

# Small Spatial Greening Projects Influencing Gentrification Drivers

A case study of the 'Garden Street' projects in Antwerp,  
Belgium

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## Summary

Urban governments are reintroducing urban green spaces as climate adaptation and mitigation measures. The city of Antwerp recently started their 'Garden streets' project as a response to the sustainability needs in urban areas. The aim is to transform residential streets into climate-adaptive place and enhances social contact. The project offers positive changes to environmental, social, and economic aspects. This economic revaluation of areas through greening projects is coming more into criticism among academics. The link is more often made with gentrification processes, where green landscape elements are an attraction factor among middle-income class households, and the project is seen as a revaluation project of a neglected neighbourhood that forces the displacement of the lower-income class households: green gentrification.

This thesis focusses on the garden street project in the Lange Riddersstraat, district Antwerp, and the project in the Oud-Berchem neighbourhood, district Berchem. The definition of gentrification is extended to include not only the direct causes, on which previous studies on gentrification mainly are based, but also indirect causes. The thesis aims to establish the link between the researched garden street projects and gentrification processes in the area studied. A focus is placed on how the process of the project took place and whether this can influence the process of gentrification. The data collection is split into two parts. The first part focuses on the gentrification processes. Here, it breaks down into four gentrification drivers: capital (re)investment, social upgrade, (non-)material landscape change, and displacement. The second part is on the process and involved actors of the project. The collection mainly happened by interviewing residents and the organisations and government officials involved. Documents and information found online complemented this.

This research shows that the garden street project in Berchem is at higher risk of reinforcing gentrification processes due to the project's top-down approach. In contrast, the Lange Riddersstraat used the bottom-up approach to create a stronger social group feeling and designed garden street in unanimous agreement with the citizens. In both cases, capital investment in the direct environment or in the researched area itself is the biggest driver. This driver is more prominent in the case study of Berchem where previous redevelopment processes in the proximity of the researched area are dominantly aimed at economic revaluation (e.g. the '*Groen Kwartier*'). The Lange Riddersstraat struggles with the presence of high-profit markets in the neighbourhood and fears a rise due to the garden streets project. The other three gentrification drivers are more prominent in the case study of Berchem since the top-down approach cannot take all the social needs and wishes of the residents. The Lange Riddersstraat manage to minimise the other three rivers thanks to good organisation between all actors and the involvement of all residents in the process and designing.

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## Chapter 1: Introduction

### 1.1: Background of the research

Human activities are centred on capital production and the eventual raising of living standards. These are usually produced in ways that take little or no account of the potential negative impacts on their ecological environment (Parr, 2014). These activities, which have played a long time an important role in human existence, are now increasingly labelled as 'unsustainable' (Joy, 2021).

One of these unsustainable activities is the ever-increasing urbanisation of the world's growing population and the simultaneous densification and expansion of urban land use. The increasingly important role of urban land use is accompanied by the loss of other land uses, and as Zhou & Parves Rana (2012) observed, it is mainly biologically rich land uses that bear the brunt of the expansive urbanisation. These land uses are of utmost importance in the conservation of ecosystems at multiple different spatial levels. The loss of ecologically important land uses is believed not to change course, as the United Nations (2007) stated that the urbanisation of the global population will continue at an accelerated pace. The growth of cities and towns suppresses the functioning of basic environmental and social services, and their provision is increasingly compromised as urban land use increases (Zhou & Parves Rana, 2012).

Not only do dense infrastructure and heavy human activity contribute significantly to global climate change, but the destruction of green spaces in and outside cities causes an increase in the instability of climate events (Wu et al., 2011). The disturbance in climate events leads to the rise of sea levels that threatens cities on low sea-level locations to overflow, droughts and storms, the increased risk of tropical diseases, etc. (*Cities and climate change*, n.d.), certainly with the urban micro-climate phenomenon called Urban Heat Island effect (Arnfield, 2003; Kanda, 2007).

Weakening to even the total removal of entire ecosystem services in or in the periphery of urban areas destroys adherent social and economic services with it. Urban residents begin to feel the negative sides of the densification of the population and concrete structures that replace greenery. The decrease in the amount of open space in urban contexts results in social disconnection, which separates residents (Coley et al., 1997). Combined with the emerging environmental problems, urban dwellers experience more work stress and fail to find sufficient relaxing meeting space to connect with others, delineating productive social communication at individual and community levels (Chen & Jim, 2008; Kweon et al., 1998).

Today, the importance of green spaces in and around the city is increasingly being highlighted by political powers at all levels. Looking at the context of this study, the Flemish Government sums it up well in its most recent coalition agreement (*Regeerakkoord*). It states that the reduction of green land use has direct and indirect far-reaching consequences for all sectors (*Flemish government coalition agreement 2019-2024*, 2019). Economic sectors, our living environment, and all other sections that play a role in society suffer from the decline in ecosystem services. Governments urge



sustainable adaptations in all sectors, organised by citizens, businesses, and governments to put a halt on the ecosystem declines (*Flemish government coalition agreement 2019-2024*, 2019).

It is therefore clear that the call for climate action and the consequent improvement of urban quality of life must be put as a top priority on the agenda. The reintroduction of urban green space could potentially offer an effective solution to some of the economic, social, and environmental degradations highlighted in the previous paragraph. Many studies have already been conducted regarding the benefits of implementing urban green space such as the regulation of urban microclimate and its ecosystems (e.g. Karteris et al., 2016; Lonsdorf et al., 2021). In addition, other studies covered solutions related to more social problems such as urban noise reduction (Anguluri & Narayanan, 2017), increasing social contacts (Chen & Jim, 2008; Kweon et al., 1998), and the creation of cultural ecosystem services such as recreational green and ecotourism (Chang et al., 2017; Dickinson & Hobbs, 2017; Kim & Jin, 2018). The economic and social benefits of urban greening will be discussed in more detail in chapter 2.1.2.

The presence of urban green space is thus a great solution to various social and environmental problems. Not only does it mitigate social problems in the urban context, the newly created green environment with its associated ecosystem services is seen as attractive to residents and outsiders (Kellert and Wilson, 1993; Ulrich et al., 1991), providing an additional bonus for the city: boosting up the economic value of the space (Chen & Jim, 2008).

But it is precisely this economic valuation that worries other scholars. As Gould and Lewis (2016) argue, despite the socio-ecological oriented motive for implementing urban greenery, the potential to increase the value of the surrounding space by greening also entails the risk of triggering or amplifying gentrification.

This thesis will present an analytical study that builds on critical literature about the ambiguous and ambivalent socio-economic effects of urban greening. It will focus on the small spatial scale of a residential street, where greening projects take place right on their doorstep rather than an entire neighbourhood affected by e.g. a newly created park. The research will take a more Western European semblance, working with case studies on various streets in the city of Antwerp, Belgium. The case studies are chosen based on their various economic performances and social context.

## 1.2: Objectives

The concept of 'garden streets' created by the city of Antwerp will be used to link with gentrification processes on a small spatial scale. The connection will be made between the amount of gentrification, the involved stakeholders present in the process of the studied greening projects, and the participation grade and role of the stakeholders in each decision. The links found between these three findings will be used as arguments to clarify the influence of street greening projects in gentrification processes in the context of the case studies.

### 1.3: Research questions

This study examines the potential of greening residential streets to leverage gentrification processes. It highlights the importance of taking into account the social demands of all stakeholders, especially the residents of the affected streets, to avoid unintended gentrification consequences. Therefore the following main research question will state:

#### **How do small spatial greening projects interact with existing gentrification processes?**

Multiple scholars have pointed out that gentrification by greening is a not well-understood and very complex process, subject to the slightest changes in context and actors (e.g. Hwang & Sampson, 2014). If we want to understand which drivers and involved actors in the greening process can influence gentrification processes in the neighbourhoods of our case study, then we need to dissect the broad main research question into several steps:

- **What impact do greening projects have on the context of our case studies where gentrification processes are taking place?** Where all drivers that can cause gentrification by greening, will be analysed in the context of the case studies.
- **Who are the involved actors and what role did and do they fill in?** The involvement of actors in the greening project will be noted. The actors influence the drivers of green gentrification with their implemented choices to fulfil their social, economic, and ecological demands.
- **Can a different governance approach steer the impact of the greening project on the gentrification process?** The changes made by the involved actors during the garden street process will be evaluated on the extent to which they have succeeded in meeting the social and economic demands of all stakeholders, with a focus on the demands of the lower-class households, and if they are linked with the present gentrification drivers. Then, a statement can be created about the compositions and roles of the actors during the garden street process and its influence on the gentrification processes.

### 1.4: Organization of the thesis

This thesis is organized into five chapters. In the first chapter, a problem statement and the main research question with sub-questions are explained. Chapter 2 is a literature review that will offer an informative background of concepts, theories and previous studies that parallels with the subjects that are applied in the thesis. More specifically, the concepts of urban and street greening, studies and theories of gentrification, and urban policy methods are covered. Chapter 3 introduces the case studies and discusses the methodology of the data collection and analysis in detail. There will also be an explanation of the ethical considerations that will be deemed. Chapter 4 presents the data collected, broken down according to the gentrification drivers, the course of the project, and the link between the two previous sections. Finally, chapter 5 concludes the thesis.

## Chapter 2: Conceptualizing rising gentrification by greening and the involved governance methods

### 2.1: Street greening and motives to go green

It is already widely known that green spaces contain the potential to raise urban sustainable development in the aspects of ecology, society, and economics. The city of Antwerp is quoted as saying that greening its city is of great importance because urban greenery has proven to be a successful climate mitigation measure and enhances the quality of life of its residents (*Waarom vergroenen?*, n.d.). To verify the latter statement whether this also applies to all residents, regardless of their social and financial status, a few steps will have to be taken before we can conclude. But since we will work on greening projects on street level in this paper, the concept of urban street greening needs to be clarified.

The purpose of the first part of chapter 2.1 is to offer a better understanding of green street design, by comparing the greener design styles and purposes with traditional design as we know it, which functions solely as a rigid base for a variety of modes of transport. The analysis will be done on the base of commonalities found in other research. It will then continue trying to find the motivation of the stakeholders why choosing greener streets and sum up the already known benefits of greening in a densely built and populated city context. For the sake of the thesis, only the social and economic benefits will suffice. Finally, parallel lines will be drawn between frequently recurring urban greening aspects with its social and economic benefits, and green elements that can often be spotted in green streets in the last part of chapter 2.1.

#### 2.1.1: Conceptualise street greening

In the world of academic literature, there are plenty of different but detailed explanations of the concept of 'greenways', 'urban community gardens' and other definitions that evolves around the greening of residential neighbourhoods. But none of the descriptions comes close to a decent conceptualization for direct greening of residential streets, the greening that takes place 'right on your doorstep'. A self-constructed concept of green streets is therefore needed. Later in chapter 2, it will become clear that a decent conceptualisation of street greening is needed to clarify the 'landscape change' variable of green gentrification, thus having an indirect effect on the displacement of lower socio-economic class residents.

Since we cannot create a definition for street greening out of thin air, we will combine definitions and concepts from different information sources that are about or close related to street greening. Akpinar's definition of urban greenways is a great start in explaining the difference in usage compared to contemporary transport roads. Akpinar (2016) states that urban greenways are generally designed as multi-use trails that provide opportunities for transportation, physical activity, and recreation. These spots of nature in the city help and support people to fulfil their recreational needs (Zhou & Parves Rana, 2012; Akpinar, 2016), personal relaxation, and retreat from the busy inner-city environment without leaving the public realm (Akpinar, 2016).

This 'freeway-to-greenway' greening type description of Akpinar emanates the most like greening a residential street, but it lacks a summarization of directly observable landscape changes in greenways and only explains the possible usages. Also, residential zones in urban areas are densely built, whereas freeways contain significant open space for greening. Within these residential zones, adding green elements does not stop at restructuring only the pavement. Building green structure (in)directly on the houses are part of the solution for greening densely build residential neighbourhoods. These green roofs and green walls are frequently seen and are a relatively cheap method to realise green streets. Shares of green roofs and green walls in these streets will vary substantially between different cities since spatial social (e.g. level of education) and socio-economic climate (e.g. willingness to pay for greening, the share of rented/bought houses) are key indicators (Jargowsky, 1996; Li and Wu, 2006; Troy et al., 2007). More on that later in Chapter 2.

Francis & Lorimer (2011) compiled information relating to green walls and green roofs by different scholars into several straight definitions of terminology. In this thesis only the two sub-definitions of the green wall, which are the green facade and the living wall, will suffice as those green elements are frequently recurring in street greening:

- Green facade: plants that cover a part of the whole front of the house. It mainly refers to climbing plants where little to no external effort is needed to grow along the walls of the building. A substrate is needed at the base of the wall for the roots to settle. An example of a plant can be ivy, but other plants that need more effort - fertilisation, watering, frost protection, ... - and/or need a steel structure located a small distance from the wall are also eligible.
- Living walls: like the green facade, it consists of vegetation that covers a part of the wall, incorporation in its structure or on its surface. The plants of living walls do not need to be rooted in the substrate at the base of the wall. It depends on an encased growing medium placed vertically onto the surface of the walls, but the case and wall are kept separate with the use of a waterproof membrane.

### 2.1.2: Benefits of urban green

The concept of green streets fits in the so-called umbrella term of 'green infrastructure', where urban green spaces are denoted to a coherent planning entity (Ahem, 2007; Sandstrom, 2002). Green infrastructure conceives a growing amenity amongst city administrators since studies done on the many potential social, ecological, and economic benefits it carries becomes more clear. The many benefits of greening and the little space it occupies are of great importance in a paved and built-up city. All the environmental and social benefits relate to how one improves the life of the individual resident: better social cohesion, health improvements, and better climate adaptation against the negative effects that weather and climate bring (Goossens et al., 2020). In addition, economic benefits are also not lost sight of by urban governance. Since economic growth is still a key driver for many contemporary city governments to base decisions on, it is of great interest to the city's political

powers to transform old and previously undervalued, mostly industrialised spaces into spaces in which to invest, grow, and ultimately realise the return of middle-class families (While et al., 2004).

For the sake of the thesis, a summation of the ecological benefits of urban greening is not a necessary core focus. Only the social and economic benefits, resulting from greening's ecological benefits or not, will suffice.

#### Social benefits:

In a still-growing city, the desire among residents for access to recreational spaces, that will satisfy their joy and relaxation needs, grows simultaneously with the urbanization process (Briffett, 2001). Urban green space can largely fulfil these individual residents' needs (Smardon, 1988; Zhou & Parves Rana, 2012). Implementing green space in urban environments urges more people to engage in more active lifestyles outdoors (Ekkel & de Vries, 2017; Douglas & Lennon, 2017; Sugiyama et al., 2009), which both un- and intentionally leads to participation in more social interactions and community creation (Kearney, 2006; Zhou & Parves Rana, 2012). Urban green space seen as a meeting point for a diversity of people and cultures stimulates openness towards others and ingenuity (Chen & Jim, 2008).

#### Economic benefits:

The economic benefits that greening entails are mostly appealing to the market and state (While et al., 2004). Greening reduces the amount of illness and damage caused by weather events but also enhances already existing economic revenues inside the city. Increasing ecosystem services like better water quality, air quality, and the growing opportunities for recreational activities (Wang & Banzhaf, 2018), promote the health conditions of its people and thus lowers the amount of illnesses (Vries et al., 2003). Greening as a climate mitigation measurement increases the efficiency in regulating water runoff and quality and urban temperature, causing less damage and wastewater costs (Wang & Banzhaf, 2018; Meerow & Newell, 2017). Now contemporary trends declare that the middle-class is attracted to the previously mentioned social benefits, and the market and state eagerly take advantage of their interests (While et al., 2004). Greening attracts a more skilled workforce (van den Bosch & Nieuwenhuijsen, 2017) and positively affect property value enhancement (Chen & Jim, 2008; McCord et al., 2014; Yang et al., 2016).

#### 2.1.3: Benefits of street greening

Green streets in residential zones, as one of many greening types, belong to the concept of urban green space (Schipperijn et al., 2013). It is an answer to increase the green share in densely built urban landscapes. The social and economic benefits of urban green space just listed above can be more or less deducted to the potential benefits of green streets, since no academic literature is found that discussed in detail about the benefits of street greening. The presence of trees, front gardens, etc. that is directly observable plays an important role in encouraging the public to participate in more outdoor activities (Takano et al., 2002).

The studies done around these benefits of greening are receiving growing criticism (Quinton et al., 2022, e.g. Goossens et al., 2020). Explaining that the benefits are not that easily generalizable over a whole diverse public. Even worse, sometimes these ‘benefits’ are disadvantages by disregarding sociocultural differences for certain communities and lowering chances of qualitative life for the socio-economic vulnerable with, for example, higher rents. A study by Dwyer and Hutchison (1990), for example, shows that on the one hand, the poorer households prefer practical environments, on the other hand, the financially stable households tend to be more attached to nature. Studies done by McClintock (2018) and Mahmoudi and colleagues (2016) found similar results. Low-income households and minoritized communities live in the industrialized areas that once attracted masses of workforce, that now go through life quality-improving greening projects (Anguelovski, 2016; Goossens et al., 2020). Intentionally geared towards the interests of the more economically valuable middle class, as they are more attracted to these greener landscapes (Anguelovski, 2016; Faber & Kimelberg, 2014; Wolch et al., 2014). While the intentions of environmental clean-ups are often focused on the improvement of life quality, gentrification may occur unexpectedly (Abel & White, 2011; Eckerd, 2011). In the next part, we will go into more detail about the concepts of gentrification and specifically green gentrification, and how greening can cause the displacement of the lower class.

## 2.2: Gentrification

The previous part discussed briefly that the benefits of urban green differ in sort and quantity with every community living in the city. These ‘green is good’ assumptions in research around urban greenery (Angelo, 2019) are being criticized more these days by increasingly more scholars, linking the urban greening movement with the increasement of space value and displacement of lower classes (Quinton et al, 2022). Most of these scholars discuss that the deindustrialisation movement of the cities is transforming into a form of a greening movement. Creating spaces with a more pleasant and liveable environment, and intentionally provoke gentrification. This greening movement is seen as a deliberate political economy strategy by city administrators to increase the city's economy (Gregory et al., 2009).

The concept of gentrification will receive more clarification throughout the next part. After discussing the variety of definitions, I will self-manufacture a concept of gentrification in chapter 2.2.1 that will be useful for chapter 2.2.2, talking about the link between greening and gentrification. Chapter 2.2.2 will dissect the practicalities of green gentrification, while chapter 2.2.3 will back up the motives to implement green measurements to provoke gentrification with theories.

### 2.2.1: Causes of gentrification

The process of gentrification changes fluidly throughout time. In this part, it will become clear that the multiple existing definitions of gentrification do not always completely overlap. Differences in definitions of gentrification result from new views on the process, or additional new findings to existing definitions. For this part, we will go over the possible causes of gentrification to create a new

definition of gentrification useful for this subject. This definition will be the base for the upcoming analysis of green gentrification processes.

The definition of gentrification as stated in the Dictionary of Human Geography is quoted as 'middle-class settlement in renovated or redeveloped properties in older, inner-city districts formerly occupied by a lower-income population' (Gregory et al., 2009, p273). Several explanations (determinants) of why gentrification can take place are given. The first explanation is the power of capital to implement landscape changes by influencing the housing market dynamics (Smith, 1996). Particularly, targeting the middle class as their priority target audience since the arrival of new 'kinds' of public- and private-sector professionals and managers (Ley, 1996) in the European post-industrialized society.

The following reconceptualization of gentrification is mostly done in the frame of urban renewal in post-industrialized cities, the desire to maintain steady economic growth, housing markets, and the attraction or pushing away of communities of specific sexuality, gender, race, etc. where city planners play on the interests and socio-economic place in society of these certain communities. These shifts in how we study gentrification processes are observable in earlier conducted European case studies. Gentrification is a core factor in the European neoliberal state-led restructuring of post-industrial cities in recent decades (Smith, 2002; Uitermark et al., 2007; Loopmans, 2008; Van Gent & Boterham, 2019). These reconceptualization studies of gentrification will be useful in the next parts of this research.

Redefining gentrification with various context-specific causes and consequences is beginning to attract growing criticism within academia. On the one hand, scholars are urging for a broader, elastic definition that embraces more than only financial causes and demographic changes in gentrified neighbourhoods. Clark (2004), Davidson and Lees (2005), and Lees et al. (2008) are good examples who have tried to provide a broader view on the causes of gentrification. However, on the other hand, some criticise that the broadening of the definition is too vague and involves a parallel loss of meaning (Maloutas, 2012). In other words, defining this process limits academics to the creation of a globally applicable definition at all times.

A relevant study is the earlier mentioned study by Goossens et al. (2020) on gentrification in Ghent, Belgium. Goossens et al. (2020) criticise the contemporary conceptualisation of the definition of gentrification. They argue that there is a too large proportion of studies around gentrification that forget about the change in the socio-cultural landscape, refer to the social and cultural dynamics as insignificant, or always scale it back to a neoliberalist frame. In other words, it always comes down to rising purchase and rental prices as the (only) cause leading to gentrification.

Goossens et al. (2020) are not against the fact that financial reasons like higher rents play a major role in gentrification and the forced displacement of the lower class. They want to emphasise the importance of changes in social and cultural contexts as a significant driver of gentrification. To avoid confusion, they created the distinction between direct and indirect gentrification causes, based on the diverse understanding of the concept of 'place'. Direct gentrification can be defined as lower-

class households not being able or not having the possibility to move into, or forced to move from, a dwelling as the result of the rise in the financial value of the particular place (Marcuse, 1985, 1986). The motivations behind these raising prices of space originate most of the time from the city's idea to expand their investments in areas to economically boost it with enhanced urban tax bases (Gregory et al., 2009; Checker, 2011; Millington, 2015) and new, though typically low-income service jobs (Gregory et al., 2009). In this definition, 'place' is seen as a located and shaped material form, but 'place' can also be seen as a space where individuals can live and consume and where communities are created (Agnew, 1987). The latter definition of 'place' where social dynamics are taking place, fits in the definition of indirect gentrification. Indirect gentrification is the changes that take place in a given space where consumption and production opportunities have a negative impact on the sociocultural environment of residents who lived long before the changes (Goossens et al., 2020). These changes can take various sizes: when new stores for other clientele are taking the place of the stores they patronize, changes in support services, friends are leaving, communities are fractionating, 'bicycle highways' that are more embraced by the middle class than lower class (Goossens et al., 2020), and many more examples. Elliot-Cooper et al. (2019) summarise this definition of indirect gentrification as the severing of ties between residents and the communities to which they belong, with displacement as the eventual consequence.

To create an applicable definition of gentrification to continue with, I combine the definition in the Dictionary of Human Geography on the motivations for economic improvements (Gregory et al., 2009) with the sociocultural studies around gentrification of Goossens et al. (2020) about 'sustainable' focussed middle-class, change in consumption- and lifestyles, ... :

#### **Gentrification**

The massive loss of affordable inner-city housing and the changing of the social-cultural landscape to the detriment of lower-income households, enhancing the polarization in financial and socio-cultural life opportunities between the lower-class households and the rest of the metropolis.

#### 2.2.2: Green projects and gentrification

The idea that the creation of new green space can cause the displacement of low-class residents, the very residents that are often targeted by green strategies to benefit them, may seem paradoxical (Wolch et al., 2014). It contradicts the United Nations' 10th Sustainable Development Goal (2015), which states that poverty reduction efforts and long-term economic development – like urban greening and its potential to boost space value – are negatively affected if inequality increases like gentrification processes take place. The inequality effects of this 'green gentrification' are already been observed in multiple studies. For example, Goossens et al. (2020) studied the spontaneous, but later government-induced, gentrification taking place in the Port of Bruges (*Brugse Poort*) in Ghent. The old industrial area was transformed into a new and spacious public green space in the 'Oxygen for the Port of Bruges' project (*'Zuurstof voor de Brugse Poort'*). In The Netherlands, the long-term residents of North Amsterdam have to watch with sorrow how their community is being fractionated



by renewal projects aimed at attracting the middle class (Schuermans et al., 2022). These green renewal projects are carried out solely by Amsterdam's authorities and neglect the residents' wishes with sham participation. Organisations like 'Defend North' ('*Verdedig Noord*') by Massih Hutak actively fight against the sham participation of the government in this renewal project. These examples of state-led gentrification is a highly common practice in neoliberal restructuring processes from the 1990s and onwards (Lees et al., 2008).

#### *2.2.2.a: The greening and gentrification connections*

Urban green space is idealized as accessible to everyone, and everyone should have equal access to the provided ecosystem services, regardless of their socio-economic status. In reality, this is not always the case as greening can, intentionally or unintentionally, kickstart or exacerbate gentrification (Faber & Kimelberg, 2014). Urban green and its services like tree shades, creeks, or amiable walking paths are observed to be more common in neighbourhoods of higher socio-economic classes (Crawford et al., 2008). This is why we should differentiate green gentrification into direct and indirect causes. First, there is the potential of greened neighbourhoods to enhance the real-estate value that only higher socio-economic classes can afford (Angelo, 2019). Second, there are changes in the environment and facilities caused by greening projects that please the interests of higher socio-economic classes (Goossens et al., 2020), sometimes at the cost of needed facilities and services of the lower classes. It proves once again that studies must include social vulnerability indicators next to only income or real-estate values when conceptualizing and analysing greening as a driver of gentrification (Quinton et al., 2022).

The direct causes of green gentrification are comparatively more studied among scholars. A frequent returning argument is that contemporary green urbanism is often labelled as the economic sector's successful exclusionary practice by 'monetizing greenness' (Rosol et al., 2017). Results in the same process as all other sorts of gentrifications: increase property values (Miller, 2016) by raising tax bases (Gregory et al., 2009; Checker, 2011; Millington, 2015), introduce new service jobs in the neighbourhood, etc. (Gregory et al., 2009).

Indirect causes of green gentrification are more complicated, as they comprise social and cultural changes in space. Miller (2016) summarizes the indirect causes of gentrification as the result of cultural imperialism (of higher socio-economic classes) in the design and use of green spaces, deepening already existing inequalities between the classes. The attraction of the higher classes is positively valued by the economic sectors since their cultural practices and lifestyles embrace a more consuming lifestyle (Safransky, 2014; Marche, 2015; Montgomery, 2015). These lifestyles and cultural practices, however, do not run quite parallel with those of the lower classes (Miller, 2016).

The 'benefits' of the urban green movement come with the side effect of potentially displacing the socio-economic vulnerable (Miller, 2016). Neighbourhoods, where socially and financially vulnerable communities live, could paradoxically change to unpayable or even unwanted neighbourhoods for these residents when greening projects are taking place (Anguelovski, 2016). How do greening

projects kickstart or fuel social and financial inequality, putting the lower class at a disadvantage? What initially causes the dissatisfaction of the lower class and eventually leads to their displacement?

Multiple scholars from different disciplines tried to uncover these flaws of greening projects. The results of their research pointed to issues of inequity (Gould & Lewis, 2016). Recent studies have shown that 'going green' movements marginalize those who oppose their ideas and visions (Swyngedouw, 2009). Swyngedouw (2009) nuances that supporters of green movements argue that there is no reason for criticism and discussions about the downsides of greening because they have a preconceived view that there are no downsides in green landscape elements. Therefore, discussing something that "everyone agrees on" is not worthwhile according to them, considering urban green projects as apolitical, and automatically reaching a consensus by skipping the discussion on whether or not an urban greening project should take place (Bentsen et al., 2010; Lubitow & Miller, 2013; Quinton et al., 2022).

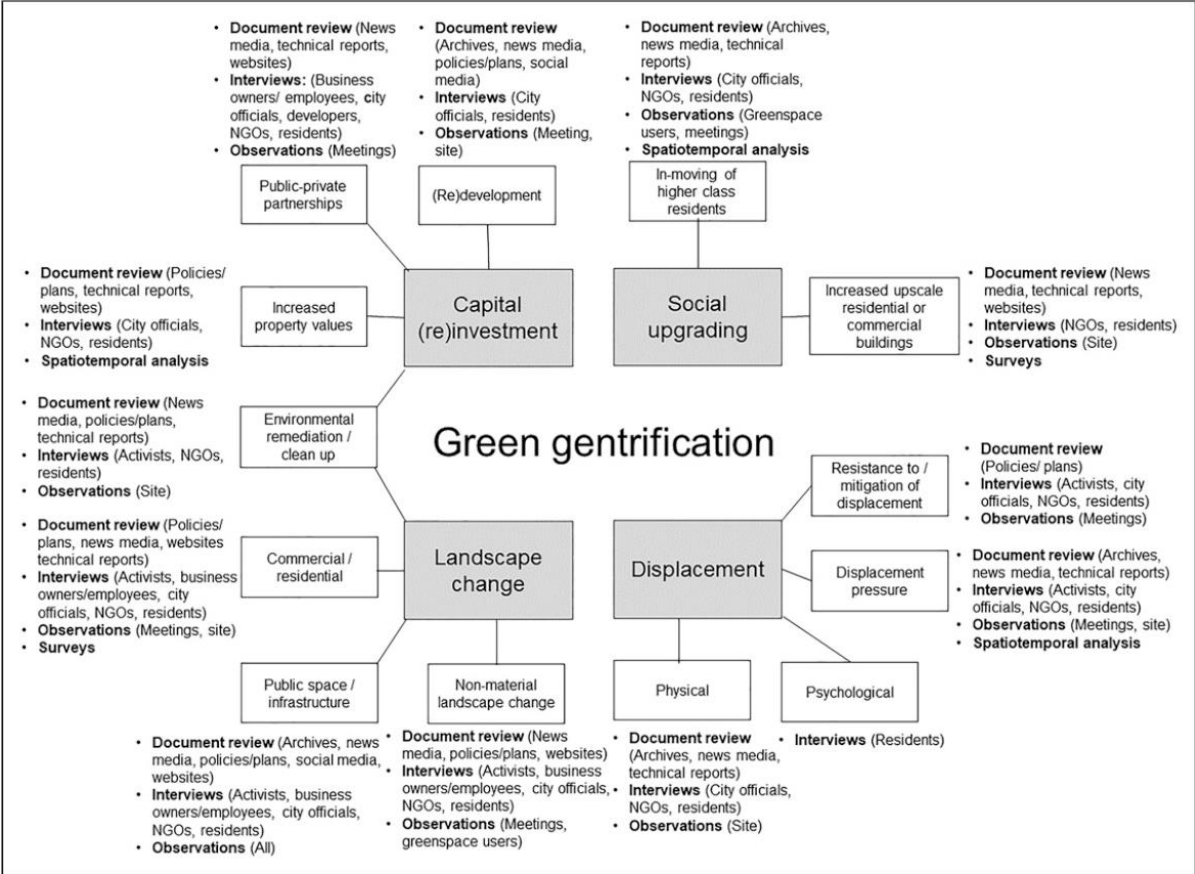
Where does everybody agree on? Greening projects increase liveability, are ecologically sustainable, mitigate climate change, and increase public health and safety (Lubitow & Miller, 2013; Swyngedouw, 2009). Hence, forgetting social-related problems that are not immediately apparent to the supporters of urban greening is common in green project discussions. For instance, the concerns about affordable housing and property taxes are not being discussed (Bryson, 2012). This indicates a lack of understanding and attention to the diverse nature of displacement due to greening initiatives.

In conclusion, social-related problems frequently occur when the greening project is not inclusive enough or not inclusive at all when excluding the opinions of certain citizens during the process. The group of different actors is not heterogeneous enough, dominated by people sharing the same ideology for the future of the city (Cattacin & Zimmer, 2016) and excluding the opinions of certain citizens opposing these values and ideas. Relevant and vulnerable stakeholders should be included and not silenced. Silence or not acknowledging them is a sign of a lack of knowledge about the diverse sense of place by all the residents of the neighbourhood. In other words, greening projects have the potential to create gentrification, not only by increasing the land value (direct causes) (Miller, 2016) but also by being not sufficiently inclusive (indirect causes) (Goossens et al., 2020). McClintock (2018) uses the example of the implementation of bike lanes and community gardens in the USA that causes a loss of sense of place by many long-term African-American residents, thus reminding us that we preserve an incomplete understanding of the diverse nature of displacement caused by greening projects. Another example is the indirect attraction effect of greening that attract commercial shops, targeting certain clientele designated for specific socio-economic groups (Hwang & Sampson, 2014; Glaeser et al., 2018; Alkon & Cadju, 2020). Take the international coffee shop 'Starbucks' or other trendy independent cafés as an example, which can be seen as a gentrification factor in this framework (Hwang & Sampson, 2014; Glaeser et al., 2018).

#### *2.2.2.b: In-depth analysis of green gentrification*

As mentioned in earlier sections, green gentrification is a complex process of financial and sociocultural changes, direct or indirect caused by urban greening projects. Gentrification is the

result of the non-inclusive participation of all stakeholders in the design of urban green projects, emphasised by some academics as an issue of procedural injustice (Rigolon et al., 2019). To get a better understanding of the linkage between context changes in an urban green project and gentrification processes, it is useful to go deeper into the already-known drivers of green gentrification. The recent paper of Quinton et al. (2022) analysed the methodological trends in the research around the topic of green gentrification and categorized the common trends in the research field. Quinton et al. (2022) categorized the drivers of green gentrification into four principals with each principal carrying multiple sub-principals (Quinton et al., 2022).



**Figure 1:** Framework created by Quinton et al. (2022) with the four principles of green gentrification, based on the research of Davidson and Lees (2005). Each principal can be divided into sub-principals with a description of how evidence for this (sub-)principal can be captured.

Based on the four principals of Davidson & Lees (2005), Quinton et al. (2022) added sub-principals found in literature about green gentrification and added methods how to collect information for a certain driver. Although gentrification is a complex process, this simplified framework is targeted yet open to changes (Clark, 2004; Lees et al., 2008). In other words, a good starting point for identifying drivers of green gentrification. The following explanations of the four drivers of green gentrification will be shortly explained and, where possible, focus on greening at neighbourhood-levels of greening.

### *1. Capital (re)investment*

The greening of a neighbourhood is often seen as a gentrification indicator through increasing the real-estate value of the space where the project takes place (Chen & Jim, 2008; McCord et al., 2014; Yang et al., 2016) and its surrounding space (Quinton et al., 2022). If gentrification can be used as a policy strategy for the purpose to reconfigure the city's urban economy (Gregory et al., 2009), then green gentrification is the contemporary mutation of gentrification to raise a city's economic competitiveness in today's context (van den Bosch & Nieuwenhuijsen, 2017). Revitalizing the neighbourhood with aesthetic greening and raising the quality of life, is an investment by the city to enhance its economic competitiveness by attracting skilled workforce of middle and higher-income households (KPMG, 2012a, 2012b; Donovan et al., 2021).

In short, the implementation of green can be an influential driver to boost the neighbourhood economically. It can serve as an anchor (Anguelovski et al., 2018), but also as a direct indicator of capital reinvestment (Quinton et al., 2022). However, it is unclear how influential greening is on the capital reinvestment of the neighbourhood if a city plans to include several other development factors alongside greening (Quinton et al., 2022).

### *2. Social upgrading*

Social upgrading, in theory, can be understood as the progress toward a more inclusive neighbourhood and community creation (Barrientos et al., 2011). Indicators like race/ethnicity, household income, education, real-estate values, etc. can change when social upgrading of the neighbourhood is present (Quinton et al., 2022). While the theory of social upgrading is well-oriented, in practice the opposite may be true. Drawing the middle and higher income classes towards the recently greened neighbourhood will influence the sense of place. The higher classes that the neighbourhood attracts are mostly culturally oriented to an urban and ecological lifestyle (Gould & Lewis, 2016). Promoting these lifestyles of the higher classes does not always line up with the cultural orientation of the lower-class long-term residents. Anguelovski (2016) explains that this change in sense of place with a changing culture, in line with the urban and ecological culture of the higher income classes and despite lower income classes, causes greened residential neighbourhood transforming into a 'locally unwanted land use' for the long-term residents.

Social upgrading can occur in any part of the gentrification process. It is not only an outcome of gentrification itself, but it can also enhance and catalyse the already existing gentrification process itself (Quinton et al., 2022). Indicators of social upgrading are context-specific, thus not all indicators have to be examined to determine emerging gentrification by social upgrade (Quinton et al., 2022).

### *3. Landscape change*

Landscapes are the expression of interaction between humans and their environment (Antrop, 1998). The interaction focuses on changing the environment to make it more suitable for human living and needs (Antrop, 1998). Changes made in a certain landscape can be perceived as positive or negative, depending on the preferences of the stakeholders. Landscape change as a gentrification

driver is based on changes that are made in favour of the higher-income classes despite lower-class incomes (Anguelovski, 2016).

The landscape changes can be split into material landscape changes and non-material landscape changes (Antrop, 1998). Material landscape changes are the most used as a gentrification indicator (Phillips, 2015). Material landscape change in the context of green gentrification is when greenery and surrounding redevelopment are implemented (Quinton et al., 2022). Surrounding development, like bike lanes, buildings, sustainable transport, and other material changes in landscapes can be established before, alongside, or followed by greening (Quinton et al., 2022). Although it is often unclear when surrounding development takes place in the greening project, it is often implied to be following (Quinton et al., 2022).

Non-material landscape changes are linked to the changes in the landscape's identity or type (Antrop, 1998). It often recurs as e.g. changes in potential meeting places, places where individuals or groups have a close bond with it, ... . Non-material changes in landscapes are an important indicator in green gentrification research, as it provides meaning to all elements in a landscape. Researching non-material changes in landscapes ensures the separation of landscape change being an exclusively capital (re)investment (Quinton et al., 2022).

Landscape changes in gentrification research entail the same considerations as those in social upgrading. When studying landscape change as an indicator, (1) reflect on the changes made that please the gentrifiers, and (2) acknowledge contextual differences between the gentrifier's preferences and the preferences of long-term residents (Quinton et al., 2022).

#### *4. Displacement*

Often considered to be the main result of gentrification, displacement could also be viewed as the cause. The displacement of low-income classes out of the neighbourhood could increasingly influence the further out moving of low-income classes and the moving in of gentrifiers (Quinton et al., 2022). The physical or psychological displacement of these marginalized residents is not due to the greening itself, it is due to the gentrification processes that follow with greening projects (Quinton et al., 2022). Psychological displacement is defined by the impact of gentrification on the emotional aspect of the locals rather than the material aspect (Marcus, 1986; Zhang & He, 2016).

With these main drivers of green gentrification, it proves once again that green gentrification is a complex process. These four characteristics influence each other and one characteristic can never be the only cause, outcome, or indicator to determine gentrification in a particular place (Quinton et al., 2022). All characteristics can also occur even in the absence of green gentrification (Quinton et al., 2022). It is important to find the underlying processes and governances that influence the drivers, which has not been done a lot in green gentrification research (Maloutas, 2012).

### 2.2.3: Theories related to motivations of green gentrification

A lot of studies are done around the motivation behind green gentrification, but it is still an unfinished puzzle. Some parts of the green gentrification life cycle are still unanswered. Before the pieces of information are bridged with new empirical findings, there is room for speculation and theorization:

- The theory of the ‘sustainable fix’ by While et al. (2004) describes green urban planning that integrated specific selected environmental objectives, for the main reason to boost capital accumulation (Curran & Hamilton, 2012; Goodling et al., 2015; Montgomery, 2015). The selection of environmental goals will be done carefully to cover up and at the same time ensure urban growth (While et al., 2004). City councils and developers justify the rebranding of urban growth to a more “green growth machine” by explaining that eventually, everyone will benefit from the green economic growth through trickle-down effects (Glennie, 2020; Loughran, 2014; Lang & Rothenberg, 2017; Mullenbach et al., 2021; Rigolon & Németh, 2018).
- The ‘rent-gap’ theory by Smith (1979, 1987) has been rebranded in a more contemporary context, a green/environmental/ecological rent gap. It is a new way for governments and developers to close the gap between realized and potential ground rent (Anguelovski et al., 2018; Braswell, 2018; Quastel, 2009; Yazar et al., 2020). A lot of scholars are hyped around this green rebrand of Smith’s theory as the motivation for governments and city developers to achieve urban growth and intentionally enhance gentrification. However, it is hard to believe Quinton and colleagues (2022) that this theory is the sole mechanism for legitimizing green gentrification.
- A broad but simple theory by Florida (2002) is the ‘creative class’ theory. It explains how cities use green development to attract innovative and knowledge-based workers since Florida believes that they are the main driving force in urban economic growth (Safransky, 2014; Marche, 2015; Montgomery, 2015).

These three theories are the more contemporary and/or direct applicable theories for my thesis subject around the motivation to implement green gentrification. There is another study that could become a compatible theory for green residential streets if transposed correctly.

A study done by Knuth (2016) explained how ‘green buildings’ in San Fransisco are labelled with green certification, however, the actual building has little to no contribution towards a better ecological footprint or environmental impacts. The green certification acts like a value premium to increase the value of its properties (Knuth, 2016). In other words, the ‘greenness’ of buildings is increasingly becoming an object of value for owners and investors to capitalise on.

The found theories explained in this part have their unique meaning and historical starting point. They greatly progress differently, but always conclude in some way that the motivation of the government and city developers to implement greening is to add capitalistic value to residential neighbourhoods. Because there are so many theories around the motivation to go for greening to

intentionally implement gentrification, indicates the many potential mechanisms of the life cycle of green gentrification and how to interpret them (Quinton et al., 2022).

### 2.3: Applicable governance methods

Greening projects have the potential to serve as climate change mitigation and as social innovation that ensures socioenvironmental sustainability (Chen & Jim, 2008; Zhou & Parves Rana, 2012). It is necessary to intensify social innovations as a policy tool (European Commission 2010, 2011; European Union 2012; Pol & Ville, 2009) to address the complexity of today's socioenvironmental problems (Unceta et al., 2017). In the past decades, social transformations towards more collaboration between the state and the market – the Public-Private Partnerships – have been observed to address the issues (Jessop, 2002; Safransky, 2014; Montgomery, 2016). These partnerships were vastly cheered on by a variety of stakeholders. But scholars have their doubts about this form of governance beyond the state and point out that this horizontal form of governance, excluding civil society can lead to some potential democratic deficits (Swyngedouw, 2005) by not solving every social problem or not everyone's social demands (Unceta et al., 2017). A shift in the market-state relationship and a re-evaluation of the importance of civil society in governance are useful in addressing contemporary sustainability shortcomings (Cattacin & Zimmer, 2016).

Through a creative mix of knowledge, technology, and locally applied resources, developed through the participation of various governance agencies, unmet social needs and inequalities can be solved, including the compelled needs of the vulnerable in society as a top priority (Brandesen et al., 2016). By better understanding the roles, processes, and interactions within or between the different actors in a project, one can determine which direction the social innovations are steered and how the result of a project is shaped. Unbalanced functioning between actors in certain urban governance approaches can lead to unfortunate negative side effects e.g. by giving excessive importance to informal civil networks and weakening the state's responsiveness (Moulaert et al., 2007; Swyngedouw, 2005).

#### 2.3.1: Different actors

Unceta et al. (2017) conducted an extensive study on the organisation and development of micro-level social innovations. The social innovations differ in process approach from bottom-up to top-down. They categorised the frequently recurring actors into three types of governance forms with a general description of who they represent and their way of working:

- *Institutional governance*: The governance of public management through institutional processes. Public matters are handled by the public administration of the institution, in a democratic and participative manner. It is associated with the decision-making processes in all institutional networks (Lynn et al., 2000; Skelcher et al., 2005; UNDESA, 2007).
- *Economic governance*: Governance type encompassing all policies and mechanisms for the production and management of goods and services of private sector organisations. It is associated with corporate networks and their structures (Dixit, 2003; Jones et al., 1997; UNDESA, 2007).

- *Social governance*: The governance type that includes all policies and mechanisms related to public policy, and the participation of civil society in community-level decision-making (Gaventa & Valderrama, 1999; Reddel, 2004; UNDESA, 2007). There are a couple of explanations around the definition of 'civil society', all got their spin based on authors' political preferences. For this thesis, we go for the following definition for 'civil society': a domain of associations and activities where state interventions are out of the question (Gregory et al., 2009). Civil society includes a wide array of actors and organisations, from NGOs to community groups (Jezard, 2018).

It is of most importance to note that the three governance types will never work exclusively alone in the context of urban planning. Governances are articulated in this context as creating and implementing rules for how things are done in organisations by gathering various people for making decisions about public policies, agencies and programmes. (Schaffers et al., 2011; Unceta et al., 2017). It is an interconnected participation between all three types with different influential levels of agreement between different agents (e.g. social enterprises, the private market, non-profit organisations, ...) in multi-level processes of public policies. (Bovaird & Löffler, 2003; Lynn et al., 2000; UNDESA, 2007).

### 2.3.2: Urban governances: Top-down and bottom-up approaches

The structural cooperation of these different actors could already vary greatly at the local level. According to Cattacin and Zimmer (2016), the partnerships established in urban development projects would reflect the urban welfare culture and governing. Cattacin and Zimmer (2016) go deeper into the typical characteristics of the frequently encountered urban planning policy forms top-down and bottom-up. Pissourios (2014) further complements this with suggestions on which particular policy form is best suited to which urban development project, based on an analysis of several different development projects around the world.

The top-down approaches in urban development start from the perspective of fixed decision-makers in urban policy-making and other external actors (Sabatier, 1986). Top-down as an urban planning policy form attaches importance to following standard planning of growth opportunities in urban development (Cattacin & Zimmer, 2016; Pissourios, 2014). This planning provides a level of certainty about urban growth opportunities at a specific future time, a foothold. In these times of high urban prosperity in European areas, there is now more incorporation of the sustainability aspect in these standard plannings (Cattacin & Zimmer, 2016). Decision-makers in urban top-down approaches nowadays realise that they need to incorporate the social aspect more in urban planning projects to achieve sustainable development (Cattacin & Zimmer, 2016). For this, a more flexible form of urban planning standards is now being used that serves more as a general guidance in land-use developments (Pissourios, 2014). Although standards have now become more flexible in top-down policies, there is still little room left for the voice of local actors since policymakers are fixated on achieving their objectives (Cattacin & Zimmer, 2016; Costa et al., 2016).



European countries have recently experienced a decline in top-down forms of urban policy due to the concurrent development of public policy (Considine & Lewis, 2003). Public policies embrace a more endogenous solution (Cattacin & Zimmer, 2016) and the involvement of local actors in the whole process rather than only as end users (Butkeviciene, 2009): bottom-up projects. These policies use a balanced division of roles between higher and lower public authorities that values the voice of the resident (Cattacin & Zimmer, 2016). Residents are seen as crucial developers of ideas that address social needs (Simonofski et al., 2019). Bottom-up approaches use direct interaction techniques for this purpose that takes context-specific social needs into account, rather than a standardised development plan. It gathers residents' opinions and ideas through a variation in structure and high frequency of meeting moments, such as meetings between the three governances and active testing of the innovation (Johannessen, 2010; Simonofski et al., 2019). Early citizen participation in the development process allows developers to perfect the innovation to correctly address local-specific problems (European Commission, 2009).

Another obstacle to using bottom-up approaches is the limited spatiotemporal sphere of influence. Bottom-up initiatives deal with problems related to the interests of local people (Næss, 2001). The efficiency of bottom-up approaches decreases with the size of its sphere of influence (Pissourios, 2014). This requires better and greater coordination among multiple levels of decision-makers, a review of how convening moments between stakeholders are held, and coming to a unanimous conclusion (Næss, 2001; Pissourios, 2014). Due to the complex structure and relation of different stakeholders, especially the mass of citizens, bottom-up approaches often employ the technique of citizen representation and intermediaries (Le Dantec & Fox, 2015). Intermediaries play a role in building strong ties between developers and communities. They create stable relationships by focusing on the interests, skills and knowledge of different actors (Le Dantec & Fox, 2015).

In conclusion, the choice between the use of top-down or bottom-up approaches generally comes down to the spatial size of the project with the corresponding sphere of influence and how far one wants to go in the social objectives of the project. Top-down systemic and rational planning theories, on the one hand, encourage the use of norms. Decision-makers choose to tackle the project with core actors rather than involving end-users for time-saving reasons and limited resources (Cattacin & Zimmer, 2016). Little participation is freed up for citizens to help shape innovation, but today decision-makers are more flexible about this. On the other hand, the communicative bottom-up approach focuses on the issues and desires taking place in the locally specific contexts of innovation. It works towards a structure of local legislation resulting from the participation of different stakeholders. In doing so, they often involve citizens throughout the process. Although this is time-consuming, they often use intermediaries and citizen leaders who filter knowledge, interests and skills and communicate between actors (Le Dantec & Fox, 2015). Cattacin & Zimmer (2016) conclude that local policy agreements in bottom-up approaches incorporate more of the social factors cited by social actors, with top-down approaches more daring to push social actors aside. They note, however, that the difference in the two types of approaches does not express itself in social factors that may or may not want to be taken into consideration in planning, but rather in the size of the

project with the corresponding time, tools, and resources needed (Cattacin & Zimmer, 2016). It follows that it is not possible to take large populations into account in bottom-up approaches, it is limited to the local spatial level (Pissourios, 2014). Although top-down approaches show their weaknesses more in contemporary urban planning, it is an inevitable planning practice for decision-makers when the project exceeds the local sphere of influence (Pissourios, 2014).

## Chapter 3: Case studies and Methodology

This paper uses a comparative case study design to answer the stated research questions. In this chapter, selecting useful case studies will be achieved by using criteria points. These criteria points will be introduced in detail in the context of greening and gentrification. After the data collection method to collect both quantitative and qualitative data is discussed, the analysis of the collected data, and the comparative study of the data on various levels will be explained.

### 3.1: Case studies

The use of case studies is necessary when the theory's explained phenomenon cannot (completely) explain the contemporary phenomenon in a real-life context (Yin, 2018) and when qualitative strategies are needed in the research (Larrinaga, 2017). Case studies help investigate the theoretical concepts and cross-examine the phenomena in real-life contexts (Larrinaga, 2017; Yin, 2016). Case studies have the potential not only to explore in-depth applications of the phenomenon but also to explore its contextual nuances (Baxter, 2010).

This thesis will use two case studies in the city of Antwerp, Belgium, to better understand the potential link between the participation process and gentrification by greening at a smaller spatial scale, namely the residential streets. The chosen green residential streets should fall under the same conception of what the city of Antwerp defines as a 'garden street'. But the case studies shall differ in governance approach during the process and in citizen participation for cross-comparison.

#### 3.1.1: Research context

##### *Evolution of gentrification in Antwerp*

The city of Antwerp has a considerable history of gentrification throughout recent decades. In the last 40 years, Antwerp displayed predominantly a post-industrial technocratically managed gentrification, with interference from the then-prevailing local Socialist Party (Ward, 2022). That changed ten years ago in a hegemonic shift to the nationalist neoliberal party New Flemish Alliance (*Nieuw-Vlaamse Alliantie*; N-VA) (Ward, 2022). The urban planning system underwent deregulation, transitioning towards a market-oriented re-regulation model, with a strong emphasis on negotiated planning gains (Ward, 2022).

In the 1980s, the city of Antwerp started to prominently feel the post-war industrial decline, nearing almost municipal bankruptcy (Loopmans, 2008). Gentrification came more in the focus of urban policy. Blaming the inner-city's 'intolerable liveability' (Loopmans, 2008) and diminishing existing

bottom-up planning schemes (Christiaens et al., 2007), to deliberately attract a more professional class. The Socialist Party's planning regime encompassed a strong government-induced urban regeneration strategy, to ensure that improving spatial quality and assure affordable housing would facilitate both the attraction of middle-class residents and maintaining a level of social mix (Loopmans et al., 2010).

After the 2012 elections, the Socialist Party could not prevail and lost to the neoliberal right-wing party N-VA. With a newly formed centre-right coalition, a shift in the urban planning strategy was made towards a market-oriented approach, independent of any government influence (Ward, 2022). The goal was set on dismantling the previous technocratic planning strategy of the Socialist Party, which was the embedding of a series of professionalised city-level urban development agencies to replace the bottom-up initiatives (Ward, 2022). The removal of requirements for social and affordable housing in new developments led to the implementation of a negotiated planning for-profit system, granting the housing market full control over meeting the demand (Ward, 2022). Developers were no longer subject to the imposed prices in the technocratic system but were given the freedom to discuss 2 options: a price per square kilometre, or providing 'kind' contributions, like e.g. public space, of equal value within the subjugated land (Ward, 2022).

Allowing the market's price mechanism to meet the middle-class housing demand is N-VA's gentrification strategy to reassure economic stability. However, the market neglects the demand of middle-class families and takes a discourse on the demand of investors who are interested in housing as an asset (Ward, 2022). Consequently, this led to the creation of smaller apartments and housing designated for highly profitable markets like service apartments for the elderly, student accommodation, and luxury residences (Ward, 2022).

#### *The Garden Street pilot project*

The word 'garden streets' was first mentioned in 2015, when the Belgian government entered the European-led 'Resilient Europe' project. The Resilient Europe project aims to set out a 2-year trajectory to introduce climate resilience in a selected neighbourhood in a low-threshold manner. The city of Antwerp rolled out the 'Garden Streets' (*Tuinstraten*) project. It served as an experiment to try the feasibility of such a low-threshold climate resilience realisation (college of mayor and aldermen, 2017). Provided there is a positive evaluation, the further rollout can be worked out and the results translated into policy proposals in the local green and water plans of Antwerp (college of mayor and aldermen, 2017).

Each district was given the opportunity to submit one project on the theme of climate resilience. The projects and the selected streets for the garden street projects had to meet a few criteria. For example, the selected streets were not allowed to have public transport or any other major throughway for other mobility, streets with front gardens were excluded, and no infrastructure reconstruction had taken place in the past 15 years (city Council, 2020). The submitted project on the other hand had to sufficiently frame the water and green plan of the city of Antwerp, and strong social support was present in the area with will for participation (city council, 2020). An endowment

of €1,800,000 was approved with a subsidised amount of just over €200,000 from Flanders on top of that in the form of grant funding, guidance and communication for knowledge building and sharing (city council, 2019). This subsidy of the Flemish government came about because it was in line with the Flemish government's newly drafted coalition agreement on the environment (see *Flemish government coalition agreement 2019-2024*, 2019).

The city of Antwerp provides a general explanation of its garden streets project. The city explains that a garden street is a street that is landscaped as green as possible and maximises water infiltration on site. Existing pavements will make way for various green elements (*Tuinstraten Berchem*, n.d.). They mainly discuss the green additions and softening of the road itself in street greening. In an article by Wiele (2021) and on the site of the Garden Street project itself (*Tuinstraten*, n.d.), Antwerp is talking about creating small street gardens right in front of the facades of houses, replacing parking spots. Semi-unpaved roads where grass squeaks through the gaps to maximise both rainwater infiltration and road use by the transport types allowed. In the restructuring of the street, everything should be able to be same-level ground and become/stay one-way or dead-end streets for traffic. Finally, the street must be pure public domain, so no private front gardens and public parking spaces will be entirely removed and possibly replaced by bicycle stands if there is enough open space left for it, to encourage sustainable transport. Examples of the garden streets project can be found in figure 2.



**Figure 2:** General garden Street design of the case study in Berchem (top) and the case study in Lange Riddersstraat (bottom). Source: de Jager, 2022 (top); Schoemaker, 2021 (bottom).

### 3.1.2: Criteria used for selection of case studies

The usage of only one case study can lead to a highly context-dependent construction (Chalhoub-Deville, 1997), multiple case studies are needed for more compelling evidence for the research's objective(s) (Yin, 2018). To make sure each case can be tackled in-depth, this thesis will limit the research to just two garden streets throughout the city of Antwerp. This is enough to make a cross-comparison between the two case studies that can provide valuable results for the topic of gentrification processes in greening residential streets. Three criteria are proposed to select the cases. First, the two chosen garden streets need to fall under the same umbrella term of "Garden Street". The thesis will therefore use the same selection of accepted streets for the garden street project used in official documents of the city of Antwerp.

Second, the streets have noticeable direct gentrification effects throughout a time span of a decade or more if possible. Signs of processes of direct gentrification are useful to determine in advance whether other gentrification factors may be present before surveys are conducted (Goossens et al., 2020). Online databanks like 'City of Antwerp in Numbers' (*'Stad Antwerpen in Cijfers'*) and 'Statbel' will be consulted. A focus will be laid on histograms on the smallest spatial scale possible of direct gentrification factors like population changes (natives vs. non-natives, age groups), displacement of long-term residents (Freeman, 2005; Ley, 1996; Zukin, 1987), household income, education, and housing or land space values (Atkinson, 2003; Bostic & Martin, 2003; Wyly & Hammel, 1998).

And third, the researched streets used a different governance approach during their development process. Only online found information about the governance approach did not suffice. Additional preliminary interviews are needed with involved stakeholders on the governance approach.

### 3.1.3: Case study selection

*District Berchem: Woeringenstraat, Wasstraat, Brouwerstraat, Berthoutstraat*

Berchem is a district of the city of Antwerp that is located in the 19<sup>th</sup>-century industrial neighbourhoods in the south of the historic city centre (figure 3). The district has a long history of low-income labour-class living in the district, with a high share of immigrants (Oosterlynck et al., 2017). The neighbourhood is known for its high density of small workers' houses. A study done by Oosterlynck et al. (2017) about the economic performance and social vulnerabilities in the neighbourhoods of Antwerp, showed that there is a correlation between the high ratio of immigrant residents inhabiting the old industrial environments in Berchem and the median household income of Berchem. Berchem's ethnic diversity is strongly correlated to socio-economic deprivation (Oosterlynck et al., 2017). In recent times, the district of Berchem experiences a lot of redevelopment projects to economically boost the place. The 'Groen Kwartier', which is only 600m to the north of the case study of Berchem, is a good example (e.g. De Groote, 2018). The socio-economic vulnerability of Berchem's long-term residents and Berchem's high potential to upgrade their neighbourhoods make it more likely that gentrification processes will take place. The spatial and socio-economic context of Berchem's case study largely parallels Smith's rent-gap theory (1979, 1987). Its central localisation where every necessary facility is reachable by foot or bike, and a lot of



neighbourhoods including low-priced dwellings with façade gardens, is a huge pull factor for gentrifiers (Oosterlynck et al., 2017).

For the criteria about the presence of direct gentrification processes in the research area, Oosterlynck and colleagues' statement about the risk of gentrification is also true when reducing it to only the four streets used as the case study in Berchem. Although the online found data is insignificant to prove that direct gentrification processes are taking place throughout the years in Berchem's case study, some evolutions in gathered quantitative data show signs of direct gentrification processes. Histograms of the average net income per inhabitant (appendix 1.1), age distribution (appendix 1.2), and mobility intensity (appendix 1.3) are compared with data from the city of Antwerp as a whole. Since there is no data available about property prices on the neighbourhood level, property prices of the city of Antwerp are compared with the property prices of Flanders (appendix 1.4).

While the average net income per inhabitant in Berchem's case study is increasing more or less linear over the years, it remains under the average of the city of Antwerp. The rise of Berchem's average net income does appear to be in a slightly faster trajectory than the rise of the city of Antwerp (appendix 1.1). This may refer to a relatively larger movement of people from the middle and higher socio-economic classes into the neighbourhood. This can be backed up by the high moving intensity in the case study of Berchem in comparison with the moving intensity in the city of Antwerp (appendix 1.4). Trends in flats and house prices, regardless of how many free facades the house contains, are in a greater upward trend in the city of Antwerp than in Flanders (appendix 1.3). No significant differences in figures or trends can be said about the classifications by age between the case study of Berchem and the city of Antwerp (appendix 1.2).

For the criteria about the used governance method in the garden street project of the case study in Berchem, an exploratory interview with an involved person or organisation was necessary. In an exploratory interview with an external organisation, involved in the garden street project of Berchem, it is clear that a 'classic' top-down governance approach is used.

The plans were already drawn up by the architects without any input from the residents because they had to meet many criteria. So the street was very ingeniously taken in hand by higher-ups (district Berchem). It was only much later that a contact moment was organised for the residents. Even in this conversation, the residents did not receive much ability to make changes. (Provider of the flowers in Berchem's case study)

For convenience, these four streets (Woeringenstraat, Wasstraat, Brouwerstraat, and Berthoutstraat) will be referred to in the rest of this thesis as the case study in Berchem.

#### *District Antwerp: Lange Riddersstraat*

The Lange Riddersstraat is located in the district of Antwerp, close to the historic and economic centre (figure 3). An active long-time resident of the Sint-Andries neighbourhood, where the Lange Riddersstraat is located, told that their neighbourhood is known for its decades-long strong social

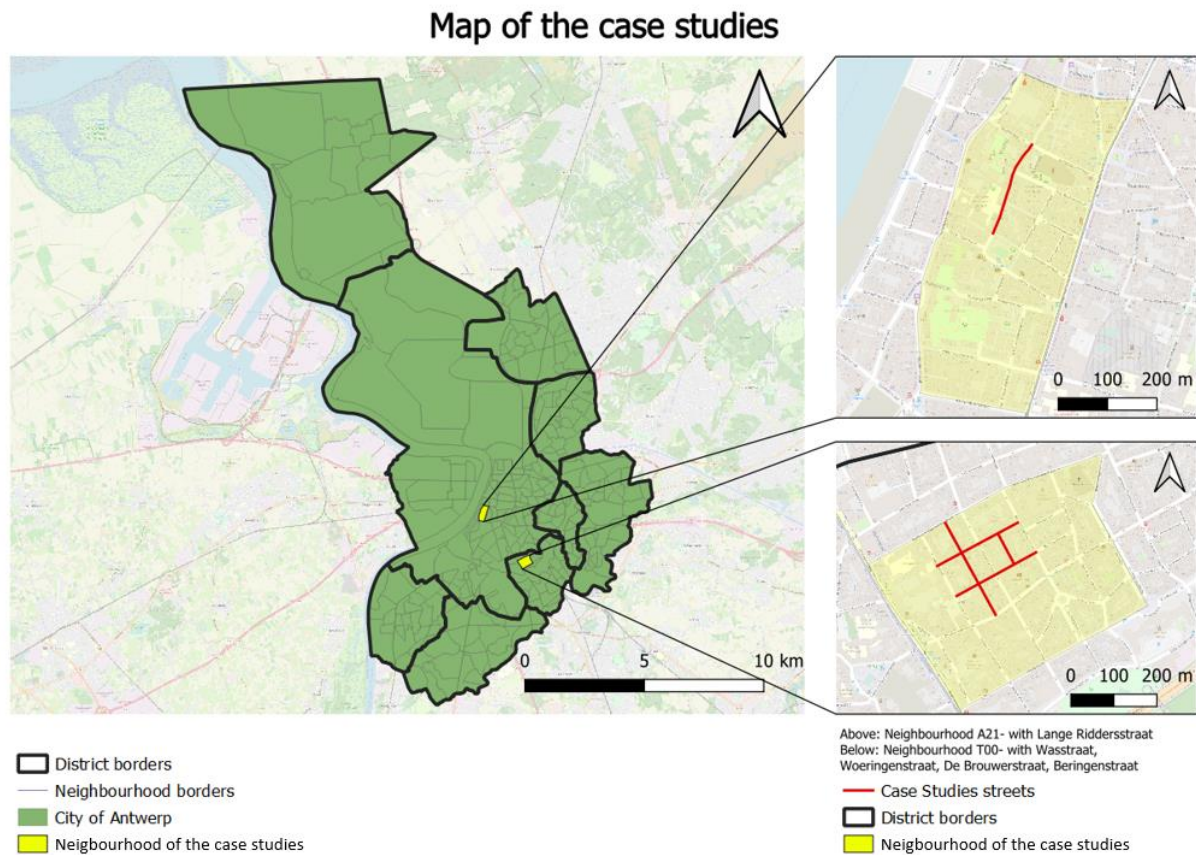
community. Starting from taking care of the poor and low-income immigrants by offering them jobs at the local pubs and a room to live, in active communities and organising activities for and by the neighbourhood inhabitants (*Klimaatrobust Sint-Andries*, 2017). The Lange Ridderstraat is awarded for multiple social innovations and renewal projects by the city of Antwerp exactly for that reason (e.g. *Stedelijke site Sint-Andries*, n.d.), but became a victim of its own success.

While the community is still standing strong to this day and being grateful to receive the renewal projects for our neighbourhood, these projects like the garden street project caused gentrification processes to take place and weaken our social community with the constant flow of leaving and new residents. (Citizen responsible for the garden street project in the Lange Ridderstraat)

For the criteria of the presence of direct gentrification, data on the average net income per inhabitant (appendix 1.1), age distribution (appendix 1.2), and mobility intensity (appendix 1.3) are also compared with data from the city of Antwerp. Property prices (appendix 1.4) are a comparison between the prices in Antwerp and Flanders. The same arguments about the trends and comparisons in Berchem's situation can also be used in Lange Ridderstraat. It signs that direct gentrification processes are highly possible taking place throughout the years in the Lange Ridderstraat. Note that neighbourhood A21-'s high mobility intensity is partly responsible for its high share of students' housing (appendix 1.5), where students are moving in and out on a frequent base.

For the criteria about the used governance method, a preliminary interview with the involved intermediary organisation in the garden street project agrees that a bottom-up approach was implemented during the whole garden street process.

I was deployed as a critical intermediary. We started from the bottom up with temporary facilities [...] and further encouraged residents to collect info themselves and organise contact moments. The aim was to discover very openly and participatively what could be done in this street. (Intermediary during the garden street project of the Lange Ridderstraat)



**Figure 3:** Visual localisation of the used case studies. Left: map of the city of Antwerp; Right above: Neighbourhood A21-, with the Lange Riddersstraat highlighted in red; Right below: Neighbourhood T00-, with the Wasstraat, Woeringenstraat, De Brouwerstraat, and the Beringenstraat highlighted in red. Shapefiles are gathered from Opendata Portal Antwerp.

## 3.2: Data collection

For the data collection, the thesis will make use of various methods and approach different stakeholder groups for each research question. The drafting and formulation of questions for the interviews are unique for each stakeholder group, with careful ethical considerations which we discuss at the end of this section.

### 3.2.1: Gentrification drivers and project process

The collection of the necessary data will be grouped into two parts, that are in line with the three research questions. Part one is the collection of green gentrification drivers that are possibly present in the researched areas. This is needed to answer the first research question. As discussed in the literature review, I will use the division of green gentrification into 4 drivers of Davidson and Lees (2005) to find the direct and indirect gentrification of Goossens et al. (2020). In other words, the collection of the data for the first part will focus on the presence of capital (re)investment in the environment, the social upgrading, the landscape changes, and the displacements that happened in recent times.



### *Capital (re)investment*

Capital (re)investment is the deliberate changing of the neighbourhood to attract higher-income households, to enhance the city's economy (Gregory et al., 2009). To get an idea of capital investment being present in the direct environment, quantitative data about spatiotemporal evolutions of sociodemographic and economic factors and data about the economic goals of the garden street projects, need to be gathered. If possible, gathering qualitative data about the motivation of gentrifiers and why they want to live in this neighbourhood can back up the argument of capital (re)investment being present or not. Afterwards, this was possible since I was able to interview some residents who had recently moved in that contained the profile of gentrifiers.

### *Social upgrading*

When gathering relevant data for any social upgrading taking place in the researched areas, it is important to observe and gather info about the changing sense of place taking place in the researched areas. Social upgrading as a gentrification driver is noticeable when long-term residents dislike one or multiple changes in the sense of place, which is in favour of the gentrifiers' lifestyles (Anguelovski, 2016). Gathering information about spatial and demographic changes in social gatherings before and after the garden street project is important.

### *Landscape change*

The changes that occur in a landscape go beyond only materialistic changes (Antrop, 1998). When materialistic changes are made in the landscape, the importance of a non-materialistic landscape often emerges parallel (Quinton et al., 2022). It is essential to take a holistic view when collecting and analysing data relevant to the material and non-material landscape evolution of the research area (Antrop, 1998). The information that needs to be gathered to know which landscape changes took place and if these contribute to landscape change as a gentrification driver will be about the materialistic changes throughout the years and the residents' opinions about these materialistic changes. For non-materialistic landscape changes, information about the neighbourhood and its identity through time and the ties of the residents with the neighbourhood must be gathered.

The capital investment driver and material landscape as a gentrification driver are closely interrelated. Both are changes within the borders of its direct environment that attracts higher-income class households. The capital (re)investment driver will focus more on (re)development projects, real-estate value and environmental upgrades in Chapter 4. The focus of landscape changes, on the other hand, will be more laid on non-material changes and material changes in public spaces.

### *Displacement*

For the displacement driver, an additional distinction is made between household displacement due to the physical and psychological movement of certain individuals or groups whom the household had personal relationships with (e.g. a religious community, or friends) and displacement due to one or the combination of the other three drivers. More focus will be laid on the physical and

psychological displacement motives of households since displacement tendencies due to the other three drivers can be derived from the data collection about these three drivers. Extra information about the motives of why certain households moved in here will also be noted.

Part two of the data collection will be centred around the structure of the garden street project and the governance method or methods present during the process. This part of the data collection shall go deeper into the politics at play in the garden street initiatives, as well as the sort of actors perceived to be pursuing these politics. For the latter, a distinguishment will be made between the government of different political levels, the participation of residents during the process, and possibly involved intermediary organizations.

When the involved actors are gathered for the data collection, the next step asks when they were active during the process and what role they played. The process of such a greening project will start from the valuation of the site to the conceptual design and the eventual construction of the final design (Bureau of Environmental Services, 2016). The role and involvement grade of the stakeholder organizations and residents will be placed in the garden street project process (Unceta et al., 2017). It is also important to understand which actors held which vital information ultimately led to the final design or not, and how this information was collected during the development of the garden street (Mullenbach et al., 2019; Rigolon et al., 2019).

### 3.2.2: Actors and written information

The thesis will go deeper into the whole process of the garden street projects of the Lange Riddersstraat and the case study of Berchem and the impact of the decisions on the gentrification drivers. A good understanding of the involvement of the actors and their contribution is a necessity. Next to that, the opinions of citizens on the process and the results of the garden street project are also important.

As mentioned earlier, a distinction will be made between the involved citizens, governments on different political levels, and intermediary organizations. The goal of gathering data from the involved government is to determine its goals and method of approach for the street greening projects. Knowing which goals were set up for the garden street project, gives a better insight into the gentrification drivers capital (re)investment, social upgrading, and landscape changes that were intentionally set up before the plans were developed. For the displacement driver, I assume that the involved governments have not actively worked towards the displacement of lower-income households in the researched areas. We also want to know why the government chose for or opted against the involvement of citizens in the process.

The citizens can be divided into long-term citizens, who resided here before the first mention of the garden street project, and new citizens, who moved in during or after the start of the process. For the case study of Berchem, long-term citizens are citizens who lived here longer than 7 years in the neighbourhood. Long-term citizens in the Lange Riddersstraat are considered citizens who live longer

than 5 years in the neighbourhood. Long-term citizens can give more insight into the evolution of social dynamics, the landscape, and the demographic transitions in their neighbourhood. Next to that, they can give their opinion about these evolutions and elaborate on their participation in the garden street project. When citizens share their opinion about a certain change, a reference base or time will be needed e.g. why the past is better than the present landscape (Antrop, 1998). New residents can elaborate on their motives on why they moved to this neighbourhood. An additional socio-economic profile of the citizens interviewed will be made to see if there is a coincidental link between the drivers of gentrification and the responses of long-term and new residents. (Goossens et al., 2020). But the primary focus is on the division between people who live in the researched area longer or shorter than the greening project.

Lastly, intermediary organizations can give more information about their role and connection with the citizens and the government during the whole process. The intermediary organizations and government can elaborate on whether the participation with citizens was active or passive during the project. This means the intensity of participation, attendance rate, and the diversity of participants.

The information gathered from the involved citizens, actors and organizations should suffice. But documents, online found data and observations can serve as additional triangulation for the already gathered info from the involved actors.

### 3.2.3: Information gathering methods

When beginning with the data collection, I will collect necessary online data, observations of the research areas and documents. The thesis already includes the spatiotemporal data at the beginning of this chapter to predetermine the development of direct gentrification drivers at the case study sites, before conducting surveys. The complementary observations will be useful to get an idea about the social interactions playing in the research area and the state of the garden street, including the maintenance of residents' (obligated) gardens in front of their facade (Kearns, 2010). The collected documents give a deeper insight into the garden street project.

The biggest part of the data collection for this thesis will be done through interviewing citizens living in the research area, and relevant actors and organizations that were stakeholders in the garden street project. A face-to-face interview could provide more relevant information than previously intended (Goossens et al., 2020). Essential individuals needed for data collection are likely unable or unwilling to participate in interviews. Nevertheless, the primary goal of the interviews is not to obtain an exact representation of the relationship between long-term residents and new residents. Instead, the aim is to collect a substantial number of opinions that accurately reflect the perspectives of both long-term residents and new residents within the neighbourhood. To higher the participation rate and establish a more personal relationship with the participating resident, flyers were handed out to inform the residents of my research (appendix 2). The intentional total length of an interview will be around more or less 10 minutes, as also stated on the flyer. The additional goal of the flyer is to persuade residents to conduct a face-to-face interview and hope to gather more information, which will take longer than the intended time (McGuirk & O'Neill, 2016). A picture of my face, me

taking the role of the interviewer, and the KU Leuven emblem, showing that the research is related to an official institution, should help.

The questionnaire will start with easy questions and progresses towards more complex and sensitive questions (McGuirk & O'Neill, 2016). The interviews will contain semi-structured and open questions, extensive or intensive. The extensive questions will be used to generalize the opinion of a certain social group (Bradshaw & Stratford, 2010). In my case, answers from long-term residents and new residents will represent the opinion of all long-term and new residents living in the neighbourhood. Therefore, it is advised to approach the resulting findings in the following section with caution (Goossens et al., 2020). These extensive questions are needed since the time for doing a certain amount of interviews is limited. Intensive questions will go deeper into a certain process or event (Bradshaw & Stratford, 2010). For this thesis, the intensive question will go deeper into the process of the garden street projects and the associated participation.

All questions minimise biases and maximise a neutral point of view. The questions are formulated to not encourage a certain answer (Dunn, 2010). This is also the reason examples will not be given when the question will be first asked. When the question is unclear for the surveillant or the surveillant asks explicitly for an example, an example can be given to help understand. The questionnaire closes by asking the interviewees if they want to add something, have questions for me, and ultimately thank them for their time (Dunn, 2010).

The interview questions can be found in Appendix 3.

### 3.3: Data analysis

Data analysis of the qualitative data gathered from different sources needs to be transformed and patterns and categories need to be described in order to be interpreted correctly and link them to previously stated theories (Ngulube, 2015).

When the recorded interview audio is collected, it is transcribed manually with the help of a transcription tool. I used the Riverside AI transcription tool to transcribe the recorded audio to digital text. Manually transcribing the recorded interview audio has the advantage of directly categorising and interpreting the answers given by the interviewees. This is useful for the process-tracing method described by George & Bennett (2005) that will be used for answering the last research question. Process-tracing method is used to test whether the differences found between two case studies were causally significant or merely contributed to the difference in the outcomes (George & Bennett, 2005). The processed interview audio will be further backed up with found documents and observations, to get a better understanding of the structure of the garden street projects and better interpret the contemporary experience of the place (Kearns, 2010).

### 3.4: Ethical considerations

When interviewing citizens, government officials and organizations, it is inevitable that the researcher will come face to face with one or more cultural, linguistic, and social gaps. It is of great importance that these gaps between the middle-class researcher and the interviewee can be bridged

(Winchester & Rofe, 2010). Next to that, the researcher has to be concerned with privacy, informed consent and possible harm to the interviewees (Dowling, 2005).

There are two possible relations between the researcher and interviewee applicable to this thesis. The first possibility is a reciprocal relationship, where the researcher and interviewee are in the same social position and where minimal power differences are present (Dowling, 2005). Symmetrical relationships can also occur when there the researcher interviews a person that is culturally, linguistically and/or socially different (Dowling, 2005). These situational ethics are solvable with constant critical reflexivity during the research. Modify the research process when necessary and be aware of the nature of the researcher's involvement, and thus try to be independent of the object of the research (Cloke et al., 2000; Dowling, 2005).

Procedural ethics focus on the appropriate methods of investigation. Researchers are obligated to be concerned with the informed consent, privacy of and harm to the participants. Before conducting the interview, the interviewee has to agree with being interviewed and the interview be recorded. The researcher must provide the necessary information to the interviewee about the research, the themes being explored, and what the researcher expects of the interviewee (Dowling, 2005). The researcher also informs the interviewee that the answers provided by the interviewee will only be used for research purposes, not released to the public, and will not give readers the chance to identify the interviewee in any way (Dowling, 2005). These regulations will be summarised in a drafted Informed Consent that the interviewee will sign should the person agree.

## Chapter 4: Results and linking theoretic framework

During the data collection, a total of 28 individuals were interviewed. 4 of the 28 interviewed individuals are government officials. 2 of the 28 are intermediaries, whereunder 1 is the head of the involved intermediary organisation and 1 citizen responsible. The rest are citizens of the Lange Riddersstraat and the case study of Berchem. The interviews lasted between 15 to 105 minutes per interviewee and were conducted online or at a location of the participant's preference. In addition to interviews, I also got hold of college decisions from the Antwerp district, Berchem district and city of Antwerp that are relevant to the garden street projects. At last, I did some terrain observations of both case study environments and was occasionally referred to online web pages about the garden streets.

### 4.1 Green gentrification drivers

Conducting the interviews with each citizen, government official, or intermediary resulted in a lot of the same answers, but also often led to finding a new piece of information that made my view on the connection of gentrification drivers with the garden street projects more clear. Citizens often share the same critique and positive points towards the garden street project, but there is often a presence of a personal twist. The garden street project has different but rather small impacts depending on the citizen's personal interests and their daily lives. This is more applicable to the case study in

Berchem since the habitants of the Lange Riddersstraat are unanimously happy with the changes in their street. Government officials were clear that the garden street projects were focused on climate mitigation and improving life quality. No deliberate gentrification intentions were stated in official documents (e.g. decisional assemblies by the college of mayor and aldermen). The rest of chapter 4.1 shall go over the collected results about the four drivers. A division will be made between the collected results from the case study in Berchem and the Lange Riddersstraat. The differences and similarities will be discussed.

#### *Capital (re)investment*

The garden street project is an experimental greening project that combats the bigger picture of societal problems cities are facing today (college of mayor and aldermen, 2019). Government officials and documents specify these problems that garden streets counteract as problems of climate change, mobility, energy and demography. The city of Antwerp stated that its main focus lies on the maximal efficiency of blue and green climate mitigation measurements in every garden street (college of mayor and aldermen, 2019; city council, 2020). These measurements are quoted as a necessity in public and private domains to make a healthy and liveable city (college of mayor and aldermen, 2019). Official documents mention nothing of any kind of capital investment that could relate to a gentrification driver. As well as the case study in Berchem, as well as in the Lange Riddersstraat.

Citizens of the case study of Berchem noticed that the garden street project is most probably an act of boosting capital investment. It is becoming clearer that several changes in the streets can be linked to investment initiatives as a driver of gentrification. These changes are aesthetic greening, raising the quality of life, and surrounding development that is likely connected with the new urban planning policy of the city of Antwerp. A response that often comes up while questioning residents is the complete disappearance of convenience stores in the direct environment since the garden street project started. In their place is the rise of large commercial supermarkets and catering establishments aimed specifically at the middle class and above. While the arrival of new catering establishments is heartily welcomed, the supermarkets often receive more backlash than positively received. More specifically, a well-known and well-respected convenience store amongst the citizens named Peeters-Govers is taken over by the supermarket giant Albert Heijn. The amount and frequency of passing big trucks rose immensely from 2 times a week to 5 times a day, with a corresponding rise in noise pollution, blocking the path for passengers, to even causing damage to the houses.

They are very heavy truckers that often pass daily. The street is not made for this, they are normally playing streets and garden streets, but it has already collapsed 3 times now. [...] Actions have already been organised against the municipality and the district alderman (e.g. figure 4), but in vain. (Resident of the Wasstraat)



**Figure 4:** An awareness poster of the passing trucks through the Wasstraat. The resident highlighted how big the trucker is passing through the narrow streets, where one cannot call their street a 'residential' street anymore.

Interviewing government officials brought more insight into the actions taken during the process. All government officials interviewed agreed that the Berchem case study development project is in line with surrounding urban developments, whereby the Groen Kwartier and the commercial renewal of De Koninck brewery have a dominant influence on surrounding development projects. Together with other development projects (Middelheim park, Brilschanspark, more bike lanes, apartment complexes, and handing out permits to build additional floors on the houses), Berchem is growing towards a 'trendy' and prosperous district, including also 3 hospitals and 25 school sites and the new caterings.

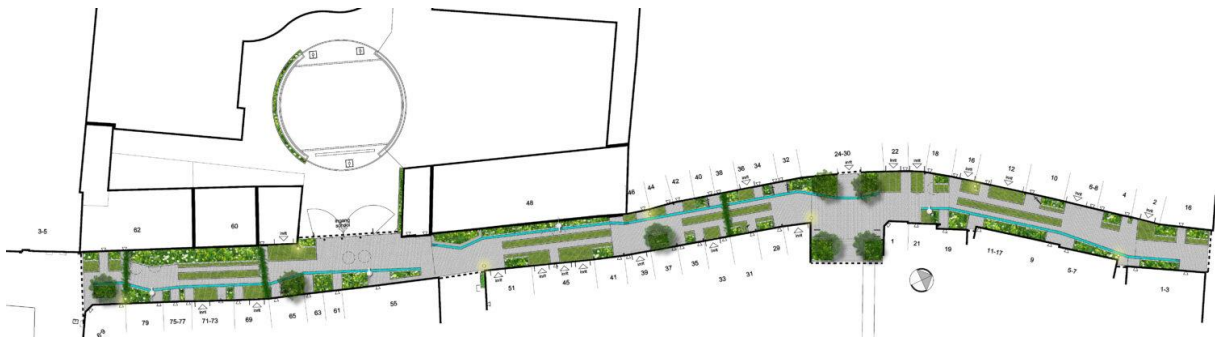
Capital investment driver in the Lange Riddersstraat is less of an issue. Both in the documents and among the interviewees, there is little or no mention of intentional capital investments in the immediate area related to the garden street project. There are mentions of rising real estate prices in the neighbourhood because of the multiple rehabilitation projects and the presence of high-profit markets specialised in student accommodations and houses for the elderly. The active citizen for the Lange Riddersstraat is convinced that garden streets will inevitably increase rents, and houses being sold at higher prices due to homeowners, landlords and real estate agents responding to what kind of living space and their infills attracts the middle class.

Looking at both case studies, it can be said with a degree of certainty that the capital investment resulting from the garden street projects is more present in the form of tranquillity, safety and attractive greenery, rather than in the form of new shops and services. Shops and services are more growing in the surrounding environment than in the direct environment. The case study of Berchem primarily has the new supermarket Albert Heijn, new apartment complexes and the Groen Kwartier, while the Lange Riddersstraat is a low-traffic zone located close to the city's shopping centre without any new shop or service in its neighbourhood. While it is not documented or said that tranquillity,

safety and attractive greenery are intentional attraction factors in garden street projects, it corresponds with the spatial policy of the city of Antwerp (see Ward, 2022; Loopmans et al., 2010). This applies more to the case study in Berchem due to its history of gentrification than to the Lange Riddersstraat.

### *Landscape change*

In the aim of making the garden streets more resilient to climate change, there are similarities in landscape changes between all the garden streets. The most prominent ones are small facade gardens and roads with permeable grass-concrete pavements. Both case studies have these gardens and pavements. The difference between the case studies is in the placement. The Lange Riddersstraat has placed its facade gardens and pavements in such a way as to reduce speeding (district council Antwerp, 2020). It has become nearly impossible for the motorist to drive above the obligated maximum speed (figure 5).



**Figure 5:** Final design of the Lange Riddersstraat. The addition of obstacles (e.g. the front gardens with their cement embroidery) and meandering street, is an intentional design choice to reduce speeding. Source: *Tuinstraat Lange Riddersstraat Antwerpen*, n.d.

The case study of Berchem, on the other hand, has not placed their facade gardens too well. The first problem is the removal of the available space on the facade for other functions of the residents, such as storage of bicycles or placement of rubbish bags.

Some people used the facades to put their bikes (figure 6) or rubbish bags against their facades. These people benefit more from the previous function of their facade than a facade garden. People use facade gardens not only as planting areas but also for other functions of the order that the architects have overlooked. (Provider of the flowers in Berchem's case study)





**Figure 6:** Resident who uses the grass box in front of its facade to park their bike. The resident specifically chose no facade garden with plants, thus automatically getting a façade garden with grass instead.

The second problem was the increasing fast-passing traffic. Although it is still mandatory for drivers not to drive faster than the maximum 30 km/h in this zone, it is not prevented due to the specific placement of facade gardens and the straightening of streets because of the garden street project. Almost all interviewees, new residents and long-term residents are complaining about more cars driving through or cars driving too fast now. One section of a street used to have large wooden planters that prevented drivers from speeding, placed by the citizens. This was taken away by the government due to security reasons for emergency services.

Together with the complaints about the Albert Heijn and its heavy trucks frequently driving through, citizens of the case study of Berchem advocated the district government for the return of their righteous 'residential neighbourhood' statute, where cars are not allowed to drive faster than 20 km/h. They called for a reduction in the number of motorised vehicles on their streets (figure 7), a parallel reduction in the number of parking spaces and the reduction or even complete removal of large trucks, with an emphasis on the supermarket Albert Heijn. Interviewed citizens elaborated further on what new possibilities would open in a car-free neighbourhood. Interviewed family members with children stated that car-free zones would enable them to let their children play freely, without fearing the risk of a possible car accident. More senior residents interviewed see a car-free zone as the possibility of returning spontaneous gatherings, small talks and other activities to the streets.



**Figure 7:** Citizens' initiative to make car drivers aware of the residential neighbourhood statute and not to violate the speed limit. Multiple copies are dispersed throughout the streets.

The residents eventually did not receive their car-free zones. The Berchem government stated that they want to improve life quality in the neighbourhood, but without impairing current traffic circulation. Removing passage for motorised vehicles in Berchem's garden streets would shift that traffic to surrounding roads. It only creates more problems for the surrounding area, and citizens from that area will most probably argue for an equitable distribution of traffic or also will demand car-free zones. On top of that, the district also wanted to remove the trees that were in the way of traffic from the streetscape. Residents protested against the removal of the trees. The argument was that removing the trees did not parallel the objectives of the garden streets and that the priority should be climate mitigation. The district then decided not to remove the trees. The residents' question about removing parking spots for more green and public space was partly denied. Parking spaces are highly valued in the neighbourhood of the case study of Berchem. The neighbourhood is closely located to the Berchem train station, where people thus park their cars and then catch the train. The developers did take a couple of parking spots away and replaced these with green spots, to still deter passing traffic to some acceptable level. Not everyone was happy with which parking spots were taken away. For example the local mosque, where they plead for bicycle parking spots in front of their mosque instead of the car spots. The discussed parking spots became green spots eventually, but in compensation, the mosque received bicycle parking spots in their close by courtyard after complaints sent by the mosque.

We have long argued for bicycle parking to help mosque visitors come by bike instead of car every time. [...] The talks between us and the District did not go well, but we did eventually get help to recreate the public courtyard with bicycle parking spaces this time. (Manager of the local mosque)

The interviewees in the case study of Berchem make it clear that even though there is more traffic passing through the streets and more surrounding development, the shifts in placemaking and

connections with places are minimal. Before the changes, people often sit outside on the streets. This is now less applicable due to the traffic passing through, but citizens tend to work more on their facade gardens. Citizens without a facade garden don't mention any shift in their connections with a specific place. Interestingly, citizens interviewed between the ages of 25 and 45 mentioned the Groen Kwartier as their frequently visited meeting place for catering and the green. There is also a mention of a new children's playground behind a kindergarten. None of the interviewees mentioned that they use the playground, although during my observation round and walking through the streets conducting interviews, I occasionally saw children play in the street and on the playground, attendance always remained low.

Changes passed in Lange Riddersstraat included positive changes around placemaking. Citizens are overall positively minded about the more added green, the green facades that also function as speed inhibitors, replaced parking spaces and less traffic. Long-term residents and new residents say that they now come more outside to maintain their facade garden and relax in the nearby public plaza. The citizen representative when the garden street project was busy, told that there are still socio-economically vulnerable residents who have difficulties or are not interested in maintaining their facade garden. The citizen representative refers especially to the residents of the social housing blocks at the end of the street. Nearby residents often offer their assistance to co-maintain or fully take over the maintenance of their facade garden. These people tend to like their offered kindness.

It seems that both in the case study of Berchem and the Lange Riddersstraat that the facade gardens are a newly created place for individual usage and social connection. Multiple interviewed citizens state that a mix of different people in household income and ethnicity have connections with their facade gardens. When I walked through the streets, it is more likely than not that this statement is true. It may be true that citizens from the Lange Riddersstraat do have a better connection with their garden street than the citizens of the case study of Berchem. In both case studies citizens have almost complete responsibility over their facade garden, the project process in the Lange Riddersstraat focussed on the commitment factor of the citizens and continues to do so these days, while new residents in Berchem do not know what is expected of them. The changes in the traffic and parking spaces are also frequently brought up. Both citizens from the case study in Berchem and citizens from the Lange Riddersstraat share the same opinion about minimizing traffic and removing parking spaces. It seems that there is no significant difference in the answers from people from low- or higher-income households, or young or old. The only difference is that the traffic situation in the case study of Berchem got worse, while the government of Antwerp did comply with the wishes and advises of the citizen of the Lange Riddersstraat concerning traffic.

### *Social upgrading*

Although not documented in the district meetings of Berchem, a district alderman of Berchem stated in the interview that the social goals of the garden street project in Berchem were to better the life quality and make it more possible for children to play. The alderman states that the district government wants to turn Berchem's garden streets into a more relaxing residential neighbourhood

for its inhabitants, while the residents of the Berchem case study disagree because of the rise of persistent traffic. The alderman added that, while it is unintentional, it is inevitable for the better life quality of a neighbourhood without attracting higher income households and young families. Especially for the case study of Berchem, by itself already an attractive location with good starter homes within the boundaries of the city of Antwerp.

The aim was to give those already living there a better living neighbourhood. Prices in a cleaner neighbourhood automatically go up. That explains the generational shift present, but not intentionally of course. (District alderman of Berchem)

After interviewing the citizens of the case study in Berchem, one can speak of many small-scale social interactions and ties, but not a close-knit community of the whole neighbourhood. Multiple citizens stated that the only times the citizens of the case study of Berchem are united are during events and when the citizens sent their critiques to the government about the garden street project and process. Several online groups were created by and for citizens of the Berchem case study to discuss the work activities during the execution of the garden street designs. Now the works are finished, these groups still exist today and are now used for several other purposes like helping neighbours.

Several activities are organised every year to bring citizens closer together. In recent years, the local Islam community organises a yearly sort of inclusive BBQ in the Villegaspark located close to the neighbourhood. The interviewed spokesperson of the local mosque stated that each year is a big success with a large mix of different cultures showing up. During the Ramadan month, the Islam community also organises an inclusive Iftar in the western way (i.e. with cutlery). While long-term residents are aware of these activities and often participate in them, new residents seem to know only the Iftar event or know nothing at all. Other organized activities are the playing streets for children. Citizens have the possibility to request a temporary closing of the street for motorists. These streets promote social interaction with other families with children. A citizen added that they even try to request such a temporary street closure as often as possible to discourage drivers from driving through their street as well.

In the end, the citizens of the Berchem case study feel no change in their connection with the neighbourhood and residents or a decreased feeling, but certainly no improvement. Although the local Islam community organizes a couple of events throughout the year for everybody to attend, there is still a distinguishment in daily life activities. While the Islam community have their regular coffee and tea shops, they rather stay away from the new 'trendy' catering establishments and the Groen Kwartier. The more long-term residents also acknowledge that there was more of a community feeling in the past when convenience stores and smaller pubs were present and more activities were organized by the citizens. These are now all closed and activities are diluted, but that was before the garden street project. It seems that new moving-in families and, to a lesser extent admittedly, long-time residents benefit more from the additional facilities in the immediate area than the Muslim community, who show less interest in the new facilities.

The Lange Ridderstraat had the same aim to create a pleasant living environment for the citizens and children, like Berchem's case study. They succeeded by actively involving the residents to make use of their already strong community feeling, and even enhance it while progressing in the development of the garden street. The developers particularly looked at the multiple functions that a climate mitigation design can include. In this way, for example, the installed water pumps are handy to reuse collected rainwater for watering the facade gardens, but also can be used as a playful element for children during hot summer days.

Thanks to the active participation of citizens in the garden street process, the community feeling amongst the citizens of the Lange Ridderstraat and adjacent streets grew. They actively make full use of their strong community feeling to maintain the street, help people, and enhance their community feeling with events and engaging new residents. A direct approach to attracting these new residents is complicated due to the new GDPR law that prohibits sharing personal information about who has moved and who has not, argued a citizen representative and an alderman from the Antwerp district. The community now relies more on gathering events like an annual clean-up of the neighbourhood, small citizen-led improvement projects for their garden street, and government-subsidised events like a recent open-air concert. The government-subsidised events are prominently organized by the local community centre *COSStA (Cultureel Ontmoetingscentrum Sint-Andries)* for the people of the neighbourhood. With these events, the citizens from the neighbourhood actively work to keep their close-knit community strong and inclusive.

The improvement of the Lange Ridderstraat did attract the attention of tourists. The city of Antwerp also intentionally promotes visiting the neighbourhood by including the neighbourhood in city-wide events. For example, a recent running competition through the city of Antwerp where the Lange Ridderstraat was included in the running track.

I believe this is the first time the Lange Ridderstraat was added to the running route. [...] I think it has to do with promoting the garden streets and wanting to leave a "look how beautiful" feeling to participants and other citizens. (2 students residing in the Lange Ridderstraat)

Assuming from the interviews, it does not seem that a social displacement is present through the suppression of new residents with their lifestyles and organised activities. It seems that, despite all the efforts of the Islam community and organised play streets, the case study of Berchem is moving more in the direction of a decline in group feeling. Social cohesion is not strong in the case study of Berchem. This may reinforce any vulnerabilities to displacement and social oppression. A different story takes place in Lange Ridderstraat, where there is a strong social cohesion that encourages inclusiveness, strengthening their defence against any incoming social suppression.

### *Displacement*

Concluding from the interviews, it is rather the generational shift that dominates the mobility movements in the case study of Berchem. Older residents often answer that they tend to look for a

more comfortable home to live in when the time is right. The elderly residents usually move with the reason that the house is starting to get too big. When asked what kind of neighbourhood they see themselves living in, they usually answer "In a quiet and friendly neighbourhood, like this one". 2 interviewees moved but still stayed in the neighbourhood because of this exact reason. Other given reasons for leaving are the house being too small to grow up a family with children, decrease, houses in poor condition, and rising in value.

Once the garden streets were done here, you saw many houses for sale as well. They are small houses that are now rising in value and thus making it tempting to sell your house.

(Resident)

There were no answers given about displacement due to a lack of a strong community feeling or the displacement of friends. Quite the opposite, the social ties seem not the issue to move out. The Muslim community for example have the tradition to pass their houses to other family members or members of the Muslim community. This way, their houses remain strong in their network. The spokesman for the local mosque says passing on their houses to relatives discourages gentrification.

The Lange Riddersstraat does suffer more from displacement as a result, but not as a gentrification driver. It has been mentioned before that Lange Riddersstraat has a higher proportion of student housing. This only partly explains the high movement intensity. Residents of Lange Riddersstraat recount that the neighbourhood has a rich history of taking care of unhoused people. Due to revival projects in their neighbourhood and a decline in social housing, unhoused people and low-income households could not cope with the increase in property prices and rents. Interviewees noted that residential houses are being changed to student housing and holiday homes (i.e. Airbnb's). Because of the strong community that prevails in the neighbourhood of the Lange Riddersstraat, social displacement is circumvented but they cannot overcome displacement due to financial pressures. Residents from the streets admire their garden street and the present community. When asked if they have any intentions to leave, they all disagree. A couple of students even want to stay if they have the chance.

Looking at both case studies, none of the residents have the intention to leave because of social fragmentation or lack of a community feeling. The interviewed intermediary of the garden street project in the Lange Riddersstraat is convinced that garden streets, social displacement and social cohesion go hand in hand. If people know that there is a garden street project taking place, then landlords, homeowners, and real estate agents will start thinking to increase their rents or sell houses at higher prices according to the citizen representative. This displacement reason due to capital reinvestments is inevitable and can be hardly withheld by a strong social community. Displacement due to a lack of social ties and cohesion can be, however, prevented with strong social ties. The intermediary is convinced that a strong community creation is a necessity to prevent indirect gentrification drivers to grow.

## 4.2 Process & structure of the garden street projects

### 4.2.1: Setting targets and involving partners

The focus point of the garden streets project is on creating low-impact climate resilience with strong stakeholder participation. This section will take a closer look at the college of mayor and aldermen (2019). In there, it is mentioned that they were looking for a strong coalition of both internal city partners, with Water-link and national drinking water operator Aquafin as the main institutional partners for rainwater collection and reuse, as well as citizens, businesses and intermediary organisations. With a strategic composition of partners, the city of Antwerp wants to develop the design, implementation and management of the public domain in a new way that prioritises maximum replacement by permeable pavement and greening (college of mayor and aldermen, 2019). The existing procedures for competencies, division of work and budgets, which often form the barriers to the realisation of a smart, integrated solution for climate mitigation projects, are hereby reviewed and adjusted where possible (college of mayor and aldermen, 2019).

Given the systematic collaboration between different actors and the innovative and investigative nature of the garden streets project, the project will be embedded in the operation and methodology of Stadslab2050 (college of mayor and aldermen, 2019). Stadslab2050 is a non-government organisation that helps realise the development towards a sustainable Antwerp. Stadslab2050 aims to offer economic actors, knowledge institutions, intermediary organisations, citizens and strategic partners the opportunity to form coalitions, share knowledge and information, stimulate ecological and social innovation, set up collaborations around concrete projects and realise green economy (college of mayor and aldermen, 2019). They are seen as an urban laboratory where they follow a preparatory process, various workshops for idea formation, communication, and projects in the given theme (college of mayor and aldermen, 2019). Stadslab2050's task was to experiment with the then-dominant internal urban organisation and external partnerships used for urban renewal projects. Stadslab2050 received the help of the design & implementation and energy & environment department of the business unit City Development Antwerp to follow up on the internal urban organisation during the garden street process (college of mayor and aldermen, 2019).

The city of Antwerp, with the help of intermediary organisation Stadslab2050, therefore focuses on the high involvement of residents during the whole process of design, as well as its maintenance afterwards (city council, 2020). In the city council's document (2020), there is an example noted about what exactly is meant by 'high involvement of residents'. The example explains that the high involvement of residents is "for example the creation of facade gardens or maintenance of planting beds in public spaces" (city council, 2020, p. 2).

The Lange Riddersstraat made strong use of the operation and methodology of Stadslab2050. Citizens were given top power over determining what changes were made in their streets. Stadslab2050 would then discuss with the involved departments of the city of Antwerp if the requested changes were applicable. A critical spokesperson from the intermediary organisation Antwerp's speaking (*Antwerpen Aan 't Woord*; AAW) was used to maintain openness and citizen

participation. The spokesperson was selected also because of his already good ties with the residents of the neighbourhood.

Several interviews reveal, however, that Berchem's case study took the given example of the city council (2020) rather too rigidly. Residents were not given any other power in the process besides choosing whether they liked a small-scale garden for their facade or grass. The case study of Berchem can be interpreted as a government-led project with minimal resident participation throughout the process. There is no trace of any involvement of the urban laboratory Stadslab2050. AAW's spokesperson also volunteered to help solve the social issues and counter-actions in Berchem's case study. The District alderman rejected AAW's help, told that they did not need an intermediary organisation. They continue using the top-down approach with an already-established design.

Berchem district aldermen said, "We do not need an intermediary organisation, we do it as we always do: top-down with fixed design and citizens are allowed to give feedback". So I didn't follow up on that project. (Intermediary of the AAW during the garden street project of the Lange Riddersstraat)

#### 4.2.2: Project process and actors' interactions

##### 4.2.2.a: *The quarrels of the greening project in Berchem*

The greening process in the current garden streets of the case study in Berchem started early on. As early as 2013, the greening of one or more residential streets was raised by the interviewed district alderman of Berchem and the alderman for urban development of the city of Antwerp at the time. The Berchem alderman interviewed said that the greening project served as an answer to the question of how to green up in a built-up area. The choice of streets where the greening would take place – ultimately the streets of Berchem's case study – was chosen internally between the same people in the same year. The Berchem case study was selected for its convenient narrow streets and the urgent need for maintenance work. Additionally, the chosen streets are situated in the Oud-Berchem neighbourhood, which is currently experiencing high prosperity and is a well-located area. In the 2010s, the development of multiple recreational areas and cycle paths, along with the proximity of Antwerp-Berchem railway station, already made the area attractive to many young families. The decision to transform the streets of the Berchem case study into garden streets in later years can be seen as a continuation of the area's development of public spaces and quality of life, which is sure to continue attracting young families.

The start of the greening project in the case study of Berchem continues top-down. In 2015, the district alderman of Berchem and the city planner of the city of Antwerp asked, respectively, district Berchem and the city of Antwerp for approval of their project, government involvement and financial support. The Berchem district alderman interviewed claimed that their application caused a commotion among the ecological political party Green (*Groen*). They claimed the rest of the districts were also entitled to a government-supported 'oasis in the city' project. This put the project in Berchem's case study at a slower pace for a few years. Overlapping with the objectives of Belgium's



participation in the Resilient Europe project, the city government reformed and generalised the Berchem greening project. In 2017, the project in Berchem resumed back on normal pace under the common name 'Garden Streets', with each district given the chance to submit a project that met clear conditions.

#### *4.2.2.b: Climate-Robust Sint-Andries project*

As of then, the Antwerp district has also submitted its plan to green the entire Sint-Andries neighbourhood, in which the Lange Ridderstraat is thus located. The residents of the Sint-Andries neighbourhood are very driven to cooperate and already have a rich history of social innovations in cooperation with the government. They have therefore been chosen as a unique experimentation zone, unlike Berchem and the other garden streets, where active co-creation with citizens to achieve climate resilience in their neighbourhood is central. In cooperation with Stadslab2050, the project was named the 'Climate-Robust Sint-Andries' (*Klimaatrobust Sint-Andries*). The Lange Ridderstraat is part of the entire project, where the street, along with other adjacent streets, will serve as a green artery in the neighbourhood. When the project was announced to residents, there was some backlash about how the decision was made that their neighbourhood was suddenly going to undergo a violent change, but they were happy with how the rest of the project was going to proceed:

At first, the neighbours were arguing a bit against it because the decision had been taken rather top-down. It was suddenly decided that their street would become a garden street. We then explained that during the course of the greening process, citizens will be actively involved. They were happy with this bottom-up approach for the rest of the process. (Designer)

The designing process of the Lange Ridderstraat started in 2017. The citizens and Stadslab2050 worked together at the beginning to structurally embed citizen participation in a so-called 'four-leaf clover of democracy' principle (*Klimaatrobust Sint-Andries*, 2017). This proposed self-made legislative framework includes 4 categories of actors who influence each other and the choices made during the garden streets process: residents, civil servants, social workers, and politicians (*Klimaatrobust Sint-Andries*, 2017). Among residents, ambassadors will be chosen who will gather and represent residents' knowledge and opinions. Together with social workers, such as Stadslab2050 and the AAW, they will be the mouthpiece to the other actors. The four different actors unanimously agreed to base the Climate-Robust Sint-Andries project on the motto 'Greening, Blueing, and Connecting' (*Vergroenen, Verblauwen, en Verbinden*). The focus is on the addition of green and water-related climate-adaptive landscape elements and bringing residents closer during and after the process.

Once the objectives of the project were defined under their new motto, they started organising 3 'dream days' for the garden street in Lange Ridderstraat. These dream days are a newly created concept by the city of Antwerp where citizens were allowed to draw and craft on a blank map of Lange Ridderstraat (figure 8). Around the values of their motto, the residents added new landscape elements that would maximally green the street, cool it, increase biodiversity, maximally absorb and

distribute rainwater, create a pleasant living environment, and allow for self-maintenance (Stedelijke site Sint-Andries, n.d.). The results of the dream days were analysed by the Urban Development business unit of the city of Antwerp and argued with the district council. The feedback was then communicated back to the residents via consultation meetings, door-to-door surveys and street meetings. The consultation and street meetings were meant to discuss the overview of the process, concrete realisations and ongoing experiments with a group of residents (City of Antwerp, 2019). The door-to-door surveys were face-to-face discussions with residents who had questions or encountered difficulties with certain changes in the street. After forming a clear concept, the city of Antwerp proceeded to install a temporary garden street. The temporary garden streets were also an experimental new concept within the Urban Development business unit. Stadslab2050 and the involved government units analysed the practical possibility of the concept design for the street before the final design was developed. This was a final opportunity for residents to pass on comments. This final feedback from the citizens was also taken into argument by the city of Antwerp and the district council (see district council Antwerp, 2020, p. 3).



**Figure 8:** Drawn and crafted adaptations on the Lange Riddersstraat during the dream days. For example, a river running through the street and green garlands are clear wishes of citizens. Source: City of Antwerp, 2018.

Although the dream days, participation moments, temporary garden streets, and gathering moments were focused on the improvement of Lange Riddersstraat, participation was not limited to Lange Riddersstraat residents only. One of the aims of the Climate-Robust Sint-Andries project is to develop a new form of long-term cooperation that can also be used for subsequent greening projects. The Lange Riddersstraat as a garden street is only part of the project, although the local community involved transcends the street. It seemed unwise according to each actor to involve only the residents of Lange Riddersstraat and not the whole community. It is therefore that the target audience for the contact moments was wider than just the residents of the street itself. The amount of contact moments and attracting the wider audience is also a plus for strengthening the group feeling, according to the citizen responsible person interviewed. What is good for shifting the responsibility for garden street maintenance to citizens instead of city maintenance services.

For example, during the temporary garden street, we noticed that residents were not maintaining their facade gardens. We then agreed to clean up the street and plant

plants with the whole neighbourhood on an annual basis. We want to create better social support here. (Citizen responsible)

The invitations for the contact moments were addressed to residents of the Sint-Andries neighbourhood. Residents were invited in different ways. Invitations came in the form of emails, hung flyers or put in the mailbox, and several reminders by the citizen representative. Most of the contact moments took place outdoors. For instance, a table was set up with the preliminary concept and food and drinks to attract even more residents or even casual passers-by. A total of about 20 contact moments were organised between citizens, intermediary organisations, and officials. The designers were also frequently present at these contact moments to make themselves very approachable towards the citizens. The number of citizens who came to these events was quote "relatively large with residents from the whole neighbourhood rather than the street alone" (Citizen Responsible). According to the designer, a diverse mix of socio-economic profiles and ages turned up to these contact events. The designer and the citizen responsible add that it remains not easy to involve residents of a lower socio-economic class:

So you do have the typical participation profile. It is indeed not easy to appeal to all target groups. There are a few social blocks in the Lange Ridderstraat, but we have only been able to appeal to 1 to 2 people from those. (Designer)

This group is in their own little world with their own concerns. The social assistant in the social blocks also tried to talk to the inhabitants but in vain. You can't force them to come. (Citizen responsible)

#### *4.2.2.c: Garden streets of Berchem*

The greening project of the case study in Berchem is recategorized as a garden street project in 2017. The process and the involved actors in the garden street project of Berchem have a different structure than the garden street project of Berchem.

While the goal of the garden street of Berchem is to include green and blue climate adaptations in the landscape, almost no attention was spent on bringing the neighbourhood and its residents closer together during and after the project. The district alderman together with the urban planner of the city of Antwerp have partly developed a plan for the streets in the case study of Berchem before revealing it to the public. This plan was created in collaboration with the city planner and the inter-municipal water management organisation Water-link. The proposed plan meets the same criteria that the Lange Ridderstraat also had to comply with, which was written down in the 2020 city council decision. Landscape changes that improve water permeability, such as underground changes and permeable grass-concrete pavements, were established. After revealing the plans to the public, the residents were allowed to add additional landscape elements at an organised event by the city government. From this, facade gardens and public benches emerged. After a few organised feedback moments in the nearby cultural building 'c o r s o' and one temporary, relatively smaller-scale garden street to the Lange Ridderstraat, the final plan was developed in late 2017. Residents, in the meantime, had the chance to say whether they wanted a grass plot or planted facade gardens. They

did not have a choice if they want a facade garden in the first place, since the district alderman did not want to interfere with the local traffic. The time estimated for the effective works on the streets took longer than expected. After the necessary adjustments, the garden streets project in Berchem ended in late 2022.

The involvement of different actors in the Berchem case study was not the same as the operation of the Lange Riddersstraat. The district alderman intentionally chose for quote "a traditional way of working", by which one means a top-down approach with the overall process and choices left to the government agencies and Water-link. On the other hand, according to the district alderman, residents were heard about their wishes and were kept informed often enough:

Enough info moments were organised for residents to know what was going on. An average contact moment counted 30 to 40 people. The residents who came were very talkative and very involved. Other residents who did not turn up were due to practical reasons or were not really interested. They were kept informed via mail. (District alderman)

Interviewed residents had a more negative stand about this approach. The residents' comments and opinions were seldom taken into consideration by the district. This made the citizens feel that admittedly they were not being listened to. According to the district alderman, a district coordinator was selected who would be in direct contact with the residents and be the communication conduit between the district and the residents. However, the interviewed residents knew little to nothing about a district coordinator and generally felt that communication opportunities with the district were rather minimal and poor.

At one point, our questions were not answered. We had to speak to the contractor to pass on our comments. Fortunately, though, the contractor was much friendlier. (Resident)

[The district] never handles direct emails from residents. The contractor solved it himself without letting us know, which was just fine by us. Only when the contractor could not solve it, [...] we step down to the contractor and try to find a solution together. (District alderman)

Although according to the district, there were enough and different ways of communication to the citizens, it turned out to be not enough for the citizens according to the conducted interviews. The district alderman admitted that a few technical errors could be dodged, but defended because this is a larger garden street project with 4 streets in total compared to other garden street projects. Listening to every comment would take too long, according to the district alderman. Although citizens generally do not agree with the way of approaching and working process on their streets, they find the final results of their streets rather positive, with part of the Wasstraat being the exception.

### 4.2.3: Reflection on process and approach

#### 4.2.3.a: *Berchem*

After analysing the information collected, one can conclude that the garden streets project in Berchem had been largely driven by institutional governance and external actors throughout the process. The garden streets project in Berchem is the result of cooperation with the organisations Water-link and Aquafin. These non-profit organisations are the only external actors that helped define the guidelines of the garden streets project and controlled the underground works of the streets. Finally, the district government of Berchem allowed citizens to add landscape elements before the final design was drafted. Several public participation moments were organised after the plans were finalised but proved to be more of a presentation of the finalised plans rather than a feedback moment for the citizens. Citizens generally position themselves as neutral to rather positive about the changes, but still experience problems with passing traffic and are only partly informed about the maintenance responsibilities of the greenery in the streets.

Berchem's garden streets project overlaps in large parts with the description of a top-down approach. The district alderman confirmed this argument by saying that Berchem district intentionally took the "traditional" approach. This is indeed true when looking at the organisational structure of the project. The district alderman told that actively involving the entire population from the streets of Berchem's case study in the process was not a good idea since it would take too much time. The alderman added that enough contact moments were organised for the citizens though. District Berchem authorised persons do realise that one had to consider the social factor to ensure the social sustainability factor. This is in line with Cattacin & Zimmer's (2016) description of the recent incorporation of social sustainability factors in spatial top-down approaches in European countries. In short, it can be concluded that the process of Berchem's garden street project included weak active citizen participation. Little attention was paid during the process to improving or maintaining the sense of community through Berchem's institutional governance. On the one hand, this raises implications that citizens see their streets less as a place for recreation and spontaneous socialising, potentially degrading connections between fellow residents. Largely, this is due to the increase in passing traffic. On the other hand, from interviews with residents, the garden streets have no impact on organising neighbourhood events since they can close the street on request and organise events in other places such as Villegas Park.

It appears that the deliberate choices made during the process were dominated by political interests and wealth growth for the district. Berchem's garden street process structure corresponds to the spatial planning objectives of the city of Antwerp, aiming to attract young families of higher income classes. One can more or less see this reflected in the district alderman's quote that they are "preparing the case study of Berchem for generational change". Here I assume that the next generation of residents is indeed those young families with higher incomes on average than the average resident in the Berchem case study. The interviews with long-time residents who have seen new residents move in and the interviews with the new residents confirm the profile of a young family from the middle-income class.

#### 4.2.3.b: Lange Riddersstraat

The garden street project in Lange Riddersstraat went for a different course from what could be seen in Berchem. While the choice to take Lange Riddersstraat as a garden street and the objectives of this project took a top-down approach, the rest of the process took a bottom-up approach. In the context of greening, blackening, and connecting, extra attention was paid to connecting. More precisely between different actors during the project (the four-leaf clover of democracy) and after the project with an enhanced sense of community between citizens. The project treated every decision with the complete cooperation of these different actors. Citizens' opinions were considered in every instance. Extra effort was put into involving citizens in more difficult socio-economic or physical situations. The help of intermediary organisations and civic leaders were enlisted to make communication and organisation smooth. A complex and time-consuming process of participation and feedback moments in various forms (e.g. the dream days and the temporary arrangement of the garden street) yielded a unanimously accepted garden street design with clear maintenance agreements between citizens and public services as the end result.

This form of collaborative organisation and quality between heterogeneous actors describes a bottom-up approach to the project according to Næss (2001) and Pissourios (2014). The unique status of the garden streets projects in Lange Riddersstraat as an experimental zone brings additional advantages compared to the general bottom-up project described earlier. For instance, the citizens involved did get the necessary jurisdiction and the associated legislative power on their side. Hereby, the Lange Riddersstraat is an exceptional example of a successful bottom-up project due to the decision of greening the Sint-Andries neighbourhood was approached top-down. The external actors and objectives, under which Water-link was to achieve maximum infiltration of stormwater, were already set by the institutional governance. Residents were given the freedom to co-determine the organisation and design after the plan was announced, with the advantage that help from the jurisdiction was already guaranteed. In the end, the officials involved concluded that the experiment was a success and will serve the next generation of garden streets, but noting that the group of citizens involved was too large. Even with the deployments of civic leaders, officials and intermediary organisations, they struggled to incorporate the amount and variety of knowledge and remark into their planning. Berchem's district alderman explicitly wanted to avoid this situation.

#### 4.3 Gentrification linked to process and approach

The garden streets project in Berchem took a top-down approach with weak active citizen participation to increase climate resilience in the district. The composition of actors consisted mainly of the institutional governance of District Berchem and the city of Antwerp, and the external actors Water-link and Aquafin who carried out the underground works. The plans were fixed before they could be shown to the public because of the many criteria they had to adhere to. For instance, the design would have taken into account the preservation of traffic and underground works. Citizens were given a light form of participation in the forms of a public design day and a few feedback moments. In addition, no extra effort was put into the social factor of the garden street project and

citizens' opinions were partly taken into argument. Although citizens generally find their garden street a good change to their landscape, there is still confusion around maintenance.

The gentrification drivers in the case study of Berchem are observable with capital investment as the gentrification driver most present. The Old Berchem neighbourhood is known for its former reputation as small and poorly maintained working-class houses. The garden streets project aimed to raise the quality of life of the case study with aesthetic greenery and developments in the immediate area. Spatial developments such as the Groen Kwartier, De Koninck brewery, nearby parks, new apartment complexes, and the distribution of permits for high-rise buildings are projects in the immediate area that give an economic boost to the neighbourhood. The arrival of these new catering outlets and large commercial supermarkets are most attractive among the middle class and above. Among the social upgrade driver, besides the growing polarisation between the Islam community and the rest of the residents over catering business preferences, not much has changed because of the garden streets project. The group feeling among residents has remained more or less the same after the garden streets project. Material landscape changes seem to appeal to young families. People who have lived in the neighbourhood longer than the garden streets also appreciate the facade gardens, but there are cases where people prefer to keep their original functionality (e.g. put their bikes against the facade of the house). The non-material changes are mainly that the streets have become less of a meeting place because of traffic. Streets are more often closed to motorised traffic to turn them into temporary play streets. Physical and physiological displacement as gentrification is almost imperceptible. While there is intentional preparation for the generational switch, families leave the neighbourhood of their own volition (rather than physical or physiological pressure factors). Thereby, the Islam community in the neighbourhood ensures that their houses remain strong in their network, which stops gentrification.

The Lange Ridderstraat was an experimental bottom-up approach to achieving social and environmental sustainability. The objectives, external actors and localisation of the project were chosen weekly top-down by the city of Antwerp. This was countered by the great interest of citizen participation in the rest of the process in their 'four-leaf clover of democracy'. 3 dream days, many joint and personal feedback moments and a temporary garden street were organised to find the common ground between actors. After the project, the city of Antwerp managed to shift the responsibility for maintenance to the residents.

Tackling the garden streets project on Lange Ridderstraat was the right choice to minimise and even counteract gentrification drivers. Capital investment, on the other hand, is difficult to counteract. This and previous redevelopment projects in the neighbourhood provide a rise in land price value with an increase in the presence of high-profit markets such as student housing, houses for older residents, and rentable holiday homes. The project has enhanced the already strong community. Admittedly, an appreciation developed around a more ecological lifestyle among all residents, without exclusion. All citizens were listened to and this still happens today for garden street

maintenance and helping and involving the socio-economically sensitive citizens in maintenance and events.

The different approaches in both case studies affect gentrification drivers in different ways and strengths, reinforcing and weakening. The links between the projects' approaches and gentrification consequences cannot possibly be simplified into linear cause-and-effect relationships, like many studies around gentrification (cf. Hwang & Sampson, 2014). However, there are a few gentrification drivers, briefly listed in the previous sections, that could be positively driven or have been positively driven by the approach.

Berchem has been experiencing influences of gentrification in its neighbourhoods for longer than the garden streets project has existed. This has also been cited by Oosterlynck et al (2017) that Berchem has a high sensitivity to gentrification processes due to the presence of many low-cost working-class houses in a neighbourhood that has a lot of potential for development projects (e.g. the 'Groen Kwartier'). Residents tell in the interviews that these environmental developments are attractive to certain target groups, especially young families of the middle-income class. Residents' raising of these neighbourhood developments once again proves that Oosterlynck's et al. (2017) argument about the potential for gentrification applies to the case study of Berchem. On top of that, there does not appear to be a certain strong sense of attachment present between residents, which is susceptible to the more indirect causes of gentrification (Elliot-Cooper et al., 2019). In contrast, Lange Ridderstraat is in a different situation. It is located in central Antwerp and previous development processes in the neighbourhood have already fuelled gentrification processes. Including an increasing presence in high-profit markets (Smith, 1996). But today the district still contains a high proportion of social housing for socio-economically sensitive residents and strong social cohesion among residents, developed over the decades.

The objectives of the garden streets project in Berchem were set by the city council (2020) and Berchem's district alderman. The district alderman focused on developing climate-adaptive streets that would also realise a pleasant neighbourhood. The alderman added that it is not possible to realise life improvements in the district without including gentrification. Intending to implement life improvements along with the other developments in the immediate neighbourhood, it is not crazy to think that the garden streets project in Berchem is an expansion of a larger, deliberate political planning to increase the district's economy. It is a political strategy that follows the spatial urban planning of the city of Antwerp (Loopmans, 2008) and is similar to the study by Gregory et al. (2009) and While et al. (2004) on targeted refurbishments in rundown areas that leads to the return of middle-income families. The objectives in the Lange Ridderstraat garden streets project were also climate adaptation but added the social factor of 'Connecting' for experimentation. The experiment aimed to form a new governance approach that would ensure sustainability in projects like the garden streets project. The addition of citizens in the process is a conscious decision to ensure the social sustainability of the project. It is in line with Swyngedouw's (2005) and Unceta et al.'s (2017) argument to avoid democratic failure guaranteed and take social needs into account. The choice of



Berchem's district mayors to take social actors less into account (Cattacin & Zimmer, 2016) increases the risk of forgetting to take social needs into account (Unceta et al., 2017).

Thus, the intentional choice to follow Berchem's garden streets under a top-down approach may have implications on gentrification drivers that may turn negative for long-time residents. To some extent, Berchem's garden streets are similar to Pissourios' (2014) study on standardised designs that nowadays serve as companions to more assured urban welfare growth. For instance, the case study of Berchem looks set to make landscape changes in line with the interests of young middle-class families (van den Bosch & Nieuwenhuijsen, 2017), quoted by Berchem's district mayor as "preparing for generational change". There was room for citizen input on the design during the process, but little to no room for changes that did not run right along with the change that Water-link and Berchem district wanted to make (Cattacin & Zimmer, 2016; Costa et al., 2016). For example, the addition of small front gardens and public benches came thanks to citizen participation, but, for example, no attention was paid to citizens' demand for slower traffic through their district, etc. The fact that Berchem district opted for minimal citizen participation runs the risk that landscape changes that came from the few citizens who had a say in the design during the design day are not representative of the entire population. In other words, if we follow Simonofski et al.'s (2019) study that residents are crucial actors in noting social needs in the environment, the garden streets project in Berchem ran the risk that not all social needs were addressed by an unrepresentative group of citizens who were allowed to co-design (Moulaert et al., 2007; Swyngedouw, 2005).

The Lange Riddersstraat has avoided the risk of forgotten social needs thanks to a bottom-up approach. The legal framework that was applied in the Lange Riddersstraat balanced the different responding actors (Cattacin & Zimmer, 2016). The representation of citizens' opinions was guaranteed by the many and varied types of contact moments that were organised. Arguments and feedback from citizens were taken into account in higher-political meetings. Even one-on-one meetings were held between the designer and citizen to make sure each person was taken into account. Thus, unprecedented social inequalities and needs were taken into account in the final design (Brandsen et al., 2016). They avoided the risk that the Lange Riddersstraat garden street is not a result of only empowered proponents of a more ecological lifestyle in their neighbourhood. Compared to the studies by Miller (2016) and Angelo (2019), the developers in the Lange Riddersstraat listened carefully to all stakeholders and avoided cultural imperialism in the design and critically discussed the 'green is good' assumption with all residents before it was noted in the final design.

The course and approach of both garden street projects can partly explain the gentrification drivers observed and cited in the neighbourhoods. Berchem's district alderman appears to deliberately target the increase in space value, thus requiring the garden street to run in line with environmental developments around the district. Similarities can be drawn with Smith's Rent-Gap theory (1979,1987) since a former labour district gets an improvement in quality of life thanks to the garden street project. The Lange Riddersstraat, on the other hand, had no intention of increasing space

prices, but still experience rising values due to the attractiveness of their garden street. It is consistent with studies on the attractiveness of green space in the urban picture where markets, and the state in the case of Berchem district, use this attractiveness to their advantage to attract families from higher income classes (While et al., 2004). Indeed, added green space as a landscape change driver of gentrification draws more residents out of their homes (Ekkel & de Vries, 2017; Douglas & Lennon, 2017; Sugiyama et al., 2009). For instance, in both Lange Riddersstraat and the Berchem case study, there is more activity outside on the streetscape by people working on their facade gardens, helping others, and organising activities leading to (spontaneous) interaction and a stronger sense of community (Kearney, 2006; Zhou & Parves Rana, 2012). At Lange Riddersstraat, this is more frequent due to their strong sense of community that was further strengthened throughout the design process. The residents of the case study in Berchem did not receive this strong sense of community throughout their process. By not being heard during the process, they lost the sense of place on their street due to more and larger traffic, among other things. Whereas the residents of Lange Riddersstraat find many meeting places in their neighbourhood itself, for the residents of Berchem this is more split since the arrival of more trendy catering businesses. So Berchem residents do not see their neighbourhood as a close-knit meeting place. The group feeling, besides organised events by e.g. the local Islam community, is neither present nor addressed during the process. Whereas in the case study of Berchem, a non-material change in the landscape grows through shifts in meeting places (Antrop, 1998), in the case of Lange Riddersstraat there is a reinforcing effect at already existing meeting places.

## Chapter 5: Conclusion

It is too early to determine whether the garden street projects in both Berchem and Lange Riddersstraat have exerted any kind of influence on the gentrification processes at play in the case studies. Changes in quantitative data such as average household income, are difficult to conclude as a consequence of the garden streets project. But the results of the interviews collected do suggest that the results and process of the garden streets projects started or strengthened one or more drivers of gentrification. This means that the garden streets projects do contain the potential to influence gentrification processes.

Between the Berchem and Lange Riddersstraat garden streets projects, there is a difference in the current situation, approach to the project and results. This also translated into the difference of which gentrification drivers are present and the magnitude of influence on the gentrification drivers in the case studies. The area of the case study of Berchem used to be a low-income working-class neighbourhood with minority groups. To this day, traces of this remain in the population composition, landscape, and small working-class houses. Recent developments in this neighbourhood of Berchem are aimed at improving the quality of life and intentionally attracting middle-income classes and above. These developments often carry elements of greening, which thus includes the garden streets project. The gentrification driver capital investment and appears to be

most present in the neighbourhood and especially around the case study area. The additions of aesthetic greenery, parks, and greening paths attractive to cyclists and walkers can be an investment to capitalise on the attraction factors of middle-income classes. Catering businesses and the Groen Kwartier, both aimed at the middle-income class as target consumers, have also joined in recent years. The abandonment of small neighbourhood shops and the arrival of large supermarkets also have their effects on capital investment as gentrification drivers but appear to negatively affect the sense of place in particular. The larger and more frequent passing traffic, which in addition also occasionally does not obey speed limits, makes residents feel that their neighbourhood is no longer a residential area and their streets are no longer the ideal place for social contact. Facade gardens do get used by many residents, but there are cases where residents prefer to use their frontage for their original function such as bicycle parking rather than a garden that needs to be maintained. Social upgrade as a gentrification driver does not seem to be present. The social ties in the neighbourhood are there, in the form of e.g. neighbourhood events that are organised, but it is not sufficiently maintained with the arrival of new residents. Social pressure might later cause displacement. Currently, displacement as a gentrification driver is not of order. Other reasons like being too old or the house being too small are usually the reasons for moving out of the neighbourhood. Besides, the Islam community retains their homes in a strong network of neighbours.

The Sint-Andries neighbourhood in which Lange Ridderstraat is located has a history of strong social ties with its residents and helping the socially and economically weaker individuals and families. Throughout recent decades, the district received many revitalisation projects that were appreciated by residents but caused the attraction of high-profit markets. The greater presence of these types of markets is a problem of capital investment as a gentrification driver. The garden streets project in Lange Ridderstraat has attracted more such markets. This is partly due to material landscape changes greening and delayed traffic. This makes it more pleasant and attractive for residents and newcomers to be more engaged in their street e.g. maintaining their front garden. Their street is seen more as a meeting place for social interaction thanks to the garden street project. Social ties, which were already strong, are further strengthened as a result. Residents are actively engaged in maintaining this strong social with a variety of organised activities, maintaining their facade gardens and engaging residents who are physically struggling or in a difficult socio-economic situation and have neither time nor inclination to work on their facade garden alone. As a result, displacement as a gentrification driver is not present.

The bottom-up approach of the Lange Ridderstraat seems to be more effective in addressing the social wants and needs of citizens than the flexible top-down approach used in the garden streets project in Berchem. Although officials conclude that it took too much time, the results of the Lange Ridderstraat project are more effective in evading gentrification drivers, besides capital investment as a driver, thanks to strong active citizen participation throughout the process. The design of the garden street was developed with many ideas from the citizens themselves, and care was taken to ensure unanimous satisfaction from every actor. Residents who had problems or criticisms were effectively listened to. In the Berchem garden street project, a more systematic way of project

development was taken but included a certain, though weaker form of citizen participation. Although a design day was scheduled for residents, the design was already largely fixed. Feedback and comments were only partly taken into consideration by the Berchem district, causing dissatisfaction among residents. The Berchem district council has received criticism about the way the garden street project worked, but the final results do not seem too bad. There were only small-scale changes that did not affect the socio-cultural landscape of the case study in Berchem much. Although this could have ended more drastically had the changes been larger and under the same governance approach. The drivers of gentrification present in Berchem could have been worse thus but did not happen due to only minor changes in the neighbourhood. It is more the developments in the immediate neighbourhood that affect the gentrification drivers present in the case study in Berchem.

What emerges from the case studies is that green landscape elements are a pleasant additive for the residents, but markets play on this strategically to deliberately attract higher-income families with them. It is important to note that gentrification studies have to look beyond greenery and the boundaries of the case study. The sphere of influence of the garden street project exceeds the boundaries of the case study, as well as surrounding development projects that influence the researching neighbourhood. Developments in the immediate area also play a big role in the gentrification drivers in your research area. Although the case studies of this research mainly suffer from capital (re)investment as a gentrification driver, which most gentrification studies focus on, the other three drivers also appear to be present to some extent. It is therefore important to include a form of indirect gentrification analysis like Goossens et al. (2020) in future studies about gentrification.

The garden streets project takes place on a small spatial scale. It is certainly not a wrong choice to adopt a bottom-up approach in the next generation of garden streets as well. This takes the social needs of citizens into account, leading to a more effective sustainable project. Developers run less risk of promoting gentrification if one considers all actors since the gentrification drivers social upgrade, landscape change and displacement are less than in the case study in Berchem. The Berchem district mayor's argument for the garden streets project in Berchem to be top-down was because the target audience was too large to involve all. A more active form of citizen participation throughout the process is recommended if the developers aim to ensure sustainability and counteract gentrification drivers.

## Flaws in the research

The study of gentrification still has room for improvement. Scholars disagree on whether the definition of gentrification should be open to broadening (e.g. Clark, 2004) or remain between certain boundaries so as not to create too vague a definition (e.g. Maloutas, 2012). This thesis uses the framework of Davidson & Lees (2005) and the importance of indirect gentrification of Goossens et al. (2020). It was a deliberate choice to proceed with these authors for the thesis since it fits well with the topic of this thesis. Other studies may use other views on gentrification. Since there is just a wide range of studies and theories around gentrification, it proves that there is no absolute reality for this subject.

The city of Antwerp's garden streets project is a recently launched project. Noticeable changes in quantitative data are not yet available to detect the dynamic characteristics of the presence of gentrification in the studied neighbourhoods. It is too early to conclude now whether the garden streets project affects gentrification. A follow-up study similar to this one should in the same areas should be conducted to better answer the research questions of this thesis.

The thesis includes an unrepresentative amount of interviews with citizens who contain a migration background and citizens who lean close to or are in the lower income class. These groups were difficult to reach and usually declined an interview invitation.

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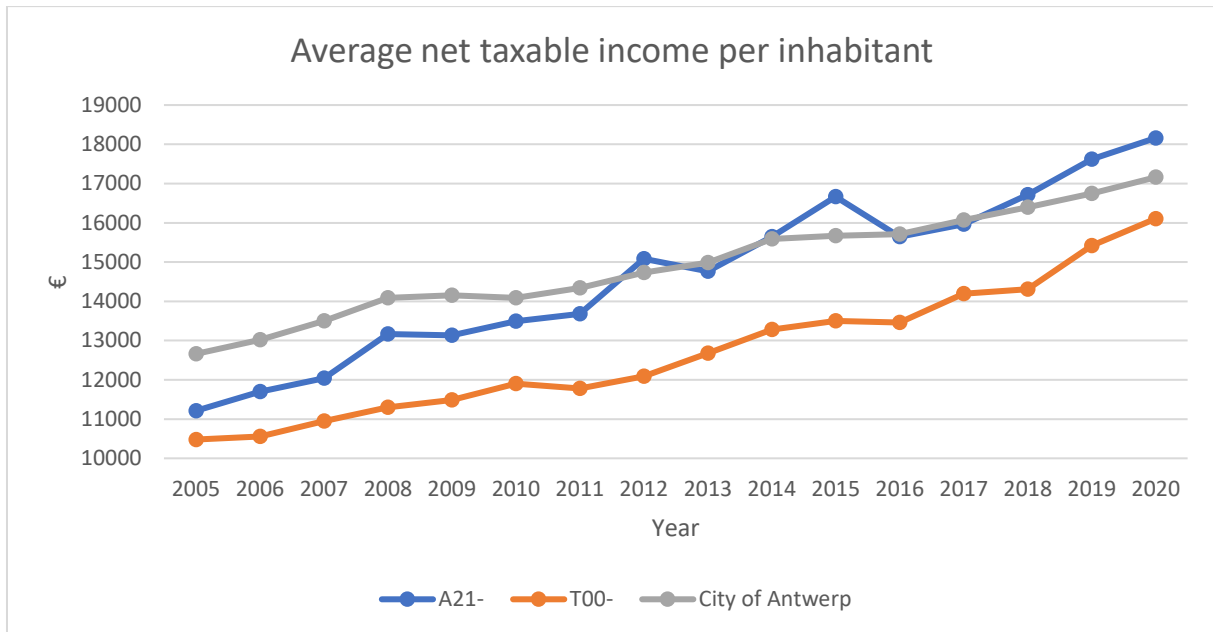
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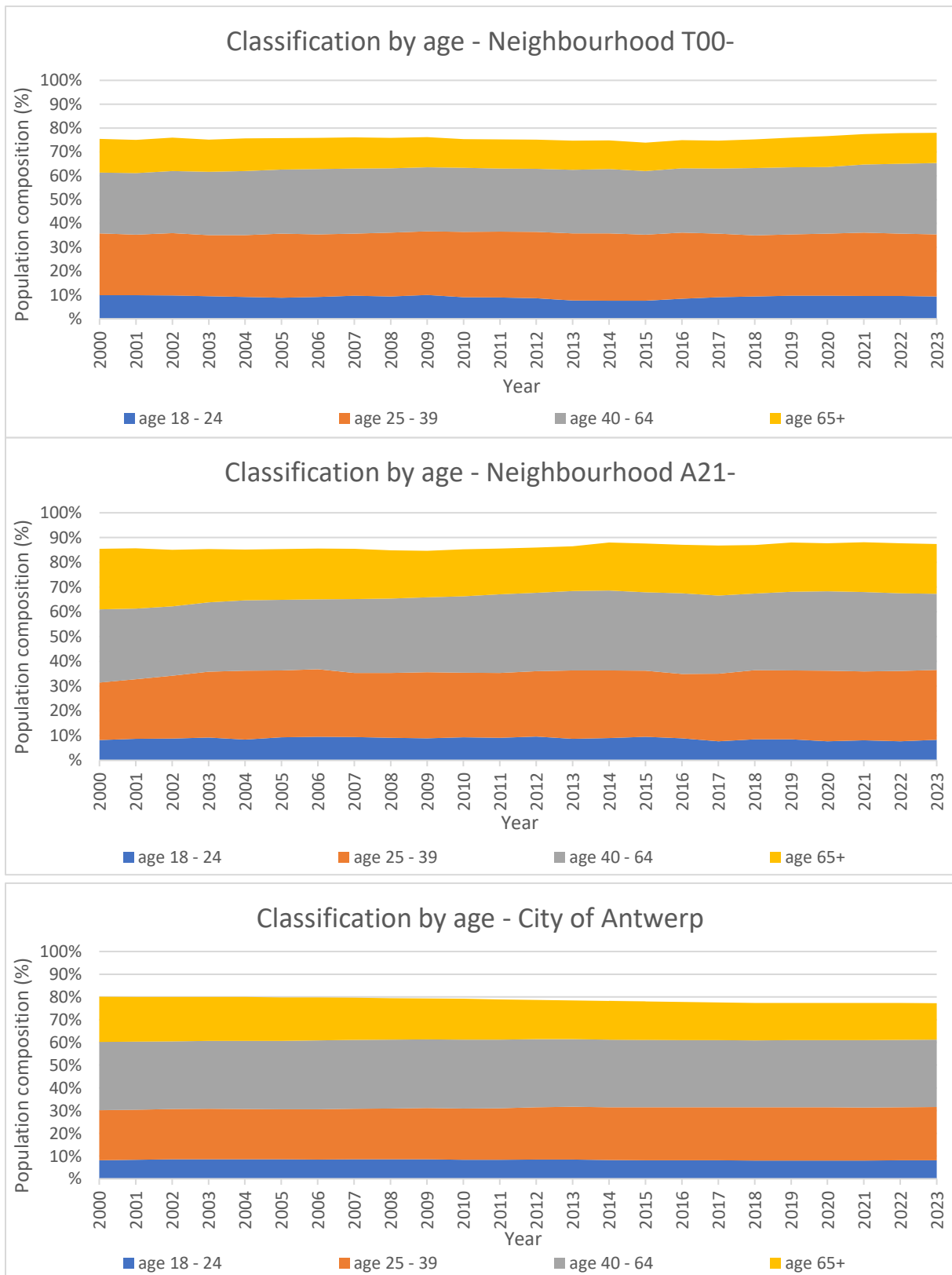
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## Appendix

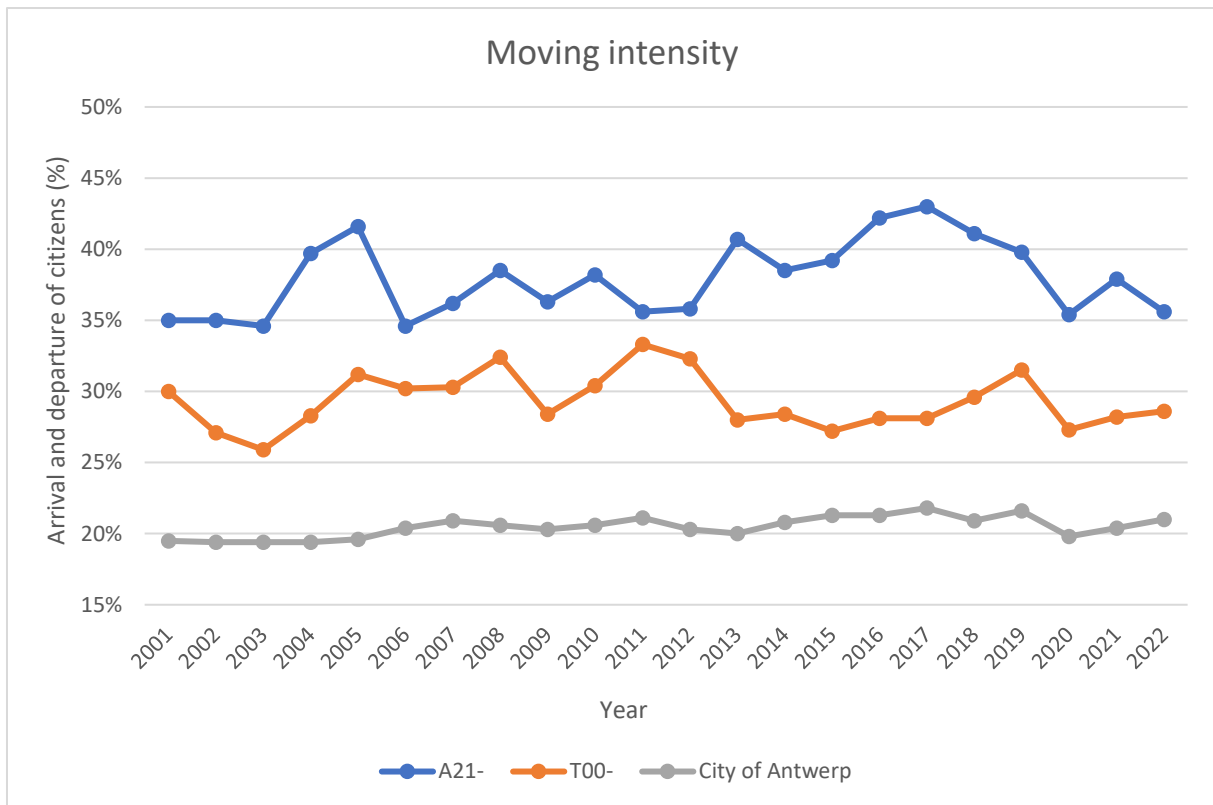
### Appendix 1. Direct gentrification in research areas



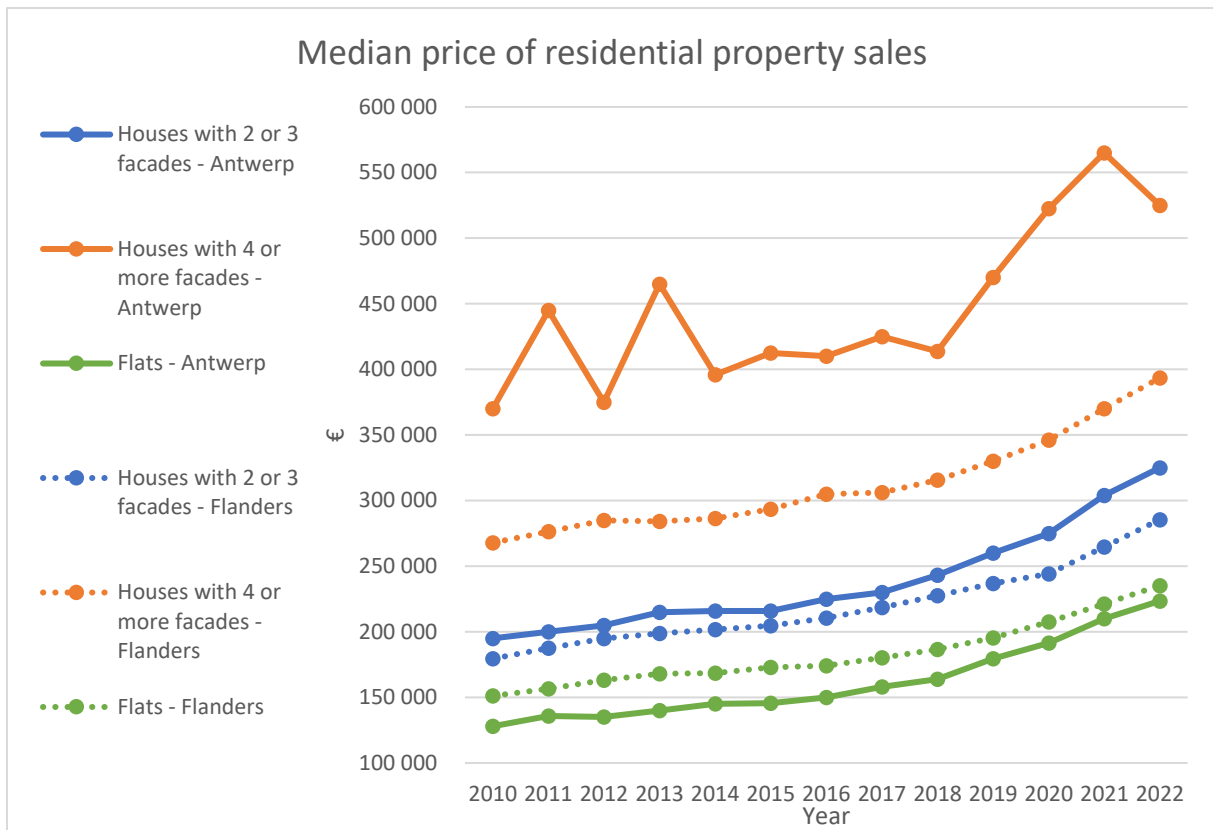
**Appendix 1.1:** Average net taxable income per inhabitant for the neighbourhood of the Lange Ridderstraat (A21-) and the Case study of Berchem, which is the neighbourhood of the Wasstraat, Woeringenstraat, Brouwerstraat, and Berthoutstraat (T00-). In comparison with the data for the city of Antwerp. Source: Statbel (2023a).



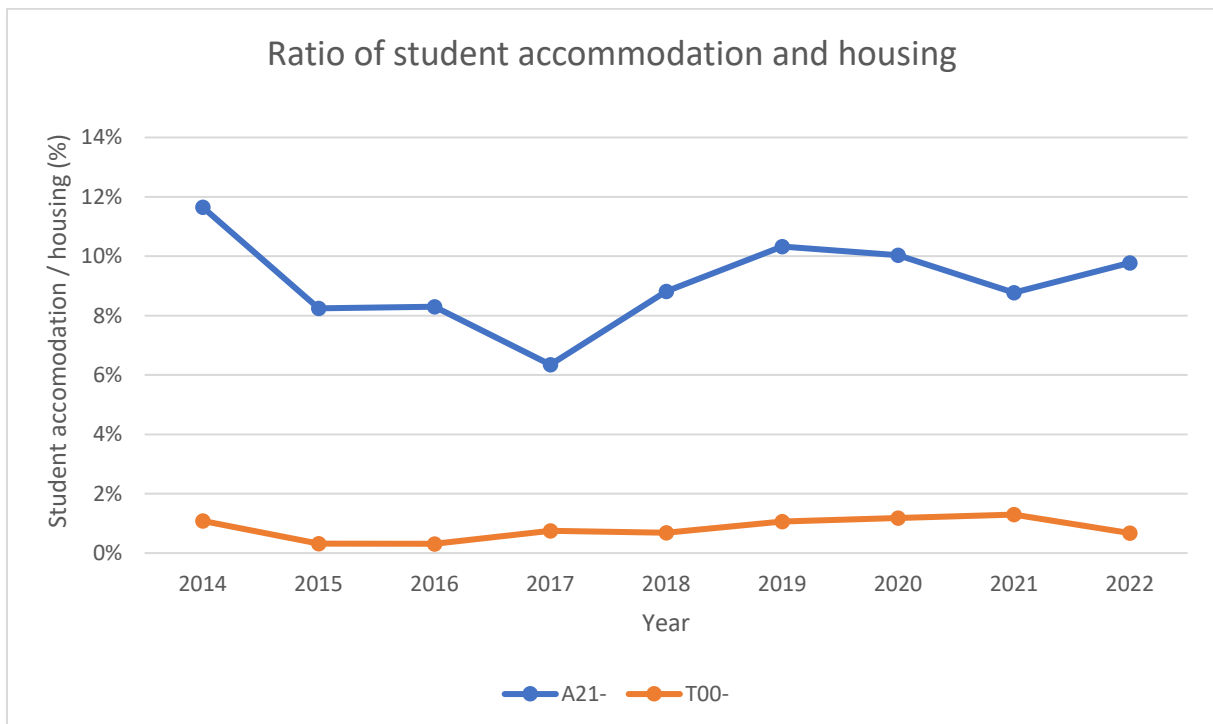
**Appendix 1.2:** Evolution of the age demographics for the neighbourhood of the Lange Riddersstraat (A21-) and the neighbourhood of the Wasstraat, Woeringenstraat, Brouwerstraat, and Berthoutstraat (T00-). In comparison with the data for the city of Antwerp. Source: City of Antwerp, district and counter operations (2023).



**Appendix 1.3:** Evolution of the moving intensity for neighbourhood A21- and neighbourhood T00-. In comparison with the data for the city of Antwerp. Moving intensity is the sum of moving citizens inside the area and arriving and departing citizens outside the specific area, divided by the total population of that area. Source: City of Antwerp, district and counter operations (2023).



**Appendix 1.4:** Median price of residential property sales in the city of Antwerp, compared with the data of the region of Flanders. Source: Statbel (2023b).



**Appendix 1.5:** Evolution of the ratio student accommodation for neighbourhood A21- and neighbourhood T00-. The ratio histogram is the number of student dwellings (Antwerpen



Studentenstad, 2023) divided by the total number of dwellings in general (Kadaster, 2023), expressed in %.

## Appendix 2. Invitation flyer

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Dear neighbors!

My name is Bas van der Putten, a graduating student at KU Leuven, and I need your help!

Your street has recently been transformed into a **garden street** with many additional green elements. I have chosen your street for my research on greening projects in one's own street, with residents as designers of the project.



Starting from June 7, 2023, I will come by your neighborhood for a few afternoons and ring your doorbell, hoping to conduct a brief interview. This interview will not take more than 10 minutes of your time. The more neighbors I can interview, the better for my research! Your opinion will greatly contribute to my study.

**If you have any questions or if you are not home during these days but still want to support my research, feel free to contact me at any time:**

Email: [bas.vanderputten@student.kuleuven.be](mailto:bas.vanderputten@student.kuleuven.be)  
WhatsApp: 0478 19 22 20

Thank you in advance and see you then!

Bas van der Putten



**Appendix 2.1:** flyer put in the mailbox of residents to inform them of my arrival for conducting surveys.

## Appendix 3. Interview questions

### Government

- What do I need to collect?

#### Introduction

- Who am I + role of the survey + informed consent
- Who/what does my interviewee represents? What was/is their role in the process?

#### The phases of the process: from idea to reflection

##### The work before the design process:

- Evaluation the condition of the site:
  - What was the idea where the project is based on? Or was it a problem that the project had to solve?
  - Who came up with the idea/problem?
- The needs for change: What do they want to achieve with the pilot project?

##### Environmental, socially, and economical seen:

- Environment:
  - Before coming up with specific changes, what kind of changes and/or strengthening were required / desired in the general infrastructure?
  - Who came up with the idea(s) and why?
- Social:
  - What are the social goals of the project?
  - Is there an intention to change or strengthen meeting places to enhance community creation and/or attract people.
    - **If YES:** can the government official elaborate on which meeting places?
  - Is there an intention to attract specific groups the neighbourhood?
- Economic:
  - What were the economic goals of the project?
  - Is the goal of the project to attract (re)investment in the neighbourhood or other future surrounding developments?
    - **If YES or need an EXAMPLE:** can the government official elaborate? On commercial as well as residential developments.

##### Taking action: creating the design

- Who were the key actors in the designing of the streets?
  - Who were the involved organisations? What were their roles?
  - How did the key actors communicated with each other and worked together?
  - Was there direct involvement with the citizens or did you used an intermediary organization?

**IF there was both direct and indirect contact, ask both questions of the following questions:**

**IF there was INDIRECT contact with the citizens, using an intermediary organisation:**

- Who were the intermediary organizations? Why choosing them?
- How did you received info from them?
- How was communication with them?

**IF there was DIRECT contact with the citizens:**

- How and how often did the government reached the citizens?
- How were the people involved in the design making process?
- How much people came over/were involved?

- Can they describe the background of these people? Ethnicity and preferably an idea about their income class.
- Were there one or multiple moments they had to redo a piece or pieces in the designing process? Why?

Aftermath: maintaining the street and reflection of whole process

- After the citizen participation in the design process was over, what happened next?
  - Were citizens also involved in the next step?
  - Did the citizens wanted to be involved in the next step?
- Literature says involving citizens is not easy and time consuming, did you felt this too?
  - Did it worked to include them too, and enough to represent their group?
- What were the reactions about the new greened streets?
  - **If there were POSITIVE reactions:** what were the positive reactions?
  - Are there also negative reactions?
  - **If there were NEGATIVE reactions:** what and who gave the critique?
- Are there any other actions or events organized after the greened street was done? By citizens, intermediary organizations or the government?
- the government official thinks that this project has an / will influence (on) property value?
  - Was this a goal from the beginning, or pure coincidence?

Conclude the survey

- Ask if they have something to add or have a question for me.
- Ask for archives (like documents) that can be handy to get a more insight in the goals, working and intentions of the changes. What would be really nice are the documents before the start of the designing process, before the citizens were involved.
- Thank them for their time.

## Intermediary Organization(s)

Introduction

- Who am I + role of survey + informed consent
- Who/what does my interviewee represents? What was/is its role in the process?

The phases of the process: from idea to reflection

- When did the organisation got involved in the process?

**If the organisation was in the BEGINNING:**

The work before the design process:

- Evaluation the condition of the site: did the IO came up with the idea/problem?
  - **IF YES:** What was the idea where the project is based on? Or was it a problem that the project had to solve?
  - **IF NO:** So why were they needed in this phase of the process?
    - What was their contribution to the evaluation of the site?
- The needs for change: what do they want to achieve with the pilot project?  
Environmental and socially seen:
  - Environment:
    - Before coming up with specific changes, what for changes and/or strengthening were required (needed) in the general infrastructure?
    - Who came up with the idea(s) and why?

- Was it parallel with what you liked to see? What did you wanted to change?
- Social:
  - What are the social goals of the project?
  - Was it parallel with what you liked to see? What did you wanted to change?
  - Is there an intention to change or strengthen meeting places to enhance community creation and/or attract people.
    - If YES: can the IO elaborate on which meeting places?
  - Is there an intention to attract specific groups to the neighbourhood?
- Was/were there any moment(s) in the process that there were conflicting opinions on what should be changed/strengthened?

#### IF the organisation was in the DESIGN PROCESS:

##### Taking action: creating the design

- Why were they needed in this phase of the process? What was your purpose?
- How did the organisation came in contact with the citizens?
  - What did the IO organized to involve citizens in the design process? (look for active or passive participatory design, e.g. workshops or surveys)
    - How did you reached the citizens and engaged them to participate?
    - What are the positive points of organizing that form of citizen participation? Does the IO believe they gathered enough knowledge and experience of the citizens for the final design?
  - How many citizens came over/could they involve?
  - Can they describe the background of these people? Ethnicity and preferably an idea about their income class.
- With who and which service did the IO communicated with the government?
  - How did they communicated the results to the government?
- Were there one or multiple moments they had to redo a piece or pieces in the designing process? Why?

##### Aftermath: maintaining the street and reflection of whole process

- After the citizen participation in the design process was over, what happened next?
  - Were citizens also involved in the next step?
  - Did the citizens wanted to be involved in the next step?
- Literature says involving citizens is not easy and time consuming, did you felt this too?
  - Did it worked to include them too, and enough to represent their group?
- Are you (still) involved in the maintenance of the greened street?
- What were the reactions about the new greened streets?
- If there were negative reactions: what and who gave the critique?
- Are there any other actions or events organized after the greened street was done? By citizens, the government or them?

##### Conclude the survey

- Ask if they have something to add or have a question for me
- Ask for archives (like documents) that can be handy to get a more insight in the goals, working and intentions of the changes. What would be really nice are the documents before the start of the designing process, before the citizens were involved
- Thank them for their time

## Citizens

### Introduction

- Who am I + role of the survey + informed consent
- How long does the citizen live here?

### The greenery of the neighbourhood

- Landscape change
  - On a scale from 1 to 10, how important is having green in your direct neighbourhood?
    - Can the citizen elaborate on this?
  - Does the citizen has a place in their neighbourhood where they come often, alone or a meeting place?
  - **If the citizen lives longer in the neighbourhood than the project:** what has been changed in your neighbourhood and surroundings throughout the years?
    - Material: changes in greening? more/less residential buildings? Stores? Other commercial buildings or additions/removals related to the project?
    - Non-material: The meeting places? Places where communities or citizens have a strong bond with?
    - Does the citizen like the changes made during the project? Why (not)?
  - Does the citizen wants to add something? Or to strengthen?
  - Does the citizen misses anything? Or is there something removed that you miss now? Remember that this can be material or non-material.
- Social upgrade
  - Does the citizen often has social interaction with the neighbourhood? This can be from casual small talks to participating in organized events.
  - Are there any organized events or gatherings with the neighbourhood or specific communities?
    - If YES:**
      - What are these events?
      - When are these events taking place
      - Who organizes these events? What is their purpose?
      - Who participates in the events/gatherings? Is the group diverse in ethnicity and preferably an idea about their income class?

### **Extra questions for Long-term residents:**

- Does the citizen go more often to certain shops, places, other services community buildings, ...
- Does the citizen go less often to certain shops, places, other services, community buildings, ... OR did the citizen went to a certain place or building that is now gone?
- Thus, does the citizen feel more or less part of the neighbourhood, or has nothing changed at all?
- Displacement
  - Has the citizen, by any chance, seen who has moved in recently?
  - Has the citizen talked with that person and knows why he/she moved in? This can be for social, environmental and/or financial reasons.
  - Did some friends, neighbours, ... anyone from the neighbourhood moved out during or after the changes? In other words, did more houses come up for sale / rent?

- Has the citizen talked with that person and knows why he/she moved out? This can be for social, environmental and/or financial reasons.
- Does the citizen feel like staying or leaving?
  - What would be the reason? Financially, landscape change and socially seen?

The participation of the citizen in the greening project

- Was the citizen involved in the decision-making process of the greening project?

**If YES, continue here:**

- How was the citizen notified of these events?
- How often did the citizen participated in the offered activities?
  - Why did the citizen felt that they needed to participate?
- The activities:
  - Who organized these activities?
  - What were the activities about?
  - How did the citizen participated
- Did the citizen felt the organization/government cared about the citizen's opinion?
- What has changed in the design thanks to the citizens' participation?
- Were there some rejected ideas? Why were they rejected?

**If NO, because ...**

**It was a DELIBERATE CHOICE, continue here:**

- What is the reason that the citizen did not participate in any activity?

**The citizen moved AFTER THE CHANGES, continue to the next point**

Personal information about the interviewee.

- Gender
- Age
- Identity
  - Belgian identity
  - Belgian identity with another identity too? Or had another identity too?
  - Does the parents have a Belgian identity? With another identity too? Or had?
- highest academic degree
  - None or lower high school degree
  - High school and/or professional training
  - A form of post-secondary education
- Homeownership status
  - Renting
  - Owning
  - Other form of ownership?

Conclude the survey

- Ask if they have something to add or have a question for me
- Thank them for their time and honesty

#### Appendix 4. Internship summary

During the first semester of the academic year 2022 - 2023, I took an internship at the non-profit organisation Commons Lab Antwerp. Commons Lab is a Flemish-supported socio-cultural organisation that focuses on the de-privatisation of pieces of land and the production of goods (About Us, n.d.). They believe that the continuous privatisation of pieces of land, especially with a focus on urban land, is thwarting sustainability achievements. Resources and goods that are unevenly distributed or unsustainably used. Living people are capable of making their own decisions on what to change in their environment and use resources sustainably. Commons Lab draws on Ostrom's eight design principles. These principles bring society closer to sustainable collective management of natural resources (Ostrom, 1990).

Commons Lab helps legislate and provide the necessary tools for civic initiatives that are commons-focused (*Over ons*, n.d.). The activities organised by Commons Lab are based on a bottom-up approach, with citizens playing a prominent role in innovation. As a kind of intermediary with an extensive network of a wide variety of connections, they help get the citizens' initiative off the ground. Their policies undergo constant change as they gather new knowledge and ideas. So they feel it is important that knowledge and ideas are made public and shared with stakeholders. The sharing and gathering of this information is done in the form of conferences, visiting other citizens' movements, etc. Their latest major success is the Kempen2030 garden streets project, launched in March 2023. The garden streets project is a collaboration with Commons Lab, the Antwerp waste management company IOK, the Kempen municipalities and other partner organisations.

As an intern, I took on the responsibilities of a full team member with a wide range of tasks. Under the guidance of a colleague, I participated in the organisation of citizens' initiatives and their participation moments, visiting citizens' collectives and gathering useful information, finishing and fully writing texts and articles, and conducting in-depth interviews with engaged citizens and their innovations.

Throughout the internship, I participated in Commons Lab's project to turn a connecting road into an attractive alley in an approachable way together with the residents. The connecting alley (nicknamed the 'Cat Alley' ('*Katteweg*')) is a complicated situation. It is an alley consisting of many small pieces of private garages. The aim is to work with the residents to clean up the alley, make it more attractive for pedestrians and bikes, and persuade the city of Antwerp to carry out major developments. Together with a permanent colleague, we communicated with the residents informally and formally which was tailored to those involved (the citizens, partners, and employees). The communication between the citizens involved was done informally via the chat application WhatsApp since the citizens are most familiar with this application. Multiple contact moments were organised in the alley itself to gather citizens' opinions and knowledge, and what help they could offer in the redevelopment of their connecting alley. Subsidies were requested from the city of Antwerp, but service assistance was not granted to us because of the complicated situation of the private pieces, where no work can be done without the owner's permission. This project helped Commons Lab

initiate citizen initiatives and shows that citizens can also be prominent actors in urban spatial change.

In the meantime, I was also employed in more short-term projects, such as mapping and interviewing food forests, which is linked to Commons Lab's LEADER project 'Fruity Food Forests Hageland' ('Fruitige Voedselbossen Hageland'). In general, a food forest is the creation of a forest for food production where collaboration and sharing of the harvest are central. Standardised questions allow Commons Lab to categorise food forests across the Hageland, Flanders. Articles were prepared by me to raise the profile of the initiative and the concept of food forests in general.

Introductory meetings between Commons Lab and other civic organisations were also planned and in which I was involved. Civic organisations such as 'Grandparents for Climate' ('*Grootouders voor het Klimaat*') focus on small-scale and low-threshold softening and greening in the city of Turnhout. Information and knowledge were exchanged in an informal manner of a walk to their projects throughout the city. In this way, I helped expand Commons Lab's network of connections with (partly) mutual goals and practices.

My place on the Commons Lab team has taught me how bottom-up initiatives can be started and be important in a changing world. Western countries like Belgium are more open to changes in their legal framework for spatial changes to ensure sustainability. More specifically, more opportunity is being given to civic initiatives to make landscape changes that meet their social needs. Commons Lab made me understand how an organisation like theirs can play into this trend and effectively make changes that positively change policymakers' views on civic initiatives. It taught me how to work smoothly and independently with bottom-up initiatives by involving all actors. In doing so, I also encountered situations where it was difficult to implement change due to e.g. unmotivated citizens and other actors, and even deal with setbacks when projects fail. Both academic and professional skills were taught to me to correctly guide and initiate projects, as well as the gathering of information and policy proposals during my internship period.



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