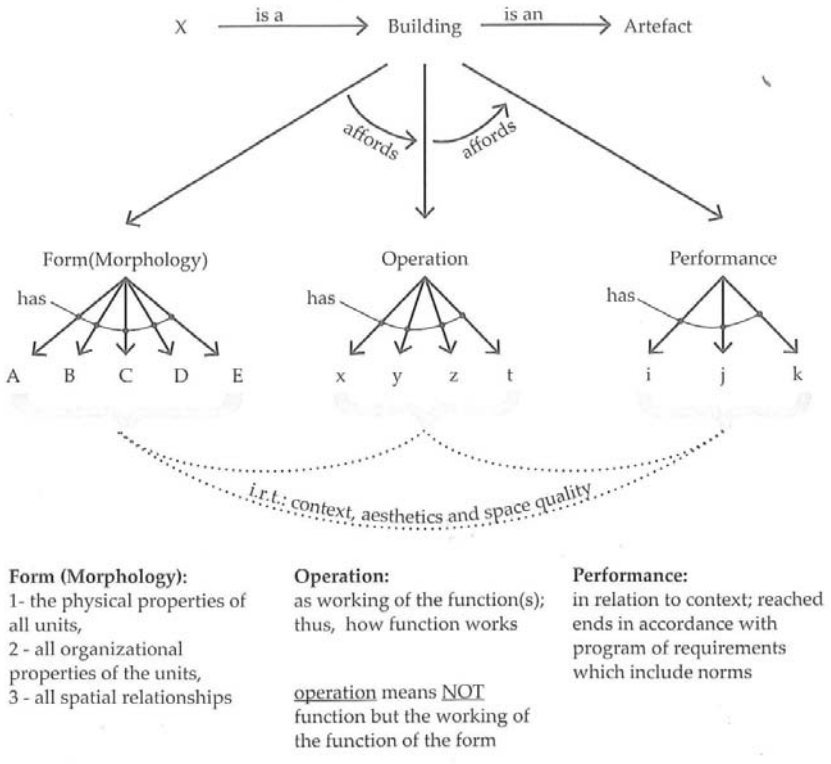
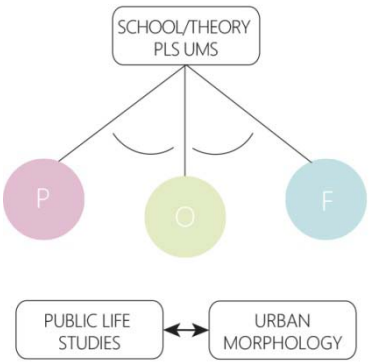


Figure 3: Architectural precedent analysis F(M)OP method (Guney, 2008, p. 108)

This method will be used to frame the research in theory and practise. When you look at the location as one object the understanding of the form can be achieved by the analysis of the (typo)morphology. To understand how the location is currently operating and performing, observation of the public life can help. In this case you would isolate the three components of the method. In reality the form, operation and performance are interrelated. By using this method the focus can be shifted to the interrelation of the form, operation and performance of the location and its elements.

4.3.1 Theory



By means of a literature review an overview of the different ideas, theories and schools of both Urban Morphology and Public Life Studies will be created. With this information the F(M)OP method can be used to describe the different ideas, schools and theories. In this way the comparison of the different views on form, operation and performance can be structured.

Figure 4a: Overview of the presumable use of F(M)OP during the theoretical research

4.3.2 Practise

4.3.2.1 PLS

During the execution of Public Life Studies at the location the F(M)OP method will be used to observe the current 'operation' and 'performance'. With PLS the operation of an object can be observed in daily life. The intended function of an object might differ from how it is used in practise.

The use of an object or the behaviour of a person can be described at different levels. Any action can be identified from how the action is performed (low-level) to why or whit what effect the action is performed (high-level) (Vallacher & Wegner, p3). According to the identification theory described by Vallacher en Wegner the identification of one's action is ultimately constrained by reality (Vallacher & Wegner, 1987, p. 4).
This theory is based on three principles. Translating these principles you could say that:
1. People have a certain idea of what they are doing and use this for implementing, monitoring and reflecting on the attainment of the action.
2. When a person is executing a relatively easy task, he or she is willing to accept an harder task provided by the surrounding context.
3. If something prevents a person to maintain a certain action, that person will go back to a more basic(less abstract) form of the action (Vallacher & Wegner, 1987, pp. 4,5).

This theory can be related to the observation of public life. When you observe the behaviour of people in public life you can notate their actions on different levels. Counting the people that are walking, standing and cycling provides different information than counting the people that are travelling or recreating. Describing the action on its most abstract level (for example recreating) can also provide information about the performance of an artefact. A totally safe and plane cycling path will probably not interrupt a person that is recreating while cycling. When a path is unsafe and full of holes, a cyclist is probably so concentrated on fulfilling the task of cycling that he or she is not able to go to a more abstract form of the action like recreating. Counting more concrete actions like walking and sitting can be interesting to give an insight in how an object is used (and if this corresponds to the intended use). A bench could for example be used to play on by kids, while its intended function is sitting.

Therefore people's behaviour during the fieldwork will be described at an abstract level (relaxing, travelling etc.) and at a more concrete level (walking, standing, cycling). Describing behaviour on a higher level is more subjective because the observer has to judge whether someone is enjoying walking or just thinking about getting to their work. This should be kept in mind while drawing conclusions from the field work.

4.3.2.2 Urban Morphology

Describing the interrelation of form, operation and performance during the analysis on (typo)morphology of the total location is way more difficult. With the analysis of the Urban Morphology especially the form of the location can be described. The relation with the operation and performance is harder to describe using UMS. With PLS it is relatively easy to look at the interrelation of form, operation and performance of the smaller elements. On the larger scale methods like space syntax can help to see how a network of streets will work and how it will perform. To keep this project within certain boundaries this method will not be implemented. However during the urban morphological analysis the F(M)OP method can be used to make an estimation of the interrelation of form, operation and performance on the scale of the whole location. A street pattern that looks like a real maze will probably not perform optimal to transport people effectively from A to B.

4.3.3 Overview

In the scheme below the presumably use of the F(M)OP during this project methods is shown.

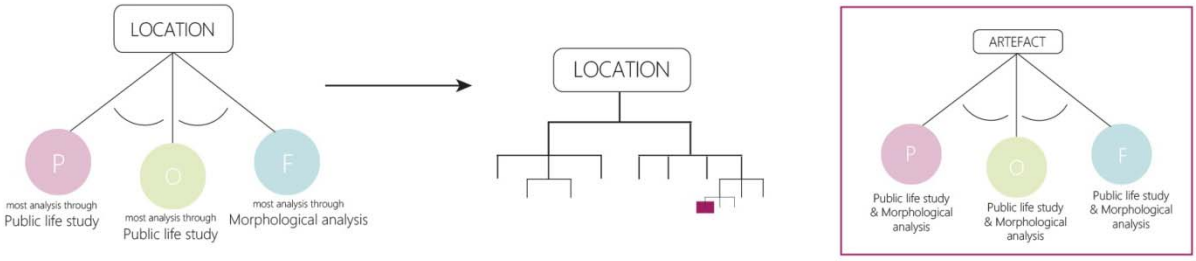


Figure 4b: Overview of the presumable use of F(M)OP during the analysis of the

4.4 Theoretical framework

Combining Urban Morphology with Public Life Studies will hopefully contribute to a design that has a positive influence on the quality of life of the target group of the municipality and the current residents. Other interesting research topics like lifestyles, environmental psychology and design for social safety will not be reviewed in a broader way. These research fields will be used to provide the necessary background information for the project. The discussed approach results in the following framework:

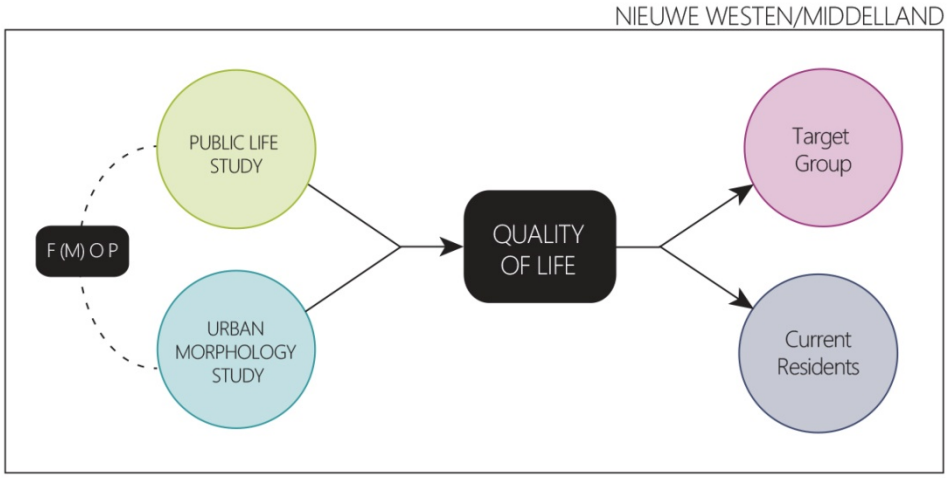


Figure 5: Theoretical Framework

5. RESEARCH QUESTIONS AND METHODS

5.1 Research questions

Main Research Question:
How can combining Public Life Studies and Urban Morphology Studies using F(M)OP improve the quality of life of (current and, by the municipality desired, future) residents of Nieuwe Westen and Middelland through a design?

1. PUBLIC LIFE
1.1 What are the aims, methods and strands of the field of Public Life Studies?
1.2 What performances can be formulated from the field of Public Life Studies
1.3 How do people use public space in Nieuwe Westen and Middelland?

2. MORPHOLOGY
2.1 What are the aims, methods and strands of the field of Urban Morphology?
2.2 What performances can be formulated from the field of Urban Morphology?
2.3 How is the Urban Morphology of the location constructed?

3. F (M) O P
3.1 How can the relation between the field of Urban Morphology and the field of Public Life Studies be described trough the F(M)OP method?

5.2 Methods

In figure 6 the research questions and their methods are shown. Most questions can be answered trough a literature study, but to draw conclusions for the location of Middelland en Nieuwe Westen observations, mapping, desk analysis etc. are also necessary. The desired performances which the new design will have to meet will be determined with the theoretical research and later used during the design process to evaluate the design.

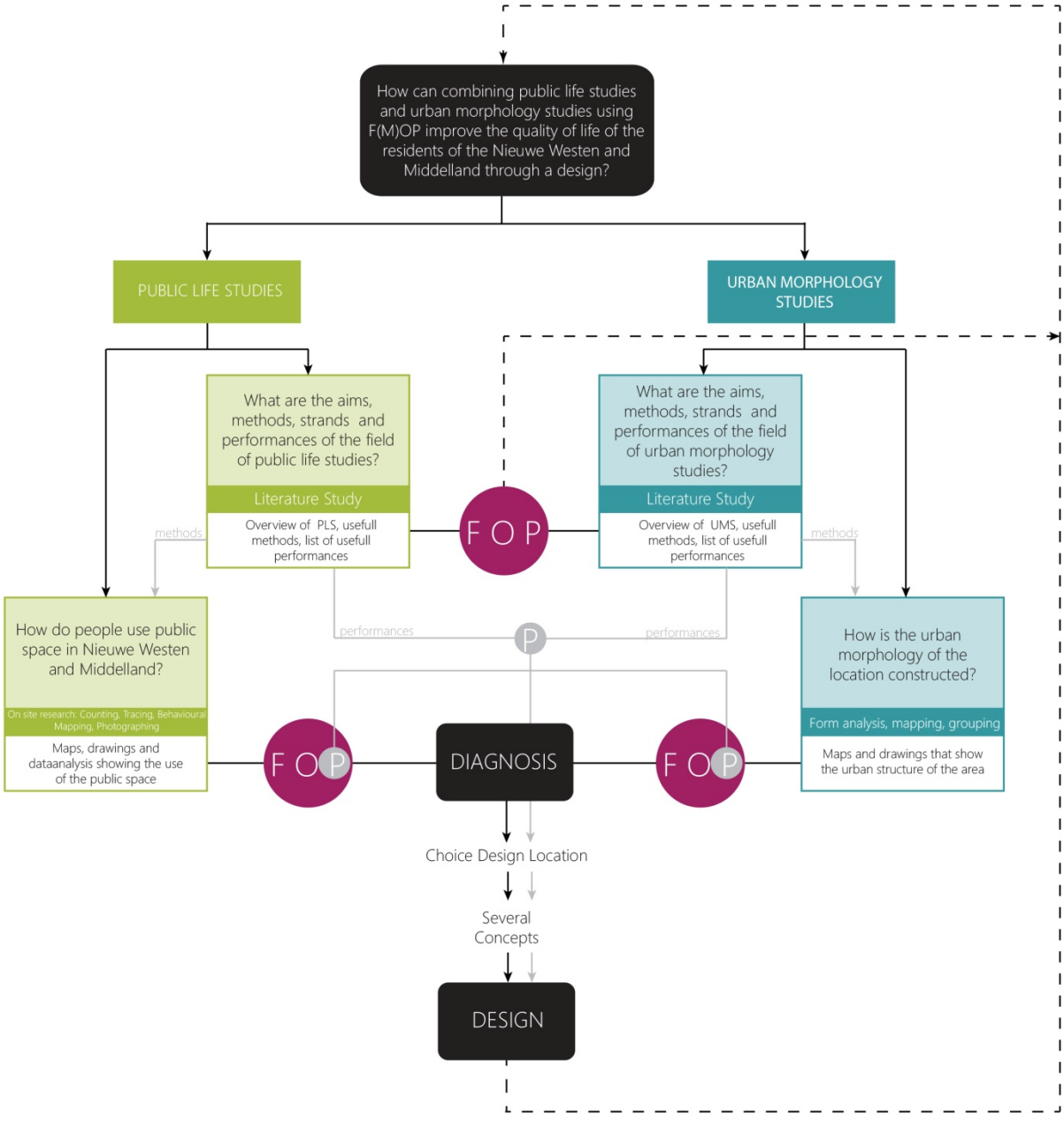


Figure 6: Methods and Research Questions

6. DESIGN GOAL

Main goal: Improve the quality of life for current and (by the municipality desired) future residents of Nieuwe Westen & Middelland by making a design, for a smaller part of the area which can be used as inspiration for improvement of the remainder area, on different scales for public space(specific place to be determined).

This design should be based on the knowledge of the urban morphology and the observations of public life. The design has to link the urban form with the public life. Furthermore this design should make it possible to execute the plans of the municipality in a spatially structured way. The design should meet the performances that will be derived from the theoretical research. The design will be presented on different scales and views. The views and drawings should show how and where the performances work.

7. SOCIETAL AND SCIENTIFIC RELEVANCE

7.1 Societal relevance

Attracting promising families, young adults and other groups with a higher economic capacity is high on the agenda of the municipality of Rotterdam. They want to make Rotterdam an attractive city to life in with a strong economy. Attracting people with a higher economic capacity could mean that the current residents will have to move to other places or that the current residents will have to cope with the living standards and wishes of their future neighbours. In the past urban renewal projects of problematic neighbourhoods attracted new residents with a higher economic capacity. At the same time there was not enough capacity to house the original residents again. In Nieuwe Westen and Middelland the target group of the municipality would probably life in bigger housing units than the current population. That would mean that, with the current housing stock, residents of the current neighbourhood will have to move out. If this problem could be solved by creating extra housing it is still interesting to see if the needs of the current and future groups meet. Improving the neighbourhood for the target group does not necessarily mean an improvement for the current population.

An other important point is that it is definitely not easy for the municipality of Rotterdam to reach their goal with all the different stakeholders in the neighbourhood. In a recent article there is stated that Woonbron(housing corporation) does not want to co-operate to sell their social renting houses for bigger family houses but sells them to an investor who will make small (rent)apartments of the houses. To complete their goal they have to show other stakeholders the advantages of the program for them. To improve a neighbourhood the municipality and the housing corporations have to work together to create the best possible outcome for the population of Rotterdam.

7.2 Scientific relevance research group

The project focuses mainly on the physical urban environments and its psychological and socio-cultural structure. This projects mainly focuses on the relation between the physical urban environment and its psychological structure and social structure. By linking the observation of public life with the analysis of the urban morphology this projects intends to improve the living environment. Therefore the aim of this project is to gather and link the information about the public life and the Urban Morphology to design a more vital and socially attractive urban environment for the current and future residents in Nieuwe Westen/Middelland.

The research group 'Design of the Urban Fabric' also relates, among other things, to the physical urban environment and to its psychological and socio-cultural structures. They also study the relations between these structures. Their aim is to create a sustainable and vital urban environment. This project partly shares this aim with its goal to create a better living quality for the residents in the area ("Research introduction," 2015).

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II. THEORETICAL RESEARCH

1. PUBLIC LIFE STUDIES

Public Life Studies became important in the field of urban planning and design in the twentieth century to solve problems in cities. Public Life Studies give insight in the use and working of a place and how people behave in public space. This chapter will try to give an answer to the following two research questions:

1.1 What are the aims, methods and strands of the field of Public Life Studies?

1.2 What performances can be formulated from the field of Public Life Studies?

To answer these questions first an adequate definition of PLS will be given. Then an overview of the different groups of PLS, their differences and similarities will be given. The overview including the theories, methods and history is a result of a literature review that can be found in Appendix 2. With this information the different groups will be analyzed through the F(M)OP method. Finally the useful spatial performances for this project, that can be derived from this field of inquiry, will be pointed out.

1.1 Definition

In 'How to study public life' Jan Gehl en Brigitte Svarre give a short description of the goal and principles of Public Life Studies. They describe it as an academic field encompassing Public Life Studies that tries to provide knowledge about human behaviour in the built environment with the goal to recapture public life as an important planning dimension (2013, p. XII). They describe the basic idea of the methods as observing while walking around and taking a good look (2013, p. XII). In his writings Gehl uses the term 'Public Life Studies' while other writers do not specifically use this term. Moudon for example, does not define a specific field of PLS, but fields of Environment-Behaviour studies and Place Studies (Moudon, 2003). Her review of Environment-Behaviour studies and Place Studies include some similar methods and contributors as the overview of PLS given by Gehl and Svarre, but in Moudon's work there are more other contributors and side paths pointed out. In order to keep this theoretical research within certain boundaries it focuses on the field of Public Life Studies described by Gehl and Svarre.

1.2 Short History on the arise of PLS

In 'How to study public life' Gehl and Svarre give an overview of the most important works and the history of Public Life Studies. Since PLS is a relative young academic field there has been written little about its history compared to the field of Urban Morphology. The field of PLS emerged as a reaction to the inhuman modernist cities. Around 1960 writers began to criticize the modern cities and they advocated to bring back pedestrian street life in the car dominated modern cities. It became clear that public space and public life did not work automatically, but that they are influenced by for example population density and physical frameworks. To bring back life on the streets in the modern cities public life was studied (Gehl & Svarre, 2013, p. 45).

From mid 1980 till now, Public Life Studies were introduced more in practice, because urban planners and local politicians also became more critical of new planned environments like the important writers in the sixties (Gehl & Svarre, 2013, p. 63). Although incorporating public life in policies and projects has become increasingly widespread in the 21st century, Gehl and Svarre state that this does not mean that the studies or similar forms of systematic planning are carried out before projects are launched (2013, p. 70).

1.3 Different groups within the field of PLS

There are several 'groups' of writers, urban planners and architects who have made a major contribution to the field of Public Life Studies since 1960. As resulted from the literature review three main groups can be defined: New York, Berkeley and Denmark. Next to these groups there are some other interesting works like the '*The rediscovery of the pedestrian : 12 European cities*', which will not be further discussed in this overview.

New York

William Whyte and Jane Jacobs, who both played an important role in the field of Public Life Studies, did most of their observations in the city of New York. Another interesting writer in New York was Lewis Mumford. Non of these writers was professionally trained as an urban designer or planner.

Although most writings of Lewis Mumford date from before 1960, his ideas were influential and therefore interesting to mention in this group. Lewis Mumford was an important American critic in the 20th century. He argued that wherever possible, planning decisions should be made at the local level, by those most directly involved in the results of the decisions (Muller, 1989, p. 296). He also stated that the city does not exist for the constant passage of vehicles, but for the care of culture and man (Muller, 1989, p. 478). Therefore he fought against the expressways of Robert Moses, the most influential city planner in New York at that time.

Jane Jacobs has had a great influence as a journalist on the field of urban planning. Jacobs used observations to show how and if a place works and what can be done to improve it. She noted that the policies of governments often do not match with the reality of neighbourhoods and argued that a high concentration of people is needed for city life,

economic growth and prosperity. (Project for Public Spaces) In 1961 she presented her observations in 'The Death and Life of Great American Cities'. With this book she challenged the in that time dominant modernist planning. Besides her writings Jacobs is also known as an urban activist, just like Mumford she fought against building plans of highways.

William H. Whyte also observed people and he used time-laps photography to map the paths of pedestrians. He wrote that the quality of life of a individuals as well as society is influenced by the social life of public spaces. He believed that observing people can gather the knowledge needed to create places that form liveable communities (Project for Public Spaces). In 1975 Project for Public spaces, a nonprofit planning, design and educational organization which helps people create and sustain public spaces that build stronger communities, that expanded on his work, was founded (Project for Public Spaces).

With the ideas of Mumford and the work of Whyte and especially Jacobs the arise of the field of PLS in New York can be seen as a real protest against the modernist top-down planning. Furthermore the observational character of the research of Jacobs and Whyte stands out.

Denmark

The most important contributor in Denmark is Jan Gehl. Gehl was trained as an architect. His wife, Ingrid Gehl, who is a psychologist, was very important for his work. She was often amazed by the fact that architects were not particularly interested in people(Gehl & Svarre, 2013, p. 60). Together with Ingrid's psychological view and her encouragement to integrate people in design, Gehl started his research on the interaction between public space and life in the city. To support their criticism on the lack of human scale of modernism Jan and Ingrid started to gather knowledge about the interaction between public life and public space trough observational studies (Gehl & Svarre, 2013, p. 60). Together with his most important collaborator Lars Gemzøe, also trained as an architect, Gehl wrote several books. In 2000 Jan Gehl founded 'Gehl Architects' together with Helle Søholt. With this bureau he has been involved in many international projects (Gehl Architects).

In studies Gehl worked together with many students and other professionals, but there has not been a person yet who stood up in Denmark to 'compete' with Gehl. But because Gehl worked together intensively with others like Ingrid and Lars you could call this movement in Denmark a real group.

The most important characteristics of the Denmark group is the focus on the relation between architecture and public life. Besides that Gehl and his colleagues in Denmark are currently spreading the idea behind PLS to a wider public. In the recent film 'Human Scale' Jan Gehl explores together with other architects and planners what happens if we put people first in planning.

Berkeley

The group of academics (Appleyard, Bosselman etc.) at the University of Berkeley have created a solid academic field around the study of public life. In the early 1960s the University of California at Berkeley created the first College of environmental design(Moudon, 2003, p. 372).

All the contributors of Berkeley have a background in design, but they have different research interest.

With his book 'Livable Streets 'Donald Appleyard showed the influence of traffic on residential streets. He proved that traffic negatively influences the quality of life on a street.

Allan Jacobs also researched what does work and does not work on existing streets trough observations. He encourages others to use these Public Life Studies to improve street design. In his book 'Great Streets' he analyses great streets in detail. With this study he identifies the factors that turn streets into successful public places (Project for Public Spaces).

Peter Bosselman, the director of the environmental Berkeley laboratory, has researched the more technical side of the impact of physical frameworks on their surroundings. In the laboratory they build models of city environments to study the impact a planned building might have on the experience on the local climate (Gehl & Svarre, 2013, pp. 56,57).

Christopher Alexander criticizes the modern architecture. In the documentary 'Places for the soul' he shows how modern architecture eliminates emotion. With his book 'the Pattern Language' he explores the patterns of people's daily interactions with places. It proposes solutions to common architectural problems ("Places for the Soul, The architecture of Christopher Alexander," 1990). Christopher Alexander did not only want to learn from the behaviour of people in public space. He wanted to let users design themselves because according to him they know more about buildings and cities than architects and planners (Gehl & Svarre, 2013, p. 53).

Clare Cooper Marcus began studying the public realm and the built environment with a social science research methodology (Project for Public Spaces). Through interviews and observation, she conducted post-occupancy evaluations of several housing schemes (Project for Public Spaces).

Margaret Crawford's work 'Every day urbanism' introduces a concept that encourages the close investigation and empathetic understanding of the specifics of daily life as the basis for urban theory and design (UC Regents, 2015a).

Reviewing these different research interests you can state that the group of Berkeley founded a solid theoretical bases for the field of PLS. Studies like in the environmental laboratory have a more technical background then the studies of the group of New York, but Crawford also points out the more elusive side at Berkeley of Public Life Studies with her work 'Every Day Urbanism'. Overall you could say that the group of Berkeley is more focused on creating a theoretical bases and less on implementing PLS in practice like in Denmark.

1.3 Methods

There are different methods to study public life. In the literature review it becomes clear that the different groups approximately all use the same kind of methods. Gehl en Svarre give an overview of different methods in 'How to study Public life'. They illustrate GPS, Space Syntax, Behavioural Mapping, Tracking, Tracing, Shadowing, Action research, Diaries and Photo documentation. GPS and Space Syntax are based on technology, but the others are just simple observation methods. Methods like mapping, tracing and tracking can be done by anyone without additional costs (Gehl & Svarre, 2013).

GPS, Space Syntax, shadowing and tracking can give information over a larger area. Behavioural mapping, tracing and photo documentation can give detailed information of a smaller area. All methods can be executed at eye-level, but counting all people in public space by eye of a total neighbourhood would be very time consuming. When you need certain information tracking a group of random residents with GPS in the neighbourhood would be more efficient.

1.4 Overview different groups

From the literature review a summary can be made of the characteristics of the three groups given in the following table:

	MAIN FOCUS	DISCIPLINES	SCALE OF STUDY	IMPORTANT ASPECTS
New York	Create support/ Implementation in design practise	Journalism Architecture Urbanism	Streets, Squares, Parks	• Criticizing modernism with a journalist background. • Observational character. • PPS (place making).
Berkeley	Building theory/ Scientific research/ Education	Architecture Urbanism Social Sciences	Streets, Boulevards, Squares, Open Spaces	• Creating a theoretical basis. • Wide interest in research topics. • Effect of physical framework on surroundings.
Denmark	Implementation in design practise/ Education/ Spreading ideas	Architecture Urbanism Psychology	Streets, Squares, Playgrounds, City Centres	• Relation between architecture and public life. • Spreading ideas internationally to a larger audience. • Combination of psychology and architecture.

1.5 Differences and similarities

When you compare the different groups of PLS there are no groundbreaking differences between them. They do have a slightly different focus. The focus of the Berkeley group is on scientific research from a design perspective, the focus of the New York group is more on criticizing modernism through journalism with observations as a support and the focus of Denmark is more on the implementation in practise and the relation between architecture and public life. When you look at the methods and studies of the three groups, there is not a group that uses totally different methods and that has executed totally different studies. You could state that with a young field like PLS, the important contributors built on to each other's findings to get an improved understanding of the human behaviour in the public built environment. Overall Public Life Studies usually focus on the small scale of the city like the streets, squares and other open spaces.

1.6 F(M)OP

The F(M)OP methods has already been used by Stolk to visualize different approaches of urban design (Stolk, 2015, pp. 256,257). When the three different groups are analysed with information presented in the previous two paragraphs the following schemes can be made:

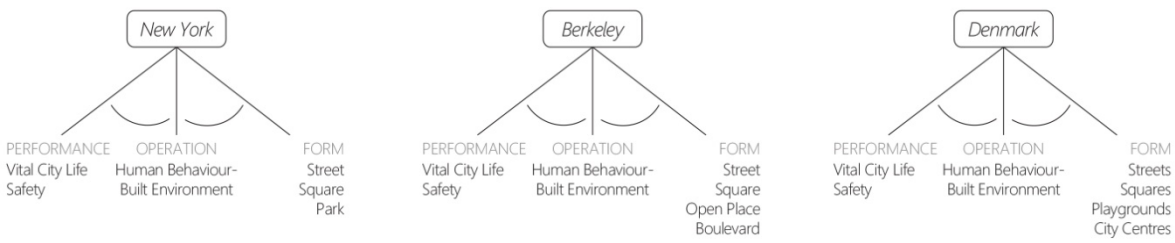

Figure 1: Analysis of the PLS groups of New York, Berkeley and Denmark trough the F(M)OP method.

The performance and operation of the three groups are the same, but the forms slightly differ. The different groups of PLS are approximately the same, but they all have a slightly different focus.

1.7 Performances

To use the F(M)OP method to make a diagnosis of the location, the desired performances of the urban fabric and its public life have to be formulated. In How to study public life, Jan Gehl uses the following 12 criteria to evaluate a public space (Gehl & Svarre, 2013, p. 106). These are the following criteria:

1-3. Protection against traffic & accidents, crime & violence and unpleasant sense-experiences.
4-9. Possibilities for walking, standing, sitting, seeing, hearing/talking, playing/unwinding.
10. Small scale services.
11/12. Designing for enjoying positive climate elements and positive sense experiences (Gehl & Svarre, 2013, p. 107)

In Towards an urban design manifesto Jacobs and Appleyard give a list of goals for a good urban environment. These are the following goals:

- Livability (devoid of nuisance)
- Identity and control (involvement in the urban environment)
- Access to opportunity, imagination and joy (access to alternative houses and jobs and enlightening cultural experience)
- Authenticity and meaning(City should be understandable)
- Open communities and public life (encouragement to participate in communities and public life)
- Self-reliance (self sustaining cities)
- Justice (Urban design must be for the poor as well as the rich)
  (Allan Jacobs & Appleyard, 1987, pp. 115,116)

With his work Good City Form, Kevin Lynch, gives five basic performance dimensions. These are vitality, sense, fit, access and control (Lynch, 1981, p. 118).
There are also some lose criteria pointed out by important writers. Jane Jacobs was for example a supporter of mixed use development. According to the idea of mixed-use development the integration of different types of buildings and different uses with different people can create community vitality (Project for Public Spaces).
PPS formulated 11 principles to create a successful public space. Most of these principles focus on the implementation of the plans. According to the other points a successful public space should have a strong sense of community, a comfortable image and a setting, activities and uses that contribute to each other(Project for Public Spaces).

1.8 Conclusion

With the results of the literature review in this chapter the two research questions can be answered.

1.1 What are the aims, methods and strands of the field of Public Life Studies?

Public Life Studies observe how a certain form(place) affords certain human behaviour. One of aims of the field is to recapture public life as an important planning dimension. Furthermore the knowledge gathered with the studies can improve the design for public life to create a more vibrant street life. The main method is to observe people in public space through, counting, mapping and photographing. Other methods are space syntax and GPS tracking. The field of Public Life Studies is a young field where the important contributors(America and western Europe) built on to each other's findings to get an improved understanding of the human behaviour in the public built environment. The main strands that can be defined are Denmark, New York and Berkeley.

1.2 What performances can be formulated from the field of Public Life Studies

There are several writers like, Jan Gehl, Kevin Lynch and Jacobs and Appleyard that describe a list of performances for the urban fabric and its public life to create a good urban environment. These performances to not only relate to the physical environment, but also to people and policy. The following performances are formulated in the several sources: Devoid of nuisance, possibilities for recreation and social interaction, small scale services, positive sense experiences, vitality, sense, fit, accessibility, identity and control, justice, self-reliance, open communities and authenticity and meaning.

2. URBAN MORPHOLOGY STUDIES

This chapter will try to give an answer on the following two research questions:
1.1 What are the aims, methods and strands of the field of Urban Morphology Studies?
1.2 What performances can be formulated from the field of Urban Morphology Studies?

To answer these questions first an adequate definition of UMS will be formulated. Then an overview of the different groups of PLS, their differences and similarities will be given. The overview including the theories, methods and history is a result of a literature review that can be found in Appendix 2. With this information the different groups will be analyzed through the F(M)OP method. Finally the useful spatial performances for this project, that can be derived from this field of inquiry will be pointed out.

2.1 Definition

In her paper 'the Urban Morphology as an emerging interdisciplinary field' Anne Vernez Moudon gives a definition of Urban Morphology. She describes it as the study of the city as a human habitat.(1997) In most studies the term morphology is not used. More common terms are typomorphology or typomorphogenetic. Moudon explains typomorphological studies as follows: 'Typomorphological studies reveal the physical and spatial structure of cities. They are typological and morphological because they describe urban form(morphology) based on detailed classifications of buildings and open space by type.'(L. van den Burg et al., 2004, p. 17) In a shorter definition: 'Typomorphology is the study of urban form derived from studies of typical spaces and structures' (L. van den Burg et al., 2004, p. 17).

2.2 Short history of Urban Morphology and the different approaches

Moudon describes three different schools of Urban Morphology, namely the French, English and Italian. In 'the Urban Analysis Guidebook' Leo van den Burg describes the Dutch tradition of analysis of the urban form. Camila Eugenia Pinzon Cortes also includes the studies in the Netherlands in an overview of the Urban Morphology tradition in his thesis on mapping urban form. Whitehand does not include the Dutch tradition, but he incorporates the North American tradition. In the literature review these five groups are discussed. A short summary of the literature review per tradition is given below.

Italy: The Italians were the first to develop detailed morphological studies (Cortes, 2009, p. 43). Around 1940 the Italian school of Urban Morphology was 'established' by Saverio Muratori, one of the pioneers of the study of typomorphology of the urban form (L. van den Burg et al., 2004, p. 18). In the eyes of Muratori the structure of cities could only be understood historically with building typology as the basis of urban analysis, while modernism was based on intervention of the scale of the master plan and ignored the way cities had been constructed over time(Cortes, 2009, p. 43; L. van den Burg et al., 2004, p. 19). His most important successor was Gianfranco Caniggia.

Great-Britain: Around the 1930s Conzen developed a British tradition of morphological urban studies (Cortes, 2009, p. 47). Conzen was originally trained as a geographer which probably lead to his more structured approach. Because his main concern did not lie directly on the future city and its design he could concentrate fully on studying the actual city, the process for building it and on developing methods for analysing it(L. van den Burg et al., 2004, p. 26).

France: The French school was influenced by the approach of the Italian school. It followed the idea of Muratori that modernism had created an unrecoverable break from the past and that the roots of architecture had to be rediscovered in past traditions (L. van den Burg et al., 2004, p. 32). In contrast to the Italian school in France various disciplines (sociologist, historians, geographers, architects and planners) worked together to achieve an improved understanding of the city (L. van den Burg et al., 2004, p. 32).

The Netherlands: Contrary to other cases the Dutch did not develop many detailed typo-morphological studies but they used the approach more in relation to design (Cortes, 2009, p. 49). The plan analysis for example, which was developed at the TU Delft, focuses on naming and clarifying of essential features in the spatial composition which have to do mainly with the specific position and methods of the designer (Cortes, 2009, p. 50).

North America: A specific morphological approach of the urban form came relatively late in America. In the beginning there was more interest in the esthetical character and the (economical) development process of cities. Because American cities are relatively young compared to most European cities it is not strange that studies on American cities are more focussed on their initial plan characteristics and underlying social-physical principles and not on their historical character (Conzen, 2001, p. 3).

The summary given below points out the most important characteristics of the five traditions derived from the literature review.

	MAIN FOCUS	DISCIPLINES	IMPORTANT ASPECTS	MAIN GOAL
Italy	Prescriptive.	Architecture	• Building typology • History • 'Built objects' • Built environment as organism	Building theory.
Great-Britain	Descriptive and explanatory.	Geography	• Town plan (streets, plots and buildings) • 'Individual plot' • 'The townscape'(town plan, building forms & land-use) • 'Plan units' • 'Fringe belt'	Developing methods for analysing the city.
France	Asses the impacts of past design theories on city building.	Sociology History Geography Architecture Planning	• Evolution in types, patterns and forms • Relation between reality and theories of urban design and form	Achieve an improved understanding of the city trough combination of disciplines.
Netherlands	Morphological analysis in relation to design.	Architecture Urbanism	• Layered approach • Plan Analysis • Reduction, Addition and Disassembly • Identification of patterns	Understanding designers interventions or an analysis leading to a design, vision or scenario.
North America	Socio-economic and cultural perspective.	Geography Sociology Architecture	• Perception • Important role of the human in the creation of the urban form	Understanding the development of cities and the role of the humans.

2.3 Methods

In 'the Urban analysis Guidebook', Leo van den Burg describes the basic techniques for an urban analysis. The most common method for analysing the Urban Morphology is the analysis of maps. These maps can vary in scale, time and abstraction depending on what information is needed. The elements can be thematically ordered, which form the morphological layers. There is an almost infinite amount of elements that can be analysed in a map. This can continue till for example the different types of buildings are ordered. So therefore a selection of this endless amount of elements is needed. There is no fixed procedure for this selection. An starting point can be an historical analysis, which can often give very important information to a designer. The first maps will show the basic morphological layers, but they will not explain anything. A next step is needed to draw conclusions. An comparison with other examples could help in this process. As a last step the maps can be adapted in such a way that they show the essence of the analysed area. This results in a map that show the interpretation of reality of the analyst (L. van den Burg et al., 2004, pp. 49-69).
This can be summarized in the following steps:

- Preparing a basic map (right scale, abstraction, time)
- Formulation a question
- Maps of morphological layers
- Comparison and defining types
- Drawing conclusions

There are a lot of different techniques that can be used and there are many levels of complexity for analysing the typomorphology, so this is only a simple overview of a possible method. The Italian and French school will often go on to a more detailed level than for example the Dutch tradition.

2.4 Differences and similarities

Moudon describes the commonalities and the differences between the first three schools(Muratorian, Conzenian, Versailles) in the occasion of the ISUF (International Seminar on Urban Form) in 1996. She describes as the theoretical basis of the three that the city or town can be 'read' and analysed via the medium of its physical form (Moudon, 1997, p. 7). Further she gives three principles where the morphological analysis is based on at its most elemental level:

1. Urban form is defined by three fundamental physical elements: Buildings and their related open spaces, plots or lots and their streets.
2. Urban form can be understood at different levels of resolution. Commonly four are recognized corresponding to the building/lot, the street/block, the city and the region.
3. Urban form can only be understood historically since the elements of which it is comprised undergo continuous transformation and replacement (Moudon, 1997, p. 7).

Shortly the three principles are form, resolution and time. The smallest cell in morphological analysis is the combination of the individual parcel of and its buildings and open spaces (Moudon, 1997, p. 7).

She describes three different intentions in building theory:

1. Study of urban form for descriptive and explanatory purposes, with the aim of developing a theory of city building (How cities are built and why) This intention matches the Conzenian School.
2. The study of urban form for prescriptive purposes, with the aim of developing a theory of city design (How cities should be built) This building theory intentions fits best with the Muratorian School.
3. The study of urban form to assess the impacts of past design. Theories on city building. (The differences or similarities between what should be built and was has actually been built) This last intention can be found in the French School (Moudon, 1997, p. 8).

For the Dutch tradition the focus is on understanding designers interventions or an analysis leading to a design, vision or scenario. And for the American tradition this is understanding the development of cities and the role of the humans. As Moudon points out in her paper the different schools on Urban Morphology have a lot in common. The differences lie mostly in the goals and focuses of the different schools.

2.5 F(M)OP

When the five different traditions are analysed with information presented in the previous two paragraphs the following schemes can be made:

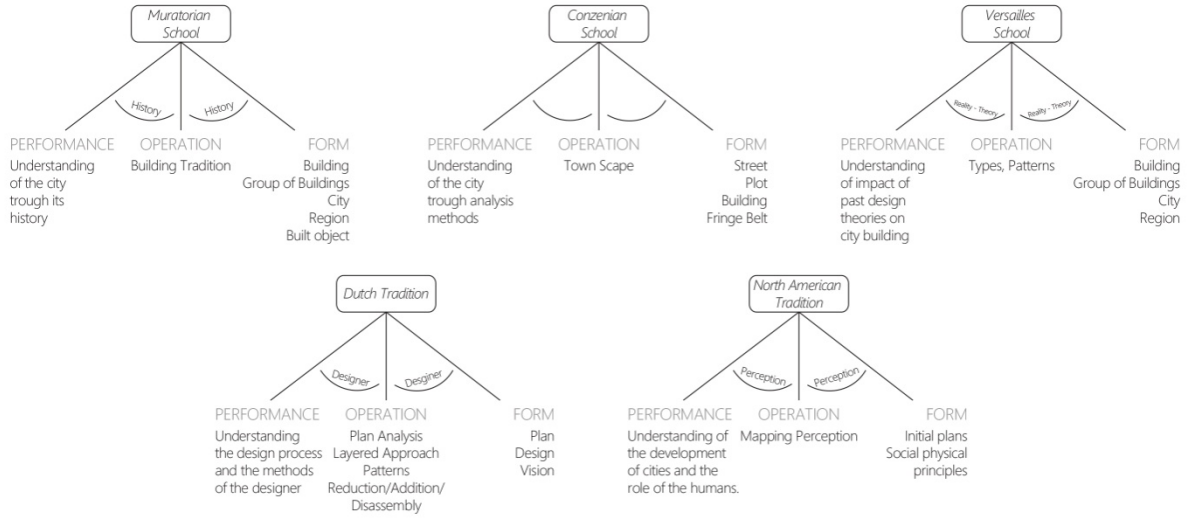

Figure 2: Analysis of the UMS traditions through the F(M)OP method.

The resulting schemes of the different traditions look very different. The performance, operation, form and even the affordance all slightly differ. Although the perspectives of the different groups differ the results of an analysis would probably look pretty identical.

2.6 Performances

Urban Morphology Studies give the urban planner/design a useful understanding of the existing urban fabric. But the reviewed studies often do not result in general principles for the structure of the urban fabric. In Complexity and Urban Coherence Salingaros does describes 8 rules relevant for urban design to create well functioning urban environment. These can be seen as 'performances' which the urban fabric has to meet. The rules are based on a general complex system. Salingaros states that there is little difference between these system and the urban fabric (Salingaros, 2000, pp. 292,293). These are the following rules:

1. Strongly coupled elements on the same scale form a module. There should be no unconnected elements inside a module.

Figure 2: Analysis of the five UMS traditions through the F(M)OP method.

2. Similar elements do not couple. A critical diversity of different elements is needed because some will catalyze couplings between others.
3. Different modules couple via their boundary elements. Connections form between modules, and not between their internal elements.
4. Interactions are naturally strongest on the smallest scale, and weakest on the largest scale. Reversing them generates pathologies.
5. Long-range forces create the large scale from well-defined structure on the smaller scales. Alignment does not establish, but can destroy short-range couplings.
6. A system's components assemble progressively from small to large. This process generates linked units defined on many distinct scales.
7. Elements and modules on different scales do not depend on each other in a symmetric manner: a higher scale requires all lower scales, but not vice versa.
8. A coherent system cannot be completely decomposed into constituent parts. There exist many inequivalent decompositions based on different types of units.
   (Salingaros, 2000, p. 293)

Because the rules are quite abstract it is hard to translate these in a piece of urban fabric. Therefore the rules can be interpreted differently by every designer. For this project the rules can be translated for the design of a neighbourhood. Then you could state that a neighbourhood should not have only one type of building block including one housing typology, but different building blocks containing different typologies and functions. Furthermore a good transition between private(building block) and public(street) can be reached with a boundary element (transition zone).

2.7 Conclusion

With the results of the literature review in this chapter the two research questions can be answered.

2.1 What are the aims, methods and strands of the field of Urban Morphology?

Urban Morphology Studies can explain how a form(on different scales) has been established and how these forms can be divided in patterns and types. The discussed strands of this field of inquiry are rooted in western Europe and America(Muratorian, Versailles, Conzenian, North American and Dutch tradition) and all have slightly different aims. The different aims are, building theory, developing analysis methods, achieving an improved understanding of the city in combination with other disciplines, understanding designers interventions, understanding the development of cities. The analysis is mostly done trough the analysis and reduction of maps.

2.2 What performances can be formulated from the field of Urban Morphology?

Most studies on Urban Morphology do not result in general principles for the structure of the urban fabric. However Salingaros described 8 rules that are relevant to urban design to create a well functioning urban environment. Summarizing the rules you could say that the urban fabric should be a coherent system, with a good diversity and transition where all higher scales need lower scales and where the interactions are strongest on the smallest scale and where there are no unconnected elements inside a module. The rules are quite abstract and therefore can be interpreted differently by every designer.

3. CONFRONTATION PLS AND UMS

In this chapter UMS and PLS will be compared and confronted. First a global comparison between PLS and UMS will be made followed by a comparison of the F(M)OP analysis of both fields. After that, the performances of the two fields will be combined and further defined.

3.1 Comparison UMS and PLS

In the historical contexts of both fields there can be found a similar movement: a protest against the modern city. In almost all traditions of UMS the role of the human in the development of the city is important. In the Muratorian School the role of the human can be found in the historical perspective. In the Dutch tradition the role of the human can be found in the role of the designer. In the North American tradition the perception of people and their role in city development are central. In PLS studies the observation of the human being is often central. Mapping of perception is probably most related to the field of Public Life Studies. So both UMS and PLS have a central role for the human being.

3.2 Comparison F(M)OP

When you compare the F(M)OP analysis of PLS with the F(M)OP it becomes clear that the (typo)morphological studies are more often executed at bigger scales than PLS. The studies of UMS try to understand the development and form of the city, which has been executed by humans in the past. PLS studies try to understand the behaviour of humans in that city.

3.3 Defining Performances

From the field of PLS and UMS some criteria, performances, and principles of an good urban environment were pointed out. But there are multiple other relevant sources that describe several performances which a neighbourhood or public space should meet. In for example literature with a background on environmental psychology or social safety the urban form and behaviour of people are brought together in (spatial) performances. These sources will also be used to define the final performances for this project.

In the book 'Handboek veilig ontwerp en beheer' there are formulated four keywords for social safety:

- Visibility
- Clarity
- Accessibility
- Attractiveness

(Luten, 2008)

In practise similar list of performances can be found. Because the performances in this project will eventually be used in practise, it is interesting to also take an example in practise into account. One example is the office Eyckveld, a consultancy agency for environmental psychology design, that uses the following nine terms for a successful public space:

- Safety
- Orientation
- Nature
- Nuisance
- Identity
- Control
- Sociability
- Stimulation(Eyckveld)

In 'Inclusive urban design' Elizabeth Burton & Lynne Mitchell point out the important aspects of designing for older and disabled people. They describe 6 performances namely: Familiarity, Legibility, Distinctiveness, Accessibility, Comfort and Safety (E. Burton & Mitchell, 2006).

A lot of similar terms are used by the different discussed sources. Several of the mentioned aspects also overlap. The rules of Salingaros will mostly be helpful for the analysis and design of the structure of the urban fabric. The other performances, like the 12 criteria of Gehl, are mostly focussed on the small micro scale and community of the urban environment. Combining the three new sources with the performances discussed in the last two chapters, the following groups can be formed which contain all relevant performances. The division between the groups is more overlapping and less strict than visualised.

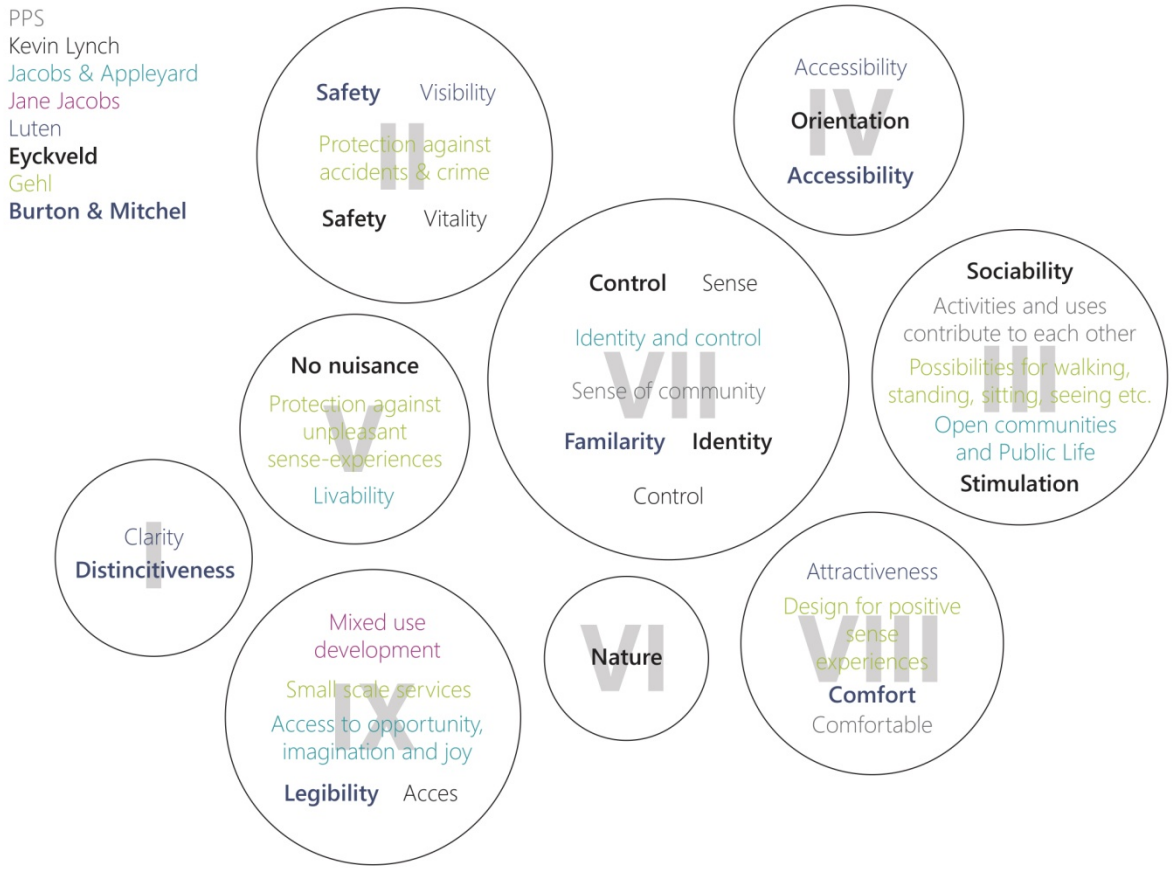

Figure 3: Ordering and combining performances

The Nature group has only been named by one source, but it will be taken into account, because it is an important point in the program of the municipality. For each group an overarching term that combines the performances can be formulated. These can be used to draw conclusions from the fieldwork analysis and the analysis of the Urban Morphology. Later on the design can be evaluated with this list of 9 performances.

Figure 4: Symbols of the 9 performances

I. Clear zoning and good transition

According to Jane Jacobs there has to be a clear separation between public and private places. These places should not overlap, so they always need to be marked physically (Luten, 2008, p. 81). According to Luten semi-private and semi-public spaces always cause problems in use and management when it is not clear for who and what these places are meant for and who has to manage them (Luten, 2008, p. 14). Clarifying dwelling territories is also important for interaction and protecting privacy (Gehl & Svarre, 2013, pp. 102,103).

Another important aspect in zoning is the transition between private and public. When the transitions between private and public zones are gradually designed with semiprivate and semi-public zones the chance on social interaction increases. This transition zone should be just the size that allows you to keep everything at a comfortable arms length (Gehl, 2010, pp. 102,103).

II. Good visibility (for safety)

From the study of life in front of open and closed façades of Gehl it became clear that there was a considerably greater level of activity in front of open facades than in segments with closed façades. That is not surprising because most of what we take in visually is at eye-level and in relation to buildings, it is primarily the ground-floor level that catches our eye (Gehl & Svarre, 2013, p. 104). When people are confronted with a blank facade of the backside of a building they will have little clue about what is happening inside (E. Burton & Mitchell, 2006, p. 54).

For a good visibility on a residential street it is also important that this street is not only used by cars. When there are always pedestrians on a street this will increase the social control and it makes it interesting to look outside (Luten, 2008, p. 81). This social control on streets is important, because from research it has become clear that youth and people with bad intentions prefer to gather in side streets close to main streets outside the view of others. Good visibility can therefore increase the safety in a neighbourhood.

III. Contact, interaction is encouraged

Social interaction is proved to be good for people's general wellbeing. It's especially important for people living on their own in a neighbourhood (E. Burton & Mitchell, 2006, p. 42). When a street functions as an outdoor living room it can be an important place for social contact (R. Brambilla, G. Longo, & Institute for Environmental Action, 1976, p. 13). To encourage the social contact in a neighbourhood, good pedestrian and cycle routes towards facilities are important. When someone is in a car it is way harder to interact with this person then when this person would be cycling or walking (Luten, 2008, p. 73).

IV. Clear streets patterns

The natural movement theory of Hillier stated that the street pattern is the most important generator of public movement (Luten, 2008, p. 27). The users have an intuitive knowledge of where they can expect most people in a certain street pattern. There are many situations where the street pattern can cause problems. For example neighbourhoods without a clear route. Inhabitants will often take the shortest route. So at every corner or scission the amount of public movement will decrease. This can give a neighbourhood a desolate atmosphere (Luten, 2008, p. 30). A lot of side streets and alleys in a relative small area can also lead to spatial segregation of different groups (Luten, 2008, p. 30). In a neighbourhood with a completely uniform street pattern it is more likely you will get lost, like the uniformity of labyrinth will make you lose your way (Jack L. Nasar & Preiser, 1999, p. 86). And also a lack of direct routes can be very disorientating (E. Burton & Mitchell, 2006, p. 70).

Because the street pattern has such an important influence on a neighbourhood several writers pointed out some criteria for a good street pattern.

- People prefer gently winding streets to long, straight streets. (E. Burton & Mitchell, 2006, p. 70) The most natural interface between a street and a building is also a relaxed (segmented) curve (Salingaros, 2000, p. 299).
- Relatively narrow streets help people to concentrate and they will feel more cosy and less threatening than wide streets (E. Burton & Mitchell, 2006, p. 70).
- A street pattern is preferably an irregular grid. Because an irregular grid creates a more interesting street pattern, provides easy understandable direct connecting routes with less blind bends than a uniform grid.
- Forked, Staggered and T-junctions are better to use compared to crossroads, because they reduce the number of routes to choose from and provide a focus point of the end of the street (E. Burton & Mitchell, 2006, p. 73).
- Dead ends in a street pattern are strongly discouraged (Kunstler, 1996, p. 117).

V. No nuisance

Waste, wind and traffic are a few examples that can cause nuisance in neighbourhoods. Through research Appleyard showed that traffic has a negative effect on life and sense of community in a neighbourhood (Gehl & Svarre, 2013, p. 55). When there are a lot of signs of dilapidation in a neighbourhood, this increases the occasions of infringements and it gives inhabitants an unsafe feeling (Luten, 2008, p. 70). Overall clean and unimpaired is more attractive than dirty, broken and an unpleasant odour(Luten, 2008, p. 17).

VI. Sufficient Nature

According to research there can be concluded that there are strong indications that a green living environment has a positive influence on the motor development, physical activity and a healthy weight of kids (Berg, 2007, p. 35). Besides that nature is often experienced as attractive (Luten, 2008, p. 16). However a green area will only work if it is not totally uniform. A good park has for example different types of paths, grass, cultivated bushes, trees and wild growth (Salingaros, 2000, p. 315).

VII. Identity & Control

Uniformity is one of the secrets of getting lost in a labyrinth (Jack L. Nasar & Preiser, 1999, p. 86). If the complete area of Nieuwe Westen/ Middelland would look exactly the same it would be hard to distinguish were you are. Giving smaller parts of this districts its own identity could prevent this. Also on a smaller scale the identity of buildings should be clear. For example research pointed out that particularly people with dementia find it difficult to read the nature and use of different spaces if their identity is ambiguous (E. Burton & Mitchell, 2006, p. 54).

In another way identity & control is about the involvement of inhabitants with their neighbourhood and the level of social control in a neighbourhood. Jacobs and Appleyard state that people should feel that some part of the environment belongs to them whether they own it or not. Environments should be designed for those people who use them so that their sense of identity will be increased and so they will be encouraged to have more responsibility and care for the environment (1987, p. 115).

To encourage involvement in a neighbourhood some room in a design can be left that can be filled in together with the future users. In this way inhabitants can influence their environment which can increase their involvement (Luten, 2008, p. 71). Jane Jacobs stated that doors and windows had to be faced towards the street so that the inhabitants will behave responsible for the streets (Luten, 2008, p. 81).

VIII. Attractive

This performance is harder to visualize, because attractiveness can be a very subjective performance. However an attractive environment does have a positive influence on safety and the aesthetic qualities of an environment and it will determine how a public place is valued and used (Gehl & Svarre, 2013; Luten, 2008).
So as Gehl and Svarre state in 'How to study public life': it is important for overall quality that all the functional and practical aspects are dealt with within an architectural framework that respects visual qualities (Gehl & Svarre, 2013, p. 106). There are a few spatial principles to determine if a environment is attractive. As mentioned in performance V and IV, a clean and maintained environment with nature is often experienced as attractive. And besides that large-scale environments are often less attractive because of a lack of human scale (Luten, 2008, p. 16). Humans prefer to be in spaces that enclose them, 1:3, 1:2 and 1:1 proportions will create a nicer street (Kunstler, 1996, p. 139).

IX. Mixed-Use

Another important aspect to create an vibrant urban environment is the amount and types of uses. A high quality design creates integrated and well-mixed developments which will avoid segregation (E. Burton & Mitchell, 2006, pp. 21,22). According to Jane Jacobs diversity in urban uses can only form a problem when elements have a disproportionate size. In 'Home from Nowhere' Kunstler describes a few aspects of a good neighbourhood:

- It is emphatically mixed-use.
- It provides housing for people with different incomes.
- Its buildings may be various in function bit compatible in size and disposition to the street.
- It has a mixture of housing types including apartments, single family etc.
  (Kunstler, 1996, p. 117)

On the next page some good and bad examples from al these performances in the area Nieuwe Westen and Middelland is given.

Figure 5: Performances in Nieuwe Westen and Middelland

3.4 Conclusion

Urban Morphology Studies can explain how a form(on different scales) has been established and how these forms can be divided in patterns and types. Public Life Studies observe how a certain form(place) affords certain human behaviour. Knowledge of form and typology can therefore help to explain if a certain form will afford the desired behaviour and thus if a future design will afford desired behaviour. With the knowledge of the form and typology of a location while executing public life study, conclusions about comparable public spaces or designs can probably be made. Because PLS trough direct observation is mostly used on the human scale the link between Urban Morphology and PLS cannot easily be made on the scale of an region, city or district. Especially the microclimates in the cities is where Urban Morphology and PLS directly come together. Trough observation of use and behaviour of a certain place combined with the knowledge of the urban (typo)morphology it would be possible to see how physical characteristic of an street, path, building, facade or square can affect public life. On the scale of the region, city or districts other techniques like GPS and Space Syntax can help to link PLS and UMS. Besides that, if there is knowledge about all scales of the structures and forms of a location the observations on eye-level can possibly be explained with the form and structure with a bigger scale in mind.

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III. ANALYSIS

PHASE 1: NIEUWE WESTEN/MIDDELLAND

1. PLS

This chapter shows the results so far of the fieldwork research of the public life in Middelland/Nieuwe Westen. In this paragraph only an example and the most important preliminary conclusion are shown. In the first phase of the analysis the first two fieldwork studies have been executed:

Field Work 1 (one day) : Getting to know the location.
Fieldwork 2 (three days) : Determining the most successful and not successful squares in the area and getting a better impression of the area.

1.1 Fieldwork 1
During the first fieldwork an overall impression of the location was made. The route and some photographs taken along this route of interesting places are shown.

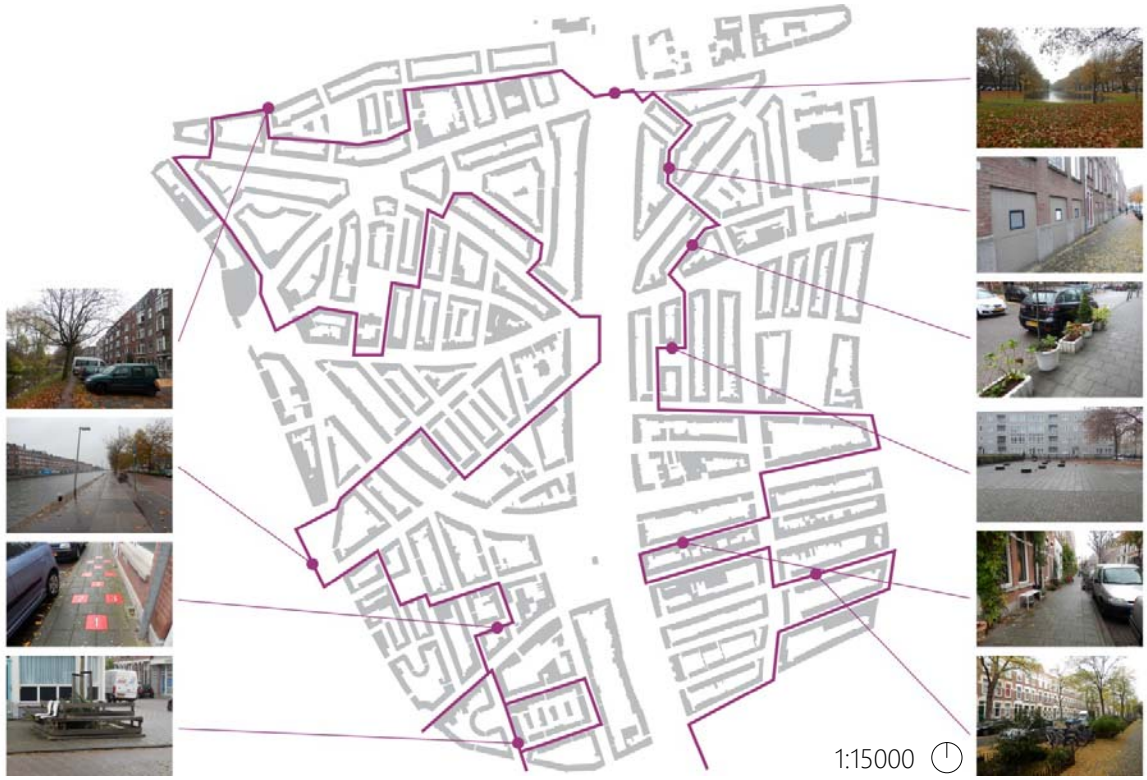


Figure 1: Fieldwork 1

A confrontation of the observed places along the route with the defined performances already show a few places that meet or do not meet certain performances. As shown above there are some blind facades which will not contribute to visibility and safety. The Heemraadsingel shows how nature and attractiveness can be implemented in the urban fabric. Other places like the square on the right have a lack of nature.

1.2 Fieldwork 2
During the second fieldwork, the location was visited during day time on three days. One time on a Wednesday and two times on a Friday. During this fieldwork the 12 most important squares were observed and the people and their activity(sitting, walking, standing) were counted and noted. Also an estimation was made about if their activity was recreational or not. In the tables rec. use stands for recreational use and dep. wea. for dependence of the use on weather. Below the result per square are shown in a diagrams. The diagnosis per square, that is made on the basis of these results, is shown in the map. The origin of the form, the operation and a photo that shows the current performances are integrated also integrated in the map.

Figure 2: Results Fieldwork 2

From the observations during the two fieldworks a few conclusions that are in accordance to the performances can be made:

- The amount of facilities has an influence on the amount of use in a public space (Squares that are used as schoolyards are intensively used during day-time). This contributes to performances IX.
- A bigger square does not necessarily mean more users.
- A square needs benches or other possibilities to sit to make it a place to stay.
- Squares located in the middle of a neighbourhood are usually more used by kids than squares at edges or along busy streets. This contributes to performance V, which includes that traffic has a negative influence on public life.

1.3 Conclusions about public life

With the results of the use and the impressions gathered during the two fieldworks a map can be made. The blue areas in this map shown in figure 11 show the parts where there was very little public life compared to the opportunities that the form of the public space offered at these areas. The stimulation of social interaction (performance III) and the visibility and social control (performance II) were often not met on these locations. The public life in the green areas seemed to meet the intended amount of use. In the green dashed areas there were either no great opportunities for public life or there were squares that were used, but the surrounding area did not contribute to a positive atmosphere of the squares because of for example to much nuisance(performance V).

Figure 3: Conclusions for PLS per neighbourhood

2. UMS

In this chapter the results so far of the study on the Urban Morphology are discussed.
The study on the Urban Morphology focuses on different scales and themes. In the first phase the whole area of Nieuwe Westen and Middelland is analysed. The scales and the themes that are studied on this scale are shown below. The most important drawings of the analysis are discussed in this chapter. An overview on the studied elements is given below.

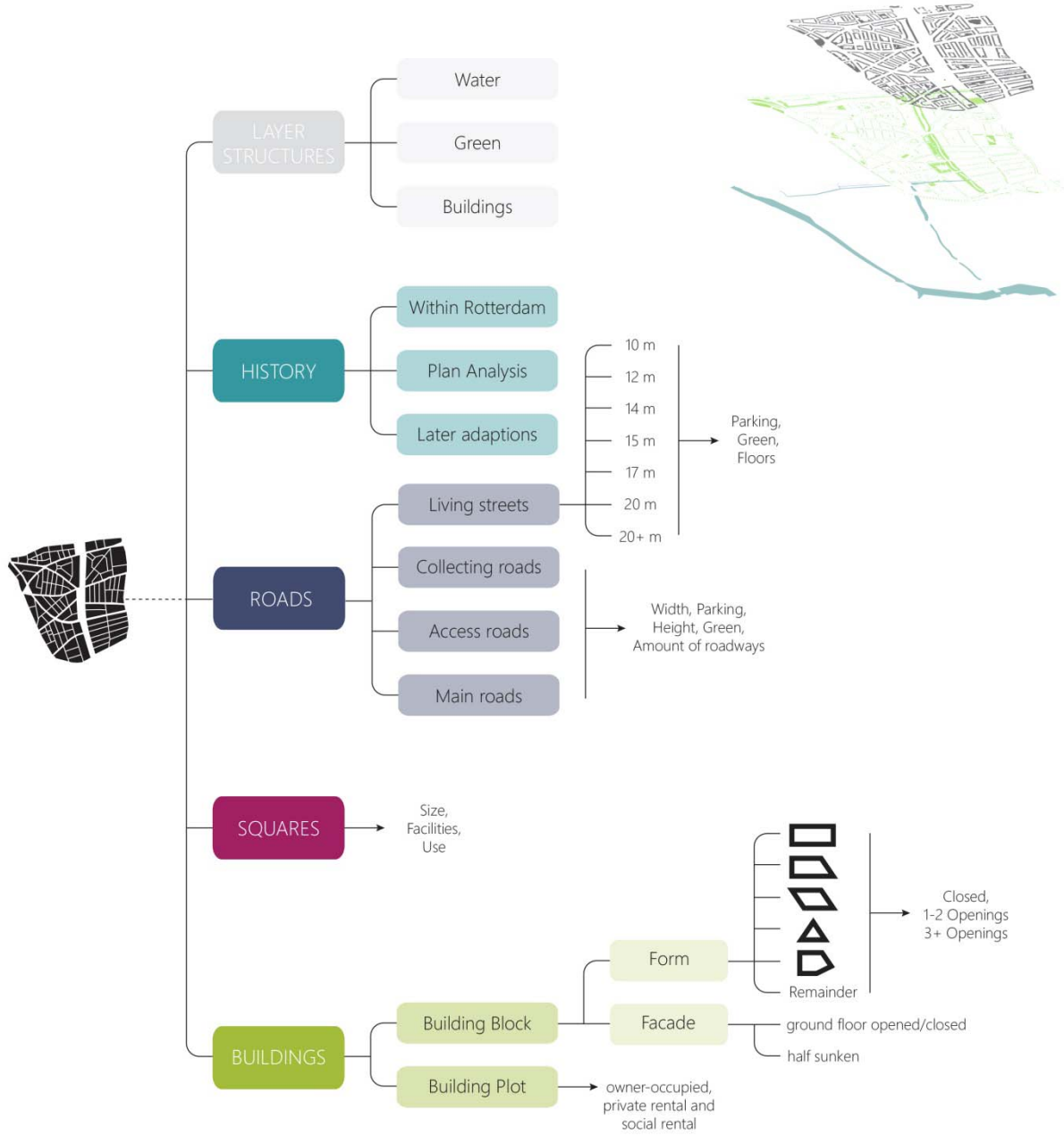


Figure 4: Overview analysis Urban Morphology

2.1 History

Around 1340 Schiedam and Rotterdam already existed. The location of Nieuwe Westen and Middelland(NWM) was already a polder landscape with a road crossing the area.

Figure 5: Historical analysis 1340

Around 1570 the Delfse Schie and Delfshaven arises. The Delfse Schie closes of the west side of the Nieuwe Westen. One of the main roads from Delfshaven towards Rotterdam crosses the area NWM.

Figure 6: Historical analysis 1570

Around 1680 Rotterdam has grown a lot compared to Schiedam.

Figure 7: Historical analysis 1680

Around 1890 Rotterdam keeps expanding. The railway closes of the northern side of the area NWM.

Figure 8: Historical analysis 1890

Around 1940 the complete plan of NWM is realized. The centre of Rotterdam is demolished because of the bombardments in the WOII.

Figure 9: Historical analysis 1940

Around 2008 the situation is almost similar to the current situation. There have been made some small adoptions in the plan of NWM to create more squares.

Figure 10: Historical analysis 2008

The historical background of the arise of the area NWM is shown in a summary below.

Figure 11: summary historical analysis

To get a grip on the area a plan analysis of the design of de Jongh has been done. The result is shown below.

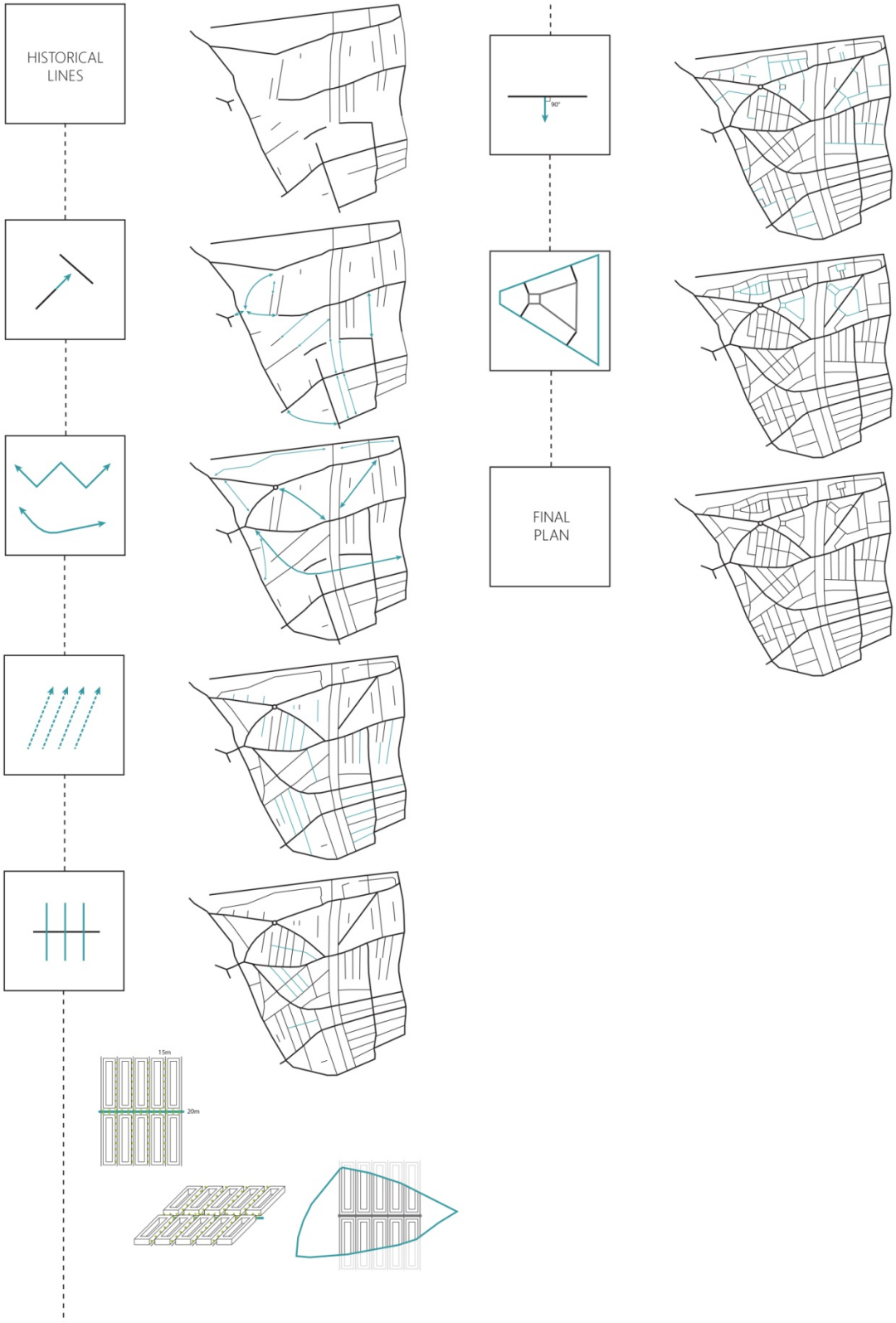


Figure 12: Plan analysis de Jongh

From this plan analysis the area can be dived in different street patterns shown below.

Figure 13: Streetpattern types Nieuwe Westen Middelland

After the realization of the plan of de Jongh. Some interventions were done in the urban structure. Most of these projects created more squares within the neighbourhoods of NWM. The new created squares are marked with purple. The involved building blocks are shown in green.

Figure 14: Later adaptations

The basic principle of these adaptations are shown below. Because parts of building blocks or entire building blocks were demolished to create the squares, the routes towards the squares do not necessarily increase the stimulation of social interaction (performance C). There is no need to cross the square while continuing your route.

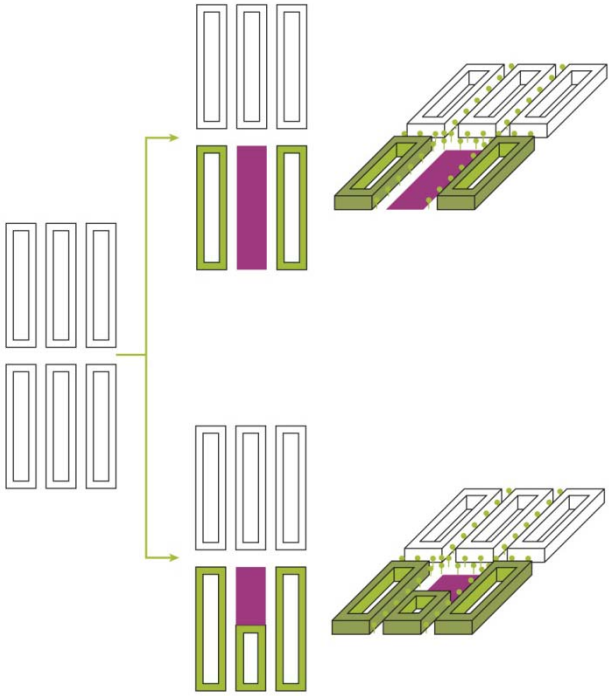


Figure 15: Principles adaptations to the plan Nieuwe Westen and Middelland

2.2 Roads

The map in figure 16 shows the living areas divided by the bigger roads. These roads are the thicker grey ones. These roads are defined by the municipality as a collection road, a district disclosure road or a main road. The research of the street sections focuses on the living streets(the thinner grey lines).

The sections of all streets were documented. The height of the buildings, the width of the streets, the amount of green and the amount and form of parking has been drawn in the simplified sections. Then maps have been made that show the parking, green, width and building heights of the streets.

Combining these maps streets with an approximately similar form can be found. These streets are mapped in figure 9. The sections of these similar types of streets can also be found in figure 16. These sections can be used during studies of public life. When the life on streets with a similar section is observed, conclusions about a type of section could be made. It could also be possible that smaller details, the materialization or architectural styles influence the public life. That would make it hard to draw a conclusion about a certain type of section.

Figure 16: Similar street sections Nieuwe Westen Middelland

This map already shows that some neighbourhoods have their own identity (performance VII) according to their streets patterns. Street 20+A also creates two clear diagonal viewpoints. Some areas do not have a clear street hierarchy. The sections of the streets are shown on the next page. From this overview it becomes clear that the whole area of NWM has its own identity since the street patterns do not vary greatly in dimensions and design. On most streets there is no transition between private and public on the streets (performance I).

Figure 17: Sections of types of living streets

2.3 Buildings

The percentage owner occupied buildings is shown in figure 18. The areas where the percentage of owner occupied houses is low are orange. In these areas the inhabitants will probably not invest a lot in their houses. When a housing corporation or the private renter does not invest money it is more likely that these areas are more dilapidated. This does not contribute to a feeling of community and identity (performance VII). Especially in Nieuwe Westen there are large areas with the same type of housing. This situation does not meet the desire to have mixed neighbourhoods (performance IX).

Figure 18: Percentages owner occupied housing

2.4 Conclusions about the Urban Morphology

Combining the maps of the analysed themes points out the clear and unclear areas of Middelland/Nieuwe Westen. In the map in figure 12 the areas that are marked blue are either unclear or quite isolated from surrounding parts in the district. The green areas meet the most of the formulated performances according to their form. What stands out is that in all the green areas the original buildings from the plan of before the second world war still exist. The areas that are delineated with a dashed green line are areas that meet some performances, but are not as well structured as the green areas. These areas have a quite clear street structure, but on the other hand they do not have a clear identity.

Figure 19: Conclusions for UMS per neighbourhood

3. DIAGNOSIS

When the results of PLS and UMS are combined a diagnosis for the location can be made. In some areas a lot of the performances are not met. In these areas the housing stock is sometimes so dilapidated that thorough renovation is needed to create an attractive living environment. In area 1 shown on the map this was combined with an unclear street pattern, a bad visibility on the street, a monotone housing stock, a lack of identity and nuisance of cars and waste. In this area a complete restructuring could be needed. In other areas the urban structure and the houses do meet the performances. In for example area 2 only the design of the public space should be improved to create a better quality of life. The zoning and the design of the public space could be improved. In this area design interventions based on results of Public Life Studies would be sufficient. In area 1 also the Urban Morphology on the scale of streets and building blocks should be improved. Because area 1 is most in need of improvement, this location will be further studied in phase 2 and has been chosen as the design location for this project.

Figure 20: Diagnosis neighbourhoods Nieuwe Westen and Middelland

III. ANALYSIS

PHASE II: DESIGN LOCATION

1. PLS

This chapter shows the results so far of the fieldwork research of the public life on the chosen design location. In this second phase of the analysis the last two fieldwork studies are executed:

Fieldwork 3 (three days): Determining the most successful and not successful squares in the area and getting a better impression of the area.

1.1 Fieldwork 3

During the third Fieldwork studies were done on the design location. In the neighbourhoods there are three places that have potential (in spatial dimensions) to accommodate an active public life. These are shown in figure 21. On these three places the recreating people are mapped. Next to the three locations an estimation of the most used streets has been made for the location. This is on the basis of observations so not on detailed counting. This is also shown on the map in figure 21. The streets with thick lines are more used than the streets with thin lines.

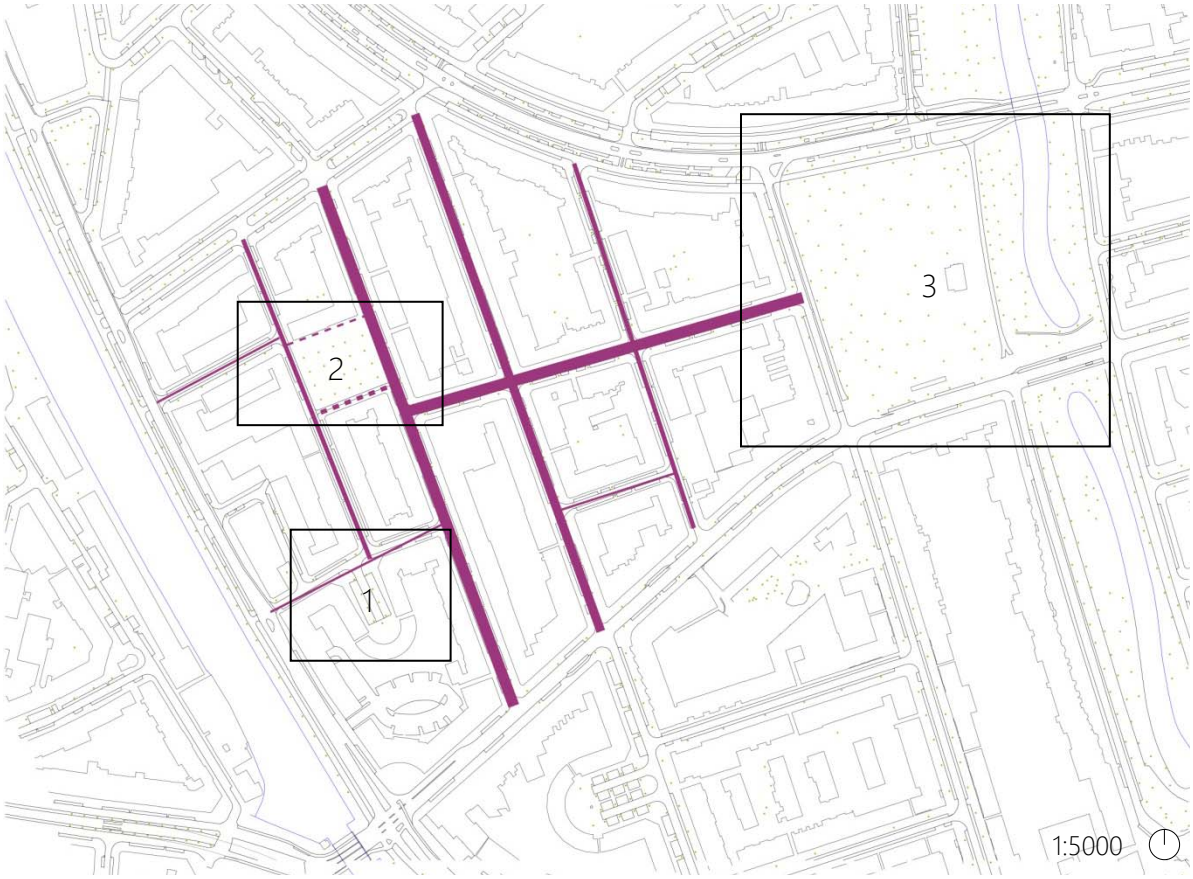


Figure 21: Use of the streets and the three places for further analysis

The recreating people are the small purple squares on the maps in figure 22 and 23. On these maps the tracked walking and cycling routes are shown in purple and the tracked car routers are shown in blue. Two of the three locations on the design location have already been studied in phase 1 of the analysis. During that fieldwork the people were primarily counted. From this analysis the possibility for interaction according to tracked routes can be estimated.

Figure 22: Mapping of public life at location 1 and location 2

The form of the most left square has potential for public life, but it only works as a parking space so the potential performances cannot be met. The routes and thus the form of the second square do not encourage social interaction and that becomes visible if you look at the taken routes.

Figure 23: Mapping of public life location 3

From the three places the Heemraadsplein seems to offer the most opportunities for interaction on the map. But because the square is way bigger than the others it is more easy to avoid social interaction while using the square. To create more social interaction there should be created more interesting spots in the middle part of the square which will bring people together.

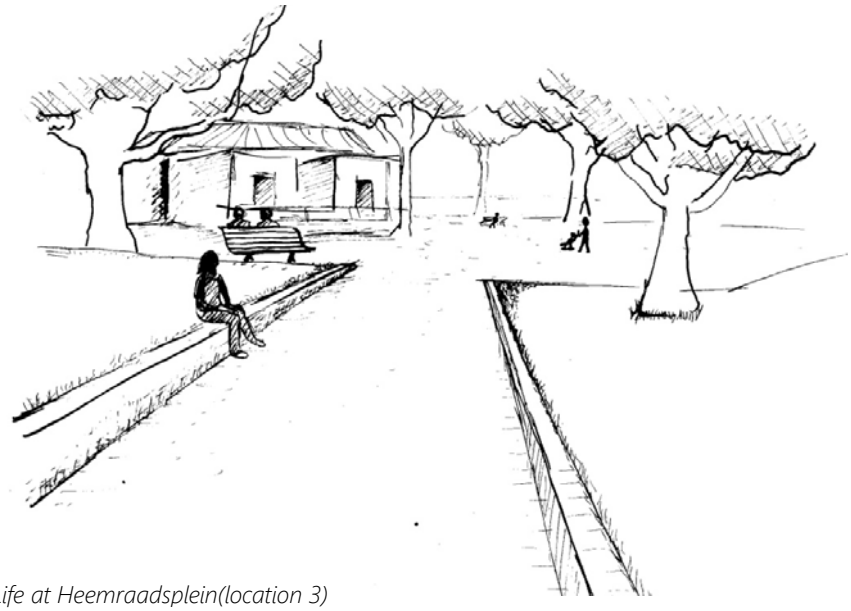


Figure 24: Public Life at Heemraadsplein(location 3)

The drawing shown above gives a view of the atmosphere of the Heemraadsplein. The person uses the low wall to sit on.

During the fieldwork some other things were notable. The adapted picture in figure 25 kind of gives a summary of these observations. From the morphological analysis in phase one it already became clear that the whole area has alongside parking on both sides at every road. This picture shows how this has a negative effect on the visibility on the streets. (performance II) The other interesting points are the facade on eye-level and the width of the sidewalks. Most facades are blind because of the building design or are blinded by the residents. The sidewalk is very narrow which makes it impossible to keep a comfortable distance from the facade. This is probably why the residents blind their own windows. This also has a negative influence on the visibility on the streets. (performance I and II) And as a last point: There is no one on the street. In the whole neighbourhood there is little life on the streets.

Figure 25: Adapted picture at van der Hilststraat

1.2 Conclusions about public life

There is little life on the streets at the location. Even if the residents desire to go outside and enjoy their neighbourhood there is little opportunity, because most public space is occupied by cars. Furthermore the blinding of the ground floor facades indicates that the transition between private and public is too hard and that the residents need a buffer zone. In the neighbourhood very few traces can be found of local initiatives or sense of identity. Apparently the residents do not have a sense of responsibility for the public space in the neighbourhood. This is not strange if you take into account the little space that is left to mark or enjoy in the neighbourhood and the quite dilapidated atmosphere. Most houses are social rent, so the current residents will probably also not have the means to improve their neighbourhood.

2. UMS

During phase 1 of the analysis the main structures of the two chosen locations are already analysed. The street sections and building heights are shown in the analysis of phase one. The analysis in this second phase is therefore more elaborated on housing and functions.

2.1 Housing

As becomes clear from the table and the map, the most houses in the area are social rent. Especially the area within the neighbourhood has mostly social rent. With almost only one housing typology this area is quite mono-functional.

Amount of houses	781
Social rent	526
Private rent	81
Owner occupied	173

Amount of houses	781
71-90 m2	484
91-110 m2	254
111-130 m2	20
151-170 m2	23

(Rigo Research en Advies)

The drawing in figure 26 shows that a lot of houses in the area need some serious renovation or should be demolished. The houses in green are still in a good condition. The grey houses need serious renovation and for the blue houses it will not be profitable to keep them alive. From this map it also becomes clear that the area needs a plan that takes into account more than alone a redesign of the public space.

Figure 26: Houses that should be demolished, maintained or renovated

2.2 Functions

The most prevailing function in the area is of course housing. But from the remainder functions this is industry. Especially along the Nieuwe Binnenweg some retail is established. Within the neighbourhood a preschool and a primary school are located. Furthermore there are some offices and gathering places. Especially some places with industry and gathering functions do not contribute to a better atmosphere, whereas they are old car garages and coffee shops.

Figure 27: Functions at the design location

2.3 Conclusions about the urban morphology

There are little amenities within the neighbourhood. Furthermore there is a lot of dilapidated housing and a lot of housing that should be renovated. The amount of social rent within the neighbourhood is very high. Especially the fact that the condition of the housing stock is quite bad, is important for the design choices. The location is a place where a new urban fabric could be created.

3. DIAGNOSIS

From the analysis of phase 1 and phase to a diagnosis for the design location can be made. These conclusions from the analysis will be clustered under the relevant performance.

I. Clear zoning and good transition
- A lot of the facades on ground level are blinded, probably because there is a lack of good transition.

II. Good visibility (for safety)
- Some buildings face their backside towards the streets which is bad for the visibility on the streets.
- The two sided parking places along all streets have a negative influence on the visibility on the streets.

III. Contact, interaction is encouraged
- There is too little space for pedestrians on the streets
- There is little life on the streets.

IV. Clear street patterns
- There is a kind of dead-end street in the neighbourhood and a lot of crossroads.

V. No nuisance.
- Even though the Heemraadsplein and the quay have a lot of potential, they are badly accessible for pedestrians.
- There is nuisance of waste on the streets.
- The biggest part of the public space is occupied by cars.

VI. Sufficient Nature
- There is very little nature in the neighbourhood

VII Identity and Control
- The residents in the neighbourhood did not mark their neighbourhood on a specific way and there can be found hardly local initiatives on the streets. This gives the feeling that an identity is missing in this neighbourhood.

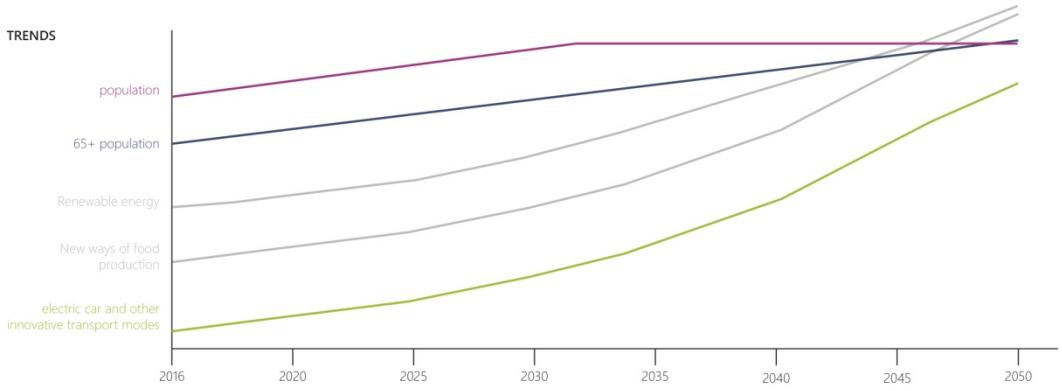
VIII. Attractive
- The dilapidated houses and poor maintenance does not create an appealing atmosphere.

IX. Mixed-Use
- The percentage and clustering of social rent housing is (too) high.
- The functions besides housing in the area do not contribute to vibrant and safe street life and do not encourage social interaction in a desirable way.

IV. DESIGN

1. SCENARIOS AND TRENDS

The design that will be made not only has to improve the current situation, but also has to fit the future. Therefore some relevant trends are shown in figure 1. The population of Rotterdam for example, will keep on rising till 2030. With these trends several scenarios can be made. Because of the condition of the housing stock some quite radical interventions have to be made at the design location. This would fit in scenario +. But the current population and the current life can also play an important role. Therefore the design for this location will fit in a scenario balancing between + and 0.



Scenario +

Rotterdam is the city for innovation and new lifestyles. Fuel cars will totally be replaced by electrical cars. These cars will be shared within neighbourhoods. New technology and other innovations will be implemented in Rotterdam first. The harbour will still give the city is rough image. The density of houses will rise in and around the centre. Population will stagnate around 2030 and the population will become older.

Design: NW/M as a progressive district of Rotterdam. Innovation and trends as a basis for a new design. More houses will have to be realised in the centre.

Scenario 0

The historical character of the districts around the centre will become important for Rotterdam as the centre keeps renewing. But the trends will be implemented in the districts. New technology, electrical cars and the older population will need adaptations in the urban fabric. The growing population till 2030 will need a densification of the district. So the current vibe of the districts will be remained but they will be adapted to new developments.

Design: NW/M the basis is sufficient. Improve the current situation with the current trends.

Scenario -

Rotterdam will innovate and renew in the centre and former harbour areas. It's historical character can be found in the districts around the centre. This history will be very important for the city. Therefore old plans will be restored and improved and adapted to the current trends.

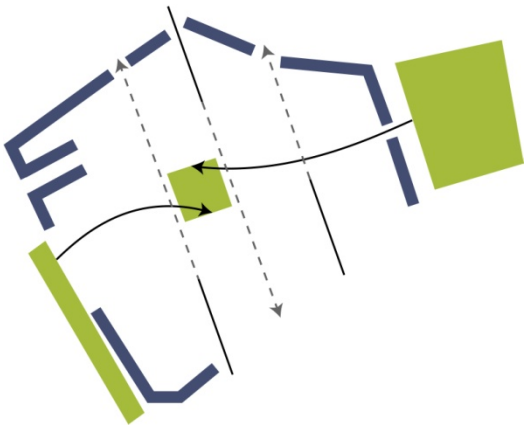
Design: NW/M is the historical centre of Rotterdam. The plan of de Jongh will be respected, but with some improvements. Later adaptations will be removed.

Figure 1: Scenarios and trends

2. DESIGN

2.1 Total plan

The concept of the total plan was chosen from several concepts. The concept maintains most houses that are in good condition, but also includes some major alterations to the urban structure. Especially the houses at the borders of the area will be maintained to keep the atmosphere on those streets alive. Within the neighbourhood the more radical adaptations will be made.



The concept of the plan is based on the historical lines of the polder structure that are directed from north to south. A new route that connects the Heemraadsplein with the new square in the neighbourhood and the quay is created. This route is slightly bent to give it another identity and to make it recognizable as a special route. As pointed out in performance IV, the bending of a street also gives a more interesting view while walking through the street. The route will create a new atmosphere in the neighbourhood. An atmosphere where neighbours, residents from the neighbourhood and outsiders have the possibility to meet. As mentioned, the houses along the edges will be maintained were possible to preserve the historical cityscape of the surrounding roads.

Figure 2: Concept design plan

Next to the route the plan has two other types of routes with different atmospheres. These are the car streets and the living streets. The living streets and the route street are car-free. The car streets have along parking at one side. The rest of the parking places are located inside the building blocks. Every building has a transition zone of approximately 1,5 meter. All ground floor facades are faced towards the street and are open. furthermore there are more different housing typologies than in the current situation. This will bring more than only social housing within the neighbourhood. Furthermore there will be created more amenities within the neighbourhood. This will be done especially at the new square, which should become the most important point of interest of the neighbourhood. There are different sizes of building blocks, which will create a less monotone street structure. Where possible T-junctions are created instead of crossroads.

Figure 3: Design total area

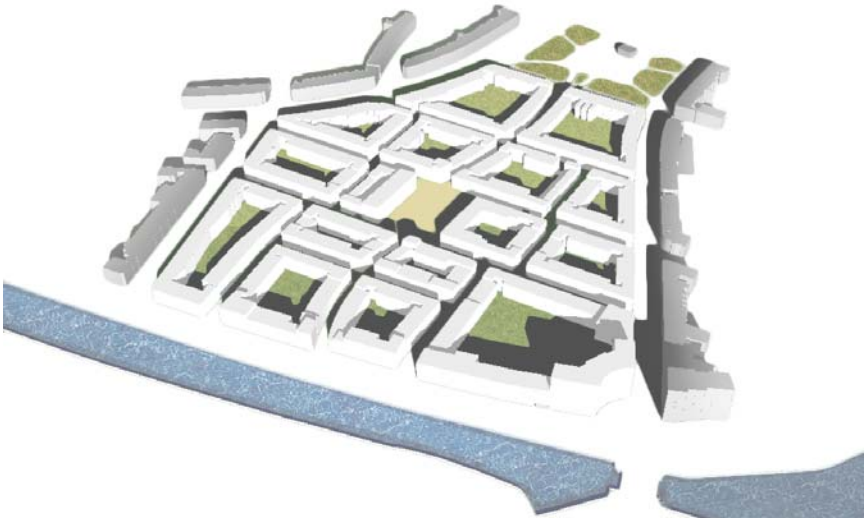


Figure 4: 3D view of the design

2.1.1 Performances

Almost all the mentioned design interventions can be related to the formulated performances.

In figure 5 the performances are mapped. The route increases the opportunities to meet neighbours, other residents of the neighbourhood and people from outside the neighbourhood (performance III). The route brings pedestrians to the most interesting and attractive places and its form creates interesting views (performance VIII). The created T-junctions contribute to a clear street pattern. As mentioned in chapter 3 of the theory part, T-junctions reduce the number of routes to choose from and provide a focus point of the end of the street. The route is implemented in such a way that the crossroads provide a safe pass. The route itself is car-free which reduces the nuisance of cars(performance V). There are different building blocks with different housing typologies which contribute to a mixed population and mixed functions (performance IX).

Several performances contribute to each other. The relation between the performances is shown below. An example of how the performances can contribute to each other in this case is that the mixture of typologies and functions will create life on the streets during different times a day. This will increase the change for social interaction on the streets.

Figure 5: Performances and their relations of the design of the total area.

2.1.2 Products

Below the elaborated elements of the design are shown. These are the three different streets, the square and the two entrances. Furthermore one of the building blocks is designed in more detail to give an example of a possible design for the other building blocks. These elements of the plan are the most crucial details. For the other parts of the plan general rules about typologies, parking, architectural style etc. are formulated later on.

Figure 6: Elements of the design for further elaboration

2.2 Living Street

The living street has a more private atmosphere than the other two street types. The height of the buildings along this street has a maximum of 3 floors and at the corners a maximum of 4 floors. This creates a good human scale and therefore a comfortable atmosphere. The houses on the first floor have windows that function as doors, which makes the street a second back yard. The residents can influence the design of the street with the cubic boxes that are multifunctional. This will both increase the sense of identity and responsibility. Furthermore there are parking spots for bikes. Like in the rest of the plan all buildings have a transition zone of approximately 1,5 meter. In this area people can place there benches or plants

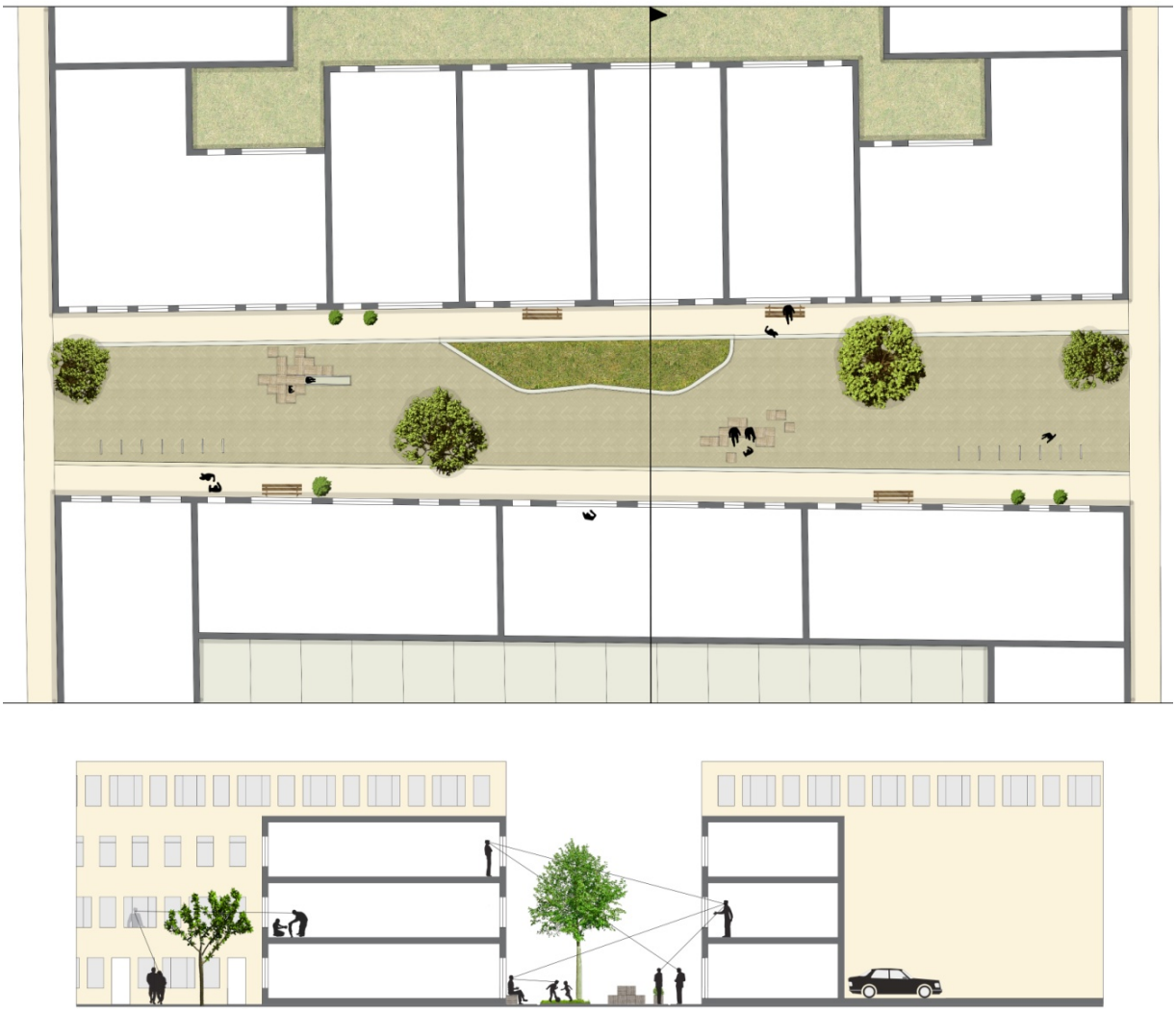


Figure 7: Plan and Section living street

Figure 8: Impression living street

2.2.1 Performances

Because the living street is car free there will be no nuisance from traffic (performance V). Next to trees there will be plants and grass in the street, which gives it more nature than a regular street (performance IV). The extra nature combined with the decrease of nuisance of cars will create a more attractive atmosphere (performance VIII) The facade on the ground level is very open which makes the visibility good (performance II). The building block at the south side of this street not only consists of different typologies, but also houses different functions. (performance IX). There are several places to sit and meet neighbours. Because of the bike parking more people will have a reason to leave there house at the front side, which gives them more opportunities to meet neighbours (performance III). The possibility for the community to influence the design of 'their' street will probably increase their feeling of responsibility and increase the sense of identity with this street(performance VII). Like every building the houses in the living street also have a transition zone, which can be used as an extension of their living room because of the more private atmosphere of this street type (performance I).

Figure 9: Performances and their relations of the living street

2.3 Car Street

The car street has a wider profile than the other two street types. The height of the buildings along the car streets differs from 12 to 15 meters. All houses are faced towards the street and all ground floors have windows. On one side of the street there are parking places. The car streets have at least at one side a wide sidewalk. Like in the rest of the plan all buildings have a transition zone of approximately 1,5 meter. In this area people can place their own benches or plants.

Figure 10: Plan and section car street

Figure 11: Impression car street

2.3.1 Performances

Because all houses are faced towards the street, all ground floors have windows and the amount of parking is reduced the visibility at the car street is good (performance II). The car streets have at least at one side a wide sidewalk which makes it possible to chat with neighbours and makes it attractive to walk through the neighbourhood. This creates extra opportunities to meet others. (performance III). All the streets that end at the car street have a nearby crossing which prevents traffic incidents (performance V). The streets all end at a point where a building is located at the other side of the road. As mentioned before this T-Junction form reduces the number of routes to choose from and provides a focus point of the end of the street(performance IV). The pavement of approximately 1,5 meters around the building blocks creates a good transition from private to public (performance I). This also gives the residents an opportunity to design a small part of the street which will probably create a sense of identity (performance VII). Along the car street different housing typologies and functions can be found. This creates a more vibrant street life whereas different people are active during different times of the day and different functions attract different people at different times of the day (performance IX).

Figure 12: Performances and their relations of the car street

2.4 Route Street

The route street is car-free. The street is slightly bent and there are places to meet and sit. All houses are faced towards the street and all ground floors have windows. Like in the rest of the plan all buildings have a transition zone of approximately 1,5 meter. In this area people can place there benches or plants.

Figure 13: Plan and section route street

Figure 14: Impression route street

2.4.1 Performances

The route street has already been pointed out in the performance description of the total plan, but here it will be discussed in more detail. Like the other streets the route street has a transition zone of approximately 1.5 meter(performance I). Furthermore the ground floor facades all have windows, which will increase the visibility and social control at the street (performance II). Because the route is car-free there is less chance on traffic accidents and nuisance of noise (performance V). The bending in the street creates an interesting view while walking through it and it gives the route a recognizable other identity. The small setbacks in the facade will create an extra corner which marks a sort of semi-private area. This can increase the feeling of responsibility for the street (performance VII). Because the route is recognizable and it connects three points of interest people from outside the neighbourhood will probably also take this route. People from the neighbourhood will also use the street because of its unique character and several functions along it(performance IX). And of course the direct residents will use the street to enter their house or enjoy the sun and meet neighbours. This give the route street an unique atmosphere where different groups can meet and interact. (performance III) And finally the created places with sitting opportunities and several forms of nature will make the route more attractive (performance VI and VIII).

Figure 15: Performances and their relations of the route street

2.5 Square

The building blocks located at the north and the south of the square have several amenities. The southern block houses a school and a day-care and in the northern block there is room for a restaurant, shops and other functions. The route streets ends at the facades of the buildings where the entrances are located. This will make sure one encounters the plinths entering the square from the route street. The routes are connected with a diagonal path closed off by two areas with more nature. The most northern area will catch the most sun during daytime and therefore can be used to sit, relax and meet others. The other area has different kinds of nature and playing opportunities for kids.

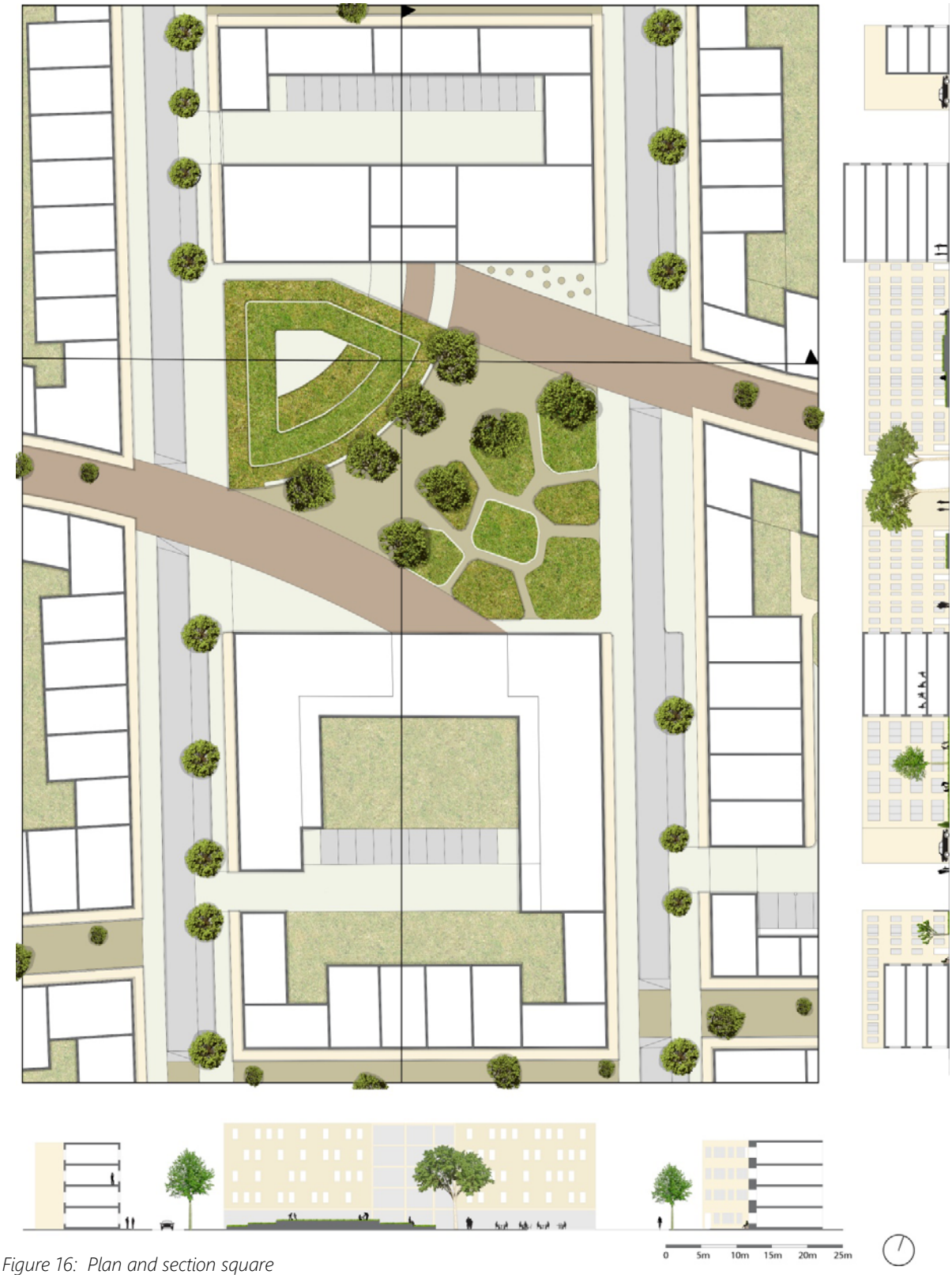


Figure 16: Plan and section square

Figure 18: Impression square

2.5.1 Performances

The different functions and amenities located around the square can create a more vibrant public life (performance IX).The school will create life at the square at different times than for example a restaurant. Different groups of residents will probably also use the square at different times a day. The amenities at the square will also attract people from outside the neighbourhood and the rest of the neighbourhood. This increases the opportunities for social interaction. (performance III) The two areas have a lot of nature and sitting and relaxing opportunities. The design will give an unique attractive atmosphere. (performance VI and VIII) Like the rest of the plan the buildings around the square have a zone to create a good transition and can contribute to the sense of identity (performance I). Another important point is that there are no cars allowed on the square which will decrease the change of traffic accidents. Also the route streets that lead to the square have a safe crossing at the car street. The routes that end on the square end at the facade of the buildings. This will create a focus point while walking towards the square from the route streets (performance IV).

Figure 19: Performances and their relations of the square

2.6 East Entrance

At the east entrance of the neighbourhood the Heemraadsplein is connected with the route street. The entrance is articulated with two current buildings. The height of the other buildings along the route street is one floor lower. Furthermore a crossing is created from the square to the neighbourhood.

Figure 20: Plan entrance east

Figure 21: Impression entrance east

2.6.1 Performances

The current buildings that mark the entrance of the neighbourhood have a different height than the new buildings along the route street. This makes the entrance recognizable as an entrance and makes it easier for people to orientate (performance IV and VII). Because a crossing is created from the Heemraadsplein towards the route street it is more safe to cross the street (performance V). Like in the rest of the plan, the open facade and the transition zone create a good visibility on the street and a good transition from private to public (performance I and II). Because the people from the Heemraadsplein can easily reach the neighbourhood, the opportunity to meet people from outside the neighbourhood in the neighbourhood is increased (performance III). The Heemraadsplein provides an attractive location with sufficient nature nearby the neighbourhood (Performance VI and VIII)

Figure 22: Performances and their relations of the east entrance

2.7 Entrance West

At entrance west there has been made a connection between the quay and the route. The two building blocks mark the entrance of the neighbourhood.

Figure 23: Plan entrance west

Figure 24: Impression entrance west

2.7.1. Performances

In the current situation it is very hard and almost dangerous to cross the road to reach the quay. In the new situation a clear crossing is created which makes it safer to reach the other side of the road (performance V). The corner of the northern building block has 5 floors. The alignment of this building blocks has shifted a few meters, together with the extra floor this corner marks the entrances of the neighbourhood (performance IV). Because the route connects the neighbourhood to the quay, the possibility to encounter people from outside the neighbourhood will increase (performance III). The quay itself is already quite attractive because of the view of the quay on the other side. By upgrading the sidewalk, the walk along the quay will be even more attractive (performance VI and VIII). In the plinth of the building blocks amenities can be found. These mixed uses will create a more vibrant street life at different hours of the day (performance IX). And finally the facades of the buildings are open and have a transition zone like the other building blocks in the neighbourhood (performance II and I).

Figure 25: Performances and their relations of the west entrance

2.8 Building blocks

The sizes of the building blocks differ. There are three types of building blocks. The principles of these building blocks will be discussed in this paragraph. Also a more elaborated design of the Middle building block will be discussed.

2.8.1 Small, Middle Large principles

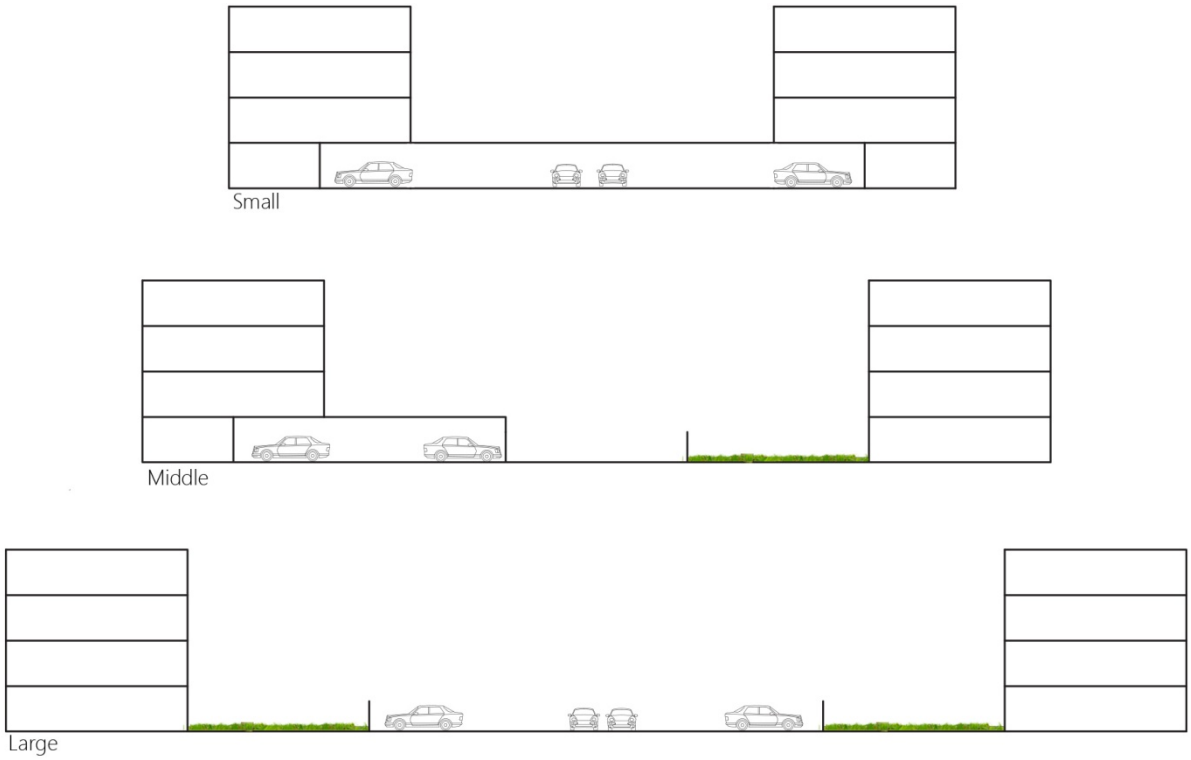


Figure 26: Principles small, middle, large building block

In the small building block the ground floor will be lifted to create parking and a collective garden. In the middle building block a combination of ground floor gardens and inside parking and outside parking can be made. In the large building block all ground attached houses can have their own garden and the remainder space can be used for parking. In this building block there is no need to lift the ground floor.

2.8.2. Elaboration Middle building block

In the middle building block ground attached gardens, a collective garden and roof top gardens are created. The parking spots are partly located under the houses and partly on the collective area. Also a bicycle parking area is created. The cars can drive through the building block. The height of the houses varies from 3 to 4 floors.

Figure 27: Plan and sections Middle building block

Figure 28: Impression middle building block

2.8.2.1 Performances

The collective garden in the building block can bring neighbours together. The shared (bicycle)parking places can also increase the opportunities to encounter neighbours (performance III). The shared facilities together with the transition zone can also increase the feeling of responsibility and identity (performance VII and I). The open facades can increase the visibility and social control in the building block and on the streets (performance II). The collective garden will create an attractive atmosphere with sufficient nature (performance VI and VIII). In the building block several typologies are combined. This will attract different groups of residents. These residents will probably have different daily schedules which provides a more vibrant life in the building block which can also increase the social control (performance IX).

Figure 29: Performances and their relations of the middle building block

2.9 Building regulations

2.9.1 Parking

The amount of parking in the plan does not meet the parking requirements of the municipality. The area is located in the sector of Rotterdam with the highest amount of parking per house. With the current housing stock this would mean 1.5 parking spot per house. However this plan is adapted to a future where people can share cars, or do not even own a car and use public transport. Therefore the amount of parking will be around 1 parking spot per household.

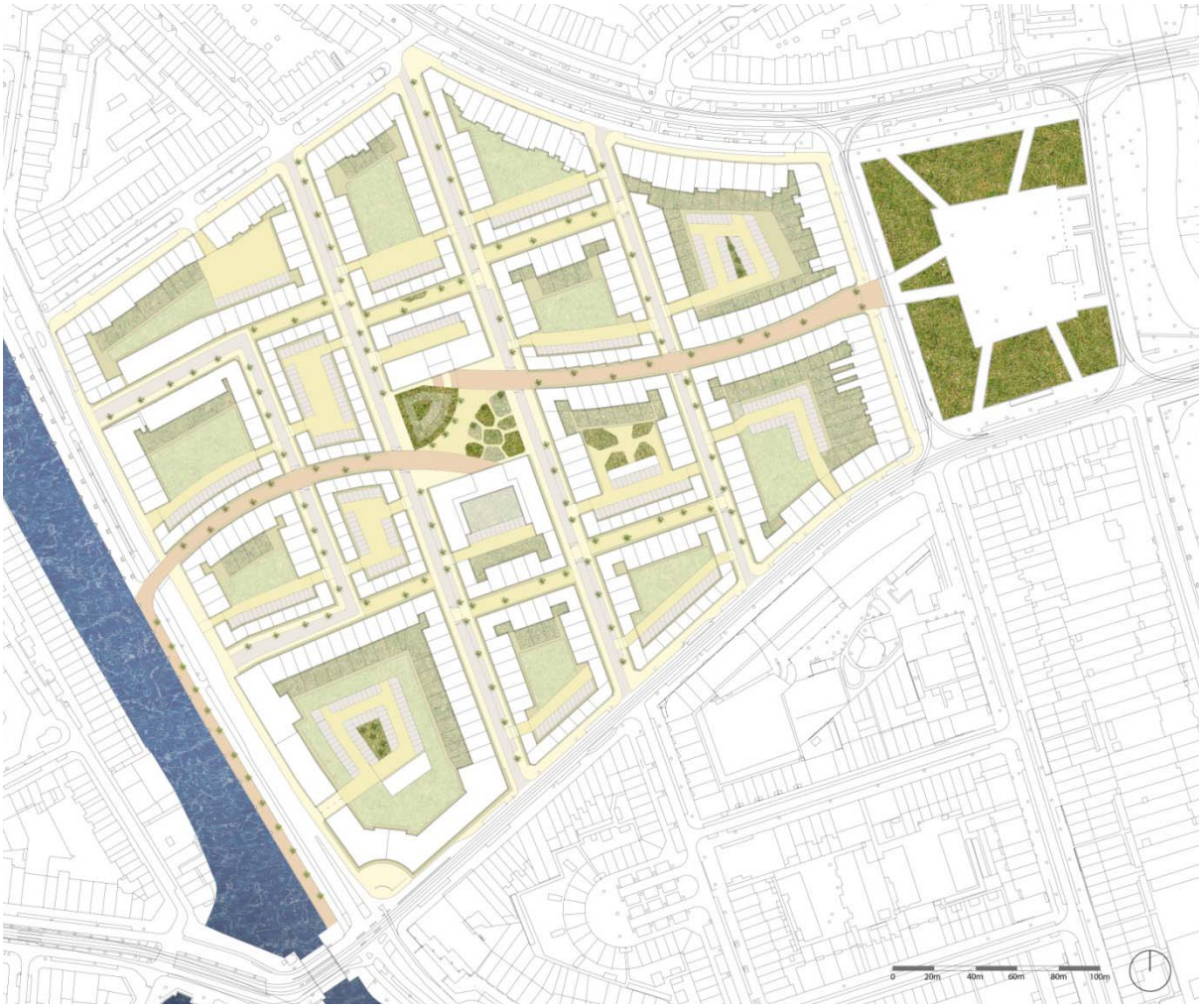


Figure 30: Parking at first floor

2.9.2 Housing typologies

Within the plan there are different housing typologies. In the current housing stock there are no studios or other houses for one person households. Furthermore the current housing stock is mostly social rent. The amount of social rent will be decreased and there will be more difference in housing size.

There are three building heights in the plan. The first, five floor, is an exception and therefore no standard typology. The buildings with four and three floors are the basis of the regular typologies. Furthermore all main entrances are faced towards the streets and every building has a transition zone from private to public of approximately 1.5 meter.

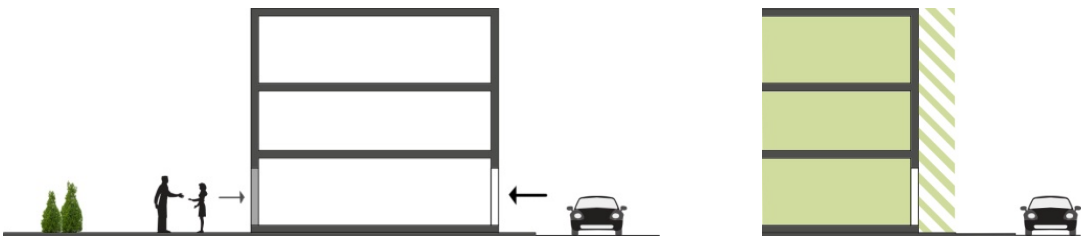


Figure 31: Main entrance and transition

There are three possible outdoor spaces. A parking garage, a collective garden, a private garden and a roof terrace. A combination of these for types is possible.

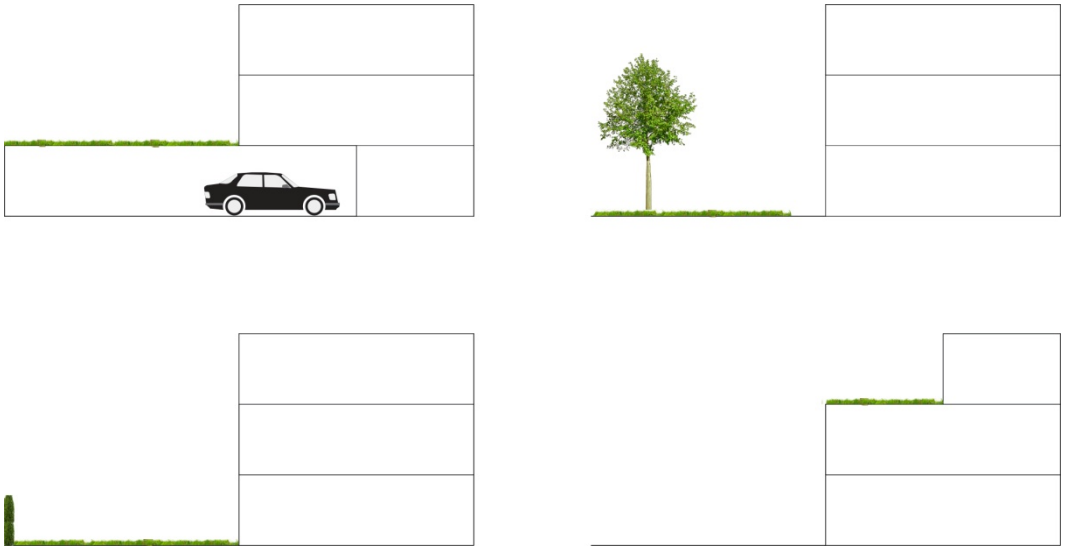


Figure 32: Types of outdoor places.

There are 6 different house sizes. The possible sizes are shown below.

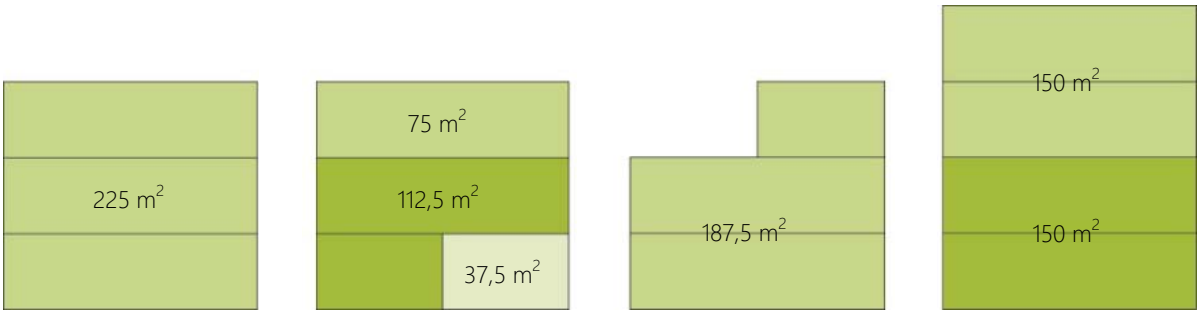


Figure 33: Different house sizes.

The size of the houses can differ per building block or architectural style. In the new plan approximately the same amount of houses will be built, since the population and amount of households of Rotterdam is still rising. Of the new houses the percentage of social rent will decrease. Depending on the precise demand this percentage will be around 65-70%. This is about the same as the average percentage of social rent in Rotterdam. The amount of houses per size is given in the table below. The amount of family houses and single houses will increase pertaining to the current housing stock.

37,5 -75 m^2	40%
75 -112,5 m^2	40%
112,5 -150 m^2	15%
150 -187,5m^2	4%
187,5 -225 m^2	1%

2.9.3 Materials

In Rotterdam the 'Rotterdamse stijl' is used for public space. These materials can also be used for this plan. The materials that can be used per street type are shown below.

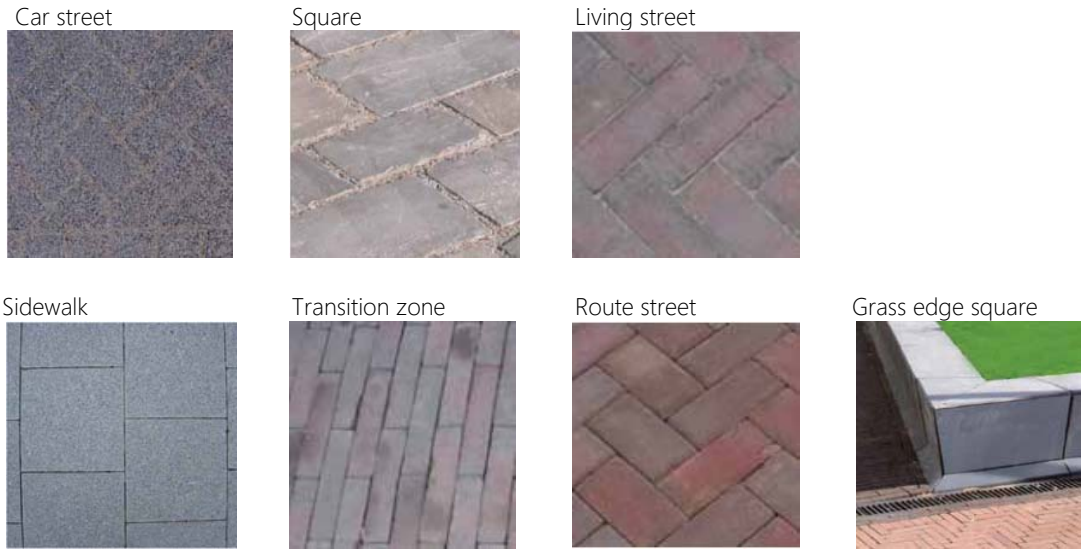


Figure 34: Materialisation 'Rotterdamse stijl' (Gemeente Rotterdam, Bureau Hosper, & NPK Design, 2015)

On the next page a more detailed section of the living street is shown. In this section a possible way to implement the materials of the street is shown. This is a very subtle way to mark the transition zone. Another way to implement the transition zone is to let the residents fill the 1.5 meter their selves. In that case the residents should have the means to fill this zone.

Figure 35: Detailed section living street with materialisation

2.9.4. Architecture

In figure 35 some reference projects are shown. The Geneteststraat in Delft has an interesting facade which makes it possible to use the street as a kind of back yard. The Masira bouwblok also is a nice example of how a street can function as a backyard. Besides that the masira bouwblok has a nice lifted collective garden with a parking garage on the ground floor. The Hannemanstraat is a good example of what a street could look like without parking. The architecture in ijburg is a good example of a style that could match with the current old housing stock.

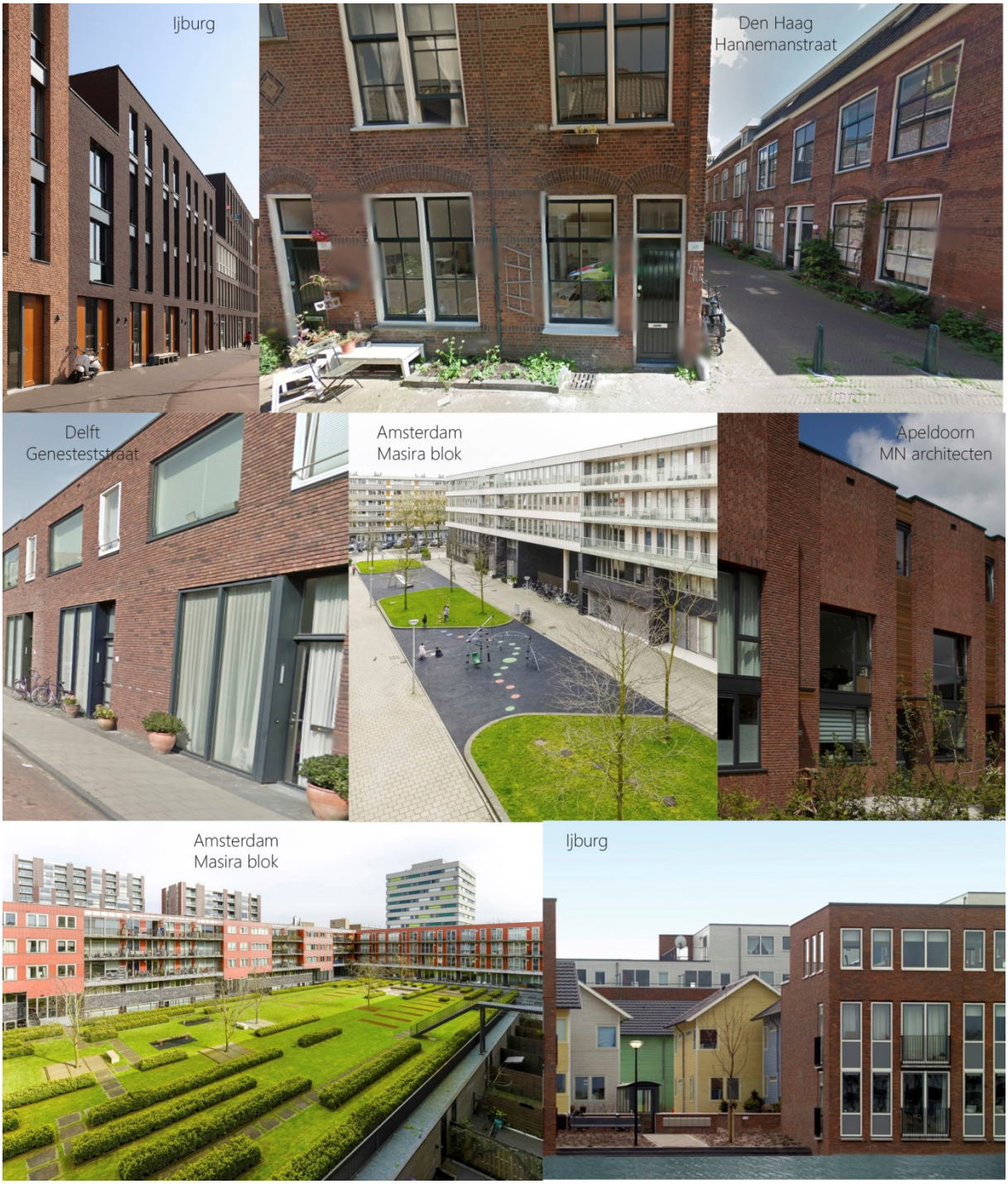


Figure 36: Moodboard architecture (Architectural Photographer EU; Bouwbedrijf; Luuk Kramer; Makelaars, 2016)

2.10 Implementation

To execute the new plan a large part of the current housing stock has to be demolished. To prevent that the plan will not only demolish the current housing stock, but also the complete social structure, the implementation of the plan should be taken into account. The flow of people moving in and out will probably be bigger for the houses with social rent than for the owner occupied housing. Therefore the plan could be implemented per building block (figure ...). When most people move out on their own initiative the remainder residents can be housed in other vacant places in the neighbourhood. In this way the plan can be executed without demolishing the complete social structure and keeping a part of the current residents within the neighbourhood while making place for new (promising) residents. There will always be a few residents that will move with reluctance, but the new houses will improve their living environment. To determine the optimal order of the implementation of the plan more knowledge about the current population and social structure is needed.

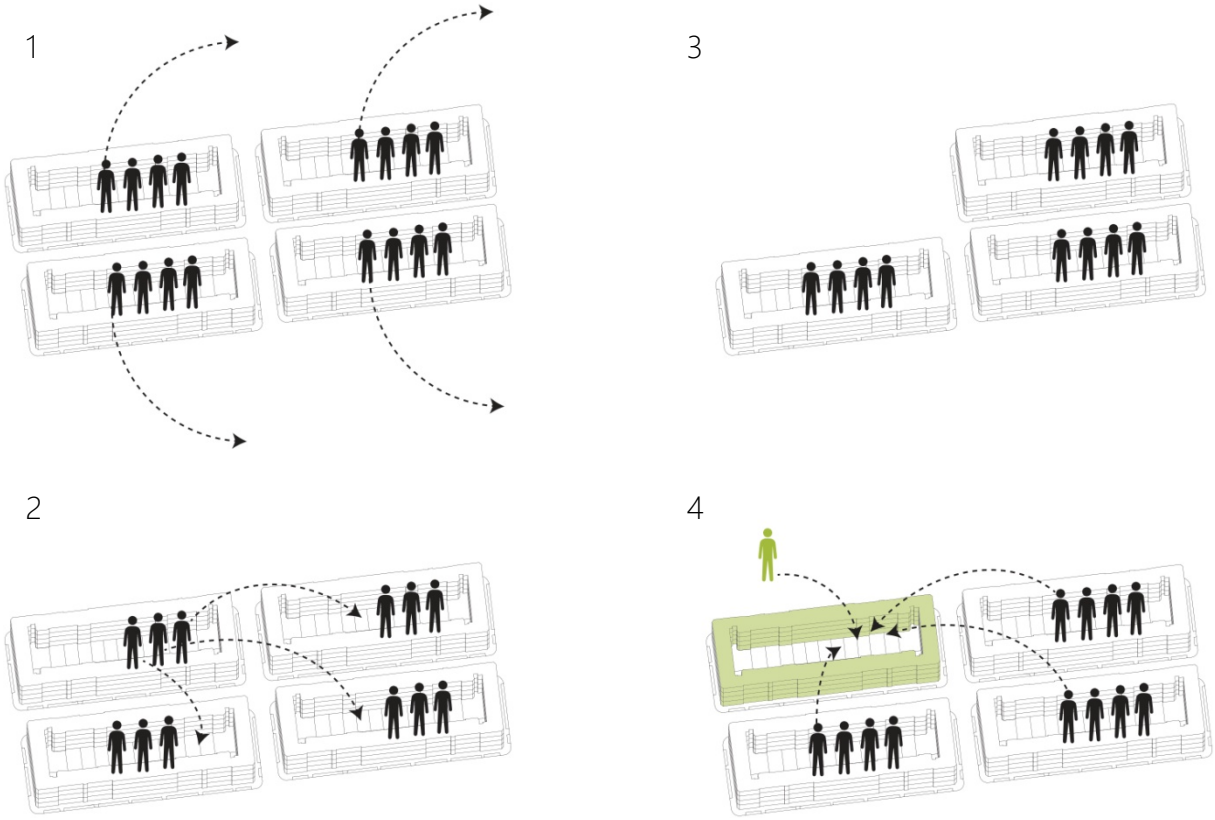


Figure 37: Implementation per building block

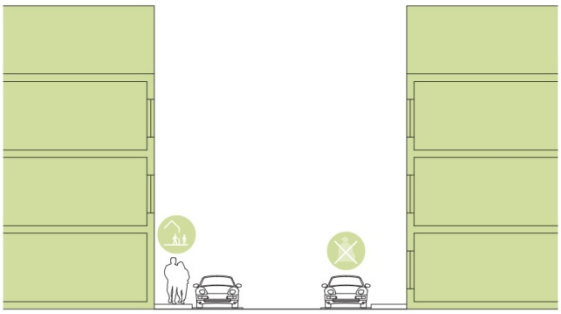
Another point that can influence the success of the plan is the influence of the residents on the design. When the current and future residents can also influence the design of for example the living streets the feeling of identity and responsibility will rise. By giving them a voice in the design of the whole new plan they can get engaged with the plans which will hopefully decrease resistance against the plan.

Besides these two aspects of the implementation of the plan it is important to keep in mind that the design made in this project is more an example of how the approach of this project could work. An implementation and design of such a plan would need much more consultation with stakeholders and the municipality. However it could show for example the municipality how to present and implement their policies in a spatially structured way and keeping in mind their population.

2.11 Comparison current situation

In the current situation almost all performances can be improved. The new plan intends to improve elements of all these performances. In the comparison of the section of the Hilsstraat with a section of the designed living street some of these improvements are shown. Below an overview of all the improved elements is given.

Van der Hilsstraat



Living Street

	CURRENT		NEW
	No transition zone.		Every house has a transition zone of approximately 1.5 meter.
	Backsides faced towards the street, blinded windows, blind walls, two side parking.		All main entrances face towards the street. All ground floor facades have windows. There is a maximum of one side parking on the streets.
	No different atmospheres, little room for public life on the streets.		Several atmospheres with different opportunities to meet people. Central axes with functions where residents and people from outside can meet each other.
	Deadend street and a lot of crossroads.		No dead-end streets and mostly T-junctions. And a clear main route. Different distinguishable street types.
	Potential points of interestare badly accessible for pedestrians. Nuisance of waste and cars on the streets.		Pedestrians can cross streets safe in the neighbourhood. Less cars on the streets.
	Little nature in the neighbourhood.		More nature on the street than the current situation. The new square has divers nature.
	Hardly any local initiatives on the streets. No sense of identity.		The recognisable elements, transition zones, different recognisable atmospheres, and influence in the design create a sense of identity and control.
	Dilapidated houses and poor maintenance does not create an appealing atmosphere.		Housing stock in good condition. Attractive route and square. More nature.
	Monotome housing typology. Other functions do not have a positive influence on the atmosphere of the neighbourhood.		Different housing typologies and more functions that can create live on the streets during different times a day.

Figure 38: Comparison Current and New situation

Although the new design intends to improve all performances, the design is only based on observations and analysis of the urban morphology. Contact with the stakeholders and residents might bring up some other important elements in the neighbourhood that should be improved.

2.12 What can this plan mean for the area Nieuwe Westen and Middelland?

The made design is an example of how the approach of this project can translate the policy of the municipality in a spatial way. The approach can also be used to made a spatial design for the other neighbourhoods.

In the second area some performances are already met. From the analysis it became clear that the morphological structure is sufficient, but the public space could be improved.

The first step would be to make a diagnosis about the area. This will be done on the basis of the morphological analysis and a more thorough public life study. The same study that has been executed at the design location has been executed at the second location. A very fast overview of the products of this study is shown below. All streets are quite intensively used, however the only public square that is used is the Virulyplein, the second square. The sketch shows kids playing on this square. The other two squares have less or no facilities. Because the first and the second square are quite closed off by their design people will not be encouraged to cross the square and meet others.

Figure 39: Results FW 3 at the second location. Total area: The thicker the purple lines, the more intensively used. Three squares: Purple square: recreational use, Purple lines: Pedestrians, Blue lines: Cars.

Combining this analysis with the analysis of the morphological structure in phase 1 of the analysis a diagnosis can be made. The performances that could be improved in this neighbourhood are I, II, III and VI.

The design principles that are used at the design location can partly be implemented at this location. The amount of parking could be decreased to one side parking. And the amount of car streets can be reduced to create a similar atmosphere as the living streets in the plan for the design location. Amenities can be added to the two squares that aren't that intensively used. And finally the composition of the squares can be improved to make sure that interaction will be encouraged.

These interventions will increase the quality of life for the current residents. Also new residents can be attracted to the neighbourhood if the atmosphere of the neighbourhood will be more attractive. However there is no need for demolishing a large part of the housing stock. Therefore the order of implementation will be less important than the involvement of the residents in this case.

So for every location in Middelland and Nieuwe Westen the used approach can lead to a design that increases the quality of life for the current residents and the future residents that are desired by the municipality.

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V. CONCLUSIONS AND REFLECTION

1. CONCLUSION

To answer the main research question: *How can combining Public Life Studies and Urban Morphology Studies using F(M)OP improve the quality of life of(current and, by the municipality desired, future) residents of the Nieuwe Westen and Middelland through a design?* , several sub questions were already answered in this report. With the answers of these questions and the rest of the results the main research question will be answered.

In the theory part question 1.1, 1.2, 2.1, 2.2 were answered. Combining the answers of this theory part with the analysis and design part makes it possible to answer the question 3.1 and eventually the main research question.

3.1 How can the relation between the field of Urban Morphology and the field of Public Life Studies be described trough the F(M)OP method?
Both fields of inquiry were described trough the FOP scheme. With the use of the FOP scheme the similarities and differences were more easy to point out. Public Life Studies focus more on the small scale of the city like streets and squares and Urban Morphology Studies focus on all scales of the city. So in the microclimates are the places in the city where Urban Morphology and PLS directly come together. Both research fields also have a central role for the human being. The FOP scheme can also be used to describe the link between PLS and UMS in a different way.

The FOP scheme describes an artefact trough its form, operation and performance and their interrelation. The understanding of the form of the city can be received trough UMS and understanding of the operation and performance of the city can be received trough PLS. To value these studies the performances should be determined. These performances can be derived from both research fields. After combining them they can be used to redesign the operation and form of the city.

So the relation between UMS and PLS can be described trough FOP on the level of the aims etc. of the research fields and the research fields can be linked to the form operation and performance (UMS to form, PLS to operation and performance).

How can combining Public Life Studies and Urban Morphology Studies using F(M)OP improve the quality of life of (of current and, by the municipality desired, future) residents of the Nieuwe Westen and Middelland through a design?
The combination of public life studies and urban morphology studies made it possible to make a diagnosis and design that included both the physical and the social structure of Nieuwe Westen and Middelland. With this approach the problems of the current public life and the structural problems of the urban fabric are taken into account. If only public life studies would have been executed the structural problems in the urban fabric might not have been detected and therefore could not have been taken into account. Because PLS trough direct observation is mostly used on the human scale, the link between Urban Morphology and PLS cannot easily be made on the scale of a region, city or district. However, with the knowledge of the urban (typo)morphology of a neighbourhood in mind the use and behaviour of people in a certain place can be linked to the structure of a place on a higher scale. This made it possible to see how physical characteristic of a neighbourhood can affect public life. The FOP scheme helped to point this out with the approach that the understanding of the form of the city can be received trough UMS and understanding of the operation and performance of the city can be received trough PLS.

Because the FOP scheme was used, the desired performances for a neighbourhood were formulated. These performances were needed to value the results of the analysis to make a diagnosis. The performances were used as a kind of design brief in the design process.

The FOP scheme was also important to keep in mind during the design process to make the designer aware of the consequences of a certain form on the operation and performance of a place.

The design includes different typologies and creates different atmospheres which can improve life for the current residents while still attracting new residents. The car street is for example comparable with the current atmosphere in the neighbourhood, while the route and living street create new atmospheres. And furthermore most design interventions will probably improve the quality of life of the current and future residents, because they intend to improve the overall performance of the neighbourhood. The public life studies made the designer aware of the importance of the implementation of the design. Therefore a possible implementation plan is formulated to make sure that the new design will not have a negative influence on the quality of life of the current residents.

The design that is made only takes into account a small part of the area Nieuwe Westen and Middelland. However the design can show the municipality a way to implement their policy for Nieuwe Westen and Middelland in a spatial way that includes the interest of the current population. Besides that the research on location 2 shows that the research and design approach can also be implemented in the other neighbourhoods of Nieuwe Westen and Middelland.

2. REFECTION

This graduation project attempts to bring together Public Life Studies and Urban Morphology Studies to improve the quality of life in a neighbourhood. To structure the results on the research of both fields the Form Operation Performance method of Ali Guney was used. In this chapter there will be reflected on 6 different aspects. The first aspect is the reflection on the used method.

Aspect 1: Method

The method contributed to the structuring of the results of the literature review that has been done on both field of inquiry. The method gave an overview that made it more easy to compare the scale and aims of the studies of the research fields.

Furthermore the method was used in a different perspective. The FOP scheme describes an artefact trough its form, operation and performance and their interrelation. In this project understanding of the form of the area was perceived through the study of the Urban Morphology and the understanding of the operation and the performance of the area was perceived trough the study of public life.

To value the results of the studies, the desired performances for the urban environment were determined. With the determination of the desired performances it was possible to design the operation and form of the new plan.

There was also a struggle with using the FOP method during this project. Using the method during the analysis of the project location was complex, whereas the urban fabric is a complex matter. When a single object is analysed with a certain performance in mind, the FOP scheme makes it easy to compare the object to another object with approximately the same operation. Analysing the complete project location by using the FOP scheme would be extremely difficult, because you would need to describe every tiny detail of this complex environment separately. Because I became aware of the impossibility to analyse and describe every detail of an urban environment I used the method with the other three perspectives.

So the FOP scheme was useful to frame the analysis with the described performances. And furthermore in the concluding phase to combine the Form analysis with the Operation & Performance analysis to draw conclusions. The FOP scheme was also useful to structure information and to make a designer aware of the link between the form, operation and performance of an object. However using this scheme to clarify the interrelation of the form, operation and performance of every element of a larger urban environment is not feasible, because of the complexity of the urban fabric.

Aspect 2: the relationship between research and design

In this project the analytical research determined the design location and the amount of interventions needed at this location. The analytical research pointed out the weak and strong points of the location. The results of the analysis were valued to draw conclusions by the performances defined by theoretical research. These performances were used as requirements for the new design and therefore were also used to improve the quality of life at the location. During the design process the performance of the possible design solutions was evaluated by experiencing their form and atmosphere in impressions and 3D models. Therefore there was a direct relation between the theoretical and analytical research and the final design. However from the result of the theoretical research on the performances was not a complete guide on how to design a good performing neighbourhood. At several points in the design process choices has to be made without having a direct support from literature. Therefore the design an interpretation of the designer of results derived from the executed research.

Aspect 3: the relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object)

The project focused mainly on the physical urban environments and its psychological and socio-cultural structure. The project researched the relation between the physical urban environment and its psychological and social structure. The research group 'Design of the Urban Fabric' also relates, among other things, to the physical urban environment and to its psychological and socio-cultural structures. Within the research group the relation between the two structures is also studied.

This project intended to improve the living environment by linking the observation of public life with the analysis of the urban morphology. The project aim of this project was to gather and link the information about the public life and the Urban Morphology to design a more vital and socially safe urban environment for the current and future residents in Nieuwe Westen/Middelland. This relates to the aim of the project group to create a sustainable and vital urban environment, because this project partly shares this aim with its goal to create a better living quality in the area. ("Research introduction," 2015)

Aspect 4: the relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework

This project uses several methods that are common in the methodical line of approach of the research group design of the urban fabric. This project combines the urban morphological analysis with observing behaviour by linking research and design trough the described performances. These performances can be seen as a type of patterns. The use of patterns, urban morphological analysis and observing behaviour are method used by the research group.

Aspect 5: the relationship between the project and the wider social context

The municipality wants to attract more promising families towards Nieuwe Westen. Attracting people with a higher economic capacity could mean that the current residents will have to move to other places or that the current residents will have to cope with the living standards and wishes of their future neighbours. In the past urban renewal projects of problematic neighbourhoods attracted new residents with a higher economic capacity, but at the same time there was not enough capacity to house the original residents again. In Nieuwe Westen and Middelland the target group of the municipality would probably life in bigger housing units than the current population. That would mean that, with the current housing stock, residents of the current neighbourhood will have to move out. If this problem could be solved by creating extra housing it is still interesting to see if the needs of the current and future groups meet. Improving the neighbourhood for the target group does not necessarily mean an improvement for the current population. This project deals with these aspects by trying to improve the neighbourhood for current and future residents. And tries to implement the project is such a way that current residents will not be forced to leave their houses.

An other important point is that it is definitely not easy for the municipality of Rotterdam to reach their goal with all the different stakeholders in the neighbourhood. In a recent article there is stated that Woonbron(housing corporation) does not want to co-operate to sell their social renting houses for bigger family houses but sells them to a investor who will make small (rent)apartments of the houses. To complete their goal they have to show other stakeholders the advantages of the program for them. This project gives an image of what the neighbourhood could look like, which is needed to get all stakeholders involved. To improve a neighbourhood the municipality and the housing corporations have to work together to create the best possible outcome for the population of Rotterdam.

Aspect 6: The role of the urbanist

The role of the urbanist within this project is to show how the desires of several stakeholders can be translated into a spatial plan based on theory. The design in this project gives an example of how a policy of the municipality can be translated in a spatial plan that takes into account the urban morphology and public life. However the design is not a final product that is ready to be implemented. But the plan and approach can be an eye-opener for the municipality, stakeholders and residents to see the potential of the design location and the area Nieuwe Westen and Middelland. If the current plan would be implemented, the voices of all stakeholders and residents need to be heard (the central square could also be a big sports square or a market with different amenities if that is what the residents are missing in their current environment). But in the case that the plan would be implemented, the urban designer should communicate the used approach to the architectural designers to make sure the intention of the plan will succeed. This does not mean designing and determining complete facades and buildings, but making other designers aware of the consequences of the design on the performances of the neighbourhood.

When the role of the urban designer of this project is placed in a broader perspective it would concentrate on the following aspects:

- Defining the design brief (diagnosis).
- Advisory intermediary and designer (giving an example of a possible spatial implementation).
- Guardian of the urban quality (make sure the approach will be used in further design phases to guarantee a successful urban environment).

APPENDIX

Appendix 1: ANALYSIS OF THE PROGRAM KANSRIJKE WIJKEN OF THE MUNICIPALITY OF ROTTERDAM

The municipality wants to make Rotterdam an attractive city to life in with a strong economy. The strong economy is needed to invest in an attractive city for living, working and staying for residents and visitors. And the other way around a high quality of life will contribute to a favourable business climate. To reach this goal the municipality wants to attract more 'promising families'. Therefore they have started the project 'Kansrijke Wijken' and selected nine 'promising neighbourhoods'. They have started with the program in 2015 with a catalyst project in three neighbourhoods, namely Nieuwe Westen, Middelland and Oude Noorden. The goal of the program is to make these districts more attractive for promising families, wherefore the share of promising families in these neighbourhoods will rise with 10%.

As input the program 'Kansrijke Wijken' the municipality used KIWI(child friendly neighbourhoods), the outdoor playing norm, talks with corporations, intern deliberation within the clusters and talks with the district organisation.

This program will be analysed and discussed in this appendix which will hopefully give a more clear view on what interventions the municipality thinks are necessary in these neighbourhoods. First there will be discussed what the municipality wants , then how they want to reach their goals and at last there will be discussed who is responsible for the program and who will execute the program.

1.1 What?

1.1.1 Main goal

In a ring of nine districts around the centre, the average share of promising families will rise by 10.0%
1-1-2015: 9,2 %
1-1-2016: 9,4 %
1-1-2017: 9,7 %
1-1-2018 (end) : 10,0%

1.1.2 Target group

The target groups that have been appointed by the municipality that can strengthen the city are students, young professionals, promising families and empty nesters. For this program they focus on promising families. They describe the promising families as follows: A promising family is a family with at least one child under 18 years, with no parent that receives social assistance living in a house that has a WOZ-value of at least 160.000 euro. In case one of the parents is subscribed at the UWV this parent has at least an HBO diploma.
The people within this target group will also 'fit' one of the SmartAgent lifestyles. Because the people within the target group are families with kids it would be plausible that they do not fit in the red or the blue lifestyle. The yellow or green lifestyle would be more logical. This would not match with the prevalent red life style in the area.

1.1.3 Location

The selected catalyst neighbourhoods are Nieuwe Westen, Middelland, Oude Noorden. According to the municipality the strong points of these three locations are the quiet urban living climate, the amount of pre war housing and that they are located close to city centre.
Weak points of these three locations are the unilateral housing, the waiting lists for popular schools, the insufficient outdoor playgrounds and the stony outdoor space.

1.1.4 Ambition

Ambition 'Kansrijke Wijken': To accelerate positive development in realizing an attractive living environment.

1.1.5 Assumptions

Assumptions program promising districts: 'The promising districts program will accelerate and strengthen the initiatives of parties and residents. This will make the district more attractive for the target group and will structurally strengthen the investing capital. Besides that the program promising districts will provide a targeted approach.'

1.2 How?

The municipality will set up citywide programs which are an combination of collecting needs, ideas and plans from the neighbourhood and the market. They also want effective and integral focusing of the municipal efforts in the nine neighbourhoods. The municipality has made 4,5 million available for this project. An overview of the different programs clustered per project will be given below.

Figure 1: Overview of the programs that are included in the program 'Kansrijke Wijken'.

1.3 Who?

The administrative client of the municipality of Rotterdam is alderman Schneider. The head of the department City development is responsible for the execution of the project. The daily management will be the responsibility of the project team with representatives of all the clusters.

To organize the participation in the districts, the campaign 'Opzomer mee' and citylab010 are used. 'Opzomer mee' is a campaign that is well known by the target group which makes participation possible without directly contacting the municipality. Through citylab010 residents will come into contact with the program 'Kansrijke Wijken'.

1.4 Used Terms

In de program the municipality uses several terms that need more explanation to make clear what the municipality exactly wants to reach with the program. The municipality overall wants to increase the quality of life. Furthermore there can be found a few spatial ambitions. The municipality wants to create a more green outdoor public space and school yards. They want to create dream streets without traffic to create opportunities for the residents to use the street for activities and recreation. To know what the municipality intended by these three terms they have to be defined more clearly.

1.4.1 Quality of life

Definition

The municipality describes quality of life as a high quality of living and housing. But without a further description of the term 'quality of life' it is hard to measure the how the program will influence the quality of life. The quality of life of people in a neighbourhood is influenced by many physical, economical and social factors. By measuring quality of life the term livability is often used. Machiel van Dorst describes that the quality of the match between people and their living environment is known as livability. (2012, p. 223) In their urban design manifesto Jacobs and Appleyard describe liveability as follows: 'A city should be a place where everyone can live in relative comfort. Most people want a kind of sanctuary for their living environment, a place where they can bring up children, have privacy, sleep, eat, relax, and restore themselves. This means a well managed environment relatively devoid of nuisance, overcrowding, noise, danger, air pollution, dirt, trash, and other unwelcome intrusions.' (Allan Jacobs & Appleyard, 1987, p. 115) According to this definition area the unwelcome intrusions have to be reduced and the living environment should be more suitable to bring up children, have privacy, eat, relax and restore themselves to increase the quality of life in the area.

Current Situation

In the district profile of Nieuwe Westen people do not seem to be very happy with their living environment. The valuation of the living environment is below the average of Rotterdam. Besides that the amount of residents that experience problems in their neighbourhood is higher than in other neighbourhoods. (Gemeente Rotterdam, 2014b) At last also the amount of vandalism in Nieuwe Westen is higher than average. (Gemeente Rotterdam, 2014b) In Middelland the valuation of the living environment of the residents is also lower than the average of Rotterdam. The amount of problems the residents have in the neighbourhood is also higher than average. (Gemeente Rotterdam, 2014b) At last many residents experience nuisance of drugs (use). (Gemeente Rotterdam, 2014b)

Future situation

There is room for improvement of the two districts. The causes of the negative valuation of the residents have to be found to improve the future situation.

1.4.2 Green outdoor public space

Definition

The municipality wants to make public space more green. To understand what is exactly meant by green outdoor public space a possible definition will be given.

Public space is the open and public space that is needed for the network of roads, streets, squares, parks, watercourses and lakes and for the accessibility of buildings, for traffic, transport, water management and utilities. The size and form, the planting, the amount of water, the materialisation, heights, lights and street furniture are all important factors of public space that play an important role in how some perceives a city. (Meyer, Jong, & Hoekstra, 2006, p. 9) The green outdoor public space will then be the grass, plants and trees in parks, the trees and shrubberies at streets and roads, the lawns along streets and parks, and other plants in public space. To measure if the amount of green outdoor public space will increase we need to know more about the current situation.

Current situation

If you take an average street in the two districts Middelland and Nieuwe Westen it would probably look like the illustration. The public squares in the two districts have completely different amount of green. The Heemraadsingel between the two districts is a completely green park. The Johannes de Vouplein is totally the opposite. There are just a few trees and the rest is of the square is made of stone and has a grey atmosphere.

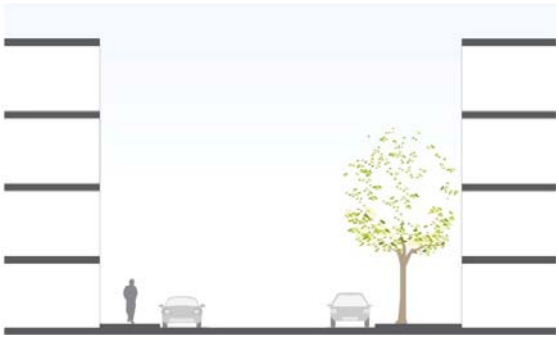

Figure 2: Average street according to morphological analysis

Future situation

A more green public space can be measured by the current and the average situation. If a new design or situation has a greater share of green than both you could say that the goal of a greener outdoor public space is met. But there will always be questions left to be answered like: Is it the ambition of the municipality to create kind of forest streets or do they for example want more trees and green parking places? Or can the green space of a park compensate for a complete street around the corner?

1.4.3 Green school yards

Definition

The municipality wants to create more green schoolyards. There have been done several studies about the possible positive influence of nature on children. Agnes van den Berg reviewed a few of these kind of researches, she describes the results in the report 'Kom je buitenspelen'. She concludes that the importance of green in the living environment of children for their motor development, physical (in) activity and the prevalence of overweight is best substantiated in research. (Berg, 2007, p. 5)

The research that has been done therefore gives an argument for the greening of schoolyards. In the Netherlands there are several organisations that contribute to greener schoolyards like Jantje Beton, Fonds 1818, Springzaad, Alterra and Municipalities. Fonds 1818 gives the following definition for a green schoolyard: '*A green schoolyard gives children a chance every day to a nature experience and offers opportunities for nature education. A green schoolyard brings creativity, tranquility, discovery and experience together. Besides that green schoolyards contribute to the biodiversity in the built environment. This variety in plant and animals species is important for the balance of nature*.' (Fonds 1818)

In Rotterdam there has been done a research on the effects of green schoolyards. In the report 'Groene schoolpleinen, wat levert dat op?' they investigated the effects of the greening of four schoolyards in Rotterdam. The most important conclusions from these four schoolyards were that:

- The greening of a schoolyard is not necessarily successful. The greening has to be done careful. Case studies can help to see what does, and what does not work.
- When a schoolyard has been successfully made greener the social climate will also improve.
- It is hard to find empirical evidence of the effect of a greener schoolyard on the well-being of children.
- There has been found no positive effect of the nature attitude of children. (Alterra et al., 2013, p. 2)

Current Situation

The current schoolyards in Nieuwe Westen and Middelland are fully paved with some trees. There is currently no schoolyard that can give sufficient opportunities for nature education. The Heemraadsingel, which does not contain schoolyards, is probably the most green place where children can play in the area. Therefore the schoolyards in the area could definitely become greener to give children a chance to experience nature every day.

Future situation

The design of the future situation can be compared to the current situation. From research it becomes clear that reviewing other similar projects can help to see what will work at a schoolyard and what will not. Simply adding some plants and trees will not necessarily improve the environment for children.

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Appendix 2: A LITERATURE REVIEW ON THE FIELD OF PUBLIC LIFE STUDIES AND URBAN MORPHOLOGY

2.1 Introduction

This literature review discusses the history and the different approaches within the field of Public Life Studies and Urban Morphology. Because there has been written little about Public Life Studies(PLS) compared to the field of Urban Morphology the review of Public Life Studies also includes several studies that have been executed in practise to complement the information of the different groups.
The review of PLS is mostly based on the overview given by Jan Gehl and Brigitte Svarre. The review on Urban Morphology is mainly based on Moudon, but also includes other points of view of Cortes, Conzen, van den Burg.

2.2 PLS

2.2.1 History of Public Life Studies

In 'How to study public life' Gehl and Svarre give an overview of the most important works and the history of Public Life Studies. Since PLS is a very young academic field there has been written little about its history compared to for example the field of Urban Morphology.
In the nineteenth century cities began to grow rapidly because of the industrialization. Because there was a lot of migration towards the city, cities needed to expand in a very fast pace. The focus of the industrialization on efficiency resulted in more rational approaches to urban building. This modern approach, which focused on rapid urban growth, was the dominant ideology around 1950. One of the influential architects of that time, Le Corbusier, for example argued for a break with the dense traditional city. (Gehl & Svarre, 2013, p. 42)

The rapid economic development also drove the explosive growth of car traffic. The growing importance of the car in the urban fabric also broke with the traditional dense structure of medieval cities. With this growing importance of the car the attention for the pedestrian decreased. The modern architecture was more focused on how you experience the city with the speed of a car than how you experience it walking as a pedestrian. (Gehl & Svarre, 2013, pp. 42,43)

Together with the march of the car the urban density decreased. At the beginning of the 20th century the housing stock was modernized to make an end to the unhealthy overpopulated cities, that were a result of the significant migration towards the cities. The new houses were bigger and the amount of residents per housing unit shrank. Together with the dominance of the car this resulted in cities with a lack of human scale. (Gehl & Svarre, 2013, pp. 42, 43)

Around 1960 writers began to criticize the modern cities and they advocated to bring back pedestrian street life in the car dominated modern cities. It became clear that public space and public life did not work automatically, but that they are influenced by for example population density and physical frameworks. To bring back life on the streets in the modern cities public life was studied. This was the start of Public Life Studies as a specialized field. (Gehl & Svarre, 2013, p. 45)

From mid 1980 till now Public Life Studies were introduced more in practice, because urban planners and local politicians also became more critical of new planned environments like the important writers in the sixties. (Gehl & Svarre, 2013, p. 63) In the 1980s Public Life Studies focused more on security. From 1990 Public Life Studies were also focused on sustainability and from 2000 more on health. Since the last 5 years PLS began to focus on livability. Although incorporating public life in policies and projects has become increasingly widespread in the 21st century, Gehl and Svarre state that this does not mean that the studies or similar forms of systematic planning are carried out before projects are launched. (2013, p. 70)

There are several 'groups' of writers, urban planners and architects who have made a major contribution to the field of Public Life Studies since 1960. These groups and a few of their most important contributors, findings and ideas are mentioned below.

New York

William Whyte and Jane Jacobs, who both played an important role in the field of Public Life Studies, did most of their observations in the city of New York. Furthermore Lewis Mumford has had an big influence in New York.

Although most writings of Lewis Mumford date from before 1960, his ideas were influential and therefore interesting to mention in this group. Lewis Mumford was an important American critic in the 20th century. He argued that wherever possible, planning decisions should be made at the local level, by those most directly involved in the results of the decisions. (Muller, 1989, p. 296) He also stated that the city does not exist for the constant passage of vehicles, but for the care of culture and man. (Muller, 1989, p. 478) Therefore he fought against the expressways of Robert Moses, the most influential city planner in New York at that time.

William H. Whyte observed people and used time-laps photography to map the paths of pedestrians. He wrote that the quality of life of an individual and the society is influenced by the social life of public spaces. He believed that observing people can gather the knowledge needed to create places that form liveable communities. (Project for Public Spaces) Before Whyte turned to issues of urban revitalization and urban sprawl he already had a big audience as a

writer. His book The Organization Man (1956) sold over two million copies. (Project for Public Spaces) Therefore it is not strange that he played an important role for PLS with his later writings like 'The Social Life of small Urban Spaces'. In 1975 Project for Public spaces, a nonprofit planning, design and educational organization which helps people create and sustain public spaces that build stronger communities, that expanded on his work, was founded. (Project for Public Spaces)

Although Jane Jacobs was not professionally trained as a urban planner, Jane Jacobs has had a great influence as a journalist on the field of urban planning. Jacobs used observations to show how and if a place works and what can be done to improve it. She noted that the policies of governments often do not match the reality of neighbourhoods and argued that a high concentration of people is needed for city life, economic growth and prosperity. She based her writings on her observations and examples. (Project for Public Spaces) In 1961 she presented her observations in 'The Death and Life of Great American Cities'. With this book she challenged the in that time dominant modernist planning. Besides her writings Jacobs is also known as an urban activist. With the Joint Committee she successfully stopped the plans to build a highway trough Manhattan's Washington Square Park and West Village. (Project for Public Spaces)

With the work of Whyte and especially Jacobs the arise of the field of PLS in New York can be seen as a real protest against the modernist top-down planning in New York.

Berkeley

In the early 1960s the University of California at Berkeley created the first College of environmental design.(Moudon, 2003, p. 372) Therefore it is not strange that a lot of important writers for the field of Public Life Studies, like Donald Appleyard, Christopher Alexander and Allan Jacobs, Peter Bosselman, Margeret Crafford and Clare Cooper Marcus were or are engaged to this University.

With his book 'Livable Streets' Donald Appleyard showed the influence of traffic on residential streets. He proved that traffic negatively influences the quality of life on a street. He expanded the scope of urban design with looking at it from the perspective of social sciences. Appleyard was one of the first that used image mapping as a research tool. (Project for Public Spaces)

Christopher Alexander is an architect and professor. He criticizes the modern architecture. In the documentary 'Places for the soul' he shows how modern architecture eliminates emotion. He states that buildings should be shaped by the way people live and that life cannot be produced from a drawing, but that life can only be produced from a process. With his book the pattern language he explores the patterns of people's daily interactions with places. It proposes solutions to common architectural problems. ("Places for the Soul, The architecture of Christopher Alexander," 1990) Christopher Alexander did not only want to learn from the behaviour of people in public space. He wanted to let users design themselves because according to him they know more about buildings and cities than architects and planners. (Gehl & Svarre, 2013, p. 53)

Allan Jacobs uses observations in his research to study what does work and does not work on existing streets. He encourages others to use these Public Life Studies to improve street design. In his book 'Great Streets' he analyses great streets in detail. With this study he identifies the factors that turn streets into successful public places. (Project for Public Spaces)

Peter Bosselman is a professor of Urban Design at the UC Berkeley. He is the director of (environmental) Berkeley laboratory. (UC Regents, 2015b) In this laboratory they build models of city environments to study the impact a planned building might have on the experience of the surroundings. Developing a technique that gives a realistic view on how people experience the city took many years. (Gehl & Svarre, 2013, p. 56) According to Gehl and Svarre, Bosselman's main contribution to the field of Public Life Studies stresses the experience of the city in movement, and how the city can be designed so that the physical frameworks support local climate conditions instead of working against them. (2013, p. 57)

Margeret Crafford is also a professor at the UC Berkeley and she teaches, among other things, urban design and planning focusing on small-scale urbanity and postmodern urbanism. (UC Regents, 2015a) Her work Every day urbanism introduces a concept that encourages the close investigation and empathetic understanding of the specifics of daily life as the basis for urban theory and design. (UC Regents, 2015a)

Clare Cooper Marcus is also a professor at the UC Berkeley. Marcus has conducted many open space studies and evaluations of place design and use, and she is particularly interested in distinguishing elements of public spaces such as the gardens around hospitals, care facilities, and public housing estates. (Project for Public Spaces) As a student in the 1960s, she began studying the public realm and the built environment with a social science research methodology. Through interviews and observation, she conducted post-occupancy evaluations of several housing schemes. (Project for Public Spaces)

When you look at the amount of important writings and contributors that are linked to the UC Berkeley, you can state that they founded a solid bases for the field of PLS. Studies like in the environmental laboratory have a slightly more technical background then the group of New York, but Crafford for example points out the more elusive side of Public Life Studies with her work 'Every Day Urbanism'.

Denmark

Where the other groups have multiple important contributors the main contributor in Denmark is still Jan Gehl. Jan Gehl is a professor of Urban Design at the School of architecture in Copenhagen, Denmark. His first book, Life between buildings, was published in 1971 and his last in 2010, so he has been an important contributor to the field for over forty years now. In 2000 he founded 'Gehl Architects' together with Helle Søholt. With this bureau he has been involved in many international projects. (Gehl Architects) In studies Gehl worked together with many students and other professionals, but there has not been a person yet who stood up in Denmark to 'compete' with Gehl. Therefore it is hard to call the tradition of PLS in Denmark a real group. But because Gehl and all his students and colleagues is and has been such an important contributor, especially in spreading the idea of PLS, he should be include in this review.

2.2.2 PLS in practice

Since the mid-twentieth century Public Life Studies became more important in practice. A few examples of executed Public Life Studies of Berkeley, New York and 'Denmark' are discussed below to review their aim and methods. The role of the Urban Morphology will be addressed were possible.

New York

William H. Whyte (1980)

In his movie 'The social life of small urban spaces' Whyte answers the question: 'Why do some plazas work and others not?'. To answer a part of the question he observes how many people are sitting at fifteen different plazas. He ranks the plazas and combines the sitting data with amount of open space, amount of sittable space, male/female ratio, elevation and more. By combining these data he concludes that People tend to sit where there are places to sit. The observation of the use of the three plazas alone would not be enough to draw a reliable theory on this matter. By comparing the form of the squares the data of the Public Life Studies get a certain value. (Whyte, 1988)

Project for Public Spaces (1981)

Together with Whyte PPS restored the Bryant park in New York. To get grip on the current situation they used interviews, activity mapping and videotaping. With this analysis they got information about the working of the park. They recommended to open the park by removing hedges and opening up the constricted entrances to put an end to the isolated image of the park. They also added food and beverage kiosks. (Project for Public Spaces)

Berkeley

Donald Appleyard (1981)

The increasing amounts of cars in the last century was the reason for Appleyard, together with Mark Lintell to study the effect of car traffic on life in residential streets. They chose three physically similar residential streets with different amounts of traffic. They observed the activity patterns of the street and interviewed residents about their acquaintances in the neighbourhood and where they gather on the street. They marked the results on street maps. The study showed that there was clearly more social life on the streets with the least amount of traffic compared to the street with a great amount of car traffic. In this case, the study itself helps to form an overall prevailing theory about car traffic in residential streets. The difference in physical parameters of the street are not taken into account in this study. (Gehl & Svarre, 2013, p. 115) Therefore the knowledge of morphology is needed to totally exclude it from influencing the results of the study.

Alan Jacobs (1994)

Together with Yodan Rofé and Elizabeth Macdonald, Jacobs studied boulevards to illustrate the physical complexity, richness of the boulevards as a setting for human interaction and the complexity of movement patterns on boulevards. For this study they used different PLS methods. They counted pedestrians and traffic, they mapped the behavior of users and used time-lapse photography and filming. Further they made measurements of the physical qualities of the boulevards. To draw conclusions from the gathered data they compared the physical characteristic of the boulevards with the behaviour of people on the boulevard.
In this research the knowledge of the form plays an important role to help drawing conclusions from the observations. (Jacobs, Rofé, & Macdonald, 1994, pp. 7,13)

Peter Bosselman (1997)

Together with Elizabeth Macdonald, Bosselman researched the environmental quality of multiple roadway boulevards. To test their four hypothesis they use several methods. They studied three streets: A high-traffic residential boulevard, a high-traffic residential street with the same amount of traffic as the center roadway of the boulevard and a low-traffic residential street with the same amount of traffic as the access roads to the boulevard. Besides the use of observations at a block of each street they do multiple case studies to compare the situations. They use these comparisons to see how the traffic interacts with physical variables. (Bosselman & Macdonald, 1997)

Denmark

Jan Gehl (2003)

The studies of Gehl often try to solve a specific problem at a specific place. In his book 'How to study public life' a lot of his own studies are shown. In one of his researches he studies the life in front of open and closed façades. For his study he chose several areas which have open and active facades with further down the street the opposite. The life along the facades was studied by counting the number of pedestrians, their speed, how many stopped or went in or out a door and how long their activities lasted. The time of the year, day and time where also noted to prevent the timing from influencing the results. The study showed that there was more activity in the parts with open facades than in the parts with closed facades. (Gehl & Svarre, 2013, pp. 104,105) In this study the knowledge of the public life in combined with the knowledge of different types of facades.

2.3 Urban Morphology Studies

Moudon describes three different schools of Urban Morphology, namely the French, English and Italian. In 'the Urban Analysis Guidebook' Leo van den Burg describes the Dutch tradition of analysis of the urban form. Camila Eugenia Pinzon Cortes also includes the studies in the Netherlands in an overview of the Urban Morphology tradition in his thesis on mapping urban form. Whitehand does not include the Dutch tradition, but he incorporates the North American tradition. In the literature review these five groups are discussed. A literature review per tradition is given below.

Muratorian School (Italian)

The Italians were the first to develop detailed morphological studies. (Cortes, 2009, p. 43) Around 1940 the Italian school of Urban Morphology was 'established' by Saverio Muratori, one of the pioneers of the study of typomorphology of the urban form. (L. van den Burg et al., 2004, p. 18) Muratori argued the modernist buildings. He saw that the roots of architecture do not lie in the fantastic projections of the modernist, but within the more continuous tradition of city building which prevailed from antiquity until the 1930s.(L. van den Burg et al., 2004, p. 18) In the eyes of Muratori the structure of cities could only be understood historically with building typology as the basis of urban analysis, while modernism was based on intervention of the scale of the master plan and ignored the way cities had been constructed over time.(Cortes, 2009, p. 43; L. van den Burg et al., 2004, p. 19) As an teacher in his architectural design studios, Muratori made the morphological study of existing cities a mandatory step. He was the spiritual father of influential architects like Aldo Rossi and Aymonino, who spread out their ideas and the discussion internationally. (L. van den Burg et al., 2004, pp. 18,19) (Cortes, 2009, p. 43)

His most important successor was Gianfranco Caniggia. Caniggia explains the human environment as made of 'built objects' all related one to the other. These built objects can be identified at four scales: the building, the group of buildings, the city and the region. (L. van den Burg et al., 2004, p. 19) He describes a built objects as a complex entity made of elements, structures, systems and organisms. According to this description he sees the environment as an organism made of components that are also organisms. (L. van den Burg et al., 2004, p. 19) Even though Muratori and Caniggia discussed different scales of the built environment, their observations concentrated on the building type, which is considered the basis for the formation of the urban tissue and of the city. (Cortes, 2009, p. 43)

Although Muratori and Caniggia had a big influence on the architects of their time, they do not completely share the same ideas with these architects about the approach of design theory. Aymonino, Rossi and their colleagues for example thought that in creating a new design, they were free to interpret the historical city as they wished.(L. van den Burg et al., 2004, p. 24) This approach does not agree with the one of Muratori and Caniggia which design theory rested entirely on the history of city building and analysis. (L. van den Burg et al., 2004, p. 24)

Conzenian School (English)

Around the 1930s Conzen developed a British tradition of morphological urban studies. (Cortes, 2009, p. 47) Conzen was originally trained as a geographer which probably lead to his more structured approach. His strict focus on research intended to describe, analyse and explain how urban form is made. Because his main concern did not lie directly on the future city and its design he could concentrate fully on studying the actual city, the process for building it and on developing methods for analysing it.(L. van den Burg et al., 2004, p. 26) His research focussed primarily on the reading of the town plan, the building fabric and the pattern of land and building utilization.(L. van den Burg et al., 2004, p. 27) Conzen identifies three fundamental elements of the town plan: the streets, the plots and the buildings. (L. van den Burg et al., 2004, pp. 27,28) He uses the individual plot as the fundamental unit of analysis. (L. van den Burg et al., 2004, p. 28) Furthermore Conzen introduced the concept of the compositeness of the town plan. This plan is made of different plan units which describes the variations in the forms, uses and configurations in different parts of the city. (L. van den Burg et al., 2004, p. 28)

Recently the aim of a large amount of studies within the Conzenian School is to examine what Conzen called 'the townscape'. 'The townscape' is a combination of the town plan, building forms and land use. The town plan contains streets and their arrangements in a street system, plots and their aggregation in street blocks, and buildings or more precisely block-plans. (Cortes, 2009, p. 49) The homogeneity of elements in this combination defines what Conzen calls 'plan units'. Thus a 'plan unit' is an individualised combination of street plots and buildings. (Cortes, 2009, p. 49)

Another important concept of Conzen is the fringe belt. This concept explains urban development in relation to cycles. When there is stagnation in the residential expansion of such a cycle, fringe belts appear. Fringe belts are areas located contiguous to previous residential expansion areas that start accommodating different functions that usually require bigger surfaces or are otherwise hard to match with residential areas like industry, universities or hospitals. (Cortes, 2009, p. 49)

Versailles School (France)

The French school was influenced by the approach of the Italian school. It followed the idea of Muratori that modernism had created an unrecoverable break from the past and that the roots of architecture had to be rediscovered in past traditions. (L. van den Burg et al., 2004, p. 32) In contrast to the Italian school in France various disciplines (sociologist, historians, geographers, architects and planners) worked together to achieve an improved understanding of the city.(L. van den Burg et al., 2004, p. 32) They studied urban patterns by looking at the relation between the urban reality and the ideas and theories of urban design and form. (Cortes, 2009, p. 45) Their principal claim is that the understanding of architectural and urban form is an legitimate and effective means to understand a society. (Cortes, 2009, p. 45)

While the Italians focus on the period before the modernist building and planning the French also take a close look at modern cities. In their idea of evolution in patterns, types and forms modernism is also part of one of the lines of this evolution. Thus in this evolution the historical city is not the only homogeneous type of city but it compiles a variation of types and models that evolve in different directions. Therefore they are interested in the development and diffusion of different architectural models. (Cortes, 2009, p. 47)

Dutch tradition

In 'The Urban Analysis Guidebook' van den Burg discusses the Dutch tradition in urban analysis. Cortes also includes the Dutch tradition in his thesis. In his review he includes the Dutch studies because they incorporate different elements, like the layered approach, that have not been addressed by others. (Cortes, 2009, p. 49) There are several publications that van den Burg considers reflecting a specifically Dutch tradition. One of these publications is the LAS book by Rein Geurtsen, Bernard Leupen and Tjallingii. This book was also the first important publication. The objective of this book is to provide a toolbox for the analysis of spatial objects at all scale levels for the house and building to the city and the region. (Cortes, 2009, p. 50)

Contrary to other cases the Dutch did not develop many detailed typo-morphological studies but they used the approach more in relation to design. (Cortes, 2009, p. 49) Corresponding with this approach the 'plan analysis' was developed at the faculty of architecture of the TU Delft. (Cortes, 2009, p. 50) The plan analysis is a form of research that investigates the design as a result of a process in which particularly the approach and the design method of the designer are central. The plan analysis focuses on naming and clarifying of essential features in the spatial composition which have to do mainly with the specific position and methods of the designer. (Cortes, 2009, p. 50)

As noted before the studies in the Dutch approach have a clear design orientation. Cortes notes two directions in this orientation. The first direction is that most common studies are often an analysis of a specific area which leads to a design, vision or scenario. The second direction in this orientation is that the research does not directly need to deal with design but deals with understanding designers interventions. (Cortes, 2009, p. 50) Techniques like reduction, addition and disassembly are used to extract the essential aspects from the plans or projects in order to reveal certain logic and structure trough the drawing process. (Cortes, 2009, p. 50) The morphological study of an area in the Dutch approach involves also aspects like, townscape, perception, representation of paths and primary elements. These elements are mapped in reduction drawings that attempt to represent the spatial structure of the studied area. (Cortes, 2009, p. 50) The Dutch studies also emphasize the identification of patterns. The recognition of patterns defines 'homogeneous areas' that share the same pattern, historical evolution and formal configuration and therefore can be decomposed geometrically and hierarchically to reveal the spatial structure of such an area. (Cortes, 2009, p. 51)

North American tradition

In his book 'The changing face of cities' Whitehand states that the most research on the field of Urban Morphology comes from three regions in the world: Central Europe, Great Britain and North America.(1987, pp. 2,3) According to Whitehand the American Urban Morphology had two strands, a cultural geography strand and a strand with a socio-economic perspective. The socio-economic strand that emphasized land-use studies influenced the British Urban Morphology. (Whitehand, 1987, p. 8) Cortes also addresses the North American tradition. He mentions that the study of the American city generated an important new theme which was not observed by the morphological studies in Europe, namely that of the perception. (Cortes, 2009, p. 54)

A specific morphological approach of the urban form came relatively late in America. In the beginning there was more interest in the esthetical character and the (economical) development process of cities. In his article about the American urban form Michael P. Conzen, chairman of the committee on geographical studies, mentions that for many decades the American urban form was more the field for social critics than for detailed scientific study. This changed when geographers began the study the American city. He calls James Vance the first American geographer that integrated morphology in his interpretation of American urbanism. (Conzen, 2001, p. 2) After more relevant studies the notion of the built environment got more important to understand its development. (Conzen, 2001, p. 2) Because American cities are relatively young compared to most European cities it is not strange that studies on American cities are more focussed on their initial plan characteristics and underlying social-physical principles and not on its historical character. (Conzen, 2001, p. 3) Like Cortes, Conzen also mentions the perceptual dimension of Urban Morphology that has become more important in the study of the American form in the last decades. He also states that more 'objective' morphological studies have a tendency to leave human action implicit in the results being studied on the ground. (Conzen, 2001, p. 10)

Because of the rapid change of American cities its study of morphology is different from that of European cities. It is maybe a bit more unstructured but definitely not less imaginative than in Europe.(Conzen, 2001, p. 9)

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