THE ROLE OF RELOCATION DYNAMICS

A spatial strategy for the increase of liveability in dynamic urban neighbourhoods
GRADUATION REPORT

The role of relocation dynamics
A spatial strategy for the increase of liveability in dynamic urban neighbourhoods
The role of relocation dynamics. A spatial strategy for the increase of liveability in dynamic urban neighbourhoods

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Date: 12/03/2014

In support of:
MSc 3 Urbanism
PREFACE

Before you lies the graduation report: The role of relocation dynamics. A spatial strategy for the increase of liveability in dynamic urban neighbourhoods. This graduation project takes place within the studio of Urban Regeneration. This studio is part of the department of Urbanism within the faculty of Architecture of the TU Delft.
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Prior to this thesis plan, first a short description of a number of terms/concepts that will occur frequently in this study. These are terms that can be interpreted in several ways and therefore the descriptions that are relevant for this research are given.

**Relocation dynamics**
Relocation dynamics are the movements of people between homes. A neighbourhood can experience three kinds of movements. Moving out of the neighbourhood, moving into the neighbourhood or moving inside the same neighbourhood to a different dwelling. For this research we also take into account a fourth group, the people that stay in their neighbourhood on the same address.

**Liveability**
The meaning of liveability in the sector of Urbanism changed over time, due to views, from the perspective of health to a combination of social and physical factors. Three types of liveability are important for this research.

The apparent liveability is shown in the facts how long people live in their environment and how happy they are with this environment. This kind of liveability places the emphasis on the right ‘match’ (or interaction) between man and environment.

The perceived liveability, puts the emphasis on the valuation of an individual for his / her environment. The valuation of an individual for the environment depends on personal characteristics, experience, personal interpretations and needs and social and cultural context. The valuation refers to the usability, attractiveness and safety of the environment.

In contrast, the assumed liveability emphasizes the extent to which the environment meets the needs of the inhabitant. The relationship between the environment and the individual inhabitants is approached from the perspective of the environment.

**Social cohesion**
Social cohesion is the extent to which individuals or groups in society are connected with each other and feel connected (de Kam & Needham, 2003, p. 7). The geographical position in relation to other individuals and institutions is important for certain forms of mutual bonding. The influence of these spatial factors is not static and not equal for all citizens. Social cohesion can occur at different scales, such as a micro scale (household) or a on a higher scale within neighbourhoods.

Within small geographic areas, people should know each other well, meet each other regularly and interact in a friendly way. This is called neighbourhood-related cohesion. A second form of social cohesion is found in the bonds that exceed the limits of such districts. This non-neighbourhood related cohesion is called network cohesion.

**Place attachment**
Place attachment is generally seen as an emotional bond that an individual has to a place. Place may have any number of differing boundaries but for this study the attachment to the neighbourhood in which a person lives is meant.

**Priority neighbourhoods**
These are city neighbourhoods that were nominated within the ‘krachtwijkenbeleid’ (policy for priority neighbourhoods) from the ministry of VROM-WII (VROM 2007). This policy focused on the improvement of the living environment and
living situation. The neighbourhoods were nominated on several socio-economic problems and arrears.

**Urban Regeneration**

Urban regeneration can be interpreted in several ways. Mainly it is about changes in the urban tissue. Urban renewal is also often mentioned but there is a difference with urban regeneration. With urban renewal is meant the renewal of the city structure while the urban regeneration focuses on redeveloping. Regeneration became an important method of spatial intervention and today is a well established subject for design aimed at providing more lasting solutions. This project is therefore approached from the perspective of urban regeneration, where redevelopment is the central method, although renewal is not excluded entirely.
**INTRODUCTION**

1.1 Motivation
1.2 Problem statement
1.3 Research questions & methodology
1.4 Aim
1.5 Academic and social relevance
1.6 Keywords
1 INTRODUCTION

1.1 Motivation

Urban regeneration has always had the purpose of decreasing, solving or preventing the processes of neighbourhood decay. By that we mean neighbourhood decay in its broadest sense. (Kleinhans, Bolt, 2010, p. 5) The decay can be the result of both physical and social problems. The way people looked at approaching these problems changed over the years.

Urban regeneration as a process changed over time. In an early phase it was seen as a physical assignment. The primary goal was to solve physical arrears. In 1990 the cabinet Lubbers III presented the nota ‘Sociale Vernieuwing’, in which a set of measures was presented that had to tackle the big social problems in the Dutch cities. (Brouwer, Willems, 2007). This plan did not succeed that well which led to the conclusion that a more integrated approach was needed. This led to an approach which was a combination of the social and physical approach.

The integrated approach also became visible in the way of investigating. Later on the government investigated thoroughly to which extent physical and social problems were present in the Dutch urban neighbourhoods. This led to a list of criteria on which a neighbourhood can be examined and a list of the neighbourhoods that needed extra attention because of the presence of large physical and social arrears. (Brouwer, Willems, 2007) The so called ‘aandachtswijken’ (priority neighbourhoods).

The fact that a lot of attention is given to the priority neighbourhoods by governmental and local policies shows the need to improve the liveability in these neighbourhoods. But the ‘how to’ is still an ongoing discussion for the government and many municipalities.
1.2 Problem statement

The liveability in districts or neighbourhoods has been experiencing more and more pressure. Another important task for the cities in the Randstad concerns the lack of social cohesion and insecurity. In the structural vision for the Randstad (2040) these problems are addressed often which shows the importance of liveability in the plans from the government and municipalities.

As written in the motivation, problems with liveability are mainly present in priority neighbourhoods. Liveability is influenced by a lot of factors. The three main factors are social cohesion, physical quality of the living environment and safety (Knol, 2002). All of these main factors are consisting of several social and physical sub factors. When a neighbourhood experiences a bad liveability it therefore often means that the social cohesion, physical quality or safety are threatened.

While further investigating the possible causes for the problems in the priority neighbourhoods, local authorities pointed out a few factors that are common among these problematic priority neighbourhoods. Some were structural characteristics like homogeneity, presence of a large share of rental housing, a high density and a bad quality of the housing stock. But they also had some structural processes in common like too much momentum in the population composition, facilities or composition of the housing stock.

From further investigation it turned out that these priority disadvantaged neighbourhoods tend to have larger dynamics than other urban neighbourhoods. With dynamics I mean the movement of people between homes, also called migration or rehousing. In this research the term relocation dynamics is mainly used.

Although research proved that the large relocation dynamics are mostly to be seen in the disadvantaged neighbourhoods, this is in this case not seen as the direct cause of the neighbourhood decay. There are, for example, also a lot of neighbourhoods with large dynamics that do not have the presence of so many problems (van der Schaaf, 2008). Other reasons why dynamics are seen as positive are: it keeps the housing market dynamic and people can make their housing career because when people leave it means often that an affordable dwellings comes free for a new household to settle in. But does it affect liveability indirect by influencing the social cohesion negatively? And what is the influence of relocation dynamics on the physical quality? When people enter an area with the expectation of leaving again in a short period of time they might not expect the same amount of quality of their living environment and will probably not invest in improving this quality. How strong is this correlation?

Hypothesis

Therefore the assumption comes up that while relocation dynamics are not seen as a direct cause for the problems in priority neighbourhoods they can be quite influential. It might mean that the approach of the problems maybe needs to be taken in a different way.

Having insight into how these relocation dynamics work for these specific priority neighbourhoods is important for the development of a customized approach of the problems and arrears.
That is why this graduation research will examine whether the liveability (degree of interaction and social cohesion and physical quality of the living environment) is influenced by the physical environment, in a highly dynamic area and which role relocation dynamics have. Next to that it will investigate which spatial elements can influence the negative assessment of liveability and how it can be improved. Of course therefore the relation between the relocation dynamics and the physical and social environment needs to be explained further. Furthermore will be emphasized on the relation between the physical environment and the social environment.

The approach in improving the liveability in the urban neighbourhood might not be optimal for the current priority neighbourhood with its constant changing population composition, as long as the relocation dynamics are seen as the direct cause. A different approach is needed that increases the liveability of these neighbourhoods for current and future inhabitants.

These observations have led to the following problem statement:

A lack of knowledge of the influences of relocation dynamics on the supporting social and spatial factors of liveability leads to an ineffective and incomplete approach of solving liveability problems in cities.
1.3 Research questions

RQ

How can the liveability in urban neighbourhoods, that are under the influence of a lot of relocation dynamics, be improved?

1. Which social and spatial factors are of influence on the liveability of urban neighbourhoods?
2. How do relocation dynamics influence the liveability of urban neighbourhoods?
3. Which spatial elements can add to the development of social cohesion and neighbourhood attachment and therefore the improvement of liveability?
4. What are the spatial conditions of living environments in which different amounts of relocation dynamics can be facilitated?

Final product

A strategic model (toolbox) which spatial elements that can be used to analyse to which amount a neighbourhood can facilitate relocation dynamics and social cohesion, where and in what kind of conditions. To show how this analysis works a few hypothetical design examples are given.

Reflection

How generic is the designed toolbox for it to be used in other locations than the case location of this research?
1.4 Aim
The aim of this project is to find out how the liveability in urban priority neighbourhoods, that experience a lot of effects of relocation dynamics, can be improved. Thereby not seeing the relocation dynamics as the cause for the problems but as a possible influencing factor on the way of approaching the physical and social problems that are present.

The project is divided into two parts. The first part of the research will result in knowing which spatial interventions can influence the liveability in urban neighbourhoods and how relocation dynamics affect the supporting factors of liveability. Therefore we have to know more about the concept of liveability and the social-spatial effects of relocation dynamics in neighbourhoods.

The second phase is related to designing and is more focused on a design for a specific location. The findings from the first phase will be translated to spatial solutions by forming a strategy and creating design proposals.

After this phase it is possible to reflect on the perceived knowledge from the literature and design research and this might result in a framework of generic proposals for other urban neighbourhoods as well.

1.5 Academic and social relevance

Academic relevance
This research will contribute to the body of knowledge about urban regeneration approaches for disadvantaged neighbourhoods. Specific attention is given to the effects of relocation dynamics which makes the angle of incidence a bit different. It will be a combination of research in the field of sociology, environment psychology and urban design and planning. The results from the literature and data research will be translated into a spatial strategy and spatial interventions.

Social relevance
The restructuring of neighbourhoods has become an important part of the urban renewal policy. Although restructuring primarily relates to improving housing and public space, it is nowadays more and more often associated with economic and social aspects of urban renewal. In government policy, but also in the local policies more attention is given to these aspects. They also show up in the primary goals of the restructuring and urban renewal. (Kleinhans, 2005) One of the goals that occurs often in policies is the improvement of liveability. This research will contribute to the possibility to solve this important social problem.
1.6 Keywords
Liveability
Relocation dynamics
Social cohesion
Place attachment
Priority neighbourhood

Fig. 1.2 Keywords. Source: author
2 METHODOLOGY

2.1 Methods
2.2 Scale
2.3 Disciplines
2.4 Mentors
2.5 Final products
2.1 Methods
The following methods are used for this research.

THEORETICAL FRAMEWORK

Literature research
Literature research exists of reading within the sector of sociology, social geography, environmental psychology, urban design and spatial planning. Literature research will result in the explanation of different theories related to relocation dynamics and their effects on a neighbourhood’s liveability. Theories like the neighbourhood as an emancipation mechanism that are pro dynamic. And theories like the retaining of social climbers that would mean that the dynamics would be partly frozen.

Furthermore will become clear which other factors can influence the liveability of a neighbourhood. Social factors as social cohesion and place attachment but also physical factors such as the organization of the public space, housing typologies and the presence and quality of public facilities. All will be examined in relation to relocation dynamics.

The literature research will provide a large share of information for the theoretical framework. This framework will be completed with information from data analysis and interviews with professionals.

The literature research will contribute to answering the sub research questions:

• Which social and spatial factors are of influence on the liveability of urban neighbourhoods?
• Which spatial elements can add to the development of social cohesion and neighbourhood attachment and therefore the improvement of liveability?
• How do relocation dynamics influence the liveability of urban neighbourhoods?

This information from the literature research and theoretical framework will be helpful with the further analytical research on the location and developing strategies and design proposals.

ANALYTICAL FRAMEWORK

Case reference analysis
Analysing different neighbourhoods that have large relocation dynamics in common but differ on the presence of physical and social problems. Research can already tell us that large relocation dynamics can be present in neighbourhoods that can be both problem neighbourhoods or well functioning attractive neighbourhoods. The analysis and comparison of different neighbourhoods in both categories could give insight in the social and physical factors that influence the liveability and together with the theory can become clear what the effect of the relocation dynamics are on those factors.

Two neighbourhoods are selected that all experience large relocation dynamics or have experienced them in the past. This are Vreewijk and the Vogelbuurt in Charlois. They are all located on the south bank of Rotterdam as well. They differ on for example the design of the neighbourhood structure, the presence of green, the position near traffic networks, street and housing typologies etc. The plans of the neighbourhoods will be analysed in combination with data from the municipality about relocation dynamics on the level of the housing block. This in order to determine where which amount of relocation dynamics are present. This will be done combination with interviews and surveys held in the neighbourhood among the residents. The aim of these interviews and surveys would be to find out how people perceive the present relocation dynamics and if it is experienced as a disturbing factor for the social cohesion or liveability.

Interviews
Interviews will be held with professionals and residents. The interviews with
residents are an addition to the surveys. Interviews with professionals and experts that can be a source of useful information for this research. Examples are researchers from OTB, the Veldacademie, the municipality and local organisations. In the Neighbourhood Change and Housing program of OTB, research is done into the structure and organization of urban and everyday life in these neighbourhoods in a changing society. Relocation dynamics and social cohesion are subjects that are used in their research while finding the correlations with the physical environment. Experts as Maarten van Ham and Leeke Reinders are researchers that are involved in these kinds of research. The Veldacademie does a lot of research within the Rotterdam Zuid area. They work together with the municipality of Rotterdam and have access to a lot of detailed information on smaller scales like the building block. They also have a lot of experience with involving residents and doing research with the help of surveys and interviews in the area. This makes them an interesting party to speak to. The municipality can tell me more about the plans they have for the area while local organisations know better what is needed for the area.

Data analysis
Data about relocation dynamics is used to define the ideal design location for this research. The data are furthermore used for getting to know the specific location of the relocation dynamics within the neighbourhood as a start of further investigating the present influences of the dynamics and social and spatial factors on the liveability.

Analysing and mapping
These methods are used while investigating the spatial characteristics of the neighbourhood. Some subjects that are important to map are:

- Housing typologies and street typologies
- Present meeting places, type (physical characteristics) and place
- Where relocation dynamics are located (which parts of the neighbourhoods experience this a lot and which parts do not)
- Facilities (types, place and their reach (how many people do they facilitate))

The scheme on the following page explains the relations between the different methods further and shows their place in the process.
Built up of the research including expected results from the different methods. The intermediate results are the basis of further research.

Fig. 2.2 Built up of the research including expected results from the different methods. Source: author
2.2 Scale

This research makes use of different scales. From the wishes of the individual to the application of interventions on the scale of the neighbourhood. The figure below illustrates the components of this project with regard to scale.

The scales neighbourhood, street and dwelling are important for the research because this are the scales on which the research takes place and in the end proposals for spatial interventions and strategies will be done. The scale of the city is important because the effects and results of the interventions on the neighbourhood level will also be important for the city.

Information and reference cases is used from sources on a national level and other countries outside the Netherlands.
2.3 Disciplines
This project relates to different disciplines from both urban and sociology studies.

- Urban Regeneration
- Spatial Planning and Strategy
- Urban Design
- Sociology
- Social geography
- Environmental psychology

2.4 Mentors
This research focuses on the approach of countering decay and improving liveability in the urban neighbourhood.

My first mentor to guide me within these research is Machiel van Dorst. I asked him to be my first mentor because of his experience and specialisation in the liveability of the housing environment and the several relations between inhabitants and their built environment.

Machiel van Dorst is part of the chair Environmental Technology and Design. Section: Urban Landscape

My second mentor is Birgit Hausleitner. She is as Machiel van Dorst also both a designer and researcher and familiar with combining design and research. Her work focuses on the urban morphological and socio-spatial preconditions to introduce/improve combinations of working and living, triggered by the interrelation of changing socio-economic context and changing urban form.

Birgit Hausleitner is part of the chair Urban Compositions. Section: Urban Design

2.5 Final products
The project is divided into two parts. The first part of the research is mainly literature research and will result in a theoretical framework that is used to define the objectives of this research.

The theoretical framework and data analysis are a base for getting to know which spatial interventions are needed to improve the liveability. With these methods we get to know more about the social and spatial factors that are influenced by relocation dynamics and their influence on liveability.

In order to define the possible interventions better an analytical framework is added in which a specific location is analysed and other cases are analysed as a reference.

This is part of the second phase which is related to analysing and designing in the neighbourhood of Hillesluis, which is a priority neighbourhood in Rotterdam.

The theoretical and analytical framework will result in a spatial strategy on the scale of the neighbourhood. Strategic places are pointed out which can facilitate relocation dynamics the best and design proposals for these location will be given in order to facilitate social interaction and thereby social cohesion, neighbourhood attachment, physical quality and liveability. Also locations that are less able to facilitate relocation dynamics are pointed out.

Afterwards, an evaluation of the proposals takes place in order to find out if there are any generic results that can also facilitate solutions for other neighbourhoods.
3 THEORETICAL FRAMEWORK

3.1 Relocation Dynamics
3.2 Liveability
3.3 Social cohesion
3.4 Place attachment
3.5 Conclusions

This chapter elaborates on the theoretical framework that will be used to give the research a focus. The framework consists of several themes that are related to the research question and problem statement of the graduation project.
To make sure that the goals and framework of this project are clear to the reader, a theoretical framework is developed. Within this framework, a number of terms like liveability and relocation dynamics will be further explained. Literature research will be used as a method to elaborate further on these terms and this will give a better insight in the theories that are used in this graduation research.

Something different that can also be derived from this framework are the spatial and social aspects/characteristics of a neighbourhood that influence relocation dynamics and liveability. The relation works also in the opposite direction and thereby the influence of relocation dynamics on a neighbourhood’s liveability is also taken into account when developing this framework.

3.1 Relocation dynamics

Neighbourhoods are not static entities; they are dynamic places that constantly change in terms of their composition, definition and relationships with the surrounding environment. They are places that are in continual flux as households and individuals move in and out, but they also change as the population in-situ changes – grows or shrinks through births and deaths, matures through ageing.

A neighbourhood consists of its physical environment and the inhabitants and their relation to this environment and other inhabitants. This relation may be subject to changes due to relocation dynamics. Relocation dynamics are the movements of people between homes.

In every neighbourhood a minimal amount of relocation movements is visible. These movements can be analysed on different scales. For this project, I am looking at the scale of a municipality district, a district (a group of contiguous neighbourhoods), a neighbourhood and streets within a neighbourhood. To give an indication of the size of the relocation dynamics in an area, we have to look at the different types of movements and how big the different movements of people are. We can divide the population in a neighbourhood in four different groups in relation to their movement over a period of time. 1) People moving out of the neighbourhood, 2) people that enter the neighbourhood to replace them, 3) people that move in the same area and 4) people that stay in their neighbourhood on the same address.

Also the identity of neighbourhoods can change fast in a short period of time due to this aspect. The identity of neighbourhoods can change fast by the moving in and out of people. This can happen in a good way (‘upgrading’) and in a bad way (‘downgrading’). Upgrading can, for example, happen when the new people that settle in an area have a higher average of income than the people
that have left. Downgrading works exactly in the opposite way. This happens more often in neighbourhoods on the bottom of the housing market where for example people settle that are starting their housing career (Permentier, Das, Wittebrood, 2011).

3.1.1 Moving motives
The motives (triggers) to move differ among the different groups. Most of the time, the motives are related to personal development. The development can take place in the field of education, work, household or residential career. The housing career is most of the time very dynamic in the beginning. Because the housing needs and aspirations, as well as the opportunities to satisfy them, increase rapidly in a relatively short time. It stabilizes when it reaches its peak (Hoogvliet, cited in Kleinhans, 2005, p. 45).

Triggers usually arise from changes in at least one of these careers, because there is a discrepancy between the current and desired living situation (Kleinhans, 2005, p. 46). This does not mean that it is always possible to move. If people are not in the position to economically finance their movements than people have no other choice than stay where they are. In that case their residential career is on a hold.

Motives that are based on the household and residential career lead to relocation on short distances, inside the daily activity space (Hägerstrand, 1970, cited in Kleinhans, 2005). For example within the same neighbourhood or city district. Processes that lead to the formation of households (marriage or moving in together) can lead to movements over large distances. Motives that arise from the education or work career lead mainly towards moving when changes in the daily activity space are necessary. For example when the distance between home and work becomes inconveniently large (Kleinhans, 2005 p. 46).

In order to achieve this development certain things are needed. Because the
focus of personal development differs per person the needs differ too. The question is how/when and to what amount the neighbourhood can facilitate those needs and maintain a good liveability.

3.1.2 Pro dynamic theories
The fact that people move is often the result of wanting to improve their living quality. This can be related to their economic status, social network or living environment. The people leaving (leavers) are ‘replaced’ by new inhabitants (settlers). This can be selective migration, what means that the leavers have a slightly higher social economic position then the settlers (Wittebrood, Permentier, 2011). In that case it means a change for the social economic position of the neighbourhood. This is the neighbourhood working as a first step towards making a career (labour and household).

This is also referred to as the neighbourhood working as a ‘roltrap’ or emancipation mechanism. The idea of the escalator is derived from the British scientist Fielding. Although he talked about the region that works as an escalator the working of the principle can also be seen on the scale of the neighbourhood.

The fact that this is a positive development means that the actual moving of people is not a real problem because it means self-development on an individual level. However, on a collective level in the neighbourhood it means changes that can have adverse effects on for example the liveability (Wittebrood, Permentier, 2011 p. 64).

3.1.3 Contra dynamic theories
Many local policies in the Dutch cities focus on keeping the social climbers in the neighbourhoods. The effect they want to achieve is them functioning as a role model for other residents of their neighbourhood. This approach is seen often in the bigger cities because it is part of the policy for ‘krachtwijken’. This is the policy that contains the approach for improving the problems in the disadvantaged neighbourhoods. Although a lot is said about this method it has never been proven that the effect is really working. In the Dutch context little support is found for this socialization mechanism (Kleinhans, 2005; Bolt & Van Kempen 2008; Van Eijk 2011 cited in Permentier, Das, Wittebrood, 2011).

The ‘iron law’ on the housing market is that social inequalities will lead to spatial inequalities and that a career on the labour market leads to making career on the housing market. This often means an improvement of the quality of the dwelling but also often a n improvement of the quality of the living environment. (Clark et al. 2006, cited in Wittebrood, Permentier, 2011, p. 73)

3.1.4 Relocation dynamics of the disadvantaged neighbourhood
Every year a total of nine per cent of the Dutch population relocates. This percentage is higher for the G31, the 31 biggest cities of the Netherlands, namely twelve per cent.

The biggest group of the population does not move (eighty-eight per cent) and only two per cent relocates but does this inside the same neighbourhood. Ten per cent moves out of the neighbourhood. In disadvantaged neighbourhoods this percentage is twelve. The people that replace the leavers are the settlers. The thing that differ the group of settlers in disadvantaged neighbourhoods from settlers in other neighbourhoods, is the large proportion of immigrants, that is about three per cent higher (Permentier & Wittebrood, 2011). From existing research we learn that the relocation dynamics of disadvantaged neighbourhoods are higher than in other urban neighbourhoods. When the area serves as a steppingstone (roltrap), these bigger dynamics do not have to be seen as a problem. But some studies also found adverse effects, such as the decreasing quality of life and independence of residents (Permentier & Wittebrood, 2011). Social contacts between residents would be occurring less
often and not that easy (which is a prerequisite for the exchange of resources and knowledge), the mutual trust and public familiarity is lower and people will be less likely to work for the liveability of their neighbourhood (Permentier & Wittebrood 2011, p. 64). 

Disadvantaged neighbourhoods are selected by a list of criteria. The criteria are shown in Table 1.

Table 1 Criteria for the selection of 40 priority neighbourhoods

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Income</td>
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<td>2. Work</td>
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<td>3. Education</td>
<td></td>
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<td>4. Share of small housing</td>
<td></td>
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<tr>
<td>5. Share of housing built before 1970</td>
<td></td>
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<td>6. Share of social housing</td>
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<td>7. Graffiti on walls/buildings</td>
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<td>8. Destruction</td>
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<td>9. Nuisance from neighbours</td>
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<td>10. Nuisance by residents</td>
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<tr>
<td>11. Fear of violence in the neighbourhood</td>
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<td>12. Satisfaction with the home</td>
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<td>13. Satisfaction living environment</td>
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<tr>
<td>14. Propensity to move</td>
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<td>15. Noise</td>
<td></td>
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<td>16. Pollution</td>
<td></td>
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<td>17. Traffic nuisance</td>
<td></td>
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<tr>
<td>18. Road safety assessment</td>
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</table>

Source: (VROM, 2009)

3.1.5 Relocations dynamics and spatial environment

The spatial environment is more a means to influence relocation dynamics. The quality of the living environment is not the most important reason to move, this are changes in the household or working situation (Permentier, Wittebrood, 2011, p. 74). But it is one of the factors that is taken into account when the decision in staying or leaving has to be made. A distinction in motives related to the living environment can be made between factors that assume dissatisfaction with the living environment (the dissatisfaction model) and factors that assume a bad balance between what people can afford and where they are living at the moment (the disequilibrium model) (Clark & Dieleman, 1996, cited in Permentier, Wittebrood, 2011, p. 74). In particular moving out of poor neighbourhoods is often a result of factors from the dissatisfaction model.

Factors as the presence of enough green, nuisance of sound or the maintenance of the public space can influence people to make the decision to move. These physical defects are often seen as a result of negative thinking about the social factors. In the Netherlands, social factors are often more important than physical factors when a neighbourhood is being judged (VROM, 2004) Social factors are the social characteristics of the environment. This are the population composition and social interaction between residents. (VROM, 2004, p. 9)

The neighbourhood can also be a positive factor in making a decision to stay or leave in a neighbourhood. When somebody is living in a neighbourhood for a longer period they get attached to their living environment in several ways (Lupi, 2005, cited in Permentier, Wittebrood, 2011, p. 75). For example for their social network that is present in the neighbourhood or the presence of certain facilities.
3.2 Liveability

The term liveability can be interpreted in several ways. In order to make clear what is meant with liveability in this research I will elaborate more on this subject. For this research it is important to know which physical and social characteristics of the neighbourhood are of influence on the liveability of neighbourhoods and the perception of residents on how liveable their living environment is.

3.2.1 Development of the meaning of liveability

The meaning of liveability in the sector of Urbanism changed over time. At first (eightieth and ninetieth century), it was mainly meant as the fighting against disease and epidemics. The discussion about public health was leading while developing urban visions. The overall idea of having more access to sunlight and fresh air (ventilation) would lead to the improvement of public health. An example of this was the vision of the Garden City (Howard, 1898, cited in Leidelmeijer & Kamp, 2003, p. 16). Garden cities should be small communities where people have access to their ‘own’ green and where people can both live and work.

Technology was further developing and with that the urban visions also changed. Sun, space and green were still the main aspects that were seen as needed but then implemented in the bigger cities. A separation of functions should lead to the optimal quality of life.

With a shift from biology to ecology more attention was given to the spatial and social conditions where people were living in. More criticism on the impersonal and monotonous urban expansion projects emerged at the end of the sixties. These expansions were a result of the putting into practice of more functional urban visions (Leidelmeijer & Kamp, 2003). Jane Jacobs (1961) pleaded for liveliness on the streets. This meant no more open space and separate functions but the mixing of primary functions (living, working, facilities) and small size open spaces.

The term liveability became even more important in the seventies. More attention was given to the social factors that influence the quality of life and the opinion of the citizens became more important. The economic cuts and the mass unemployment led to a decrease in attention for the liveability of the living environment. But the environment was still an important subject and the term sustainability was mentioned often. Thinking about sustainability is not just about the quality of life at this moment but also what is left behind for future generations.

After the revival of ‘liveability’ in the nineties the Dutch government starts being interested again. This is shown in for example how much attention is given to liveability in ‘het groestedenbeleid’. (Leidelmeijer & Kamp, 2003)

3.2.2 The definition of liveability

Veenhoven (1996): ‘liveability = habitability = quality of life in the nation: the degree to which its provisions and requirements fit with the needs and capacities of its citizens’ (Leidelmeijer & Kamp, 2003, p. 29).

Veenhoven defines liveability as the degree to which a living environment connects to the adaptive repertoire of a specie (apparent liveability). This refers to the relation between the living environment and its inhabitants.

The living environment is the environment of the home that is used regularly by the resident. This can be the building, a street, a part of the neighbourhood or a village. It always includes other residents, visitors and passers-by (van Dorst, 2005, p. 28).
The apparent liveability is shown in the facts how long people live in their environment and how happy they are with this. This kind of liveability places the emphasis on the right 'match' (or interaction) between man and environment.

A neighbourhood is only a liveable place when a fitting relation is developed between the living environment and its inhabitants. The quality of this relationship can only be judged from the perspective of individuals (van Dorst, 2005).

The perceived liveability, puts the emphasis on the valuation of an individual for his / her environment. The valuation of an individual for the environment depends on personal characteristics, experience, personal interpretations and needs and social and cultural context. The valuation refers to the usability, attractiveness and safety of the environment.

In contrast, the assumed liveability emphasizes the extent to which the environment meets the needs of the inhabitant. The relationship between the environment and the individual inhabitants is approached from the perspective of the environment.

In practice, liveability is a sum of judgements on components. These components may relate to the social environment, the physical environment or a combination of both (social safety) (van Dorst, 2005, p. 23).

The components can differ depending per scale you are measuring liveability on. The scale can vary from an individual household to for example a whole country. The characteristics that are measured on the scale of a country are not all useful for measuring liveability on the scale of a neighbourhood (van Dorst, 2005). For this research I am looking at the scale of a neighbourhood and also on the street and individual level.

Fig. 3.4 Existing relations between people and their social and physical living environment (van Dorst, 2005)

Fig. 3.4 The different relationships between people and the environment in various forms of liveability. (van Dorst, 2005)
Indicators that are important on the neighbourhood level:
• Health and safety;
• Material wealth, income inequality, inequality in happiness;
• Social relations in relation to tolerance, participation in employment and society, individualisation;
• Control as a common factor of (perceived) freedom, individualism, tolerance and identity;
• Contact with the natural environment (van Dorst, 2005).

All the perspectives are important for this research. The apparent liveability probably describes the qualitative relation between people and their environment the best. But the apparent liveability can only be measured from the results of life (Veenhoven, 2000) and therefore only be judged afterwards. The perceived and assumed liveability can be measured better. To obtain these measurements inhabitants are questioned about their appreciation of their living environment or an area is tested on spatial and social characteristics which are off influence on the well being of people (van Dorst, 2005).

The perceived liveability can be important for the amount of place attachment and social cohesion that an individual perceives in his own environment. These terms will be elaborated on in the following paragraphs.

3.2.3 Measuring: indicators for liveability
Factors that can influence liveability according to the SCP (Sociaal en Cultureel Planbureau) are related to three main elements social cohesion, the spatial quality of the living environment and safety. The different indicators per element are shown in the image. This is an overview of the most important indicators. These elements are related to both social and physical characteristics of neighbourhoods.

Fig. 3.5 Source: SCP Adjusted by author
The expectation is to find coherence between the physical and social characteristics of a neighbourhood. With physical characteristics are meant: the housing stock, organization of public space and the presence of facilities. The coherence between the characteristics is shown with the correlations varying from -1 to +1 (Pearson). -1 means a negative coherence and +1 is a positive coherence. 0 means that there is no coherence.

Table 2 tells us how the housing stock relates to the social structure of the neighbourhood. When the amount of social rental homes is higher, the share of non-western immigrants is higher and also the social-economical arrears are bigger. With a correlation of about +0.6 this means the coherence is quite strong. The coherence between the amount of multi-family (pre-war or early post-war) dwellings and the presence of non-western immigrants and social-economical arrears is smaller (+0.21 and +0.35). We also see that as the proportion of social housing and the share (pre-war and early post-war) multi-family houses in a neighbourhood is bigger, the residential mobility (relocation dynamics) and social cohesion is smaller.

The design of the public space and the presence of facilities nearby are also related to the social structure in neighbourhoods. With more parks there is less social cohesion, while primary schools enlarge social cohesion. Flap and Völker (2005) show that as the level of the facilities is higher in neighbourhoods, there are more social contacts and the community spirit is bigger. If neighbourhoods are more densely populated, the social cohesion also decreases (Wittebrood & van Dijk, 2007).

The third factor, individual characteristics of residents, is left out of this research. Age, gender, ethnicity and household income are significant individual predictors of the extent to which residents have to deal with crime and they feel unsafe (Oppelaar and Honeymoon 2006b; Honeymoon 2006, cited in Wittebrood & van Dijk, 2007). It is mainly of influence on the perceived safety.

### Table 2

<table>
<thead>
<tr>
<th>Physical characteristics of a neighbourhood</th>
<th>Social characteristics of a neighbourhood</th>
<th>Individual characteristics of residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>sociaal-economische achterstand</td>
<td>% niet-westerse allochtonen</td>
<td>perceivd liveability</td>
</tr>
<tr>
<td>% sociale huurwoningen</td>
<td>0.61**</td>
<td></td>
</tr>
<tr>
<td>% vooroorlogse meergezinswoningen</td>
<td>0.54**</td>
<td></td>
</tr>
<tr>
<td>% vroegnaoorlogse meergezinswoningen</td>
<td>0.21**</td>
<td></td>
</tr>
<tr>
<td>‘verkleuring’ van de buurt</td>
<td>0.27**</td>
<td></td>
</tr>
<tr>
<td>verhuis-mobiliteit</td>
<td>0.08*</td>
<td></td>
</tr>
<tr>
<td>sociale cohesie</td>
<td>-0.51**</td>
<td></td>
</tr>
</tbody>
</table>

| Inrichting van de publieke ruimte          |                                        |                                        |
| aandeel park en plantsoen                  | 0.01                                    |                                        |
| omgevingsadressendichtheid                 | 0.08*                                   |                                        |
| omgevingsadressendichtheid                 | 0.14**                                  |                                        |
| concentratie winkels / horeca              | -0.05                                   |                                        |
| concentratie van basisscholen              | -0.11**                                 |                                        |
| concentratie van winkels / horeca          | -0.02                                   |                                        |
| concentratie van basisscholen              | -0.16**                                 |                                        |

* p < 0.10; ** p < 0.05; *** p < 0.01.
3.2.4 Physical and social characteristics of a neighbourhood

Earlier was explained which factors were involved in the element physical quality (housing stock, organization of public space and the presence of facilities). Figure 3.8 shows us a couple of these elements and their correlation to the social factors and factors that are of importance for liveability. The share of social rental houses is correlates to the presence of criminality, degradation, as well as the fear of crime (scores vary between +0.20 and +0.40). These numbers are also high when it comes to a large share of pre-war multi-family family dwellings. The correlation with post-war multi-family dwellings is also there but much smaller. The amount of horeca and shops present is, as expected, also positively correlated to factors as violence and theft.

The social structure of a neighbourhood does also have a strong relation with liveability. In particular with social-economical arrears, ethnic heterogeneity and relocation dynamics. The amount of social cohesion is also strongly related to liveability. In neighbourhoods were the social cohesion between residents is good, residents are more satisfied with their living environment (Wittebrood & van Dijk, 2007).

![Fig. 3.7 Table correlation between social and physical factors and factors that influence liveability.](source: BZK/Justitie (PMB'01 en '03); VROM (WBO'02, VOIS'06); CBS (RIO'02, PCR'02); ABF (ABF-monitor'02)
3.3 Social cohesion

3.3.1 Social cohesion explained
Social cohesion is the extent to which individuals or groups in society are connected with each other and feel connected (de Kam & Needham, 2003, p. 7). Social cohesion can partly be structured by spatial factors. The geographical position in relation to other individuals and institutions is important for certain forms of mutual bonding. The influence of these spatial factors is not static and not equal for all citizens.

Social cohesion occurs at different scales. For example on a micro scale within households or families. On a higher scale it can be within associations or neighbourhoods. When social cohesion is present at one scale, for example within a family or a group of friends, it will not automatically lead to social bonding at different scales such as a neighbourhood (Bolt & Torrance, 2005). The district-specific variant of social cohesion is based on the idea that district and community are connected to each other. Within small geographic areas, people should know each other well, meet each other regularly and interact in a friendly way. This is called neighbourhood-related cohesion.

A second form of social cohesion is found in the bonds that exceed the limits of such districts. This non-neighbourhood related cohesion is called network cohesion. Modern developments have led to the fact that neighbourhood-related cohesion is not often as strong as in the past. Bigger mobility and better communication possibilities facilitate social cohesion regardless of their geographical position. People are becoming part of a global rather than local community (de Kam & Needham, 2003).

Kearns and Forrest distinguish five constituent elements which together would form social cohesion: 1) common values and a culture of citizenship, 2) social order and social control, 3) social solidarity and reducing of differences in prosperity, 4) social networks and social capital and 5) feeling connected with a territory and identity (de Kam & Needham, 2003).

The fourth element can be influenced by relocation dynamics. This can be the situation where an individual enters a neighbourhood as a new inhabitant that has to build new relations with his/her neighbours. This works also the other way around, where people see new people moving in their neighbourhood with whom they have to built up new connections. The fifth element tells us about the relation with the physical environment. This can be interpreted as place attachment and identity of a place. These terms will be further explained in the following paragraphs.

3.3.2 Relation social cohesion > living environment
This section explains the relation between social cohesion and living environment and how they can influence each other.

Influence of social cohesion on spatial environment
Research that is done in the suburbs of Paris proved that people which feel at home in their neighbourhood would have more contact with their neighbours and the relations would be stronger, more than only being polite (de Kam & Needham, 2003, p. 24). De Kam and Needham suggest the hypothesis that social cohesion would make inhabitants feel more at home in their living environment and that this would lead to a pleasant feeling for each individual. This would make the management of the living environment easier because people would take better care of their environment.

Influence of spatial environment on social cohesion
The expectation that design and organization of the spatial environment
would have positive social effects is part of a long tradition in architecture and urbanism, especially in the Netherlands. Certain episodes and events in the past illustrate these expectations. The Housing law (1901) assumed with the improvement of the living conditions to facilitate a better care for the public order, hygiene and the moral elevation of the working class. At first, direct measures for the regulation of the behaviour of people were taken. Later on, more attention was given to the indirect way of influencing, through the design of the living environment. This was mainly noticeable on the scale of a house, where spaces were deliberately designed for certain functions. For example, the kitchen is situated at the side of the street to give mothers the possibility to keep an eye on their kids playing outside.

After the second world war, modal homes were used to explain inhabitants which behaviour they should have to be able to live in certain places. This led to a concentration of certain general lifestyles. During the sixties, resistance was developed against the standardized views on living behaviour and floor plans. In the following period tenants got more influence and designs are made to facilitate more individual lifestyles. The liberalisation of the market in the eighties shows the housing associations the vulnerable position that dwellings can have. Residents gain more influence and the top down control and influencing of behaviour is limited. As a result more attention is given to the public living environment (de Kam & Needham, 2003). The focus lies on providing harmonious coexistence. Later on the focus is shifted to safety. The national housing board (NWR) adds the following goal to their policy: “developing a built environment that, in terms of planning and architectural features, gives the least possible opportunity to commit crimes” (NWR, 1989, p.23).

Important to know is the existing criticism on the hypothesis that physical changes contribute to social cohesion. This is based on the rejection of physical determinism (physical-geographic determinism = the conception that human actions are determined by natural conditions). Neighbourhood and living environment can influence individual outcomes in life, but causal relations between neighbourhood-based factors and individuals outcomes are complicated by a whole range of other variables that play a role as well (Ellen & Turner, 1997; van Dorst, 2005).

3.3.3 Relocation dynamics and social cohesion

Changes in the population composition due to relocation dynamics can have a direct effect on the social cohesion. The spatial environment will not change but the users might differ an thereby also the way it is used. The effect that this has on the social cohesion differs per type of neighbourhood. Think for example about a residential street with land-based dwellings where people know each other well and share the public space in front of their homes. Changes in the population composition will be very noticeable. Existing relationships can be broken and new ones have to be built up. The situation in a mixed use area of public functions and dwellings can be very different. The entrance towards dwellings differs because of public functions on the street level. There is no semi-private space like a front garden where social interaction can take place. The public facilities attract other users towards the public space which can be ‘strangers’ to the residents.

3.3.4 Liveliness

After the appearance of Jane Jacobs book a broader interest is developed in relations between environment and behaviour and the role of citizens in the quality, maintenance and the proper use of the built environment (van Dorst, 2005). Jane Jacobs emphasizes on the importance of liveliness for the liveability of the street. The presence of people is seen as a basic quality. For example, social security depends on social control.
As Gehl describes "Opportunities for meetings and daily activities in the public spaces of a city or residential area enable one to be among, to see, and to hear others, to experience other people functioning in various situations". (Gehl, 2011, p. 15)

To facilitate this liveliness the relation between buildings and public space is important and also the readability of the public space. With readability is meant, a clear distinction between private and public space. Although a certain amount of anonymity can be desirable, social contacts are therefore important. To be able to regulate these contacts, and with that also the privacy, is something that can be facilitated by the city and is seen as a specific quality of the street.

3.3.5 Facilitating social cohesion
In this section the relation between the physical and social environment is further explained. Earlier was emphasized to look out for the pitfall of physical determinism. This should be avoided because relations between the physical and social environment are not causal relations. This works in both directions. The emphasis lies on the physical interventions that can help facilitate the social environment (van Dorst, 2005).

The importance of control was already mentioned in the previous paragraph. Control is related to both the social as physical environment. Having control over social interactions is partly facilitated by the physical environment. Within the level of a personal home this is relatively simple. Locking windows and doors means keeping people out of your home. In order to make contact you have to invite people in. But within the public space it is harder to keep a level of control. This space belongs to you, other residents of your neighbourhood and passers-by.

Intervening in the physical environment in order to gain control can happen in
several ways. On a bigger scale this can happen by being the private owner and making physical changes yourself. Making the physical space more personal by adding personal elements has a similar effect. This also shows the involvement of an individual with a physical environment. Adding personal elements can help making an environment more readable and can counter anonymity. This can make a better distinction between private and public space for visitors and passers-by (van Dorst, 2005).

3.3.6 Control

Having control is important for people because interaction is not always wanted. But a total anonymous living environment is also not wanted. The amount of anonymity can vary per environment. A certain amount of anonymity is expected in a shopping street or other city streets were a lot of public facilities are present. In order to maintain the quality of these environments a certain amount of formal maintenance is wanted. In residential areas the involvement of the residents is preferred because an anonymous environment is not wanted there. The involvement of residents helps maintaining the environment.

Anonymity can be a problem if a person becomes lonely but it can also be a quality. Being anonymous means you are able to adapt to social identities. Examples of these identities are being a football supporter or taking part in a yoga class. At that moment you are present in a public environment, exposing yourself to others but still being ‘one of a group’. Anonymity is therefore not the problem when people choose to be anonymous voluntary. The ability to choose to be anonymous is the core of a privacy theory developed by Altman.

3.3.7 Privacy

Altman developed a clear relation between the physical environment and regulating social contacts. The physical environment is one of the means to facilitate the desired amount of privacy. When supply and demand are not in
balance a person can experience loneliness or social pressure (Van Wagenberg 1990, cited in van Dorst, 2005, p. 128).

The role of the physical environment should be seen in the right perspective. When talking about creating privacy various factors become important. These are personal factors (needs, skills, personal characteristics) and environmental factors. Environmental factors exist of social factors (presence and attitude of others) and physical factors (boundaries, distances, sight lines) (Pedersen, 1999, cited in van Dorst, p. 136). Social pressure/crowding, isolation or the right amount of interaction are not generated by the physical environment but the spatial environment can facilitate the right conditions. More specific, the physical environment facilitates the interaction between the individual and their social environment.

The desired amount of social interaction is depending of personal characteristics, social influences, the physical environment and culture (Gifford, 1997, cited in van Dorst, 2005). This means that the amount of desired social interaction can vary from person to person and varies through time. Therefore the physical environment should be able to support various levels of privacy. This does not mean that the amount of various desired levels of privacy has no maximum. When an environment is too heterogeneous, meaning that there are too many differences in culture, income and lifestyles, it can negatively affect social cohesion. A large amount of diversity can even facilitate anonymity. This does not mean that having a diverse population composition in a neighbourhood is not an option. The example of Curitiba (a Brazilian city) shows that making differences recognizable can help improving social cohesion (van Dorst, 2005).

An anonymous environment is, regardless of individual needs, socially undesirable because in such a setting there are no obstacles for antisocial behaviour (Zimbardo 1969, cited in van Dorst, 2005, p. 117).

Privacy zoning

The privacy zoning is a system of different zones (areas) that have different meanings when it comes to social interaction. This zoning is physically readable and socially accepted, and thereby it creates clarity for everyone (van Dorst, 2005, p. 123).

When describing physical territories Altman comes with three divisions: primary territories, secondary territories and public territories. Primary territories are owned and used exclusively by individuals or groups, are clearly identified as theirs by others, are controlled on a relatively permanent basis, and are central to the day-to-day lives of the occupants. (Altman, 1975, p. 112). Secondary territories are less central, pervasive, and exclusive. (Altman, 1975, p. 114) An example of a home secondary territory can be a neighbourhood bar which has an owner that allows regulars to have relatively free access but has some control over others’ use of the place. An example of an interactional secondary territory is an event or a party, a location in which some type of interaction occurs among a group of people. Public territories can be freely accessed. Examples are parks and streets (Altman, 1975). Occupancy by society of places such as streets and parks is generally available without restrictions, as long as users respect certain rules.

When analysing the spatial environment it is not always clear how to recognize the territories. Sometimes only three types of territories are not enough. In particular the semi-private/public areas are complex areas to fit in because they can have different meanings. A street can be public space to an individual passing by but it can be private space to the residents of the adjacent dwellings.

In the built environment we can find numerous of indications that prove the existence of territories at different levels (scales). Examples are different types of entrances, boundaries and areas (van Dorst, 2005).
The relation between social cohesion and the quality of the environment is subject of a study by Brown and Weber (1985) about attachment to a neighbourhood. This study also tells us something about the relation between different types of physical areas and social cohesion/networks. The study indicated that the inhabitants of dead-end streets (cul-de-sacs) had a stronger bond with the neighbourhood than residents of main streets were traffic passes by. These passers-by are strangers to the residents and contact will probably not be made. With an increase in the amount of traffic, the amount of social contacts, friends and acquaintances in the street, decreases (Rogers, 1997, cited in van Dorst, 2005). This outcome has nothing to do with the opinion of the questioned people towards their own homes. Apart from that, the front garden plays an important role in social networks. Seventy per cent of all social activities find place in semi-private areas like the front garden (Gehl, 2001). Dead-end streets have more space for social interaction; this space can be used for activities and interactions (Skaeveland and Garling, 1997, cited in van Dorst, 2005). The usability of the space is important in this situation. Traffic spaces are less suitable for social interaction. Think for example about the circulation space in gallery flats.
3.4 Place attachment

This section will elaborate on the term place attachment. Furthermore will be explained how this term is related to social cohesion (as a part of liveability) and relocation dynamics.

3.4.1 The term place attachment

‘Place attachment’ refers to the emotional or affective bonds which an individual feels to an area or place (which may in turn partly be a function of various forms of practical attachments to the place as well) (Livingston, Baily, Kearns, 2008, p.1).

There are two forms of attachment, functional (or practical) and emotional attachment. Functional attachment refers to the ability of a place to facilitate the possibility for people to meet their goals (Schreyer et al., 1981; Stokols & Shumaker, 1981). For places to facilitate self-efficacy (the measure of one’s own ability to complete tasks and reach goals (Ormrod, 2006)) they must be ‘manageable environments’ (Winkel, 1981). Altman and Low made the argument that one of the purposes of place attachment is to provide people with a sense of control and security (Livingston, Baily, Kearns, 2008, p.11). The possibility to have control over your own environment relates to the aspect of environments to be manageable.

Emotional attachment refers to feelings, moods and emotions an individual can have towards certain places. This can be related to the place itself but also the networks and relations a person can built up within the area.

We form a stronger bond to a place if it meets our needs, both physical and psychological, and when it matches our goals and lifestyle. Research indicates that the strongest influence on an individual’s place attachment is their length of residence in an area. The longer a person lives in an area, the more positive their thoughts about a community would probably be.

The community context itself is also an important influence. An individual is more likely to feel attached in a place where other people feel attached, where they have many local friends and relatives, where there are long-term residents in the area and where there are higher levels of involvement in local organisations. In deprived areas, higher levels of fear of crime, higher rates of serious crime, and higher child densities decrease the collective level of place attachment (Livingston, Baily, Kearns, 2008).

Attachment is generally seen as having positive impacts for both individuals and for neighbourhoods (Livingston, Baily, Kearns, 2008, p.1). For neighbourhoods it is associated with stable, cohesive areas where people play an active role. As a result, place attachment has increasingly become a focus for policy makers (Livingston, Baily, Kearns, 2008, p.5).

3.4.2 Impacts on physical quality

A citizen survey taken in neighbourhoods across England led to a large sum of data. The following conclusions about place attachment can be derived from this work. The greatest impacts of individual characteristics on place attachment are age and length of stay in a neighbourhood. Older people and those who had lived in the area for longer had significantly higher levels of attachment. Attachment levels tended to be higher for: women, households with children and people from the Asian ethnic group. Although, the impact of these factors was smaller. Variables related to economic status, educational attainment and housing tenure had no significant impact on attachment once other factors had been ‘controlled for’.

People who are civically active are more likely to be attached although the direction of causality could be questioned. It might be that civic engagement leads to a greater sense of place attachment but it could also be the fact that
feeling more attached to an area leads people to take action to protect or improve the area (Baily, Kearns, Livingston, 2008).

Expecting to live somewhere for a long time or short time does have impact. When people enter an area with the expectation of leaving again in a short period of time they might not expect the same amount of quality of their living environment and will probably not invest in improving this quality. Examples of people that have an expected short residency are often students or starters on the housing market. People that are expected to live in the same neighbourhood for a longer period of time are elderly people.

3.4.3 Keeping people attached
From the perspective of the government, place attachment is an interesting factor when it would act as a bond to keep people resident in an area. If more wealthy people would remain longer in more deprived neighbourhoods, the areas would become more socially mixed.

But attachment to an area does not prevent people from wanting to move. Many people will move to qualitative better neighbourhoods if they have the opportunity. The main factors for people to stay in the same place are the lack of being able to move and factors that produce attachment in the first place: strong family and friendship networks, meaning social cohesion. When looking for factors that influence place attachment in deprived neighbourhoods, social cohesion was important but improved or continuing safety/security as well. Social cohesion is the most important neighbourhood-level factor influencing place attachment (Baily, Kearns, Livingston, 2008).

3.4.4 Place attachment and relocation dynamics
Turnover is the sum of out- and in-migration plus the level of within area migration. Sociological research states that high turnover can negatively affect place attachment by undermining social networks and by eroding trust and feelings of safety or security in an area (Livingston, Baily, Kearns, 2008, p.1). On a collective level, this might have consequences for the way a neighbourhood develops.

It has an indirect impact on place attachment. The most obvious conclusion is the fact that the average length of stay was lower in neighbourhoods with a high turnover. And as in the previous sections is told, the length of living somewhere is of influence on place attachment. Turnover also has an impact on the development of individual’s social networks or their patterns of social interaction. People are not familiar with their new neighbours and have often not had time to build up trust and a relation. High turnover also resulted in people withdrawing from social contact with neighbours what would limit their opportunities to build trust and attachment (Baily, Kearns, Livingston, 2008).
3.5 Coherence between social cohesion, liveability, place attachment and relocation dynamics

Slowing down the propensity to move may lead to a stronger overall binding of people to the neighbourhood and thereby a stronger feeling of wanting to take care of their own living environment. Research has told us that the length of residence is a strong influence on place attachment and relocation dynamics can influence this length. Assuming that people would invest more in their physical living environment if they are planning to stay in the same neighbourhood for a while.

Staying longer in the same place also leads to a better social cohesion in the social living environment, if the possibility to meet people is facilitated properly. Meeting people can take place at the level of the home, street or neighbourhood (also on bigger scales but that is not relevant for this research). The possibility to meet can be facilitated on these levels in for example the form of placing a bench in front of the house, a playground on the corner or a local supermarket in the neighbourhood centre. Both can enlarge the liveability of a neighbourhood.

But there are also positive aspects in maintaining a high level of relocation dynamics. People that leave have often a higher socio-economic position than the people that want to enter a neighbourhood. By leaving they make room for those who have less to spend and an affordable home comes on the market. It keeps the housing market dynamic and offers people the chance to start of their housing career.

Knowing about all the advantages and disadvantages, makes it is not easy to form a statement about relocation dynamics. The expectation is that a certain proportion of relocation dynamics must be present and a minimal amount of stability as well. How big these shares are is not proven by researching so far.

The next step is to look were in the neighbourhood more severe relocation dynamics can take place without influencing the liveability too negatively. And to investigate what the spatial conditions are to facilitate this. This is summarised in the following questions, which target groups are causing stronger relocation dynamics, which are the housing and street typologies they would be living in and how can the social cohesion among these groups in their living environment be kept/stimulated?

A second question: which target groups prefer a more stable environment and how does their preferred spatial environment look like. Where in the neighbourhood can they/should they be found and how can the social cohesion among these groups in their living environment be kept/stimulated?

Further research within the neighbourhood and using case references will help answering these questions.

On the following page a scheme is shown that tells more about the coherence within the theoretical framework and the relation to the problem stated as a start for this research.
The scheme on the following page contains the coherence within the theoretical framework with the concepts of place attachment, social cohesion, liveability and relocation dynamics. The scheme is built up with the following structure:

The result of improving liveability would be gained by the influence of social control and cohesion and a better management of the living environment which would lead to a better physical quality of the living environment.

The factors that are the base for these influences are social cohesion and place attachment.

The spatial means to facilitate social cohesion are to facilitate control over privacy in the (semi) public space. When people are feeling in control over their own privacy the development of social contacts is better facilitated. The spatial means to provide place attachment can be found in the housing stock, the quality of the organization of the public space and the presence of facilities.

The upper row shows the influences that relocation dynamics can have on social cohesion and place attachment. When a population has to deal with a high turnover it means that the composition of the population changes. This can lead to the eroding of trust when new residents arrive and existing social networks are undermined if people leave.

An individual’s attachment to place is stronger when he or she lives longer in the same place. Moving means starting over with developing place attachment. When is moved within the same neighbourhood this negative effect is smaller because although the neighbours are new they are familiar with the present facilities in the neighbourhood. The expected length of staying can be an influence because when people expect to leave their living environment in a short period of time they will not develop the feeling of being attached to it.
The extent to which individuals or groups in society are connected with each other and feel connected (de Kam & Needham, 2003).

Stronger relations with neighbours.

Social control.

Facilitating control over privacy in the (semi)public space.

Housing stock organization of public space presence of facilities.

Expected length of staying in the neighbourhood.

Length of residency.

Undermining existing social networks.

Possibility to erode trust when new residents arrive.

Social cohesion.

Main Influential Factors on Liveability:

- Social Cohesion
  - The extent to which individuals or groups in society are connected with each other and feel connected (de Kam & Needham, 2003).

Liveability:

- Better management of the living environment.

- Place Attachment
  - Feeling more attached to the living environment.

Means:

- Physical quality
  - Feeling more attached to the living environment.

- Social Cohesion
  - The extent to which individuals or groups in society are connected with each other and feel connected (de Kam & Needham, 2003).

Assumed Results:

- Social control.

- Stronger relations with neighbours.

- Liveability.

Influences (relocation dynamics) on Social Cohesion and Place Attachment:

- Possibility to erode trust when new residents arrive.

- Undermining existing social networks.

- Length of residency.

- Expected length of staying in the neighbourhood.

- Housing stock organization of public space presence of facilities.

- Facilitating control over privacy in the (semi)public space.

Fig. 3.12 Scheme: Coherence within theoretical framework. Source: author.
3.5 Public space

City spaces are places where children and adults from all cultures and lifestyles can move freely and meet to socialize and play and enjoy experiences with visual appeal (Gehl, Gemzøe, Kirknaes, Sternhagen Søndergaard, 2006, p. 106). This part of the theoretical framework focuses on the important quality criteria for the use of city’s spaces. This criteria are derived from the research of the Center for Public Space Research. From that same research we learn that the more criteria that are met in the public space the more well-visited they are.

Criteria

The criteria are divided within three themes, protection, comfort and enjoyment.

Protection

Protection expresses our need to be kept safe from accident, insecurity and discomfort (Gehl, Gemzoe, Kirknaes, Sternhagen Søndergaard, 2006, p. 106). Traffic and crime protection are two important criteria. Good city spaces provide good conditions for pedestrian traffic by organising other traffic well that a safe situation is created. Crime and feelings of insecurity can be counteracted by making sure that there are other people around. This can be achieved by the presence of diverse functions such as offices, shops and, cafe’s and restaurants. In that way there is social control possible. In more low scaled neighbourhood places with only housing more attention should be given to good lighting on the street and the façades of dwellings that should face the street to make social control possible. Protection against uncomfortable situations is important if people want to stay in one place for a longer time. Than they should be protect against sources of uncomfort such as weather conditions.

Enjoyment

City spaces should be of good quality, attractive and on a human scale with fine details, good materials and good street furniture.

Comfort

Opportunities to participate in a variety of activities and experience the surroundings is depending on how city space is designed to facilitate basic human activities. Moving around, crossing a space or sit and stay are all things that should be possible.

Designing the edges of public space is very important because people prefer to stay at the edges or border zones with their backs well protected. They want good opportunities for looking, listening and talking.

Good city space has multiple uses. It is not necessary for many things to happen at once but spaces should be flexible.

<table>
<thead>
<tr>
<th>Protection against traffic and accidents - feeling safe</th>
<th>Protection against crime and violence - feeling secure</th>
<th>Protection against unpleasant sensory experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection for pedestrians</td>
<td>Lively public realm</td>
<td>Climate: wind, rain/snow, cold/heat, pollution, dust/noise</td>
</tr>
<tr>
<td>Eliminating fear of traffic</td>
<td>Eyes on the street</td>
<td>Good lighting</td>
</tr>
<tr>
<td></td>
<td>Overlapping functions day and night</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good lighting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale</th>
<th>Opportunities to enjoy the positive aspects of climate</th>
<th>Positive sensory experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building and spaces designed to human scale</td>
<td>Sun/shade</td>
<td>Good design and detailing</td>
</tr>
<tr>
<td></td>
<td>Heat/coolness</td>
<td>Good materials</td>
</tr>
<tr>
<td></td>
<td>Shelter from wind/breeze</td>
<td>Fine views</td>
</tr>
<tr>
<td></td>
<td>Trees, plants, water</td>
<td></td>
</tr>
</tbody>
</table>
Opportunities for play and exercise
Physical activity, exercise
Play and street entertainment
By day and night
In summer and winter

Opportunities to talk
Low noise levels
Street furniture that provides possibilities to talk

Opportunities to walk
Room for walking
Interesting façades
No obstacles
Good surfaces
Accessibility for everyone

Opportunities to stand/stay
Edge effect/ attractive zones for standing/staying
Supports for standing

Opportunities to sit
Zones for sitting
Utilizing advantages: view, sun, people
Good places to sit
Benches for resting

Opportunities to walk
Room for walking
Interesting façades
No obstacles
Good surfaces
Accessibility for everyone

Opportunities to stand/stay
Edge effect/ attractive zones for standing/staying
Supports for standing

Opportunities to sit
Zones for sitting
Utilizing advantages: view, sun, people
Good places to sit
Benches for resting

Movement and staying space
There are two types of city space, movement and staying space. They can vary in types of function, design and use. Centrally located streets and spaces often have a high intensity of functions and pedestrians. More decentralized streets often carry only local traffic, and in residential areas, the streets is an access way largely used by residents.

Central spaces can attract people from directly attached areas and indirect places from other parts of the city and region. The liveliness in these places, created by the presence of other people is a vital attraction. Local staying places function as relaxation sites for often smaller parts of the population. In contrast, the level of more local urban spaces is more modest. There are few users and the low level of activity does not attract more. However this local life has its qualities and charm, attractive for the locals.

[1] Urban strollways
Boulevards, avenues, streets where directional movement is key

[2] Main city space
The main city squares of the city and districts frames many activities

[3] Local city space
Spaces that primary serves local users and incorporates playing and staying

[4] Secluded city space
Location and design offer fewer options, simple furniture for staying

Fig. 3.13 - 3.16 Public spaces in Hillesluis Source: author
### 3.6 CONCLUSIONS

3.6.1 Which social and spatial factors can influence the liveability of a neighbourhood?

#### INFLUENCES ON A NEIGHBOURHOOD LEVEL

*Increasing (+), Decreasing (-)*

<table>
<thead>
<tr>
<th>HOUSING STOCK</th>
<th>FACILITIES</th>
<th>PUBLIC SPACE</th>
<th>SOCIAL STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Owner-occupied housing</td>
<td>- Share of jobs in relation to the amount of residents</td>
<td>- Presence of green and plantation</td>
<td>- Families</td>
</tr>
<tr>
<td>- Family dwellings</td>
<td>- Share of facilities in relation to the amount of dwellings</td>
<td>- Program (diversity)</td>
<td>- Youth</td>
</tr>
<tr>
<td>- Share of new housing</td>
<td>- Concentration of primary schools</td>
<td>- Level of maintenance</td>
<td>- Long residence of residents</td>
</tr>
<tr>
<td>- Share of ground-based dwellings</td>
<td>- Share of shops in relation to the amount of residents</td>
<td>- Public and semi-public meeting places on different scales (neighbourhood, neighbourhood parts and streets)</td>
<td>- One person households</td>
</tr>
<tr>
<td>- Share of pre war multihall family dwellings</td>
<td>- Small housing</td>
<td></td>
<td>- % non-western immigrants</td>
</tr>
<tr>
<td>- Quality of the dwellings</td>
<td>- Density of addresses</td>
<td></td>
<td>- Ethnic heterogeneity</td>
</tr>
<tr>
<td>- Share of pre post war multihall family dwellings</td>
<td>- Social rental homes</td>
<td></td>
<td>- Socio-economical arrears</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL COHESION</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Relocation dynamics</td>
</tr>
<tr>
<td>- Sense of safety</td>
</tr>
<tr>
<td>- Social control</td>
</tr>
<tr>
<td>- Nuisance</td>
</tr>
<tr>
<td>Visible destruction in the public space</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLACE ATTACHMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Relocation dynamics</td>
</tr>
<tr>
<td>- Sense of safety</td>
</tr>
<tr>
<td>- Crime</td>
</tr>
<tr>
<td>- Social control</td>
</tr>
<tr>
<td>- Nuisance</td>
</tr>
<tr>
<td>Visible destruction in the public space</td>
</tr>
</tbody>
</table>

---

The extent to which individual groups in society are connected with each other and feel connected (de Korn & Needham, 2003)
3.6.2 How can relocation dynamics influence the liveability of a neighbourhood?

The influence of relocation dynamics on the liveability of a neighbourhood can be explained by explaining the influence on the sub factors that support liveability. These sub factors are social cohesion, physical quality and safety.

**Safety**
Relocation dynamics has a smaller influence on safety than on the other factors but contrary-wise safety does have an influence on relocation dynamics. A neighbourhood’s level of safety or the sense of safety that people experience can play a role as a motive for people to want to move away or into a neighbourhood. It does have an impact on the level of social control in the neighbourhood. If a large part of the population is relatively new and people do not know each other that well, it is harder to establish a good level of social control among the residents.

**Social cohesion**
When a population has to deal with a high turnover it means that the composition of the population changes. This can lead to the eroding of trust when new residents arrive and existing social networks are undermined if people leave and new people take in their place. This can have a negative influence on the social cohesion but can be counteracted if the environment facilitates enough possibilities for social interaction and thereby creating the opportunity to restore the mutual trust among residents, including the new residents in the social network.

**Place attachment**
An individual’s attachment to place is stronger when he or she lives longer in the same place. Moving means starting over with the process of developing place attachment. When the moving takes place within the same neighbourhood this negative effect is smaller because although the neighbours are new, people are familiar with the present facilities in the neighbourhood. Moving within the same neighbourhood often means an upgrade of the type of dwelling people live in, which makes it easier to get attached to it because it meets the needs of the user better. When people move into a neighbourhood it can sometimes be selective migration if they had no choice because of a low income. This can often be seen in disadvantaged neighbourhoods in the Netherlands. These people move into smaller, cheaper dwellings that do not always meet their needs. This also applies for the direct living environment surrounding the dwelling.

The expected length of staying can be an influence because when people expect to leave their living environment in a short period of time they will not develop the feeling of being attached to it. This is more common for households like students or people that move for temporary jobs like migrant workers.
Fig. 3.17 Influences of relocation dynamics Source: author
3.6.3 Which spatial interventions can add to the development of social cohesion and place attachment and thereby the liveability of a neighbourhood?

Social cohesion refers to various issues such as getting along, the extent to which residents are willing to help each other, share norms and values, the attachment to the neighbourhood and the extent to which people trust each other (De Hart et al., 2002, cited in Bolt, Kleinhans, 2010, p. 12).

Social cohesion exists of:
1) neighbourhood attachment
2) social interaction with fellow residents of the neighbourhood

Neighbourhood attachment exists of:
1) Social interaction and public familiarity > social interaction
2) shared norms and values
3) mutual trust and solidarity

Developing shared norms and values or recognising that your fellow residents share the same norms and values increases the mutual trust and solidarity. To be able to gain this knowledge about your neighbours social interaction is needed. This does not need to be an intensive relation or friendship. Most of the time a few encounters with the same people is all that is needed.

‘It are not only the deep or long social contacts between residents that make the residents bond with each other but it are also mainly the short superficial contacts that play an important role. These spontaneous, superficial contacts are meaningful and enable that people will identify with their living environment’ (Soenen, 2006).

Contacts with neighbours or other residents emerge over the fence, on the street, with other residents in a porch, talking with other parents in the schoolyard or on the playground, or meetings at the coffee cafe for the elderly in the neighbourhood. Usually these are spontaneous encounters, sometimes they are organized. The most important thing is that residents gain enough information and in this way come to recognize other residents and identify them socially. In short, without social interaction, there is no public familiarity and without public familiarity the chance of mutual trust is much lower. Without mutual trust, the probability of informal social control is smaller (Bolt, Kleinhans, 2010, p. 13) Visual recognition is sometimes even enough. If this happens often enough you will start recognizing this person as one of your fellow residents.

These social interactions also play an important role in developing neighbourhood attachment.

Spatial Interventions
As described above there are two ways of interaction, planned and unplanned. They take place in the public space, within public facilities or in the semi-public/private environments such as the direct domestic environment.

Facilities
The amount of research that is done on the effect of facilities on the social cohesion is growing. Dautzenburg (2008, cited in Bolt, Kleinhans, 2010, p. 27) says that the places where people can meet because they are there because of a similar goal are important for social contacts. There they can interact in an
informal way with each other. The type of contact is called familiarity. In order to
attract people to the same place a certain type of facility that is important for a
large group of people needs to be there.
The first category of planned interaction can be facilitated by a range of facilities
in the neighbourhood where a diverse number of activities can take place, in
line with the wishes and needs of residents. This are mainly the activities that
take place in the free time and are not related to work. For example like sports,
playing and hobby courses.

Next to that there are a lot of facilities which provide the residents in their
necessary needs like food and health care. These facilities facilitate a large
number of short interactions between for example the salesman and the
customer and customers among each other if they visit the same place more
regularly. This last type of interaction is an example of an unplanned interaction.
If the number of facilities that offers the same products is bigger, chances are
smaller to run into the same people. Also if the facilities have a wide reach for
customers, for example if people from other neighbourhoods visit this specific
facility next to all the residents, there are a lot of unfamiliar faces which makes
it harder to identify your own fellow residents and therefore the process of
identifying yourself with your living environment is harder. This makes these
spaces more public to the city and less public space for the residents.

Public space
Other types of unplanned interactions are those which take place in the
public space. A neighbourhood with a lot of meeting places where people
have encounters, such as parks, leads to a larger amount of neighbourhood
attachment (Völker, citied in Wittebrood., Permentier ,2011, p. 41) Sometimes
these spaces are linked to a certain facility that attracts people to the same
place at the same time. A good example is a school where mothers often
meet each other if they bring their children to school or pick them up. These
spaces are present on multiple scales within a neighbourhood. The example of
a square in front of a school can be the scale of the whole neighbourhood or
a smaller district. But there are also squares that can belong to a small amount
of houses such as a ‘hofje’ or an inner garden. The smallest scale is that of
the transition/hybrid zone between the private home and the public space.
This can be found in front of the dwellings and is limited to a certain street. This
is the space that clearly has an owner and where interaction between the
owner and neighbours or people that pass by can take place. The possibility for
these interactions to take place depends strongly on how the transition zone
is designed, the location of the street and the presence of other facilities than
housing. If there are facilities they will also attract other people that do not live
in that specific street. The more unknown people pass by the more anonymous
the public space becomes.

In general, the amount of green that is present in the public space, especially in
the case of Rotterdam, is important for the attractiveness of people to go to and
stay in a certain space. It has a good effect on the number of social contacts and
neighbourhood attachment (Bolt, Kleinhans, 2010, p. 27). As long as the green
does not causes unclear situations where the green works as a hiding shield.

Creating a network of public spaces and facilities on multiple scales, that
facilitates possibilities for social interaction between residents to take place,
will increase the amount of social cohesion and place attachment and thereby
supporting the level of liveability in the neighbourhood.
Social cohesion exists of:
1) neighbourhood attachment
2) social interaction with fellow residents of the neighbourhood

Facilities on different scales within the neighbourhood
- neighbourhood part
- neighbourhood
- neighbourhood and surrounding environment

Planned and unplanned encounters.

Neighbourhood attachment exists of:
1) Social interaction and public familiarity > social interaction
2) shared norms and values
3) mutual trust and solidarity
(Bolt, Kleinhans, 2010)
4) satisfaction with the environment
(Schreyer et al., 1981; Stokols & Shumaker, 1981)

Social cohesion is the most important neighbourhood-level factor influencing place attachment (Baily, Keams, Livingston, 2008).

Creating social cohesion through facilitating social interaction via short small encounters between people (R. Soenen, 2006)

Social interaction on a neighbourhood level
- Facilities
  - Daily needs (grocery shops, health care etc)
  - Free time (sports and hobbies, cafes and restaurants)

Fig. 3.18 Daily social encounters at local facilities Source: author

Fig. 3.19 Planned social encounters at local facilities Source: author

Facilities
- within the direct living environment (dwelling/residential street)
- within the public space (semi-private spaces)

Social interaction through semi-private spaces in the public space

Unplanned encounters
Other needs (educational institutions)

Social interaction in the direct living environment

- Transition zone in front of the dwelling
  
  Small zone defined by using another material and option of personalizing it with elements such as benches and plants

- Places with staying quality
  
  Playgrounds
  Neighbourhood squares

Front garden (only in a static environment)

Small parks

Fig. 3.20 Unplanned social encounters with similar people at local facilities
Source: author

Fig. 3.21 Transition zone in front of a dwelling, created borders by using of different kind of material Source: author

Fig. 3.22 Transition zone in front of a dwelling, front garden Source: author

Fig. 3.23 Social encounters in small public spaces that provides a reason to come and stay there Source: author

Fig. 3.24 Social encounters in larger public spaces that provides a reason to come and stay there Source: author
4 ANALYTICAL FRAMEWORK

4.1 Analysis context Hillesluis (Rotterdam Zuid)
4.2 Analysis location Hillesluis
4.3 Case reference research
4 Analytical Framework

4.1 Analysis context Hillesluis (Rotterdam Zuid)

Rotterdam is chosen as the project location. It is one of the four biggest cities in the Netherlands. Together they are named the G4. From all the cities in the Netherlands, these four experience the most changes in their dynamics. The relocation dynamics are the highest in the four biggest cities which makes it ideal to choose one of these cities as a project location.

Research that has been done by VROM (WoonBehoeftteOnderzoek) and Ministry of Internal Affairs (Politimonitor Bevolking) used indicators for the perceived liveability that are related to safety and feeling unsafe. In particular Rotterdam scores high on residents perceiving unsafety. They also checked the amount of satisfaction of residents with their own living environment. Again, Rotterdam got the lowest scores. Rotterdam also has a very high concentration of priority neighbourhoods.

4.1.1 Relocation dynamics Rotterdam

When looking at the relocation dynamics in Rotterdam we can conclude that there are a few sub municipalities where a large percentage of people leaves the area or is just about to settle (fig. 4.3 and 4.4). Feijenoord and Charlois are the most "dynamic" sub municipalities in the Rotterdam Zuid area when it comes to relocation dynamics. These tables are a result of the total number of leavers and settlers in the year 2012. People that move around in their own sub municipality are also included.

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Fig. 4.1 Relocation dynamics Dutch cities Source: VROM Adapted by author

Fig. 4.1.1 Scores of the G4 on the indicators for liveability. Source: BZK/Justitie (PMB ‘01 en ‘03); VROM (WBO’02) adapted by SCP
Percentage (%) leavers in Rotterdam sub municipality areas

Fig. 4.1.2 Percentage leavers sub municipalities (2012) Source: Gemeentelijke Basis Administratie (GBA)
Adapted by author

Percentage (%) settlers in Rotterdam sub municipality areas

Fig. 4.1.3 Percentage settlers sub municipalities (2012) Source: Gemeentelijke Basis Administratie (GBA)
Adapted by author
4.1.2 Relocation dynamics Feijenoord

The districts in the Feijenoord area are transition areas. This means that a lot of people live there only temporarily. People move a lot. Middle and Eastern Europeans settle themselves more and more in this area. This group experiences a bigger distance to the local society. A large part of the group comes here only temporarily for work. In general, there is a little connection to the neighborhood in which they do not feel responsible for the neighborhood or the behavior of fellow residents.

Data from the Central Bureau for Statistics about the percentage of leavers and settlers in the sub-municipality of Feijenoord shows that there are a few neighborhoods that stand out. These are Bloemhof, Hillesluis and Vreewijk. Kop van Zuid also has a lot of settlers and leavers, but in comparison to the total amount of residents, this amount is relatively small.

The three neighborhoods Bloemhof, Hillesluis and Vreewijk each experience the presence of large relocation dynamics. The Kop van Zuid neighborhood ranks higher on the ranking list of priority neighborhoods. Also the amount of people that move is higher within the neighborhood than in other neighborhoods. The Kop van Zuid neighborhood also has a lot of settlers and leavers but in comparison to the total amount of residents its amount is relatively small.

The figure below shows the percentage of settlers and leavers of the total of residents in the neighborhood of Feijenoord.

![Figure 4.1.4 Percentage of settlers and leavers of the total of residents in the neighborhoods of Feijenoord](source)

![Figure 4.1.5 Total amount of people that settled or left the neighborhoods in the sub-municipality of Feijenoord](source)
HILLESLOIS (ROTTERDAM)

Fig. 4.1.6 City of Rotterdam. Location of sub municipality Feijenoord (author)

Fig. 4.1.7 Sub municipality of Feijenoord, Rotterdam South (author)

11,430 residents (COS, 2013)
4,948 dwellings (70% rental homes)

High degree of mobility (relocation movements) and influx of newcomers
4.1.3 History

Hillesluis is part of the area in the middle of Feijenoord. This area exists of the neighbourhoods Afrikaanderwijk, Bloemhof and Hillesluis. The neighbourhoods were developed in the nineteenth/beginning of the twentieth century when more dwellings were needed to facilitate accommodation for a large group of dock labourers. The amount of dock labourers grew fast because of the fast growth of the harbours. The houses that were build at that time are of limited quality.

A lot of the inhabitants were working-class families from Brabant and Zeeland. When the area lost its function as a harbour, a lot of the neighbourhoods lost their identity as traditional residential areas for dock labourers as well. As a result a lot of former migrants left the area in the seventies of the twentieth century. The people that replaced them were often guest workers from Spain, Italy, Turkey and Morocco. The reason that they chose this area was often because of the large share of cheaper dwellings (deelgemeente Feijenoord, 2010).

History Hillesluis

Before people have built dikes in this area to stop the land from flooding the area was made out of little settlements on mounds. These were also refered to as ‘hillen’. In the eleventh century dikes were built surrounding the area and the whole island of IJsselmonde became a polder. But after a big flood in 1373 the land became part of the fresh water tidal area. In 1529 the started building dikes again, starting with the area west of the Groene dijk, nowadays the Groene Hilledijk and the Beijerlandse laan. Farms developed along these dikes. In the eighteenth and nineteenth century the buurtschap of Hillesluis developed. Between 1869 and 1872, the train track between Dordrecht and Feyenoord-Mallegat was developed. Around 1900 the Hillevliet was dug on the border of the two planned neighbourhoods Bloemhof and Hillesluis. They started building dwellings for the labourers in 1905 and made it into a very dense area.
Fig. 4.19: Green and water structures Rotterdam South (author)
4.1.4 Facilities Rotterdam South

In Hillesluis we find one of the most dense areas of facilities in the Rotterdam South area. A similar place with the same amount of facilities is Zuidplein but because of the type of shops differs and therefore also the shopping experience. Smaller concentrations of shops can also be found in Feijenoord, Afrikaanderwijk, Bloemhof and Carnise. But not every place is as well connected with public transport as the Boulevard Zuid in Hillesluis.

Boulevard Zuid
The Beijerlandselaan and the Groene Hilledijk are also called Boulevard Zuid together. Because these streets together facilitate more than 300 shops, distributed equally along both streets. This attracts a lot of people and here we find the highest concentration of traffic flows. Slow traffic but also car traffic and public transport on the Beijerlandselaan because of two tram lines (20, 25) that pass by. The long line is crossed by traffic in the middle, also by another tram line (2).

Economical function
The function of the Boulevard has changed over the years. In the forties and fifties it had a range across the region, even till the Zeeuwse eilanden in the south of the Netherlands. There were no other large concentrations of shops in the area. With the development of shopping centre Zuidplein (visible in the picture on the left) and the Lijnbaan this has changed. The range has reduced to the sub municipalities Feijenoord and Charlois in the south part of Rotterdam.

Target group
It mainly serves the residents of the neighbourhoods Bloemhof and Hillesluis. These residents also have changed over the years which had an effect on the types of products that is offered on the boulevard. Before 1970 the main target group was of native origin but then the amount of immigrants started to grow within these neighbourhoods. At this moment they form 70 to 80% per cent of the population and with this the average amount of money that can be spend per household has become smaller.
4.15 Connectivity Rotterdam South

Rotterdam has a large network of infrastructure connecting it to the region and connecting the neighbourhoods of Rotterdam. Hillesluis lies on the south part of Rotterdam, close to the railway but without a station to connect it. Because it lies more centred it is not directly connected to the ring roads that lie around Rotterdam. As a neighbourhood it is quite good connected to the centre and other parts of Rotterdam via tram and bus. A little further, outside of the neighbourhoods borders, there are a metro station (to the northeast in Afrikaanderwijk) and a train station (to the north west (Feijenoord).

If you would combine the information of this map and the information of the map on the previous page, you can see that the shops on the Beijerlandselaan are the best facilitated by public transport in this part of Rotterdam South. This gives the area an advantage in contrast to the shops in Bloemhof. Afrikaanderwijk is also quite good connected but they focus on providing a different kind of product, namely food. Shopping centre Zuidplein is also well connected.
Fig. 4.1.1 Public transport Rotterdam South (author)
4.1.6 Liveability

Leefbaarometer
The leefbaarometer is a tool that can be used to indicate the quality of the liveability in all districts and neighbourhoods. The ministry of Internal Affairs also uses the tool to monitor the approach for the priority neighbourhoods. To indicate the level of liveability the tool uses 49 criteria in the following dimensions: housing stock, public space, quality of the facilities, population composition, social cohesion, safety. (Leefbaarometer, 2012)

Liveability city districts Rotterdam
The liveability of the city districts is mainly worse in the Rotterdam South area (Feijenoord and Oud-Charlois) and the city centre. This is shown in figure 4.12. Other districts in Rotterdam have a positive average score of the criteria.

Liveability neighbourhoods Rotterdam South
The neighbourhoods in the sub municipality of Feijenoord do not all have a bad outcome of the liveability. Afrikaanderwijk scores the worst, followed by Feijenoord, Bloemhof and Hillesluis (fig. 4.13).

Liveability Hillesluis
The liveability on the level of the neighbourhood differs per part. The Slagheekbuurt and Polderbuurt have very negative scores while the rest is more moderate. An exception is the area along the Beijerlandselaan which has also a negative score.
Liveability Social Index

The Social Index is a way how the city of Rotterdam indicates problems in the living environment. The report provides an index score of four aspects, capacity, environment, participation and social bonding (Municipality of Rotterdam, 2012).

Hillesluis scores negative on all the factors. It tells us that the average income and education is very low and people do not master the language Dutch very well. That at least part of the dwellings provided in the neighbourhood are not suitable for the type of households that live there. That there is a shortage of social and cultural activities and that people do not feel very attached to the neighbourhood.

This level of attachment is lower than in the whole sub municipality of Feijenoord and the city of Rotterdam. The social index from these two other scales tells us that the specific scores on social and cultural activities, the amount of movements (relocation dynamics), the social commitment and the level of attachment to the neighbourhood in Hillesluis are lower. The bad match between what kind of dwellings are offered and what is demanded seems to corresponding with the whole sub municipality Feijenoord.
4.2 Analysis of Hillesluis

4.2.1 Urban characteristics

Hillesluis is characterized as a typical city neighbourhood because of the proximity to the center of Rotterdam and the type of buildings and density. The district is surrounded by busy streets, quiet residential areas can be found behind the edges of the neighbourhood parts.

The larger public spaces function as movement spaces for traffic but in the neighbourhood you can find smaller squares on the level of the neighbourhood that function as places to stay. Most of the streets facilitate traffic and because of the small profiles and a lot of parking spaces these spaces do not contain a lot of green. The larger green spaces can be found on the edges of the neighbourhood.

4.2.1 Public space in Hillesluis. Green spaces and stone squares. Source: author
The neighbourhood could be seen as a typical city neighbourhood. What we see is the presence of large amount of amenities mixed with housing. These functions are mainly mixed on the edges of the neighbourhood and the nodes between Hillesluis and other neighbourhoods such Bloemhof and Afrikaanderwijk. This are also the areas where we find the most traffic, both public transport as car traffic, because these are the axes that provide access to the different neighbourhoods. Behind the ‘mixed’ edges we see other parts of the neighbourhood that mainly facilitate housing. In these areas we find almost no amenities and therefore also no people passing by from outside the neighbourhood. These are quiet living environments in contrast to the more busy environments along the edges.

Historical axes
The historical lines Hillevliet-Randweg and Beijerlandselaan-Groene Hilledijk are still the structure bearers of the district. Together they form a system that divides the district into different neighbourhoods, namely Slaghekbuurt and Polderbuurt in the northwest, the Riederbuurt in the east and the Walravenbuurt in the south of the district.

Neighbourhood parts of Hillesluis
The neighbourhood is bounded by the Putselaan in the north, the railway Rotterdam-Dordrecht/Colosseumweg in the East, the Breeweg in the South and the Groene Hilledijk and Hillevliet in the West.

Hillesluis is divided into five parts. The Slaghekbuurt, Polderbuurt, Riederbuurt North and South and the Walravenbuurt.
[1] Slaghekbuurt and Polderbuurt
The Slaghekbuurt is a typical city neighbourhood. The housing stock exists mostly of apartments and car parking takes place mainly on the streets. Part of the dwellings is in bad shape. Mainly the dwellings in the Putsestraat.

The public space differs. The north part exists mainly of streets that are built for traffic and therefore are quite stony. The southern parts, also in the Polderbuurt, have a couple of squares that do not have a specific function but are qualitatively alright. They are mainly meant for the people that live within the neighbourhood. The Slaghekstraat has no potential of being a place to stay, it mostly facilitates traffic and parking. The neighbourhood would benefit if it would be reorganised and the residential quality would be increased.

The Walravenbuurt is quite introverted, people from outside the neighbourhood often do not accidentally pass by. The center part of the neighbourhood exists of the housing complex Stulemeijer II, which is a monument. The squares surrounding this area are the main public spaces. Parking cars is the main function of the streets and therefore the image of the streets and squares is dominated by cars.
Riederbuurt Noord
The Riederbuurt is developed in a different way than the other parts of the neighbourhood Hillesluis. The plan of building blocks follow the lines of the structure of the former polder. The buildings that are present exist of stacked apartments or family dwellings but are all quite small. The new building project ‘De Werelden’ has provided larger family dwellings. The streets are dominated by traffic and the parking of cars and are often quite narrow in the north-south direction. An exception is the northern part of the Riederbuurt, called the Laantjesbuurt. Here we find a flat with appartments for seniors and the es salaam mosque. Quite a different program than what was there before, a quiet living environment with small one layer houses for the labour workers in that time. Some of the residents that lived there in that time still live in the neighbourhood nowadays but within different parts or in different types of dwellings.

Riederbuurt Zuid
The south part differs from the north in two ways. A large part of the buildings was developed in one plan and therefore it look more as a unity. The public space exists of several squares and streets. The streets are wider than in the north part which makes it possible for the dwellings on the lowest level to have a front garden. In the middle we find a cluster of schools, within monumental buildings and next to it one of the larger squares.
4.2.2 Buildings Hillesluis
There are about 5000 houses in Hillesluis, of which the main part are rental homes (79%). This percentage is higher than the average of Rotterdam (66%) (Deelgemeente Feijenoord (2010)).

The building density of the neighbourhood Hillesluis is relatively high, although the presence of vacant buildings is also evident.

The average WOZ value for both rental and owner-occupied housing is € 50,000 below the average of Rotterdam. 32.4% of rental housing has a value of over € 100,000. For owner-occupied housing, this percentage is 53.1%.

Dwelling sizes
Hillesluis has a large offer of small sized dwellings. The newest building project have added more dwellings in the middle and larger categories but the average size is still very small. This makes them cheaper and also attractive for smaller households.

Ownership
A lot of the dwellings are owned by the Housing corporation Woonstad. These buildings often lie in the centre parts of the neighbourhood. The buildings along the edges are often owned privately. A distinction in this category can be made as well because a lot of the dwellings along the Groene Hillevliet and the Randweg are owner-occupied. But the dwellings along Beijerlandse laan and Groene Hilledijk are privately owned and then sublet to other people. The quality of the owner-occupied dwellings if often much higher, they are better maintained. 13% of the rental homes are sublet by private owners, 54% is sublet by housing corporations.
Housing typologies

A large part are ‘etagewoningen’ (38%) and ‘portiekgalerijwoningen’ (37%). The amount of etagewoningen lies about 13% above the city average and 18% above the average amount in the sub municipality. The amount of portiekgalerijwoningen is smaller. The city average is 54% and the sub municipality average is 48%. The percentage of ground-based dwellings is very low.

Fig. 4.2.9 Housing typologies Source: author
Facilities

Hillesluis contains a lot of facilities which are mainly located along the Beijerlandse laan and the Groene Hilledijk. Together they form a long shopping street called the Boulevard Zuid but physically they are separated by the crossing of the Groene Hillevliet and Randweg. A lot of these retail facilities are attracting residents from other neighbourhoods like Bloemhof. Along other edges of the neighbourhood we find schools, churches and mosques and care facilities. A new care facility is going to be opened at the north-west corner of the Slaghekbuurt. There are a few foundations that offer activities specific for the residents but there are no neighbourhood centres. There used to be three of these centres and they are missed by the residents. A library is also lacking while it is something that is wanted very much.

Because all the facilities are located along the same edges, most of the movements of people take place there instead of in the more residential areas in the centres of the neighbourhood districts.
Range of the facilities
The several facilities in the neighbourhood differ in the size of their range. A lot of the facilities in the Beijerlandse laan have a small range but together they form a shopping street that attracts people from far outside the borders of the neighbourhood. Most of the other functions that reach a lot of people are in the service category and can be found in the Slagheekbuurt or along the Hillevliet and Randweg.
4.2.3 Public space

Level on which public spaces are used
Most of the spaces within the neighbourhood are within the categories of the neighbourhood level or their surroundings. There are also quite some spaces on the level of the buildings block, with the exception of Riederbuurt zuid. There is a lack of spaces that function within the level of the different neighbourhood parts.

Typologies of public space
Most of the squares are related to the direct function which is often a school or a religious buildings. Next to that there are a lot of playgrounds and a large shopping street.

Facilities in the public space
There are a lot of facilities for children, which is a good thing because they form one of the largest target groups. But the offer is not really diverse.
There is a lot of pressure on the neighbourhood streets because of a lot of car traffic. The travel through the residential streets with high speed.

Sidewalks wider than 3 meters and larger open spaces
The more space that is given to pedestrians the more a space can function as a comfortable place for staying. A factor that is important and of influence is the amount of people passing by. If this percentage is higher the space is less likely to be comfortable for residents to use as a space for staying. In those cases having front gardens would not be effective anymore for the development of social interaction.
In Hillesluis we see quite a large percentage of the streets with sidewalks that are wider than 3 meters. But these are often located along the more busy streets that function as important streets for the access to the neighbourhood and therefore facilitate more passers-by. This is mainly to be seen in the Slagheekbuurt. The Riederbuurt Noord and Zuid and the Polderbuurt have a few spaces where we see the ideal combination of ground-based housing with front gardens, with wide sidewalks in the more quiet streets. The Walravenbuurt has a lack of wide sidewalks but this is partly compensated by the high amount of neighbourhood squares.
4.2.4 Public transport

The neighbourhood is well reachable by public transport. There are multiple bus and tram lines going through the larger axes that make the division between the different neighbourhood parts. There are no public transport stops in the more residential streets behind the edges of the neighbourhood parts.
4.2.5 Observations

Playgrounds
There are a lot of small and larger playgrounds present in the neighbourhood. These are located in the centres of the neighbourhood parts or on the edge of the neighbourhood in the Varkenoordse park.
A lot of the squares also contain sport fields. These are not always as well maintained as the playgrounds, often by the wrong use by youngsters.

Liveliness
Liveliness on the streets can be mainly found on several squares and the larger axes on the edges of the neighbourhood parts because of the facilities in the buildings on the ground level.

Parking pressure
Parking in the residential streets takes place on the street. When the profiles are small and cars are parked on both sides this dominates the image of the street.

Fig. 4.2.18 Playgrounds and sports fields in the neighbourhood. (source: author)
Fig. 4.2.19 Facilities in the buildings. (source: author)
Fig. 4.2.20 Parking pressure. (source: author)
The largest part of the households is the one person household, followed by married couples with kids. Two other types that are less present but also significant are the one-parent household (mom or dad with children) and the couples without children.

Within the families the father often works, the mother stays at home and they have three children or more.

As a result of the presence of a large amount of families with children we see that the built up of the neighbourhoods population is very young. There are a lot of kids present. The group of people older than 65 is very small. This group mainly exists of native people.

The blue part of 16.7% represents the native population in Hillesluis. The pie chart shows that the neighbourhoods population mainly exists of immigrants. These are immigrants of the first and second generation. In contrast to the case of Rotterdam, where only half of the population consists of immigrants, in Hillesluis they form the majority. An interview with the area coordinator of sub municipality Feijenoord made clear that a lot of these immigrants are also part of the high relocation group. In this case it are mainly immigrants that have come here for a few years for a temporary job.
Within the group of the migrant population in Hillesluis, the Turkish immigrants are the largest group present, followed by the Moroccan and Surinam immigrants.

Social networks within the neighbourhood are important for immigrants because it helps them integrate faster in the Dutch society (Portes and Sennennbrenner (1993), cited in Pinkster).

The map above shows the spread of the different kinds of households through the neighbourhood. Striking is the large amount of families within the neighbourhood. They mostly live within the centres of the different parts of the neighbourhood. The edges along the Beijerlandselaan and Groene Hilledijk are mainly occupied by one person households which in the case of Hillesluis means that they are often migrant workers or students. These streets facilitate the cheapest dwellings or rooms which makes it logical that these type of people settle here.

The axes of the Groene Hillevliet and Randweg facilitates more expensive homes that are owner-occupied. That is why you can find the households with the highest incomes in the neighbourhood in this environment. Although the axes facilitates a lot of traffic it contains a lot less facilities in contrast to the Beijerlandse laan which makes it a more calm environment to live in. There are five buildings that facilitate homes for the elderly, which are spread over the five parts of this neighbourhood.
4.3 Case reference research

This part of the research focuses on relocation dynamics on a neighbourhood level. Several neighbourhoods that earlier were indicated as transition neighbourhoods are compared on their spatial characteristics. Thereby especially focusing on the different living environments within these neighbourhoods where we can find big differences in the length of residence. There are two categories:

• High relocation dynamics means a length of residence shorter than two years. Households in this category are dynamic households.
• Low relocation dynamics means that people stay in the same place for at least ten years. Households in this category are static households.

An area within a neighbourhood can be indicated as a highly dynamic if more than twenty per cent of the people within that area move within two years (Gisweb municipality Rotterdam, 2013).

An area within a neighbourhood can be indicated as static if at least ten per cent of the people in that area stay for at least ten years (Gisweb municipality Rotterdam, 2013).

These spatial characteristics are part of the reason why these areas are attractive for specific the dynamic and static households. They can be the answer to the motive for people to move. The characteristics of multiple scales are important, namely:

THE DWELLING
Ownership × Buying/Rental: Owning a home means a commitment to it and the living environment surrounding it. Renting a place means that moving can always be an option. The choice can be related to the motive why people want to move. For example for (temporary) work, education or changes in the household (moving in together, marriage, children). But renting is often also a more logical option for households with lower incomes.
Size: The size of the household is often related to a certain phase of life (youth, student, working single, marriage etc.). This asks for a complementary size of the dwelling.
Typology: The typology is often related to the size. But is can also be a decisive factor in the choice for a home. Families will often prefer a family dwelling, because they are also often ground-based with the option of a garden, while single households have the option of single of single apartments or shared rooms within a larger dwelling.
Transition dwelling to public space: the type of transition from private to public can be an important facilitator for social interaction and is related to the housing typology.

PUBLIC SPACE
Hierarchy: Depending of the location of the street in the hierarchy of the neighbourhood it tells us if it is a more private or a more public space.
Street profile: Height ratio compared to profile width. This is related to the type of hierarchical street and if it is movement or staying space.
Movement/Stay: Depending on the type of public space we can tell if it is a place for staying or movement. Movement spaces are often more public and well-visited by traffic. Staying means that a certain amount of social interaction can take place.
Urban or neighbourhood publicness: Urban publicness is attractive because of the anonymity it offers. In the neighbourhood the public space offers room for certain groups to meet, and has therefore a different atmosphere: it is clearly public space for the inhabitants and has restricted use.

The main case Hillesluis will be analysed and next to that two other neighbourhoods in Rotterdam South, Bloemhof and Carrisse.
Carnisse is seen as a neighbourhood where many people start their housing career. The neighbourhood facilitates a lot of smaller, cheaper dwellings. 86% of the housing is smaller than 75m², 64% is even smaller than 65m². Carnisse has the function as a neighbourhood for starters in the city.

**Bloemhof**
Bloemhof is a multicultural neighbourhood that was built before the war. Because of a lot of experimental building techniques that were used in that time, you can find a diverse amount of housing typologies and living environments in this neighbourhood.

**Hillesluis**
Hillesluis is the main case of this research. It is not surrounded by neighbourhoods from all the sides like Bloemhof but has a strong border in the east because of the train tracks. Something that can also be recognized in Carnisse where the Zuiderpark is a strong border in the south.
Transition zone

The transition zone between private homes and the public space plays an interesting role in meeting people within your neighbourhood. Every housing typology has a different kind of entrance towards the private part of the house/the front door. These various zones support different kinds of opportunities for people to meet. Examples that can be found in the neighbourhoods that are being analysed are shown on this page.

Housing that is located within shopping streets often does not have a zone that separates the public street from the front door. Next to this the streets are filled with people unknown to the home owners because of the shops that attract them. This makes the public space more anonymous. It is not likely that neighbours will meet in these situations.

Housing blocks with multiple apartments often have a shared door and hallway. This makes the chance bigger for people to meet within the building because there is a shared semi private space. But because this space is separated from the public space there is less interaction with fellow neighbours that live outside the building.

Building blocks with both apartments with shared entrances and ground-based dwellings with single entrances.

Building blocks with all land-based dwellings. The level of opportunities for interaction with neighbours increases when

Portiek entrances combined with ground-based entrances.

Fig. 4.3.2 Entrance type 1 (source: author)

Fig. 4.3.3 Entrance type 2 (source: author)

Fig. 4.3.4 Entrance type 3 (source: author)

Fig. 4.3.5 Entrance type 4 (source: author)

Fig. 4.3.6 Entrance type 5 (source: author)
Carnisse - large relocation dynamics

Fig. 4.3.7 Large relocation dynamics (source: author and GISWEB, 2013)

Fig. 4.3.8 Hierarchy of the street network Carnisse (source: author)

Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone
Entrance on the street level with amenities on the ground level

Portiek

Portiek, shared entrance + private entrance

Family dwelling, own entrance

Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone
Entrance on the street level with amenities on the ground level.

Haags portiek, entrances on the ground and upper level.

Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone
Conclusion high relocation dynamics
The following will show the main spatial characteristics of a living environments that is attractive for highly dynamic households.

THE DWELLING
Ownership > Buying/Rental:
The dwellings are mainly rental homes.
Size:
They are small houses (40-70 m²) and therefore cheaper. In some of the cases of Hillesluis it are rooms that are being sublet instead of whole apartments.
Typology:
The largest part of the buildings in the area facilitates other functions than housing on the ground level.
Transition dwelling to public space:
The entrance situation of the dwellings differs. Half of the dwellings have shared entrances but there are also a lot of private entrances. But the transition zone of the dwellings to the public space is quite similar. There are no front gardens or semi-private zones in front of the houses.

PUBLIC SPACE
Hierarchy:
At least 70% of the dwellings is located along the streets in the highest category. They are streets on the level of the city district or are important for the main structure of the neighbourhood. Typical for these streets is that there is a lot of traffic but it they different types of traffic are separated. This is often necessary because the speeds limits are higher and the amount of traffic is bigger.
Street profile:
The width of the profiles along the buildings blocks with high dynamics is larger than the streets that can be found in the centres of the neighbourhoods. They facilitate both fast and slow traffic and public transport. The buildings are higher and this makes it clear that these are the edges of the neighbourhood.
Movement/Stay:
A lot of the spaces that are located in these areas are movement spaces. There is almost no space that is pleasant enough to stay in. Two exceptions are the ‘ventwegen’ along the Putselaan and Dorpsweg and the West-Valkenoordse straat in Hillesluis that is located along the park. Here we still find movement but they have wider sidewalks and therefore playing and staying becomes an option. There is no program that makes staying attractive except in the case of the Beijerlandsestraat in Hillesluis were shops and cafés invite people to stay longer in this area. But this program is also focusing on other people than the residents of the neighbourhood.

Urban or neighbourhood publicness:
The streets are part of the highest levels in the hierarchy and therefore more related to the urban network than the neighbourhood network. They offer a certain amount of anonymity but because of the high amount of people traveling through the space it is not an unsafe situation because there are a lot of eyes on the street. It is not clear whom are the residents in these spaces. The people can easily be visitors from other neighbourhoods that are attracted to the area because of the facilities. The residents will not have the idea that they are partly owner of the public space in front of their homes. The streets are well accessible by all sorts of traffic.

Types of households
- The dwellings have private owners who sublet
- The tenants are often students, people or couples starting on the housing market or migrant workers. A lot of the people that move into these homes come from foreign countries.
- They have the intention to move again within 2 to 5 years
- Therefore there bond with their living environment is weaker than average

The area where we find the most relocation dynamics can be described as the type of living environment that is the most urban within these neighbourhoods. They have the highest densities, facilitate most of the traffic, are the most anonymous because of high amount of other people than the residents traveling through and facilitate most of the facilities that are important for all the residents and therefore belong to the scale of the neighbourhood.
Family dwelling, own entrance

Portiek, shared entrance + private entrance

Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone
Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone

Fig. 4.3.14 Long length of residence (source: author and GISWEB, 2013)

Fig. 4.3.15 Hierarchy in the street network Bloemhof (source: author)
Fig. 4.3.17 Hierarchy in the street network Hillesluis (source: author)

Location in the hierarchy

Eyelevel perspective

Entrance typologies - transition zone

1. Entrance on the street level with amenities on the ground level

2. Portiek

3. Portiek, shared entrance + private entrance

4. Family dwelling, own entrance

Fig. 4.3.16 Long length of residence (GISWEB, 2013)
Conclusion long length of residence
The following will show the main spatial characteristics of a living environments that is attractive for static households with a long length of residence.

THE DWELLING
Ownership > Buying/Rental:
There is a mix of rental and owner-occupied housing. The level of owner-occupied housing in Hillesluis is very low but there is a need for more.
Size:
They are average size or large houses (80-140m²) and therefore they are a little more expensive than the dwellings in the dynamic category. The types of households within the static group are larger and therefore they need more space.

Typology:
The building blocks facilitate mainly housing and in some cases a few other facilities. Some of the dwellings are ground-based but the average amount are maisonettes or apartments.
Transition dwelling to public space:
The entrance situation of the dwellings differs. Half of the dwellings have shared entrances but there are also a lot of private entrances. The transition/hybrid zone differs. There is not always a private space present in front of the dwelling. The amount of housing with a front garden is larger in Bloemhof than in the other neighbourhoods.

PUBLIC SPACE
Hierarchy:
Most of the dwellings are located along smaller residential streets in the centres of the neighbourhood parts. In these streets the space is shared by a variation of slow and fast traffic types. The level of use is lower than the streets in the dynamic living environments.

Street profile:
The width of the street profiles is smaller in the cores of the neighbourhood than on the edges. But the buildings are also lower and thus they stay convenient spaces to stay in. The sidewalks are often wider and also used for other activities than passing by.

Movement/Stay:
The spaces are both movement and staying space. But there is a lot less movement than in the dynamic living environments. There is less going-through traffic and more destination traffic. There is more space for staying, especially when there is a front garden present. But there are also places in the streets that are clearly ‘owned’ by the residents and are shared common spaces.

Urban or neighbourhood publicness:
The streets are more neighbourhood public than urban public. Visitors are clearly only visiting and ownership of the streets is more clear, the streets are used by the residents. Therefore they become more semi-private and less anonymous. Residents create a sense of attachment to their living environment that is larger than their own house. There is more social control among the residents and dwellings on the street level gives the option of eyes on the street from within the dwelling. The fact that there are almost no facilities other than housing makes the chance of ‘strangers’ passing through these environments smaller than in the living environments of dynamic households.

Types of households
• The dwellings have private owners or are rented from housing corporations
• The tenants are often families, one parent households, couples or empty nesters where the children have left the house. There average length of residence is longer than ten years
• Therefore there bond with their living environment is stronger

The areas where we find the longest length of residence are the more quiet and more private living environments. They still have a high density but this is lower than on the neighbourhood edges. The streets all facilitate traffic but there is more destination traffic than traffic going through. The main function is facilitating housing and therefore there are almost no ‘strangers’ beside the residents that use the space. This makes the space more private and less anonymous.
Relocation dynamics Hillesluis

Strong relocation dynamics
A building block or cluster of blocks fits within the category of strong relocation dynamics if more than twenty per cent of the people within that area move within two years (Gisweb, 2013). In Hillesluis these areas can be found within the building blocks along the edges of the Riederbuurt and Walravenbuurt.

Static areas, long length of residence
A building block or cluster of blocks fits within the category of long residence if at least ten per cent of the people in that area stay for at least ten years (Gisweb, 2013). These building blocks can mainly be found in the Riederbuurt which makes sense because these are the areas with the largest share of ground-based family dwellings. Families tend to stay longer in the same neighbourhoods if they have kids that have to go to school. It also makes sense for the building blocks along the Randweg which all have private owners.

Highest average of new comers from other countries
To be able to fit in this category the building block or cluster of blocks has a percentage of six to nine per cent of people that are new to the neighbourhood. They arrived no longer than two years ago from outside of the Netherlands (Gisweb, 2013). We can see that the Polderbuurt and Slaghekbuurt have a lot of new comers spread around the district. This is also the case for some of the parts in the Riederbuurt but the difference here is that we know that these areas contain a lot of new housing which explains the large amount of new comers. We also know that part of the Riederbuurt Noord contains ‘kluswoningen’ since a year which attracted Dutch couples with higher incomes.
4.4 Publicness

There are two typologies of publicness in public space: urban publicness and neighbourhood publicness. Urban publicness is attractive because of the anonymity it offers. This means that you are less, and in some cases, not, restricted in your movements and the people you meet, than in public spaces in the neighbourhood. But because of its anonymity you will not meet somebody particular. In the neighbourhood the public space offers room for certain groups to meet, and has therefore a different atmosphere: it is clearly public space for the inhabitants and has restricted use (Duyvendak and Boonstra, 2002).

This publicness has three qualities: ownership, access and use. Ownership depends on whether public space is public or private, and whether it is neutral ground or not. Access defines whether everyone can enter, in the sense of if people have to pay a fee, for example for a museum. But it also is about whether handicapped or elderly can enter the public space. Use is the measure on how actively used it is by different individuals or groups. Sometimes more publicness is desired and sometimes less publicness is desired. This depends on the location and the function of the public space (Carmona, 2010).

The hierarchical position of a street in the network of the city defines the level of publicness and use. The street can have a relation to a building because of a certain function. For a shop the street is the space where they can display their products and invite people to enter. These kind of streets have a high level of publicness. For a house the street is the place where they can show their individuality by placing unique elements in their space. Sometimes the space is designed with shared elements and this shows the closed character and cohesion in a street or neighbourhood and has a lower level of publicness (Meyer, 2009). In this case the ownership is clearer.

The level of publicness can vary in different situations; sometimes a semi-public space for an individual can be a private area of a group of inhabitants. This semi-public space can then be the private space of the neighbourhood. This way a system of lodged areas is developed (Dorst, 2005).

In this system it is important to arrange functions in a logical way and to make it possible that some areas can be closed off. This will clarify ownership and improve the feeling of safety.

The biggest transition from private to public is the transition from a private residence to a public outdoor area. This transition can be softened by a transition zone, which will prevent a sudden transition and ensure that the inhabitant can use the space in front of the house and still feel safe. This zone can be a front garden, a small height difference or a small zone with a different kind of street material that is used. It also means for the inhabitants to be able to display their identity and a buffer against people looking in, but also ensures openness to make informal social control from the dwelling possible (Dorst, 2005).

The following analyses shows the level of publicness of the public space in Hillesluis. Therefore we look into several characteristics of the space:

- Function: moving space or staying
- The intensity of use
- Type of users, residents or ‘strangers’
- Design of the public space

This all places them in a certain position in the hierarchy of the overall street structure.
The more public the more suitable for relocation dynamics. But the harder the chance on stronger social networks because contact between people is more superficial.

**Urban publicness**

1. **City streets**
   Streets that are important for the connection of several districts within Rotterdam. It is mainly meant as a moving space and intensely used throughout the day. The type of user is a mix from residents from all over Rotterdam and people from outside the city. Traffic flows are physically separated the street profiles are wide. The buildings along these axes are often higher and mark clearly the edges of the different neighbourhoods.

2. **City district streets**
   These streets are the main axes within the neighbourhood that connect it to the surrounding neighbourhoods. It is mainly meant as a moving space with a few staying spaces that are related to a part of the many the facilities that can be found along these streets. The intensity of use is

**Neighbourhood publicness**

3. **Neighbourhood streets**
   Streets that give access to neighbourhood parts

4. **Neighbourhood parts streets**
   Main structure of the neighbourhood parts

5. **Residential streets**

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**Fig. 4.4.1 Publicness in Hillesluis (source: author)**
City streets

Streets that are important for the connection of several districts within Rotterdam. It is mainly meant as a moving space and intensely used throughout the day. The type of user is a mix from residents from all over Rotterdam and people from outside the city. Traffic flows are physically separated the street profiles are wide. The buildings along these axes are often higher and mark clearly the edges of the different neighbourhoods.
[2] City district streets
These streets are the main axes within the neighbourhood that connect it to the surrounding neighbourhoods. It is mainly meant as a moving space with a few staying spaces that are related to a part of the many facilities that can be found along these streets. The intensity of use is quite high and formed by residents and visitors from other neighbourhoods that are attracted by the facilities that are present. Several of these streets contain public transport lines and stops that adds to the level of use. The high number of visitors from outside the neighbourhood and the fact that there is no clear ownership by residents of the public space in front of the buildings makes the space more public and anonymous.
(3) Neighbourhood streets

Streets that give access from the main roads to parts of the neighbourhood. These are more intensely used by traffic than residential streets. All forms of traffic make use of the same street. Instead of facilities the ground level of the buildings contains mainly homes. The hybrid zone in front of the building is often not there which tells that the street is public space and not permanently owned by the residents. It is a shared space with residents that live in other parts of the neighbourhood.

Fig. 4.4.4 Publicness in Hilleguis (3) source: author) (source: author)
Neighbourhood parts streets
Main structure of streets within the neighbourhood parts. These streets are often 100 per cent filled with the function living and a small or larger hybrid zone in the form of a front garden is visible. The streets are accessible to all sort of traffic but the level of use is less intense by car traffic. Personal touches in the hybrid zones indicates that residents are the ‘owners’ of the public space in front of their homes and the space thereby becomes semi-private. The space becomes more of a staying space than only moving through, also because of the location within the street network.
[5] Residential streets

The residential streets are the most private public spaces in the neighbourhood. There is less fast and more slow traffic. The space offers more quality to stay in the space because of adjacent plantation or squares. Also the sidewalks become wider in some places and thereby suitable for playing and interaction with neighbours. Dwellings have a more present hybrid zone or a shared semi-private space is facilitated as can be seen in the cases of the Blokweg and Immobiliaan.

Fig. 4.4.6 Publicness in Hillesluis (5) (source: author)
<table>
<thead>
<tr>
<th>HOUSING STOCK</th>
<th>FACILITIES</th>
<th>SOCIAL STRUCTURE</th>
<th>SOCIAL COHESION</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Owner-occupied housing</td>
<td>+ Diverse program of facilities that facilitate basic and second needs related to necessary and optional activities</td>
<td>+ Families</td>
<td>Place attachment</td>
</tr>
<tr>
<td>+ Family dwellings</td>
<td>+ Share of jobs in relation to the amount of residents</td>
<td>+ Youth</td>
<td>Social cohesion</td>
</tr>
<tr>
<td>+ Quality of the dwellings</td>
<td>+ Share of facilities in relation to the amount of dwellings</td>
<td>+ Long length of residence</td>
<td>Both</td>
</tr>
<tr>
<td>+ Diversity in housing, possibility to move within the same neighbourhood if the needs of the household change</td>
<td>+ Concentration of primary schools</td>
<td>+ Level of social participation</td>
<td></td>
</tr>
<tr>
<td>+ Share of new housing</td>
<td>- Share of shops in relation to the amount of residents</td>
<td>- One person households</td>
<td></td>
</tr>
<tr>
<td>+ Share of ground-based dwellings</td>
<td>- Density of addresses</td>
<td>- % non-western immigrants</td>
<td></td>
</tr>
<tr>
<td>+ Share of pre war multifamily dwellings</td>
<td>- Share of pre post war multifamily dwellings</td>
<td>- Ethnic heterogeneity</td>
<td></td>
</tr>
<tr>
<td>- Large share of small housing</td>
<td>- Social rental homes</td>
<td>- Socio-economical arrears</td>
<td></td>
</tr>
<tr>
<td>- Density of addresses</td>
<td>- Vacant housing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To what amount are these factors present in the neighbourhood Hillesluis?

HOUSING STOCK
- Owner-occupied housing
  They are facilitated in the neighbourhood to a certain amount. There are still a lot of families that are interested to buy dwellings. But they have to be more in the cheaper segment because it are mainly households with low incomes.
- Family dwellings
  The main share of the dwellings are family dwellings. Although they could be in better shape or a little bit bigger for the amount of people living in their the size and condition makes them affordable at this moment for the current households in the neighbourhood
- Diversity in housing
  The neighbourhood lacks to facilitate family dwellings in the category medium sized. Most of the dwellings are small

- Large share of small housing
  This can become more diverse
- Density of addresses
  The neighbourhood has a quite good density. There is already a lot of pressure on the public space so it would not be good to extend the built up surface
- Vacant housing
There are no abnormal amounts of vacancies within the dwellings. Vacancy does occur within the retail shops.

**FACILITIES**
- Diverse program of facilities that facilitate basic and second needs related to necessary and optional activities.
- Share of shops in relation to the amount of residents.

**PUBLIC SPACE**
- Share of green and plantation.
  Only 12% of the public space is green. This is very low. Most of the green spaces are situated on the edges of the neighbourhood.
- Program (diversity).
  There is a lot of program for children but is not that diverse. The program of the public space for youth is also not that diverse because it mainly consists of some football fields and cages.
  There are no places inside the neighbourhood parts to come together and stay that have a different program than playgrounds. There is one square with horeca but this is located on the Beijerlandsebaan which is meant for more people than only the residents.
- Level of maintenance.
  The level of maintenance is quite weak in a lot of places. Sometimes because of destruction by youth. This comes often because of the fact that they are bored and that there is no program that fits to their needs.

**SOCIAL STRUCTURE**
- Families.
  Families are the largest group that are present in the neighbourhood. They are good influence on increasing the average length of residence.
- Youth.
  Because of the large amount of families there is also a large group of youthful people.
- Long length of residence.
- Level of social participation.
  - One person households.
  - % non-western immigrants.
  - Ethnic heterogeneity.
  - Socio-economical arrears.
Hillesluis is a neighbourhood with a lot of families. The fathers work, the mothers are home and they have four children or more. Therefore there are a lot of children and youth which often leads to nuisance and in some cases damage to public places and their facilities.

A lot of the dwellings are not suitable for families because their sizes are too small, but because of the low prices and large amount of rooms they stay attractive to these type of households.

All tough people in Hillesluis have a lot of contact with their family and friends there is little contact between residents.

Lack of diversity in public spaces Program per space is too similar. A lot of squares contain playgrounds, which is positive, but the group of people within the age of 16-18 is quite large which makes it a good thing to look for other facilities more appropriate for their age as an addition to the present playgrounds. There are no natural playgrounds.

Also there is a lack of unprogrammed space.

Green in the public space is lacking while this is adds to the attractiveness of a place and thereby the urge to stay.

The utility quality is low.

A lack of furniture to be able to stay directly in the area of playgrounds

A distinction between places for men and women can be important in certain cultures. This distinction is not clearly visible in the public space right now.

There is a lot of pressure on the public space because of traffic and car parking. But there a few underground parking garages which are barely used which creates an opportunity.

The population density delivers high pressure on the public space.

The Slaghekstraat is officially a 30 km zone. But the street functions as a busy going through route for the Slaghekbuurt.
The neighbourhood has the profile of a transition area with a lot of relocation dynamics.

The reason for settling: The houses are small but have multiple rooms and are affordable.

When the times comes and there a person has enough money, they will move. Because the percentage of owner-occupied dwellings is very small they often move out of the neighbourhood.

Making a housing career is not really possible in this neighbourhood. Dwellings for household with higher incomes are only a small share of the total amount of dwellings. A few projects have already started to change this. One of them is the housing project 'de werelden', initiated by Woonstad.
5 RESULTS - DESIGN FRAMEWORK

Elements from the analytical and theoretical framework translated into a model / toolbox that can be used to analyse how ready neighbourhoods are to facilitate relocation dynamics and how this can be adjusted if necessary.
5.1 Living environments for dynamic and static households

Basically, dynamic and static households can move into a lot of different places in a neighbourhood. But if we look into the types of households and their moving motives we notice that some streets are more ideal for each of the types. Also if we want to achieve to make all these living environments as liveable as possible.

Therefore, living environments differ when it comes to facilitating dynamic or static households. Dynamic households are the ones that have a short period of residence where static households stay longer in the same place. The expectations of their living environments and the needs that they have to facilitate differ but there are also things that they have in common.

What both types of households have in common that they all need facilities on a neighbourhood level that facilitate their basic needs. Think about health care and shops to be able to do groceries. Therefore, the presence of these facilities is wanted by both types of households and does not make a difference in making it more or less liveable for one of two types of households if some of the facilities might be missing. But living directly next to facilities or a few streets away from them makes more of a difference.

Where they differ is the type of direct living environment they want to move into (dwelling and adjacent space (scale of the residential street)). The more satisfied they are with their environment, the stronger the attachment to the living environment will be or become. Also we learned from previous chapters that social cohesion is an important factor for this attachment and also as a supporting factor for liveability. This social cohesion is formed by social interaction between fellow residents and the living environment has to facilitate the possibility for this to happen. This is easier to establish between people that are more similar according to the phase of life their in and thereby the type of household. In order to make the environments liveable they have to facilitate the qualities that each of the types of households need.

Dwellings

Dynamic households are mainly one person households. Therefore the dwellings can be smaller. They expect to live in one place for a shorter period of time. Therefore they choose often for rental homes instead of the option of buying. If they are students they can rent rooms with their own facilities such as a kitchen but is can also be an option to rent a room and share the main facilities. In this last case, social interaction between room mates can more easily be established because interaction between all the room mates takes place.

Improving the liveability by increasing the amount of social cohesion and attachment to the living environment.

We already know that the level of social cohesion can be increased by improving the possibilities for social interaction. The familiarity among residents that can be established by this social interaction has also a positive influence on the attachment to the living environment.

Dynamic streets for dynamic households (households that move often and live in the same place for a short period of time)

Streets that have to facilitate dynamic households contain less spatial elements in the direct living environment that can facilitate this social interaction. Facilitating these elements such as front gardens or more public playgrounds are possibilities but the effect of them working in these spaces will not be as effective because of the high level of use of the streets by traffic and people passing by that are not residents. A first thought would be to diminish this level of traffic but this is not always an option because these streets are often very important for the access to the neighbourhood or sometimes on the level of the district. Also the type of
households that are the most dynamic such do not often have a strong social network within the neighbourhood. In the case of the students this is because they already have a strong social network that is spread around the city. Therefore their efforts in developing social contacts within the neighbourhood are weaker. The other type of households are migrant workers. They arrived from another country to this place because of work and they are planning on leaving again in a short period of time. Them not speaking the Dutch language and not being familiar with the Dutch norms and values makes it harder for them to establish social contacts within their living environment.

Both of the groups obtain the most of their social interaction within the neighbourhood by visiting facilities within the neighbourhood. This is an element that thereby is very important for these groups. There they not only meet other dynamic households but also part of the static population.

Social control in the domestic environment is often established because of relations with fellow residents and knowing them a bit and being familiar among each other.

If the percentage of dynamic households is very high in a street it has to rely on other people in the public space to create liveliness and social control. Providing elements that attract these people is thereby very important.

The next part of this chapter elaborates on the type of elements that can or should be found in these dynamic environments.

Static streets for static households (households that live in the same place for a long period of time)

Important:
- Contains the residents that are willing to participate the most
- A certain amount of this type of living environments therefore should be kept
- Contains now a lot of rental homes but people would like to be able to buy a house. A lot of the dwellings are owned by the housing corporation Woonstad
- Social cohesion and social control is facilitated by public familiarity among residents and their neighbours. The best way of facilitating the possibility for social interaction among fellow residents is to let it take place in the direct living environment.
- Therefore the spatial elements that facilitate this need to be present in the residential streets themselves. These elements often do no work to their full potential if there are a lot of people passing by. Therefore it would be better if the environments are more static, meaning that there is only a small percentage of passers-by among the residents. The group of residents present in the public space should always be bigger.
- Other options are facilities that are mostly important for the residents with a static background. These households are mainly families and therefore schools are very important. Because the women often do not work facilities for them for activities during the day are very important too. They are quite willing to help and participate in the neighbourhood but often the poorly spoken Dutch language forms a barrier. Institutions that provide help to improve this lack of speaking Dutch are very important. A neighbourhood centre would be a good place to facilitate these kind of activities. The neighbourhood now lacks of having one because they were all closed because of the lack of money.

The next part of this chapter elaborates on the type of elements that can or should be found in these static environments.
5.2 Characteristics of dynamic streets / Elements of urban publicness

The following pages show the different elements belonging to dynamic streets. These elements are all related to the characteristics of publicness: ownership, access and use.

**Facilities**
Large amount of facilities that are located in the public space and in the ground level floor of the buildings along the streets.
The facilities are attractive for the residents of the direct living environment, surrounding neighbourhood parts and other neighbourhoods.
The mix of residents and ‘strangers’ on the street makes it harder as a resident to identify themselves with their living environment outside the borders of their dwelling.
The facilities have a wide range because of the type of service they deliver. Think about facilities like supermarkets, health care facilities, education facilities or shopping/leisure facilities.

**Scale**
Large proportions of the space
There is a difference between long stretched streets and square small residential courtyards if it comes to the level of publicness. In the first case, mainly seen by street profiles that function on a city level, the space is too big to be overseen from one point of view. The borders of the direct living environment are not clearly visible.
Large number of households
The large size of the street makes that there are a lot of dwellings and thereby households facilitated. The larger the group of residents, the harder to get to know a relatively large proportion, that makes it possible to identify the kind of norms and values of the group deals with. This is important for the development of familiarity and social cohesion.

Large ratio between width and height
The ratio is often larger in the more dynamic streets. These streets are often important for the network of the city and have to facilitate a lot of traffic. Therefore the space needs to be wider. The streets are often located on the edges of neighbourhoods or neighbourhood parts where we find the highest building heights.

Ratio between space for pedestrians and traffic
This large width is something that all these streets have in common. But the division in the space between space for pedestrians and for fast traffic tells us more if a space is better usable as space for movement or if it is more attractive for staying. In the streets that are related to the dynamic households the space for staying (sidewalks) is often smaller.
Streets that are important for access to and from the neighbourhoods

Streets that are important on the level of the district of the municipality or the city contain larger traffic streams and therefore the streets are also wider. The streets and bicycle paths are more intensely used by traffic with higher speeds and therefore it is safer to separate them clearly (physically or visually by materials). These spaces can be characterized as movement spaces. Because there is a large mix of traffic there is a big chance of running into people. However the chance of meeting the same people for a second time in these spaces is quite small. New connections are less easily to be made in movements spaces because it are not comfortable spaces for social interaction.

Public transport

The presence of public transport (stops) enlarges the presence of people in these spaces. In combination with the presence of a lot of facilities and shops it leads to the arrival of more people from outside of that specific living environment.

The presence of public transport stops makes the space more attractive for shop owners to start their business in those places. Thereby increasing the number of shops, followed by an increasing number of people that visit the street.

Mix of traffic and users

The presence of a lot of different kinds of traffic leads to the presence of more people passing through the space that are not the residents. This makes it harder to distinguish the real residents from the visitors. But this identification with fellow residents is quite important for the development of place attachment and the larger the mix with other people, the harder it is to establish this identification.
Ownership
Unclear edges
Larger highly accessible spaces often do not have clear edges. Which is good when they have to be accessible to a lot of people at the same time but it makes it a space that is harder to control. Because social control is harder to be established when people feel less attached to their living environment.

Small or no transition zone public-private
The transition zone in front of dwellings allows people to own a semi-private zone in front of their dwellings. This zone has been proven to be a very important factor in the interaction with neighbours and fellow residents. When this is missing than there is no space in the public space for residents that gives them a reason to stay in long enough to notice other people coming by and interact with each other. Only the spaces that are already a hundred per cent public.
Apartment buildings often do not have these transition zones because there are often no ground-based dwellings. The ground level is often occupied by facilities.

Comfort
The chances of social interaction on the street are increased if a space provides enough comfort to make staying more attractive. This comfort can be provided by several elements in the streets.

Lights
They give a sense of safety in the dark times of the day by providing light. During the day they give a sense of directionality. And the type of lantern is also related to the type of street. If streets are wider with car lines that are separated by a bank in the middle than we often see a double lantern where in more residential streets we would see a single light.
Characteristics of the buildings
- Small scaled dwellings (apartments)
- Rental homes
- Cheaper - average prices
- Shared entrances

Social interaction
Social interaction takes place:
- Inside the dwellings (if facilities are shared with fellow residents, this is now often the case with students and migrant workers);
- Within the shared space behind the front door in portiek dwellings;
- Within facilities in the street or somewhere else in the neighbourhood that have the characteristics of a staying space: cafe’s, restaurants, telephone offices (mainly important for migrant workers), libraries, hairdressers etc.
- Within facilities where short interaction takes place: shops, health care facilities etc. This interaction takes place between customers and staff or among customers. These are well facilitated in the neighbourhood and therefore not an urgent case to take into account in the further design.

Interaction on the street does not take place very often because these spaces often lack of comfortable staying spaces. This is often enlarged by the amount of traffic passing by. This is a factor that is not that easy to adjust or remove. A large mixture of residents and non-residents makes the chance of meeting somebody again that you already know smaller.

Elements that can increase the staying function of a public space: benches
The public space is unrecognisable as property of the residents

Benches
Benches provide the opportunity for people to stay in the same place for a while. If they are placed in streets with a lot of people passing by and other forms of traffic it makes it even more attractive to stay because places are more attractive if something moves through it.

Shelter
If shelter is provided it makes staying in places more attractive when the weather is bad, for example with heavy rain or wind. But trees can also be an attractive option to provide shelter from the heat of the sun.
5.3 Characteristics of static streets / Elements of neighbourhood publicness

The following pages show the different elements belonging to dynamic streets. These elements are all related to the characteristics of publicness: ownership, access and use.

Facilities
Also on the level of neighbourhood publicness a number of facilities can be found. These facilities often attract a smaller group of people because of:

• Their less accessible location
• They are not concentrated together with a lot of other facilities
• They offer a service/use for a smaller public.

Facilities such as small scale playgrounds and sport fields can be found on a lot of places throughout the neighbourhood and are attractive for residents in their direct environment because of the large amount of those places that are present.

Scale
Small proportions of the space
A smaller space gives fast a clear view on the edges of the direct living environment. The smaller the space, the better the possibility to gain a sense of social control. Mainly the length of a street is very important. If the end and start of a street can be clearly seen this helps residents with recognizing their own direct living environment.
Average or small number of households
The smaller the number of households, the easier it is to identify your direct neighbours and their norms and values.

Small ratio between width and height
Streets with smaller scaled street profiles often have a more intimate atmosphere. The small profile allows only a small amount of traffic at the same time to pass through the space. The smaller the amount of traffic the smaller the chance that there are ‘strangers’ present in the public space that do not live there. If the amount of traffic stays small this enlarges the possibility for a space to become a comfortable space to stay in.

Ration between space for pedestrians and traffic
This large width is something that all these streets have in common. But the division in the space between space for pedestrians and for fast traffic tells us more if a space is better usable as space for movement or if it is more attractive for staying. In the streets that are related to the dynamic households the space for staying (sidewalks) is often smaller.
Ownership

The transition zone is a space in front of the dwellings that can vary in size and design, but is a very important factor for people when it comes to social interacting with fellow residents. The larger the space, the more comfortable it might be to use it as staying space. They become co-owners of the public space. The amount of social cohesion is higher in streets where there are front gardens. These transition spaces are often linked to family dwellings that can be found more in the heart of the neighbourhood than on the edges. These streets are smaller and are used less intense by traffic.

Traffic/Users

The public space can be seen as a place to stay in, more than a movement space. This is the result of more space for slow traffic and less space for fast traffic in the street profile. These spaces are often designed with smaller streets and wider sidewalks. Along these streets more open spaces for staying can be found such as little squares.

Slow traffic plays a more important role than fast traffic. Car traffic is often traffic with a clear destination instead of going through traffic.

Both slow and fast traffic share the same space. They are less strictly separated by physical borders or by the use of different street materials.

Residential streets

The more static living environments are often residential streets that are to be found lower in the hierarchy of the neighbourhood streets.
Characteristics of the buildings

- Family sized dwellings
- Ground-based dwellings with front and/or back gardens
- Rental homes and a large share of owner-occupied dwellings
- Average - more expensive prices
- Uniformity of the architecture within the dwellings. This clearly shows the borders of the space belonging to the domestic living environment

Social interaction

Social interaction takes place:

- On the street in front of the dwellings. On the sidewalk in front of the front doors or within the transition zone of dwellings
- Neighbourhood squares with sport fields and playgrounds (that sometimes belong to schools) or squares without a specific function but with the possibility to stay in the shape of benches or a place that delivers shelter.
- Within facilities in the neighbourhood. Almost all of the facilities for dynamic households are also important for the static households. But when people stay longer in the same neighbourhood they make more use of facilities such as neighbourhood centres and schools (because of their children). Parents meet each other time and time again at the same school when they pick up their children. These short interactions or moments where people recognise each other are very valuable for social cohesion and the development of public familiarity.
- Because of the absence of facilities there are no main attractors for other people than the residents to use the residential streets. Therefore fellow street members or neighbourhood residents are more easily to be recognized.
- Through this public familiarity, the social control also increases. Because the living of people within the dwellings takes also place on the ground floor, people can practice social control through the windows in the facade. Just like moments of recognition between residents and passers-by can take place.

Personalized space

Because this zone belongs to the residents they can decorate it with personal items. This creates a more intimate atmosphere and shows to outsiders who the main users of the space are.

Unity

Unity in the image of the street because of similar buildings blocks can clearly mark the borders of a space.
Fig. 5.19 Toolbox of elements [source: author]
The spatial elements within this scheme are related to the level of either
dynamics or statics of streets. The presence, ratio or lacking of some of the
elements tells us more if streets are more dynamic and public or more static and
more residential private.
The elements are categorised in three categories that are related to the three
most important factors for publicness.

But there are a few characteristics/elements that are an exception to this toolbox.
They can overrule other elements. For example, when a street profile consists of
a lot of elements that are related to static streets, but its position in the street
network is that important because it forms an important connection that a lot
of traffic passes by always. Then the street is badly adjustable towards a more
static environment. The hierarchy then is the overruling factor.

Another example is the position in the city network. A location in the city centre
or in a suburb can mean a big difference for the indication if streets are dynamic
or static. The city centre can often have street profiles with a lot of space for
pedestrians and no traffic but this does not mean that is automatically a suitable
space for a static environment. This can mean that it is located in a large shopping
area, often further away from facilities as schools which are important for static
environments because of the specific needs of static households such as families.

The types of people that live in a certain area and their background is important
for the indication if more or less social interaction is possible.
6 STRATEGIC DESIGN PROPOSAL

Design strategy
6.1 Household types

Static households (long expected length of residence) as they can be found in Hillesluis

Families with low incomes
- Immigrant and some native families
- Especially the immigrant families have a lot of children
- Immigrant families: The father works while the mother stays at home. She is willing to participate in the neighbourhood and does this often when this is possible. But the lack of mastering the Dutch language makes this more difficult.
- They move into the neighbourhood because of the offering of cheaper dwellings that still contain a lot of separate rooms

Families with average-higher incomes
- Native families
- They live in the neighbourhood because they were born in the same area (Rotterdam south) or even in the same neighbourhood

Couples that both have a job without children
- Native
- They have moved to the neighbourhood because of the offering of ‘kluswoningen’, a project initiated by the municipality. The location is also attractive because of its well connection to all the parts of Rotterdam

Empty nesters
Native
The children have moved out of the house. They are of the age of 50 years and older. They often still live in family dwellings that they also have lived in with their children.

Home owners
People that have bought a house tend to have stronger bonds with their neighbours. (Fortuin, 2013)
Dynamic households (short expected length of residence)

Students
Short period of residence, often related to the period of their studies. Proximity to a education institution or good public transport and affordable housing are the reasons for moving into the city and neighbourhood. They move again if their household changes or because of a new job and they want to live in the vicinity of a new workplace.

Social network throughout the whole city. Within the neighbourhood they often have good relations with their roommates but the rest of their social network can be found spread around the city.

Migrant workers
The choice for their living environment depends on the place or city where they have found work. A job is the main reason for this group to move. They also tend to choose the more cheaper housing since they often have jobs with low salaries. They also choose for rental homes since their stay is not permanent and often short, varying from a few months to a couple of years. They also tend to visit their home land often in their free time, keeping a strong bond to it and therefore bonding less to their direct living environment.

Households that have an average length of residence. This length can be very short but also quite long. But so many factors that can not be predicted play a role that they can not really be placed in one of the two categories.

Elderly people
Small action radius. Therefore there social life is mainly present in their direct living environment. They often have lived in the area before for a longer time.

Starters on the housing market
They are singles or couples that will be renting their first house. Depending on the phase of their life (are they already working or thinking of starting a family) they can also choose to buy a house. These factors are of influence in the final length of residence
### 6.2 Analytic model

<table>
<thead>
<tr>
<th>Feature</th>
<th>Static Environments</th>
<th>Dynamic Environments</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing in the ground level of buildings</td>
<td>100%</td>
<td>&lt; 50%</td>
<td>&gt; 50%</td>
</tr>
<tr>
<td>Front garden (transition zone)</td>
<td>Small strip with plantations or other personal items (transition zone)</td>
<td>More space for pedestrians than car traffic (proportions of the street profile)</td>
<td>Elements for comfort and staying, lighting, trees, benches; small scale facilities such as playgrounds in the public space</td>
</tr>
<tr>
<td>Elements for comfort and staying, lighting, trees, benches; small scale facilities such as playgrounds in the public space</td>
<td>Large percentage of owner-occupied housing</td>
<td>Larger percentage of owner-occupied housing</td>
<td>Larger percentage of owner-occupied housing</td>
</tr>
<tr>
<td>Large percentage of family dwellings</td>
<td>Uniformity in the building architecture</td>
<td>Larger chance of the presence of these elements in the dynamic or static environments but there are not excluding factors</td>
<td>One person apartments, rental homes, large number of households per street, multi-apartment buildings, presence of public transport</td>
</tr>
<tr>
<td>100% residents</td>
<td>Large number of households per street</td>
<td>High percentage of passers-by that are not residents (&gt;80%)</td>
<td>Streets that are important for access to and from the neighbourhood by fast traffic</td>
</tr>
<tr>
<td>Shared space (by traffic)</td>
<td>Large ratio between width and height (street profile)</td>
<td>Visible separation of traffic flows</td>
<td>Uniformity in the building architecture</td>
</tr>
<tr>
<td>Residential streets</td>
<td>Small ratio between width and height (street profile)</td>
<td>Large number of households per street</td>
<td>No transition zone</td>
</tr>
<tr>
<td>100% housing in the ground level of buildings</td>
<td>Long length of the street (edges of the space are clearly visible)</td>
<td>More space for car traffic than for pedestrians (proportions of the street profile)</td>
<td>Large ratio between width and height (street profile)</td>
</tr>
<tr>
<td>Front garden (transition zone)</td>
<td>No transition zone</td>
<td>Elements for comfort and staying, lighting, trees, benches; small scale facilities such as playgrounds in the public space</td>
<td>Large number of households per street</td>
</tr>
</tbody>
</table>

**Notes:**
- A: Living Environments
- B: Neighbourhood Publicness
- C: Urban Publicness
- D: Static Living Environments
- E: Dynamic Living Environments
The scheme on the left shows the different elements that are related to the dynamic and static environments. With the help of this overview of elements the streets within the neighbourhood were categorised static or dynamic. Each of these categories also had several sub categories. The higher the category the more dynamic or static the environment is. Often streets in the lower categories are the ones that contain the most elements of the opposite environment and are therefore highly adaptable in becoming more or less static or dynamic. But there are also exceptions. The location and importance of the hierarchy of the street network and the level of access hit has to give to the neighbourhood are hereby very important.

The boxes contain elements that are often present in the two types of environments but are not excluding factors because they can be present in the other type as well. Although they are often always to be found in their type of living environment.

The other elements are placed along lines because the fact of them being present is not the most important, it is about to which amount these elements are present. For example, the percentage of facilities in relation to the amount of housing that is present.

The different colours in the scheme tell us if they belong to the static or dynamic environment and to which amount they contain elements that are related to this types of environments. The filled in bars are what is already present. The open bars with the continuous lines represent the amount of adaptability towards static or dynamic. The bars with dashed lines represent the same but the interventions that have to be made to reach this level are very large, expensive and time consuming. Therefore it is better to look into the other options first. The fact that there are elements present of highly dynamic environments does not always mean that these streets also already contain dynamic households. But they show how these networks of dynamic environments can grow.
If you would analyse a neighbourhood with the previous scheme you would end up developing a kind of atlas of streets like is shown on the left. This is the example of Hillesluis where every street is analysed using the elements provided in the toolbox. This led to eight different categories of environments. However this does not mean that if every neighbourhood would be analysed you would end up with eight categories all the time. This depends on the variety of street typologies that are present. Hillesluis is an example where you can find a lot of various streets.

How higher the category (1), the more the streets contain elements of dynamics or statics. The lower the category (4) the more the street contains elements of both. This makes these streets the most adjustable if it for example might be necessary to increase the amount of dynamic streets or the other way around. However, like is said before, the context should be taken into account as well. For example, there are streets that contain a lot of static elements like front gardens. But when these streets function as single entrances to the neighbourhood it would mean that the function of these gardens, namely to facilitate social interaction, would diminish because of the amount of unknown traffic and pedestrians passing by.

If the level of relocation dynamics might increase, we know now where in the neighbourhood we can most easily provide a suitable living environment for these dynamic households without needing large interventions or affecting the liveability negatively.
In order to make the atlas of the dynamic and static living environments of Hillesluis, every street was evaluated on the given characteristics in the toolbox. These following pages show the eight categories that came out as a result. These images and texts show the most important elements that are present per categorie.
The first category within the group of dynamic living environments.

The most dynamic streets contain elements that all attract a lot of people to the space. These are:

- Large amount of facilities (> 50% of all the functions in the ground level of the buildings).
- Highly accessible for fast traffic due to the separated traffic flows
- Presence of public transport stops

Therefore they are very lively (dynamic) environments.
The second category of dynamic living environments

The streets in this category are similar to the ones in category one. They have:

- Wide street profile
- Presence of public transport
- Presence of other facilities than housing
- Small sidewalks for pedestrians

They differ because:

- The housing typologies fit more with the type of static households. They are bigger, family dwellings that are for a larger part owner-occupied.
- A part of the houses is provided with a transition zone in the shape of a front garden.
- The houses are ground-based
- The traffic flows are separated by a green zone which lowers the impact of the traffic because it is more distributed.

- The profiles contain more green than any other street which adds to the level of attractiveness for staying. The profiles therefore contain a lot of elements that are most of the time related to environments that are more suitable for static households. But because of the high level of hierarchy (the street is very important on a city level for access to several neighbourhoods) it is highly accessible and a lot of people from different neighbourhoods use the space. Therefore it makes the space more anonymous and together with the high level of use by traffic it is indicated as an environment more suitable for dynamic households.
The third category within the group of dynamic living environments.

- These streets contain a lot of elements from both dynamic and static streets. That and the fact that the wide street profiles give a lot of space for changes, they are quite adjustable.
- But because of their central location in the neighbourhood and importance of their role in the street network changes in upscaling or downscaling the streets have a lot of effect on their context as well.
- Because of their important role in the street network the space is more characterised as a moving space than staying space because it is used by a lot of traffic.
The fourth category within the group of dynamic living environments.

The fourth category of dynamic living environments contains the least elements that facilitate urban publicness. It contains both elements that are related to static and dynamic environments. This makes the space more adjustable to both types of environments.

Present elements that facilitate urban publicness

- Level of hierarchy in the street network, that is quite high because the streets are directly connected to one of the central streets of the neighbourhood. Therefore a lot of traffic passes through the space. This level of use is intensified by the fact that some of the streets are functioning as the primary access.
to the neighbourhood parts.
- The main part of the street is designed for traffic and parking. This leaves not that much space for pedestrians.
- There is no transition zone in front of the dwellings.
- The entrances are shared. The housing typologies are apartments and maisonettes.

Present elements that facilitate neighbourhood publicness
- The small scale of the streets
- Low amount of facilities that attract other people than the residents

The streets that are located further away from the main streets have the best options to be adjusted to more static environments. The other way around, the streets that have to facilitate more traffic have a smaller chance because of the higher amount of people passing by. These are often quite narrow streets which leaves less space for the addition of a transition zone.
The fourth category within the group of static living environments.

The fourth category of static living environments contains
The third category within the group of static living environments.

The third category of static living environments contains:
- Uniformity in the buildings architecture
- Dynamic elements
  - Shared entrances
  - Rental homes
  - Long length of streets or unclear borders of the space
  - High percentage of people passing by that are not residents
The second category within the group of static living environments.

One of the most important elements that these streets show is the level of unity in the architecture. This gives a space clear borders. In combination with the smaller sizes of the spaces this leads faster to a stronger attachment to the environment. Next to this it contains: a lot of ground-based dwellings, single entrances, wide street walks or a location close to squares and smaller streets for cars.
The first category within the group of static living environments.

The first category of static living environments contains a lot of static elements, namely:

- Uniformity in the building architecture
- 100% housing in the ground level of buildings
- Front garden (transition zone)
- Small strip with plantation or other personal items (transition zone)
- Space with small proportions (edges of the space are clearly visible)
- Owner-occupied housing
- More space for pedestrians than car traffic (proportions of the street profile)
- Average or small number of households
- No public transport
- Small scale facilities such as playgrounds in the public space
- Family dwellings
- Short length of the street (clear borders)
Overview of static and dynamic environments

The following map shows the living environments for dynamic and static households located in the neighbourhood according to the scheme. We already know that the Beijerlandslaan and Groene Hilledijk facilitate most of the dynamic households that are already present. But with this map we get an indication of how we can further spread these households within the neighbourhood if the amount of dynamic households would increase. Also it shows you if there are any dynamic households living in too static environments. In the case of Hillesluis this is a fact for the building along the Varkenoordse park in the Riederbuurt South part. It would be wise too, in the future, steer these households in the direction of more dynamic environments for the development of liveability.
6.3 Design examples

The information that can be derived from the scheme tells us more about the ratio between living environments for dynamic households and living environments for static households within the neighbourhood. Both of the environments are well enough present in the neighbourhood Hillesluis. This means that when the amount of dynamic households increases the neighbourhood can facilitate these households in some of the streets in their present state without changing their appearance. The first choice would be the streets from the category F-G. These are all in the first category of the dynamic living environments. There are three more dynamic living environments that all contain elements that provide this dynamics. But the lower the category the more elements from static environments are also present.

The most positive thing about the streets that contain elements from both types is that they are adjustable to either one of the types with small adjustments. Which adjustments these would be depends on the position in the scheme on which types of elements that are given on top of the scheme are already present and which are not.

A few examples will be given to help explain it better.

The first example is the street the Groene Hilledijk. This street is in the first category of the dynamic living environments, meaning that it contains enough elements for it to be one of the most dynamic environments. However it contains a lot of possibilities for making adjustments to either make it even more dynamic. Or to make it less dynamic and more suitable for static households.
DESIGN EXAMPLE OF THE GROENE HILLEDIJK

BEIJERLANDSelaAN
BREEweg (1)
HILLEDIJK
2E ROSESTRAAT
GROENE HILLEDIJK
PUTSELAAN

NEIGHBOURHOOD
PUBLICNESS

A
B
C
D
E
F
G

DYNAMIC LIVING ENVIRONMENTS

STATIC LIVING ENVIRONMENTS

NEIGHBOURHOOD PUBLICNESS

URBAN PUBLICNESS

Groene Hilledijk
The scheme shows that the Groene Hilledijk is a good example of a street that is very adjustable. The street profile makes it possible to increase the level of dynamics but also make it more static. Mainly because there is a lot of extra space for adjustments. The following examples show possibilities how this can happen with the use of the elements that were provided in the scheme earlier in this chapter.

The existing street profile consists of two car lanes dived by parking spaces and a bank in the middle. But this space is not more than a divider and place for people to get out of their parked cars. There is no value to use it as a staying space. The space for pedestrians lies on the sides of the buildings. It is quite wide but because of the poles that support the roof of the shelter the space is divided in two spaces with a non convenient width. The space outside the poles is too small in combination with the parked cars and the space on the other side is used by the shop owners to show racks with their products. The roof of the shelter also blocks a lot of light because it is not transparant.
Variant one towards a more static living environment

Part of the shops in the street are replaced by housing. The position of the shopping boulevard will not be at stake because of the already high concentration of shops along the Beijerlandsestraat. They also already have started to increase the quality of the shopping environment in that part.

The design of the street profile did not change in this design variable. But by removing the overhang that was installed in front of the shops the space can be divided in a new way. The pillars that held the roof up made a division that could not be altered, leaving a small space outside of the overhang to walk by. This small space is provided in front of the new dwellings. A different material than that of the sidewalk makes clear where this space starts. This small zone can be used by the residents to decorate it with personal elements. By putting a bench in this space it becomes a place for short stays and this enlarges the possibility for social interaction with other residents.
Variant two towards a more static living environment

The street profile is altered to provide more space for pedestrians. The streets are combined in the middle of the space. The car lanes are divided by a small bank in the middle.

Because there is more space for slow traffic it is possible to use some of this space to provide the houses with front gardens. These are more attractive for longer stays in the (semi)public space. These front gardens are a good means to facilitate social interaction. But this will only work if there are not that much strangers in the public space. Because this streets is still high up in the hierarchy of the street network of the neighbourhood, traffic will still keep on passing by. But by removing the largest part of the shops on this side of the Boulevard Zuid, the amount of people passing by will decrease.

The shops that were here are partly changed into new dwellings. These are often combined with the spaces on the levels above to facilitate larger housing. Another option is to facilitate other functions in these spaces such as small service businesses that can be owned by some of the residents themselves. This makes sure that the space does not become entirely anonymous during the day because of the lack of people in the public space.

Another option for a facility can be a neighbourhood centre. The neighbourhood of Hillesluis lacks having a
neighbourhood centre. Once there were three but now they are all closed and clearly the residents want some sort of centre back.
Social interaction hereby can take place between residents from the street in front of their own homes. And for a larger group of residents from this part of the neighbourhood in the neighbourhood centre that is provided.

The following to schematic maps show the capacity of the Beijerlandselaan and Groene Hilledijk combined to facilitate dynamic households.

10% = 403 extra households within the dynamic group. In this situation there are 413 extra small households facilitated along the Beijerlandselaan and Groene Hilledijk. In order to do this a lot of the blocks contain a total of 100% dynamics households.

Existing dwelling sizes along these axes are 40 m$^2$ up to 80 m$^2$.

Increasing to 10% (482 households in total)
Increasing to 13.8% (696 households in total)

Maximum amount of households that can be facilitated along the axes with the current offer of small sized dwellings.
Existing dwelling sizes along these axes are 40 m$^2$ up to 90 m$^2$. 
The schematic drawings show just how much more dynamic the Groene Hillelijk and Beijerlandselaan can become.

This are two of the streets that already facilitate the largest part of the dynamic households that are already present in the neighbourhood. They both can facilitate a lot of dynamic households up to 100% per cent of the amount of dwellings that are present because of their high level of dynamics.

There are also streets where this can only be provided in a smaller amount because it would harm the liveability in these spatial environments.

The smallest percentage is of course to be found in the environments that were indicated as the most static in the overview in the previous chapters. But the transition of these spaces to the more dynamic space has to happen gradually as well. Therefore it would be better to also have an organised hierarchy in the streets related to the amount of dynamic households that are present. From hundred per cent dynamic for the most dynamic environments, to fifty per cent in the transition areas towards a maximum of twentyfive per cent in the more static areas.
DESIGN EXAMPLE OF THE SLAGHEKBURT

Fig. Existing situation in the Slaghekburt. Source: author
The Slaghekbuurt is one of the neighbourhood parts that is the most dense and it contains the least amount of housing that is ground-based.

It contains a lot of facilities that are used by other people other than the residents of that neighbourhood part in comparison to other neighbourhood parts.

All the characteristics of this part of the neighbourhood Hillesluis make it as a neighbourhood part the most suitable for future dynamic households to move into. It can function as the entry zone for the neighbourhood. People can move into the neighbourhood in this place thinking they are going to live there for a short period of time. If they later on want to stay in the neighbourhood they can move into one of the other parts of the neighbourhood or move into one of the more static streets in the Slaghekbuurt.
Facilitating dynamic households in the Slaghekbuurt

Publicness
Below the publicness of the streets within the Slaghekbuurt is visible. It shows that there are no intimate residential streets, all the streets are quite public. The streets that mark the neighbourhood parts edges are even in the two highest categories of the hierarchy of publicness. Therefore it would be logic to accommodate most of the more dynamic households along the edges.

Neighbourhoods edges
Double of the amount of the present dynamic households (115 households) can be facilitated along the Polderlaan and Hilledijk. The Polderlaan has a similar street profile as the Beijerlandse laan (more than 50 per cent facilities in the plinth of the buildings, separated car lanes and the presence of public transport). The Hilledijk is similar qua facilities and public transport but the street profile is a bit less wide.

The dwellings along these streets have a size between 60 and 100 square meter.

The old school building along the Polderlaan needs a new function. Housing in combination with public function can be established here. A short stay hotel for migrant workers would also be a good option on this location.

The edge on the side of the Putselaan lays next to a service road. Therefore the traffic on this streets is less heavy and not similar to the other streets in the previous example. The same amount of 230 households can be established along this street as is shown below.

The dwellings are slightly bigger, namely 80 to 120 square meter.
Slaghekstraat
But for this example we use the Slaghekstraat. This is the main street of this part of the neighbourhood and the most public after the two previous examples. It is a highly flexible street according to the scheme and therefore it can be adjusted more easily than other streets towards a more or less dynamic environment. All the apartments along the streets are going to be occupied if all the current dynamic households in the neighbourhood should move into this part.

Slow traffic flows
The main part of the households in this part of the neighbourhood are families. This would change if more dynamic households move here which would be more one person households. As earlier described, these types of households have a less stronger bond with their environment and often spend less of their time in their direct living environment. Unlike families that make us of schools and day care facilities in the neighbourhood they make more use of facilities outside of the borders. In order to keep the social safety on the streets more eyes are to be provided by people passing through the space. This only wanted on specific streets that are more public and therefore attractors have to be specifically placed.

Introducing new facilities
To attract people to use the Slaghekstraat more a couple of facilities are added to the few facilities that are already there. The existing facilities are all meant for direct residents but the new ones will also reach residents from outside of the Slaghekbuurt, even from Bloemhof and Afrikaanderwijk. On the northwest corner a new building will be developed with a lot of new apartments and a combination of a couple of larger health care facilities in the plinth. The entrances of these facilities are placed on the west side of the building. Another facility that is missed in this neighbourhood is a library. There are also a lot of volunteers in the neighbourhood that want to give language courses and after home schooling. These can be facilitated in this facility as well.
These initiatives are welcome in this neighbourhood and the surrounding neighbourhood because the average education grade is very low and a lot of people have troubles speaking Dutch. One other facility that is missing in the neighbourhood is a neighbourhood centre. Interviews with residents, the municipality and housing corporation confirmed that people are missing such a facility. The neighbourhood centre is mainly meant for the residents in the direct environment and surrounding neighbourhood parts. A few smaller shops are developed along the street to create a connected line of attractors.

Publicness of the spaces in the Slaghekbvurt
In the existing situation there are two squares that are in the highest category because of their location and connection to the facilities in the buildings. There are no squares on the level of the neighbourhood. There are a couple of squares that are meant for the neighbourhood part itself. One lies central in the Slaghekbvurt along the Slaghekstraat and along that same street there are two smaller squares in the same category. The spaces on the building block scale are located inside or in between the buildings blocks and can not be accessed by other people than the residents of that building block.

In the new situation, there is a shift in publicness. The central square now lies within the highest category because of the new added facilities and the change in the street profile. The two smaller squares also upgraded one level but remain on the neighbourhood scale. Squares that are not directly connected to the Slaghekstraat remain their position in the publicness hierarchy.
There is no transition zone from the private space of the buildings towards the public space outdoors. The hall behind the shared entrance functions as this transition space where people can interact if they pass by each other. But this only leads to interaction with people on the same building block and no identification with other residents from the neighbourhood.

A wide street makes it more attractive for cars to move faster through the space.

Existing street profile of the Slaghekstraat
The profile of the street is mainly meant as a moving space in stead of being attractive to stay in. There is a lot of space for pedestrians to pass by but there is no visible space for the residents to be able to stay in a semi-private space within the street profile. There are only a few squares with a staying character because of their design with elements such as benches and playing programmes for children. But they are placed higher in the hierarchy on a neighbourhood part level because of their design without clear borders and location along the main street.
New adjusted street profile of the Slaghekstraat

In the new street profile a wider sidewalk is created by replacing the angled parking spaces that were facing the streets by 90 degrees with parking along the street. The parking spaces that have to be removed by this change come back in the parking garage underneath the central square.

The extra space is used for introducing a transition zone in front of the dwellings where residents can decorate the common space with personal elements and furniture for sitting down. There is now also space for the new facilities to extend their services onto the street by facilitating a terrace or introducing the products they sell on the street.

Also a bicycle lane is introduced on both sides of the street. The space for cars does not become more narrow because there is nothing that physically separates the car space from the space for cyclists. Only the type and colour of the material differs to indicate a division.

Add outdoor staying space to new facilities so that people passing by notice liveliness

Add facilities to attract more people to pass by in the street

Widen the space for passers-by on foot

Add space for residents to stay

Add a new bicycle lane to encourage more people to take this route
Fig. New situation of the Slaghekkebuurt Source: author
Introducing new facilities that attract people to this part of the neighbourhood and thereby creating liveliness on the streets and thereby eyes on the streets for social safety. The facilities are an answer to what is asked by the residents as they gave notice that they were missing a neighbourhood centre (there were three but they are all closed now) and a library.

The Slaghekstraat does not contain a public transport stop but there are a lot of bus and tram stops nearby in close range. See also the picture on the right.
Fig. Zoom in central square along the Slaghekstraat
Publicness division of the public space
The building creates a division on the square from a more public part in the front along the Slaghekstraat towards a more private part on the other side in front of the building with the elderly homes.

Façades
The buildings is located central in the space and therefore there are no walls that are entirely closed. The walls on all the sides need to be transparent for at least fifty per cent. This also shows the open character of the buildings and the fact that is that is open to all public. However the side of the Slaghekstraat is more open.

Aligning
The buildings needs to be clearly visible if people pass by along the route. Therefore, the architecture has to differ a bit from the other residential buildings and the aligning of the side along the Slaghekstraat can differ from the other buildings and stand out a bit more towards the street. This should only happen on the first floor or higher. This can not happen on the ground level as it would form a barrier for pedestrians.

Liveliness to attract attention
An extra hore.ca function is added on the side of the Slaghekstraat with an extended terrace on the ground level in front of the building. The presence of people in front of the building attracts the attention of passersby and also delivers extra eyes on the street for social control. People that are staying in one space for a longer time often like to watch movements of other things and people and therefore it is more logic to place the terrace along the more heavily used axes, the Slaghekstraat.

Entrances
The main entrance should be located on the side of the Slaghekstraat. We want to attract the movements of the people towards this side instead of the more neighbourhod public part on the other side of the building.
The whole sidewalk is designed as a speed bump. This bump and the relatively large size needs to discourage people to enter this street. Because there are still streets that are more easily accessed the choice should be logic. The lifted sidewalk makes crossing the street in the direction of the Slaghekstraat easier and safer. The pedestrians get priority which is logic because the amount of slow traffic will increase. This encourages the flow of people in this direction.

Some of the streets are necessary for a good connection of the neighbourhood to the surrounding network. It is not logic to close this streets, they should stay well accessible. They are just in a higher hierarchy than the more static residential streets.

The more static streets have a different design than the dynamic streets. There is more space for the people to use instead of parking. Parking is only allowed on the edges of the streets, creating a zone in the middle that can be used for all sorts of activities. This space is lifted as well and the edges are designed with speed bumps to encourage people to drive slower when passing this zone.

Because we only want the increase the amount of dynamic households along the Slaghekstraat we need to take good care of the the transition of these street to the relatively more static streets that are attached to it. Because the new facilities attract a lot of new traffic we need to make sure it does not increase the traffic on the other streets.
7 Conclusion, recommendations and reflection
7.1 Conclusion
7.2 Recommendation for future research regarding this subject
7.3 Reflection on the design and design process
7.1 Conclusions

Problems with liveability are mainly present in disadvantaged neighbourhoods. These neighbourhoods have a lot of structural characteristics and processes in common. One of them is the process of too much momentum in the population composition caused by the presence of strong relocation dynamics.

Current approaches of improving liveability take into account the characteristics of a neighbourhood as it is there now. But it is much harder to take into account the processes because they mean change, and how do you design for changes in the future?

The approach in improving the liveability in the urban neighbourhood might not be optimal for the current priority neighbourhood with its constant changing population composition, as long as the relocation dynamics are seen as one of the direct causes. A different approach is needed that increases the liveability of these neighbourhoods for current and future inhabitants.

These observations have led to the following problem statement:

A lack of knowledge of the influences of relocation dynamics on the supporting social and spatial factors of liveability leads to an ineffective and incomplete approach of solving liveability problems in cities.

In order to provide an approach to facilitate liveability in these specific neighbourhoods a main research question was developed:

How can the liveability in urban neighbourhoods, that are under the influence of a lot of relocation dynamics, be improved?

Liveability

Liveability is influenced by a lot of factors. The three main factors are social cohesion, physical quality of the living environment and safety (Knol, 2002). When a neighbourhood experiences a bad liveability it therefore often means that the social cohesion, physical quality or safety are threatened.

Social cohesion is supported by a sense of familiarity and trust among residents and social networks. Physical quality is influenced by the level of attachment of a person to its environment because it tells us if a person is willing to take care of it (maintenance). Social safety is positively influenced by social control.

Improving liveability

All three of these influencing factors can be improved by facilitating social interaction. This takes place in the public space, within public facilities or in the semi-public/private environments such as the direct domestic environment.

This social interaction can be facilitated through planned and unplanned meetings with fellow residents. In the case of planned meetings, this happens on the level of organised events in facilities or meeting your local doctor. Unplanned interaction can also take place in these facilities, for example meeting other mothers at school or run into neighbours at the bakery. If these encounters are repeated often enough a sense of familiarity can be developed. Within the direct living environment, semi-private spaces are important for social interaction, because that is where residents come in contact with fellow residents. Examples of these spaces are hallways, front gardens or any other form of a transition zone between the home and the public space.

Creating a network of public and semi-public spaces and facilities on multiple scales, that facilitates possibilities for social interaction between residents to take
place, will increase the amount of social cohesion and place attachment and thereby supporting the level of liveability in the neighbourhood.

**Differences between dynamic and static environments**
How social interaction is facilitated differs per type of living environment.

Dynamic households have a weaker bond with their living environment because of their expectation to stay shorter but they also often have stronger social networks outside of the neighbourhood and expect less of the social contacts in their direct environment. They choose to live in rental homes because of their short length of residency. Their choice of type of dwelling is often found more in dynamic parts of neighbourhoods.

Static households develop a stronger attachment to their living environment because they choose to stay longer in the same place. Buying a home and living longer in the same place strengthens this attachment. Knowing and trusting your neighbours becomes more important.

**Providing social interaction in the dynamic environment**
They obtain the most of their social interaction within the neighbourhood by visiting facilities. This is an element that thereby is very important for these groups. There they not only meet other dynamic households but also part of the static population.

Social control in the domestic environment is often established because of relations with fellow residents and knowing them a bit and being familiar among each other. But because these relations are weaker among dynamic households social control and safety needs to be provided in another way. If the percentage of dynamic households is very high in a street it has to rely on other people in the public space to create liveliness and social control. Providing elements that attract these people is thereby very important. This can be by having facilities in the streets or if these streets are located between other main facilities and are used as a main route. Providing safe and attractive routes for slow traffic such as pedestrians and cyclists can add to the level of attraction. Think about clearly visible bicycle paths which are safer than biking on the streets and sharing this space with cars, the presence of sidewalks and even wider sidewalks if people should be encouraged to stay in the same place for a while.

**Providing social interaction in the static environment**
Since it is not possible to get to know your whole neighbourhood, these social networks are mainly limited to the residential streets. But because the social networks among static households are often stronger and their attachment to their living environment is bigger they provide social control in their streets themselves.

In order to form these social networks, these streets therefore need to provide the right spatial and social conditions to facilitate social interaction. Spatially this is possible by providing a gradual transition from private homes to public space by introducing a transition zone in the form of for example a front garden from which the residents of that home can interact with fellow residents that are present in the public space.

Socially it would help if the people that are present in the public space are part of a familiar group. Having high scale facilities in the environment attracts other people than the residents and this decreases the chance of an encounter with fellow residents. Therefore, the public space and facilities in this part of the neighbourhood should be more low scale and meant for the people living in the direct environment.
Combining dynamic and static households in the same environment

It is possible to combine dynamic and static households in the same living environment but when it is in a static environment the percentage of static households should at least be fifty per cent and the other way around for dynamic environments this is the same. This is related to the previous given information that static households depend more on forming social relations with fellow residents and this can happen better among people that are in the same phase of their lives. This are often the same type of households.

Hypothetically designing

When the analysis of Hillesluis was completed, it could be concluded that there were almost no liveability problems related to relocation dynamics in this neighbourhood at this moment. This result came from the fact that the amount of dynamic households was quite small and already living in the proposed living environment. In order to be able to translate the newly won information from the theoretical and analytical framework into a design framework the attention was shifted from a design solution towards developing a strategy.

Information from the analytical and theoretical framework was combined in a toolbox of elements that provide the possibility to quickly analyse neighbourhoods and get an overview of the present dynamic and static living environments that are able to facilitate both types of households. Knowing this is valuable information if in the future new households need to be facilitated if relocation dynamics might increase. The scheme shows directly where the right living environments can be found. The toolbox of elements delivers useful information how living environments can spatially be adjusted to become more static or dynamic.
7.2 Recommendations

Generic toolbox
The elements in this toolbox are quite generic and can be found in almost every type of urban environment. Therefore it is possible to use this method in other neighbourhoods than my case location Hillesluis. However, every location is unique according to its context (location, hierarchy and population) and therefore you always have to analyse/screen the physical environment first, using the elements from the toolbox, to find out what the dynamic and static parts of the neighbourhood are.
If this is clear and mapped you can zoom in per street to look closer into the present elements that can help facilitate social interaction to increase liveability.

The analysis with the toolbox can be done by everyone. However, not every conclusion can be derived from the fact if an element is there or not. Sometimes it is depending on ratios. These can be interpreted differently by different people. And also, it is not a given fact that there are eight categories. This depends to which amount the streets are varying in the presence of these elements. Also the hierarchy plays a big role and therefore the structure of the neighbourhood can effect the outcome of the amount of categories. Therefore the results might differ per analysis. However this should was in this research not a problem because the goal was not to compare different neighbourhood but to find solutions for this specific neighbourhood.
Maybe in the future, more strict rules can be added to make it possible to compare neighbourhoods more easily. This can for example become important if decisions related to relocation dynamics should be taken on the scale of a district.

Other types of neighbourhoods
The analysis that was used as input for the toolbox took place in three pre-war neighbourhoods. The question is if dynamic and static households would choose for similar types of living environments if this would be analysed in other types of neighbourhoods such as post-war neighbourhoods. I would expect to find a lot of similarities but doing this extra research might strengthen the toolbox and strategy.

Elements
The toolbox already contains a lot of elements. However I can imagine that I might have overseen other elements that could be fitted in this toolbox. Adding more neighbourhood to the analytical framework could lead to maybe a few more elements or making the existing elements more accurate.
7.3 Reflection the design and design process

Before the start of my graduation project I did an internship at the firm Urban Synergy, an urban design/research office that pays a lot of attention to the research part of design assignments. I got closely involved with projects that focused on social safety and changes in the rural landscape due to the shrinkage of the population. The first project increased my interest in the social aspect of urban design while the second got me interested in doing research on the consequences for cities due to demographic changes. That is why I started the first week with the idea of focusing on possible negative effects of demographic processes on the urban environment. By also focussing on liveability I could focus on both social and spatial elements.

Also my focus on the small scale came from this period at the office. There I realised how many assignments nowadays are focused on the small scale instead of creating large visions for cities or regions as we had learned during our education.

It was nice to have the freedom within the studio Urban Regeneration to choose your own subject. As a result the focus of the project changed of but was for most of the time focused on relocation dynamics, I think from week three and further. The fact that my subject was so strongly related to a lot of research from social studies, most of the early comments where to focus more on the spatial outcomes of the project. This proved to be a factor until the end.

Namely, the design of a toolbox was not the first intention of this graduation research. But the more I learned about the main theme of my research the more I learned that there are no direct examples of similar research. Yes, there is a lot of research done on all of the sub themes that are used in this graduation project but they are not often all combined or used in spatial research. A lot of the information that I could derive about these subjects namely came from social and environmental psychological research. And therefore the given solutions where often related to social programmes.

Because there were no clear earlier examples of design solutions related to facilitating relocation dynamics and liveability I needed to develop my own design method. Therefore I used the information from existing research, combined with the information on the spatial characteristics derived from the analytical framework. This led to the ‘toolbox’ of elements that can be used for further analytical research on urban neighbourhoods if the question rises how increasing relocation can be facilitated the best in cities. In the end I am actually quite happy with this type of end result because I learned that doing research is something that interests me a lot, sometimes even more than making a beautiful design. I would never stop designing but it should support the research.

This might show in the final result where maybe more attention is given to the toolbox en analytical atlas of dynamic/static streets than the hypothetical designs as examples.
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PRESENTATION
appendix

Atlas of streets of Hillesluis