

New public spaces in the inner city of Groningen

The new design and its behavioural usage



Master Thesis
Environmental and Infrastructure Planning
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Colophon

Title: New public spaces in the inner city of Groningen
Subtitle: The new design and its behavioural usage
Type of research: Master Thesis
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Version: Final version
Place: Groningen
Date: 17-08-2020

Preface

Dear reader,

This thesis is the final product of my education at the University of Groningen. It is about the importance of public spaces in our everyday lives. Furthermore, it is about the importance of the well-designed nuances; you don't necessarily notice at first glance.

I would like to thank all the people who made it possible for me to finish this thesis. First of all, I want to thank my supervisor Ines Boavida for her encouragement, insights, feedback and patience. Second, I would like to thank my interviewees, who were willing to do interviews with me and share their thoughts on the new public spaces. Third, I want to thank Mirjam Kats for her help in translating the questionnaire to Dutch. Fourth, I want to thank all the respondents to my questionnaire for their answers and enthusiasm. Finally, I want to thank my family and friends for their feedback and support.

I now stand in front of the gates of 'real' life, having completed my 16 years of education, I'm looking forward to developing my knowledge and insights in my future professional environment.

Balázs Megyeri

Andornaktálya August 2020

Abstract

Public spaces are the foundational elements of cities to create public life. Their usage character is changing currently as a result of emerging new trends in urban life. The public spaces in the inner city of Groningen are currently undergoing significant changes because of Binnenstad 050 projects. During the thesis, a single case study has been conducted to explore how these changes are influencing the local's behavioural usage of these spaces. Behavioural usage has been identified as the collection of different types of activities performed on the street and was used to measure the interaction between the street and its users. Building upon the fundamental desires of people as guiding principles in public space design, the new Astraat, Brugstraat, Akwartier, Sint Jansstraat and Munnekeholm has been evaluated through a questionnaire, observations, and interviews.

Keywords: public space design, behavioural usage, communicative planning, urban design, urban quality, shared space

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1. Introduction

The topic of this paper concerns the principles of public space design applied to the inner city of Groningen, which is undergoing major changes to ensure the city continues to beckon.

As a result of modernity and urbanism, urban spaces and their usage have grown stronger and increasingly important. The role of streets, squares and other public spaces as a means of interaction continues to be an essential part of the city as urban populations continue to grow around the globe. They are not merely places for traffic and congestion, but spaces within themselves and an integral part of the public realm (Bain, L., Gray, B., & Rodgers, D. 2012).

Dutch planning has a long tradition due to the geographical and demographical aspects of their country. As a quarter of its territory is classified as lowlands and most of the land is considered as flatlands, the dangers of storm surges, fluvial floods and high groundwater levels make comprehensive planning a necessity. More than 60% of the population lives on lowlands, making the majority of the population endangered by floodings. Due to the constant battle with water, the Dutch planning system became a well-structured and comprehensive doctrine, which influences almost every part of its citizens' everyday lives (Gerrits, L., Rauws, W., & de Roo, G. 2012. p. 336). Within this doctrine, Dutch cities have been developed with shared characteristics; such as high densities, mixed usage, and in order to ensure basic qualities, concentration has become the key concept (Ministry of Housing, Spatial Planning and the Environment. 2006. p. 12). Within these dense population centres, public spaces such as roads, pathways, squares and parks serve as both the accommodators of transportation flows and the relaxing areas, where the individual can catch their breath (Reference). As the cities continue to grow, the pressure on these spaces increases, resulting in the need for further developments of public space (Reference). A prime example of such increasing pressure can be found in the inner city of Groningen. Therefore, this part of the city and its recent developments by its municipality was chosen as this paper's research area.

1.1 Groningen inner city from the '70s onwards

Groningen is the largest city in the northern parts of the Netherlands, with more than 230 000 inhabitants in 2019 (Statista, 2019). As the capital of the province with the same name, the city of Groningen serves as an important economic, cultural and scientific hub for the northern parts of the country. According to a paper published in 2016, around 185 000 people commute to the city daily to pursue their education or to work, a number which likely have risen, just as the city's population in the last four years (Statista, 2009). To deal with the large amounts of traffic expected due to the daily commuters, a traffic circulation plan changed the traffic flows in the city in 1977.

Before the circulation plan, the growing automobile traffic could enter the inner city. To accommodate these cars in the densely built city centre, for example, the city's main square, the Grote Markt was used as a parking lot. The new circulation plan, the VCP (*Verkeerscirculatieplan*) was proposed by Max van den Berg (PvdA, *Partij van de Arbeid*) and approved by the municipal council in 1975. The plan was focused on two distinct objectives; First, the inner city was to be car-limited, yet it needs to remain accessible by car. Second, within the inner-city more space has to be given to the pedestrians, cyclists and public transport (Tsubohara, 2007).

It is worth noting that, the proposed four sector division in the inner city and the one-way traffic restrictions in every street within the inner city, was strongly opposed by shopkeepers and business organisations on the basis of fearing to decrease their sales. Moreover, they criticized the municipality for hardly providing opportunities for public participation. However, as the plan was consistent with the desires of the largest political party at the time in Groningen, the PvdA and even the public, the execution of the VCP continued. Even after the first implementation of the VCP, the shop owners on seven streets appealed to the Crown (king and ministers) asking to nullify a part of the regulations of the VCP. They also requested a suspension against the regulations with the *Raad van State*, the highest court in the Netherlands. The suspension was mainly focused on resuming two-way traffic in multiple streets and the lifting of sector boundaries in specific areas. This request, however, was overruled by the *Raad van State* since not sufficient evidence was presented, to support their claim on the 'VCP causing a decrease in sales in a large scale' (Tsubohara, 2007).

The results of the circulation plan were first measured by the Business People Association in Groningen. In a survey conducted by them on the local businesses, they found out that the plan works poorly, and it undermines the employment and viability of the city. The municipality responded with suspicion about the surveys as it did not represent long term effects and suspected that the shops negatively affected by the VCP responded disproportionately, undermining the representativeness. Therefore, the municipality started their own investigation, planning to compare their new results with investigations done before the VCP in 1976 and 77. During the investigation, it became apparent that indeed a decrease in sales dropped; however, in every other aspect, the quality of life improved within the inner city. Hourly traffic intensity of private cars dropped by 47%, while also the share of the car of all traffic modes decreased as well from 36% to 34%. A sharp increase in bus passengers was observed as well, and the public's impression of the traffic improved greatly. The level of noise decreased, while the intensity of noise dropped by half. Last, but perhaps most importantly, from the perspective of this research, the impression of public spaces amongst the public improved. The refurbished squares' and streets' the "pleasantness" of walking in the inner city increased by 10 to 30%. In addition to this, the number of visitors and the frequency of visiting significantly increased as well (Tsubohara, 2007).

Although the VCP has met its most important goals regarding the traffic and improved the build-up environment, the plan had some limitations. First, it is clear that little to no chance was given to the public to participate in the early stages of the development. The swift changes to the entire inner city did not allow a proper response from the business community. Therefore the local shops reported a decreased sales rate for the following two years. Second, the busses caused a significant nuisance in shopping streets. In some areas, such as on the A-Kerkhof the large busses faced a difficult situation after the market returned to the Vismarkt, manoeuvring amongst the parked vehicles. Last, the loss of traffic function in some streets did not mean an increased attractiveness for pedestrians (Thsubohara, 2007). In other words, the streets became freer to pedestrian traffic; however, their layout did not change to invite the new pedestrians into the space.

1.2 Binnenstad 050: preparation for the future

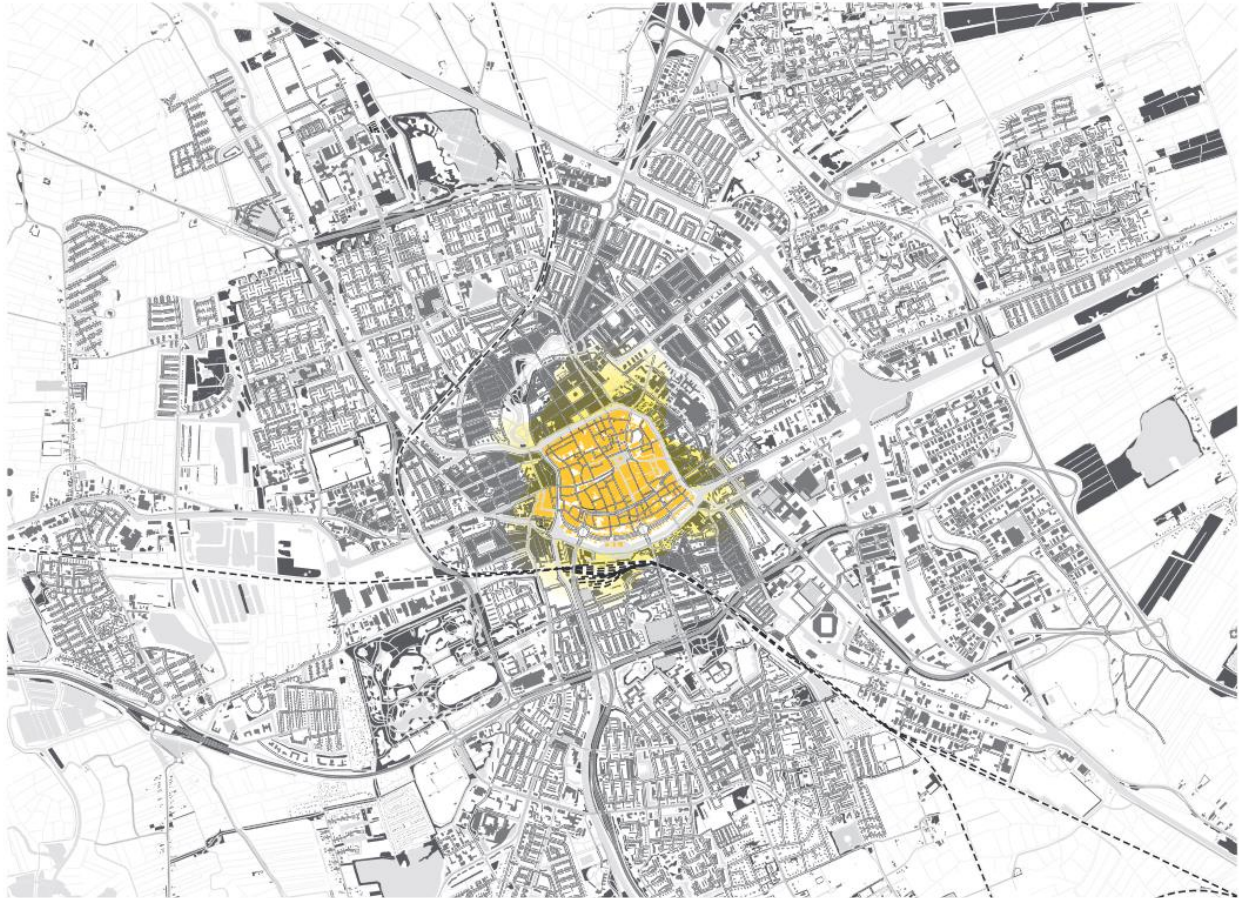
The city of Groningen is undergoing major changes in recent years. The inner city of Groningen is a diverse and concentrated area of many different activities and facilities. This small, densely contested area serves multiple functions for both the city's residents and its daily commuters. These functions number from shopping and working through studying and socialising to living and relaxing (Gemeente Groningen, 2019). It is expected that the city's population will grow to approximately 225,000 inhabitants by 2025. In addition to this, the region surrounding the city is expected to shrink in population. This results in an increased regional dependence on work, study, healthcare, and entertainment on the urban facilities located in Groningen (Binnenstad Groningen, 2017b)

On the other hand, the role of the inner city in these changing circumstances is expected to change as well. For example, the shopping habits of ordinary citizens are undergoing major changes due to the emergence of online shopping. A consequence of this changing habit is that the experience of shopping must play a bigger role in the retailers' minds if they want to increase their sales and lure their customers into their shops. People are using the city centre, not just a shopping area, but rather a place to stay and meet each other. Therefore, frontrunners of the retail industry already adopted new hybrid concepts to combine retail, catering, and services. Furthermore, other functions of the inner city presented new demands, such as housing and space for entrepreneurship (Binnenstad Groningen, 2017b)

As a response to these new demands and developments, in the 1990s the municipality initiated its 'Binnenstad Beter' agenda to enhance the special quality of the inner city. This agenda ensured that the consistent attention was given to the inner city's public spaces, while this enhanced special quality invited new businesses and economic activities (Binnenstad Groningen, 2017b, Gemeente Groningen, 2019).

Combining the expansion of urban activities present in the inner city with the expected increased daily usage by its inhabitants and the regional commuters, the demand for available space increases, while the supply of space is very much finite. The inner city already faces greater

crowds, and the public spaces are under increasing pressure from their users. To prepare the inner city for this increased pressure in the future the municipality decided to act. With the Bestemmig Binnenstad agenda, the municipality decided to strengthen the residential climate and the quality of life. In other words, the existing public spaces went and will go through a major refurbishment to give more space for pedestrians and a better structure in cycling, while also rerouting most bus



lines going through the inner city (Binnenstad Groningen, 2017b).

1. Figure The city of Groningen (Binnenstad Groningen, 2017b)

1.3 Research questions

The objective of this research is to investigate how the recent public space refurbishment projects changed the street usage and interaction on the streets/ with the streets in the inner city of Groningen. The main research question of this thesis is, therefore:

To what degree the alterations to the urban fabric in the inner city of Groningen (through specific projects) can stimulate interaction between people and the streets?

To be able to answer this question, the following secondary questions must be answered:

1. How can public space design influence street usage?
2. What are the necessary conditions for a successful public space?
3. How can interactions between people and the street be measured?
4. How did the public spaces in the specified areas in Groningen look like before the projects?
5. What were the changes to the public spaces in the specified areas within the projects?
6. How did these changes affect the behavioural usage of the specified areas?
7. How did the changes improve the quality of public spaces in the specified areas?

1.4 Research structure

This thesis is structured in the following way. Chapter 2 discusses the theoretical background of this paper. Here the brief history of public space design will be presented, along with the main bases of the analysis, namely the principles of public space design by Carmona (2018) and the framework to measure and analyse the behavioural usage of streets and squares, developed by Jan Gehl (2011). The new concept called ‘shared space’ and its characteristics will be presented as well. Chapter 3 presents the methodologies used during the research design and the methods in which the data is collected and analysed. In addition to this, the ethical considerations are listed in this chapter as well. Chapter 4 defines the research area, briefly introducing the chosen streets, their previous look, function and the most prominent stakeholders on the street. The changes made to each street, the ambitions and the planning processes behind it will be touched upon as well. Chapter 5 elaborates on the finished projects, discussing the state of activities present on the streets gathered from the questionnaire and participant observations. Chapter 6 presents the unit of analysis; the results will be compared with the principles of a public space design to identify strengths and potential weaknesses. Finally, chapter 7 answers the research questions as conclusions of this thesis.

2. Literature review

This chapter presents an overview of the literature on public space design, shared spaces and behavioural usage. Therefore, this chapter aims to answer the first three secondary research questions. Namely: (1) How can public space design influence street usage? (2) What are the necessary conditions for a successful public space? (3) How can interactions between people and the street be measured? First, the brief history of public space design and the planning paradigm shifts behind its changes will be discussed. Second, the principles of public space design are explained, both in general and narrowed down to street design. Third, the relatively new concept, the shared space is taken under the researcher magnifying glass. Last, behavioural usage and the different activities in public spaces are explored, using the research from Jan Gehl (2011).

2.1. The brief history of public space design

Within this subsection, the history of our understanding and design of public spaces will be discussed. According to Cassia (2015), “when we refer to streets and other public spaces, we are actually talking about the city’s own identity”. These public spaces fill urban gaps with life. Therefore, they are directly influencing the relationships created within the city. They shape communities in neighbourhoods; they can be facilitators for social interactions, political mobilizations, while also presenting both physical and mental health benefits (Cassia, 2015).

This profound understanding of our public spaces and their role in our society has evolved significantly in recent decades. The first critical look at the role of spaces and places around cities happened during the urban race riots in the late 1960s and early 1970s in America. A new emerging paradigm was formed by pioneers such as Henri Lefebvre, who argued that space is not merely a specific geographical and physical place. An empty shell, a background for action, but an entity produced by culture and society (Schmidt & Németh, 2010). In this new paradigm, the questions concerning how exactly spaces are produced and by whom stepped into the spotlight.

One of the most important influences on urban planning was Jane Jacobs in the 1960s through her work and her book called *The Death and Life of Great American Cities* (1964) she challenged the existing paradigm of functionalism and the main ideas of the urban planners of her time. As separation, standardization, and strict top-down style of planning processes characterized urban planning; she feared these notions would result in the degradation of urban social life and social interaction. Instead, she advocated for mixed land-uses, small blocks and a bigger emphasis on pedestrians instead of the automobile (Fuller & Moore, 2017). First, mixed-use of residential, cultural, commercial and industrial spaces would lead to a higher quality of urban life and would ensure that every part of the city would be well-used. Second, smaller building blocks open up the urban fabric; they make it easier for pedestrians to walk from A to B. Last but perhaps most

important on the contrary of popular belief of the planners of her time, she believed densely populated urban centres offer higher safety for the individual (Jacobs, 1964).

Whilst Jane Jacobs (1964) imposed harsh criticism on the urban planning paradigm in the 1960s; however, her ideas and observations remained in the empirical world, impacting urban design. She never wanted to be an academic; her mission was not to add to the current planning theory, instead to ensure the survival and development of her beloved New York and other American cities (Fuller & Moore, 2017). Nevertheless, changes within the planning theories were slowly turning towards a better understanding of social spaces and their implications on the public. The father of communicative rationality, Jürgen Habermas (1981) was one of the pioneers, who changed planning theory towards these ideas. He advocated that unmediated interaction was vital to advance social justice (Calhoun, 1992; Schmidt & Németh, 2010). His contributions to planning theory are known as the communicative turn in current academics. According to Habermas (1981), communicative rationality refers to the use of knowledge, rather than the property to knowledge. Thereby stating that reason is not necessarily definitive, rather an agreed claim, by multiple actors. It is apparent that his theories hugely contributed to the paradigm shift from technical rational and instrumental rationality. However, they were not without criticism. Iris Young (1990) was one of these critics, as she believed Habermas's theories on communicative rationality were operating under a false assumption of a homogeneous and universal public. Instead, she believed, social justness can only be achieved by creating inclusive spaces where diverse needs and desires of the people can be embraced and expressed freely. Therefore, these spaces would encourage social interaction by allowing any group or individual to visibly assert their right to the city in any public space (Fraser, 1990; Schmidt & Németh, 2010).

The status of the role of public spaces is largely agreed by most groups involved or interested in these places. They are ingrained in the urban fabric, serve multiple functions and needs, as well as incorporated into different planning approaches such as New Urbanism, Smart Growth or other economic or development schemes. All these different agents agree on the importance of public spaces to create liveable, safe, and sustainable environments (Schmidt & Németh, 2010). Nevertheless, economic, and political shifts largely due to the increased mobility of industrial capital because of economic globalization, and the instant transaction and communication possibilities due to the developments in telecommunication technology, are transforming the traditional functions of public spaces. Cities and their planning departments are now competing against each other to ensure an edge against their rivals to attract and accommodate capital investments. To gain this competitive advantage, most urban areas are experimenting with different strategies to improve their quality. These could range from enhancing visual coherence, amenity creation, growth promotion, 'business-friendliness' to improved spatial order (Schmidt & Németh, 2010).

As a result of the previously mentioned strategies, new trends in public space management provision and management of public space, first, increased privatization in the development and management of public spaces. These privatized spaces can range from traditional shopping malls to festival areas. Furthermore, hybrid ownership and management are becoming more prevalent, even in large public spaces such as Central Park in New York City. This privatization is usually because of the lack of budget of municipal governments to the management and general upkeep of these areas (Schmidt & Németh, 2010).

Second, the safety and the perceived safety of public spaces became more important, especially in the United States after 2001-09-11 and more recently in Europe after the 2015-11 Paris attacks or the 2016 Berlin Christmas attacks. Recent rehabilitation projects embrace the ‘eyes on the street’ approach first outlined by Jane Jacobs (1964), involving natural surveillance techniques or active event planning, ensuring that people are constantly using public spaces (Schmidt & Németh, 2010; BBC, 2015; BBC, 2016).

Last, the increased involvement of the private sector in public space management allowed the emergence of more consumption-based spaces. Within these spaces everybody is allowed; however, the ones who contribute by purchasing goods are welcomed while the ones who just want to use the space, might find themselves with fewer options (Schmidt & Németh, 2010).

Recognizing and taking these lessons into account during the design and management of public spaces is important. These lessons outline to notions of both the academic debate and the public’s perception of the public space. Therefore, if planners could take advantages in them, well designed public spaces will continue to emerge around the globe.

2.2. Principles of public space design

In this subsection, the necessary characteristics of well-functioning public spaces are listed. These normative principles have been recently developed by Matthew Carmona (2018) for planners to design and manage public spaces. According to his paper planners have a critical role to play in the creation and shaping of public spaces. Their role manifests in two ways.

First, planners are often the initiators for new public space projects. Based on their background, they can recognise and advocate for the need or the potential of the redevelopment of public spaces. Second, they can have an enormous say in how the new public space emerges through the regulatory processes of development management. In other words, by granting or denying permission to develop, the planners can easily shape the new entity (Carmona, 2018).

Carmona's framework and lessons are further strengthened by Cliff Moughtin's work in his book called *Urban Design; Street and Square* (1992). In his book Moughtin (1992) summarizes the knowledge learned about urban design in the past 100 years, focusing on the relationship between people and their environment, street & square design. This includes details, arrangements and design of public spaces and their roles within the city.

While he is hardly the first one to research or collect lessons and principles in the field of public space design, in his paper, Carmona (2018) outlines a widely applicable framework to access public space design and management. His framework consists of ten attributes, which can be considered essentials for a successful public space. In the following lines, these attributes will be discussed:

1. Evolving public space:

According to Cullen (1961), public spaces require something to distinguish themselves from the rest of the urban fabric. Typically, this distinction is the sense of enclosure, where their surroundings both open up and surround the public space. The sense of enclosure is, however, not a prerequisite of a successful public space. Currently, according to Carmona (2018), an increasing number of informal local public spaces are emerging all around the urban world. These places can develop, for example, even from a couple of reclaimed parking spaces. In other places, spaces are given temporary rights to, for example, host a market or other public event. Furthermore, recent trends from New York to London and beyond show the changing character of historic public spaces, such as Trafalgar Square or Time Square. These notions resulted in less traffic in these areas and subsequently, an increase in spatial quality for pedestrians. The one common characteristic of all these changes regarding public spaces is that they require a distinct planning input and they might emerge from outside of formal planning processes; therefore planners will have to be flexible to embrace the evolving nature of public spaces and appear in more facilitating roles to help the public sector to shape their public spaces (Carmona, 2018).

2. Diverse public space:

Inspired by Henri Lefebvree's (1968) call for the right to the city, planners were and are challenged to conduct their planning processes in a way that they can embrace the fact, that the city is for all and that certain rights need to be guaranteed for everyone (Habitat International Coalition, 1995). Therefore, the city is diverse, and not everyone will seek the same things. Subsequently, public spaces should be designed in such a way that every citizen should be able to use it for any occasion. Furthermore, as each city and each part of a city is different, occupied by different users with diverse needs and desires, it is short-sighted to try to design public spaces according to some form of blueprints (Carmona, 2018).

To ensure the diversity of public spaces, Carmona (2018) advocates for a strategic planning approach to public space design. Using this approach, a city could ensure that all sections of its community are catered for and are provided with inviting public spaces to use and to avoid conflicts between the stakeholders with different desires. At the heart of such a method should be the planning for the diversity of provision and to avoid homogenised visions of one-size-fits-all (Carmona, 2018)

3. Free public space:

Most public spaces are owned and managed through multiple complex arrangements; therefore, it is hard to distinguish how much the public and how much the private sector owns in a public space. In contrast, restrictions and laws apply to every inch of space, regardless of its ownership, for example, for the intent to ensure their values are distributed fairly (Carmona, 2018). In these terms, one of the most important characteristics of public spaces is that they are free. According to Carmona (2018), this characteristic should be applied in three senses of the word: open, unrestricted and gratis. To ensure this right is present, during the planning processes it is vital to make clear long-term arrangements about the rights of the users and the responsibilities of the owners as it will be much harder to revisit later (Carmona, 2018).

All public space users have the right to:

- roam freely
- rest and relax unmolested
- associate with others
- use public space without the imposition of petty local controls unless carefully justified e.g. on drinking, smoking, safe cycling, skating, and dog walking,
- collect for registered charities
- take photographs
- trade (if granted a public licence)
- demonstrate peacefully and campaign politically
- busk or otherwise perform (in non residential locations).

Public space users have a responsibility to:

- respect the rights of others to conduct their business unhindered and unmolested
- respect public and private property
- act in a civil and safe manner at all times
- avoid littering
- keep the peace.

Owners and managers of public space have a responsibility to:

- respect and protect the rights of all users, including to privacy
- treat all users in an equitable and inclusive manner
- keep spaces safe within the context of the actions of any reasonable person
- keep spaces clean and well maintained
- keep spaces open and unrestricted at all times (or otherwise in line with regulatory stipulations).

1. Table The rights and responsibilities found within a public space (Carmona, 2018, p.6)

4. Delineated public space:

There are many problems with spaces, which are not clearly private or public. With no clear division between a public and a private space, it is much easier to overstep the boundaries either way. The private stakeholder even unintentionally can occupy the public space next to their property, limiting its usage and freedom. Or in contrast, the private space will be occupied by the public to the private owner's dismay. In addition to this, some retail schemes can appear overly exclusive, thereby appearing as a 'public' space; however, they might not be welcoming to all. Therefore, a positive distinction between public and private functions of the city should be pursued to minimize discomfort and confrontations from both sides (Carmona et al., 2010). Furthermore, public spaces should be designed in such a way that they appear welcoming, visually and physically accessible and clearly public, regardless of their ownership or management (Carmona, 2018 p. 7; Moughtin, 2003.)

5. Engaging public space:

Buildings, landscape and infrastructure clearly outlines the borders of public spaces, while land-use surrounding them define the types of places, public spaces are likely to be. For example, public spaces in quiet residential areas are likely to be relaxing, calming places alternatively places for children such as playing grounds. In comparison, a public space located in a busy inner city is more likely to be a vibrant commercial hub. These later vibrant places will tend to be wrapped up in all sorts of retailers, cafes or restaurants. Therefore, if the intention is to create or recreate a space for active users, then their presence should be planned from the start. These places should be equipped with activities and reasons to stay to fill them with life (Carmona et al., 2010; Carmona, 2018).

6. Meaningful public space:

According to the findings of Carmona (2018) the users of spaces are less concerned about the stylistic design of the spaces and to them how they experienced the space be it good or bad, attractive or ugly was much more important. If spaces are well used, and people have a reason to visit them, the space will be adopted by its users. It will acquire the patina of age and use (Carmona, 2010, p. 8.). Incorporating notable amenities and unique features with the public space can ensure that people will be using them. For example, hosting features with which users can directly engage such as play equipment, stages, kiosks, sports facilities, public art, fountains etc. together with iconic historical or landscape features ensure that the historic features will be looked after and not forgotten while forming a public space around them which will be uniquely inviting to both visitors and inhabitants (Carmona, 2018).

7. Social public space:

The design of public spaces can influence the space's ability to accommodate social interaction. If public spaces are designed to be conducive to social interactions from large-scale gatherings to humble encounters, these spaces represent the definitive venues for rich and varied social life (Carmona, 2018 p. 8.).

The users flow through public spaces using dominant movement corridors or 'desire lines' to their intended activities and vice-versa. Only a small portion of people will stop and directly engage with a specific space if it is well connected to the movement network. However, the higher level of through movement is present; there is also a higher level of activity present at the highest density of activities. Therefore, the highest levels of social interaction will be found between key amenities and the 'desire lines' of the movement network (Carmona, 2018).

It is also worth mentioning that individual spaces can be constructed as a series of distinct subspaces, each with different purposes, designed to invite different users. During the design phase

of public spaces, it is vital to outline the desired social outcomes and construct the public space in such a way that it will have the highest possible chance to produce and reproduce the desired social encounters in the boundaries of external circumstances. “*Whilst particular social outcomes can never be guaranteed, leaving them up to chance is unlikely to be a successful strategy*” (Carmona et al., 2010, p. 133).

8. Balanced public space:

Gehl and Gemzoe (2000) in their paper, warn about the severe negative effects of traffic dominance imposed on the social life of urban dwellers, Carmona (2018) believes that banning all traffic doesn't have to be the solution. Instead, he advocates for re-balancing actions between traffic and pedestrians to allow a harmonious usage of the public space. To accommodate this usage, he proposes stream-lined access to traffic between important urban centres, while giving enough space to pedestrians for movement and socialization. Therefore, trusting the pedestrian to move freely within the public space and sufficiently slowing down the traffic through these spaces to avoid limiting the pedestrians' freedom (Carmona, 2018).

9. Comfortable public space:

One of the important characteristics of public spaces is their perceived levels of safety and calmness. Spaces, which are well used, well lit, clean and tidy are perceived as safer. In line with Jane Jacobs's (1964) observations, a place's perceived safety is first determined by how busy they are. Whilst some very busy spaces such as public transportation access-points benefit from visible security measures (video-surveillance, security officers) in terms of safety, most busy spaces do not possess such actual security. Nevertheless, their perceived safety can be at the same level furthermore, how space looks like it can also greatly improve their levels of security. Spaces with good public lighting and good maintenance are perceived to be safer as well. Last, public spaces should have a relaxing, calming effect on their users. Therefore, formal and informal seating should be sufficiently present, along with access to toilet facilities and a well-constructed microclimate (sunbathing options, shelter from the rain, sun, shade) (Carmona, 2018). Carmona (2018) points out the numerous positive effects of grass used in public spaces. Truth be told, they require active maintenance. Still, it is comfortable, flexible, highly conducive of relaxation and social engagement, and generally adding to the special quality of the public space.

10. Robust public space:

Last, public spaces should be given a robust design. They should be able to adapt to different activities, at different times of the day, week and year. On a longer-term, public spaces should be able to successfully adapt to new uses on and surrounding the spaces, or to the demands and desires of the future. This also means that their design should be realistic, timeless, constructed from reliable, long-lasting materials and their maintenance should not be neglected (Carmona, 2018).

The above-detailed framework has been developed through extensive research conducted on various squares, streets and other public spaces in London. The author warns us that the framework can be widely used; however, it is not universal (Carmona, 2018). As London and Groningen are both good examples of Western-European cities, I believe his framework can be applicable to the much smaller Dutch province capital's public spaces.

2.3. Shared Space

As most of the refurbished public spaces in the inner city of Groningen are designed using the concept called 'shared space', an explanation on what this concept entails is necessary. In their paper Karndacharuk et al. (2014) titled *A review of the Evolution of Shared (Street) Space Concepts in Urban Environments*, the writers state the integration of different modes of transports is a concept gradually gaining popularity in modern urban planning.

Whilst the mixed usage it promotes are not new as this paper already touched upon it as one of the main recommendations of Jane Jacobs (1964), there is a clear distinction with the new concept. Namely, the inclusion of vehicular traffic activities into the equation. Therefore, these concepts are usually applied to roads and streets, instead of more open spaces such as parks or squares (Karndacharuk et al., 2014). In this sense, shared spaces are striving towards being balanced public spaces, according to Carmona (2018) framework in co-existing with traffic instead of banning it.

To ensure the success of a shared space, multiple elements have to be taken into account during their design. Jayakody et al. (2017. p. 279-281) in their paper collected four such main elements. They are as follows:

- Pedestrian prominence (clear priority for the pedestrian)
- Distinctive and attractive space with a clear sense of place.
- Inclusive design (During the design considerations of all groups such as elderly, children, disabled community, cyclist etc. are needed)
- Location and connectivity (maintained a good connection with the movement network)

It is evident that shared space design and public space design are closely related, with almost all elements of shared space design appearing within the principles of public space design, discussed in the previous section. Furthermore, narrowing down to the literature concerning shared space design, this concept has many different qualities and can be applied to the urban environment in unique ways (Karndacharuk et al., 2014).

During this research, the following definition of shared space was used:

“Shared space schemes can be defined by an open streetscape which does not segregate transport modes as well as a levelled surface with minimized use of standardized devices for traffic control, such as surface markings, curbs, signals, handrails or traffic signs.”

(Peters, S. 2017).

Whilst the definition for shared space is already defined, it is important to clearly define public space and its characteristics to move forward without any confusion. The following definition is the researcher’s own drawing inspiration from literature mentioned in previous sections.

“Public space can be any street, square, park, community garden, reclaimed abandoned space, market or building, which is in public or hybrid ownership, constant, reoccurring or temporary in space and time, designed in such a way, that maximizes its inclusive potential towards all groups of society to encourage social interaction between them. Furthermore, it aims to provide enough space for the pedestrian to freely move and socialize whilst keeping the ability of vehicular traffic to flow through as well.”

(Megyeri, 2020)

2.4. Behavioural usage

In the previous sections, the roles of public space and the most important elements in their design were discussed, along with the concept of shared space. In this section, the characteristic of behavioural usage is explored as it is an essential part of this research in evaluating the quality of the newly designed public spaces in the inner city of Groningen.

Behavioural usage as a term is quite broad and can involve many different actors. In this paper, the principles of behavioural usage from Jan Gehl and his influential book *Life Between Buildings - Using Public Space (2011)* will be used.

In the book, Gehl discusses three components which take place in public spaces. These components are interconnected, and the form of their presence has an impact on the level of function and attractiveness within public space and street usage.

These three activities identified are (Gehl, J. (2011. P. 9-14.).

1. Necessary activities
2. Optional activities
3. Social activities

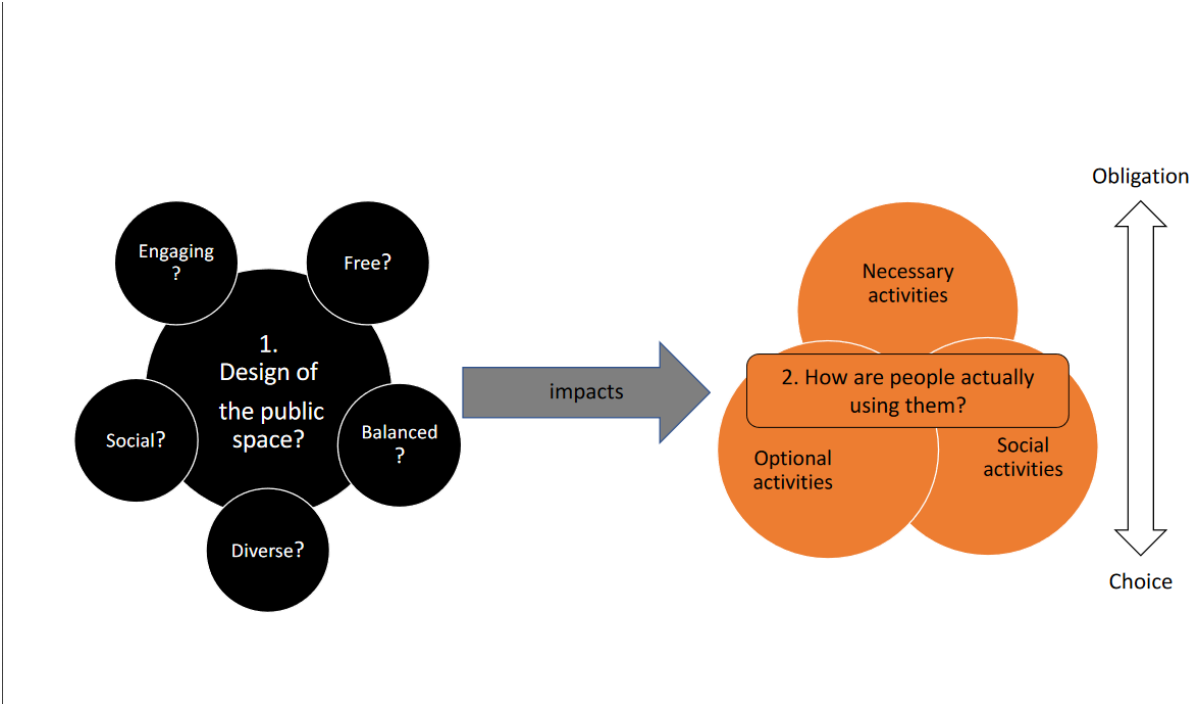
The first, necessary activities, include those actions, which are deemed essential or required in everyday life. This includes activities such as going to school or work (i.e. transportation), running errands, waiting for public transportation or person etc. (Gehl, J., 2011. P. 9). Since the necessary activities take place at all times of the year, regardless of the weather or setting, and inherently the physical environment has little to no impact on these types of actions seeing their imperative nature.

The second, optional activities, are the type of usages that are if there is an affinity to them, and if space makes them possible to accomplish. These activities include taking a walk, leisure shopping, sitting and sunbathing etc. (Gehl. J. 2011. P., 9). For these activities to take place, the place has to be inviting. Therefore the recreational activities that are especially pleasant to pursue in a public space are listed in this category (Gehl. J. 2011. P., 9).

The third, social activities, are dependent on other individuals present in the same public space. Social activities include children at play, conversations, communal activities and the most widespread activity- passive contacts, simply hearing and seeing other people (Gehl. J. 2011. P., 12). In this research, social activities that are not directly happening in a public space, rather in a place with similar functions will be looked out for as well. These activities can be a coffee enjoyed in a café (or on its terrace) or having a drink at a local bar. The reasoning behind this is quite simple. According to Caccia (2015), cafes, bookstores and bars are not considered public spaces. However, they have similar impacts on the quality of the urban environment and are usually situated next to a 'true' public space.

An important aspect of social activities is their direct causal relationships to the previously discussed activities. They occur spontaneously as a consequence of people moving about and sharing spaces. From this consequential relationship, it can be derived that a well-planned and functioning public space, designed to stimulate necessary and optional activities can contribute to the more likely occurrence of social activities (Gehl. J. 2011. P., 12).

2.5 Conceptual model



3. Methodologies

This Chapter presents the types of data gathering techniques used for this thesis. In addition to the techniques used, their justification for this specific research will be discussed. Next, the different data collection methods are presented. Starting with the interviews, elaborating on how and with whom the semi-structured interviews were conducted—following with the questionnaire, the objective of the user survey and its limitations. Closing the research methods section, observations as a data collection method will be explained. Each method's section will also provide information on how the raw data was analysed. The chapter closes with an explanation of the ethical considerations undertaken during the research.

3.1 Research design

The section is broken up to multiple sections. First, the three research decisions from Verschuren and Doorewaard (2007) are detailed. Second, the used data collection methods, namely (1) Semi-structured interviews, (2) Questionnaires and (3) Observations will be explained.

3.1.1 Research decisions

The research design of this thesis is based on the three research decisions proposed by Verschuren and Doorewaard (2007). These decisions are as follows: (1) width versus depth, (2) qualitative versus quantitative and (3) empirical versus desk research.

(1) Width versus depth

Width refers to big data and a broader approach. This type of research is more suited for generalization but has severe limitations in the details; for example, it has difficulty in categorizing exceptions, unique cases. Depth means a smaller approach. This is better suited for detailed information gathering, but it is usually impossible to draw accurate generalizations from it (Verschuren and Doorewaard 2007). This thesis focuses on the changes in street usage and behaviour of people on the specified streets in Groningen, therefore, to ensure the maximum detailed information from each case, a focus on depth is more convenient.

(2) qualitative versus quantitative

Quantitative research deals with large quantities of data to provide legitimate conclusions. On the other hand, qualitative research refers to the use of in-depth data about the experiences and opinions of people. This usually emphasizes a focus on a single case study or a small number of case studies (Clifford et al., 2010). Since this thesis focuses on a small number of cases, namely five projects completed recently in the inner city of Groningen, and the goal is to

understand the changed behaviour of the users of these streets, a qualitative approach is better suited for this thesis.

(3) empirical versus desk research

The third decision is between empirical and desk research. Empirical research refers to fieldwork, lab work or other data gathering methods that produce data from phenomena observed in the real world. At the same time, desk research details the collection of secondary data. To this thesis, both options will be used. Empirical through questionnaire, semi-structured interviews and observations. Desk research was used to collect secondary data for the theoretical background (Clifford et al., 2010).

3.1.2 Research methods

There are different data collection methods that could be categorized with the research decisions discussed by Verschuren and Doorewaard (2007). In their book (2007) they mention five research strategies: survey, experiment, funded theoretic approach, case study and desk research. The strategies, case study and desk research, are often combined together (Verschuren and Doorewaard, 2007). This will be the case within this paper, as well.

Case studies are focusing on depth; they are qualitative in nature and are researched empirically (Verschuren and Doorewaard, 2007). Case studies should be considered when the focus of research is on a 'how' question (Yin, 2003). Although the main research question of this paper starts with a 'to what degree...' the focus of the question still concerns itself with the way or manner in which something is done. Verschuren and Doorewaard (2007) differentiate between two kinds of case studies: single and comparing. This thesis will focus in-depth on one single study: public space design in the city of Groningen. The further explanation behind the decision of a single case study for this research will be given in the next section.

Desk research is a method where already published information is critically reflected upon to give new insights (Verschuren and Doorewaard, 2007). Different types of published information include literature, secondary data and official documents. This research will focus on literature and official documents.

3.2 Data collection and analysis

This section explains the practical side of the data collection process. The research questions will be connected through a table, followed by the justification of the data collection methods used.

The research investigates how the recent refurbishment projects in the inner city of Groningen changed street usage and the behaviour of the users of these public spaces. Although the research focuses on multiple finished projects within an agenda, the goal of the research is not to compare

the projects' outcomes. Rather, it evaluates the changes, while also bringing up details from each street. Therefore, this research will be considered as a single case-study of the finished projects in the inner city of Groningen. Data will be based on expert knowledge on public space design and behavioural usage and shared space as a concept from literature and from policy documents from the local municipality; practical knowledge from design and implementation knowledge from project managers and designers; opinions from the public; and lastly opinions from participant observations from the researcher. Information for the expert knowledge category was derived from extensive literature research and semi-structured interviews. Information from the latter categories was analysed from the semi-structured interviews, the questionnaire and from the participant observation of the researcher (Table 2). The use of mixed methods is possible and often desirable as well, according to Clifford et al. (2010). This process is known as triangulation, and its main advantage is the ability to use different methods to maximize the understanding of the research question. It is, however, advised that the different methods should each contribute something unique to the project (Clifford et al., 2010). The chosen four methods to gather information were specifically chosen according to the triangulation process. Each method and their unique contribution will be explained in Table 2 and the following subsections.

To what degree the alterations to the urban fabric in the inner city of Groningen (through specific projects) can stimulate interaction (between people and/within/) with the streets?

To be able to answer this question, the following secondary questions must be answered:

1. How can public space design influence street usage?
2. What are the necessary conditions for a successful public space?
3. How can interactions between people and the street be measured?
4. How did the public spaces in the specified areas in Groningen look like before the projects?
5. What were the changes to the public spaces in the specified areas within the projects?
6. How did the changes affect the behavioural usage of the specified areas?
7. How did the changes improve the quality of public spaces in the specified areas?

Question	1.	2.	3.	4.	5.	6	7
Part	Theory	Theory	Theory	Practice	Practice	Practice	Analysis
Data	Knowledge about public space design and shared	Knowledge about public	Knowledge about behavior	Information about the old	Information about the changes to public	Information about the types of activities	-

	space concept	space design	ural usage and different activities	layout of the public spaces in Groningen	space design	present on the newly designed public spaces	
Retrieval	Literature	Literature	Literature	Policy documents, Interviews	Interviews, Observations, Questionnaire	Interviews, Observations, Questionnaire	-
Documentation	Conceptual Framework	Conceptual Framework	Conceptual Framework	Chapter 4 + Transcripts	Chapter 4, Transcripts, Questionnaire responses, Observations	Chapter 5, Transcripts, Questionnaire responses, Observations	Chapter 6
Analysis	-	-	-	Coding	Coding	Coding	Comparison between chapter 2 and 4

2. Table Data collection methods

3.2.1 Literature review

According to both Verschuren and Doorewaard (2007) and Clifford et al. (2010), pre-existing academic literature should be assessed through an extensive literature investigation. Via the search engines Google Scholar and SmartCat, numerous articles and books on public space design and behavioural usage of public spaces have been collected. To find these literature pieces, different techniques were used. First, the usage of keywords in search engines, such as ‘public space design’; ‘street design’; ‘behavioural usage’; ‘social interaction’; and ‘urban design’. Second, the technique

called ‘snowballing’, where new articles are found using the reference list of an already found useful article has been used to great effect. Third, the method ‘cited by’ on google scholar, which allows the user to find new articles, which cited an already found and useful literature. Last, to find information about the projects within this Thesis’ research area, the official site of the agenda: <https://ruimtevoorjou.groningen.nl/> has been used. Since the agenda deals with publicly funded projects, all the published policy documents can be accessed by the public to ensure accountability and transparency. Using this last method helped to build a better picture and develop more accurate questions for both the semi-structured interviews and the questionnaire. The general goal of this data collection method was to answer the first four sub-research questions and to build up the theoretical background of the thesis.

3.2.2 Semi-structured interviews

Interviews are useful for getting the story behind the interviewee’s experiences. It is one of the best methods to gather in-depth information around the research topic. As the interviewer has direct control over the process, they can stop and clarify certain issues and go into more detail on certain topics if desired (McNamara, 1999). For the data collection of this research, semi-structured interviews were chosen. The reasons behind the choice are listed in the following.

First, Verschuren and Doorewaard (2007) differentiate different roles for the interviewee; the person is a respondent, a source of data about themselves; the person is an informant, a source of data about others; and an expert, a source of knowledge. For this research, the interviewees were treated as responders and experts.

The second reason lies behind the differences between structured, semi-structured and unstructured interviews. Structured interviews are a great way to gather easily categorizable data but fail to accommodate freedom to the interviewee, to express their answers accurately on the discussed topics. This can be a great hindrance, especially when the interviewee is treated as an expert, as it limits their ability to share their knowledge. In sharp contrast, unstructured interviews are a great way to find in-depth data about the research topic. The problem with this kind of interview is that it is hard to work and analyse the data from them. Furthermore, a successful unstructured interview requires ideal circumstances, experience from the interviewer and a level of expertise to conduct the interview. Semi-structured interviews can be seen as the best of both worlds. They allow an open response from the participants; they are less formal than structured interviews, while also having a common structure that allows for easier analysis (Clifford et al., 2010). The researcher came up with a semi-structured interview guide (see Appendixes), a set of questions closely related to the sub-research questions, starting from easier questions towards more in-depth questions about the projects. To keep the conversation flowing and to not limit the interviewee in their response, the interviews were planned to be recorded. This was planned since handwritten notes can be unreliable, and the interviewer might miss out on some key points (Creswell, 2007). Due to the measures taken to stop the current Covid-19 pandemic, everybody

was encouraged to conduct their business from the safety of their home. Therefore, these interviews were conducted online, using the software Skype and Zoom. Using this software, the interviews were recorded and later transcribed into written forms and have been analysed by the researcher to answer the related sub-questions through the usage of keywords and themes.

Participants were selected to ensure a comprehensive data collection from the design and project management side. The goal was to gather the methods used during the projects, the decisions made during the planning and design phase, and how the local stakeholders were handled. Initially, a minimum of five interviews was planned; however, it soon became apparent that due to the limitations to meet in person and the complications caused by the Covid-19 pandemic, setting up a successful interview proved quite difficult. To adjust, the focus from quantity shifted to quality. The three successful interviews were done with a project director, a designer who was involved in numerous projects, and an advisor to the project focused on citizen participation. During the interviews, an agreement was made, not to reveal their names; this decision will be further explained in the Ethical considerations section.

#	Position	Projects	Method	Date	Duration (min)
1.	Design manager	Astraat, Brugstraat, Akwartier, Munnekeholm	Skype	2020.05.19.	77:23
2.	Program manager for the inner city	All	Skype	2020.06.12.	50:59
3.	Director of Public relations	Astraat, Brugstraat, Munnekeholm, Sint Janstraat	Zoom	2020.07.02	55:15

3. Table Interview participants

Each interview was recorded and transcribed to written form by the researcher. The transcripts were coded to find connections and differences between the theoretical background and the researched projects. The codes were developed to fit the conceptual model and the research questions. They analysed data from the interviews will form the subsections of the chapter on findings.

3.2.3 Questionnaire

This form of data collection method is usually used during survey research and not a case study. Nevertheless, this method was chosen to assess the public's opinion about the new public spaces within the research area. The main reason behind this comes back to the Covid-19 pandemic response as the safest and easiest way of gathering data from the public became some sort of online data gathering. Therefore, an online survey form was chosen, developed and distributed online to gather the desired data.

The development and design of the survey were in line with the guidelines for designing survey questions collected by Clifford et al. (2010). Therefore, the three fundamental principles were kept in mind during the development of each question, namely, (1) keep it simple, (2) define terms clearly, (3) use the most straightforward possible wording (Clifford et al., 2010. p. 130-139). The reason behind this was to ensure that the respondents fully understand the questions and are not boogie down by complicated terminology (Clifford et al., 2010). Furthermore, as the target audience of the questionnaire is either Dutch or international people living in the city, the questionnaire was translated and distributed both in English and Dutch. Thereby ensuring that neither group is limited in their answers because of their language.

The questionnaire consisted of 21 questions focusing on three main topics. (1) *Personal details* consisting of the first five questions aimed to gain data about the responder, their age, employment status, living situation and relation to the inner city of Groningen. (2) *You and the inner city* section, consisting of the next five questions gathered data about the responder's usage of the inner city, its frequency, its length, its time, any limitations to spending time and the preferred modes of transportation to the inner city. (3) *Your opinion about the renovations* section, consisting of 11 questions of different types aimed to collect data on the responder's opinions about the new public spaces. Here the first five were 5 point Likert scale questions (strongly disagree, disagree, neutral, agree, strongly agree) on how satisfied the responder is with the new design on the different streets from different perspectives: walking-friendliness, cycling friendliness, spending free time here, and meeting friends here. Furthermore, a Likert scale question was asked about the satisfaction of the responder about the following characteristics of the new design: Altogether, Availability of public seating, The look of the streets, Availability of formal bicycle parking, The presence of greenery and the quality of services and retailers situated on the streets (Wuensch, 2005). The next question used an alternative 5 point Likert scale ranging from 'not important' to 'very important' to gather data on the importance of some aspects of public spaces to the responders (Availability of benches, Presence of street-art, number of trees and other greenery, presence of cafes and restaurants, and bike parking ability). The following three questions were formulated as statements with Likert scales ranging from 1 to 5, aiming to gather data about when the respondents like to visit the inner city, about their approval of the amount of public seating in the inner city and the new look of the specified public spaces. The remaining two questions were formulated as open questions, allowing a short answer from the respondent about their changed usage of the public

space and their recommendations about them. For the full questionnaire and the possible answers, see Appendixes.

The questionnaire was distributed online to ensure minimal contact, as stated earlier. It was shared in many different Facebook groups associated with Groningen, on Nestor with the rest of the Master Thesis students, as well as sent to the Interviewees to start a snowball effect. At the end of the data collection, the questionnaire generated 51 responses. This is an insufficient number to generalize or project to the entire population of the city of Groningen; therefore, conclusions from it were drawn with precaution. They are mainly used to reinforce information derived from other data collection methods.

The entire questionnaire can be found at the end of this paper, within the Appendixes.

3.2.3 Observations

The last data collection method used was participant-observation. This method is a great way to research street usage and the users' behaviour as their movement and behaviour could be observed without influencing them (Clifford et al., 2010). Initially, it seemed that this method was not possible to conduct as the response to the Covid-19 pandemic, was an encouraging social distancing. Therefore, the observable street usage would not be representative of an average day, since most users would stay home, and the ones still using the public spaces would behave differently. Furthermore, as one of the interviewees pointed out, even the regulations on using the *Astraat* and *Brugstraat* was changed due to the response to the virus. However, at the end of July and the beginning of August 2020, these regulations were loosened, and most aspects of daily life were turning back to "normal". During this time, the researcher conducted a total of three observations, each of them in a different day and time during the week, to get a more comprehensive picture of the activities happening in the research area. One was conducted on a workday in the morning, before noon hours, one in the early evening of a workday, while the last one aimed to find the 'best possible time' to spend on those streets, namely an early Saturday evening, with perfect sunny weather. These times were picked to see the differences in usage of the street booth on a weekday and a weekend, and both in the morning, noon, evening. The excellent weather during the observations ensured that the most possible social and optional activities were present. During the observations, the researcher looked for the previously discussed activity groups by Jan Gehl to see the different usage in different times.

Furthermore, the observations were made in order to find out how the users of the street conduct their necessary activities, and how they inhabit and move in the given public space. Also, attention was given to the condition of the physical environment, which acts as a prerequisite for optional and social activities. Their presence indicates clear signs of a qualitative physical environment on the street (Gehl, 2011. p. 9-14.).

The aim of this method during this research was to find out how people are using the new public spaces. As mentioned above the analysis was done through coding. The codes were developed mainly from the works of Jan Gehl (2011) in his categorization of activities.

3.3 Ethical considerations

This research was carried out with great care to stay objective with its findings, therefore ensuring their legitimacy. However, flaws due to the subjectivity or ethical considerations are always possible. This section aims to elaborate on the choices made and consequently by every choice how the researcher intended to stay objective during the research since the goal of this thesis was to collect data in a legitimate, non-bias way and to analyse the findings accordingly.

The data collection was carried out by using different methods. However, during all of them, and ethical behaviour from the researcher is beneficial for their carrier, for the research at hand and the continued conduct of scientific inquiry (Clifford et al. 2010). Therefore, during the data collection phase, the three principles of ethical behaviour were kept in mind by the researcher. These are:

1. Justice: emphasis on the distribution of benefits and burdens
2. Beneficence/ non-maleficence: a researcher's work should maximize benefits and minimize harms or discomfort of any kind
3. Respect: individuals should be treated with respect; anyone of diminished autonomy should be protected. Considerations should be taken to minimize trauma, discomfort (Clifford et al., 2010)

During the semi-structured interviews, it is necessary to make several ethical considerations. First, by setting up a mutually agreed meeting on a specific date, the researcher intended to allow the interviewees to create their comfortable atmosphere for the interview, thereby minimizing discomfort. During the initial greetings, the researcher asked for permission to record the interview and promised not to distribute the recording in any way. Furthermore, it was discussed that the names of the interviewees would not be mentioned in the thesis, thereby ensuring confidentiality, and minimizing the chances of harm imposed on the interviewees' carriers or personal lives by the potential misrepresentation of their opinions. Interviewees had the option pass over questions if they deemed it necessary. Furthermore, the complete thesis will be sent back to the interviewees to ensure the availability and comprehensibility of results to participants (Clifford et al., 2010).

During the questionnaire, the Google Forms doc was set up in a way that it will not collect any personal data without the participants' prior consent. There were not many questions about concrete personal details. At the end of the questionnaire, the participants had the opportunity to leave their email addresses, which will be used to send the complete thesis to ensure the same premises as the interviewees.

During the participant observations, the researcher aimed to stay out of the comfort zone of the users of public spaces. The pictures taken during the observations, where people are visible on the photo, were all wide shots, not focusing on anyone's faces, to ensure their anonymity. Furthermore, the researcher was prepared to delete any pictures taken during the observations if somebody asked to do it. Furthermore, measures were taken to ensure that the photos did not cause any harm and were made and cropped (if necessary) by displaying cultural awareness (Clifford et al., 2010).

Last, on the matter of the subjectivity of this research. Objectivity should be maintained during the research to produce more accurate results. According to Flowerdew and Martin (2005). There are multiple ways to enhance or maintain objectivity throughout the research. Amongst these are the importance of how questions are formulated and asked. Here the researcher must ask their questions in a non-suggestive manner. Another lesson from Flowerdew and Martin (2005) is as a researcher to remain open to new insights during the analysis, to prevent tunnel vision. Furthermore, the correct interpretation of data should be a priority during more subjective data collection methods, such as interviews and observations; therefore, any possible misunderstanding should be clarified during the interview. While, some form of reproducible evidence, such as photos or notes should be produced during the observations so that the researcher should accurately recall essential details and to prevent the loss of data (Clifford et al., 2010).

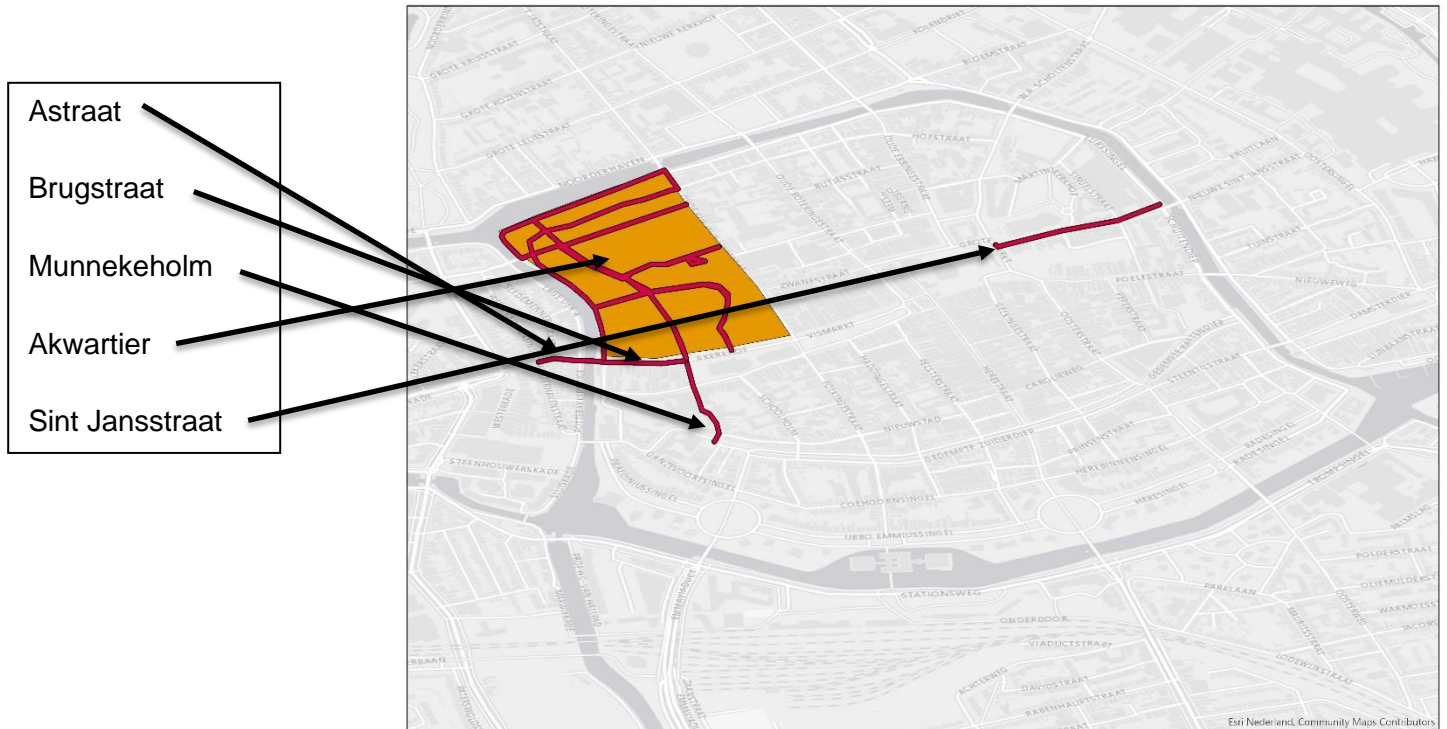
These lessons were taken to heart by the researcher during the data collection and analysis to ensure the most accurate results.

4. The design of the streets prior and after the refurbishment projects

The previously introduced Binnenstad 050 plan has more than 50 individual projects all around the inner city of Groningen, focusing on different goals. Amongst these supporting local businesses, the redesign of bus routes, redevelopment of specific neighbourhoods etc. can be found. During this research, a couple of already finished projects are discussed, where the public spaces were redesigned. Four projects were focused on shared space conversion and the redesign of local bus routes, while the last one was responsible for the complete redefinition of a left-behind neighbourhood, into a strong community with inviting shared spaces between their houses. In this chapter, the research area and the changes made to it are explained. First starting with the initial state and main usages of the researched public spaces. Following it with the ambitions and goals of the municipality, their research process and lastly the changes made in each project will be discussed. Within this chapter, the secondary research questions (4) How did the public spaces in the specified areas in Groningen look like before the projects? (5) What were the changes to the public spaces in the specified areas within the projects? Will be focused on.

4.1 The state of the street before the refurbishment projects

This section focuses on the initial state of the public spaces researched in this thesis. Starting with a map of the inner city, the locations of the projects are shown (Figure 2). Then each street or neighbourhood, their main characteristics, functions and stakeholders will be shown. This section is concerned with the answers to the secondary research question: (4) How did the public spaces in the specified areas in Groningen look like before the projects?



2. Figure The inner city of Groningen and the selected projects

4.1.1 Astraat

Located in the Schildersbuurt neighbourhood in the western part of the city centre, Astraat is a circa 120-meter long street connecting the inner city to Westerhaven. The street can be characterized as a shopping street with multiple buildings designated as municipal monuments and one considered a national monument. These buildings are:

- Astraat 2: Residential house built in circa 1850. It is a municipal monument since 1998 (Bastmeier et al., 1999)
- Astraat 10: Residential house built-in 1750. It is a national monument since 1971 (RvhCE, 2020)
- Astraat 12: Commercial building with living quarters built-in 1875. (Erfgoedkaart. Groningen,-)
- Astraat 13: Commercial building with living quarters built-in 1882. (Erfgoedkaart. Groningen,-)
- Astraat 19: Commercial building with living quarters built-in 1883. (Overbeek, 1997).

The street is an essential connection between the inner city and Westerhaven, before the redevelopment of the street, all the traffic went through this street, including several bus lines (Interview R3).

4.1.2 Brugstraat

Connecting Astraat to the inner city the 105-meter long Brugstraat is a commercial street in the Akerkhof neighbourhood of the city of Groningen. The streets got its name from the medieval Ten Brugge family, who lived in the stone house near the A-brug. Situated on the street are nine buildings designated as national monuments and 12 buildings as municipal monuments. Inhabiting these monuments are some of the notable stakeholders of this street, namely Albertus Magnus, a student house; The Northern Maritime Museum; A Postnl post office, Doppio Espresso an Alberth Heijn and other retailers (Interview R2; Wikipedia, 2020a; Groningertram.com, 2012).

4.1.3 Munnekeholm

Situated between Akerkhof and the neighbourhood of Zuiderdeep this circa 100-meter long street was named after the monks of the Aduard monastery who sought refuge here during the Eighty Years War (1568-1648). Their presence is immortalized thanks to the Aduardergasthuis which remained a refuge for persons in need. Today the house is owned by the Groningen Student Housing Foundation (SSH) and is used as a student house for international students (Interview R2, Wikipedia, 2020b).

4.1.4 Akwartier

This is the only project within this research, that is concerned about a whole neighbourhood with multiple streets, rather than focusing on one. Akwarier is located around the banks of the canal Drentse A on the west side of the inner city. This part of the city has been inhabited for more than a thousand years. Throughout time this place served as an essential trading post within the city. Therefore, even to this day an old port, canal houses, warehouses and medieval pattern of streets and alleys. Within the area, more than 1,400 people live in more than 600 houses. One of the most significant downsides to the neighbourhood was the prostitution and drug nuisance found here. In the second half of the 20th century, these notions resulted in the decay of the neighbourhood, both socially and physically. However, in February 2016 the residents' committee and the municipality decided together to disband the red-light district in the neighbourhood. As a result of this, the nuisance caused by these notions decreased and the neighbourhood was willing and ready to revitalize their social and physical environment (Interview R1 & R2; Gemeente Groningen, 2016b).

4.1.5 Sint Jansstraat

Situated in the east side of the inner city of Groningen, Sint Jansstraat connects the Martinikerkhof and the east section of the Diepenring. This street is named after a relic depicting Johannes de Doper or Saint John, one of the apostles of Jesus Christ, in the Martini Church. Situated on the 130-meter long street is the building of the Province of Groningen, The Grafisch Museum

Groningen, multiple restaurants and residential houses. The eastern side of the street was used by vehicular traffic with the intent of access to the parking garage of the Province House or to access the east bloc of the 77' traffic circulation plan (Interview R2, 2020; Tsubohara, 2007).

4.2 The planning, refurbishment, and refurbished streets

Whilst the last section gave insight into the historical importance of the streets within the research area; this section focuses on the recent developments on these streets. Planning ambitions, processes and the layout changes on each street will be given, gathered from the conducted interviews and policy documents. This section relates to the secondary research question: (5) What were the changes to the public spaces in the specified areas within the projects?

4.2.1 Refurbishment ambitions

The expected rise of the urban population along with new economic developments happening around the city, more interaction and more enormous crowds are expected in the urban environment. As the public spaces will come under pressure, the municipality expects more and more unsafe situations are happening through the increased interaction between the users of the street. Early warning signs of this notion are already present, such as the increasing number of informally parked bikes around the city causes a nuisance for pedestrians and are blocking accessibility of vehicular traffic (Binnenstad, 2017b).

To tackle this problem, the municipality aims to make better use of the available spaces around the city, arranging them differently to increase their hospitality for all of its users. One of the first steps within this vision was to remove sizeable vehicular traffic from the inner city, therefore giving more space to the pedestrians and cyclists. In their Cycling Strategy (2015) the municipality reinforced this action by stating that cities with plenty of space reserved for cyclists and pedestrians are the most attractive and vital. Furthermore, as the City of Groningen already deals with many cyclists, they aim to reduce conflicts in public spaces by prioritizing the pedestrian (Binnenstad, Groningen, 2017b).

Further steps of this ambition include the redesign of the public space on the Grote Markt, in the Oude Ebbingestraat and the Oosterstraat / Gelkingestraat. The refurbishment and revitalization of existing pedestrian areas such as the Peperstraat and Poelestraat. While in terms of this thesis, the municipality also focuses on the western side of the inner city. Here pedestrians and cyclists were given extra space as the bus routes were rerouted and their new space was also redesigned to accommodate its new types of traffic better. The Akwartier is also involved in this project. Last, the municipality ensured that the redesign of public transportation in the area did not result in fewer travellers. On the contrary, according to new measurements, the number of travellers flowing through the Astraat and Brugstraat increased since the redevelopment (Binnenstad, 2017b; Gemeente Groningen, 2016b; Interview R2, 2020).

4.2.2 Planning processes

High levels of citizen participation characterized the planning process behind the redevelopment of the public spaces in the western part of the city as well as in the Sint Jansstraat. In the early phases of the development, extensive discussions were held with almost all parties involved. Just to name a few: Groningen City Club, University of Groningen, Province of Groningen, the Forum organisation, Marketing Groningen, the Stedelijk Overleg Ou-derenbonden Groningen (SOOG) and Advisory Council for Disability Policy. Furthermore, discussions with the general public were done in the Let's Go festivals of 2013, 2014 and 2015 as well as a citizens' summit in 2015 (Bestemmig Binnenstad, 2016).

Focusing down on the individual projects, all redevelopments were designed using the TORI method. TORI (Accessible Public Space for Everyone) focuses on the more vulnerable groups of the population, such as children, the elderly and disabled population. If these groups can use the newly designed public spaces safely and efficiently, then the new design works (Binnenstad Groningen 2017b, Interview R1).

Furthermore, during the interviews, it became apparent that in the researched projects, the stakeholders already present on the streets were highly involved in the planning and maintaining the new spaces. For example, Binnenstad Cafes were held every month, where citizens can join in into the discussion about the aim of the projects. Walking tours were facilitated by the municipality, where the designer team went around on the street with the stakeholders situated on that street, to look together for problems and solutions for the new design (Interview R3).

4.2.3 The new public spaces

In this subsection, the changes to each street and the neighbourhood of Akwartier are discussed. First, the changes and their intended goals and results are categorized in a table. Following it, the result of each project is briefly discussed with pictures taken during the observation.

4.2.3.1 Astraat

First, the bus line going through the street from Westerhaven towards the inner city was rerouted in September 2017. The street's layout was changed. The asphalt used by the busses were removed. Instead, the now-familiar yellow bricks associated with the inner city are covering the street. Furthermore, the sidewalk-main road height difference was removed. Instead, the whole street is situated on the same level. The wide entrance from Westerhaven serves now more like a square with no linear distinction between zones preserved for the pedestrians and the cyclists. Here also greenery in forms of trees and flower pots were added to differentiate the place from the busy Westersingel further. This new layout aims to adjust traffic to slower speeds, to create a more optimal residential climate (Binnenstad Groningen, 2017a). Non-commercial seatings were also added between the greenery in forms of public benches (Interview R2). This square-like layout is kept up until the intersection with the Sledemennerstraat, where the Astraat received the lines indicating hybrid-zones on the street. Here a middle carriageway with 3,5-meter width borders a

hybrid-zone of 0,5 meters on each side. The main idea behind the hybrid-zone is that through these lines the use of the street becomes more adaptive, as it can be used by pedestrians and cyclists alike depending on which group of users is present in more significant numbers at any time during the day (Interview R1; Binnenstad Groningen, 2017a p. 6)). Following the hybrid-zones sidewalks used by pedestrians with a minimum width of 2 meters takes the next section of the street layout.



3. Figure Greenery and informal parking on Astraat (Megyeri, 2020)

Last, depending on the width of the street between the buildings, where sufficient space pavements were ranging from 0,8 to 1 meter were given to the buildings for commercial use or services. These pavements are used by cafes and shops to put out tables, chairs and advertisement (Interview R1 & R3). Bicycle parking compartments were added next to the intersection between Astraat and

Pottbakkersrijge. One way traffic is still present on the street going from the inner city to Westerhaven; however, this option can only be used by taxis, emergency vehicles, supply trucks for the local retailers and residents of this part of the city (Binnenstad 2017a, Interview R2).

4.2.3.2 Brugstraat

On the other side of the A-brug, the situation is quite similar to the latter part of the Astraat. The A-brug is yet to be renovated; therefore, different heights of the ‘street’ are still present. Starting the Brugstraat three lines of grey bricks are laid amongst the yellow tiles, their primary function is to slow down the cyclist traffic to cross the intersection with the Hoge der A street safely. Following the ‘warning signs,’ the street layout is identical to the design found on Astraat. As the



4. Figure Cyclists and pedestrians on Brugstraat (Megyeri, 2020)

street widens towards the Akerkhof, the shops and cafes situated in more extensive areas are for commercial use. One of the biggest beneficiaries of this is the cafe Doppio Espresso, which was allowed to build a large terrace in front of their shop. On the other side of the street there three trees were planted to give shade and enhance the quality of the street. Between these trees bicycle compartments for about 60 bikes were lined out as well. One way traffic is still present with the same conditions as on Astraat (Binnenstad, 2018).

4.2.3.3 Munnekeholm

The bus route connecting Brugstraat and Munnekeholm was rerouted; therefore, the street opened up for pedestrians. Since this street is not the main cyclist route, the number of cyclist users is a

lot slower than the previously mentioned streets. Therefore, the use of hybrid-zones and lines on the street was not necessary. In this sense, the new layout of the Munnekeholm is a 'true' shared



5. Figure Munnekeholm layout (Megyeri, 2020)

space with no separation or height between parts of the street. Greenery was added on the side of buildings as an experiment because below the street many cables run through; therefore, roots of trees or bushes can cause complications (Interview R1).

4.2.3.4 Akwartier

The revitalization of this 'slum' neighbourhood was long overdue. With the banning of prostitution at the beginning of 2016, much nuisance disappeared from the street. To increase the quality of the urban environment within the neighbourhood, the municipality developed the A +15 Future Vision. This vision of making the place an attractive and characteristic part of the inner city was developed together with all stakeholders from the neighbourhood (residents, owners, entrepreneurs and institutions, like the University of Groningen). This newly formed community aimed to create living streets, serving both as residential areas and spaces for working from the creative industry to scientific discovery (Baartmans G., Veenstra R., 2016; Gemeente Groningen 2016b). This aim was achieved through the redesign of the streets and by increasing the diversity of the housing supply. The new look of the streets resembles the ones found on the Astraat and Brugstraat. The street is now on the same height, although the division of the streets remained in some areas such as on the Visserstraat or De Laan. These streets are laid with yellow tiles as well, however in the

middle stones were used to force vehicular traffic to remain there, thereby allowing pedestrian flow on both sides.

Furthermore, the sidewalks are outlined on these streets as well. Generally, on each street if it was deemed wide enough, pavements (approx. 80cm) were given back to the buildings, however



6. Figure Pavements with added greenery and street-art in Akwartier (Megyeri, 2020).

instead of commercial use, here most are used as small gardens or in other places small benches were put out by the residents. Furthermore, several residents further decorated their homes with street paintings on the wall, improving the look of the streets. The same three-line design from the beginning of Brugstraat is also applied to entrances of the neighbourhood, such as on the Viskoek. The vehicular traffic is present on all streets, with the majority of cars on the road belonging to the neighbourhood's residents (Gemeente Groningen 2016b; Interview R2).

4.2.3.5 Sint Janstraat

The most recent project amongst the research area, the redevelopment of Sint Janstraat started in 2019. Here the municipality applied the lessons from the redevelopment of Astraat and Brugstraat; therefore, the layout of the street is quite similar to those. The primary building material used is the same yellow tiles, maintaining coherence. Furthermore, at the beginning of Sint Jansstraat from the east, once again the three-line design can be found. Hybrid-zones are also present, allowing the street to be more adaptive to the dominant user at the given time. Although this street is significantly fuller, pavements were not incorporated into the design. Furthermore, vehicular traffic is still present in both ways as the street now serves as the primary connection point between

the parking garages below the Province house and the Forum Groningen (Gemeente Groningen, 2019).



7. Figure The layout of the new Sint Jansstraat (Dolfing, 2020)

5. Behavioural usage on the new public spaces

This chapter focuses on the behavioural usage of the streets found in the research area. First, the results of the questionnaire are discussed, followed by the different types of activities mentioned by the responders and the activities found during the participant observations will be detailed. Therefore, this chapter aims to answer the secondary research question (6) How did these changes affect the behavioural usage of the specified areas?

5.1 Necessary activities

This subsection of results is concerned with the necessary activities that take place in the researched public spaces. These results are mainly derived from the questionnaire and the participant observations; however, they were also touched upon during the interviews as well. Therefore, the findings from that data collection will be mentioned as well. As stated in the theoretical background, necessary activities are those that are required in everyday life.

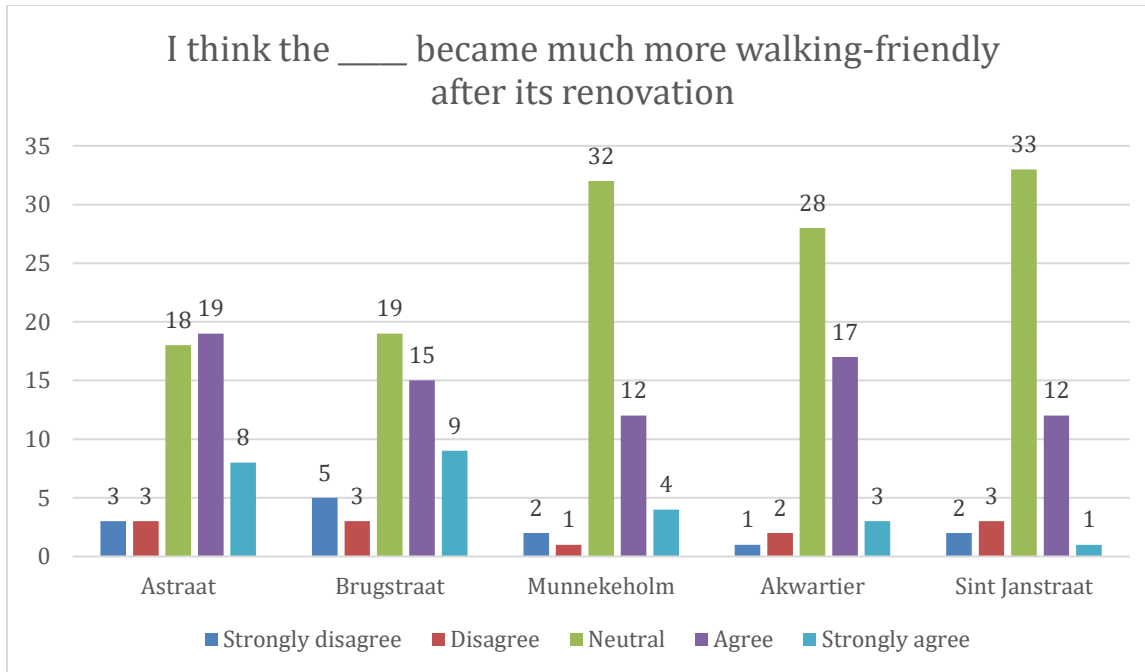
One of the essential activities from this group is the notion of transportation as every individual practice it every day between their other activities. During the research, it became apparent that even though public transportation was removed from the research area, the number of travellers on through the streets. Instead, for example, the Astraat- Brugstraat corridor is currently one of the busiest streets from a cyclist perspective in the country. Currently, the number of cyclists moving through this corridor numbers around 25 000 in 24 hours (Interview R1). As expected, rush hours and more quiet moments occur within the time frame, however, through the use of a time-lapse camera near A-kerkhof, it has been observed by the municipality that the streets are used virtually every hour of the day. Early morning is characterized by the departure and arrival of workers from their homes or to their jobs. After that, still before noon the students going to the university take over, then around noon, the supermarket and the restaurants receive visits from workers on their lunch break. Early afternoon is one of those quiet moments on workdays while on the weekends, ' many individuals arrive to use cafes or bars in the area. The workers make up the large part of users of the street during the evenings, going home from work. While during the nights the street is used by students to go out to party and to return to the student house, Albertus Magnus (Interview R2). The observations made it clear that the physical divisions of the street favour the cyclist, whilst the pedestrians have to be cautious when crossing the street. However, the perceived safety and the space reserved for pedestrians both improved due to the removal of the busses and the new sidewalks. In addition to this, during hours when the number of cyclists decreases, the new hybrid-zones ensure that pedestrians have space to take over and the cyclist will drive in the middle of the road instead of sticking to the side, like on an ordinary street (Interview R1).

The situation on the Sint Jansstraat is similar; however, as multiple bridges connect the east side of the inner city, the travellers are not pushed into one corridor. Therefore, this street experiences less number of cyclists (Interview R3). Nevertheless, the street is well used and functions more of a shared space due to the more frequent presence of cars and the higher number of pedestrians crossing the street to get to their cars.

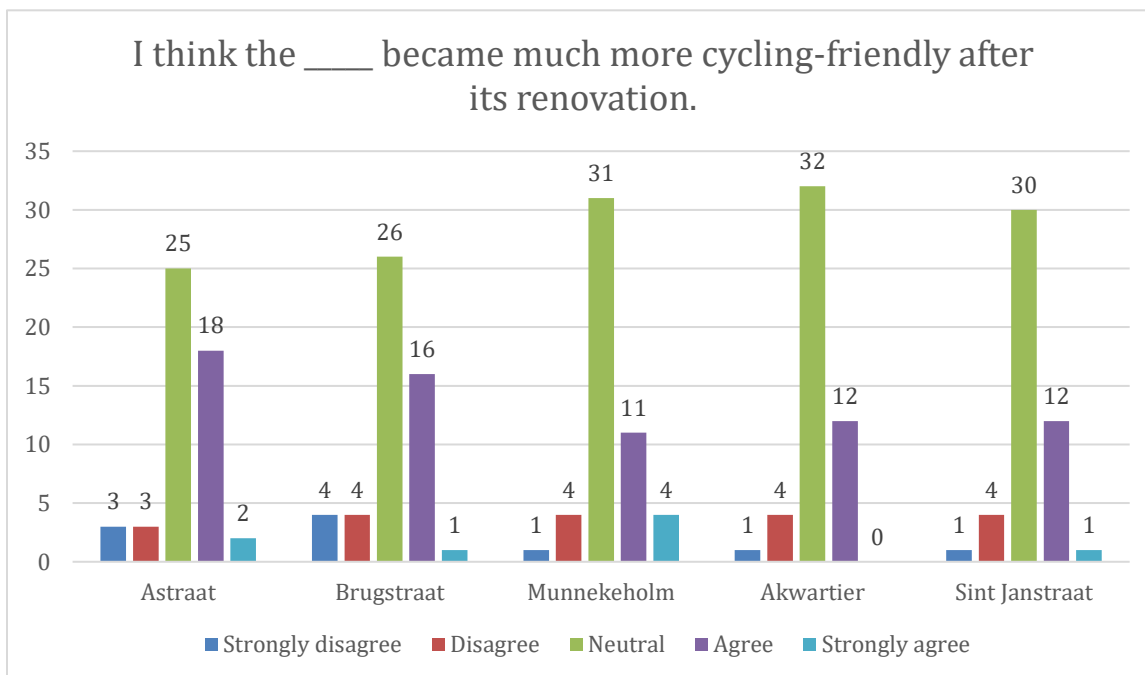
Munnekeholm and the streets within the Akwartier can be characterized as ‘true’ shared spaces since fewer people use them. Therefore, the individual is much freer to use the space to their desires regardless of their mode of transportation.

Other necessary activities such as running errands, distributing mail and prerequisite activities to transportation such as work and education are represented in large numbers as well. The industrial style of Astraat, Brugstraat and Sint Jansstraat ensure the presence of retailers, restaurants and other places to work. While the mixed land-use of Akwartier and Munnekeholm ensure both job opportunities and residential homes.

Respondents of the questionnaire further reinforce the necessary activities examined during the interviews and observations. All the streets surveyed through the research became both more walking and cycling-friendly in the eyes of the responders, with the majority of them answering either ‘agree’, ‘strongly agree’ or ‘neutral’ to these statements. Amongst the different areas, Astraat, Brugstraat and Akwartier achieved the highest scores on walking-friendliness, while Munnekeholm and Sint Janstraat scored the majority of neutral responses to the same questions. Astraat and Brugstraat remained on the top regarding the positive responses to the question regarding cycling-friendliness, however here Sint Janstraat and Munnekeholm joined in as well with high numbers of ‘agree’ and ‘neutral’ responses. At the same time, Akwartier fell behind, receiving mostly ‘neutral’ reviews.



4. Table Question 12 from the questionnaire



5. Table Question 13 from the questionnaire

5.2 Optional activities

The sub-section of optional activities results aims at collecting these types of activities in the researched public spaces. As explained before, optional activities include actions happening in favourable conditions such as taking a walk, sunbathing or just enjoying a place for its beauty, microclimate.

External factors largely influence the range of optional activities. First and foremost, they are influenced by the layout of the place. A physical environment with high quality ensures a full scale of optional activities, as these places will be inviting to all groups of people to stop and spend time (Gehl, 2011).

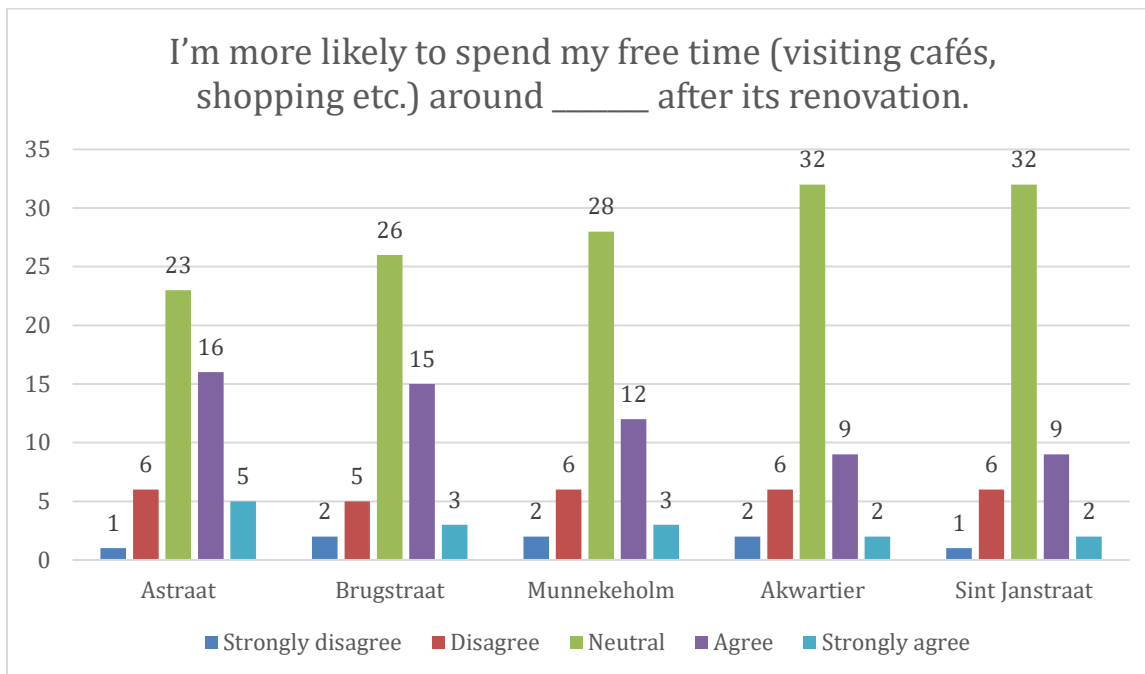
During the research, it became apparent that the goal of these projects was to enhance the spatial quality of the public spaces firstly by providing safer, better-arranged spaces and increasing the possibilities of optional activities was secondary. Non-commercial sitting places and more open public spaces were only implemented on the beginning of Astraat as the dense landscape of the area did not allow more (Binnenstad Groningen, 2017a p. 10; Interview R2). Although, the other side of the corridor, A-kerkhof is planned to rectify this weakness of the current plan, with more greenery, non-commercial sitting places and moveable seats (Interview R1 & R2).

Shopping opportunities and the abilities of shops to attract customers both increased on every project. However, there are multiple reasons behind this, first, on Astraat, Brugstraat and in Akwartier the pavements (approx. 80 cm) allowed shops and cafes to put out tables and advertisement onto the streets, improving their look. However, not all shops were allowed to use the space in front of their buildings due to insufficient width. The once with permission greatly improved, like Cafe Espresso Doppio near the end of Brugstrat with its new wide terrace. Other services such as Bakerij Blanche or Broodje Van Eigen Deeg saw improvements as well with their pavements set up with benches and tables to allow customers to sit outside (Interview R2). Second, the culture and behaviour of Groningen's inhabitants play a part in the increased optional activities as well. Due to the generally bad weather, the residents make full use of the sunny days, putting out chairs, tables and even inflatable pools. The better-arranged streets in the Akwartier certainly helped the residents to enjoy these days, as, during the observations, many people were sunbathing as well as children playing on the streets.

During both the planning phase and after the projects' completion, several shop owners were not satisfied with the pavements given or not given back to them. The ones with permission expected more and the ones without feeling left out by the municipality. Therefore, several shops put out chairs and tables regardless of their permissions. These illegally placed objects caused initial concerns from the municipality about the ability of emergency vehicles to pass by. However, after testing it out by driving fire trucks through the streets with their sirens on, they concluded that these objects did not oppose much threat. As when people heard the sirens, every object was

quickly moved away to allow the emergency vehicle to pass. Therefore, the only negative side effect of these illegally placed objects is the potential to take away valuable space from the pedestrians. Currently, the municipality is in the phase of fine-tuning with the researched projects; therefore, they are actively experimenting with the permissions and regulations used on the streets. They are trying to regulate these illegal object placings by working together with the owners of the shops. Due to the Covid-19 measurements between April and June 2020, the placement of any objects was forbidden to allow sufficient space for social distancing (Interview R2).

According to the respondents of the questionnaire, they are more likely to spend their free time (visiting cafés or shops, etc.) after the renovations. The streets of Astraat and Brugstraat significantly improved in this sense, with 21 and 18 ‘agree’ or ‘strongly agree’ answers out of 51 responders.



6. Table Question 14 from the questionnaire

5.3 Social activities

Last, the final group of activity focuses on the influence of the new public space design on the social activities on the researched areas. These activities depend on the presence of other individuals in public spaces and include communal activities, children at play or conversations (Gehl, 2011).

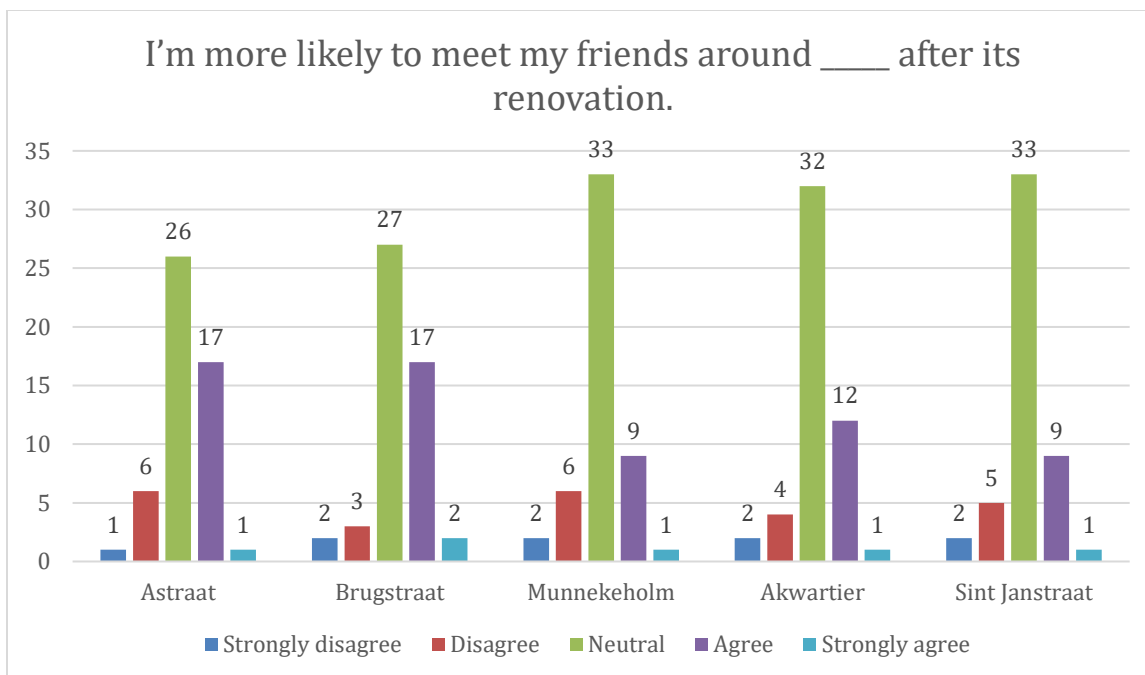
The predominant type of activity from this group is passive contact. This activity includes hearing, signalling, seeing, bumping into one another, or acknowledging other individuals' presence (Gehl,

2011). All of these actions are frequent on the streets but are on a whole different level in two areas of the street, first, on the narrowest parts of the street where cyclists and drivers are required to make passive contact, for personal reasons. This effect is further strengthened by pedestrians, who can cross the street at any part of the street design, disrupting the flow of traffic. Second, parts of the sidewalk, where illegal objects are put out in front of the shops, the flow of pedestrian movement is disrupted; therefore, people must interact in order to continue moving.

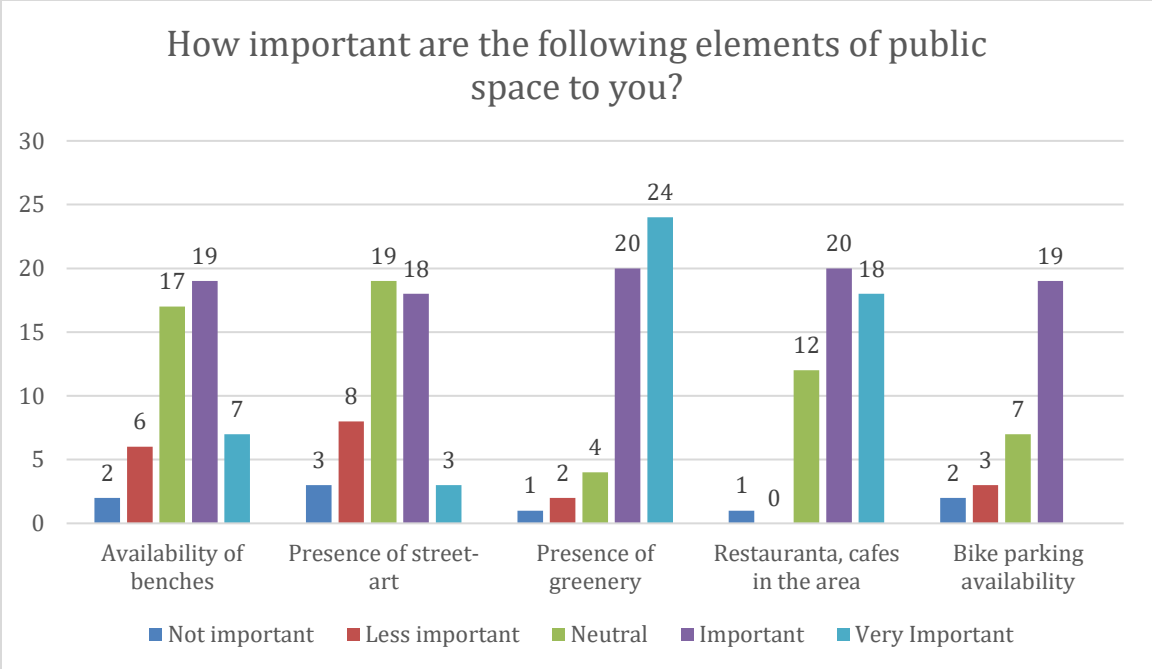
The presence of cafes and restaurants with outside services as well significantly affect the social activities present on the more commercial style streets of Astraat, Brugstraat and parts of Akwartier. These places achieved a high intensity of socializing, while most other parts produced only groups of pedestrians talking with each other while moving through the space.

An exception to the previous observations is the end of Astraat with its square style layout and the presence of non-commercial seating in the area. Here people stopped, conversed, or played during the observations. Therefore, reinforcing the lessons taken from William Whyte’s *Street Life Project* (2016), who emphasized the importance of available seating to social life in public spaces.

During the questionnaire, the responders outlined the same information gathered from observations. The responders indicated that they are more likely to meet their friends, especially on Astraat, Brugstraat and one of essential elements of these public spaces to them are the cafes and restaurants. Here they are the most likely to engage in social activities such as conversations with other customers or socializing with friends or family.



7. Table Question 15 from the questionnaire



8. Table Question 16 from the questionnaire

6. Unit of analysis

The analysis of previously discussed results is the main agenda of this Chapter. This is done concerning the theoretical framework and the secondary research question: (7) How did the changes improve the design of public spaces in the specified areas?

6.1 Changes in design

6.1.1 Evolving public spaces in Groningen

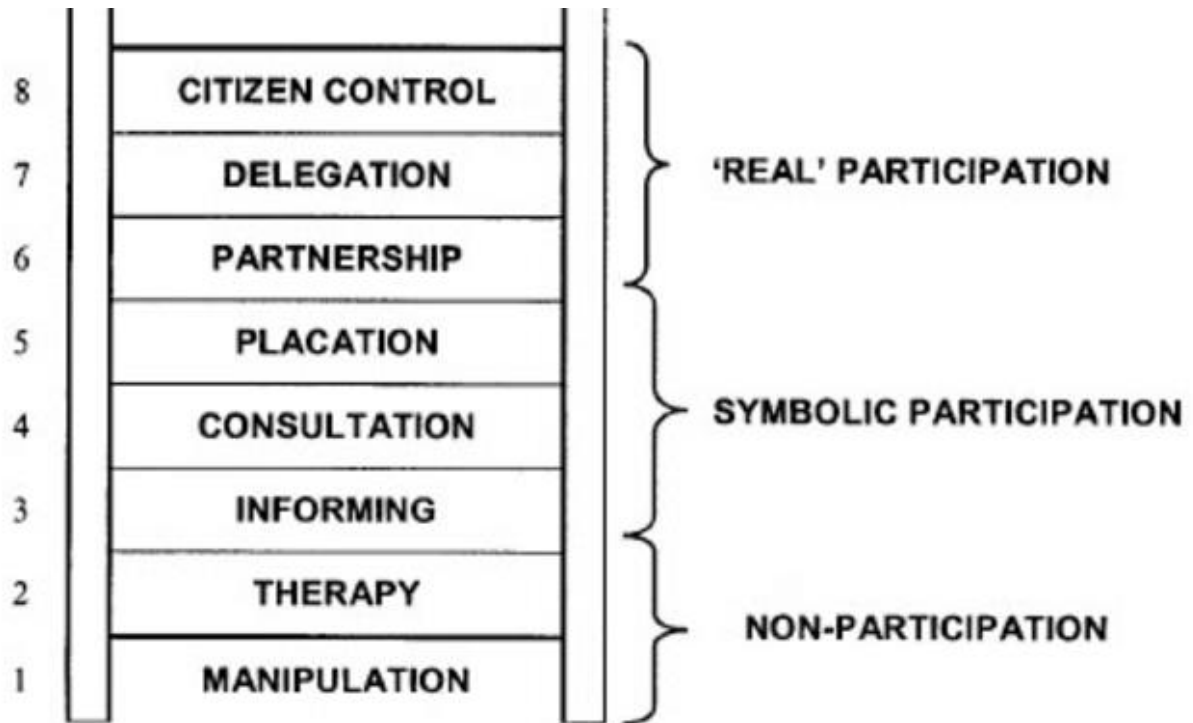
During the actions taken by the municipality to further the development of the inner city within both VCP, Binnenstad Better and now the most recent changes within the Bestemmig Binnenstad it became clear that the public spaces in the researched area are continuously evolving to accommodate the current needs of the city better. Trends in other cities such as the Trafalgar or Time Square changing notions, started perhaps even earlier in the City of Groningen. Although the cyclist culture of the region plays a part in this as well. However, through the literature reviews, interviews and the questionnaire, the positive effects of most recent developments are visible, while also the reinforcement of their validity against the predicted increasing pressures imposed by the increasing population.

6.1.2 Diverse public spaces in Groningen

The planning process behind the development and management of the city has come a long way since the initial plans of the VCP. As explored before, the traffic circulation plan used a top-down approach to design the new traffic layout of the entire city, without any significant consultation with the public. Therefore, opposition to a plan which effectively changed the lives of every inhabitant was massive. Compared to the requests sent by shop owners to the Crown and the Raad van State, the regulation breaking by the shop owners situated on the Astraat and Brugstraat seems to reflect the efficiency of new planning processes used by the municipality. Although the responses to the VCP were legal, while the recent actions can be seen as illegal, their severity is still lower.

Furthermore, the municipality is continuously learning from their mistakes by fine-tuning the finished projects, thereby continuing to discuss actions needed with the shop owners.

In the case of Akwartier, it is clear that the municipality shifted its initial position of expert or engineer to a facilitator, thereby starting with a technical rational planning approach to a highly participatory planning approach. As the residents of Akwartier and other stakeholders were



9. Table Arnstein's ladder of Citizen participation (Arnstein, 1969, p.2017)

involved during the design of their neighbourhood from the layout of the streets to the intended goals to reach as a community. In other words, the level of participation jumped from Therapy to Partnership on the Arnstein's ladder between the two development projects (Arnstein, 1969)

To further exemplify the diversity of the public spaces in the research area, it is required to look beyond the planning processes and to examine the results as well. As stated earlier, the new design was developed using the TORI (Accessible Public Space for Everyone); therefore, in theory, it should be perfect. However, during the design of public spaces for all groups of people, the planner faces many dilemmas. One of these dilemmas within the research areas is whom to favour? The pedestrian or the cyclist? Although significant progress has been made from the initial state of the streets, an ongoing struggle is still present between these two groups for the dominant position on the street. This struggle will be further explored in the balanced public spaces subsection.

The other dilemma concerns the different groups of vulnerable people. Older people, the visually impaired, deaf people and people with limited movement require different street designs to use the space most effectively. For example, the elderly prefer a street with no height differences and no bumps and non-slippery surfaces, while a visually impaired person can take advantage of detectable warnings (truncated domes) when navigating through the street. To tackle this dilemma, the municipality came up with a golden middle ground. The arrangements of the yellow tiles are different between sidewalks and central parts of the street as well as detectable linings used for the hybrid-zones. This way, the same height advantage is kept as well as allowing the visually impaired to use the street (Interview R2) safely.

6.1.3 Free public spaces in Groningen

The underlying character of any successful public space is that they are free. With this character, they should be open, unrestricted, and gratis (Carmona, 2018). The researched public spaces in the city of Groningen meet these conditions. Their management is mixed between public and private agents, but most parts of the public spaces are free. The only sort of exception found during the research is the pavement in front of the shops as the use of benches or tables situated there, might require consumption. The analysis of this pavement will be further discussed in the next subsection.

6.1.4 Delineated public spaces in Groningen

No clear distinction between public and private spaces can lead to confrontations and affected interests (Carmona, 2018). While the streets within the research area are delineated from private spaces, for the most part, overstepping these boundaries can be found in two instances. First, the presence of free bicycle parking is a huge problem virtually everywhere in the inner city. Within the research area on the Astraat and Brugstraat, the capacity of bicycle parking facilities is insufficient. Therefore, the cyclists have to leave their bicycles on the side of the road, taking up large spaces from the pedestrians' way, especially in the spare parts of those streets. The municipality is aware of this problem, yet a right solution is still awaited as there is no space for a large bike parking facility in the western parts of the city now. In the meantime, they are tightening the rules of formal bicycle parking on these streets, with the more frequent removal of wrongly parked bicycles (Interview R2).

Second, the pavements mentioned above' borders are frequently overstepped by the shop owners. Thereby taking up space from the pedestrian. This problem could be solved by making distinct borders between the pavement and the sidewalk, for example, with painted lines; however, as of yet, no such plans were found by the researcher.

6.1.5 Engaging public spaces in Groningen

Public spaces designed to enhance the quality and atmosphere of their surroundings are more likely to be well-used and adopted by their users (Carmona, 2018). The new design of public spaces in the research area follows a coherent design of yellow tiles, same height and the nuanced distinction between parts of the street. However, differences between different atmospheres are present. These

can range from the where the hybrid-zones are used or not, the presence or lack of stone section in the middle to the different uses of pavements in different zones. Furthermore, in the Akwartier, the citizens used brighter colours for more reflection and applied atmospheric lighting to their streets to create even a better environment to live in (Future Vision A+ Kwartier, 2017). During the observations, the pavements in the Akwartier has been further explored. Here instead of benches and tables, the owners planted more greenery and painted the side of their houses with engaging paintings. The unity in design with deviations to better suit residential, commercial, and mixed zones, ensure that the city's public spaces feel different from other cities', while also differentiating between different public spaces within the inner city. Therefore, making the city and the individual spaces more engaging and inviting to look at.

6.1.6 Meaningful public spaces in Groningen

The incorporation of notable amenities and unique features of the surroundings of the public space can improve how well space is used and later could ensure their adoption by its users (Carmona, 2018). In line with this statement, the municipality aimed to incorporate and revitalize its historically significant parts within the research area. One of the projects outside of this research aimed to develop the museum district near Brugstraat. Furthermore, the Akwartier's identity is mostly based upon its rich history. The development within the neighbourhood built upon this significance. Not just by the continued preservation and maintenance of monumental buildings, but with the promotion of their original medieval street pattern as well. Furthermore, as many buildings had some form of business function historically, there is room for contemporary business activity within these buildings. These small shops such as a hairdresser, a tennis shop, art supplies shop and many cafes ensure a constant buzz on the street.

6.1.7 Social public spaces in Groningen

The design of public spaces can largely influence the social interaction happening within these spaces (Carmona, 2018). As the streets focused on by this paper are connections between places of social interaction, they can be characterised as 'desire lines'. For example, the Astraat, Brugstraat, is a 'desire line' between the shopping centre in Westerhaven and A-kerkhof or Vismarkt. Nevertheless, this 'desire line' can be broken up further to subspaces (Carmona, 2018). The first more social subspace is the square like the start of Astraat, where greenery and non-commercial seating places are present, making it more of a place rather than a street. Another common subspace is the immediate surroundings of the A-brug. Here the cafes such as Café de Sigaar put out tables and chairs next to the canal, allowing high levels of socialization in a hybrid public-private space. The last subspace is the terrace of Cafe Espresso Doppio with similar

characteristics as the previously mentioned hybrid public-private space, although in a smaller scale.

6.1.8 Balanced public spaces in Groningen

Vehicular traffic imposes severe negative impacts on social life on a public space if it has not balanced correctly. Although banning traffic from the public space is not recommended by Carmona (2008), rerouting the bus routes from the researched areas was a necessary action. These busses took up too much space on the road, severely limiting the travel capabilities of cyclists and keeping pedestrians from these streets. Meanwhile, the busses coming through were well used, they made around 300 passes through the area each day; however, most people using these lines were travelling through the area, and not stopping here. This line served as an essential connection between the west side of the city and the central train station. Therefore, if the municipality rerouted the bus to the edge of the inner city, the connection is maintained and other users of the research area could use the space more safely and efficiently (Bestemmig Binnenstad, 2016; Interview R2).

This new arrangement resulted in a more balanced public space between the pedestrians, the cyclists, and the occasional vehicular traffic. The first two users, as mentioned earlier, are in a constant shift, where depending on their numbers, they take up more-or-less space, because of the same height streets and the hybrid-zone design. While vehicular traffic, although it needs to slow down within the areas, it can still be characterized as the dominant user of the street at that time. This is simply the result of their size differences to other users. Unique temporary users of the street are the emergency vehicles, which are capable of asserting priority before all other users, using their sirens. The new design supports the movement of these vehicles by maintaining the division of the street in heavily used areas (Interview R2).

6.1.9 Comfortable public spaces in Groningen

Public spaces which maintain a safe and calm atmosphere are designed correctly (Carmona, 2008) Before the new design of the public spaces in the research area, several factors caused discomfort and feeling unsafe. First, the presence of busses on the Astraat, Brugstraat and Munnekeholm required much space, leaving the sidewalks too narrow to use safely by the pedestrian. Navigating through the pedestrian flow was confusing and unsafe as often people had to step down to the main road to bypass obstacles such as people waiting on the sidewalk or baby carriages. Thereby exposing themselves to ongoing traffic. On the other hand, within the Akwartier, the presence of prostitution and the accompanied drug use lowered the perceived safety of the streets, especially

during evenings and nights. Even though the actual safety of the streets could have been high as usually these streets are protected by gun owners and security personnel of the brothels (. The streets were empty as people had a limited variety of activities on the street and had no reason to use them. This led to an abandoned look of the street, which lowered the perceived safety, proving the theories of Jane Jacobs (1964) regarding the importance of street usage in perceived safety.

Regarding the calming effects of well-designed shared spaces in the researched areas, the selected projects did not intend to increase these effects except for Akwartier directly. Nevertheless, the rerouted busses contributed to a quieter environment, especially at the beginning of Astraat and on Munnekeholm. Here the use of greenery, non-commercial seatings and the fewer users of the street improve the microclimate. Other parts of the research areas will serve as ‘desire lines’ to public spaces with the specific design to exude calmness and relaxation such as the A-kerkhof (Brugstraat) and the Grote Markt (Sint Jannstraat).

6.1.10 Robust public spaces in Groningen

The ability to adapt to new situations, needs and wants is also an essential character of well-designed public spaces (Carmona, 2018). This ability entails different adaptivity. First, public space should allow different uses at different times. In this term, the new designs are shown to be adaptive, as they accommodate different users throughout the day (cyclists with different intentions discussed during the necessary activities found in the research areas and the hybrid-zones balancing out different users at the same time), week (accommodating more users during the weekend conducting social activities), and year (the streets are used differently in different seasons). Second, the capability to adapt to unique situations. These can range from emergency vehicles passing through, social distancing to the usage of the street as a public meeting place. The last was observed by the municipality on Brugstraat, where after the developments were finished the different stakeholders of the street came together, put out tables to the middle of the street and had breakfast together (Interview R2).

6.2 Behavioural consequences of the new public space design

With the redevelopment of public spaces, the implementation of the shared space concept all streets mentioned within this paper achieved a higher quality of the physical environment and became more inviting, attractive for the inhabitants of the city of Groningen. This led to increased numbers of pedestrians and cyclists on the street throughout a typical day. This increased number



8. Figure Sunbathing residents in Akwartier (Megyeri, 2020)

of users is captured with the response from the Interview R2, where to the question about how the newly designed streets affected their usage, the interviewee responded with the following answer:

“Yes, for example, when I go to the inner city, I usually go through the Astraat and Brugstraat as I live in the western parts of the city. However, when it is too busy, there are too many pedestrians and cyclists for me to ride to work comfortably. Therefore, I choose alternative routes during these moments...” (Interview R2).

The increased number of users also leads to confusion and an increased number of compromises between the different users. As discussed before, the streets of Astraat, Brugstraat and Sint Janstraat were taken over by the struggle between the two primary users of the streets. Cyclists have to look out for pedestrians coming from the sides at the same time as manoeuvring between other cyclists, while the pedestrians have to take precautions when crossing the street. These crossings can be especially tricky for the discussed more vulnerable groups of pedestrians such as elderly or the visually impaired.

As mentioned in the results, the general attitude of the responders (both the questionnaire and the interviews) concerning the urban quality of the redesigned areas has been positive. From all interviews and around half of the respondents to the questionnaires agreed that they are satisfied with the new public spaces. The questionnaire respondents furthermore indicated that they are happy with the look of the streets with 54,9% indicating a 4 out of 5 satisfaction, and 17,6% a 5 out of 5. Despite the mostly positive reviews, shortcomings of the new design have been identified. One of the major problems is the growing number of informal bike parking, as it blocks the pedestrians' flow and lowers the aesthetic quality of the newly designed spaces. + corona measures

7. Conclusions

The research in this paper focuses on the redevelopment of different areas within the inner city of Groningen. These are namely the streets of Astraat, Brugstraat, Munnekeholm and the Akwartier neighbourhood. By examining their new design through participant observations, semi-structured interviews and a questionnaire, changes in their behavioural usage were explored. The results of the data collection were analysed through the theoretical framework of behavioural usage and the principles of public space design. The results and their analysis gave insight into the planning processes, into the planned and real consequences of the new designs.

This concluding chapter will give answers to the research questions presented in chapter 1. Furthermore, it will give critical reflections on the findings, contributions to planning theory, and societal significance. Continuing with recommendations on future research, ending with a personal reflection.

7.1 Answers to the research questions

This section will first give answers to the secondary research questions and will conclude with the answer to the main research question.

1. How can public space design influence street usage?

The design of public spaces can hugely affect their usage as for how the layout of the public space is planned influences the sort of activities present on the public space (Moughtin, 2003). As they range from small scale informal corners or passages to large scale parks or grand civic set pieces, their usage can significantly vary. However, throughout the works of Carmona (2018), Gehl (2011) and Moughtin (2003), it is apparent that well designed public spaces have higher ranges of activities present. These places will be well used, adopted by their users, thereby transforming themselves from a simple space to a place which can evolve according to the needs of its users.

2. What are the necessary conditions for a successful public space?

Although the understanding of the role and importance of public spaces is a continuing debate as the characteristics of the public space evolve according to the changes in society (Schmidt & Németh, 2010), A set of conditions can be identified as necessary conditions for successful designs. First, every new project needs a proper understanding of the developed space's socio-political context, to ensure the success and to avoid blueprint planning. (Carmona, 2008). Together with the socio-political context, the normative framework developed by Carmona (2008) can serve as a sound basis for a successful design. These principles were discussed in this paper in detail, and the local developments of Groningen were analysed with them. These principles are:

- Evolving (whether formal or informal)

- Diverse (no blueprints)
- Free (with secure rights and responsibilities)
- Delineated (public in their use)
- Engaging (design in active uses)
- Meaningful (incorporated notable amenities)
- Social (encouraging social engagement)
- Balanced (between traffic and pedestrian)
- Comfortable (safe and relaxing)
- Robust (adaptable in the face of change)

(Carmona, 2018, p. 12.)

Another concept which sets out conditions for successful public spaces is ‘shared space’. The concept focuses on integrated modes of transports sharing public space. Spaces developed through this concept are inviting places with an inclusive design towards all groups of people. Space is characterized by pedestrian prominence and good connections to other parts of the urban environment (Jayakody et al., 2017).

Throughout these different concepts and principles, one other commonality presents itself. Well designed public spaces invite people to spend time there; therefore, they are designed with the focus on the pedestrian, who has the highest chance to stay.

3. How can interactions between people and the street be measured?

Within this paper, the measurement of the interaction between people and the street was conducted through the use of behavioural usage. This is a loose term incorporating the behaviours presented by different users on the street and different groups of activities performed by them. To categorize these activities, ideas from Gehl (2011) were used. In his book, Gehl (2011) differentiated between 3 types of activities: necessary (running errands, travelling to work etc.), optional (sunbathing, shopping, coffee drinking etc.) and social (passive or active, the first meaning seeing, hearing other people, while the latter meaning their greetings, and having a conversation etc.).

The observation of these activities in the form of participant observation or with a time-lapse camera can help the researcher to build a clearer picture of the kinds of interactions which are happening within the public space.

4. How did the public spaces in the specified areas in Groningen look like before the projects?

The public spaces in the researched areas, namely Astraat, Brugstraat, Munnekeholm, Akwartier and Sint Jansstrat, were all spaces where many opportunities presented themselves to improve. Astraat and Brugstraat served as the primary connection line between the west side of the city and the inner city. Nevertheless, it was insufficiently designed for its current users, Since, the development of new commercial areas in the Westerhaven, the number of pedestrians using this street increased, along with the already large number of a cyclist travelling through the area. While these two streets maintained their commercial style, nobody wanted to stop here, as the street was

always full of passing through busses and cyclists, while crossing the street or stopping on the street was very difficult. Furthermore, although many busses passed through the area (this includes Munnekeholm as well), their passengers were not coming to these streets; instead, they were travelling through them.

Akwartier was a historically vibrant neighbourhood with a perfectly preserved medieval-style street pattern. However, prostitution and drug abuse became more and more prevalent during the second half of the 20th century. These nuisances led to the lower quality of the urban environment, eventually resulting in the designation of Akwartier as a slum area.

Sint Jansstraat was in the best condition amongst the researched projects; however, its redevelopment was also needed. The reason behind this was to better equip the street for future needs imposed on the street by its users. A new bus stop was planned at the end of the street; therefore, an increased number of pedestrians are expected to use this street between the Grote Markt and the new bus stop on the Diepenring.

5. What were the changes to the public spaces in the specified areas within the projects?

The answer will be presented in table 7.

Alterations to the public space	Location	Intended effects
Rerouted bus lines from the street	Astraat, Brugstraat, Munnekeholm	Give space to pedestrians and make the Binnenstad less crowded
Same height sidewalk, the main road	All streets	Make the streets safer and freer to roam around
Added hybrid-zones	Astraat, Brugstraat, Sint Janstraat	Keep the balance between the cyclists and pedestrians
Added public seating	Astraat	Encourage people to stay in a given place more
Added greenery	Munnekeholm Astraat, Brugstraat, Akwartier	Make these places more inviting// Make a distinction between the busy street and a relaxed public space more prominent
Added formal bike-parking	Brugstraat, Astraat	Accommodate the bikes of people travelling to the street
The pavement given back to	Astraat, Brugstraat, Akwartier	Give space back to the people

the buildings (approx. 80 cm)		// Make the place more inviting by allowing shops to set up tables outside and for residents to further customise their home
Installed yellow pavement	All streets	Unify the look of public spaces, therefore making them more distinct, these types of pavements are absorbing less heat and are easier to maintain than asphalt

10. Table The changes made to the researched public spaces (Megyeri, 2020)

6. How did these changes affect the behavioural usage of the specified areas?

During the research, it became clear that the number of users on the streets increased by a great deal. Necessary activities such as travelling, running errands have increased thanks to the newly available space on the streets. Furthermore, as indicated by the results of the questionnaire, the streets became more walking and cycling friendly. The result of this increased usage is both positive and negative. Positive in the sense that the street is well used, the retailers and catering services situated here are thriving. In contrast, most streets are ill-equipped with formal bicycle parking facilities. Resulting in a lot of informally parked bikes, limiting both necessary activities and lowering the aesthetics of the street.

Optional activities and their improvement were not necessarily the aim of the municipality. Nevertheless, they saw some improvement as shopping opportunities and quality of catering facilities were enhanced. Furthermore, non-commercial seating and the accommodating new design allowed a further improvement in the range of optional activities.

Last, social activities were increased as well. First, passive interactions such as hearing or seeing one another became much more intense as the number of users increased on the streets. Second, ‘true’ social interactions saw some improvements as well as cafes and restaurants were allowed to put more benches and tables outside, therefore improving the accommodating capacity for socializing.

7. How did the changes improve the quality of public spaces in the specified areas?

The quality of the public spaces improved in multiple ways. The streets were opened up allowing for more loose usage. The unified yellow tiles, which have been the primary building block of the new design serves as a distinct and colourful break from the asphalt used on roads with more traditional, vehicular use. The aesthetics of each street was significantly improved as the same height design was introduced. Furthermore, obstacles were removed and in their place greenery and non-commercial sitting places has been added. Last the pavements given back to the buildings further diversify the look of the streets. With people sitting outside on cafes’ benches on the more

commercial style streets and the presence of more greenery and street art in more residential areas such as Akwartier.

8. To what degree the alterations to the urban fabric in the inner city of Groningen (through specific projects) can stimulate interaction between people and the streets?

The answer the main research question has to be broken into two parts: First, the design, second about the behavioural usage.

The new design of the space was aimed to accommodate more pedestrians and cyclist on the streets by giving them adequate space. This has been done through, rerouting busses from the area, changing the layout of the street and adding new features such as seating or greenery. As the quality of the urban environment improved thanks to the new developments and layout, the streets became much more popular with the locals. During the analysis, it became apparent that the new public spaces were well designed, presenting high levels of accommodation to a range of activities.

The behavioural usage saw significant changes in the new public spaces. As the number of users increased, two types of activities increased the most. These are travelling as a necessary activity and passive social interaction as a social activity. Optional activities such as shopping or sunbathing have increased as well, although it is worth remembering that these activities are primarily influenced by external factors, and not necessarily by the streets' new design. Nevertheless, the range of optional activities has increased due to the design. These are provided by the non-commercial seating areas and the general aesthetic improvement of the researched public spaces. Other social activities increased as well, primarily due to the new pavements given to the shops and cafes, where people can sit outside and socialize.

To conclude, the interaction between people and the street largely improved as a result of the new public space design implemented within the researched areas. Although, certain hindrances such as the informal biking problem and the dilemma between different vulnerable users of the street have been identified. The municipality is aware of these problems as well, and currently in the process of fine-tuning to solve or ease them. Hopefully, this research can give further insight into the quality of interaction between the users of the street and the street itself.

7.2 Contribution to planning theory and practice

7.2.1 Scientific relevance

The design of public spaces is becoming more and more critical as these spaces are accommodating new activities and uses (Smidt and Németh, 2007). Furthermore, as the world continues to urbanise, the population continues to concentrate around cities due to higher-paying jobs and more opportunities the pressure on public spaces will continue to grow. To prepare for these notions and to successfully adapt to new situations, planners must change their practices as well. Normative frameworks such as the one used in this paper, developed by Carmona (2018) are excellent

guidelines to public space design. However as both he and Moughtin (2003) stresses out the socio-political and geographical and context of each city is different, therefore during the one-size-fits-all planning fixes should be avoided as the places produced from such blueprint design will feel alien to its users, their chances to be adopted by the neighbouring community is limited. The research of the impacts of new public space designs on the interaction between people and the street is crucial as it gives an insight how are the new spaces used, where are potential risks, adverse effects. Using this research method planners concerned with public space design can critically look at how their creations are used by the pedestrians, cyclists, and other users of the street. The insight gained during this evaluation, new plans, alterations to the design and different permissions can be made to arrange the public space better.

7.2.2 Societal relevance

Public spaces, as discussed throughout the paper, are becoming more critical (Smidth & Németh, 2010). Even though our technologies are developing rapidly, and now a meeting can be held online, telecommunication is instant. These spaces remain essential places to meet and socialize. However, as cities continue to grow, more and more people are using the same spaces; therefore, an increase in their accommodating capacity is needed. Public spaces need to become more robust to be able to adapt to new situations (Carmona, 2018) quickly. More adaptive public spaces allow unique experiences within them, such as the breakfast held in Brugstraat (Interview R2). The unique and sometimes experiences will ensure that these spaces are inviting and engaging for their users. Thereby providing necessary conditions to healthy public life, ensuring safety, freedom, and social interaction (Jacobs, 1964; Schmidt & Németh, 2010).

7.2.3 Critical reflection and recommendation for future research

This research has been carried out with much attention; however, some limitations were identified along the way.

First, it was difficult to arrange interviews with the stakeholders mentioned in the projects and with the people involved in the municipality from different agencies. I suspect there are multiple reasons behind this. Amongst these can be the fact that since I am an international student with a limited grasp of the Dutch language, I tried to reach them in English. Second, as the Netherlands undertook the social distancing measures, physical contact (going into the buildings of the municipality to ask for help) was impossible; therefore. I had to try to make contact with my chosen interviewees online.

Second, the same social distancing measures initially made it impossible to do observations. People were using these streets under new arrangements and were encouraged to stay home. Therefore, the results of the observations would not reflect the 'normal' usage of public spaces.

Luckily, during the summer, these measures were lightened, therefore the option to conduct observations opened.

Third, it was difficult to produce accurate information about the project's result in the Akwartier as I was not able to arrange interviews with the spokesperson of the neighbourhood.

7.2.4 Personal reflection

The writing of this thesis started with a brainstorm of different ideas in November 2019. The journey towards a completed Master Thesis was long and eventful; however, it resulted in a newly found interest in the nuances of public spaces design for me. The ten-month extended writing of this thesis was an increasingly productive activity, as the most significant contributions to it have been made in the last three months. During this long journey, I learned a couple of lessons that I want to share.

First, I tend to work better in groups, where I can work through complications together with my team. Therefore, this research proved to be complicated. However, I feel like I learned a lot about my shortcomings and were able to produce a logically structured thesis.

Second, deadlines are nobodies' friend, although I know if I would not have a clear deadline, I would draw the task at hand for too long. On the other hand, as I tend to leave some tasks to the last minute, deadlines will also sometimes lower the quality of my work, due to my poor time management. As this is becoming more apparent, I feel like I am better prepared for future challenges, knowing my weaknesses and how to tackle them.

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8.3 Literature

- Arnstein, Sherry R (1969). A ladder of citizen participation. In *Journal of the American Institute of Planners*, Vol 35, No 4, , pp.216–224
- Baartmans G., Veenstra R., (2016) *Toekomstvisie A+ Kwartier , samen op weg naar triple A*. Accessed online on 20-05-20 through: <https://ruimtevoorjou.groningen.nl/project/15-a-kwartier-uitvoering-visie/>

- Bain, L., Gray, B., & Rodgers, D. (2012). *Living streets: Strategies for crafting public space*. Hoboken: John Wiley & Sons.
- Bastmeijer A., Wierds, H., Hoeve van der J. (1999) *Hervonden Stad* Accessed online on 25-07-20 through:
https://www.archieven.nl/nl/zoeken?mivast=0&mizig=226&miadt=2297&milang=nl&mi view=ldt&mizk_alle=101777
- BBC News, (2015) Paris attacks: What happened on the night, (09-12-15) Accessed online on 25-07-20 through: <https://www.bbc.com/news/world-europe-34818994>
- BBC News, (2016) Berlin lorry attack: What we know (24-12-16) Accessed online on 25-07-20 through: <https://www.bbc.com/news/world-europe-38377428>
- Binnenstad Groningen. (2017a). *Ruimte Voor Jou - Herinrichting Astraat definitief inrichtingsplan*. Binnenstad Groningen: Groningen Gemeente. Accessed online on 21-05-20 through: <https://ruimtevoorjou.groningen.nl/project/5-herinrichting-astraatbrugstraat-gereed-2017/>
- Binnenstad Groningen. (2017b). *Nieuwe Stadsruimtes - Leidraad voor de openbare ruimte van de binnenstad van Groningen*. Binnenstad Groningen: Groningen Gemeente.
- Binnenstad Groningen. (2018). *Ruimte Voor Jou - Herinrichting Brugstraat & Munnekeholm definitief inrichtingsplan*. Binnenstad Groningen: Groningen Gemeente. Accessed online on 22-05-20 through:
<https://ruimtevoorjou.groningen.nl/project/6-herinrichting-munnekeholm/>
- Calhoun, C. (Ed.) (1992) *Habermas and the Public Sphere*. Cambridge, MA: MIT Press.
- Carmona M. (2018) Principles for public space design, planning to do better, *Urban Design International*, 24, 47-59(2019)
- Carmona, M., S. Tiesdell, T. Heath, and T. Oc. (2010). *Public Places Urban Spaces, The Dimensions of Urban Design*, 2nd ed. London: Routledge.
- Cassia L. S.,(2015) Mobilidade urbana : políticas públicas e apropriação do espaço em cidades brasileiras Accessed online on 14-04-20 through:
<https://www.lume.ufrgs.br/handle/10183/133191>
- Clifford, N., French, S., & Valentine, G. (2010). *Key methods in geography*. 2nd ed. Thousand Oaks, CA: Sage Publications.

- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches: International Student Edition*. Thousand Oaks, California: Sage Publications.
- Cullen, G. (1961) *Townscape*. Oxford: Architectural Press.
- Erfgoedkaart (-) *Cultuurhistorische waarderkaart, Erfgoed* Accessed online on 25-07-20 through: <https://erfgoed.groningen.nl/erfgoedkaart/>
- Flowerdew, R., & Martin, D. (Eds.). (2005). *Methods in human geography: a guide for students doing a research project*. London: Pearson Education.
- Fraser, N. (1990) Rethinking the public sphere: a contribution to actually existing democracy, *Social Text*, 25/26, pp. 56–79.
- Fuller & Moore (2017) *An Analysis of Jane Jacob's The Death and Life of Great American Cities*, London
- Gehl, J., & Koch, J. (2011). *Life between buildings: Using public space*. Washington, DC: Island Press.
- Gemeente Groningen (2016a) *Bestemmig Binnenstad* Accessed online on 19-06-20 through: <https://ruimtevoorjou.groningen.nl/project/5-herinrichting-astraatbrugstraat-gereed-2017/>
- Gemeente Groningen (2016b) Openbare Ruimte A+ Kwartier, Heinrichtig Vishoek e. o. 2016-30 august 2016 Accessed online on 20-05-20 through: <https://ruimtevoorjou.groningen.nl/project/15-a-kwartier-uitvoering-visie/>
- Gemeente Groningen (2019) *Binnenstad Groningen* Accessed online on 15-06-20 through: <https://gemeente.groningen.nl/aanpak-binnenstad>
- Gerrits, L., Rauws, W., & de Roo, G. (2012). Dutch spatial planning policies in transition. *Planning Theory & Practice*, 13(2), 336-341.
- Groningertram.com. (2012). *Bus or not back in Brugstraat Groningen?* Accessed online on 10-04-20 through: <https://groningertram.wordpress.com/2009/11/18/bus-wel-of-niet-terug-in-brugstraat-groningen/>
- Habermas 1990 *Theorie des kommunikativen Handelns* ISBN: 0-8070-1401-x
- Habitat International Coalition. (1995). *World Charter for the Right to the City*. Accessed online on 13-06-20 through: <http://www.hic-org.org/document.php?pid=3848>.

- Jacobs, J. (1961). *The death and life of great American cities*. Peregrine books. Harmondsworth: Penguin in association with Cape.
- Jayakody, R., Keraminiyage, K., Alston, M., & Dias, N. (2018). Design factors for a successful Shared Space Street (SSS) design. *International Journal of Strategic Property Management*, 22(4), 278-289.
- Karndacharuk, A., Wilson, D. J., & Dunn, R. (2014). A Review of the Evolution of Shared (Street) Space Concepts in Urban Environments. *Transport Reviews*, 34(2), 190-220.
- Lefebvre, H. (1968). *Le Droit à la Ville*, Paris, Anthropos.
- McNamara, C. (2018). *General Guidelines for Conducting Interviews*. Accessed on 20-06-20 through: <https://managementhelp.org/businessresearch/interviews.htm>
- Ministry of Housing, Spatial Planning and the Environment. (2006). *National Spatial Strategy (English summary)*. The Hague.
- Moughtin, C(2003) *Urban Design: Street and Square*. Taylor & Francis Group
- Overbeek, Rita (1997) *In geuren en kleuren. Geschiedenis van de voormalige De Gruyter-winkelpanden in Groningen*
- Peters, S. (2017). The domestication of planning ideas: The case of shared space. *Form Akademisk - Forskningstidsskrift for Design Og Designdidaktikk*, 10(3).
- RvhCE (-) *Rijksmonumentenregister* Accessed online on 25-07-20 through: <https://monumentenregister.cultureelerfgoed.nl/monumenten/18427>
- Schmidt, S., Németh, J. (2010) 'Space, Place and the City: Emerging Research on Public Space Design and Planning', *Journal of Urban Design*, 15: 4, 453 — 457
- Statista (2019) Total population of Groningen from 2009 to 2019. Accessed online on 12-04-20 through: <https://www.statista.com/statistics/862744/total-population-of-groningen/>
- Storper, M., & Manville, M. (2006). Behaviour, Preferences and Cities: Urban Theory and Urban Resurgence. *Urban Studies*, 43(8), 1247 -1274.
- Tsubohara S., (2007) *The effect and modification of the Traffic Circulation Plan (VCP)-traffic planning in Groningen in the 1980s*, University of Groningen
- Verschuren, P. J. M. & Doorewaard, J. A. C. M. (2007). *Het ontwerpen van een onderzoek*. Den Haag

- Whyte, W. (2016). *The Design of Spaces*. In: LeGates, R., & Stout, F. (ed.) *The City Reader* (6th ed.). p. 587 - 595. New York: Routledge.
- Wikipedia (2020a) *Brugstraat (Groningen)* Accessed online on 25-07-20 through: [https://nl.wikipedia.org/wiki/Brugstraat_\(Groningen\)](https://nl.wikipedia.org/wiki/Brugstraat_(Groningen))
- Wikipedia (2020b) *Munnekeholm* Accessed online on 25-07-20 through: <https://nl.wikipedia.org/wiki/Munnekeholm>
- Wuensch, Karl L. (2005). *"What is a Likert Scale? and How Do You Pronounce 'Likert?'"*. East Carolina University.
- Yin, R.K. (2003). *Case Study Research: Design and Methods*. Sage Publications, Thousand Oaks, London
- Young, I. (1990) *Justice and the Politics of Difference*. Princeton, NJ: Princeton University

9 Appendixes

9.1 Interview guide

Section 1: Broad questions about the topic

- Please tell me about the projects that you were involved in the Inner City! (Goals, Design, Implementation, Challenges)
- What would be the keywords you can think of with regards to Aastraat/Nieuwe Markt/ Vismarkt/Grote Markt/ before and after the developments?
- Do you feel like the new public space will stimulate interaction between pedestrians and space they use/ between each other?

Section 2: More detailed questions about the projects and their implications

- One of the prominent goals of the projects was to give extra space to the streets/ squares. During the design phase, what were the main ideas to gain this extra space?
- Do you feel that people will be/are able to use these areas differently after the recent developments?
- Necessary activities?
- Optional activities?
- Social activities?

Section 3: Questions with a link to theory

- Are there any unique places that you could name?
- What reasons/ activities/ programmes could stimulate both the locals and tourists to visit Inner City?
- Did the Binnenstad 050 project introduce new reasons/ activities/ programmes in the Inner City?

- In your opinion, did the projects contribute to a more diverse, interactive street life in the Inner City?
- In your opinion, Did the Inner City get a better image (cleaner, safer and more desirable to use public seating) after the projects?

Section 4: Personal touch

- How do you experience the different components of the public space?
- Do they work in-coherence?
- Are there boundaries and hinders?
- How would you evaluate the changes made to the Inner City?
- How did the recent changes affect your personal usage of the Inner City?
- Are you happy with the changes in the Inner City?
- What is the process behind working together with the locals on these projects?

9.2 Questionnaire

The Streets of Groningen 2020

[Dutch]Beste lezer,

Misschien bent u bekend met de volgende plekken in Groningen: Astraat, Brugstraat, Munnekeholm, Sint Jansstraat and Akwartier doordat u ze vaak bezoekt of er woont. In dat geval zou ik het zeer op prijs stellen als u mij zou kunnen helpen met mijn onderzoek door onderstaande vragen te beantwoorden. Deze plekken zijn onlangs gerenoveerd door de gemeente in het Binnenstad 050 project. Met onderstaande vragen hoop ik meer inzicht te krijgen in hoe het nieuwe uiterlijk van de openbare plekken de sociale interactie tussen gebruikers van de ruimte heeft beïnvloed. De enquête is onderdeel van mijn masterscriptie van de studie Environmental and Infrastructure Planning op de Rijksuniversiteit Groningen.

Het beantwoorden van de vragen duurt ongeveer 5 minuten.

[English]Dear reader,

If these places are familiar to you in Groningen; Astraat, Brugstraat, Munnekeholm, Sint Jansstraat and Akwartier. If you visit them frequently or maybe you live there, then please help with my research by answering these questions below. These places have been recently renovated by the municipality within the Binnenstad 050 project. With the following questions, I'm hoping to find out how the new look of these public spaces affected the interaction between their users. The questionnaire is also part of my Master Thesis in Environmental and Infrastructure Planning at the University of Groningen.

Answering the questions will take approximately 5 minutes.

1. How old are you?
 - Under 18 years old /18-24 /25-34 /35-44 /45-54 /55-64 /65-74 /75 years or older
2. Are you currently...?
 - Student/ employed / retired /other
3. How do you mainly use the inner city?
 - I live here and I work/ study here
 - I live here and I don't work/study here
 - I don't live here and work/study here
 - I live here and I do my grocery shopping here

- I don't live here and I do my grocery shopping here
 - I don't live here and I don't go here
4. How long have you been a resident of the Inner City?
 - Less than a year ago
 - 1-3 years
 - 3-5 years
 - 5-10 years
 - More than 10 years
 5. Are you living together with..?
 - Alone
 - Flatmate-(s)
 - Family
 - Significant other
 6. How often do you use public spaces in the inner city?
 - Multiple times of a day
 - Daily
 - multiple times a week
 - Weekly
 - Almost every week
 7. How long per day do you usually spend on the public spaces around the Inner City?
 - Less the 30 minutes
 - 30-60 minutes
 - More than 60 minutes
 8. Do any of the following factors limit your stay on the public spaces around the Inner city?
 - Limited variety of opportunities
 - Lack of public seating
 - No access to public restrooms
 - Too crowded
 - Too noisy
 - Other, please specify
 9. When do you visit the Inner city the most?
 - On weekdays during the day (8:00-19:00)
 - On weekdays during the evening (19:00-04:00)
 - Both equally on weekdays (8:00-04:00)
 - On weekends during the day (8:00-19:00)
 - On weekends during the evening (19:00-04:00)
 - Both equally on weekends (8:00-04:00)
 10. How do you travel to/within the Inner City mostly?
 - Bike
 - Walk
 - Taxi
 - Bus
 - own car
 - Other (please specify)
 11. How satisfied are you with the new public places in the specified areas? (Multiple choice grid)
1-5 Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied
 - Overall 1-5
 - Availability of public seating 1-5
 - The look of the streets, squares 1-5
 - Availability of formal bike parking 1-5
 - The number of trees and other greenery 1-5

12. I think the Astraat/Brugstraat/Munnekeholm/Sint Janstraat/Akwartier became much more walking-friendly after its renovation.
 - Strongly disagree, disagree, neutral, agree, strongly agree
13. I think the Astraat/Brugstraat/Munnekeholm/Sint Janstraat/Akwartier became much more cycling-friendly after its renovation.
 - Strongly disagree, disagree, neutral, agree, strongly agree
14. I'm more likely to spend my free time (visiting cafés, shopping etc.) around Astraat/Brugstraat/Munnekeholm/Sint Janstraat/Akwartier after its renovation.
 - Strongly disagree, disagree, neutral, agree, strongly agree
15. I'm more likely to meet my friends around Astraat/Brugstraat/Munnekeholm/Sint Janstraat/Akwartier after its renovation.
 - Strongly disagree, disagree, neutral, agree, strongly agree
16. How important are the following elements of public space to you?
 - Not important, Less important, Neutral, Important, Very important
 - Availability of benches
 - Presence of street art
 - Number of trees, size of green areas
 - Restaurants, Cafes, bar terraces on the side of the street
 - Bike parking availability
17. I like to visit the inner city when it is busy and full of people.
 - 1 to 5
18. I'm happy with the amount of public seating around the Inner City.
 - 1 to 5
19. I'm happy with the look of the roads and squares in the specified streets and places.
 - 1 to 5
20. Please explain how do you use the previously mentioned streets in the inner city differently after the recent developments?
 - Short open response
21. Is there something you would like to change within the public spaces in the inner city of Groningen?
 - Short open response

9.3 Transcripts

(not included)