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MASTER

Research into opportunities to transform vacant office buildings

transformation plan Surinameweg 11

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RESEARCH INTO OPPORTUNITIES TO TRANSFORM VACANT OFFICE BUILDINGS

TRANSFORMATION PLAN Surinameweg 11

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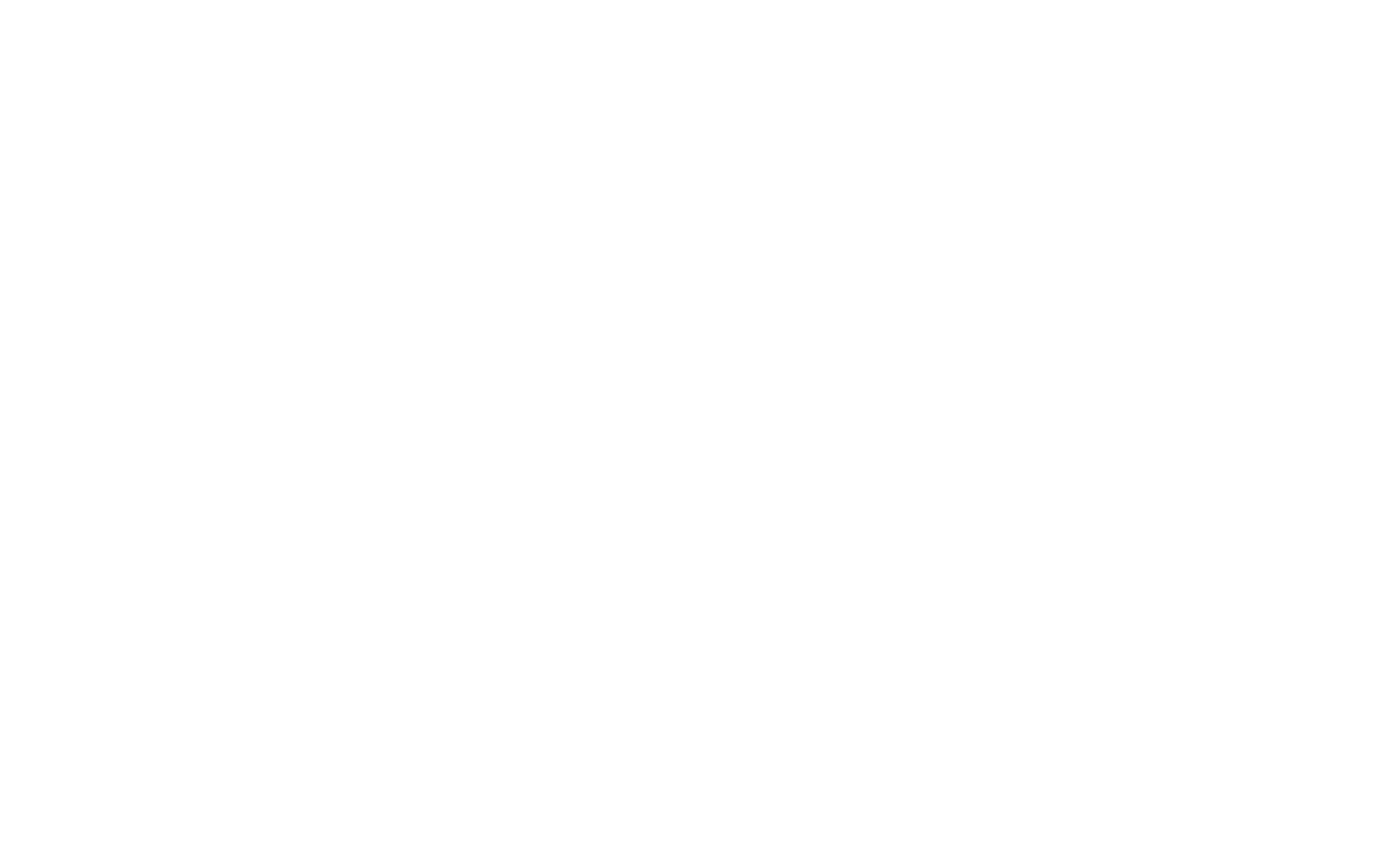*Prof.dr. H.J.P. Timmermans*

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Date: 20-09-2016

Eindhoven University of Technology
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Preface

In front of you is the report of my graduation research project, which is concerned with the transformation of vacant office buildings. The graduation research project is part of the Master Real Estate Management & Development at the Eindhoven University of Technology. The study was conducted under the supervision of Prof. Dr. H.J.P. Timmermans, Mr. P.J.F. Roelofs and Dr. Ir. P. van den Berg.

This research is the result of my interest in the transformation of vacant buildings. The number of vacant office buildings increases, creating the need to investigate the possibilities to transform vacant office buildings.

There is demand for other functions in the Netherlands. In this study, we look at the opportunities to transform the vacant office building at Surinameweg 11 in Haarlem, in such a way that it meets the needs of Certitudo Capital and the needs of the target group. The conclusions of this study have led to a transformation plan, which fits the zoning plan of the municipality of Haarlem.

During my research, I completed an internship at the company Certitudo Capital in 's-Hertogenbosch. Certitudo Capital, is a real estate specialist that specializes in housing projects in the Netherlands. It is involved in transformations of quality office buildings, in central locations, to rented apartments in different rental segments. The focus of Certitudo Capital is on the

iResidence portfolio with young and highly educated starters as the target group. I am grateful to the company and Mr. P.J.F. Roelofs for the opportunity to graduate and for the help in carrying out the research.

I would also like to thank the respondents who have made it possible to research the housing needs, and dr. ir. P.E.W. van den Berg for her expertise. Of course, I could not do this research without the support of my parents Nicole and René and my boyfriend Kevin. Thank you for all the support.

In particular, I would like to thank prof. dr. H.J.P. Timmermans who was even prepared to answer my emails in the middle of the night. Without him, this study would never have the quality it has. I want to thank him for the support and all the time he has invested in my thesis.

Milou van Grunsven | Eindhoven July 2016

Abstract

How can be decided if a vacant office building is suitable for transformation and if it is suitable, how can the building be transformed into apartments with the proviso that the transformation plan meets the requirements of the zoning of the municipality and the target group and that the transformation plan is financially feasible?

The real estate market is having problems; the vacancy rate in the Netherlands is 12% higher than the desirable vacancy of 4 to 5%. The office market is facing an excessive supply, while the housing market is dealing with an excessive demand. Especially, there is a large housing shortage, for students, seniors and starters. A solution for these two problems could be the transformation of empty office buildings into houses.

The purpose of this study was to investigate how can be determined if a vacant office building is suitable for transformation and if it is suitable how a building can be transform.

First, a literature study was conducted to identify the causes and consequences of vacancy. The high vacancy rate has different causes, including the economic crisis (De Zeeuw, 2014), increasing use of ICT (Planbureau voor de leefomgeving, 2014), decreasing population growth (Mackay, 2007) and deglobalization (Mulder, 2015). The negative effects of structural vacancy are a deterioration of the image of an area, decreasing feelings of safety of people in the area of interest (Muller, 2009), dilapidation, value loss and negative effect on the profit of investors (Remøy, 2010).

On the other hand, the housing market is dealing with an excessive demand since almost no new homes will be built due to the limited amount of land that is still available in Netherlands, the economic crisis (Rodenhuis, 2012) and the strong growth of single person households (Mulder, 2015).

One way to reduce the vacancy rate is to transform vacant buildings, but not all buildings are suitable for transformation. Therefore had to be investigate how can be determined if a vacant office building is suitable for transformation. This can be done by using the Transformation Meter, in which five steps have to be

followed (Brand, 1994, Douglas, 2006, Geraedts and van der Voordt, 2002). By using the Transformation meter, first the supply of vacant buildings in the area has to be investigated. Second, the veto criteria of the building are has to be researched. Third, the gradual criteria had to be researched. After these three steps the transformation score can be calculated and gives the indication of the transformation potential. Last, with step 5 the transformation can be explained on detail level. In this report a case study was done for the building Surinamweg 11 in Haarlem. For the case study was, with the Transformation Meter, investigate that the building is very suitable for transformation and hereby a transformation plan is written. Therefor is for the Surinamweg 11 a transformation plan made.

To make a suitable transformation plan, the residential user needs for the target group starters (with an age between 22 and 35) had to be investigated starting. The target group desires to rent a well maintained dwelling (Hoefnagel, 2011) with a rental price between €500 and €750 (Beterams, 2013), a good location, and a surface of 40 to 70 square meters with at least one separate bedroom (Hoefnagel, 2011). In addition, a stated choice experiment was constructed and implemented to examine consumer preferences of starters for particular features/attributes of apartments that could be realised in the transformation. Some relevant conclusions could be drawn. Regarding dwelling type, the most popular are two-room apartments (33%), three-room apartments (28%) and ground-dwellings (19%). Overall, 45% of the starters prefers a price below the social rental limit of €710,68 per month, 26% prefers a rental price up to €800 per month, 10% wants a rental price up to €900 per month, 10% up to €1000 per month and only 5% prefers an apartment with a rental price up to €1200 or higher. A balcony is highly preferred, but the target group has less interest in a common rooftop garden. Furthermore, it has less interest in a flex workplace, although this preference is not very strong. People prefer a fitness facility for a rental price of €30 per month and a parking facility for a price of €67,50 per month, which is 25% below the average market price.

Content

1. INTRODUCTION

First, in this introduction, the motives underlying this study will be explained. In particular, this chapter will explain the background of increasing vacancy in some urban markets, discuss the reasons for the vacancies and sketch some tendencies in the Dutch housing market. Second, section 1.2 will describe the negative effects of vacancies. The following section will give a description of the goals of the research project. After that, the research questions are formulated. Last, in section 1.5 explains the method.

1. Introduction

1.1 Motives

The vacancy rate of offices in the Netherlands is higher than desirable. To reduce these vacancy rates, initiatives have emerged to transform existing vacant office buildings. This chapter first discusses the office vacancy in the Netherlands, the causes of the vacancy and characteristics of the housing market in the Netherlands. Second, the negative effects of vacancies will be explained. Last, the goal of this study described.

1.1.1 Office vacancy rates in the Netherlands.

In 2014, about 7.9 million square meters of office space was vacant in the Netherlands, equalling 16,0% of the total stock. This percentage is significantly higher than the commonly threshold of 4 to 5%, which is generally viewed as the frictional vacancy rate that is the result of business relocations and considered necessary for a healthy flow of transactions in the market (Zuidema, 2010). Two million square meters of vacant space seems to have no or limited opportunities for redevelopment and thus makes up the structural part of the vacancy. When there is structural vacancy, buildings are vacant for two years or longer (Muller, 2009).

As mentioned above, there is structural and frictional vacancy. Frictional vacancy is acceptable and has a maximum duration of two years. On the other hand, structural vacancy is not desirable. It can be further divided into problematic vacancy and dramatic vacancy (Keeris, 2007).

Accepted vacancy can turn into problematic vacancy if the building is vacant for more than two years. The number of problematic vacant buildings should be reduced as much as possible. This can be done by demolition, transformation or redevelopment.

Problematic vacancy can turn into dramatic vacancy if problematic vacancy takes place for longer than three years. Buildings with a dramatic vacancy have no future anymore (Keeris, 2007).

1.1.2 Causes of vacancy

One of the causes of the high percentage of vacant office buildings in the Netherlands is a structural lower demand of office space and (Remøy, 2006) the economic crisis (De Zeeuw, 2014). Due to the economic crisis, many firms and organisations became bankrupt or reduced their number of employees, resulting in a reducing demand of office space.

Besides the economic crisis, other reasons for the growth of vacancy in the Netherlands can be mentioned. One important trend is the increasing use of ICT. The ubiquitous presence of mobile technology allows people to conduct their activities anywhere, anytime. As a result, new forms of shopping and working have emerged (Planbureau voor de Leefomgeving, 2014). An example of this new form of working is that more people tend to have flexible work hours or work at home. This leads to a lesser demand of office space for companies (Baane, 2011). Since 2003, the lettable area (VVO) per employee has been reduced by 14% (NFC Index, 2011).

Also the flattening of population growth or even the shrinkage of the population in some areas leads to less demand for space (Mackay, 2007). On the other hand, the general old law age (AOW leeftijd) has increased from 65 to 67 years. This means that people have to work until the age of 67. This change will result in a small increase of the labour force (van Duin, 2013).

Last, deglobalization has been mentioned as a cause for the decline in demand for office space in the Netherlands (Mulder, 2015). Globalization implies that workplaces move to countries with low labor costs, hereby the demand for office spaces decrease. However, globalization also ensures that more foreign companies establish themselves in the Netherlands, because of the good business climate. This creates a growing demand for office space. The effective impact of globalization on the office demand is not clear (Mulder, 2015).

These reasons coupled with the ample supply of office space before the economic crisis, much of which has been speculative, has led to the current vacancy rates (Planbureau voor de Leefomgeving, 2014).

1.1.3 Housing market in the Netherlands

The office market is facing an excessive supply, while the housing market is dealing with an excessive demand. Almost no new homes will be built due to the limited amount of land that is still available in Netherlands and due to the economic crisis (Rodenhuis, 2012). Another reason for the housing shortage can be found in demographic trends, which result in a demand increase. Over the last years, a strong growth in the number of households occurred, which is mainly attributable to the strong growth in single person households and the associated decrease in the average household size (Mulder, 2015). These single-person households generally have less income, so the demand for private property in this group is much lower (Blijie et al., 2013). Moreover, due to the economic crisis, it has become more difficult to obtain a mortgage, making buying a house more difficult (NOS, 2012). The higher-rent segment proved to be a popular alternative for a private property (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2012). These two trends create a growing demand for rental housing.

Research by Mulder (2015) and Gereadts (2004) shows there is especially a large housing shortage, for students, seniors and starters (Mulder, 2015). In total 25% of the people looking for accommodation are starters, since this proportion is that large the focus of this research will be on transformation for starters (Gereadts, 2002).

CBS estimates the housing shortage will rise in 2020 to about 207.400 homes (Licher, 2013). Moreover, the supply is often insufficiently adapted to the demand. If a student, senior or starter will rent a house there is a waiting list for years and they can not afford to buy a house, because of the high prices (VROM, 2006).

Looking at the rental price in Netherlands, it can be concluded that the rental price has risen almost continuously between the 1980s and 2008. The cause for this is the continually increasing demand, which was not facilitated by a commensurate increase in supply of rental dwellings (Rouwendal, 2012). Berker stated 'The housebuilding in the Netherlands hardly responded to increases in demand and that helped to push up prices over a long period of time' (Barker, 2004). In the years

2009 till 2012 the rental price increased with 1,6% till 2,8%. Especially in the years 2013 till 2014 the increase was large, in 2013 the rental price increased with 4.7%, in 2014 with 4.4%. The last year (2015) the rental price increased with 2.4% (CBS, 2015). In total 34% of Europeans felt they faced disproportionate housing costs and that the situation had become much worse over the previous five years. This can be concluded from a survey in Europe (Pittini, 2012). The situation became worse because the rents have generally risen faster than incomes.

It is hard to find a central location, but many centrally located building office are vacant. Transformation or rebuilding of these vacant office buildings can help to upgrade inner city areas (Remøy, 2006). The vacant office buildings can be demolished and on the land new buildings for housing can be built, but an alternative is to renovate or transform the vacant building or to wait and hope for better times (Remøy, 2015). Transformation has various advantages compared to demolition, first the building materials can be reused what is sustainable and hereby there will be less transportation and production (Remøy, 2015). Second, transformation also saves construction time

(Remøy, 2006). Mulder (2015) and Gereadts (2004) state that the transformation of vacant offices buildings into homes can serve as a solution for the high vacancy rate and the large housing shortage. Housing has a positive influence on other functions of the city, like leisure and culture (Remøy, 2006).

There are several reasons why buildings not will be transformed. First, in order to transform a building knowledge has been necessary, however wwners of the building and investors has little knowledge of transformation. Second, owners of the building hope for better times and keep their building on the market (Remøy, 2006).

1.2 Problem definition: Negative effects of vacancies
Structural vacancy has different negative effects. First, vacancy deteriorates the image of an area. Second, vacancy has negative effects on the feeling of safety of people in an area, because there is less social control (Muller, 2009). Third, vacancy can lead to dilapidation, value loss and can also have a negative effect on the profit of an investor (Remøy, 2010). Owners are willing to rent their office, they are trying to keep on the market by

decrease the rent whereby the rent income decrease. If the supply of office building decreases, the rent income will increase, as supply and demand will correspond better (Remøy, 2006). Moreover, found that blocks with vacant properties have higher crime rates compared to blocks with fully-occupied buildings (Spelman, 1993). Research of Cuia (2015) showed that the impact of vacancy on crime increases as the property stays vacant for longer periods of time and once a house is reoccupied the crime impacts of the previous vacancy are attenuated.

In the current market, there are several problems with the supply and demand of real estate. Parties looking for an office do not match with the large size of the low quality office stock (Remøy, 2010). In other words, it is important to reduce the vacancy rate in order to prevent dilapidation, value loss, negative effect on the profit of an investor and the unsafe feeling of people in the area.

1.3 Goal

How can be decided if a vacant office building is suitable for transformation and if it is suitable, how can the building be transformed into apartments with the proviso that the

transformation plan meets the requirements of the zoning of the municipality and the target group and that the transformation plan is financially feasible?

The goal of this study is to develop an approach to decide if a vacant office building is suitable for transformation and if it is suitable, how the building can be transformed into dwellings. During the research a case study is used, namely the building Surinameweg 11 in Haarlem. If the building is suitable for transformation, it is of critical importance to understand the housing needs of a particular segment of the population and their willingness to pay a certain rent for the apartment. In addition, the property needs to meet the requirements of the zoning plan and should be consistent with the vision and business plan of the owner. In this case, this is Certitudo Capital. To determine if the building is suitable for transformation the suggested approach starts with an instrument to determine the transformation potential. Hereby an analysis of the building and the surrounding is made. Next, the housing needs of the target segment are investigated. This can either be done in general terms or with a specific focus of

the unique attributes of the properties. Methods to measure people's needs and preferences tend to be immature and likely lead to various biases, and therefore to potentially wrong management decisions. In this thesis, we, therefore, apply a more advanced method, which is supposed to have better validity and reliability and allows property owner to formulate more optimal strategies. The final result is a transformation plan. Finally, the financial feasibility of the plan is assessed.

1.4 Research questions

1.4.1 Main question:

Main question:

How can be decided if a vacant office building is suitable for transformation and if it is suitable, how can the building be transformed into apartments with the proviso that the transformation plan meets the requirements of the zoning of the municipality and the target group and that the transformation plan is financially feasible?

1.4.2 Subquestions:

Sub question 1: Which instrument can be used to determine the suitability for transformation of a vacant office building and which steps should be taken with this instrument?

Sub question 2: What are the strengths, weaknesses, opportunities and threats of the neighbourhood where the vacant building is located and which concept can contribute the best to the improvement of the district?

Sub question 3: What are the location and building characteristics of the vacant building?

Sub question 4: What is an appropriate target group for the building and what are the residential user needs for these target starters?

Sub question 5: What are the preferences for facilities for the target group?

Sub question 6: How can the transformation plan be designed such that it meets the requirements of the zoning plan of the municipality, the strengths and opportunities will be exploited and the weaknesses and threats will be rectified?

Sub question 7: What is the financial feasibility of the transformation plan?

1.5 Method

The study includes several research methods: a literature review, case studies and a survey. It is important to learn from the literature review what has already been written on the subject, because this research aims to extend the current "scientific knowledge" (Groat & Wang, 2002). This requires knowledge of prior research. The literature is also a theoretical framework for the study. Based on this theoretical framework, we develop a stated preference experiment to understand specific housing needs of starters. This method is still scarcely applied in real estate research, although it has been shown to be superior to simple direct questions of housing satisfaction. In total 217 people participated in the survey.

2. Transformation meter

2. Transformation meter

2.1 Transformation meter

Chapter 1 shows the importance to reduce the vacancy rate and the possibility of transformation to achieve this. Former research (Brand, 1994, Douglas, 2006, Geraedts and Van der Voordt, 2002) developed an instrument which can be used to decide if a building is suitable for transformation, namely the Transformation Meter. With this instrument, in five steps, one can determine the opportunities and risks of transformation. Remøy (2015) states that the transformation meter is a good instrument for assessing specific city areas step-by-step, from a global to a detailed perspective. The steps that need to be taken for the Transformation Meter are:

- Step 0: Investigate supply vacant buildings in the area.
- Step 1: Determine veto criteria.
- Step 2: Determine the gradual criteria.
- Step 3: Calculate transformation score.
- Step 4: Transformation potential on detail level

This chapter explains the five steps of the Transformation Meter and an example is given by making use of a case study. The case study focuses on the vacant office building Surinamweg 11 in Haarlem.

2.1.1 Step 0: Supply vacant buildings in the area

The vacancy has to be determined for the relevant area. This has to be done for the supply of long-term vacant office buildings and offices that will become vacant soon in the area. The analysis can be done by literature (reports from agents association) and by site investigation. This step gives insight in the vacancy in the area and where the empty offices are located (Gereadts, 2002).

2.1.2 Step 1: Determine veto criteria.

Veto criteria are characteristics on which a building has no potential for transformation. With five veto criteria it is possible to do a quick scan with low labour and less necessary information. The veto criteria are urban situation, year of construction, vacancy, main dimensions and capacity in new homes. The criteria urban situation relates to the location, the other criteria relates to the building. The following 10 questions have to be answered with yes or no:

1. Is the office vacant for less than one year?

2. Is it possible to create minimal 40 1 person units?

3. Is the office partially vacant (with exception of the ground floor)?

4. Is the building located on a remote industrial zone?

5. Is the building located in the middle of an office park?

6. Is the building located in a priority area, where change of function is not possible?

7. Is the building not older than 3 years?

8. Is the building renovated in the last three years?

9. Is the floor height less than 2.70 meter or more than 5.70 meter?

10. Is the floor depth less than 10 meter?

The question have to be asked in this order, this has to do with the fact that, some data is easier to obtain than others. Every question relate to a certain veto criteria. Question 1 and 3 give some information about the vacancy, question 2 about the capacity in new homes, question 4 till 6 is about the urban location of the building, question 7 and 8 about the year of construction and last question 9 and 10 about the main dimensions of the building.

If the building meets one of the relevant criteria (question is answer with 'yes'), the transformation into homes of the office building will not be feasible. Further detailed research for this building is not necessary. With these five veto criteria a quick selection can be made of the interesting vacant buildings in a city and can be determine whether this buildings are suitable for further research (Gereadts, 2002).

2.1.3 Step 2: Determine the gradual criteria.

If the building do not meets one of the relevant criteria named by step 1, during step 2 a detailed scan will be carried out. This scan give more information about the opportunities for transformation, by using the gradual criteria. The gradual criteria means that a combination of the total criteria's give a gradual impression of the transformation potential of the building.

To determine the potential of the building for transformation into dwellings, Remøy (2015) creates 6 surroundings criteria's and 7 building criteria's whereby the potential can be determined. The surrounding criteria are ground property, vacancy, character of urban situation, distance/quality of facilities, accessibility by using public

transport, accessibility using a car and parking. These 6 criteria are divided in 20 sub criteria, see table 1. The more questions that will be answered with yes, the worse the transformation score.

The building criteria's are character of building, extensibility, support construction, façade, entrance, installations, environment. These criteria are divided in 24 sub criteria, see table 2.

Research by Gereadts (2003) and Remøy (2006) results in 12 factors of the location which are the basis of the transformation potential. First, the demographic aspects of the location. If a municipality has less than 50,000 inhabitants, the potential for using office building for alternative purposes is considered small. Second, the image of a district influences the vacancy rate. An area with a bad reputation or much deterioration has more vacancy and les transformation

Aspect	Criterion
1. Ground property	1. Does the building has ground rent?
2. Vacancy	1. Is the building vacant for more than 3 years?
3. Character of urban situation	1. Is the building located on or near city limits?
	2. Is there no other buildings in the immediate area?
	3. Is the area lifeless?
	4. Is there no greenery in neighbourhood?
	5. Does the area has a bad reputation, social environment or vandalism?
	6. Is the area danger, does it stink or does it have noise problems
4. Distance/quality of facilities	1. Is the distance to shop for daily needs more than 1 kilometer?
	2. Is the distance to neighbourhood meeting places, like square and park more than 500 meter?
	3. Is the distance to catering like a snack bar, restaurant or café more than 500 meters?
	4. Is the distance to a bank more than 2 kilometer?
	5. Is the distance to basis medical facilities (family doctor, clinic) more than 5 kilometer?
	6. Is the distance to sport facilities like fitness, swimming pool, sport park more than 2 kilometer?
	7. Is the distance to educational facilities more than 2 kilometer?
5. Accessibility using public transport	1. Is the distance to the station more than 2 kilometer
	2. Is the distance to the bus, metro or tram more than 1 kilometer?
6. Accessibility using a car and parking	1. Are there many obstacles of limitations?
	2. Is the distance to a parking place more than 250 meter?
	3. Is it possible to realise 1 parking place per 200 m2 living space?

Table 1: Surrounding criteria1

Aspect	Criterion
7. Character of building	1. Is the building unrecognisable compared to surroundings buildings?
	2. Is there totally no individual building identify to realise?
	3. Is the building very bad maintained?
	4. Does the building has a bad view due to other buildings?
8. Extensibility	1. Is the building not horizontal extensible?
	2. Is the building not vertical extensible?
	3. Is there no possibility to develop cellar under the building?
9. Support construction	1. Is the state of the construction bad or dangerous?
	2. Is the grid of the construction less than 3.6 meter?
	3. Is the height of the floor less than 2.8 meter or more than 6.0 meter?
10. Façade	1. Is there no connection possible or is the grid more than 5.4 meter?
	2. Are the façade openings not adaptable?
	3. Is the daylight entry less than 10% of floor area new units?
	4. Is it not possible to re-used or opened the windows in façades?
11. Entrance	1. Is the entrance of the building very unclear/unsafe?
	2. Is there no lift present or realisable in the building with more than 4 floors?
	3. Has the building no emergency stair?
	4. Is the distance of the new units to the stairs or lift more than 50 meters?
12. Installations	1. Is there no or insufficient conduits realisable?
13. Environment	1. Is the noise level at the façade more than 50 dB?
	2. Is the noise insulation of the floors more than 4 dB?
	3. Is there no or very bad sunning possibilities?
	4. Does the building has very bad heat insulation of façade and/or roof?
	5. Is there presence of large quantities of dangerous materials?

Table 2: Building criteria

potential. Third, the rental price gives an indication of the lettability of an building. If the rental price is low (€ 70 to € 90/ m^2 per year, 1999 prices), indicates that lettability of premises in this area is poor. Moreover, the year of construction influence the

lettability. If an area has many buildings from the year 1960 and 1980, this area has a higher risk on vacancy. Another important aspect is the policy plan of the area. If the building is located in an area with office buildings, the area is not that suitable for transform the building in dwellings. But the building can be situated in an area that has been earmarked for new housing, what is positive for the transformation potential. Furthermore, it is important to research the design of the area, locations without an integrated design has less transformation potential. Regarding to accessibility two important aspects had to be determined. These aspects are the accessibility by car or public transport and the parking facilities. If the building has a bad accessibility by car or public transport, the transformation potential decrease. If the parking facilities for the inhabitants or visitors are insufficient or too far away, the building has less potential to transform. Besides,

to determine if a building is suitable the facilities in the area had to be determined. Absence of facilities such as restaurants, banks, shops and recreation centres, had a negative influence on the lettability or marketability after transformation. The same applies to evidence of vandalism. More over, nuisance due to the surrounding, such as shadow of adjacent buildings, noxious smells, noise, excessive wind had a bad influence on the transformation. Furthermore, a negative image of the area is a risk factor. Additionally, if a building has discomfort due to the surrounding the building has more chance to become vacant. Discomfort can be shadow of adjacent buildings, nuisance of smells or excessive wind. Last, the visual quality of the area influence the vacancy risk. If there are less modern offices in the area, the image of the area deteriorated, whereby the vacancy risk increases.

2.1.4 Step 3: Calculate transformation score.

After the inventory of the location and building, the transformation score will be calculated. This can be done by counting the number of questions that is answered with yes. The weighting of the question about the location is 5 and the weighting of the question about the building is 3

(Gereadts, 2002). The higher the score, the worse the potential for transformation. The maximum possible score of the location is 100 and for a building is 72 points.

Gereadts (2002) made a distinction of different class, which indicate the potential of a building for transformation. First, class 1 has a total score between the 0 and 34 points what means that the building is very good for transformation. Second, class 2 has a score between the 35 and 69, hereby the building can be transform but the potential is considerably less than class 1. Third, class 3 is a building with a score between the 70 and 104 and has limited potential for transformation. Moreover, class 4 has a score between the 105 and 139 and buildings within this class can barely be transform. Last, class 5 consist of buildings who can not be transformed and have a score between the 140 ad 172 points.

2.1.5 Step 4: Transformation potential on detail level
Last, the transformation potential on the most detailed level will be assessed, with the focus on one or more specific target groups. Step 4 made a translation of the surrounding and building criteria's named by step 2 to the demand profile per target group. For all the criteria's 5

possible judgments will be formulated, the number 1 means the criteria is very unfavourable for transformation and number 5 means the criteria is very favourable. The importance of a particular criteria dependents on the target group, if the target group is determined for every criteria a certain weight can be granted. The number of the judgments will be multiply by the weight, what results in a score. In this way several detailed demand profiles can be formulated for the match between supply and demand.

Furthermore, it is important to determine if a criteria can be adapted to the wishes of the target group, because some criteria are easier to correct than others. If one criteria is very unfavourable for transformation but easy to correct, this criteria will not pose a big problem. It is dramatically if a criteria with a bad score is not easy to correct. To determine the transformation potential, for every criteria the possibility for correction will be indicated with a score between the 1 and 5. Hereby the number 1 means correction is not possible and number 5 means the criteria is very correctable (Gereadts, 2002).

2.2 Case study

First, the five steps of the Transformation Meter are explained. In this Paragraph an example will be given for the Transformation Meter by making use of a case study. The case study focuses on the vacant office building Surinamweg 11 in Haarlem.

2.2.1 Step 0: Case study

In this report the focus is on the vacant building Surinameweg 11 in Haarlem. This partial vacant building is purchased by the company Certitudo Capital, to determine if this building is suitable for transformation this building is used as case study.

Figure 1: Surinameweg 11.

2.2.2 Step 1: Case study

For the vacant building Surinameweg 11 will be determined if the building has veto criteria. To answer these questions first some general information about the building will be given.

At the moment, the building is partially vacant, since company UWV leases 1.036 square meters and 24 parking spaces until 21-12-2016. Therefore, 6.628 square meter and 148 parking spaces are vacant. The tot

al building will become vacant from 21-12-2016, what means that the building is vacant for less than one year. The total gross floor area of the building is 11,184 m^2 and the lettable floor area of 7664 m^2, regarding to the surface it is possible to create minimal 40 1 person units. The building originates from the year 1988, so the building is older than 3 year. The last year the building is not renovated. The floor height is less than 2.70 meter and is thus not between the 2.70 and 5.70 meter.
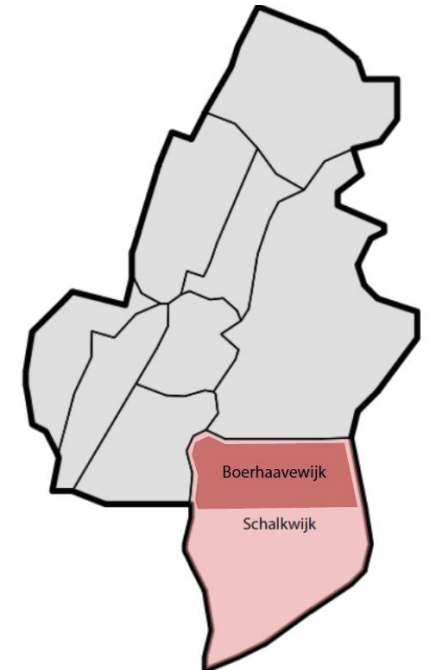
Figure 2: District Schaklwijk and neighbourhood Boerhaavewijk

Moreover, the floor is more than 10 meter, namely 13,61 meter.

The building is located at Surinameweg 11 (Figure 1) in Schalkwijk in the city Haarlem (Figure 2). Schalkwijk is the youngest district of Haarlem in the southeast of the city of Haarlem. It has around 32,000 people, representing 21% of the population of Haarlem. Until 1960, this area had a rural character. Then, construction started and four neighbourhoods emerged, namely Boerhaavewijk, Europawijk, Meerwijk and Molenwijk. These four neighbourhoods are typical for the 60s and 70s of the last century (Buurtmonitor Haarlem, 2015).

Haarlem is part of the Randstad area and the Province of North Holland. This area is one of the largest conurbations in Europe after London, Paris and the Ruhr area in Germany.

Surinameweg 11 is situated in the district Boerhaavewijk and is located on the north side of Schalkwijk (Figure 2). With its almost 175 hectares, Boerhaavewijk is one of the largest neighbourhoods of Haarlem (CBS, 2012). The district is not an industrial zone. Previously the area was a an office park, because the many vacant offices in the region investors had bought these buildings to transform. Hereby, the office park will be transformed into a housing area. These municipality is willing to cooperate for these transformation and the function will change into mixed-use.

2.2.3 Step 2: Case study

2.2.3.1 Surrounding criteria

To answers the questions of step 2 about the surrounding criteria an area analysis for the district Schalkwijk and especially Boerhaavewijk is executed. First, the analysis gives more information about the district. Second, a circle profile will be used to analyse the function of the district Boerhaavewijk. Third, a SWOT analysis gives insight into the developments on the macro level in combination with district and region characteristics. The DESTEP method is used, focusing on demographic, economic, social, technological, ecological and political aspects of the neighbourhood. The SWOT analysis will be used for the confrontation matrix to identify the concept that best fits Boerhaavewijk. Last, the focus will be on other projects in the area.

Boerhaavewijk

The location Surinameweg 11 is of high quality because many facilities are nearby, such as the centre of Haarlem and Amsterdam, Amsterdam Airport, Haarlem station, shopping mall Schalkwijk, Burgermeester Reinaldapark, college Inholland and 3 universities. The travel time is listed for each facility in the Appendices 1 till 8.

The centre of Haarlem is attainable within 12 minutes by car or by bike and 19 minutes by public transport (Appendix 1). The centre of Amsterdam, the capital of the Netherlands, is 23.5 kilometre away from the location. Within 30 minutes one can be in the centre of Amsterdam by car. The centre of Amsterdam is attainable within 46 minutes by public transport (Appendix 2). Surinameweg 11 is 17 minutes away from Amsterdam Airport (named Schiphol) by car, and 37 minutes by bus (Appendix 3). The distance to the central station of Haarlem is 3.6 kilometre and the nearest bus stop is 450 meters from Surinameweg 11. Haarlem station is 10 minutes by car, 17 minutes by bike and 20 minutes by public transport (Appendix 4). Moreover, the district Schalkwijk has a shopping mall, which is 700 metres away from Surinameweg 11, and can be reached within 3 minutes by bike, 4 minutes by car and 7 minutes walking (Appendix 5). Various shops and banks are located in the shopping mall. Surinameweg 11 is also close to Burgermeester Reinaldapark. The park can be reached within 4 minutes by car 7 minutes by bike, 20 minutes walking and 29 minutes by public transport (Appendix 6). The Burgermeester Reinaldapark is the largest park in the city of Haarlem. Moreover the there is greenery in the neighbourhood. Finally, a college and different universities are located at close range. The college Inholland is 5.5 kilometres away from Surinameweg 11. Students can reach the college by car in 15 minutes and by bike in 20 minutes (Appendix 7). The nearest primary school is 600 meters away from the Surinamweg 11. Three universities are located in Amsterdam, namely Universiteit van Amsterdam, the Vrije Universiteit Amsterdam and the Protestantse Theologische Universiteit. Appendix 8 shows the travel time to these universities. The nearest elementary school is 650 meter away. Last, a restaurant (Belcanto) is located in front of the building, moreover a square is part of the restaurant and is a meeting place.

Hereby Surinamweg 11 has a good view and will the view not be obstructed by another building.

In Boerhaavewijk, seven out of ten houses were built in the 1960's and 70's. About 60% of the housing stock exists of high-rise apartments. The percentage of housing that has been build after 1990 is about 13%, mostly involving new buildings. The proportion social housing is 63%, which is almost twice as high as the average in Haarlem. According to the 'buurtmonitor', the average price of a house in Boerhaavewijk is €165,000 , which is the lowest price of all districts in Haarlem. This is in contrast with the average house price of €245,500 in Haarlem (Buurtmonitor Haarlem, 2015).

The circle profile

'Buurtmonitor' has developed a method that shows the circle profile of Boerhaavewijk. This method makes it possible to display how a district is functioning in terms of a set of different characteristics, including housing, residents, employment, income, safety and space. Each characteristic is divided in three or two aspects. For example, the aspect housing is divided into tenured housing, apartments and the value of the dwellings. The

result is a total 16 aspects, where about every resident has given its opinion. In this chapter, for all these aspects the opinions of the residents will be discussed and compared with the average of Haarlem.

Figure 3 shows the circle profile for Boerhaavewijk. The scores for the neighbourhood range from "very much
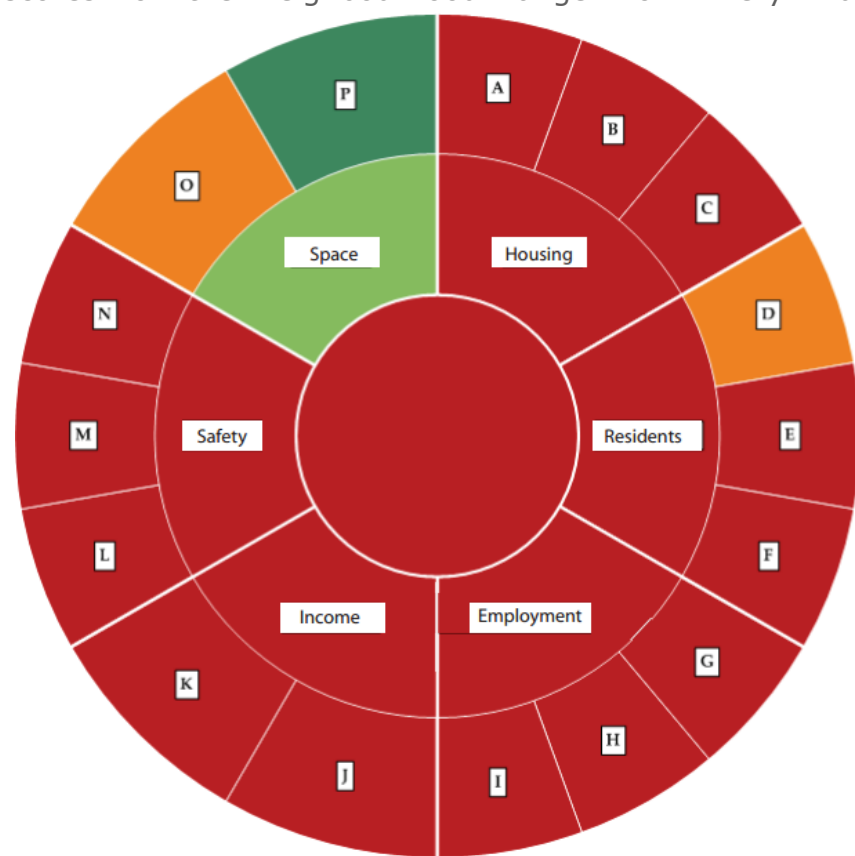
■ = Very much attention	C = Value of the dwellings	J = Income people
■ = Much attention	D = 75-seniors	K = Low income households
■ = Neutral	E = Youth 13 till 17 year	L = Crime reports
■ = Little attention	F = One parent household	M = Declarations burglaries
■ = Very little attentie	G = Unemployed jobseekers	N = Declarations physical offenses
A = Buy dwellings	H = Assistance recipients	O = Scores public space
B = Flats	I = Incapacitated	P = Scores services

Figure 3: Circle profile.   **(Buurtmonitor Haarlem, 2015)**

attention" to "very little attention". Very much attention means that the residents have a high demand for more attention, what means that one has a need for an improvement of this characteristic. This can lead to additional policy focus on the subject or area. The circle profile can be used as a screening instrument (Buurtmonitor Haarlem, 2015)

Looking at the circle profile, different conclusions can be drawn. First, the aspect services (P) is the only aspect that does not need much attention, which means that one has no need for an improvement of this aspect. Various facilities are located in Boerhaavewijk, including a hospital, a swimming pool (the Boerhaavebad) and Hotel Haarlem-Zuid. The majority of the inhabitants is satisfied with the facilities. Furthermore, two other aspects require much attention: 75+seniors (D) and public space (O). Finally, all other aspects need very much attention. Thus, overall Boerhaavewijk is clearly an area that requires a lot of attention, so the inhabitants has a need for an improvement of many characteristics.

Boerhaavewijk need investments for the facilities for elderly and the meeting places in the district (see circle profile), however Boerhaavewijk is doing better than the average of Haarlem for these facilities. Furthermore, residents are satisfied with parking and public transport facilities. On the other hand, the inhabitants are not satisfied with the conditions for youngsters (Buurtmonitor Haarlem, 2015).

SWOT analysis
The SWOT (strengths, weakness, opportunities and threats) analysis gives insight into the developments on the macro level in combination with district and region characteristics. During the SWOT analysis, it is essential that there is first created a situation analysis. This will be done by a DESTEP analysis. A DESTEP analysis is the external analysis that must be performed in order to get more information about the neighbourhood of a building. Understanding the external environment of the building is important to make effective use of the opportunities and threats caused by the district in which the building is located. The DESTEP analysis focuses on the following aspects: demographics, economics, social, technology,

ecology and the political situation. It is important that for all these aspects the current situation will be described. Hereby a prediction can be made for the future. Through this prediction can be investigate how can be respond effectively to the environment in which the building is located and how the strengths and opportunities can be used and the threats and weaknesses can be remedy.

DESTEP

Demographics
After years of decline, the number of inhabitants in Haarlem grows again. The total number of inhabitants of Haarlem is 153.080 (CBS, 2012). Especially the age group 20 till 44 year is strongly represented, 35.6% of the inhabitants are within this age group. The inhabitants have an average age of 40 year (Buurtmonitor Haarlem, 2015).

Per square kilometre, Haarlem has 7.713 inhabitants (CBS, 2012). The average family size in Haarlem is 2.0 persons.

In total, 44% of the households are single person households, 25% are couple households and 30% are families with children (CBS, 2012).

Many inhabitants of Haarlem are foreigners, namely 26.2% and 14.3% have a non-Western origin (Buurtmonitor Haarlem, 2015).

Economics
A consequence of the economic crisis is the increase in long-term unemployment, part-time jobs, job changes and temporary contracts (Hoefnagel, 2011). The average income has decreased, implying less budget is available for living. Moreover, financing of tenured dwellings has become more difficult since banks are less inclined to provide mortgages. The supply of rented dwellings has increased, implying that competition in the renting sector has intensified.

Boerhaavewijk provides many jobs, namely 6,300 jobs in the neighbourhood. In total, there are over 200 branches of companies and institutions (Buurtmonitor Haarlem, 2015).

The employment rate is very low with 67%, which has consequence for the average income level. The average income in Boerhaavewijk is €25,000, which is 24% below the average of Haarlem. In total, 16% of the households in

the neighbourhood have to live with a low income, which is one of the highest rates in the city (Buurtmonitor Haarlem, 2015).

Social aspects
Regarding to the social quality a trend is noticeable in the existing structure of society in the Netherlands (Ministerie BZK, 2013). People lose the relation with their traditions and the result is that people become more individual. Individualisation leads to a reduction of the required space per household, but an increase per individual (SRE, 2014). The traditional segmentation of people on a religious or political basis is increasingly more difficult and is losing its meaning as such segmentation is no longer very stable. The increase of available information makes that power is not taken for granted anymore, for example the power of science and the government. This development leads to more heterogeneity in the population (Ministerie BZK, 2013).

To determine the social quality of the neighbourhood Boerhaavewijk, the focus was on the experience of the interaction between the residents. The residents of Boerhaavewijk rated social quality of their neighbourhood

as 5.2, which is below the average of 6.2 for Haarlem. Furthermore, 34% of the people has inadequate social contacts, which is equal to the average of Haarlem.

A positive aspect is that 33% of the population has been active in Boerhaavewijk in the past year, to improve the quality of the environment. This percentage is above the average of Haarlem (Buurtmonitor Haarlem, 2015).

Regarding to the safety a small part of the population has a positive feeling about safety in the neighbourhood compared to Haarlem. Slightly more than half of the inhabitants of Boerhaavewijk feels safe in their own neighbourhood, while in Haarlem this percentage is 80%. Nuisances and crime contribute to the fact that inhabitants are feeling unsafe, with more people than average feeling unsafe in their neighbourhood (Buurtmonitor Haarlem, 2015).

The result is a higher percentage of residents in the district that stays home in the evening because they feel unsafe. In Boerhaavewijk, this percentage is 28%, which is significantly higher than the 13% in Haarlem. Furthermore,

37% states that nuisances of youth have negative effects on the neighbourhood. In Haarlem, this percentage is 15% (Buurtmonitor Haarlem, 2015).

The identification number of the neighbourhood deterioration for Boerhaavewijk is 5.3, whereby 10 means there is much degradation in the area and 1 means there is less degradation. The city average is 4.1. which is lower than the identification number of Haarlem, which indicates there is more deterioration in Boerhaavewijk (Buurtmonitor Haarlem, 2015).

Between 2008 and 2012, Boerhaavewijk had 53 reports of nuisances and crime per 100 inhabitants. This is a higher reporting rate of nuisance and crime than in Haarlem, where this number is 4 per 100 inhabitants. Offences that occur more than average are burglaries, vandalism and cars getting stolen. The number of reports for burglary per 100 inhabitants in Boerhaavewijk is more than twice the average of Haarlem. (Buurtmonitor Haarlem, 2015)

Technology

Technological developments may affect the housing market. For example, digitalisation has led to more people working from home (Werken 2.0, 2016).

In Boerhaavewijk, several technological developments offer opportunities for optimal energy infrastructure, which will be explained further in the next Section. One of these technologies, that can be used, is seasonal storage, where seasonal heat or cold is stored underground. This technology is also named Warm Cold Storage, and is only profitable when a surface area of several thousand m^2 can be heated and cooled. The number of buildings in Boerhaavewijk is large enough for this cost effective energy to be applied (Nupoort, 2007).

A combined Heat and Power Plant (CHP) can also be considered. This allows generating heat, cold and electricity. The options listed above offer opportunities for a collective generation of heat, cold and electricity in the area of Boerhaavewijk.

Ecology
Sustainability has become an increasingly important issue in many ways. The development of buildings presents an

important role in a sustainable society (Bouwen Nederland, 2016). Sustainability can be taken into account in new buildings, but especially the sustainability of current building is interesting (DTZ Zadelhof, 2010). Several municipalities give partial subsidies or financial support to sustainable development.

As stated in the previous Section, there are different technical developments in Boerhaavewijk that provide opportunities for optimal energy infrastructure. These developments can create the possibility that an Energy Performance Level (EPL) of at least 7.0 is realised. The EPL is expressed as a number from 1 to 10. A 10 is achieved if the energy supply is fully sustainable. There are plenty of opportunities to optimize the existing energy facilities. An optimal energy infrastructure is realized when the heat and cold in the region will be used resulting in a minimal lost (Nupoort, 2007).

Political situation
The Netherlands has developed a vision for living in the Netherlands. Three goals are important:

1. Improve the connection between supply and demand in the renting and sales markets.

2. Improving the conditions for investment in the housing market.
3. Improving the quality of the living environment in towns and cities.

(Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2011).

Regarding Boerhaavewijk, during the parliamentary elections in 2012, less inhabitants of Boerhaavewijk voted in comparison to Haarlem. Most inhabitants of Boerhaavewijk voted for PvdA and VVD finished second. (Buurtmonitor Haarlem, 2015).

SWOT matrix
To transform the building Surinameweg 11 into dwellings, it is important to analyse the area. The circle profile already displayed how the district is functioning with respect to characteristics such as housing, residents, employment, income, safety and space. The area context is especially essential to estimate the strengths, weaknesses, opportunities and threats of the area that will influence the transformation of Surinameweg 11. A SWOT-analysis is a method to systematically analyse internal strengths and weaknesses, and external opportunities and threats. When

confronting these opportunities and threats with the strengths and weaknesses of the district, a matrix arises, which is called a SWOT Matrix shown in Table 3. How the opportunities and threats of Boerhaavewijk can be influenced by the strengths and weaknesses of the area is shown in the confrontation matrix (Table 4) and is explained in the remainder of the section, this is done for every opportunity or threat.

Less affordable homes available
The DESTEP has shown that there is an ageing population in the Netherlands (Giesbers, 2013), which generates the problem that less affordable homes are available for starters. Research into area characteristics affecting the trend of decreasing affordable homes, showed that the population density in Boerhaavewijk is low, implying there are many possibilities to build affordable homes (S7, O1). On the other hand, the employment rate in Boerhaavewijk

Strength	Weakness
S1. Boerhaavewijk has many facilities.	W1. Inhabitants are not satisfied with the conditions for youth.
S2. The quality of the facilities for elderly is better than the average of Haarlem.	W2. Too little attention for 75+ seniors.
S3. The quality of the meeting rooms is better than the average of Haarlem.	W3. Too little attention for the public space.
S4. Inhabitants are satisfied with the parking facilities.	W4. Employment rate is very low.
S5. Inhabitants are satisfied with the public transport.	W5. There are only few social interactions between residents.
S6. Boerhaavewijk is one of the largest neighbourhoods of Haarlem.	W6. A small part of the population has a good feeling of safety in the neighbourhood. People stay home in the evening because they feel unsafe.
S7. Population density is quite low.	W7. Boerhaavewijk has more vandalism, stolen cars and especially burglaries.
S8. Boerhaavewijk has more green areas than the average of Haarlem.	W8. Nuisance of youth has negative effects on the Neighbourhood
Opportunities	**Threats**
O1. In the Netherlands there is an ageing population, what results in less affordable homes available for starters. The housing market is dealing with an excessive demand.	T1. People become more individual.
O2. Digitization has led to more people working from home, which calls for homes is facilitated for telecommuting.	T2. Potential competition of new building projects.
O3. The importance of sustainability increase. Several municipalities also give subsidies or financial support to sustainable development.	
O4. Increase of single person households.	

Table 3: SWOT Boerhaavewijk

Strengths / Weakness	O1. Less affordable homes available	O2. Digitalization	O3. Importance of sustainability increase	O4. Increase one person households	T1. People become more individual.	T2. Competition of new building projects.
S1. Many facilities.				+		
S2. Facilities for elderly are good					--	
S3. Meeting rooms in area are good		++		+	++	
S4. Satisfaction with parking facilities			--	-		
S5. Satisfaction with public transport			++	+		
S6. One of the largest neighborhoods			+			-
S7. Population density is low	+			+	-	-
S8. More green areas		+	+			
W1. No satisfaction conditions for youth		+				
W2. Too little attention for 75-seniors		++			--	
W3. Too little attention for the public space.			+		-	
W4. Employment rate is very low.	--					
W5. Less social interaction.		+			--	
W6. People feel unsafe		++			--	
W7. Much vandalism, stolen cars and burglaries		++			--	+
W8. Negative effects of nuisance of youth		+				

Legend:
- Very positive (++)
- Positive (+)
- Neutral (0)
- Negative (-)
- Very Negative (--)
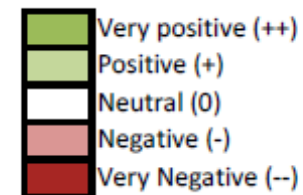
Table 4: Matrix Boerhaavewijk

is low, implying one can spend less on housing (W4, O1). Housing prices are extremely low. The target group of Certitudo Capital is young professionals who can afford a middle/expensive rented dwelling. Consequently, the inhabitants of Boerhaavewijk do not fit the target group. Certitudo Capital has to attract people from outside the area Boerhaavewijk.

Digitalisation

Technological developments may affect the housing market, but also the characteristics of the area. First, the the satisfaction with the meeting places may increase if meeting places are in line with the technological developments (S3, O2) (W5, O2). Second, technology in combination with the green areas in Boerhaavewijk can lead to new concepts, whereby the satisfaction increases (S8, O2). Third, many youth enjoy technology, and thus this may be an opportunity to bring them together (for example, a game centre) (W1, O2) (Tapscott, 2008). If there are more activities for young persons, they are animated more, which could lead to less nuisance in Boerhaavewijk (W8, O2) (Leidelmeijer, 2010). Last, a

possibility of technology is to influence the social interaction positively, whereby the attention and social interaction for elderly and inhabitants increase (W2, O2) (W5, O2). Moreover, the residents of Boerhaavewijk feel unsafe in the district and there is much crime and nuisance caused. By making use of technology/cameras these phenomena can be reduced (W6&W7&W8, O2).

Importance of sustainability increases

The importance of sustainability has increased in many ways, some aspects has a positive influence on the sustainability and some negative influence. First, the inhabitants of Boerhaavewijk are satisfied with the parking facilities. However, if one can easily park the car, this may facilitate the use of cars (S4, O3). In comparison to public transportation, car usage is worse for the environment. On the other hand, the satisfaction of the inhabitants with the public transport is also positive. This satisfaction could lead to more use of public transport (S5, O3). Second, Boerhaavewijk is one of the largest neighbourhoods of Haarlem. Investment by the district in sustainability could make a difference for the city (S6, O3). Third,

Boerhaavewijk has more green areas than average; nature is good for the sustainability (S8, O3). Green spaces are a great benefit to the environment. They filter pollutants and dust from the air, provide shade and lower temperatures in urban areas and reduce erosion of soil into the waterways (Project EverGreen , 2016). If the focus is on sustainability with the investment for the public space, this will increase the sustainability of Boerhaavewijk. For example, this can be done by using solar collectors.

Increase of single person households
The number of single person households increased, in the Netherlands, this has various effects. First, single person households has a greater need for outdoor entertainment activities (Euromonitor International, 2007). The many facilities in the district offer a great opportunity for these activities (S1, O4). The meetings places could facilitate these outdoor activities (S3, O4). Second, more cars will come into the area. This may result in a shortage of parking facilities (S4, O4). Satisfaction with public transport can provide a solution for the parking shortage (S5, O4). Third, if the number of single-person households increases, less people live in one house. This results in a lower population density (S7, O4).

People become more individual
People become more individual and this trend has various effects. First, the facilities for the elderly decline, which will have a negative effect on the attention/interaction for the elderly (W2, T1) (S2, T1) (Cattan, 2005). Second, if more people use the public space, there will be more social interaction and people are less individual (S3, T1) (Project for Public Spaces, 2016). Third, the low population density may be a contributing factor to the fact that people become more individual (S7, T1). Moreover, if people use the public space less, the municipality is prepared to invest less money in the public space (W3, T1). And of course, social interaction declines when people become more individual (W5, T1). Last, the feeling of unsafe and vandalism, stolen cars and burglaries will increase if people become more individual (W6 & W7, T1) (Bellair, 2006), due to the lack of social control.

Competition of new building projects

Boerhaavewijk is one of the largest neighbourhoods and the population density is low. For competitors, it is interesting and there is place for start a project, increasing competition in the area for Certitudo Capital (S6, T2) (S7, T2). Furthermore, the competition of new buildings is positive for the crime, since the quality of the neighbourhood increases. When new projects will be realized, this will increase the quality of the area and could reduce crime (W6&W7, T2).

Concepts

Many of the vacant office buildings though are situated in office/industrial parks these locations are under the current circumstances not suitable for housing (Remøy, 2006). Many areas in the Netherlands will be redeveloped with an area-based approach. These redevelopments improve the living and working environment of an area (Geraedts, 2003). Schalkwijk-Midden will be redeveloped to improve the image of the area and therefor the municipality of Haarlem asked the company 't Idee to develop three concepts. The three concepts are CITYWOODZ, De BOMENBUURT and Bosrijck and for these concepts will be tested which concept suits the best to the environment.

CITYWOODZ

The company 't Idee create the concept CITYWOODZ so that it will be cool and innovative, whereby Schalkwijk will be the testing ground for new urban developments (Vlot, 2016). The target group of the concept are occupants of Haarlem with an urban mind-set, but especially young people and trendy elderly. Facilities that fit within the concept are local food markets, pubs, skate park, forest canteen, and jogging routes. Appendix 9 gives a good impression of the concept.

De BOMENBUURT

De BOMENBUURT is concept two and here the area will become the new 'green heart' of Schalkwijk. The target group of the concept are families, starters, elderly, handicapped people and patients from the hospital. Connection with the neighbourhood is important in the concept and the hospital and shopping mall will be involved in the plan. Beside the goal that Schalkwijk becomes a place to work and live, another target is that Schalkwijk

becomes a meeting park. Facilities that fit the concept are medical facilities, sport and health related businesses, local pubs, picnic places, care BNB and a pancake house. Appendix 10 gives a good impression of the concept.

BOSRIJCK
The target group the concept BOSRIJCK are families and elderly with a great budget. The focus of the concept is on exclusivity. Facilities that fit the concept are quality restaurants, grand Cafés and galleries. Especially companies that need an aesthetic environment, for example lawyers, notaries, publishers, designers and galleries could establish this concept. Appendix 11 gives a good impression of the concept.

To examine which concept is the best option for the district, a confrontation matrix is used to show recent trends and developments. Table 5 shows the confrontation matrix, which links the strengths, weaknesses, opportunities and threats of the SWOT analysis to the concepts. If a concept can optimise a trend, strength or weakness the cell is highlighted. For example, when people have become more individual (T1) and the youth is not satisfy with the conditions in de district (W1), the concept

CITYWOODZ can optimise this. The target group of this concept are mostly Haarlemmers with an urban mind-set and especially young and trendy people. Because of the facilities and activities created in the concept for the youth the satisfaction will increase. In total 19 cells are highlighted in blue, 9 green and 8 red. From this, it can be deduced that the concept CITYWOODZ suits the best for Schalkwijk-Midden.

Other projects
A transformation upgrade plan for the shopping mall in district Schalkwijk has started in 2014 and will be realised in the year 2020. This mall is 700 metres away from the Surinameweg 11 and 800 owner-occupied properties will be realised. As a result of the transformation plan, the image of the shopping mall will improve. Other features will be added and the public space will be renovated. The liveability and the quality of the area will improve.

Table 5: Confrontation matrix

		O1. Less affordable homes available	O2. Digitalization	O3. Importance of sustainability increase	O4. Increase one person households	T1. People become more individual.	T2. Competition of new building projects.
Strengths	S1. Many facilities.	CITY WOODZ	CITY WOODZ	De BOMENBUURT	CITY WOODZ		BOSRIJCK
	S2. Facilities for elderly are good	De BOMENBUURT	BOSRIJCK		BOSRIJCK	BOSRIJCK	
	S3. Meeting rooms in area are good						
	S4. Satisfaction with parking facilities		CITY WOODZ	CITY WOODZ	CITY WOODZ	CITY WOODZ	CITY WOODZ
	S5. Satisfaction with public transport		CITY WOODZ	CITY WOODZ	CITY WOODZ		CITY WOODZ
	S6. One of the largest neighborhoods						
	S7. Population density is low			CITY WOODZ			BOSRIJCK
	S8. More green areas			De BOMENBUURT		De BOMENBUURT	De BOMENBUURT
Weakness	W1. No satisfaction conditions for youth		CITY WOODZ	CITY WOODZ	CITY WOODZ	CITY WOODZ	
	W2. Too little attention for 75-seniors		BOSRIJCK		BOSRIJCK	BOSRIJCK	
	W3. Too little attention for the public space.			De BOMENBUURT	De BOMENBUURT	De BOMENBUURT	
	W4. Employment rate is very low.						
	W5. Less social interaction.					CITY WOODZ	
	W6. People feel unsafe					De BOMENBUURT	
	W7. Much vandalism, stolen cars and burglaries					CITY WOODZ	
	W8. Negative effects of nuisance of youth					CITY WOODZ	

Legend: CITY WOODZ (blue), De BOMENBUURT (green), BOSRIJCK (red)

2.2.3.2 Building criteria

To answers the questions of step 2 about the building criteria, it is important to analyse the building. The building analysis is done in two steps. First, the building characteristics, will be explained. Second the strengths and weaknesses of the building will be researched what will result in a SWOT analysis. This will be the basis for the transformation plan.

First, Appendices 12 - 17 give an impression of the building, its interior, rooftop garden, parking, windows and the stairs. The building originates from the year 1988. Currently, the company UWV leases 1.036 square meters and 24 parking spaces until 21-12-2016. Therefore, 6.628 square meter and 148 parking spaces are vacant. The annual rental income is €117.029,54 (excl. VAT) (DTZ Zadelhof, 2015). After 21-12-2016, the transformation can start.

The building consists of a parking basement (floor -1), five floors (floor 0 to 4) and a floor with engines (floor 5). The entrance of the building is located on the West side of the buildings, this entrance satisfies the safety requirements and is clear. The total gross floor area of the building is 11,184 m^2 and a lettable floor area of 7664 m^2. The building has 108 parking places and about 50 parking spaces on the ground level. Appendix 18 shows the current map of the floors. The building is in a reasonable to good condition in general and is good maintained. However, the technical systems need attention. The building is recognisable compared to the surroundings buildings, because the building has its own identical design. Because of this design, it is easy to realise an individual building identify. More detailed information about the construction, stairs, elevator, roof covering, asbestos, doors, windows, sunscreens and technical systems is provided below.

Construction

The skeletal structure of the building creates much layout freedom for the transformation, because the grid of the construction is more than 3.6 meter, namely 6.8 meter. A connection is possible and the grid is more than 5.4 meter. The floor height is less than 2.70 meter and is thus not a restriction. Figure 4 gives an impression of the column structure. The two green shaded parts of the building are the most suitable for the realization of an apartment. The red squares represent the columns, which are present in

these parts. The columns are located in the middle of the building parts what makes it easier to realize apartments.
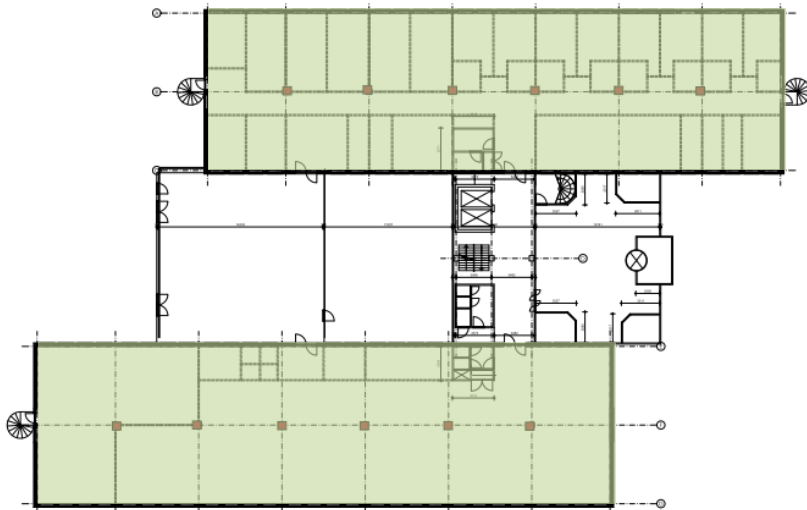
For the part of the building where the elevators and the stairs are located (middle part), the column structure is less important because it is not necessary to transform this part into apartments.

The construction is suitable for horizontal extensibility, the building can be expanded by one floor. Moreover, the building is vertical extensible. At the moment the building has already a cellar, the parking facility in located in this basement (floor -1), hereby it is not possible to develop another cellar. Furthermore, the building is suitable to realize sufficient conduits realisable.

Stairs

The stairs in the building are located in the middle (green part in Figure 5). The stairs and balustrade meet safety. The balustrade is high enough, because the balustrade is higher than the minimum mandatory 0,85 meter. When the gap between the steps and the bottom bar is too large, a potential danger might exist for children falling down the stairs. The stairs of Surinameweg 11 also meets safety laws and regulations, because the gap between the steps and bottom bar is very small. Moreover, the building has two emergency stairs.
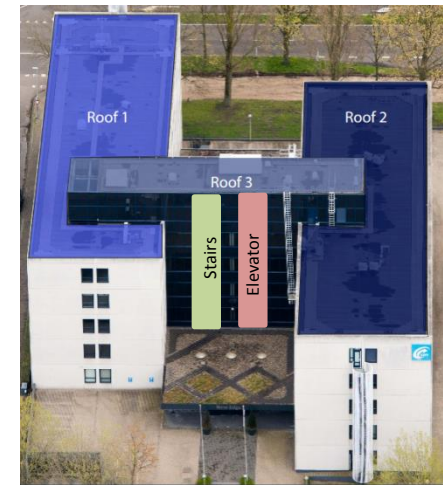
Elevator

In the building, there are two elevators, installed in 1988. With these elevators, one can reach the floors -1 to 4. Only the fifth floor is not accessible by elevator.

The quality of these elevators is reasonably good and the (safety) certificate is valid until December 2016. In the year 2012, the springs were replaced.

The current doors and the sensors of the elevators do not meet the guidelines. The elevator doors have a sensor at one point. These sensors are sensitive to movement and determines whether or not the doors close. The sensor measure only on one point what is dangerous for small children or dogs.

Roof covering

The building Surinameweg 11 has 3 roofs (Figure 5). The roofs are in a reasonable condition. Use is made of an inverse roof system, whereby the insulation is placed between the roof structure and the roof covering. The roof covering consists of bituminous APP roof covering. Several water puddles, creases and incidents of repair were ascertained. This phenomenon may indicate contraction in

isolation or as a result of storm damage. Given the pattern of folds, the most obvious conclusion is that this is an effect of the wind load on the roof. No other particulars were ascertained (DAKNED, 2016).

The heat resistance of the roof is too low. If the roof will be additionally insulated, where the heat-resistance increases with at least Rc 2.0 m^2K / W there is a possibility to get funding (DAKNED, 2016).

Asbestos

A complete asbestos inventory by BME, dated 09 September 2013, is available. This report shows that asbestos is present in the building Surinameweg 11. The presence of asbestos or asbestos-containing material in the office does not mean there is any risk, as long as the asbestos fibre cannot get into the ambient air. The asbestos mainly occurs on the 5th floor (engine). However, there are some points on the ground floor and the basement as well. All asbestos is in the packagings. A number of places has not been studied during the assessment study, because they could not be inspected

without demolition (such as wall cavities). For these places, it is not clear whether there is asbestos or not.

Doors
The doors in the building do not comply with the safety requirements to slow down fire because they do not have a fire resistance of 30 minutes.

Windows
Search Ingenieursbureau completed a technical inspection, which included the window frames. The window frames are made of wood and are fitted with double glazing (Appendix 16). The frames and the glazing are generally in a reasonable condition. Leakage traces are visible near the frames and along the interior wall, due to regular damp penetration. A window frame on the fourth floor of the north wing has started rotting as a result. A possible cause of the damp penetration is the aluminium water bar on the outside of the frames. The frames have not been fully sealed off, allowing water to enter and become visible inside, near the horizontal sill (Search ingenieursbureau, 2015). The paintwork gives an impression that it is recently painted and is in a good condition. Only a few bare spots are visible. It is possible to re-used the windows in the façades. Regarding to the high number of openings in the façade it is not possible, to make extra openings.

If new units will be realised in the building the daylight entry is more than 10% only the construction of the entrance has the drawback that there is no sunlight in the adjacent buildings. If the apartments will be realized at the ground floor the daylight entry is not high enough.

Sunscreens
The windows with their orientation on the south side of the building have electric sunscreens. The canvasses of these blinds are very thin and outdated. Most sunscreens work, but some do not work because of the ageing.

Technical systems
Points of attention are the technical systems of the building because of their bad quality and the ageing. On rooftop 2 (Figure 5), two central heating boilers are located, dating from 1988. Both boilers are in a reasonable condition. In the year 2013, the boilers were maintained. The heating system feeds the radiators system and one of the radiator

dials is defect. Also, two cooling machines are installed on the rooftop. The cooling system feeds the air handling system. The systems are slightly to moderately soiled. Ventilation is provided by an air-handling system with heat and cold retainer, humidifier and heat recovery by means of a thermal wheel. The air-handling unit is housed in the technical service area on the fifth floor. Climate control is regulated by means of a building management system, the units of which are located in the technical service area. Thermostatic units allow for individual climate control. Individual control is possible at the room level.

Parking

Parking can be done on the plot of Surinameweg 11. The building has a garage for 108 parking places and about 50 parking spaces on the ground level. The garage can also accommodate about 150 bicycles. The garage is accessible by elevator and stairs. Moreover, the security of the garage is good. The garage is closed with doors; in the future, residents can open the doors with a personal card. The garage is well insulated, with an insulation layer having a thickness of 7,5 cm, which prevents that cold pulls into the building.

Moreover, is researched if it possible to realise 1 parking place per 200 m^2 living space what is one of the criteria. The building has 7664 m^2 lettable floor, what corresponds with 39 parking places. The building has 158 parking places, so this criteria is no limitation.

SWOT Building

The building analysis is essential to estimate the possibilities of the building but also its limitations. In order to give a clear overview, a SWOT analysis was conducted. The SWOT-analysis gives an overview of the strengths, weaknesses, opportunities and threats. This analysis will be the basis for the transformation plan in chapter 6. The SWOT analysis of the building is shown in Table 6.

Strength	Weakness
Construction S1. The skeletal structure of the building creates much layout freedom for the transformation **Stairs** S2. The stairs and balustrade meet safety requirements. **Window:** S3. The window frames are fitted with double glazing S4. The paintwork of the window frames is in good condition. **Sunscreens:** S5. The windows facing south are equipped with sunscreens. **Parking:** S6. Parking can be done on the own site in one of the 158 parking places. S7. The garage has about 150 places for bicycles. S8. The security of the garage is good. S9. The garage is well insulated.	**Elevator:** W1. The current doors of the elevators do not meet the guidelines W2. The sensors measure only on one point what is dangerous for small children or dogs. **Roof** W3. Several water puddles, creases and incidents of repair were ascertained on the roof. W4. The heat resistance of the roof is too low. **Asbestos** W5. Asbestos is present in the packaging of the building, mainly on the 5th floor (engine) **Doors:** W6. The doors do not comply with fire requirements. **Windows:** W7. A window on the fourth floor started rotting **Sunscreens:** W8. The fabric used for the sunscreens is thin. W9. Some electric sunscreens do not work. **Technical systems:** W9. The technical system is of bad quality.
Opportunities	Threats
Roof O1. If the roof will additionally be insulated, whereby the heat-resistance is increased by at least Rc 2.0 m^2K / W, there is a possibility to get funding. **Parking:** O2. In the future, the doors can be opened with a personal card.	**Asbestos** T1. For a number of places, it is not clear whether there is asbestos or not.

Table 6: SWOT Building

2.2.4 Step 3: Case study

In Paragraph 2.3.2 the location and the building is inventoried, whereby the transformation score can be calculated. For the location in total 2 questions are answered with 'yes' and for the building 6 questions. To calculate the score of the location the score is multiplied with 5 and for the building the score is multiplied by 3 (Gereadts, 2002). The total score of the location is 10 and the score of the building is 18. In total Surinameweg 11 has 28 points which falls within class 1, from this we can be concluded that the building is very good for transformation.

2.2.5 Step 4: Case study

Target group
The spatial plans of Schalkwijk described that the aim of the municipality is to create a stable and balanced population structure. Therefore, it is important to bring change to the one-sided housing supply. This can be achieved by building houses for starters and family dwellings (Gemeente Haarlem, 2016). The Woonvisie 2012-2016 describes Schalkwijk seeking additional starter homes in the mid-segment (rental) segment (Gemeente Haarlem, 2015).

The young families are looking for dwellings with much space and a garden. Moreover the young families prefer land-based dwellings. Hereby the building Surinameweg 11 is not suitable for family dwellings, because it is not possible to create private outdoor space for the dwellings and this is a requirement for the families. However for starters, the building is ideal because they prefer dwellings with own facilities, near to the centre and many facilities in the area. Private outdoor space is nog a requirement for starters (Karreman, 2007).

Transformation potential
In this step the transformation potential on the most detailed level will be assessed, with the focus on the starters. The number of the judgments will be multiply by the weight, what results in a score. Like state in Paragraph 2.4.1 it is important to determine if a criteria can be adapted to the wishes of the target group. The next 4 pages (table 7.1 till 7.4) gives more information about the transformation potential on the most detailed level.

For the starters some aspects have a high weight. First, the ground property, because this will influence the price of a house. Second the distance to various facilities like the centre, shop for daily needs, educational facilities (college or university) train station, bus, metro or tram and parking places. Third. for starters the maintenance of a building is important, because generally they do not want to invest money in refurbishing a house. Moreover, the presence of a lift is important if a building has more than 4 floors. Last, of course, a building has to be safe.

If a criterion has a low judgment score and a high weight, it is important that this is correctable. Only one aspects has a low judgment score and a high weight, namely that the building has barely a good reputation, social environment or vandalism. This aspect get a judgment of 2 points and the weight is 4. This is problematic, but it is likely that the image of the area improved by the redevelopment plans for Schalkwijk.

Aspect	Criterion	Judgment	Weight	Score	Correctability
1. Ground property	1. Does the building has ground rent?	1. The building has a high ground rent	1		1
		2. The building has ground rent	2		2
		3. The building has limited ground rent	3	25	3
		2. The building has barely no ground rent	4		4
		5. The building has no ground rent	5		5
2. Vacancy	1. Is the building vacant for more than 3 years?	1. The building is vacant for maximal 4 year	1		1
		2. The building is vacant for maximal 3 year	2		2
		3. The building is vacant for maximal 2 year	3	15	3
		4. The building is vacant for maximal 1 year	4		4
		5. The building will become vacant	5		5
3. Character of urban situation	1. Is the building located on or near city limits?	1. The distance to the centre is less then 12 kilometer	1		1
		2. The distance to the centre is less than 9 kilometer	2		2
		3. The distance to the centre is less then 6 kilometer	3	20	3
		4. The distance to the centre is less than 3 kilometer	4		4
		5. The building is located in the city centre	5		5
	2. Is there no other buildings in the immediate area?	1. The are no other buildings in the immediate area	1		1
		2. The are limited other buildings in the immediate area	2		2
		3. The are barely other buildings in the immediate area	3	20	3
		4. The are other buildings in the immediate area	4		4
		5. The are many other buildings in the immediate area	5		5
	3. Is the area lifeless?	1. The area is very lifeless	1		1
		2. The area is lifeless	2		2
		3. The area is neutral	3	16	3
		4. The area is lifefull	4		4
		5. The area is very lifefull	5		5
	4. Is there no greenery in neighbourhood?	1. The building has no greenery in the neighbourhood	1		1
		2. The building has barely greenery in the neighbourhood	2		2
		3. The building has limited greenery in the neighbourhood	3	9	3
		4. The building has greenery in the neighbourhood	4		4
		5. The building has very much greenery in the neighbourhood	5		5
	5. Does the area has a bad reputation, social environment or vandalism?	1. The area has a bad reputation, social environment or vandalism	1		1
		2. The building has barely a good reputation, social environment or vandalism	2		2
		3. The building has no bad reputation, social environment or vandalism	3	12	3
		4. The building has a positive reputation, social environment and no vandalism	4		4
		5. The building has a very positive reputation, social environment and no vandalism	5		5
	6. Is the area danger, does it stink or does it have noise problems?	1. The area is very danger, stink of has noise problems	1		1
		2. The area is danger, stink of has noise problems	2		2
		3. The area is limited danger, stink of has noise problems	3	15	3
		4. The area is barely danger, stik of has noise problems	4		4
		5. The area is not danger, stink of has noise problems	5		5

Table 7.1: Transformation potential on most detailed level

Aspect	Criterion	Judgment	Weight	Score	Correctability
4. Distance/quality of facilities	1. Is the distance to shop for daily needs more than 1 kilometer?	1. The distance to a shop for daily needs is less than 2500 meter	1	25	1
		2. The distance to a shop for daily needs is less than 2000 meter	2		2
		3. The distance to a shop for daily needs is less than 1500 meter	3		3
		4. The distance to a shop for daily needs is less than 1000 meter	4		4
		5. The distance to a shop for daily needs is less than 500 meter	5		5
	2. Is the distance to neighbourhood meeting places, like square and park more than 500 meter?	1. The distance to neighbourhood meeting place is less than 1000 meter	1	15	1
		2. The distance to neighbourhood meeting place is less than 800 meter	2		2
		3. The distance to neighbourhood meeting place is less than 600 meter	3		3
		4. The distance to neighbourhood meeting place is less than 400 meter	4		4
		5. The distance to neighbourhood meeting place is less than 200 meter	5		5
	3. Is the distance to catering like a snack bar, restaurant or café more than 500 meters?	1. The distance to a snack bar, restaurant or café is less than 1000 meter	1	20	1
		2. The distance to a snack bar, restaurant or café is less than 800 meter	2		2
		3. The distance to a snack bar, restaurant or café is less than 600 meter	3		3
		4. The distance to a snack bar, restaurant or café is less than 400 meter	4		4
		5. The distance to a snack bar, restaurant or café is less than 200 meter	5		5
	4. Is the distance to a bank more than 2 kilometer?	1. The distance to a bank is less than 2500 meter	1	20	1
		2. The distance to a bank is less than 2000 meter	2		2
		3. The distance to a bank is less than 1500 meter	3		3
		4. The distance to a bank is less than 1000 meter	4		4
		5. The distance to a bank is less than 500 meter	5		5
	5. Is the distance to basis medical facilities (family doctor, clinic) more than 5 kilometer?	1. The ditance to basis medical facilites is less than 15 kilometer	1	10	1
		2. The ditance to basis medical facilites is less than 12 kilometer	2		2
		3. The ditance to basis medical facilites is less than 9 kilometer	3		3
		4. The ditance to basis medical facilites is less than 6 kilometer	4		4
		5. The ditance to basis medical facilites is less than 3 kilometer	5		5
	6. Is the distance to sport facilities like fitness, swimming pool, sport park more than 2 kilometer?	1. The distance to sport facilities is less than 15 kilometer	1	10	1
		2. The distance to sport facilities is less than 12 kilometer	2		2
		3. The distance to sport facilities is less than 9 kilometer	3		3
		4. The distance to sport facilities is less than 6 kilometer	4		4
		5. The distance to sport facilities is less than 3 kilometer	5		5
	7. Is the distance to educational facilities more than 2 kilometer?	1. The distance to educational facilities (college or university) is less than 15 kilometer	1	16	1
		2. The distance to educational facilities (college or university) is less than 12 kilometer	2		2
		3. The distance to educational facilities (college or university) is less than 9 kilometer	3		3
		4. The distance to educational facilities (college or university) is less than 6 kilometer	4		4
		5. The distance to educational facilities (college or university) is less than 3 kilometer	5		5
5. Accessibility using public transport	1. Is the distance to the train station more than 2 kilometer?	1. The distance to the train station is less than 15 kilometer	1	20	1
		2. The distance to the train station is less than 12 kilometer	2		2
		3. The distance to the train station is less than 9 kilometer	3		3
		4. The distance to the train station is less than 6 kilometer	4		4
		5. The distance to the train station is less than 3 kilometer	5		5
	2. Is the distance to the bus, metro or tram more than 1 kilometer?	1. The distance to the bus, metro or tram is less than 2000 meter	1	25	1
		2. The distance to the bus, metro or tram is less than 1600 meter	2		2
		3. The distance to the bus, metro or tram is less than 1200 meter	3		3
		4. The distance to the bus, metro or tram is less than 800 meter	4		4
		5. The distance to the bus, metro or tram is less than 400 meter	5		5
6. Accessibility using a car and parking	1. Are there many obstacles of limitations?	1. There are many obstacles or limitations	1	20	1
		2. There are obstacles or limitations	2		2
		3. There are barely obstacles or limitations	3		3
		4. There are limited obstacles or limitations	4		4
		5. There are no obstacles or limitations	5		5
	2. Is the distance to a parking place more than 250 meter?	1. The distance to a parking place is less than 500 meter	1	25	1
		2. The distance to a parking place is less than 400 meter	2		2
		3. The distance to a parking place is less than 300 meter	3		3
		4. The distance to a parking place is less than 200 meter	4		4
		5. The distance to a parking place is less than 100 meter	5		5
	3. Is it not possible to realise 1 parking place per 200 m2 living space?	1. It is possible to realise 1 parking at 1000 m2 living space	1	10	1
		2. It is possible to realise 1 parking at 800 m2 living space	2		2
		3. It is possible to realise 1 parking at 600 m2 living space	3		3
		4. It is possible to realise 1 parking at 400 m2 living space	4		4
		5. It is possible to realise 1 parking at 200 m2 living space	5		5

Table 7.2: Transformation potential on most detailed level

Aspect	Criterion		Weight	Score	Correctability
7. Character of building	1. Is the building unrecognisable compared to surroundings buildings?	1. The building is very unrecognisable compared to surroundings buildings	1		1
		2. The building is unrecognisable compared to surroundings buildings	2		2
		3. The recognisability of the building compared to surroundings buildings is neutral	3	8	3
		4. The building is recognisable compared to surroundings buildings	4		4
		5. The building is very recognisable compared to surroundings buildings	5		5
	2. Is there totally no individual building identify to realise?	1. It is very hard to realise a individual building identity	1		1
		2. It is hard to realise a individual building identity	2		2
		3. It is possible to realise a individual building identity	3	8	3
		4. It is easy to realise a individual building identity	4		4
		5. It is very easy to realise a individual building identity	5		5
	3. Is the building very bad maintained?	1. The building is very bad maintained	1		1
		2. The building is bad maintained	2		2
		3. The building is neutral maintained	3	25	3
		4. The building is good maintained	4		4
		5. The building is very good maintained	5		5
	4. Does the building has a bad view due to other buildings?	1. The building has a very bad view due to other buildings	1		1
		2. The building has a bad view due to other buildings	2		2
		3. The building has a neutral view due to other buildings	3	12	3
		4. The building has a good view due to other buildings	4		4
		5. The building has a very good view due to other buildings	5		5
8. Extensibility	1. Is the building not horizontal extensible?	1. The building is not horizontal extensible	1		1
		2. The building is barely not horizontal extensible	2		2
		3. The building is limited horizontal extensible	3	8	3
		4. The building is horizontal extensible	4		4
		5. The building is very good horizontal extensible	5		5
	2. Is the building not vertical extensible?	1. The building is not vertical extensible	1		1
		2. The building is barely not vertical extensible	2		2
		3. The building is limited vertical extensible	3	8	3
		4. The building is vertical extensible	4		4
		5. The building is very good vertical extensible	5		5
	3. Is there no possibility to develop cellar under the building?	1. No possibility to develop cellar under the building	1		1
		2. Limited possibility to develop cellar under the building	2		2
		3. Possibility to develop cellar under the building	3	10	3
		4. Cellar present under a part of the building	4		4
		5. Cellar present under the total building	5		5
9. Support construction	1. Is the state of the construction bad or dangerous?	1. The state of the construction is very bad or dangerous	1		1
		2. The state of the construction is bad or dangerous	2		2
		3. The state of the construction is neutral bad or dangerous	3	20	3
		4. The state of the construction is not bad or dangerous	4		4
		5. The state of the construction is totally not bad or dangerous	5		5
	2. Is the grid of the construction less than 3.6 meter?	1. The grid of the construction is less 3.6 meter	1		1
		2. The grid of the construction is less than 5.4 meter	2		2
		3. The grid of the construction is less than 7.2 meter	3	12	3
		4. The grid of the construction is less than 9.0 meter	4		4
		5. The grid of the construction is more than 9.0 meter	5		5
	3. Is the height of the floor less than 2.8 meter or more than 6.0 meter?	1. The hight of the floor is considerably less than 2.8 meter or more than 6.0 meter	1		1
		2. The hight of the floor is less than 2.8 meter or more than 6.0 meter	2		2
		3. The hight of the floor is for a partial of the building less than 2.8 meter or more than 6.0 meter	3	20	3
		4. The hight of the floor is almost between the 2.8 meter or more than 6.0 meter	4		4
		5. The hight of the floor is between the 2.8 meter and 6.0 meter	5		5

Table 7.3: Transformation potential on most detailed level

Aspect	Criterion		Weight	Score	Correctability
10. Façade	1. Is there no connection possible or is the grid more than 5.4 meter?	1. There is absolutely no connection possible or the grid is more than 5.4 meter	1		1
		2. There is no connection possible or the grid is more than 5.4 meter	2		2
		3. There is a connection possible or the grid is more than 5.4 meter	3	12	3
		4. There is easy a connection possible or the grid is more than 5.4 meter	4		4
		5. There is very easy a connection possible or the grid is more than 5.4 meter	5		5
	2. Are the façade openings not adaptable?	1. The façade openings are not adaptable	1		1
		2. The façade openings are not adaptable for a part of the building	2		2
		3. The façade openings are adaptable	3	3	3
		4. The façade openings are easy adaptable	4		4
		5. The façade openings are very easy adaptable	5		5
	3. Is the daylight entry less than 10% of floor area new units?	1. The building do not meets the requirements for daylight entry	1		1
		2. The building limited meets the requirements for daylight entry	2		2
		3. The building partial meets the requirements for daylight entry	3	20	3
		4. The building meets the requirements for daylight entry	4		4
		5. The building had more daylight entry than the requirements	5		5
	4. Is it not possible to re-used or opened the windows in façades?	1. It is not possible to re-used or openend the windows in façades	1		1
		2. It is possible to re-used or openend 25% of the windwos in façades	2		2
		3. It is possible to re-used or openend 50% of the windwos in façades	3	20	3
		4. It is possible to re-used or openend 75% of the windwos in façades	4		4
		5. It is possible to re-used or openend the windows in façades	5		5
11. Entrance	1. Is the entrance of the building very unclear/unsafe?	1. The entrance of the building is very unclear/unsafe	1		1
		2. The entrance of the building is unclear/unsafe	2		2
		3. The entrance of the building is partial unclear/unsafe	3	12	3
		4. The entrance of the building is clear/safe	4		4
		5. The entrance of the building is very clear/safe	5		5
	2. Is there no lift present or realisable in the building with more than 4 floors?	1.	1		1
		2. There is no lift present or realisable in the building with more than 4 floors	2		2
		3. There is a lift realisable in the building with more than 4 floors	3	25	3
		4. There is one lift present in the building with more than 4 floors	4		4
		5. There are two lift present in the building with more than 4 floors	5		5
	3. Has the building no emergency stair?	1. The building has no emergency stairs	1		1
		2. A part of the building has an emergency stairs	2		2
		3. The building has one emergency stairs	3	16	3
		4. The building has two emergency stairs	4		4
		5. The building has three emergency stairs	5		5
	4. Is the distance of the new units to the stairs or lift more than 50 meters?	1. The distance of the new units to the stairs is less than 250 meter	1		1
		2. The distance of the new units to the stairs is less than 200 meter	2		2
		3. The distance of the new units to the stairs is less than 150 meter	3	20	3
		4. The distance of the new units to the stairs is less than 100 meter	4		4
		5. The distance of the new units to the stairs is less than 50 meter	5		5
12. Installations	1. Is there no or insufficient conduits realisable?	1. There are insufficient conduits realisable	1		1
		2. It are almost no sufficient conduits realisable	2		2
		3. In a part of the building are insufficient conduits realisable	3	16	3
		4. There are sufficient conduits realisable	4		4
		5. There are very insufficient conduits realisable	5		5
13. Environment	1. Is the noise level at the façade more than 50 dB?	1. The noise level at the façade is much more than 50 dB	1		1
		2. The noise level at the façade is more than 50 dB	2		2
		3. The noise level of a part of the façade is more than 50 dB	3	20	3
		4. The noise level at the façade is less than 50 dB	4		4
		5. The noise level at the façade is much less than 50 dB	5		5
	2. Is the noise insulation of the floors more than 4 dB?	1. The noise insulation of the floor is much less than 4 dB	1		1
		2. The noise insulation of the floor is less than 4 dB	2		2
		3. The noise insulation of the floor is for a part of the building less than 4 dB	3	20	3
		4. The noise insulation of the floor is more than 4 dB	4		4
		5. The noise insulation of the floor is much more than 4 dB	5		5
	3. Is there no or very bad sunning possibilities?	1. There is no sunning possibility	1		1
		2. There is less sunning possibility	2		2
		3. There are sunning possibilities for a part of the building	3	20	3
		4. There is sunning possibility	4		4
		5. There is very much sunning possibility	5		5
	4. Does the building has very bad heat insulation of façade and/or roof?	1. The building has very bad heat insulation of façade and/or roof	1		1
		2. The building has bad heat insulation of façade and/or roof	2		2
		3. The building has partial bad heat insulation of façade and/or roof	3	6	3
		4. The building has good heat insulation of façade and/or roof	4		4
		5. The building has very good heat insulation of façade and/or roof	5		5
	5. Is there presence of large quantities of dangerous materials?	1. The building has very large quantities of dangerous materials	1		1
		2. The building has large quantities of dangerous materials	2		2
		3. The building has unknow places of dangerous materials	3	15	3
		4. The building has limited quantities of dangerous materials	4		4
		5. The building has very large quantities of dangerous materials	5		5

Table 7.4: Transformation potential on most detailed level

2.5 Conclusion

This Chapter answers the following four sub questions, by using the Transformation Meter:

Sub question 1: Which instrument can be used to determine the suitability for transformation of a vacant office building and which steps should be taken with this instrument?

Sub question 2: What are the strengths, weaknesses, opportunities and threats of the neighbourhood where the vacant building is located and which concept can contribute the best to the improvement of the district?

Sub question 3: What are the location and building characteristics of the vacant building?

Sub question 4: What is an appropriate target group for the building and what are the residential user needs for these target starters?

The Transformation Meter is an instrument which can determine in five steps the opportunities and risk of transformation (Brand, 1994, Douglas, 2006, Geraedts and van der Voordt, 2002). By using the Transformation meter, first the supply of vacant buildings in the area has to be investigate. Second, the veto criteria of the building, which indicates that a building does not have potential for transformation, has to be researched. If one of the 10 questions has to be answered with 'Yes', this aspect forms a veto criteria. Third, the gradual criteria had to be researched. The gradual criteria means that a combination of he total criteria's give a gradual impression of the transformation potential of the building. During this step use is made of 6 surrounding criteria's and 7 building criteria's whereby the potential can be determined. The surrounding criteria are ground property, vacancy, character of urban situation, distance/quality of facilities, accessibility by using public transport, accessibility by using a car and parking. The building criteria's are character of building, extensibility, support construction, façade, entrance, installations and environment. The more questions that will be answered with 'yes', the worse the transformation score. After these three steps the transformation score can be calculated and gives the indication of the transformation potential. Last, with step 5

the transformation can be explained on detail level. As example in this Chapter use is made of the building Surinameweg 11 in Haarlem. It can be concluded that this building is very good for transformation into dwellings for starters. The building has no veto criteria (see Table 8). This means that the transformation into homes of the office building can be feasible and further detailed research for this building is necessary.

	Yes	No
1. Is the office vacant for less than one year?		
2. Is it not possible to create minimal 40 1 person units?		
3. Is the office partially vacant (with exception of the ground floor)?		
4. Is the building located on a remote industrial zone?		
5. Is the building located in the middle of an office park?		
6. Is the building located in a priority area, where change of function is not possible?		
7. Is the building not older than 3 years?		
8. Is the building renovated in the last three years?		
9. Is the floor height between the 2.70 and 5.70 meter?		
10. Is the floor depth less than 10 meter?		

Table 8: Veto criteria Surinameweg 11

Due to the area analysis the questions of step 2 about the surrounding and building criteria can be answered. In total 8 questions are answered with a 'yes', see Table 9.

Aspect	Criterion	Yes	No
1. Ground property	1. Does the building has ground rent?		
2. Vacancy	1. Is the building vacant for more than 3 years?		
3. Character of urban situation	1. Is the building located on or near city limits?		
	2. Is there no other buildings in the immediate area?		
	3. Is the area lifeless?		
	4. Is there no greenery in neighbourhood?		
	5. Does the area has a bad reputation, social environment or vandalism?		
	6. Is the area danger, does it stink or does it have noise problems?		
4. Distance/quality of facilities	1. Is the distance to shop for daily needs more than 1 kilometer?		
	2. Is the distance to neighbourhood meeting places, like square and park more than 500 meter?		
	3. Is the distance to catering like a snack bar, restaurant or café more than 500 meters?		
	4. Is the distance to a bank more than 2 kilometer?		
	5. Is the distance to basis medical facilities (family doctor, clinic) more than 5 kilometer?		
	6. Is the distance to sport facilities like fitness, swimming pool, sport park more than 2 kilometer?		
	7. Is the distance to educational facilities more than 2 kilometer?		
5. Accessibility using public transport	1. Is the distance to the station more than 2 kilometer?		
	2. Is the distance to the bus, metro or tram more than 1 kilometer?		
6. Accessibility using a car and parking	1. Are there many obstacles of limitations?		
	2. Is the distance to a parking place more than 250 meter?		
	3. Is it not possible to realise 1 parking place per 200 m2 living space?		

Table 9: Surrounding and building criteria

7. Character of building	1. Is the building unrecognisable compared to surroundings buildings?		
	2. Is there totally no individual building identify to realise?		
	3. Is the building very bad maintained?		
	4. Does the building has a bad view due to other buildings?		
8. Extensibility	1. Is the building not horizontal extensible?		
	2. Is the building not vertical extensible?		
	3. Is there no possibility to develop cellar under the building?		
9. Support construction	1. Is the state of the construction bad or dangerous?		
	2. Is the grid of the construction less than 3.6 meter?		
	3. Is the height of the floor less than 2.8 meter or more than 6.0 meter?		
10. Façade	1. Is there no connection possible or is the grid more than 5.4 meter?		
	2. Are the façade openings not adaptable?		
	3. Is the daylight entry less than 10% of floor area new units?		
	4. Is it not possible to re-used or opened the windows in façades?		
11. Entrance	1. Is the entrance of the building very unclear/unsafe?		
	2. Is there no lift present or realisable in the building with more than 4 floors?		
	3. Has the building no emergency stair?		
	4. Is the distance of the new units to the stairs or lift more than 50 meters?		
12. Installations	1. Is there no or insufficient conduits realisable?		
13. Environment	1. Is the noise level at the façade more than 50 dB?		
	2. Is the noise insulation of the floors more than 4 dB?		
	3. Is there no or very bad sunning possibilities?		
	4. Does the building has very bad heat insulation of façade and/or roof?		
	5. Is there presence of large quantities of dangerous materials?		

Table 10: Surrounding and building criteria

Regarding to the 12 factors of the location, designed by Gereadts (2003) and Remøy (2006), can determine the basis of the transformation potential. In total 2 factors had a negative influence on the transformation potential, namely factor 10 and 12, see Table 11.

12 factors	Yes	No
1. Municipalitie has less than 50,000 inhabitants		
2. The image of the neighbourhood influence the vacancy rate in a negative way		
3. Rental price is low		
4. The building is build between 1960 an 1980		
5. The policy plan do not allow transformation		
6. The area has not an integrated design		
7. The accesibility by car and public transport is not good.		
8. Not many facilities are located in the area.		
9. There is nuisance due to the surrounding		
10. The image of the area is negative		
11. There is discomfort due to the surrounding buildings		
12. The visual quality of the area is not good		

Table 11: 12 factors of the location

4. USER NEEDS

In order to make an appropriate transformation plan, it is important to know more about the housing market in Haarlem and the user needs of the starters. This chapter first describes the market research of Haarlem. Hereby, the focus is on the demand on the rental market, rental price and living space in Haarlem. Second, the expected user needs of the target group, starters, will be described based on a literature search.

3. User needs

3.1 Market research Haarlem

In order to understand the market in Haarlem, different rental aspects, specific for Haarlem, will be explained in this Chapter. First, it is important to investigate the general demand for the rental market in Haarlem, the counsellor MooijekindVleut did a market research and have years of experience. The demand for social and middle-expensive sector rent in Haarlem is large. The request for rental properties depends on the quality of the location, meaning if the quality is good, the demand and yields are higher. There is a demand for two and three bedroom apartments with enough outdoor space (Vleut, 2016).

Second, it is useful to investigate which rental price should be used in Haarlem. After the transformation of the Surinameweg 11, the conventional rental income can be between €9 and €10.50 per m^2 per month, depending on the execution of the transformation. It is essential that the apartments are at the legal rent price (Vleut, 2016).

Third, the desired living space in Haarlem for a rental apartment is investigated. There is demand for three different apartment sizes, namely 55 - 65 m^2 (33%), 65 - 75 m^2 (33%) and 75 - 85 m^2 (33%) (Vleut, 2016).

Price is an important tool to calculate the profit. An indication for the attainable possible yield at purchase is approximately €1,800 - €1,950 per m^2.

Finally, as for competition, different projects will be developed in the area, like the VNU building, Belcanto, De Entrée and De Poortwachter. The VNU building and Belcanto will be transformed into an unknown number of dwellings. De Entrée will be transformed into 60 buyers- and rental apartments and De Poortwachter into 40 rental apartments.

3.2 User needs starters

Schulz (1985) states that a house is more than its material structure. Therefore, paying attention to the demands of personal factors is necessary to achieving a suitable living environment in housing. Tall suggest 'For example, mobility, as one of most highlighted characteristics of the modern lifestyle, leads to "placelessness," which causes lack of place attachment' (Tall, 2007). Place attachment is one of the most influential factors in humans' psychological

health, and is therefore powerful in constructing an individual's identity (Tuan, 2007, Oliver, 2006).

Various research showed the user needs of the starters. Most starters like to rent a dwelling, namely 62,9% (Hoefnagel, 2011). Research of Ministerie van Binnenlandse Zaken en Koninkrijksrelaties shows that the price of a dwelling is the deciding factor for many people looking for a home when it comes to the decision whether or not to rent. The desired rent of an apartment for starters lies between €500 and €750 (Beterams, 2013). Starters with two-income prefer a rental price between the €700 and €900 per month (Voort, 2002). In 2012, tenants spent on average 36% of their income on housing. People who bought a property spent on average 25% (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2012).

Furthermore, the type of a home and the size are important aspect for starters during the selection process (Voort, 2002). The desired surface for starters is, on average, between 40 to 70 square meters with at least one separate bedroom (Hoefnagel, 2011). Moreover, starters prefer a sittingroom with an average surface of 22 m^2 (Voort, 2002).

Starters with a gross income between €34.000 and €43.000 are in need of start up dwellings (Beterams, 2013). Start up dwellings are small affordable apartments, where starters can spend the first three to five year of their working career.

The location has a major influence on the choice of a dwelling (Hoefnagel, Waarden en woonwensen van de Utrechtse starter, 2011). Starters prefer an urban environment with many facilities (Voort, 2002). Accessibility is very important for the starters, it is preferred that dwellings are located at a maximum distance of 3 to 5 kilometres by bike to the city centre (Hoefnagel, 2011). It is important that the frequency of public transport is high (Gereadts, 2002). The desirable distance to a public transport stops is less than 500 meters from the dwelling (Beterams, 2013).

Furthermore, the accessibility of supermarkets, restaurants and sports facilities are relevant. A supermarket should be located at a maximum distance of 10 minutes by bike. The

restaurants and sports facilities should be located at a maximum distance of 10 to 20 minutes by bike (Beterams, 2013).

For starters, the maintenance condition of a dwelling is important as well, because they prefer good maintained housing. This is because starters are not willing to invest work and costs in a poorly maintained dwelling. They want to be flexible and therefore they prefer a home with good maintenance (Hoefnagel, Waarden en woonwensen van de Utrechtse starter, 2011).

About half of the starters prefer parking on site (Ministerie van Volkshuisvesting, Ruimtelijke Ordening en milieubeheer, 2009). Especially for household with two incomes accessibility by car is important and this group prefer good parking opportunities (T. van der Voort, 2002). On the other hand, starters are not willing to pay for a private parking place and are even prepared to walk up to one kilometre for free public parking space (Beterams, 2013).

3.3 Conclusions

Chapter 3 answers sub question 3: *Sub question 5:* What are the preference for facilities for the target group?

In order to make an appropriate transformation plan, it is important to know more about the user needs of the target group, in this case the starters with a age between the 22 and 35 years. Starters with a gross income between €34.000 and €43.000 are in need of start up dwellings (Beterams, 2013) so they are flexible and can rent a dwelling for a short time. A condition is that the house should have a good maintenance condition (Hoefnagel, Waarden en woonwensen van de Utrechtse starter, 2011). Furthermore, various aspects influence the competition position of a transformation plan, namely the demand on the market for a certain type of dwelling, the desired price and living space. In total 62,9% like to rent a dwelling with a desired surface between 40 to 70 square meters with at least one separate bedroom (Hoefnagel, 2011). Accessibility is important for the starters (Hoefnagel, 2011).

Moreover, competing projects should be investigated, to assess whether the transformation plan is feasible in the area. These projects will have an impact on the demand in an environment, because the supply side changes

4. ADDITIONAL FACILITIES

The target group of the building Surinamweg 11 are starters, with an age between 22 and 35 years. To investigate preferences for facilities of this target group, a survey was conducted. First, section 5.1 provides details about the design of this survey. Second, section 5.2 explained the factorial fractional design. Third, in section 5.3 the preparation of the profiles will be illustrated. Last, section 5.4 gives an overview of the results.

4. Additional facilities

The transformation plan should meet the needs of the target groups as much as possible. To investigate the housing needs and preference for facilities for the target group, a Web-based survey was administered on May 1, 2016. To determine whether the people are within the age range of 22 and 35 year, demographic aspects are important. The destination Surinameweg 11 has a mixed use and the main goal of the survey is to provide insight into the preferences for the extra facilities. More specifically, the survey investigate the preferences for parking, fitness, flex workplace, common rooftop garden and a balcony. For these facilities is determine whether one is willing to pay. The more one is willing to pay, the higher the revenue for the development company.

To motivate people to complete the survey, one of the respondents could win a Bijenkorf gift card with a value of €150. To approach the target group (starters) to participate in the survey as effectively as possible, different types of media were used. Media, which were expected to be the most effective, with respect to the target group, are E-mail, Facebook and LinkedIn.

4.1 Stated preference experiment

Appendix 19 shows the questions that were included in the survey. First, questions 1 to 4 give insight in the demographics of the respondents. Questions 5 - 9 are direct questions related to the desired type of dwelling, the desired rent price, since when the respondent is looking for an apartment, for how long one is intending to rent and for which activities the respondent will use the outdoor space. Although these direct questions to provide some information with regard to user preferences, research by Timmermans (1984) has provided evidence that the validity and reliability of such direct simple questions is relatively poor. The reason is that respondents have difficulty answering such questions without information about other aspects of apartments. In reality, judgements, in particularly those related to willingness to pay, are based on trade-offs of attributes levels. Therefore, the simple direct questions were complemented with a stated preference experiment. Such an experiment systematically varies the combination of attributes level such that the researcher can estimate the utility function (preference) of interest.

4.2 Factorial fractional design

Stated preference measurements thus involve the use of an experimental design. To avoid bias in estimates, ideally attribute levels are varied independently. A full factorial design generates all possible combinations of attribute levels. Because a short response time was a constraint, the number of questions involved would be too high. Therefore, in order to reduce the size of the factorial design, a fractional factorial design was used. A fractional factorial design is an experimental design consisting of a carefully chosen subset (fraction of the experimental runs of a full). Fractional factorial designs are among the most important statistical approaches to efficiently explore the effect of several controllable factors on a response of interest (Gunst, 2009). The design is valuable in vary large experiments in which a single full replication would result in a too large data set for the available resources, or in which full replication gives more precision for estimating the main effects than is needed. For example, in a two to the power of six (2^6) factorial with 64 treatments, each main effect is averaged over 32 combinations containing each level of the factor. Hawai (2016) stated 'Often a fraction of the replication may be sufficient to obtain the desired precision in such experiments'.

Advantages

As discussed, the main advantage of stated preference analysis is that respondents' preferences are reflected in their responses to experimentally varied attribute levels, which define profiles of apartments. If one of the attributes is rent, the willingness to pay for particular attributes can be calculated. Another advantage is that orthogonal fractional factorial designs reduce the possibility of experimental error and confounding of variables (Ehow, 2016). In case of an odd number of attribute levels, using a fractional factorial design, the number of runs in a "full" factorial design can be cut by a factor of two, four, eight, etc. with relatively little loss of information (Treglia, 2015). This implies that particular preferences can be estimated with a lower number of judgements. Second, the design can effectively test multiple different variables at one time.

Disadvantages

However, a fractional factorial design also has some disadvantages. By using the design, there is a potential to

miss important interactions (Six Sigma Study Guide, 2014). Another disadvantage is that the design has to be planned conscientiously. If an error is made in one of the levels, it will result in a large amount of work to correct the error (Shuttleworth, 2016) if the error can be remedied at all. Most importantly, however, preferences are based on stated responses of individuals to hypothetical profiles. There is no certainty that their stated response is closely related to their choices in real markets. On the other hand, deriving preferences from market behaviour also is problematic if choices are constrained due to imperfect market conditions.

4.3 Preparing profiles

To construct a fractional factorial design, first the profiles, describing options, have to be specified. The number of profiles depends on the number of attributes and the number of levels and the assumptions a researcher makes with respect to the nature of the attribute integration process. In this study, we assumed that respondents trade-off attributes in a compensatory fashion, implying that low evaluations of a particular attribute may be compensated by high evaluations of one or more other attributes.

Mathematically, this is captured in a linear additive utility function. It implies that any interaction effects are assumed negligible and in effect are assumed equal to zero. A linear additive utility function can be estimated by constructing a minimum orthogonal fractional factorial design.

4.3.1 Number of profiles

To determine the number of profiles the formula 2k-p will be used, ''2'' indicates each factor has two levels, ''k'' indicates the number of factors included and ''p'' indicates the fraction size that has to be run. Each time a factor will be added to the design, the number of runs doubles. To examine the preference of the facilities parking, fitness, flex workplace, common rooftop garden and balcony, ''k'' is equal to 5 and p = 1, so there is a one half fraction of a 25 design. The result is 25-1; thus there are 16 profiles. As explained before, by using a fractional factorial design, the number of runs in a "full" factorial design can be cut by a factor of two, four, eight, etc.

X1	X2	X3	X4	X5	X6	X7	X8	X9
0	0	0	0	0	0	0	0	1
1	0	0	0	1	0	1	1	0
0	1	0	0	1	1	0	1	0
1	1	0	0	0	1	1	0	1
0	0	1	0	1	1	1	0	0
1	0	1	0	0	1	0	1	1
0	1	1	0	0	0	1	1	1
1	1	1	0	1	0	0	0	0
0	0	0	1	0	1	1	1	0
1	0	0	1	1	1	0	0	1
0	1	0	1	1	0	1	0	1
1	1	0	1	0	0	0	1	0
0	0	1	1	1	0	0	1	1
1	0	1	1	0	0	1	0	0
0	1	1	1	0	1	0	0	0
1	1	1	1	1	1	1	1	1

Table 12: Orthogonal fraction factorial design

(Treglia, 2015). In this case, the design is cut by a factor two, because the design is not that large, and a factor of two should be enough. Note that the number of profiles always needs to be larger than the number of parameters to be estimated, which is equal to 1 plus the number of attributes times the number of attribute levels minus one, if all attributes have the same number of attributes. Thus, because we have five attributes each with two levels, this minimum is 1+5x1=6. Because the number also needs to be a multiple of the number of attribute levels to achieve orthogonality, the minimum main effects design would involve 8 attributes.

The orthogonal fraction of the design used in this study is shown in Table 12. This Table illustrates the application of the coding effect on the design, which is necessary for the estimation. The (0,1) codes of the design then need to be linked to an attribute level, which shows whether the apartment has a special facility or not, respectively a certain extra rent one has to pay for that facility. This is interesting because the more one is willing to pay for a facility, the more profit can be generate for Certitudo Capital. The market price that is used at this time in the area, gives an indication of the prevailing price one is willing to pay. But to investigate whether one is willing to pay more than the prevailing price, various prices are interrogated. First, the average market price for parking in the neighbour Schalkwijk is €90 per month (Jaap.nl, 2016). Second, the average market price for fitness facilities in the Netherlands is €40 per month (Gemiddeld gezien, 2016). Last, in Haarlem, similar flexible workplaces facilities are for rent, the average rent of these workplaces is € 95 per month (Stoflab, 2016). The average used rental price for Certitudo Capital in Haarlem is € 810 per month.

The following attribute levels were used: level 0 means the apartment has an average rental price and no facility. Number 1 means an apartment has an average rental price plus the price for the facility, which is 25% lower than the market price of the facility. Number 2 means the rental price is equal to the average rental price plus the average market price for the facility. Last, number 3 means the apartment has an average rental price plus the market price for the facility, which is 25% higher than the market price. It is not possible to determine the market price of a balcony, since a balcony is an independent object and is

always part of the rent price. Therefore, these two facilities have two levels. Number 0 means that there is a common rooftop garden or balcony and 1 means there is no common rooftop garden of balcony (Figure 6).

Table 13 shows the results of the profiles of the apartments for man and women where every row is a profile. Another variable was used to block the design for men and women.

4.3.2 Drafting choice sets

Because in real life people make choices on a daily basis, a natural task would be the request respondents to choose between attribute profiles. To do this, for 4 question people has to choose between two different apartments with different price and facilities. For every question people has to indicate which apartment they prefer. An example of a question is as follow:

Which apartment do you prefer?
   A. Apartment 1: €995,-
      - Parking facilities €90,- per month
      - No fitness facilities
      - Flex workplace facilities €95,- per month
      - Common rooftop garden
      - Balcony
   B. Apartment 2: €968,75
      - No Parking facilities €90,- per month

   - Fitness facilities €40,- per month
   - Flex workplace facilities €118.75 per month
   - Common rooftop garden
   - No balcony

Every observed choice then provides information with respect to the underlying utility that generates the choice. The easiest way to create choice set is to randomly align the profiles.

4.3.3 Recoding for analysis

Table 12 is the basis for the fractional factorial design, for 16 observations. This Table will ultimately result in the apartments profiles for the survey. The Table consists of 9 columns, where a clear pattern can be discovered in the basis table. Input to the analysis are respondents' choices. We assume that the multinomial logit model represents the choices. More specifically, we assume that the utility that an individual derives from an attribute profile is linear additive and that their choices are driven by the principle of utility maximization. That is, we assume that individuals will choose the profile that maximizes their utility. Because utility is random, the probability of a choice depends on the assumptions we made with respect to the error terms. Assuming these are independently identically Gumbel

distributed, it is implied that we assume the multinomial logit model represents the choice:

p(i)=exp(util)/Sumi exp(util)

Util is calculated with the code multiply by the expected utility(X). The goal then is to estimate the utility components such that the MNL model describes observed choice as closely as possible

This estimation requires a coding of the attribute levels. In this study, effect coding was used. It means that for each attribute with L levels, L-1 indicator variables are constructed. A particular attribute is coded 1 on a corresponding indicator variables and zero on all others. One of the attribute levels is coded -1 on all indicator variables (Appendix 20). The coding scheme implies that estimated parameters can be interpreted as deviations from the average utility. Finally, this results in the profiles, see Table 13.

Parking facility:
0 = Average rental price + apartment has no parking facility
1 = Average rental price + €67,50 per month for the parking facility (market price -25%)
2 = Average rental price + €90 per month for the parking facility (market price)
3 = Average rental price + €112,50 per month for the parking facility (market price +25%)

Fitness facility:
0 = Average rental price + apartment has no fitness facility
1 = Average rental price + €30 per month for fitness facility (market price -25%)
2 = Average rental price + €40 per month for fitness facility (market price)
3 = Average rental price + €50 per month for fitness facility (market price +25%)

Flex workplace facility:
0 = Average rental price + apartment has no flex workplace
1 =Average rental price + €71,25 per month for flex workplace (market price -25%)
2 = Average rental price + €95 per month for flex workplace (market price)
3 = Average rental price + €118,75 per month for flex workplace (market price +25%)

Common rooftop garden:
-1 = Average rental price + apartment has a common rooftop garden
1 = Average rental price + apartment has no common rooftop garden

Balcony:
-1 = Average rental price + apartment has a balcony
1 =Average rental price +apartment has no balcony

X9:
-1 =Men
1 =Women

Profile for women					
Parking	Fitness	Flex workplace	Common rooftop garden	Balcony	X9
0	0	0	0	0	1
3	0	1	1	0	1
2	2	1	0	1	1
1	2	0	1	1	1
2	1	3	0	0	1
1	1	2	1	0	1
0	3	2	0	1	1
3	3	3	1	1	1

Table 13: Profiles for women

4.3.4 Administration

Thus far, we have described the experiment as it was designed and planned to estimate the utility functions. Unfortunately, a mistake was made in the construction of the choice sets. Profiles were not orthogonally varied as planned. Rather, for some attributes, only some levels were compared, whereas in the case of common rooftop garden, no attribute variation was present in the choice sets, implying that the effect of this attribute could not be estimated. This mishap emphasizes how a small mistake, resulting from the time pressure to administer the survey in a timely manner, can completely ruin the survey.

In the present case, it meant that we needed to find a way to estimate as much as possible from the collected judgements. The solution we found was to merge the attribute levels of the attributes parking, balcony, fitness and workplaces. Although the results become less informative, still preferences for some levels can be estimated. The bigger challenge was the estimation of the utility of a common rooftop garden, which had the same level in each choice set, and therefore could not be estimated in a classical way. However, the variation in

responses across choice sets was used to have an estimate of the utility of common rooftop garden. It was estimated in two steps: first based on the parameters estimates for the remaining attributes the utility for each profile was estimated. Next, by rescaling one profile in each choice set, the differential number of choices of profiles across choice sets was used to estimate the utility of a common rooftop garden, controlling for the estimated effects of all other attribute levels.

4.4 Results

In total, 291 people responded to the survey, but only 218 people were within the age range and belonged to the target group. If the respondent did not belong to the target group, the data from this respondent were not considered in the study. The results of the survey will be explained in the following paragraphs.

Sample characteristics

The first questions of the survey collected demographic of the respondent, such as gender, function in daily life, age and family situation. The results of the survey are illustrated in Appendix 21.

As indicated earlier, 218 persons, within the requested age group, responded to the survey. Of these 218 persons, 92 are women (42%) and 126 are men (58%).

The target group of Certitudo Capital are starters. Therefore, the survey was sent to persons between 22 and 35 years. A distinction is hereby made in three different age categories, namely people with an age between 22 and 25 years, 26 to 29 years and 30 to 35 year. Especially, the youngest age group is represented, 50% of the respondents have an age between 22 and 25 years. 28% of the respondents have an age between 26 and 29 years. Of course, the remaining 22% belong to the oldest group, consisting of people with an age between 30 and 35 years.

The function in daily life was investigated as well. The majority of the sample has a full-time job (51%), while. 41 persons (19%) have a job beside their study. Furthermore, 18% of the respondents are students. Three are almost not represented, namely people who have a fulltime job and at the same time attend a part-time study, people who are entrepreneurs and others.

For the question concerning the family situation, respondents could indicate whether they have a single person household, a two-person household or a family with children. In total, 111 persons (51%) are part of the category single person household; 89 persons (41%) are part of a two-person household. Only, 8% of the respondents is part of a family with children. This low percentage is obviously related to the age of the respondents. In general, young adults do not have children.

To examine which type of dwelling the target group is interested in, people could choose between 6 categories: dorm room (with shared bathroom and kitchen), studio (apartment consisting of one room), two-room apartment, three-room apartment, ground-dwelling or other. The categories, two-room apartment, three-room apartment and ground-dwelling were chosen most frequently. First, the two-room apartment category is chosen by 72 persons (33%). Second, the three-room apartment is chosen by 61 persons (28%). Third, the ground-dwelling is chosen by 41 persons (19%). Three categories are less popular, namely dorm rooms (5%), studios (10%) and other (5%).

If apartments are realized with a rental price that is not in line with the target group, it is possible that the apartments are not rented and a problem arises. Therefore, it is important that the desired rental accommodation was examined within the target group. Most of the respondents prefer a rental price below the social rental limit of €710,68 per month, namely 45%. In total, 57 persons (26%) prefer a rental price up to € 800 per month. Most of the respondents found the more expensive dwellings less attractive. Only 10% of the respondents reports to be content with a rental price up to € 900 per month or up to €1000 per month. Even a lower percentage (5%) prefers an apartment with a rental price up to €1200 or other.

All transformed buildings of Certitudo Capital have a large common rooftop garden, because this is part of their branding. To research for which activities one will use the outdoor space, people were asked about their potential use of outdoor space. These activities are: enjoy the sun, read a book, have a diner at a table, have a dinner with friends, barbecue, celebrate a birthday. First, the majority (78%) indicates to use the outdoor space to have a diner at a table and dinner with friends. Second, 73% of the respondents will use the outdoor space to barbecue. Third, 64% will enjoy the sun at the outdoor space. Last, 52% will read a book at the outdoor space and 48% will celebrate a birthday.

In total, 48 persons (22%) are looking for an apartment which is available immediately. 46 persons (21%) are looking for an apartment which is available in the year 2016 and 61 (28%) persons for an apartment which is available in the year 2017. In total, 22% has no preference and 7% has another preference.

For a landlord it is unpleasant if tenants rent for a short period, because then a lot of changes within the rental population will take place. That is why it was researched how long the intention is to rent an apartment. Results indicate that only 22% will rent an apartment as long as possible and 16% will rent an apartment at least for 1 year. The majority of the respondents want to rent an apartment for a period between 2 and 3 years, namely 36%. Last, 26% of the respondents will rent an apartment for a period between 3 and 4 years.

Facilities preferences

Because of the error in the profiles regarding to the common rooftop garden, another method was needed to analyse the results of the survey, without the contribution of a common rooftop garden being present. For this, first NLogit was used in order to determine the expected value of parking, fitness, flex workplace balcony (the facilities without error). Second, EXCEL was used to obtain the results of the common rooftop garden, see annex 22.

First, the expected value is determined for all the attributes minus the attribute with the error, with the software NLogit. In this case the expected value is determined for: parking, fitness, flex workplace and balcony. These expected value are insert in Excel, with the function goal seek in Excel, the smallest number is calculated, what indicated the preference for the facility rooftop garden.

The stated choice experiment was conducted to assess the utility of extra facilities parking, fitness, flex workplace, common rooftop garden and balcony. see Appendix 22. The estimated multinomial logit model results in estimated part-worth utilities of these facilities (after reformulation)

and their standard errors and significance. Because we are only interested in the utilities, only these are reported here.

The results for the facilities are shown below:

- Balcony = 0.62482
- Parking = -0.0377
- Fitness = -0.0816
- Flex workplace = -0.32103
- Common rooftop garden = -0.3792
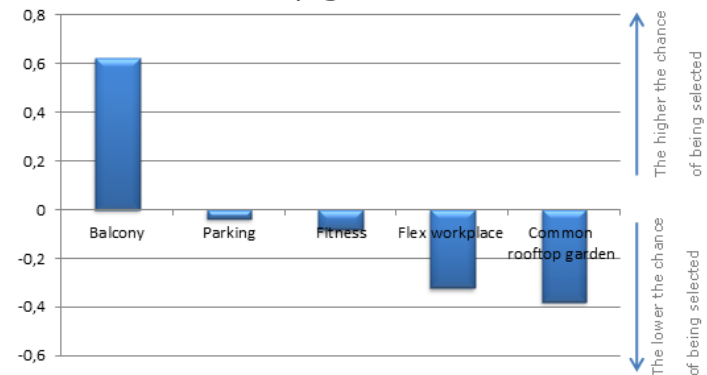
Table 14: Preference facilities

Assuming that the multinomial logit model is a valid representation of the consumer choice process and there are no significant differences between the observed hypothetical choices and choices in real markets, results indicate that when offered the choice between a balcony

and not, 77.7% will choose the balcony option. Similarly, when given the choice of parking, 48.1% will choose the parking option, while 51.9% will not. If one have to choose between a fitness facility or not, 45.9% will choose for a fitness facility and 54.1% not. In total will 34,5% choose for a flex workplace and 65,5% for no flex workplace. When given the choice of a rooftop garden 31.9% will choose for a rooftop garden and the majority (68,1%) for no rooftop garden.

4.5 Conclusions

Chapter 4 answer sub question 4: What are the preference for facilities for the target group?

A transformation plan should meet the needs of the target groups as much as possible. A Web-based survey can investigate the housing needs and preference for the facilities parking, fitness, flex workplace, common rooftop garden and a balcony. This to determine what the preferences are and whether one is willing to pay for a parking place. Although direct questions to provide some information with regard to user preferences, an amount of literature (Timmermans, 1984) has provided evidence that the validity and reliability of such direct simple questions is relatively poor. Therefore, the simple direct questions can be complemented with a stated preference experiment.

Despite branding, the desire to have common rooftop does not seem to generate a high utility among the target group. Rather, they prefer clearly a balcony. The desire to have a workplace does even not seem to generate a high utility among the target group. For the facilities parking and fitness there is no clear preference discernible.

The starters choose the two-room apartment (33%), three-room apartment (28%) and ground-dwelling (19%) most frequently. Three categories are less popular, namely dorm rooms (5%), studios (10%) and other (5%).

In total 45% of the starters prefer a rental price below the social rental limit of €710,68 per month and 26% prefer a rental price up to €800 per month. Most of the respondents found the more expensive dwellings less attractive.

5.TRANSFORMATION PLAN

How this transformation of the building Surinamweg 11 will be completed is explained in this chapter. It is important that the transformation is in line with the wishes of the municipality, therefore, the zoning plan is explained first. The zoning plan and SWOT analysis are the basis of the transformation plan, which is illustrated in this chapter. Furthermore the user needs of the starters and the stated preference experiment are also the basis of the transformation plan.

5. Transformation plan

5.1 Zoning plan municipality

For transformation, it is important that the municipality is willing to cooperate. The municipalities are responsible for providing the required licenses and for controlling what is allowed and what not. If the municipality do not approved the plan they can slowing the process and delay income what has negative influence on the financial feasibility of the project (Remøy, 2015). In order to make a transformation plan for the object Surinameweg 11, it is important to know the zoning plan and the plot lines of Schalkwijk-Midden.

5.1.1 Schalkwijk-Midden

First, the focus is on the zoning of the area Schalkwijk-Midden. This area is located in the East of Haarlem between the Schipholweg and shopping mall Schalkwijk, and covers an area of about 33 hectares. The regional vision Schalkwijk-Midden is the basis for all the developments and upgrades within the planning area (Gemeente Haarlem, 2016).

Redevelop plan Schalkwijk-Midden

The municipality of Haarlem will redevelop Schalkwijk-Midden in an area with an overall identity, that is necessary for a cohesive branding and development of the area. The public space is representative of the identity of the area. In order to upgrade public spaces, a regional vision was made by for Schalkwijk-Midden by the company Zones Urbanes Sensibles (ZUS). The name of this vision is Schalkwoud. Industrial forest and urban wildlife is the main theme of the area with much nature and many trees (see Figure 6). The public space will become special meeting places. Figure 8 shows the atmosphere of these meeting places. The public space offers the possibility for outdoor adventure and fresh air for young and old people. Figures 9 and 10 provide an impression. The strategy will be implemented through five elements (ZUS, 2016):

1. Compact parking what will result in space for forest.

2. Create an urban forest which is an opportunity for the neighbourhood.

3. Construct special places and routes for all ages.

4. Generate something special of every existing building.

5. Add a programme that maximizes the theme forest.

Figure 6: Industrial forest and urban wildlife (ZUS, 2016)

Figure 8: Fresh air for young and old people (ZUS, 2016)

Figure 7: Special meeting areas (ZUS, 2016)

Figure 10: Outdoor adventure (ZUS, 2016)

To improve the district, different points will be implemented (Figure 11). First, a central walking and cycling route will be realized, which improves connections to the surrounding neighbourhood. Second, pavilions are part of the plan which act as attractions; these pavilions are marked in pink in Figure 11. Third, public spaces will be added to the area, shown in blue. Furthermore, a circuit will make a connection between the buildings and the trees, indicated by the white line. Due to this circuit, one can walk through the area and this will result in social interaction between the people. Last, if one wants to build new floors above the existing buildings, these should be light and transparent.

The vision focuses on a mixed residential areas with public space where it is pleasant to stay (ZUS, 2016). Each plot contributes in realizing squares, in total about 5500 m^2 must be realized. The plot size of plot 5 is 8% of the total surface area. This means that plot 5 achieves 440 m^2 square (Appendix 23). The squares are filled preferably with green and especially trees.

Many different stakeholders are involved in the redevelopment of Schalkwijk-Midden, making the process complex. In order to promote co-operation, the municipally Haarlem organized four workshops with all stakeholders. During these workshops, it was explored how municipal policies and the needs of owners can agree, which has resulted in effective agreement and a transformation of this area (Schalkwijk Midden, 2016). Seven out of eight of the owners participated in the process. For the redevelopment of Schalkwijk-Midden, plot lines were made. These lines allow phased development and every owner can apply his own ideas. Every plot has its own rules, the building at the Surinameweg 11 is located in plot 5 (Appendix 23).

A number of plot lines are related to all the plots. First, the minimum Floor Space Index is 2 per plot. Second, the

maximum allowable building height is 12 floors. Also, it is important that the building height is related to the surrounding buildings. Third, all functions are required to achieve a high-quality bike storage on their site (Schalkwijk Midden, 2016).

Regarding market developments, it is not excluded that the municipality will contribute another destination for the plot. Very important conditions are that a recovery of costs must be ensured and that no environmental problems arise (Gemeente Haarlem, 2016)

5.1.2 Function

The subarea Surinameweg is registered in the structure map as central area, the destination for the central area is to strengthen mixed use (Gemeente Haarlem, 2016). The aim is to mix housing, services and work functions (offices) and in combination with the redevelopment of the public space, this will support the liveliness and social security of the area. The vision focuses on a mixed residential area with public space where it is pleasant to stay. The minimum number of jobs/workstations in Schalkwijk Midden is 750, a combination of house and work counts as one work place. This means that plot 5 has to add 61 jobs/

workstations (Appendix 24). The term jobs/workstation can be interpreted broadly. For example, dwellings can be realised where one can live and work, workplaces for freelancers, office floors. A workstation has to be at least 8 m^2 and a flexplace 10 m^2 (Schalkwijk Midden, 2016).

For the dwellings a mix of social and free housing sector is desired. Given the large number of added properties, it is desirable not to add 100% free sector housing. The target of the city is 33% social dwellings, 33% middle/expensive and 33% expensive dwellings. A certain mix of social and non-social places creates a differentiation of target groups. The minimum size of the dwellings has to be 60 square meters or otherwise there has to be an opportunity to combine two dwellings (Schalkwijk Midden, 2016). Furthermore; homes of 80 square meters for sale are desirable in the social sector, or homes of 110 square meters with a middle/expensive rental price (Gemeente Haarlem, 2016).

The buildings will be faced to the public space and the surrounding neighbourhoods, without closed ground floor with sheds and garages. The building height ranges from 4

to 12 layers with the possibility of accents (Gemeente Haarlem, 2016).

5.1.3 Parking

The starting point for parking is the current parking ratio. The standard for expensive dwellings in 2015 was 1.5 parking place per dwelling, and for medium expensive dwellings 1.4 parking place per dwelling. For social housing the standard is 1.2 parking place per dwelling (Gemeente Haarlem, 2016). The plot lines from 2016 allow that a smaller part of the standard is realized, if sufficiently plausible that there is a structurally lower car use. Parking must be provided on site and should not be visible, this can be realised with a garage (Schalkwijk Midden, 2016).

5.1.4 Sustainability

According to the municipality of Haarlem, the ambition of Haarlem is to become Carbon Neutral in the year 2030. Each development will have to contribute to this ambition. Points of attention include energy-saving measures, self-generating energy, provide additional green benefit of natural cooling and rainwater infiltration, fix pipes and installations in the neighbourhood and contribute to sustainable mobility. Moreover, 50% of the plot area has to

be arranged as green. Finally, the CO_2 emissions will be reduced through energy-saving measures and renewable energy generation (Gemeente Haarlem, 2016).

5.2 Transformation

Until 21-12-2016 the company UWV leases a part of the building. The remodelling of Surinameweg 11 will start in January 2017.

De SWOT analysis of the building and the stated preference experiment are the basis for the transformation plan. The building is in general is in a reasonable to good condition. On the other hand, the SWOT analysis showed a number of weaknesses of the building that need to be taken into account. The transformation plan will be described in the remainder of chapter 6 and Appendix 26 gives an overview of the strength, weakness, opportunities, threats, requirements and the steps that will be taken during the transformation. The map of the building after transformation is shown in Appendix 26. For every step of the process, it is indicated how they fulfil a condition, how a weakness is transformed into something positive or how a strength is utilized.

First, all asbestos will be removed by the company Heezen (Weakness 5 rectified). This company removes asbestos carefully, based on the Asbestos Removal Process Certificate. A contract has to be signed to establish that Heezen removes all asbestos for a fixed price. Certitudo Capital has no risk regarding to the presence of asbestos in unfamiliar places (threat 1 rectified).

Figure 12: Building diveded in parts

Second, those parts of the building that are no longer needed will be demolished. For this, aspects such as removing all non-structural interior walls, metal stud walls, partitions, doors, ceiling equipment, cables, pipes, floor decking exclusive cement and radiators should be included. The SWOT analysis has shown that the doors do not comply with the requirements and regulations in case of a fire. Thanks to the demolition of the doors, this issue is resolved.

To transform the building, it is important to know the physical state of the building. Figure 12 shows the different sections of the building. The blue and the red parts are made up out of glass and the quality of building physics is moderate. For living, many building physics requirements consist, making these sections not suitable for apartments. For each section, the procedures will be explained.

Demolition red section

Figure 13: Square

The red sections (Figure 12) are located at the East and West sides of the buildings. At the moment, these parts are the entrances; however, these parts will be demolished for two reasons. First, this construction has the drawback that there is no sunlight in the adjacent buildings. If the apartments will be realized at the ground floor (in the green parts), sunlight is a must. Moreover, a requirement of the municipality is to create a square of minimal 440 m^2.

If the red sections are demolished, additional space can be created for this square (Figure 13). A green zone will be created to the front (Surinameweg) as well on the rear side (Amerikaweg). Industrial forest and urban wildlife is the main theme of the square, this will be done by the presence of nature. The public space will become a meeting place for the neighbourhood.

Creating apartments in the green section

The conditions of the green sections (Figure 12) are the best of the whole building. Therefore, in this part of the building the apartments will be realized. The larger the number of apartments that will be realized in the building, the more profitable the project will be for Certitudo Capital. Therefore, a requirement for Certitudo Capital is that the building is utilized as much as possible for the realization of apartments. One of the requirements of the municipality (requirement 2) is that the apartments have a minimal size of 60 m^2 or otherwise they have to be switchable. Certitudo Capital prefers to create apartments with a size between 20 m^2 and 100 m^2. Therefore, the design of the apartments will be switchable. The desired surface for starters in the Netherlands is on average 40 to 70 square meters with at

least one separate bedroom. And the stated preference experiment showed that 33% prefer a two-room apartment, so all apartments will have two rooms. The preferences of Certitudo Capital and the starters are taken into account in the design (Appendix 26). The layout freedom is used by the design. On each floor, 21 apartments will be realised, so in total 105 apartments will be realised in the building with a surface between 31 and 80 m^2. The apartments at the Surinameweg 11 are in line with the needs of start up dwellings.

Furthermore, starters prefer good maintenance conditions (Hoefnagel, Waarden en woonwensen van de Utrechtse starter., 2011). The homes that will be realized are of high quality and starters will not need to invest. All apartments are equipped with a white high gloss kitchen with a total length of 3300 mm. The kitchen includes a fridge-freezer, microwave, gas hob and hood. If desired the resident has an opportunity to place a dishwasher. Figure 14 gives an impression of the high quality dwellings. The ambition of Haarlem is to become Carbon Neutral in the year 2030.

Each development will have to contribute this ambition. Therefore, the dwellings will have an energy label A.

Not only the dwellings have the desire surface and quality, the apartments at Surinameweg 11 have more benefits for starters. As explained in Chapter 3, accessibility is very important for starters and the building at Surinameweg 11 meets all preferences. First, starters prefer a dwelling located with a maximum distance to the city centre of 3 to 5 kilometres (Hoefnagel, Waarden en woonwensen van de Utrechtse starter., 2011). The distance of the building to the centre of Haarlem is 3.6. Second, the desirable distance to the public transport stops is up to 500 meters from the dwelling (Beterams, 2013), the nearest bus stop is 450 meters from Surinameweg 11. Third, a supermarket should be located at a maximum distance of 10 minutes by

bike and the nearest supermarket in Boerhaavewijk is only 3 minutes by bike. Last, the restaurants and sports facilities should be located at a maximum distance of 10 to 20 minutes by bike from their house (Beterams, 2013). Both facilities are located in the neighbourhood. Belcanto is a restaurant in the opposite of Surinameweg 11 and one can walk in 2 minutes, and a fitness centre is attainable in 6 minutes by bike.

The parking ratio is 1.4 car per household. Regarding to the 105 apartments, 147 parking places have to be provided on site and should not be visible. A high quality garage for 108 parking places is an excellent solution. The plot lines from 2016 allow that a smaller part of the standard is realized, if sufficiently plausible that there is a structurally lower car use. In consultation with the

Figure 14: Impressions of the high quality dwellings

municipality, it is decided to first use the 108 parking spaces, if there appears a shortage, parking spaces can be rented at a collective car park in the area.

Moreover, the garage provides space for 150 bicycles. This is very positive since some starters do not have cars, but use a bike.

Blue section
In the blue section the elevators, stairs and technical systems are located. The stairs and balustrade meet the safety requirements, therefore, these will remain intact.

The elevators are of good quality and only the doors do not meet the guidelines because the sensors of these doors are out-of-date. The sensors measure only at one point instead of a line over the entire height. Therefore, the elevator doors will be replaced. The existing elevators will be renovated. The interior of the elevator will be renovated. Replacement of the interior will be done after completion of the building and carried out after tenants have moved in. This in order to avoid damage during construction or relocation of tenants.

On the fifth floor, the technical system are located. The quality of these systems is not high. All systems will be removed. In the new design, all dwellings will have an individual boiler and natural ventilation will be applied.

The empty available space can be used for the creation of workplaces. The stated preference experiment suggests that of the target group only 34.5% has interest in an apartment with flex workplaces; however creating workplaces is a requirement of the municipality. In total, the building should allow for 61 workplaces. A workstation has to be at least 8 m^2 and a flexplace 10 m^2 (Schalkwijk Midden, 2016). In total, 61 workstations will be realised on the fifth floor of Surinameweg 11. The empty space, after the removal of the technical systems, offers place for 21 workstations. For the other 40 workstations, a construction will be made on the Southern roof (Appendix 26). One will have direct access to all workplaces, through a card system.

Furthermore, the survey suggests that 77% of the respondents choose an apartment with a balcony, however the construction of the property does not permit this. To

provide an outdoor space for the residents, a common rooftop garden will be realized. In total 31,9% of the respondents choose for a rooftop garden and the majority (68,1%) for no common rooftop garden. Of the respondents, 48% choose for a parking facility and the good quality parking garage of the building can meet these preference.

The workstations will connect to the concept CITYWOODZ, because the ambiance will be urban with the focus on green. Figure 15 gives an impression of the workplaces. During work one can enjoy the view of the green in the neighbourhood. In addition, nature will be pulled in the building by adding green on the square and the rooftop.

Common rooftop garden

The heat resistance of the roof is too low and several creases and incidents of repair are visible on the roof. Therefore, the roof will be renovated. First, the roof will be insulated, where the heat-resistance will increase. Since this is a

Figure 16: Rooftop

requirement, Certitudo Capital will be eligible for funding (DAKNED, 2016). Second, the creases and incidents of repair will be restored.
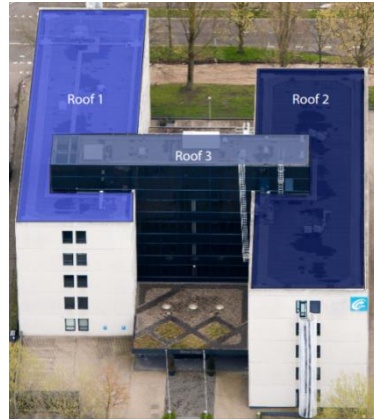
All buildings in the portfolio of Certitudo Capital have no private outdoor space, but there is a common rooftop terrace available for all residents. This will also apply to the building at Surinameweg 11. The building has three roofs (Figure 16) and roof 1 is the most appropriate for a

Figure 17: Roof equipment

rooftop garden, because this is the only roof with a fire escape. On the Northern roof (roof 1), a common rooftop garden will be created. The roof will be equipped with 5 picnic sets, 5 park benches and 5 standing smoke poles (ashtray) (Figure 17). The survey showed that people will use the outdoor space for dinner at a table and dinner with friends (78%), to barbecue (73%), to enjoy the sun (64%), to read a book (52%) and 48% will celebrate a birthday. The common rooftop garden is extraordinarily appropriate for these activities. The stated preference experiment also showed, however, that a balcony is highly preferred over a common rooftop garden, unfortunately it is not possible to create balconies in the existing building so the common rooftop garden is an alternative. It suggests a high degree of self-selection, which is not a problem if the absolute market size is big enough. Only if competition would be too strong, the apartments would be more appealing for the target group at large, if the common rooftop would be replaced by balconies. Residents have more space on a common rooftop garden for activities like barbecuing, celebrating a birthday party than on a balcony. Because the market is

expected to be sufficient, the common rooftop garden will be realized. Employees who use the workstations, may also use of the rooftop. The common rooftop garden offers a meeting place. As a protection, a bar fence will be placed adjacent to the terraces.

Windows
The windows do meet safety and sustainable requirements, but there is only a possibility to open a tiny window. Previous projects of Certitudo Capital had shown that tenants prefer a big window that can be opened. Therefore, the tiny, hinged window will be replaced by a fixed element. The parent firm window will be changed to a tilt and turn window.

The paintwork of the window frames is in a good condition, but thanks to the color of the frames, the building has the appearance of an office. To

Figure 18: Design window frames

give the building the appearance of a residential complex, Diederendirrix architects made a design for the window frames. The frames of the first two building layers will be provided with a frame (Figure 18). Two windows are included in one frame.

Windows oriented to the south have electronic sunscreens. The screens will be maintained. For all the screens, a thicker fabric will replace the substance and each screen will be separately operated with a remote control. If necessary, the existing screens will be repaired.

Floor Space Index
The Floor Space Index (FSI) is the total number of square meters of the building, within a plan area, compared to the total, surface of the plan area. The FSI will hardly change, because the surface of the building only increases with about 300 m^2 with the construction of the workplaces on the fifth floor.

5.3 Conclusions
Chapter 5 answers sub question 5, with the focus on the municipality of Haarlem: How can the transformation plan be designed such that it meets the requirements of the zoning plan of the municipality, the strengths and

opportunities will be exploited and the weaknesses and threats will be rectified?

A good transformation plan will resolve all the weak aspects and the threats of the building and neighbourhood. Moreover, the plan makes use of all opportunities and strengths of the building and neighbourhood. However, during transformation, one is dealing with an existing building, thereby it is not always possible to accomplish this and besides it is not always feasible to meet all the requirements of the target group.

Since the transformation has some restrictions, this suggests a high degree of self-selection. This is not a problem if the absolute market size is big enough, although if competition would be too strong, the apartments are less appealing for the target group. Moreover, there is an urgent need for rental dwellings, so one is more is willing to make concessions.

6. FINANCIAL FEASIBILTY

This chapter gives an overview of the financial feasibility of the transformation project for Surinameweg 11. First, the costs will be discussed, with the focus is on land, additional, development, construction, finance and general costs. Second, the rental prices will be calculated. Last, the financial feasibility of the plan will be discussed.

6. Financial feasibility

The building at Surinameweg 11 was bought for €3,600,000. Of course, the transformation is associated with cost. This chapter investigates the financial feasibility of the transformation plan described in Chapter 6. First, a STIKO will be prepared; this is an overview of the total building costs, namely the construction costs, the architects fees, interest charges, fees costs, consultancy fees, etcetera. Thereafter, the annual rent income will be calculated. Finally, the financial feasibility of the plan will be determined on basis of the costs and the income.

6.1 Building costs

The costs associated with the transformation described in chapter 6 is accompanied are shown in Appendix 26. The model is property of Certitudo Capital and de percentages and prices are determined with the experience and knowledge of previous projects and tenders submitted by companies. First, the building is purchased for €3,600,000 and hereby Certitudo Capital has to pay additional land costs. These additional costs consist of transfer tax (6%), notary costs (0,5%) and various fees. Second, the transformation plan has development and construction

costs. These cost are determined with tenders submitted by companies. For the development of the workplaces a construction will be made on the rooftop. The costs here for are determined using the site Bouwkosten kompas (CalcSoft BV, 2016). In total 300 m^2 office space will be realised. The price for the realisation of office space is €956 per m^2 what results in a total costs of €286.800 .

Third, the finance costs, for the transformation plan money will be borrowed for the land, development and construction costs with an interest rate of 3,5%. Last, the general costs consisting of hours for developer, construction and development and construction ground costs.

6.2 Rent

Starters in the Netherlands want to rent a dwelling with a rental price between €500 and €750 (Beterams, 2013). The rental price is important for starters the stated preference experiment showed that 45% prefer a price below the social rental limit of €710,68 per month. Researched by Ball showed that the Netherlands has proportionately the largest sector social dwellings of Europe (over 30% of all dwellings) (Ball, 2016). Traditionally the

Netherlands had an open-to-all approach and combined it with strict controls in private renting while in other countries target low-income or special needs groups. And has strict controls through national or local rent setting, with exceptions for high-end and new build (Ball, 2012). For Certitudo Capital, it is financial advantageous if the rent is as high as possible. The survey showed that a portion of the respondents is willing to pay more for a house. In total 26% of the starters prefer a rental price up to €800 per month, 10% wants a rental price up to €900 per month or up to €1000 per month. Only 4% prefers an apartment with a rent up to €1200 or 5% other. In the Netherlands, a dwelling has a maximum allowable rent. The height of this maximum depends on the number of points what is assigned to the dwelling. The number of points is determined by a 'point system'. The maximum rent increases if a home has more points. This point system is based on the type and the size of dwelling, the energy label, the year of construction, the neighbourhood characteristics and the size of the outdoor space. Each score includes a statutory maximum rent. Appendix 27 shows the maximum allowable rent for a certain number of

points. The maximum rent is only applicable for dwellings with a rental price below €710.60 per month, dwellings with a higher price are liberalized. If the rent exceeds €710,60 per month, it can be calculated with the point system, but the score has no legal force anymore (Huurcommissie, 2016).

Paragraph 6.1.2 explained that the target of the municipality is 33% social dwellings, 33% middle/expensive and 33% expensive dwellings. Regarding the point system a dwelling may be a house up to 43 m^2, only then the rent remains below the limit. For Certitudo Capital, the higher the rent, the more profitable the transformation will be. The plan allows not 33% social apartments, but only 21%.

To determine the rent, the permitted number of points is calculated (Appendix 28). First, the apartments have no private outdoor, but only a common rooftop garden. For that reason, the apartments receive -5 points for the fact there is no private outdoor space and 0,20 points for common rooftop garden. Second, the property valuation is the basis to calculate with how many points the number

will increase. The property value is determined by the municipality. The absolute calculation and the relative calculation made by the consultancy Duresta. Duresta made the absolute calculation to divide the property value by 7995. By the relative calculation, the property value Duresta will divided by the total area and by 122. The calculation is made for all apartments. Third, the building is not a monumental building, therefore no points are awarded for this. Moreover, the surface of the area, every square meter counts for one point. The building has no external storage, so 0 points for this aspect. On the other hand, every apartment has an own parking what results in 9 points. The apartments get the following points for the kitchen. First, the countertop has a length of 2 meter, adding 7 points. Second, in total 5 points are kitchen facilities, namely for the cooker (0,5 points), microwave (1,5 points), refrigerator with freezer (1,25 points), hood kitchen (0,5 points) and a refrigerator with freezer (1,25 points). Furthermore, each apartment has a separate toilet (3 points), one sink in the bathroom (1 point), a shower (4 points), which is good for 8 points.

Last, sustainability is important and the energy label of the apartments is an A (0,8 < Energy index < 1,2) what results in 32 points. Every apartment has a central heating, for each part of the apartment that is heated the number of points will increase with 2 points. Each apartment has 3 parts (open kitchen, living room and bedroom) what results in 6 points.

The liberated rental prices are displayed in red and the apartments with a rent below the €710.60 per month are shown in green. The average rent of the apartments is €749.48 per month.

6.3 Financial feasibility

The financial feasibility of the plan can be determined on the basis of the costs and the income. Appendix 26 shows that the transformation plan is profitable. The total conventional investment including VAT correction is €14.072.476. The land costs are 33% of the total investment, development costs 6%, the construction costs 50%, the finance costs 4% and the general costs 7%. The sale value after transformation is €16.053.911. Thus, the expected profit after realization is €1.964.224.

The total rental income, inclusive rent of parking places, after transformation, is €1.029.397,68 per year. The costs for the transformation (excluding VAT correction) are in total €12.433.582. The development result is 13,68, this factor is calculated by the value of the investment, inclusive VAT, divided by the rent income per year. The factor of the development value is 13,5, this factor is calculated by the development value of the investment, divided by the rent income per year. The final sale value will be €17.499.761.

6.4 Conclusions

Chapter 6 answer sub question 7: What is the financial feasibility of the transformation plan?

The financial feasibility of the transformation plan is obviously an important aspect. A STIKO is a method to investigate the financial feasibility and gives an overview of the total building costs and income after realisation. The costs consist of the land costs, development costs, construction costs, finance costs and general costs. The annual rent income can be calculated for dwellings with a price below €710.60 per month, since there is a maximum allowable rent iin the Netherlands. The height of this maximum depends on the type and the size of dwelling, the energy label, the year of construction, the neighbourhood characteristics and the size of the outdoor space. If the rent exceeds €710,60 per month, it can be calculated with the point system, but the score has no legal force anymore (Huurcommissie, 2016).

The expected profit can be calculated with the total conventional investment including VAT correction minus the sale value after transformation is. If this number is positive, the transformation plan is financial feasible.

7. CONCLUSION

7. Conclusions

This chapter draws a conclusion of all the results that have emerged from this study. The goal of this study was to develop an approach to decide if a vacant office building is suitable for transformation and if it is suitable, how the building can be transformed into dwellings. These studies have provided information, which answer the main research question:

''How can be decided if a vacant office building is suitable for transformation and if it is suitable, how can the building be transformed into apartments with the proviso that the transformation plan meets the requirements of the zoning of the municipality and the target group and that the transformation plan is financially feasible?''

To answer the main research question, first a literature study was conducted in the field of vacancy and the housing market in the Netherlands. Second, research was done into the Transformation Meter. Third, literature study in the user needs of starters and a survey gave an indication of the desires of the target group. In addition for the case study Surinamweg 11, the zoning plan of the municipality of Haarlem has been inventoried. All these aspects resulted in the transformation plan for the case study. Finally, the financial feasibility of the transformation plan was determined.

In order to answer the research question, a number of sub questions had been prepared. These sub questions guided the research and provided results which answer the main research question. The results of these sub questions are described below.

Research was done into the possibilities to decide if a vacant office building is suitable for transformation. The Transformation Meter is an appropriate instrument to determine if a vacant office building is suitable for transformation. With the Transformation Meter the transformation potential can be determined in five steps. With the first step the supply of vacant buildings in the area has to be investigated. The literature study showed that the vacancy rate in offices in the Netherlands is higher than desirable which has negative effects on the area.

Vacancy deteriorates the image of an area, has negative effects on the feeling of safety of people in an area and due to vacancy crime in the area increases. Moreover vacancy can lead to dilapidation, value loss and can also have a negative effect on the profit of an investor

In contrast to the housing market, which is dealing with an excessive demand, there is a large housing shortage, especially for students, seniors and starters. To reduce the vacancy rate, initiatives have emerged to transform existing vacant office buildings into dwellings.

The Transformation Meter is an instrument which can determine in five steps the opportunities and risk of transformation. First the supply of vacant buildings in the area has to be investigate. In the second step of the Transformation Meter the veto criteria of the building, which indicate whether a building has potential for transformation, had to be researched. Third, the gradual criteria had to be determined. In total 10 criteria should be tested; if one of the question should be answered with 'yes' the vacant office building is not suitable for transformation. Moreover, by step 3 the building criteria can be explored.

This can be done by counting the number of questions, answered during step 1 and 2, that is answered with 'yes' multiply with a certain weight. The higher the score, the worse the potential for transformation. The maximum possible score of the location is 100 and for a building is 72 points. Gereadts (2002) made a distinction of different classes, which indicate the potential of a building for transformation. Last, with step 5 the transformation was explained on detail level. For the case study Surinamweg 11, the Transformation Meter is applied and showed that this building is very good for transformation into dwellings for starters.

If the Transformation Meter showed that a building is suitable for transformation, a transformation plan has to be made. To design an appropriate transformation plan the residential user needs are researched with a literature study and the preference for facilities for the target starters are researched with a survey. In this situation, the preference for five facilities was researched, with the use of a factorial design. To research the preference for different facilities, for four questions, one must choose between two different apartment profiles. Both apartments differ in

rental price and facilities. The error was found within the profiles. The two profiles one must choose from have to be different, in order to discover the preferences per individual. For the facility common rooftop garden, the profiles were not correct. In two profiles, the alternatives are the same (the common rooftop garden is included in both of the profiles or absent in both of them). As a result, it is not possible to detect a difference. The preference for facilities balcony, parking, fitness, flex workplaces and rooftop garden are researched. This resulted in a preference for a balcony of 77% of the respondents. Only 31.9% of the respondents choose for a rooftop garden and 34,5% for a flex workplace. The facilities parking and fitness both do not have a clear preference.

In total 291 people responded to the survey, but only 218 people are within the age range. The share of men and women were good divided. A limitation of the research is that the number of respondents is not large, whereby the significance level of the research is not very high.

Further research could investigate the preferences of residents of other buildings of Certitudo Capital. These residents can estimate the best what the actual quality of a communal roof terrace is.

This research described an instrument to determine the transformation potential of vacant office buildings and studied the housing needs of the target group starters. First, the Transformation Meter is an instrument which one can use to determine the opportunities and risks of transformation of a vacant building. Second, a survey showed the housing needs of starters. Due to the survey, this researched supported the existing literature by providing more information about the user needs of the starters. Despite branding, the desire to have common rooftop does not seem to generate a high utility among the target group. Rather, they prefer clearly a balcony. The desire to have a workplace does even not seem to generate a high utility among the target group. For the facilities parking and fitness there is no clear preference discernible.

Further research into the user needs could be done, by making use of a larger sample. And further research could investigate the preferences of residents of other buildings of the company Certitudo Capital.

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APPENDIX

Research for the opportunities to transform vacant office buildings.

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Supervisor 2:
P.J.F. Roelofs

Supervisor 3:
Prof dr.ir. P.E.W. van den Berg

Date: 28-07-2016

CERTITUDO CAPITAL

Colophon

Project: *Thesis Real Estate Management & Development*

Student: *L.M.M. van Grunsven*

Institution: *Eindhoven University of Technology*

Supervisors: *Prof.dr. H.J.P. Timmermans*
                    Mr. P.J.F. Roelofs

Code: *7U545*

Date: *20-09- 2016*

Inhoud

Appendix 1: Travel time centre Haarlem

Figure 1: Travel time centre Haarlem

Appendix 2: Travel time centre Amsterdam

Figure 2: Travel time centre Amsterdam

Appendix 3: Travel time Schiphol

Figure 3: Travel time Schiphol

17 minutes

37 minutes

Appendix 4: Travel time station Haarlem

Figure 4: Travel time station Haarlem

Appendix 5: Travel time shopping mall

Figure 5: Travel time shopping mall

Appendix 6: Travel time Burgermeester Reinaldapark

🚗	**4 minutes**
🚲	**7 minutes**
🚶	**20 minutes**
🚊	**29 minutens**
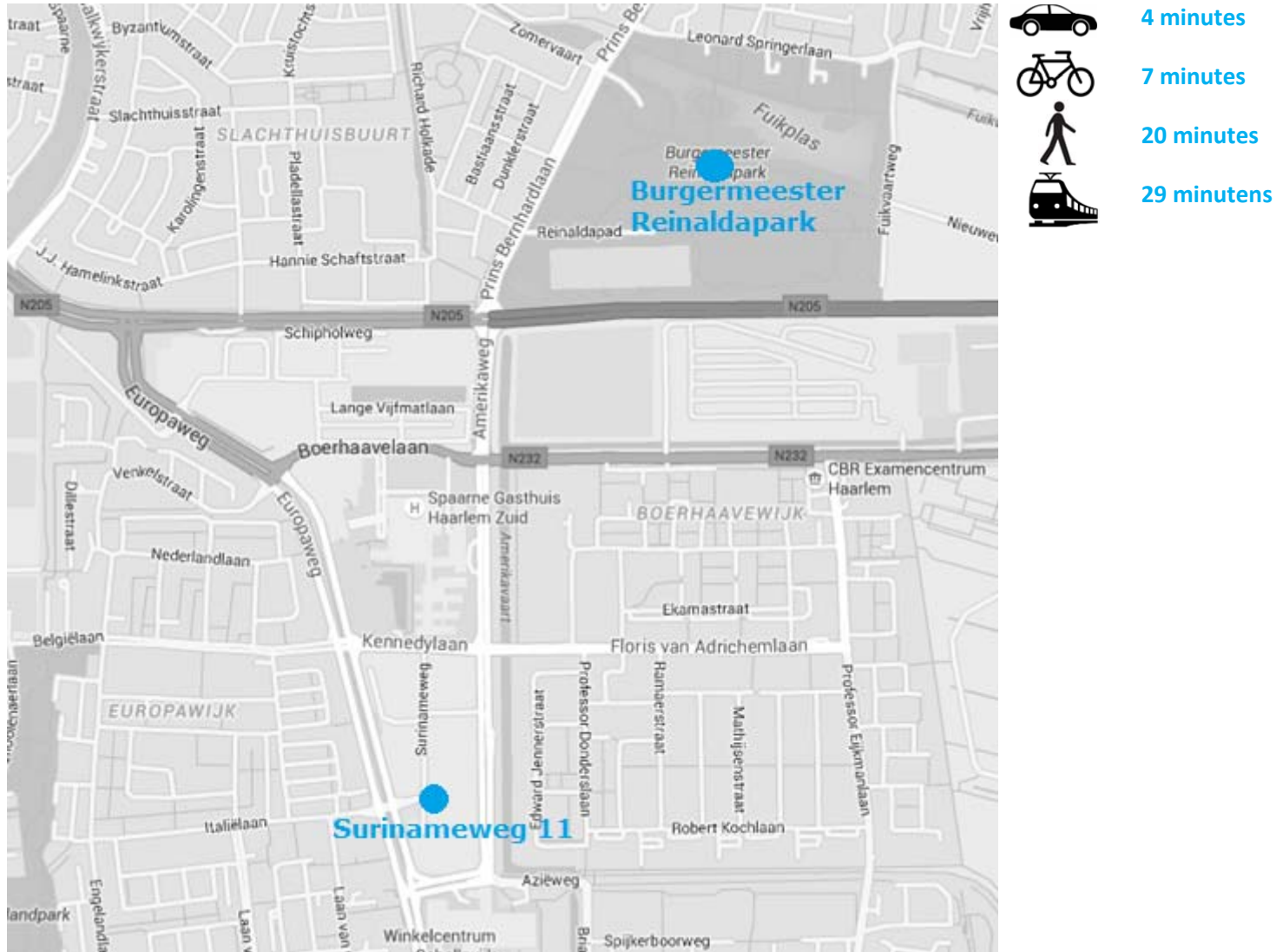
Figure 6: Travel time Burgermeester Reinaldapark

Appendix 7: Travel time Inholland
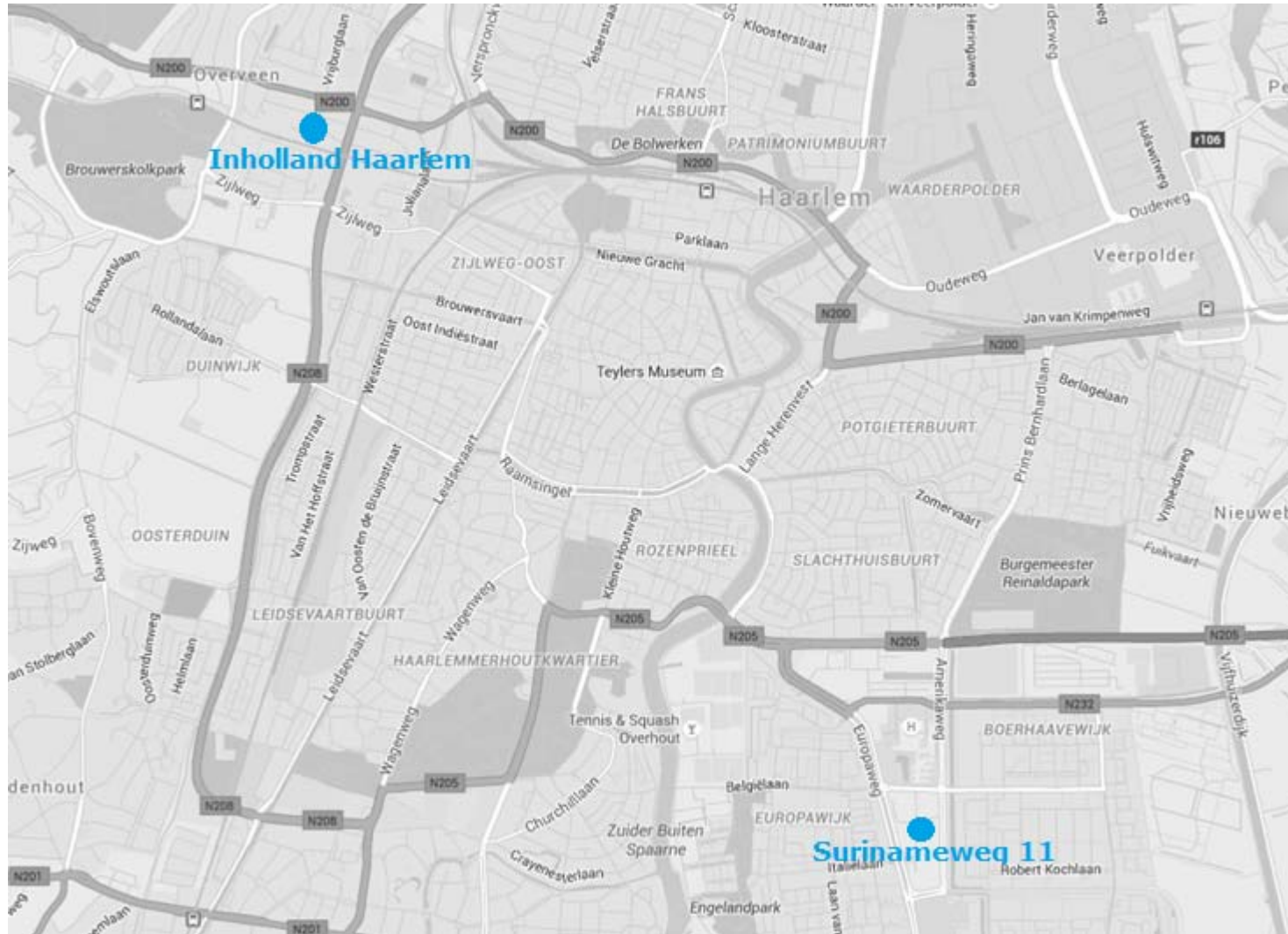
Figure 7: Travel time Inholland

Legend:
- Car: 15 minutes
- Bicycle: 20 minutes
- Walking: 60 minutes
- Train: 39 minutens

Appendix 8: Travel time university

Figure 8: Travel time university

University Amsterdam

🚗 **27 minutes**

🚆 **62 minutens**

Vrije universiteit Amsterdam

🚗 **30 minutes**

🚆 **31 minutens**

PThU Universiteit

🚗 **32 minutes**

🚆 **30 minutens**
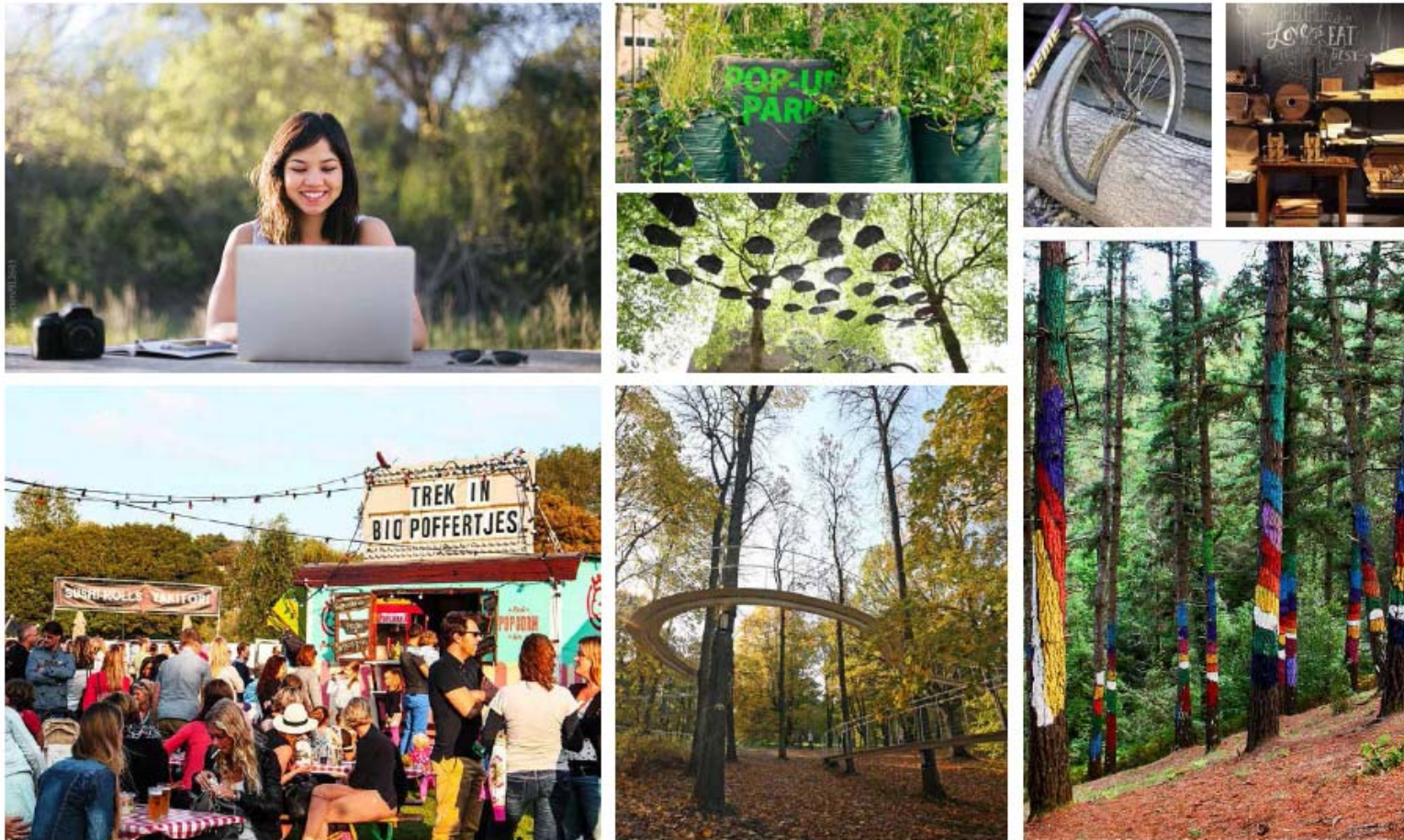
CITYWOODZ
Schalkwijk

Figure 9: Concept CITYWOODZ

(Vlot, 2016)

Bomenbuurt
Schalkwijk

Figure 10: Concept de BOMENBUURT

(Vlot, 2016)

BOSRIJCK
HAARLEM

Figure 11: Concept BOSRIJCK

(Vlot, 2016)

Appendix 12: Impression building
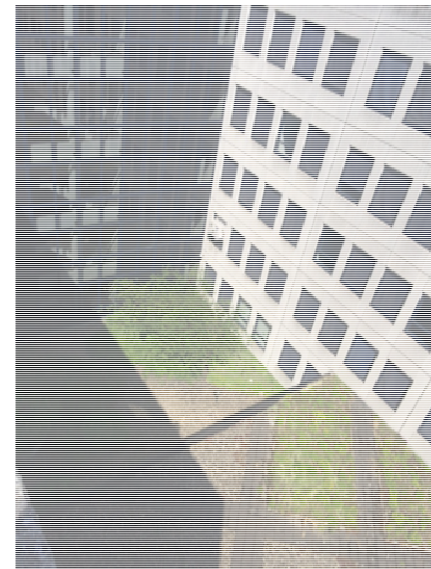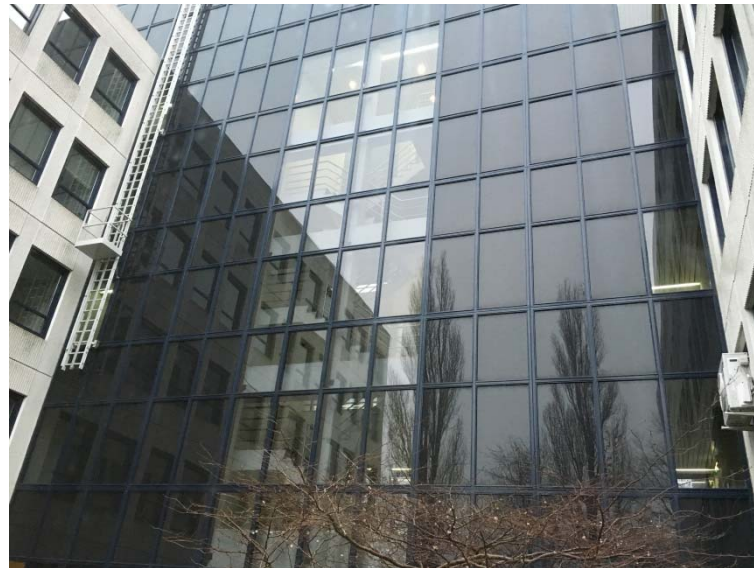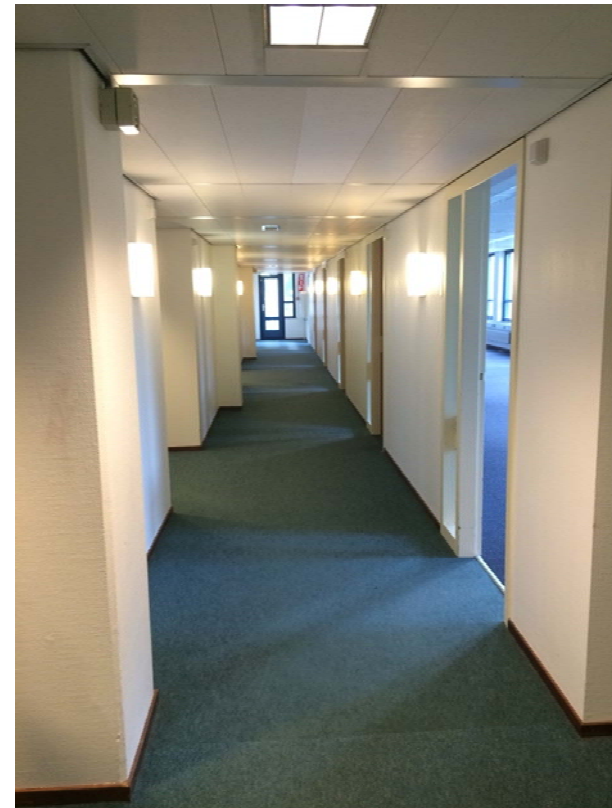
Appendix 14: View rooftop garden
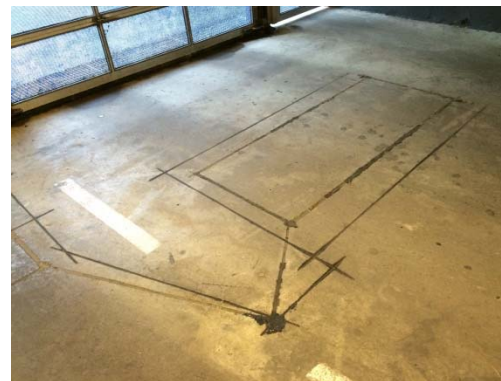
Appendix 16: Windows
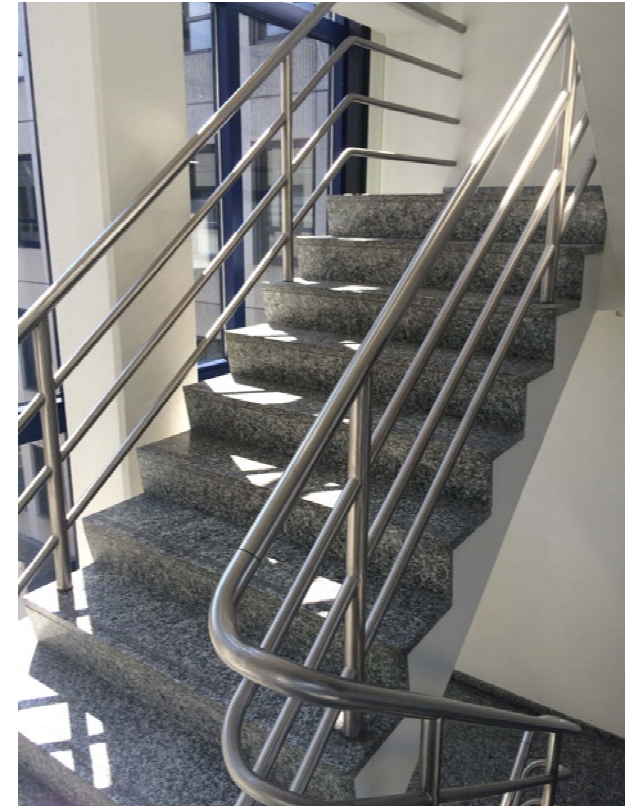
Appendix 18: Current map

Appendix 18: Current map

A3 format

Appendix 18: Current map

A3 format

Appendix 18: Current map

A3 format

Appendix 18: Current map

A3 format

Appendix 18: Current map

A3 format

Appendix 19: Survey

Question 1:
What is your gender?
    A. Man
    B. Women

Question 2:
What is your function in daily life?
    A. I am a student
    B. I have a job beside my study
    C. I work beside my part time job
    D. I work
    E. I am an entrepreneur
    F. Other

Question 3:
What is your age?
    A. Between the 22-25 years
    B. Between the 26-29 years
    C. Between the 30-35 years

Question 4:
What is your family situation?
    A. Single person household
    B. Two person household
    C. Family with children

Question 5:
What type of dwelling are you looking for?
    A. Dorm room (with shared bathroom and kitchen)
    B. Studio (apartment consisting of one room)
    C. Two-room apartment

    D. Three-room apartment
    E. Ground-dwelling
    F. Other

Question 6:
What is your desired rent?
    A. Up to €710,68 per month
    B. Up to €800,- per month
    C. Up to €900,- per month
    D. Up to €1000,- per month
    E. Up to €1200,- per month
    F. Other

Question 7:
For which activities you want to use your outdoor space?
(Multiply answers are possible)
    A. To relax in the sun
    B. To read a book
    C. To have a diner outside
    D. Bubbling with friends
    E. Barbecue
    F. To celebrate birthday

Question 8:
By when are you looking for an apartment?
    A. Immediately
    B. In the year 2016
    C. In the year 2017
    D. No preference
    E. Other

Question 9:

How long is your intention to rent an apartment?
   A. At least 1 year
   B. At least 2-3 year
   C. At least 3-4 year
   D. As long as possible

Question 10 (only for men):

Which apartment do you prefer?
   A. Apartment 1: €995,-
      - Parking facilities €90,- per month
      - No fitness facilities
      - Flex workplace facilities €95,- per month
      - Common rooftop garden
      - Balcony

   B. Apartment 2: €968,75
      - No Parking facilities €90,- per month
      - Fitness facilities €40,- per month
      - Flex workplace facilities €118.75 per month
      - Common rooftop garden
      - No balcony

Question 11 (only for men):

Which apartment do you prefer?
   A. Apartment 1: €996,25
      - Parking facilities €67,50 per month
      - No fitness facilities
      - Flex workplace facilities €118,75 per month
      - No common rooftop garden
      - Balcony

   B. Apartment 2: €1057,50
      - Parking facilities €112,50 per month
      - Fitness facilities €40,- per month
      - Flex workplace facilities €95,- per month
      - No common rooftop garden
      - No balcony

Question 12 (only for men):

Which apartment do you prefer?
   A. Apartment 1: €911,25
      - No parking facilities
      - Fitness facilities €30,- per month
      - Flex workplace facilities €71,25 per month
      - Common rooftop garden
      - Balcony

   B. Apartment 2: €950,-
      - Parking facilities €90,- per month
      - Fitness facilities €50,- per month
      - No flex workplace facilities
      - Common rooftop garden
      - No balcony

Question 13 (only for men):

Which apartment do you prefer?
   A. Apartment 1: €952,50
      - Parking facilities €112,50 per month
      - Fitness facilities €30,- per month
      - No flex workplace facilities
      - No common rooftop garden
      - Balcony

A. Apartment 2: €998,75
- Parking facilities €67,50 per month
- Fitness facilities €50,- per month
- Flex workplace facilities €71,25 per month
- No common rooftop garden
- No balcony

Question 14 (only for women):
Which apartment do you prefer?
A. Apartment 1: €810,-
- No parking facilities
- No fitness facilities
- No flex workplace facilities
- No common rooftop garden
- No balcony

B. Apartment 2: €1011,25
- Parking facilities €90,- per month
- Fitness facilities €40,- per month
- Flex workplace facilities €71,25 per month
- No common rooftop garden
- Balcony

Question 15 (only for women):
Which apartment do you prefer?
A. Apartment 1: €993,75
- Parking facilities €112,50 per month
- No fitness facilities
- Flex workplace facilities €71,25 per month
- Common rooftop garden
- No balcony

B. Apartment 2: €917,50
- Parking facilities €67,50,- per month
- Fitness facilities €40,- per month
- No flex workplace facilities
- Common rooftop garden
- Balcony

Question 16 (only for women):
Which apartment do you prefer?
A. Apartment 1: €1048,75
- Parking facilities €90,- per month
- Fitness facilities €30,- per month
- Flex workplace facilities €118,75 per month
- No common rooftop garden
- No balcony

B. Apartment 2: €955,-
- No parking facilities
- Fitness facilities €50,- per month
- Flex workplace facilities €95,- per month
- No common rooftop garden
- Balcony

Question 17 (only for women):
Which apartment do you prefer?
A. Apartment 1: €1002,50
- Parking facilities €67,50 per month
- Fitness facilities €30,- per month
- Flex workplace facilities €95,- per month
- Common rooftop garden
- No balcony

B. Apartment 2: €1091,25
  - Parking facilities €112,50 per month
  - Fitness facilities €50,- per month
  - Flex workplace facilities €118,75 per month
  - Common rooftop garden
  - Balcony

Appendix 20: Codes NLogit

If a question has L categories, L-z indicator variables are created. One category corresponds with an indicator variable and gets the number 1 assigned and the other gets number 0. One category remains and this category gets assigned the number -1. The codes of each questions are shown below:

Question 1:

What is your gender?

A. Man	1
B. Women	-1

Question 2:

What is your function in daily life?

A. I am a student	0	0	0	0	1
B. I have a job beside my study	0	0	0	1	0
C. I work beside my part time job	0	0	1	0	0
D. I work	0	1	0	0	0
E. I am an entrepreneur	1	0	0	0	0
F. Other	-1	-1	-1	-1	-1

Question 3:

What is your age?

A. Between the 22-25 years	0	1
B. Between the 26-29 years	1	0
C. Between the 30-35 years	-1	-1

Question 4:

What is your family situation?

A. Single person household	0	1
B. Two person household	1	0
C. Family with children	-1	-1

Question 10 (only for men):
Which apartment do you prefer?
  A. Apartment 1: €995,-
  B. Apartment 2: €968,75

Parking facility			Fitness facility			Flex workplace facility			Common rooftop garden	Balcony
1	0	0	1	0	0	0	0	1	1	1
0	0	1	0	0	1	-1	-1	-1	1	-1

Question 11 (only for men):
Which apartment do you prefer?
  A. Apartment 1: €996,25
  B. Apartment 2: €1057,50

0	1	0	1	0	0	-1	-1	-1	-1	1
-1	-1	-1	0	0	1	0	0	1	-1	-1

Question 12 (only for men):
Which apartment do you prefer?
  A. Apartment 1: €911,25
  B. Apartment 2: €950,-

0	0	1	0	1	0	0	1	0	1	1
1	0	0	-1	-1	-1	1	0	0	1	-1

Question 13 (only for men):
Which apartment do you prefer?
  A. Apartment 1: €952,50
  B. Apartment 2: €998,75

-1	-1	-1	0	1	0	1	0	0	-1	1
0	1	0	-1	-1	-1	0	1	0	-1	-1

Question 14 (only for women):
Which apartment do you prefer?
  A. Apartment 1: €810,-
  B. Apartment 2: €1011,25

0	0	1	1	0	0	1	0	0	-1	-1
1	0	0	0	0	1	0	1	0	-1	1

Question 15 (only for women):
Which apartment do you prefer?
    A. Apartment 1: €993,75

    B. Apartment 2: €917,50

-1	-1	-1	1	0	0	0	1	0	1	-1
0	1	0	0	0	1	1	0	0	1	1

Question 16 (only for women):
Which apartment do you prefer?
    A. Apartment 1: €1048,75

    B. Apartment 2: €955,-

1	0	0	0	1	0	-1	-1	-1	-1	-1
0	0	1	-1	-1	-1	0	0	1	-1	1

Question 17 (only for women):
Which apartment do you prefer?
    A. Apartment 1: €1002,50

    B. Apartment 2: €1091,25

0	1	0	0	1	0	0	0	1	1	-1
-1	-1	-1	-1	-1	-1	-1	-1	-1	1	1

Appendix 21: Results survey

| Question	Answer options	Results
1. What is your function in daily life	I am a student	18%
	I have a part time job beside my study	19%
	I work beside my part time study	6%
	I work beside my part time study	51%
	I am an entrepeneur	3%
	Other	3%
2. What is your gender?	Man	42%
	Women	58%
3. What is your age?	Between the 22-25 years	50%
	Between the 26-29 years	28%
	Between het 30-35 years	22%
4. What is your family situation?	Singel person household	51%
	Two person household	41%
	Family with children	8%
5. what type of dwelling are you looking for?	A dormroom (with shared bathroom and kitchen)	5%
	Studio (apartment consisting of one room	10%
	Two-room apartment	33%
	Three-room apartment	28%
	Ground-dwelling	9%
	Other	5%
6. What is your desired rent?	Up to €710,68 per month	45%
	Up to €800 per month	26%
	Up to €900 per month	10%
	Up to €1000 per month	10%
	Up to €1200 per month	4%
	Other	5%
7.1 Will you use your outdoor space to enjoy the sun?	Yes	64%
	No	36%
7.2 Will you use your outdoor space to read a book?	Yes	52%
	No	48%
7.3 Will you use your outdoor to have a diner at a table?	Yes	78%
	No	22%
7.4 Will you use your outdoor to have a drink with friends?	Yes	78%
	No	22%
7.5 Will you use your outdoor to have a barbecue?	Yes	73%
	No	27%
7.6. Will you use your outdoor space to celebrate a birhtday?	Yes	48%
	No	52%
8. By when are you looking for an apartment?	Immediately	22%
	In the year 2016	21%
	In the year 2017	28%
	No preference	22%
	Other	7%
9. How long is your intention to rent an apartmen?	At least 1 year	16%
	At least 2-3 year	36%
	At least 3-4 year	26%
	As long as possible	22%

Appendix 22: Stated choice experiment

Respondent	Question	Cset	Alt	Code multiply by Exp utility(X)	The chance	Proportion respondents	Squared differents		Squared differents	Choice	Constant	Parking	Fitness	Flex workp	Common rooftop garden	Balcony
Beta											0,25396	-0,03767	-0,08162	-0,32103	?	0,62482
-0,3792213																
1	14	2	1	-1,00664	0,3290864	0,42	1,784165	0,417487	6,316E-06	1	1	2	-1	2	-1	-1
1	14	2	2	-0,29432	0,6709136	0,58	0,9316759	0,582513	6,316E-06	0	0	1	-1	3	-1	1
1	15	2	1	-1,45952	0,2375733	0,15	2,8801258	0,175773	0,0006643	0	1	-1	2	3	1	-1
1	15	2	2	-0,29349	0,7624267	0,85	1,11496	0,824227	0,0006643	1	0	3	2	2	1	1
1	16	2	1	-0,73584	0,1843634	0,17	0,8467743	0,248274	0,0061268	1	1	-1	1	1	-1	-1
1	16	2	2	0,75122	0,8156366	0,83	0,0041495	0,751726	0,0061268	0	0	3	1	-1	-1	1
1	17	2	1	-0,37003	0,4034068	0,39	0,5982045	0,316369	0,0054216	1	1	2	3	-1	1	-1
1	17	2	2	0,02126	0,5965932	0,61	0,3310083	0,683631	0,0054216	0	0	1	3	1	1	1
2	10	2	1	1,3191	0,9085735	0,85	0,168532	0,871817	0,000476	0	1	-1	-1	-1	1	1
2	10	2	2	-0,97724	0,0914265	0,15	1,1420482	0,128183	0,000476	1	0	3	-1	1	1	-1
2	11	2	1	0,31917	0,6950572	0,92	0,1412912	0,769074	0,0227786	0	1	2	2	1	-1	1
2	11	2	2	-0,5047	0,3049428	0,08	0,6555214	0,230926	0,0227786	1	0	1	2	-1	-1	-1
2	12	2	1	-0,24127	0,7585781	0,68	0,9996963	0,682585	6,684E-06	0	1	2	1	3	1	1
2	12	2	2	-1,38617	0,2414219	0,32	2,6490552	0,317415	6,684E-06	1	0	1	1	2	1	-1
2	13	2	1	0,02953	0,8781803	0,87	0,7202074	0,913294	0,0018743	0	1	-1	3	2	-1	1
2	13	2	2	-1,94578	0,1218197	0,13	4,2749684	0,086706	0,0018743	1	0	3	3	3	-1	-1
							19,242384		0,0747092							

Appendix 23: Plots

Plot	Owner	Size plot	Plot size as a percentage of the total surface area	Building volume as result of FSI=2	Share of square space	Number of jobs
1	Housing associations	12214 m²	22%	24428 m²	1210 m²	164
2	The state	4768 m²	9%	9536 m²	495 m²	64
3	Attica Immo	3375 m²	6%	6750 m²	330 m²	45
4	Housing associations	7935 m²	14%	15870 m²	770 m²	107
5	Certitudo Capital	4525 m²	8%	9050 m²	440 m²	60
6a	Municipality Haarlem	1684 m²	3%	3368 m²	165 m²	23
6b	Municipality Haarlem	217 m²	0%	434 m²	0 m²	3
7	Haarlem Maarssen Weesp Vastgoed	1236 m²	2%	2472 m²	110 m²	17
8	Nieuwburen	1789 m²	3%	3578 m²	165 m²	24
9	KPN	2440 m²	4%	4880 m²	220 m²	33
10a+10b	Dura Vermeer	15660 m²	28%	31320 m²	1540 m²	210
TOTAAL		55843 m²	100%	111686 m²	5445 m²	749
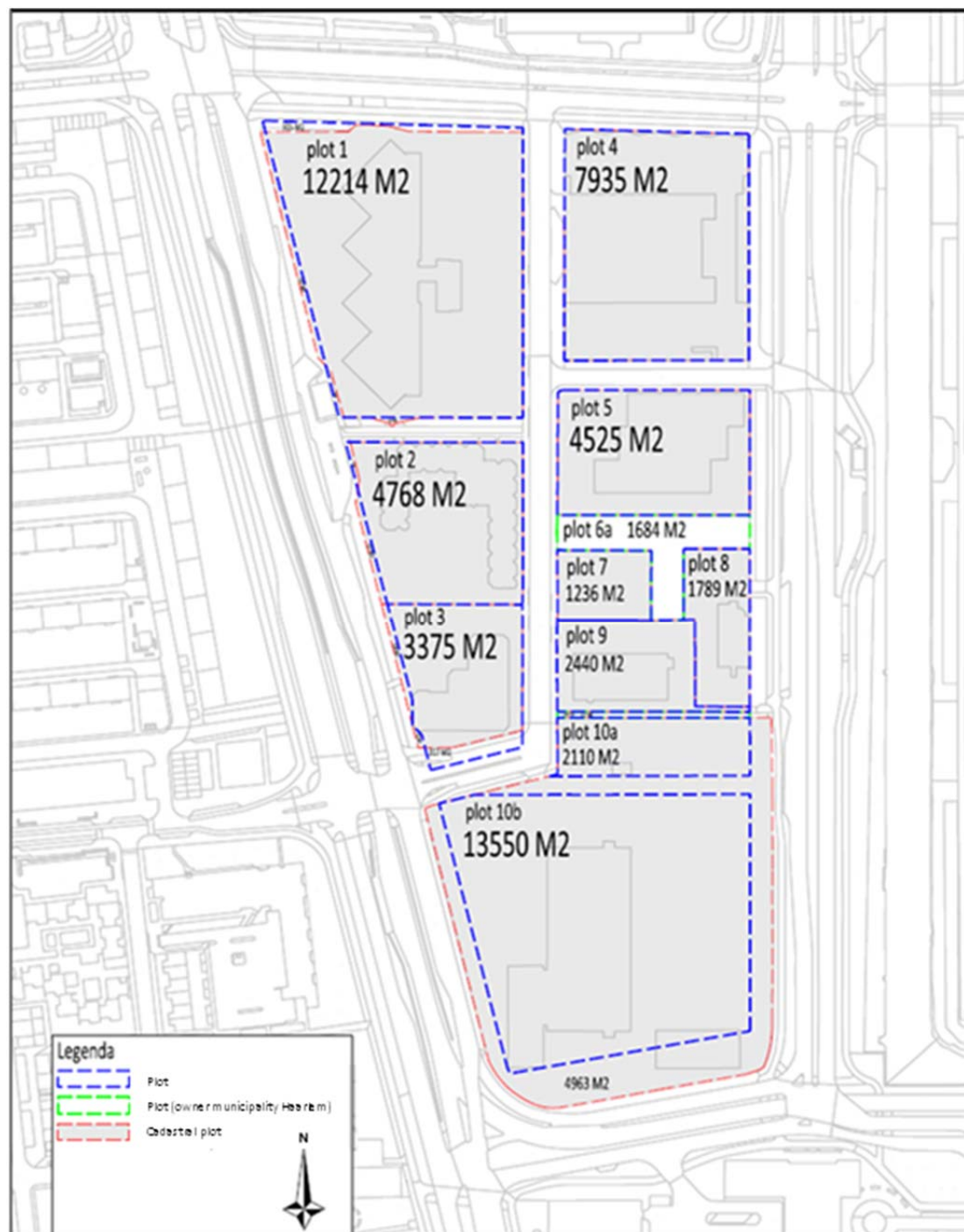
	1. All asbestos will be remove by the company Heezen.	2. All parts of the building what is no longer needed, will be demolished.	3. The red parts (picture X) will be demolished.	4. The apartments have to have a minimal size of 60 m2 or otherwise they have to be switchable.	5. The high quality parking garage remain intact.	6. The stairs and balustrade will remain intact.	7. Elevator doors will be replaced.	8. The roof will be renovated.	9. The windows will be replaced and the sunscreens will retained.	10. The empty space and the newly built section will become workplaces.
S1. The skeletal creates much layout freedom.			■							
S2. The stairs and balustrade meet safety.						■				
S3. The building has double glazing.									■(red)	
S4. The paintwork of the window frames is in a good condition.									■(red)	
S5. The windows orient on the southern has electronic sunscreens.									■	
S6. Good quality garage with 158 parking places.					■					
W1. Doors of the elevators do not meet the guidelines.							■			
W2. The sensors of the elevator doors masure only on one point.							■			
W3. Several creases and incidents of repair on the roof.								■		
W4. The heat resistance of the roof is too low.								■		
W5. Asbestos is present in the packaging of the building.	■									
W6. The doors do not comply with the requirements of the fire.		■								
W7. The fabric of the sunscreens is very thin whereby less sun is blocked.									■	
W7. - The technical system is of bad condition.		■								
O1. Possibility to get a funding for the roof.								■		
T1. Not clear whether is asbestos or not.	■									
R1. The maximum allowable building height is 12 floors.								■		
R2. The minimum size of the dwellings has to be 60 m2 or switchable.				■	■					
R3. Floor Space Index of 2	■(red)	■(red)	■(red)	■(red)	■(red)	■(red)	■(red)	■(red)	■(red)	■(red)
R4. Minimal 61 work places on plot 5.										■
R5. The minimal surface of a workstation is 8 m2 and a flexplace is 10m2.										■
R6. Direct acces is mandatory for the work place										■
R7. Minimal of 440 m2 square on plot 5.			■							
R8. Existing green should be included where possible in the new plans.			■							
R9. The parking ratio is 1.4 parking place per dwelling.						■				
R10. Achieve a high-quality bike storage on the site.						■				
Require of Certitudo Capital is to create as much as possible apartments.			■							

S	=	Strenghts
W	=	Weakness
O	=	Opportunity
T	=	Threats

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

A3 format

Appendix 26: Map after transformation

Appendix 28: Maximum allowable rent

Points	Price	Points	Price	Points	Price	Points	Price	Points	Price
40	188,43	82	387,10	124	604,26	166	821,37	208	1038,51
41	193,14	83	392,28	125	609,43	167	826,54	209	1043,67
42	197,84	84	397,43	126	614,58	168	831,70	210	1048,87
43	202,55	85	402,63	127	619,75	169	836,91	211	1054,01
44	207,25	86	407,80	128	624,96	170	842,06	212	1059,18
45	211,95	87	412,96	129	630,08	171	847,22	213	1064,35
46	216,69	88	418,13	130	635,27	172	852,39	214	1069,52
47	221,38	89	423,29	131	640,43	173	857,57	215	1074,69
48	226,11	90	428,48	132	645,59	174	862,72	216	1079,86
49	230,81	91	433,64	133	650,78	175	867,90	217	1085,04
50	235,52	92	438,79	134	655,94	176	873,07	218	1090,20
51	240,20	93	443,98	135	661,13	177	878,23	219	1095,37
52	244,94	94	449,14	136	666,27	178	883,42	220	1100,56
53	249,63	95	454,31	137	671,46	179	888,58	221	1105,70
54	254,35	96	459,48	138	676,64	180	893,72	222	1110,88
55	259,06	97	464,67	139	681,78	181	898,93	223	1116,05
56	263,79	98	469,83	140	686,96	182	904,09	224	1121,22
57	268,45	99	475,01	141	692,15	183	909,26	225	1126,38
58	273,17	100	480,17	142	697,28	184	914,41	226	1131,56
59	277,90	101	485,33	143	702,45	185	919,61	227	1136,73
60	282,62	102	490,49	144	707,64	186	924,78	228	1141,90
61	287,29	103	495,68	145	712,83	187	929,94	229	1147,08
62	292,03	104	500,85	146	717,97	188	935,12	230	1152,24
63	296,72	105	506,00	147	723,16	189	940,28	231	1157,39
64	301,43	106	511,19	148	728,32	190	945,45	232	1162,59
65	306,14	107	516,36	149	733,50	191	950,63	233	1167,75
66	310,86	108	521,51	150	738,65	192	955,78	234	1172,91
67	315,57	109	526,70	151	743,82	193	960,96	235	1178,09
68	320,27	110	531,87	152	748,99	194	966,15	236	1183,26
69	324,96	111	537,04	153	754,16	195	971,31	237	1188,43
70	329,68	112	542,20	154	759,33	196	976,45	238	1193,59
71	334,38	113	547,36	155	764,50	197	981,63	239	1198,77
72	339,11	114	552,56	156	769,66	198	986,82	240	1203,93
73	343,79	115	557,72	157	774,87	199	991,97	241	1209,11
74	348,52	116	562,88	158	780,00	200	997,15	242	1214,28
75	353,23	117	568,05	159	785,20	201	1002,31	243	1219,44
76	357,95	118	573,22	160	790,35	202	1007,48	244	1224,62
77	362,64	119	578,38	161	795,52	203	1012,65	245	1229,80
78	367,37	120	583,56	162	800,70	204	1017,82	246	1234,95
79	372,06	121	588,74	163	805,85	205	1023,00	247	1240,10
80	376,79	122	593,91	164	811,02	206	1028,16	248	1245,31
81	381,93	123	599,07	165	816,20	207	1033,36	249	1250,46
								250	1255,62

Appendix 29: Rent calculation

Bibliography

Vlot, M. (2016). *Schalkwoud positionering - workshop 22-06-16.* Amstserdam: 't Idee.