

a *shift* towards **Collectivity**

...using a collective approach in urban design to contribute to sustainable development from environmental, spatial and social perspectives in Bospolder-Tussendijken

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Colophon

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P5 report

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Preface

This thesis represents my final research project during my Urbanism master's program in the Design of the Urban Fabrics graduation studio. Throughout this year, I was able to design with an activist approach as my motivation, which I greatly appreciate within the field of urban design. The thesis explores collectivity within the urban landscape and how to stimulate a shift towards a collective society, focusing on the neighbourhood of Bospolder-Tussendijken in Rotterdam.

I would like to thank my mentors, Machiel and Leo, for guiding me through this project over the past year. I have greatly benefited from your inspiration and motivation.

Additionally, I would like to thank my fellow graduates, co-inhabitants of BoTu, housemates, friends and Amber for their support (and patience ;-)) throughout the year.



Fig. 0.1:
Lotgenoten, Jules Deelder (2011)
2e Middellandsstraat, Rotterdam

Abstract

Individualism, the trend of prioritising individual interests over group interests, has significant implications for our urban environment, including spatial, environmental, and social unsustainable development. A shift towards collectivism represents a move towards sustainable development from these three perspectives.

This thesis proposes a spatial redesign of the Bospolder-Tussendijken neighbourhood in Rotterdam, addressing the research question: “In what way can the shift from an individualistic towards a collective approach in urban design contribute to sustainable development from spatial, environmental, and social perspectives, focusing on Bospolder-Tussendijken?”

The outcome demonstrates that a redesigned network based on the concept of the commons results in saved space and resources per individual. A neighbourhood designed to accommodate all urban activities can reduce reliance on car traffic, facilitating the creation of green spaces for the collective benefit of the community at the neighbourhood level, as well as smaller communities within. This transformation focuses on creating places of residence instead of places of going.

Sharing becomes the guiding principle, manifested across various scales, from the entire neighbourhood as the largest scale down to individual housing units as the smallest. This approach enables people to form networks and communities across these scales. By creating space for porosity and flexibility, the design accommodates diverse needs, allowing individuals the freedom to arrange locations at different scale levels according to their preferences.

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01.

introduction

- Glossary of terms
- Personal motivation

individualism

noun

Cultures in which ties between individuals are relatively loose and individual interest often prevails over group interest.

collectivism

noun

Cultures in which people are integrated into tight-knit groups and group interest is generally given priority over individual interest.



Fig. 1.1:
Protests housing market (adapted
from NOS, 2021 & socialisme.nu,
2021)

Collectivism

In 2021, I attended a meeting of squatters who shared their stories about their history. Some of them had experienced homelessness, which led them to start squatting. Their narratives concluded with the assertion that housing is a fundamental right in the Netherlands, which is not recognised and protected nowadays, also confirms UN rapporteur on housing Balakrishnan Rajagopal (2023). In contrast, it has evolved into a means for individuals to generate significant profits. This trend needs to be stopped, and housing space should be distributed more equitably.

As someone aspiring to establish their own housing community in the future, I saw this as a potential starting point for a solution. We can optimise the utilisation of space and energy resources by expanding the concept of shared

space on a broader scale. This approach has the potential to reshape the urban landscape with a collectivistic approach.

Bospolder-Tussendijken

I have been living in Bospolder-Tussendijken for almost four years now, and it was my first home when I moved to Rotterdam. In 2019, the 'Veerkrachtig Bo-Tu' initiative was launched, bringing together local organisations, residents, and the municipality to foster a more resilient community. The objective is to transform Bospolder-Tussendijken into Rotterdam's first resilient neighbourhood within the next ten years.

Given the focus on local knowledge and community participation in this initiative, I saw it as a prime opportunity to develop solutions within the scope of this research project.

02.

problematisation

- Introduction
- Problem field
- Problem statement
- BoTu

The concept of individualism was coined by socialist Robert Owen in 1830, placing the interests of the individual above those of the group. While the notion of personal freedom may seem appealing, it also carries with it a number of implications that manifest in our urban environment.

Firstly, there are spatial implications. As the world population continues to grow (United Nations, 2022), countries are faced with the challenge of accommodating more people. In the Netherlands, there is an increasing emphasis on individual living spaces, as the number of households grows each year (CBS, 2021). This trend persists despite the Netherlands being one of the most densely populated countries globally, with an average of 500 people living per square kilometer (Eurostat, 2023). This issue is particularly visible in cities, where many young people relocate for work or education (Volkskrant, 2016).

The following chapter will not only focus on the spatial challenges posed by this individualistic trend, but also on its environmental and social implications.

inhabitants per km²

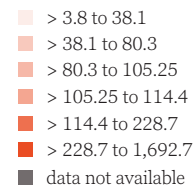
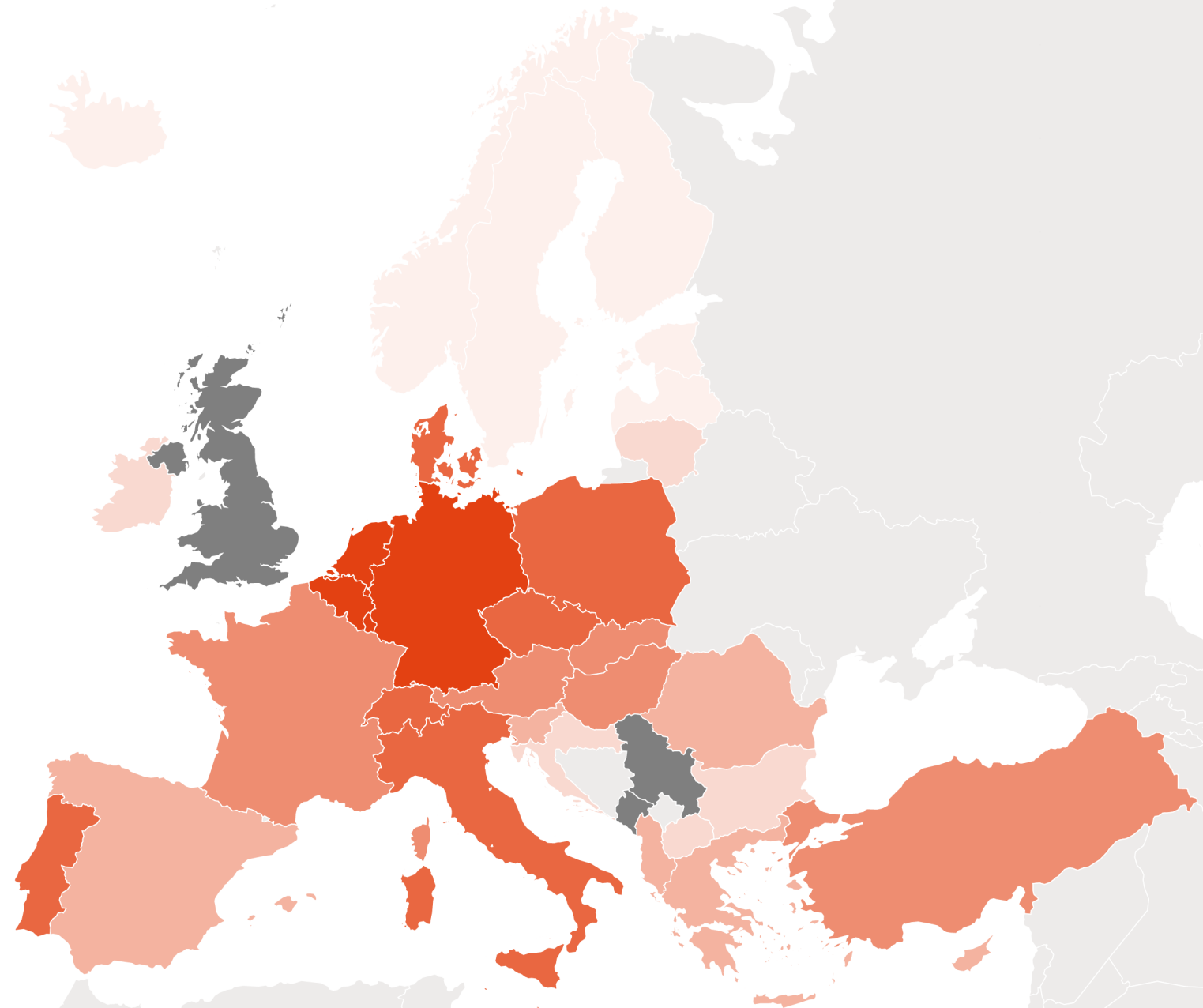


Fig. 2.1:
Population density within EU
(Eurostat, 2022 (edited))

√



Spatial implications

Further spatial implications reveal the effects of the increasing trend of individualism in the Dutch urban landscape. This concerns not only the scarcity of space but also the spatial manifestations resulting from it, and the current inequalities in how space is allocated.



Fig. 2.4: Suburbs in the Netherlands (Google Earth, 2023)

Increasing housing demand

Firstly, there is an increasing demand for housing (Rijksoverheid, 2023). This is attributed, on one hand, to the rising trend of individuals choosing to live independently, leading to a surge in single households (Fig. 2.3). On the other hand, there is the challenge of accommodating a growing global population (United Nations, 2022). As of 2023, the number of households (8.270 million) in the Netherlands exceeds the available housing stock (8.125 million) (BZK, 2023). Particularly in the areas around the ‘Randstad’, the pressure on the housing market continues to intensify (Fig. 2.2). The heightened demand in the housing market results in diminishing space for other functions, influencing the overall quality of the environment.

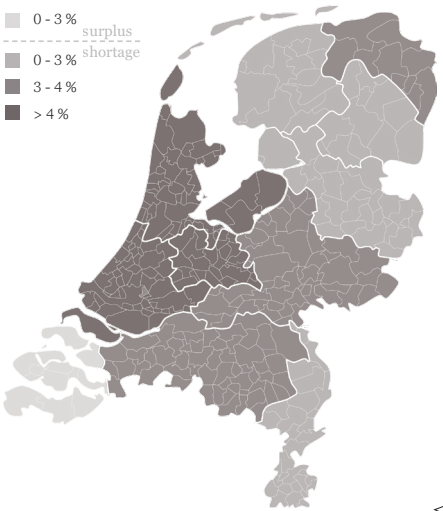


Fig. 2.2: Shortage and surplus housing market per province (adapted from ABF-Research, 2019)

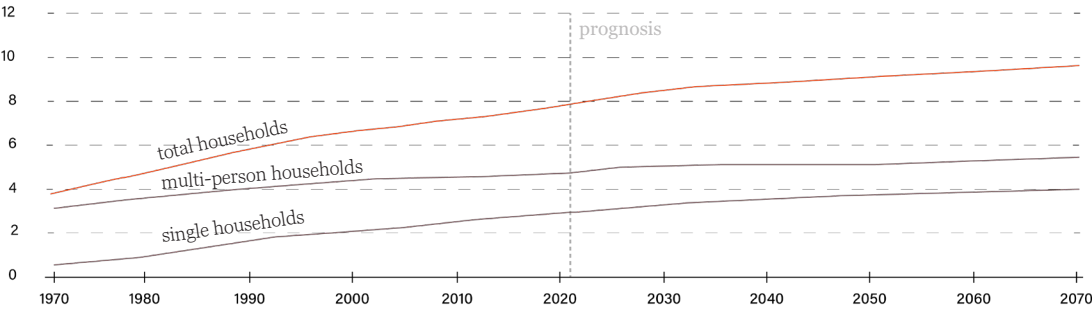


Fig. 2.3: Increasing households in the Netherlands (adapted from CBS, 2021)

Spatial fragmentation

Individualism, characterised by the prioritisation of personal choices, also influences people’s decisions regarding where to live. Despite working in the city, individuals might opt for suburban living, seeking more space for their residences and exercising their freedom to commute using cars. This preference for individual choices contributes to the fragmentation of functions within the urban form, potentially resulting in incoherence within the area (Fig. 2.4).

Inequal distribution of space

In 2021, over 25,000 individuals and companies owned multiple owner-occupied homes, which they did not inhabit themselves (Kadaster, 2021). The reasons for this ownership varied, including renting out the property, allowing family members or other relatives to live there, or leaving the houses unoccupied. Additionally, there were individuals who, alongside owning two or more owner-occupied homes, rented a residence from a housing association at a low rent. In 2021, this involved more than a thousand people. Notably, large cities in the ‘Randstad’ region had the highest number of homes owned by corporate renters (Fig. 2.5).

Corporations primarily rent out social housing, with a capped rental price, and a small portion in the private rental sector, known as mid-range rental properties. Both sectors face a significant

shortage in the Netherlands, with some cities experiencing average waiting times for social housing of up to 10 years.

In addition to these housing challenges, a substantial number of people are homeless in the Netherlands. As of 2022, this number was reported at 26.6 thousand (CBS, 2023). Among this population, 36% reside in the major cities in the Randstad region: The Hague, Rotterdam, Amsterdam, and Utrecht (CBS, 2020), despite these cities having the highest number of homes owned by corporate renters.

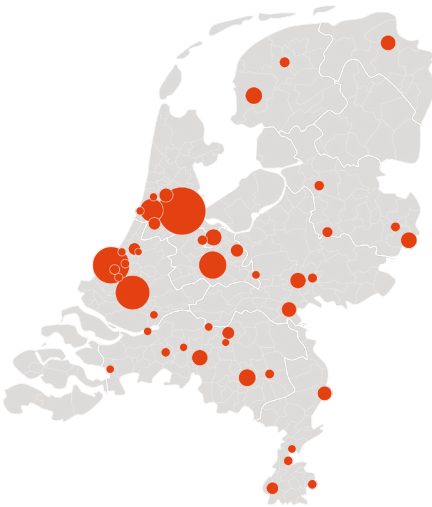


Fig. 2.5: Top 50 municipalities of houses owned by corporation renters (adapted from Kadaster, 2021)

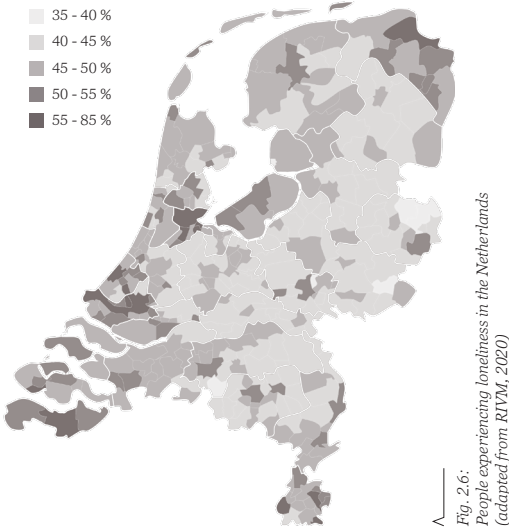
Social implications

In addition to spatial implications, individualism also affects the social domain. The following paragraph illustrates the social implications resulting from the trend towards increasing individualism over the years, evident in manifestations such as social isolation, lack of solidarity, and exclusion, which will be further elaborated upon.

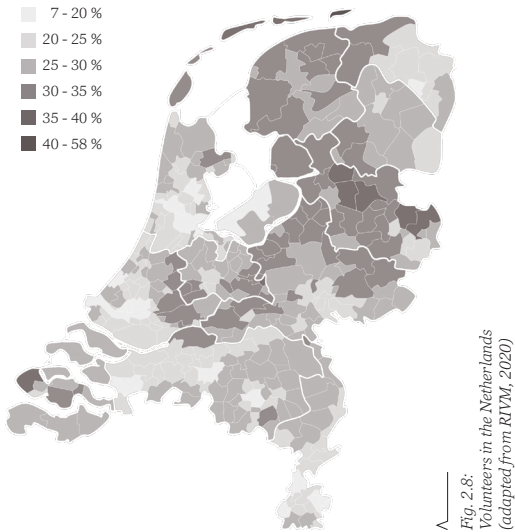
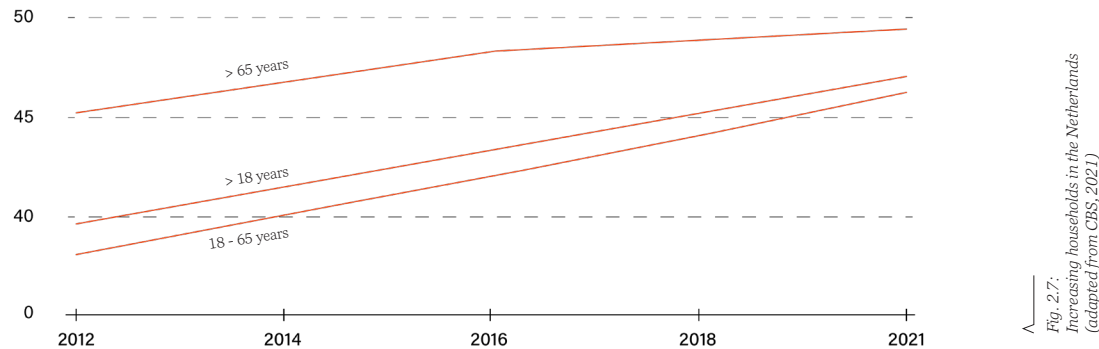
Social isolation

The number of single-person households is consistently increasing each year (RIVM, 2020). This trend is associated with societal shifts where individuals are less inclined to form couples or marry (CBS, 2019). Living independently can contribute to social isolation, which can be categorised into objective isolation and subjective isolation (Coumans, 2016). Objective isolation refers to a lack of literal interactions with family, friends, or neighbours, while subjective isolation is the experience of feeling lonely.

Focusing on subjective isolation, when comparing loneliness figures between 2012 and 2021, there has been a significant rise in the number of people who feel intensely lonely (Fig. 2.7). Among those experiencing profound loneliness, the majority are singles and single parents (Coumans, 2022).



Research has also explored whether subjectively lonely individuals are less happy than those who are not isolated, and the findings indicate this to be the case. Particularly, the inability to reach out to someone, in addition to challenges in engaging in meaningful conversations and the overall feeling of isolation, plays a decisive role (Coumans, 2016).



Lack of solidarity

Since individualism prioritises the interests of the individual over those of the group, it also has an impact on the level of solidarity within society. Solidarity is demonstrated through actions among individuals who share common interests and can be translated into normative integration—a process in which individuals align their behaviour and interactions with the norms and values of society.

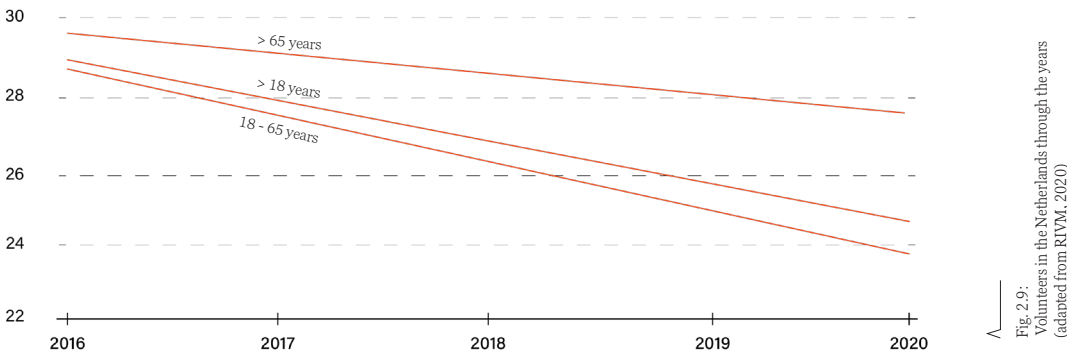
CBS conducted interviews in 2010 and 2018 to assess and compare the degree of normative integration (Coumans, 2020). The questions in these interviews explored the acceptability of events such as ‘waste disposal in public,’ ‘avoiding

tax,’ or ‘driving off without notice after damaging another parked car.’ Comparing the outcomes between 2010 and 2018, solidarity showed a decline over the years across all topics. Another visible manifestation of solidarity is volunteering, and there has been a decrease in the number of people volunteering over the years (Fig. 2.9). It is also noteworthy that areas around Amsterdam and Rotterdam have the lowest numbers of people engaged in volunteer work, and these areas are part of the ‘Randstad’ (Fig. 2.8).

Exclusion

Between 2014 and 2020, a staggering 80,000 social housing units were removed from housing associations (Aedes, 2022). This ongoing trend is leading to a transformation in the dynamics of formal social housing neighbourhoods, particularly due to the phenomenon of gentrification. These neighbourhoods are now being tailored to meet the preferences of newcomers, primarily homeowners from the private market sector. Kockelkorn et al. (2022) introduced the term “socio-economic peripheralisation,” signifying the exclusion of specific population groups from local facilities because they cannot afford these amenities.

Urban sprawl also represents a visible manifestation of social division. Residents in such areas who lack mobility and resources may face social exclusion, given their limited opportunities for social interactions. Additionally, some individuals may not even have the means to reside in these areas, leading to noticeable polarisation in certain cases (EEA, 2006).



Environmental implications

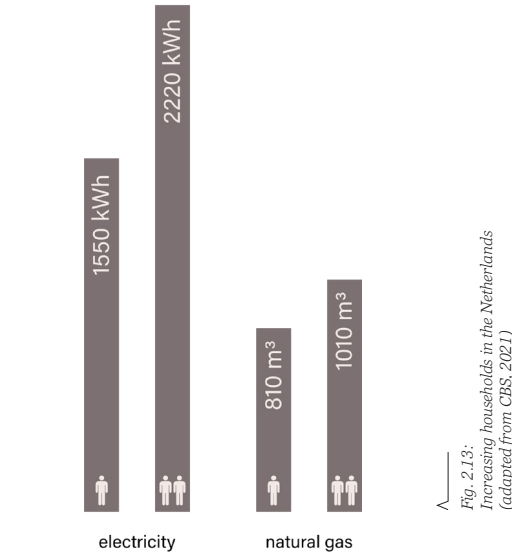
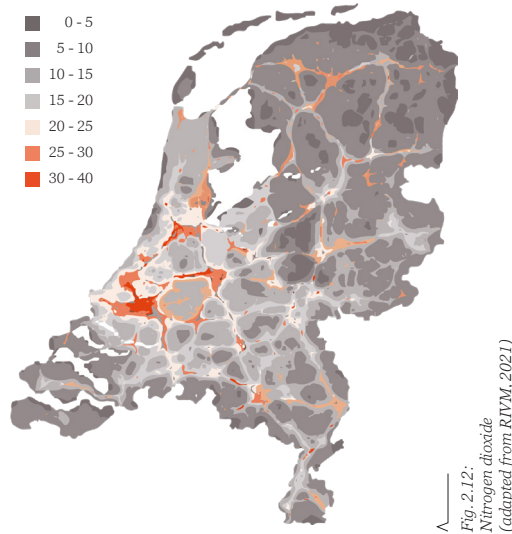
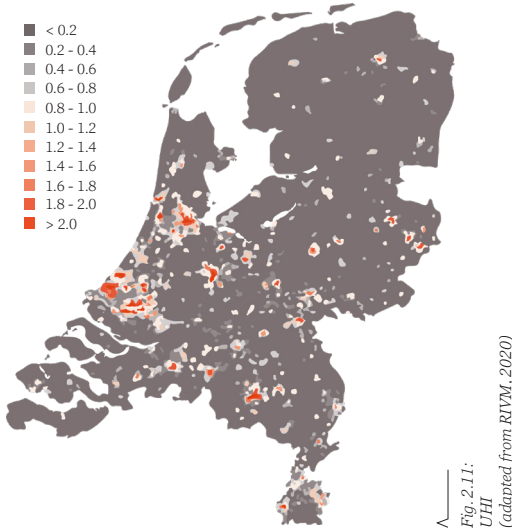
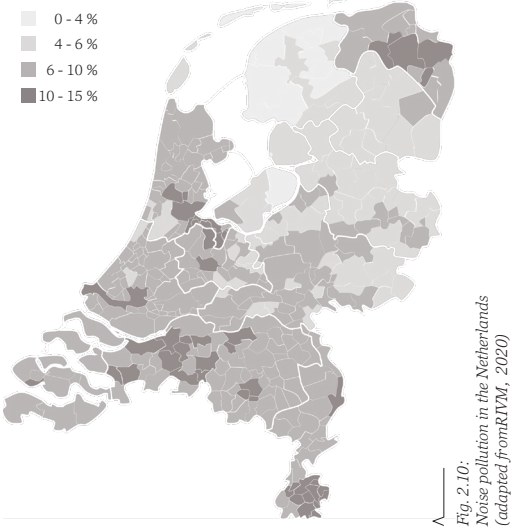
Finally, the environmental implications of the rising individualistic trend will be elaborated upon. This section will explore the impact of private transport, as well as the increasing migration of people to cities driven by their individual preferences, and the environmental effects of these trends.

Car-oriented cities

Individual transport brings about significant implications. Since the invention of the car, city planning has shifted its focus towards accommodating automobiles. This shift has resulted in extensive paved areas designated for roads and parking spaces. Consequently, car-centric environments not only grapple with direct consequences, such as noise (Fig. 2.10) and environmental pollution (Fig. 2.12), but also contend with indirect impacts, such as the increase in the Urban Heat Island effect caused by extensive paved areas (Fig. 2.11).

Lack of infiltration possibilities

Due to prevailing urban land-use patterns marked by an abundance of impervious surfaces like roads and buildings, coupled with a lack of vegetation and water bodies, the retention of heat within urban areas is prolonged. This results in elevated temperatures compared to the surrounding rural areas, giving rise to the Urban Heat Island (UHI) phenomenon (Fig. 2.11). The UHI effect is further intensified by the ongoing urban densification trends. As a consequence, it is anticipated that urban residents will increasingly experience heightened levels of thermal discomfort, commonly referred to as heat stress (Nijhuis, 2011).



Energy demand

In 2021, four crucial indicators of climate change—concentrations of greenhouse gases, rising sea levels, increasing ocean heat, and worsening ocean acidification—all reached record highs. This underscores the undeniable fact that human activities are responsible for significant, enduring changes across the planet’s land, seas, and skies.

The solution to addressing this crisis lies, on one hand, in ending our reliance on fossil fuels, the primary catalyst for climate change (United Nations, 2023), and on the other hand, in reducing energy use. When examining the energy use of different household compositions, it becomes evident that proportionately more energy is consumed when people live individually in a house (Fig. 2.13). The more people share energy, the less amount of energy is used. This is because resources are shared.

“The individualistic trend that has increased over the years resulted in unsustainable development from spatial, social and environmental perspectives, being visible in the Dutch urban landscape”



Fig. 2.14:
Cars dominating the streetscapes



Fig. 2.15:
Cars dominating the streetscapes

The following paragraph will quickly introduce the location of this research project, Bospolder-Tussendijken, a neighbourhood within Rotterdam. It will delve into the various challenges and opportunities present in this area.



Rotterdam

Observing the various implications associated with an individualistic urban fabric, it becomes evident that major cities in the ‘Randstad’ are particularly affected by this prevailing trend. In larger cities, there is greater housing demand, a higher incidence of loneliness, reduced solidarity and greater environmental challenges.

Examining the context of Rotterdam, the city was entirely rebuilt after the Second World War, with a strong emphasis on car-centric planning. While this approach was considered progressive at the time, the current inhabitants of Rotterdam are now contending with the environmental consequences stemming from this redesign.

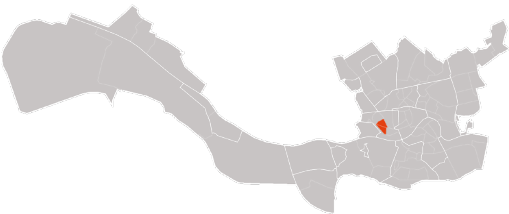


Fig. 2.16: BoTu in Rotterdam

Societal relevance of BoTu

Zooming further in, we go to Bospolder-Tussendijken (Fig. 2.16). Bo-Tu is a neighbourhood in Rotterdam facing numerous challenges. A significant portion of its residents grapple with issues such as poverty, debt, unemployment, loneliness, or poor health (RIVM, 2020). As evident, the social implications in this neighbourhood are quite pronounced, surpassing those in the rest of the Netherlands and even in the broader Rotterdam area.

There is considerable attention given to the Bospolder-Tussendijken neighbourhood by the municipality. Despite over 60% of the housing stock in this area being social renting housing in the lowest segment, there is also a focus on urban renewal. However, there is a significant disparity in these efforts; many social housing units in BoTu are part of severely outdated housing stock, while investments are directed towards the buying segment (Gemeente Rotterdam, 2019).

Projects like Le Medí and the Hudsons involve housing compositions that strongly emphasize the collective through shared functions. However, these projects exclusively consist of houses for sale (Fig. 2.17), which excludes a significant portion of the existing population in this neighbourhood from this housing option.



Opportunities

Crime and social undermining pose risks to the growing youth in the area. Partially in response to this, the Resilient BoTu 2028 program was launched in 2019, investing in community building and local initiatives. Bospolder-Tussendijken already boasts a strong community base with diverse backgrounds, where people gather in places such as churches, mosques, community centres, playgrounds, supermarkets, schools, or one of the many squares in the neighbourhood.

Within the Resilient BoTu program, there is a strong emphasis on collaboration for a sustainable neighbourhood through numerous small initiatives that target both environmental and social sustainability (Fig. 2.18). Some ‘neighbourhood living rooms’ have already been established, providing residents of BoTu with a space to engage in conversations or ask questions about the neighbourhood.

In addition to these initiatives, BoTu is set to become one of the first neighbourhoods in Rotterdam to transition from natural gas to

district heating. This transition involves utilising the heat from the port of Rotterdam as an energy source.

However, a *spatial* sustainable transition might be a next step for this neighbourhood. Considering that many single-person households live in the area, potentially contributing to feelings of loneliness, the built-up space could be used more efficiently to accommodate a larger number of people within the same built-up area. These elements present opportunities to build upon, working towards a more collectivistic urban fabric as a whole.

03.

methodology

- Theoretical underpinning
- Research question(s)
- Project aim(s)
- Conceptual framework
- Theoretical framework
- Project methods

The next page shows a framework (Fig. 3.3) that illustrates the connections between various contextual issues and topics that will be addressed in this study. These connections have been confirmed by multiple theoretical sources. The upcoming chapter will explore these interrelationships in greater detail.

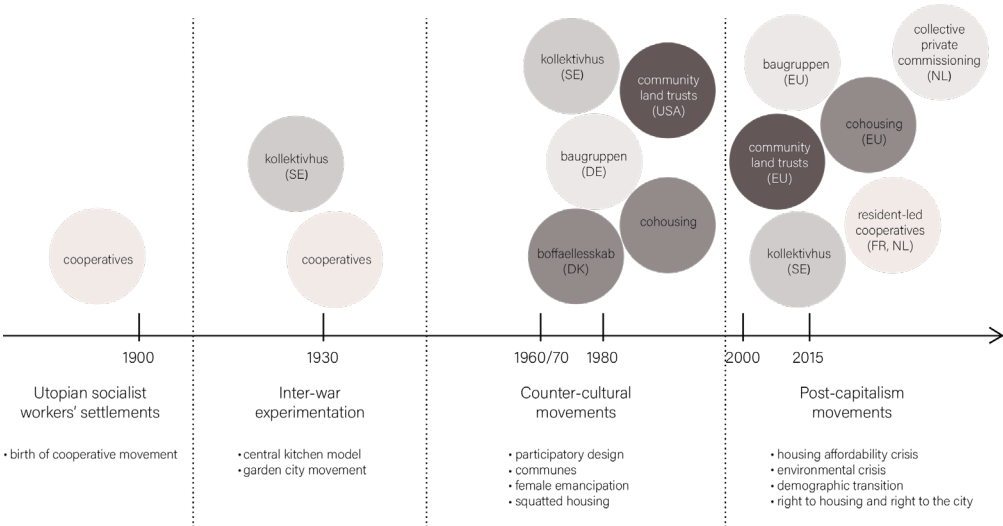


Fig. 3.1: Collaborative living forms (adapted from Czischke, e.a., 2023)

Paradigm shift

Given that the capitalist trend contributes to the privatisation of public spaces, resulting in an unfair distribution of development (Smith, 2008), where personal preferences often take precedence over communal well-being, a shift is necessary.

In his book “PostCapitalism: A Guide to our Future,” Paul Mason (2016) discusses various visible trends that could potentially shape the future of the economy. The current state of the global economy is not sustainable for a better future due to financial crises and rising inequality. Mason’s book explores these issues in detail and offers insights into possible scenarios that could lead to a more equitable and sustainable future.

Mason suggests that the shift towards a post-capitalistic paradigm advocates for a more participatory democracy, since it will come together with a need for political and cultural changes within the society. Alternative economic models are emerging through collaborative and peer-to-peer economies.

The link between post-capitalism and collectivism

Collectivism in the form of living has already been taking place for centuries. In earlier eras it was even the norm, to think of certain forms that manifested in Europe (Fig. 3.1).

Collective housing emerged for various political and societal reasons. The first housing cooperatives in Europe were created in the 19th century as part of the workers’ movement (Czischke et al., 2023). Since then, housing cooperatives have become a global phenomenon, representing a durable model that is founded on solidarity and mutual assistance.

The emergence of collaborative living began to take shape in the 1970s, in response to various global trends such as increasing globalisation, environmental degradation, and changes in demographics and society. These developments led to the creation of collective living arrangements that can be viewed as social movements seeking justice in spatial and housing contexts, often informed by post-capitalist ideologies (Czischke, et al., 2023).

Implications

As noted in the problem area, the current urban landscape’s individualistic approach has significant implications for spatial, environmental, and social perspectives. Furthermore, the implications also have an impact on the urban

approach in the opposite direction, meaning that a shift towards a collective approach is possible if changes are made to the social, environmental, or spatial perspectives.

It’s important to understand that the implications of sustainable development are closely related. In 1996, Tjallingii introduced a model that outlines three decision fields in a strategic planning context (Fig. 3.2). These decision fields can be translated into the three types of implications used in this research: spatial sustainability, environmental sustainability and social sustainability. Tjallingii emphasised that “areas, flows, and actors are not separate entities, they are part of one plan” (1996).

Potocnik & Dixon-Declève (2022) also gave a clear example of this interconnected system. The attainment of spatial sustainability is contingent upon both efficient and a balanced distribution of space. This can be achieved through the implementation of compact designs that prioritise the inclusion of green spaces and communal areas. By prioritising efficient use of space through densification, there is an opportunity to repurpose open areas for both infiltration and social engagement, which in turn fosters a stronger sense of community cohesion.

Conversely, social sustainability and environmental sustainability are interconnected.

According to Sennett (2013) in his book “Together, the Rituals, Pleasures and Politics of Cooperation,” cooperation promotes a sense of community and social connection. When people share a common goal, such as creating an environmentally sustainable neighbourhood, they are more likely to connect. Leclercq and Smit’s 2023 study on circular neighbourhoods examines collaboratives in neighbourhoods that aim to achieve circularity through various methods. This research confirms the theory that collective action can work towards achieving a common good.

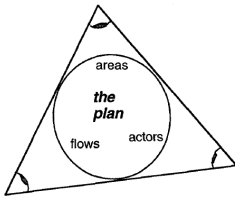


Fig. 3.2: Decision fields (Tjallingii, 1996)

Project scope

To achieve a development in spatial, social and environmental sustainability, the shift from an individualistic towards a collectivistic urban approach needs to be made, as stated in the problem statement. This transition and its changing implications in spatial, social and environmental sustainability will be the scope of this research.

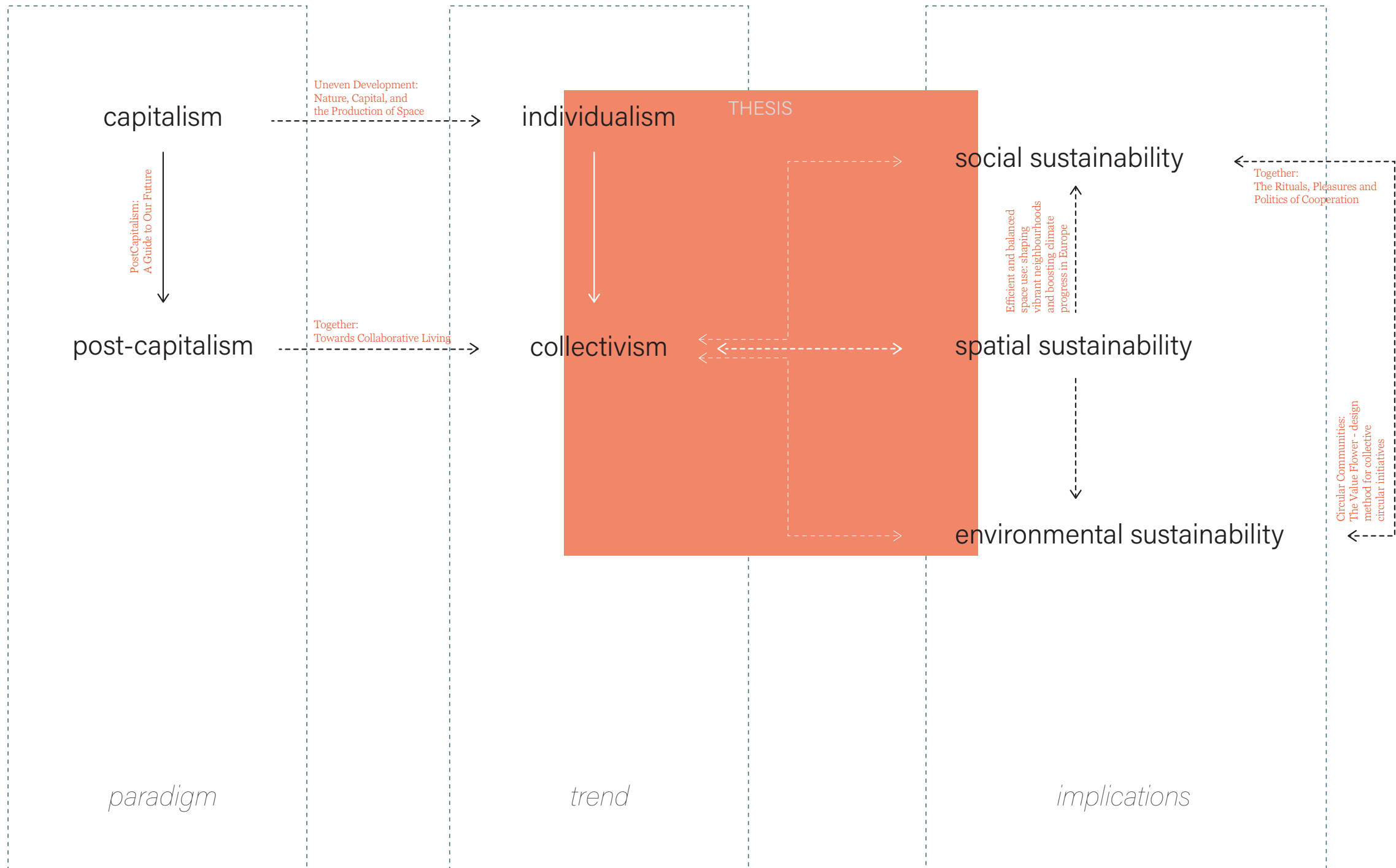


Fig. 3.3:
Framework theoretical underpinning

In what way can the shift from an individualistic towards a collective approach in urban design contribute to sustainable development from spatial, environmental and social perspectives, focusing on Bospolder-Tussendijken?

subquestions:



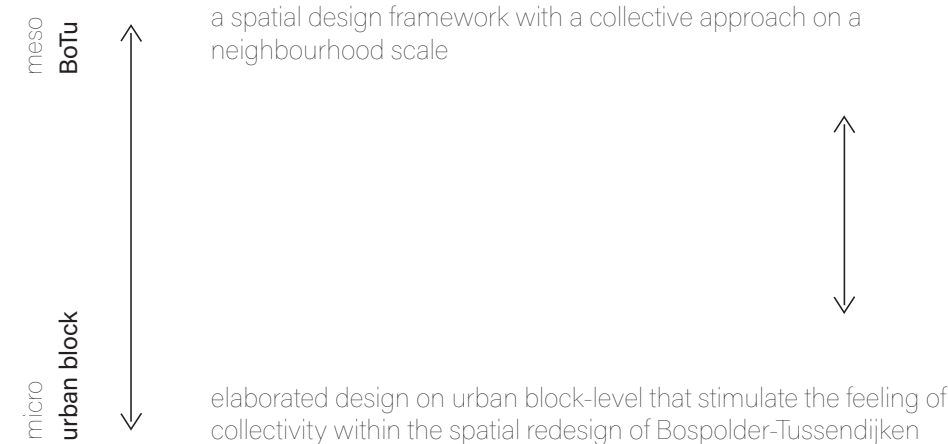
The current spatial structure follows an individualistic approach, resulting in negative impacts on spatial, environmental, and social perspectives. Shifting towards a collective approach in urban design can enable more efficient use of available space, formulated into sustainable spatial development.

While there is a growing appeal for living alone, recognising the importance of interactions with others is crucial for individual well-being. Striking the right balance between private and collective aspects will be formulated into sustainable social development.

The current formation of the urban fabric leads to various environmental implications. A necessary shift must occur towards a more climate-adaptive and resilient environment, which will be formulated into sustainable environmental development.

The focus of this project is centred on Bospolder-Tussendijken due to its existing challenges and opportunities. Given that collectivity is the main theme, the scale of the neighbourhood serves as the foundation for this research. However, the envisioned transition will result in various changes in the urban fabric across different scale levels, necessitating consideration of the following project aims.

‘Create a multi-scalar design with a collective approach to contribute to sustainable development from spatial, environmental and social perspectives, focusing on Bospolder-Tussendijken’



The objective of this project is to redesign a neighbourhood by adopting a more collective urban approach, rather than an individualistic one. To accomplish this, a conceptual framework (Fig. 3.5) is being established.

Collective action model

Tine de Moor (professor of Social Enterprise and Institutions for Collective Action, Department of Business-Society Management, Erasmus University) presented a governance model that represents the backbone of collective action (2021). This model exists of three dimensions (members, resources and institutions) that serve for many differentiating applications. In the case of this project, the model will be used as a design-tool in the urban fabric. For this use, the dimensions can be translated into inhabitants, commons and communities. The way these three dimensions are working together can be seen as the collectivity within the urban landscape.

The way these three dimensions are overlapping leads to different types of balances, which work by different values. When the members and resources for these matching members are balanced, utility will be established. This result is influenced by ‘reciprocity’, which can be translated as ‘the practice of exchanging things with others for mutual benefit’.

Efficiency is achieved when resources and institutions are in balance, which is highly influenced by the sufficient use of resources by these institutions. To avoid the ‘tragedy of the commons’ where individuals act in their own self-interest in using a shared resource, leading to resource degradation, it is crucial to ensure a proper distribution of resources among a community of a given size (Hardin, 1968).

Finally, a balance between members and institutions leads to equity. This is again influenced by the solidarity of these members within these institutions.

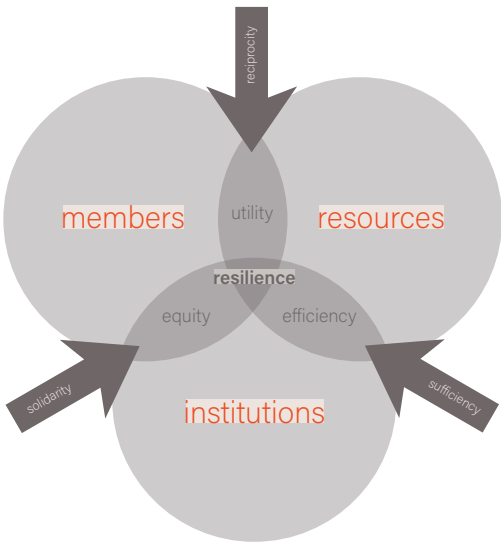


Fig. 3.4:
Collective action model
(adapted from de Moor, 2021)

A design framework

Translating this governance model into collective action in an urban setting involves representing resources as commons, which are utilised by the members, or inhabitants. However, while this model serves for governance, this project focuses on spatial redesign aimed at fostering collectivity. This requires a new framework that encompasses the concept of this study (Fig. 3.5).

The spatial redesign will entail the equitable distribution of commons for the people. This approach integrates spatial sustainable development through the redesign, social sustainable development through the involvement of the people, and environmental sustainable development through the management of the commons. Importantly, all these aspects are interconnected, as highlighted in the theoretical underpinning (Fig. 3.3).

The commons

The term commons refers to the sharing of elements of the urban fabric which are available for the collective and not being privatised. These elements may include public spaces, roads, water, nature, etcetera.

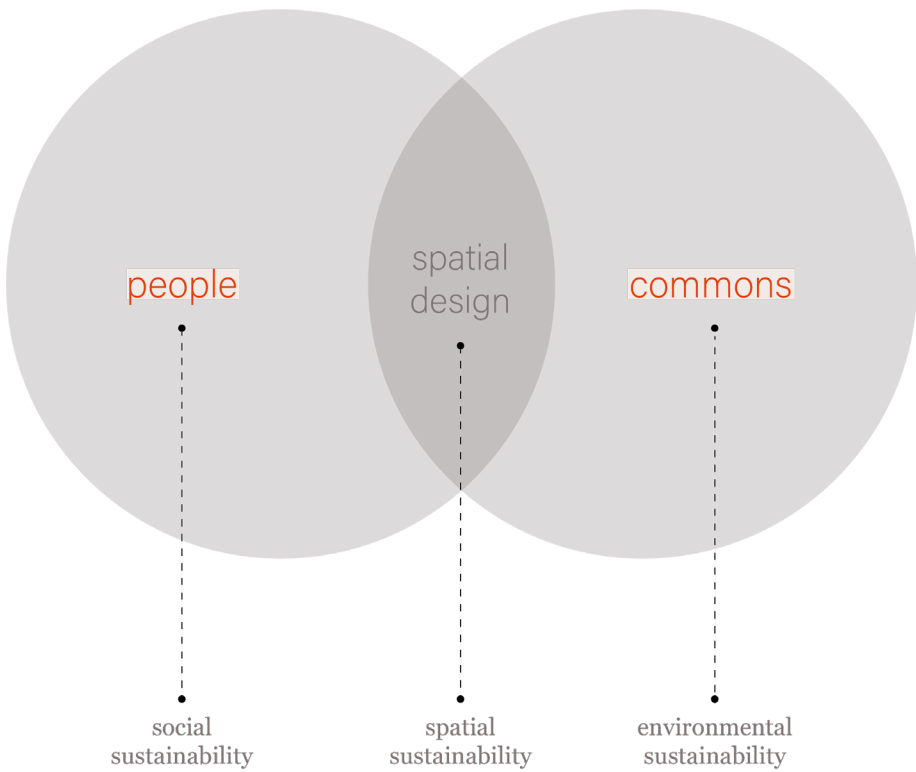


Fig. 3.5:
Conceptual framework

The project is using a publication from the action group Shareable (2018), which comprises multiple researchers and designers working towards a more equitable and resilient society through sharing commons. This publication divides the urban commons into several topics that can be used as a research tool for design purposes, which will be elaborated further in the chapter about the commons.

The people

The people are the common-sharers in this model of collectivity. This model can accommodate participants at various scales, from an urban block to a street or neighbourhood. To effectively utilise this model as a design tool, it is essential to take into account the needs and preferences of residents, as well as the demographic characteristics of the inhabitants in the specific design location. This aspect of the conceptual framework also underscores the importance of

not only redesigning space efficiently but also ensuring that it enhances quality for its users.

Theories that will be used for this component of the conceptual framework consist firstly of a publication about the importance of social relationships (Cacioppo & Cacioppo, 2014) in the individualistic Western society (Markus & Kitayama, 1991). In context of this project, the assemblies of people that share resources -the commons- are shaped communities. Through the redesigned urban landscape, this shared use of a common can be fostered.

The theories about the spatial implications of designing for communities consist of Leon Krier's theory about the polycentric city (2009) about shaped communities on neighbourhood level, and Glenn Lyppens' (2020) theories about establishing feeling of community through collective spaces on urban block level.

The conceptual framework involves a synergistic relationship between people and the commons. This chapter will elaborate on these elements through theoretical exploration, linking theories to the conceptual framework that forms the basis of this research.

People

Designing for people is the element within the conceptual framework that serves for social sustainable development. For a long time, individualism and independence have been highly valued in Western cultures (Markus & Kitayama, 1991). Initially, there was a belief that meeting only the material needs of infants was sufficient. Similarly, there is a common perception that the physical needs of older adults are more critical than their social needs. However, it is a biological fact that humans are inherently social beings. We have a natural inclination to connect, interact, and form relationships with others of our kind. Substantial evidence suggests that social relationships play a crucial role in promoting mental and physical well-being throughout life (Cacioppo & Cacioppo, 2014).

The composition of inhabitants within the urban fabric varies across different scales, with the scale directly influencing the size of the community. This again influences the way of designing for people.

Urban planner and theorist Leon Krier has a position on architecture for communities in which the focus is on the human scale, by creating spaces in which people with different backgrounds can live in together in peace (2009). Within this position, it is mentioned that promoting communities goes hand in hand with the development of polycentric cities, instead of cities that are expanding through suburbs. In suburban cities, movements are constantly stimulated because of the mono-functional residential areas at the borders of a city. This leads to cities in which people are always on the move, instead of being well connected to the place where they live. The polycentric city consists

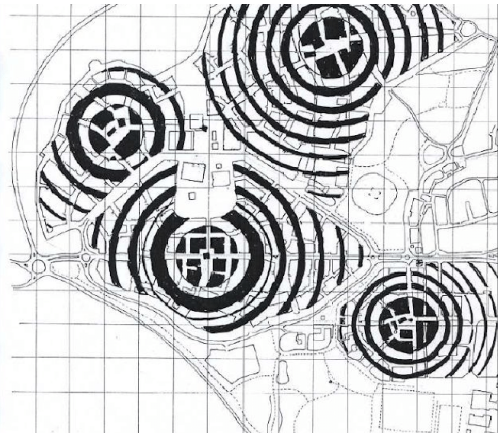


Fig. 3.6:
Polycentric city (Krier, 2009)

of cities within the city, which means that a neighbourhood contains all urban activities (Fig. 3.6).

On the scale of an urban block, community building is visible in the form of social interactions that can follow into social cohesion. However, you can't enforce communities. By creating zones on the scale of an urban block that function as transition areas between private and public, offers the varying resident groups the opportunity to find a balance in the desired model of society (Lyppens, 2012).

Certainly, design elements like the physical context, form, scale, orientation, materiality, façade detailing, building plinth, and others, significantly influence the prolonged utilisation of an in-between space as a social area. Environmental psychologists suggest that architectural interventions, such as a gradual transition between public, communal, and private areas, can foster both ample privacy and opportunities for social interaction. To promote social interaction and, consequently, community building at the building level, the relative positioning of collective spaces is crucial. Porosity between public and private spaces is necessary to functionally serve as intermediate areas for encounters (Lyppens, 2012).

theories

- Markus & Kitayama (1991)
- Cacioppo & Cacioppo (2014)
- Krier (2009)
- Lyppens (2012)
- Hardin (1968)
- Sassen (2001)
- Foster & Iaione (2016)

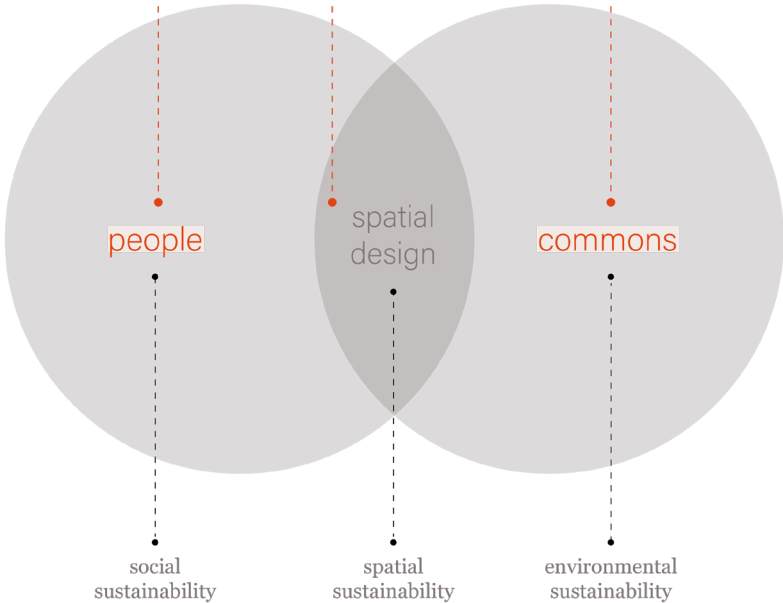


Fig. 3.7:
Theoretical framework

Commons

The motivation behind the commons stems from a critical examination of contemporary urban development within a neoliberal framework. It centers on the notion that public authorities in cities globally, especially those deemed “global cities,” are turning collective urban resources into commodities, selling them to the highest bidders. Saskia Sassen (2001) poses a poignant question in this context: “[W]ho owns the city?” This inquiry is prompted by the trend of “corporatizing access and control over urban land” and the “corporate buying of whole pieces of cities,” leading to a transformation of what was once small and/or public into the large and private domain. As local regulations are relaxed to accommodate the preferences of powerful economic interests, the result is a displacement

of the poor and socially vulnerable populations, driven by an urban development machine that often prioritises revitalisation over inclusivity. More and more, progressive urban reformers are turning their attention beyond the state (and, in that regard, the city) to sublocal expressions of resistance and collaboration. They seek to assert ownership over urban resources and city space by framing them as a “commons” (Foster & Iaione, 2016).

Nevertheless, an excess of users for a shared resource can result in the degradation of the commons (Hardin, 1968). To prevent this, it is crucial to thoughtfully determine the utilisation, assign responsibility, and regulate access to these commons (Foster & Iaione, 2016).

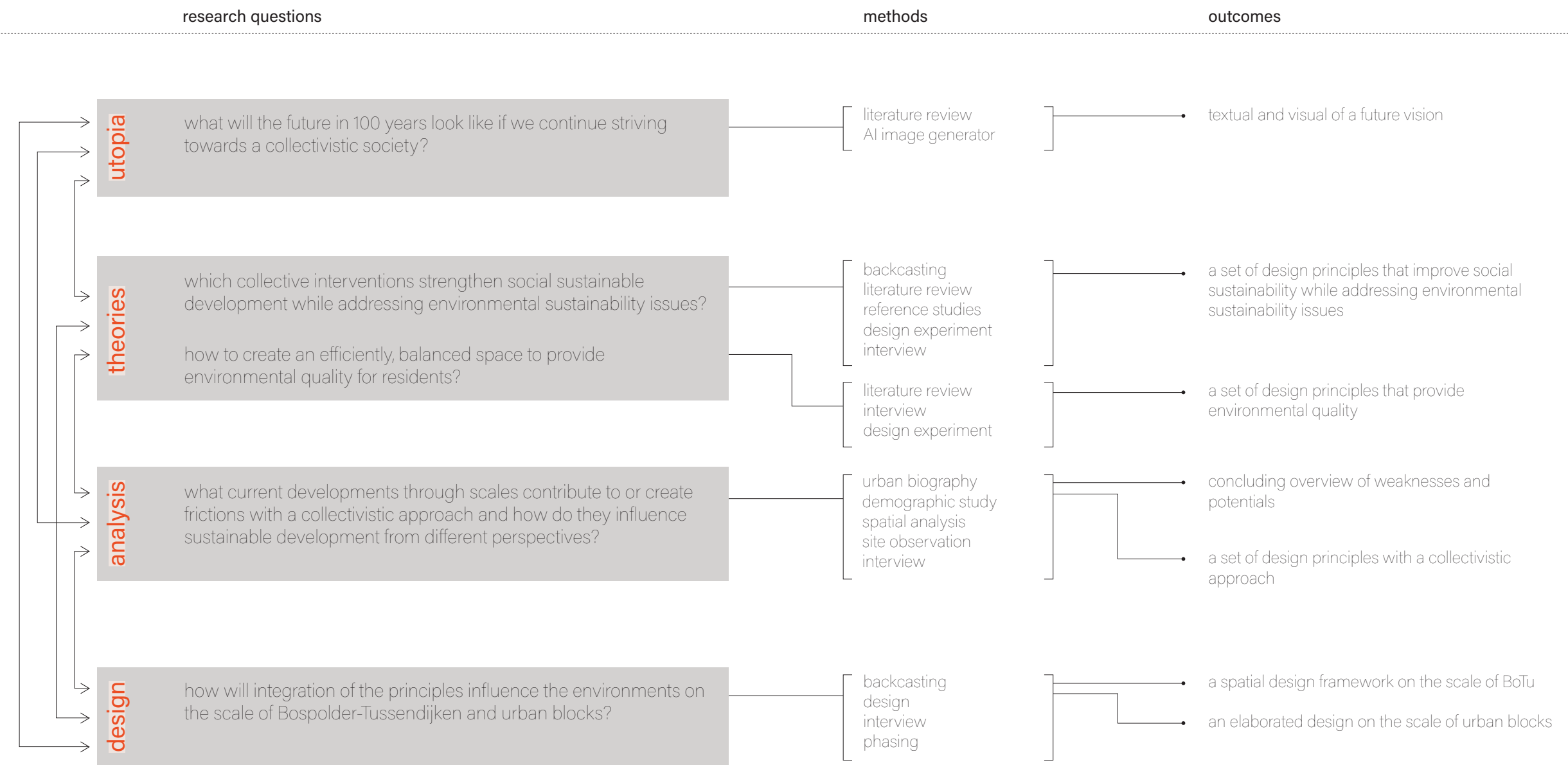


Fig. 3.8:
Framework project methods

This part will outline the various methods that are mentioned in the diagram on the previous page, which will be used within this following research.

Literature review

In this research, a literature review has been conducted to cover various aspects. It has been used to develop a theoretical foundation and establish a conceptual framework. It will also be used to construct scenarios and set up principles.

AI image generator

To visualise the utopian vision, Artificial Intelligence has been used to create visualisations by inputting the textual vision into the program. This will yield spatial outcomes that can be utilised to develop principles for further research.

Reference studies

To develop future scenarios, reference studies towards collective projects has been done. This also helped constructing the design principles, which has been necessary for the final design stage.

Urban biography

An urban biography provides an explanation of the historical developments of a research location, along with its current contextual situation. This enables a comparison of the current situation with the past. To create an urban biography, historical maps, pictures, drawings, and textual sources have been used.

Demographic study

Considering the aspect of the inhabitant, which is the user of this research, it is important to have a clear understanding of the socio-economic background of them. This has been done through data research.

Spatial analysis

Through the use of different types of data, a spatial analysis can be made. This has been useful for the analysis of functions, collective facilities, current spatial situations, potential design locations, etcetera. Besides mapping current situations, also planned future developments have been taken into account.

Site observation

In order to develop a thorough understanding of how people utilise the urban environment in Bospolder-Tussendijken, conducting an observational study is crucial. This approach provided valuable insights into the community's activities.

Furthermore, site observation is being utilised to analyse the spatial characteristics of the neighbourhood and the current utilisation of space.

Interview

Interviews have been conducted with multiple residents in the neighbourhood of Bospolder-Tussendijken to gain a deeper understanding of their behaviour, needs, and perspectives on collectivism. These interviews took place within a workshop showing different statements, after which the residents have had the possibility to answer questions and respond to the presented scenarios.

Backcasting

To be able to translate the future scenarios into designs for the nearer future, the concept of backcasting has been applied. The term backcasting was invented by Robinson (1982) as a method to develop normative scenarios and explore their feasibility and implications.

Design experiment

Design experimentation proves invaluable during the formulation of principles that served as guidelines for the final design. Through experimentation, various solutions have been explored and considered before establishing the overarching principles.

Design

In the final phase, the design methodology have been implemented in this research project. This approach has been utilised to formulate the spatial strategy at the Bospolder-Tussendijken level and, finally, to design spatial qualities at the urban block level.

Phasing

Ultimately, consideration has been given to a phasing within which the final design could hypothetically be implemented. By utilising the insights gained from interviews with residents, it became apparent which sequences of specific design elements could be applied.

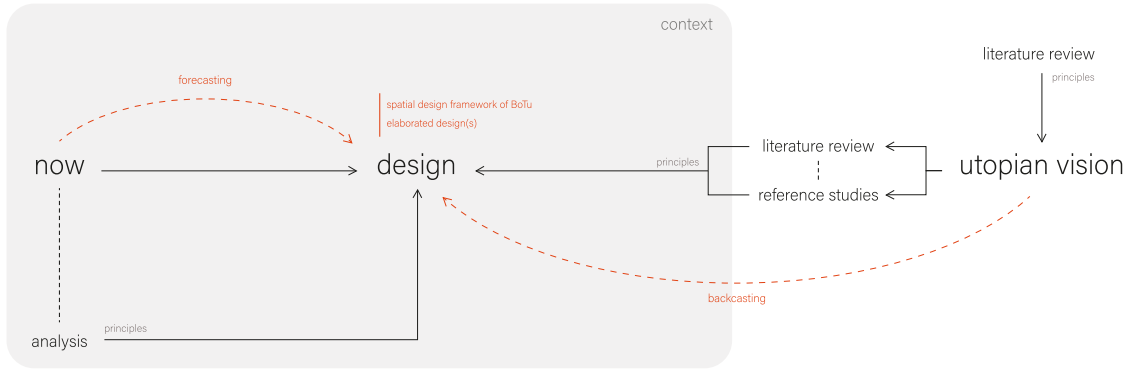


Fig. 3.9: Methodological framework

04.

utopian vision

- Introduction
- Constructed vision

An utopian vision serves as the foundation for this project, from which will be backcasted into the context of BoTu, as illustrated in the methodological framework (Fig. 3.9). To construct a vision that is not constrained by the current situation, a future scenario has been explored without immediately placing it in the context of BoTu.

In this chapter, the concept of a utopian vision will be explained firstly. Following this, the actual constructed vision will be presented. By the use of AI, visualisations have been made as well. These visualisations will then be analysed to extract the main guidelines for the rest of the project.

Why an utopian vision?

Constructing utopias provides insight into potential futures by critically examining our current reality. Through modifying existing or establishing new social and spatial forms, utopia's imaginative and fictional essence facilitates the exploration of various future possibilities (Čulek, 2023).

Translating utopian visioning towards an architectural point of view, it is a way that allows us to reflect on the societal effects in which the built forms are situated within the various spatial and social networks (Čulek, 2023).

The literary genre of utopias derives its name from Thomas More's seminal work published in 1516 under the title "Libellus vere aureus, nec minus salutaris quam festivus, de optimo rei publicae statu deque nova insula Utopia" (Utopia). This book, which outlines the structure and customs of an idealised fictional society

situated on a distant island (Fig. 4.1), is widely regarded as the inaugural example of utopian literature. It serves as the foundational text for much of the subsequent research in the literary exploration of utopias (Manuel & Manuel, 1997).

While utopian narratives remain prevalent in literature, their application as a critical tool in the architectural domain has waned over time. This has to do with the declaration of the 'death of modernity' in the late 1970s, which was stated by leading theorists of that time. Because of the direct link between modernity and utopian speculations, this again resulted in the banishment of utopian visioning from architectural culture. (Contandriopoulos, 2013).

Employing utopias as a critical methodology facilitates social and spatial imagination, sparking optimism for a more favourable future. Despite its apparent focus on the future, utopian thinking



Fig. 4.1:
Thomas More, *Island of Utopia*
(Wormsley Library Oxford, n.d.)

always originates from present circumstances. In an era marked by numerous crises—political, financial, social, ecological, and architectural—constructing utopias serves not only to assess our current condition but also as a tool for envisioning potential futures (Čulek, 2023).

The vision that has been constructed is based on the theories that are mentioned in the theoretical framework, which serve as a base for the rest of the project.

This exists of the social dimension, as well as the commons, as well as the physical outcome, which all are part of the constructed vision.

The vision that is following, is being used as input to generate images by the use of AI, from which spatial design principles again can be extracted as input for the next phases of the project.

An ideal world

By 2100, all inhabitants within a neighbourhood will operate as a community at the neighbourhood level, where residents will equally divide the commons. All neighbourhoods will comprise a varied array of commons, and if any are missing, it will collaborate with its neighbouring communities to ensure their availability. This will foster the existence of larger, inclusive communities (Fig. 4.1). By providing as many functions as possible within the frameworks of a neighbourhood, an individual's daily life will take place much more within this neighbourhood, which will ensure more connection with the neighbourhood one lives in.

In addition to neighbourhood-wide sharing initiatives, smaller systems will also be implemented to facilitate sharing on a more localised level. Urban blocks will collaborate to create systems that accommodate a variety of functions across multiple blocks. Moreover, within a single urban block, various communal spaces will be designated for collective use. Collectivity can manifest itself on various scales, depending on the context.

Fig. 4.1:
Utopian vision of the neighbourhood
(generated in AI, ImageFX, n.d.)



Social and environmental sustainability

When shared functions are utilised, additional space is made available for various purposes. This allows for the designation of more areas as green space, which is beneficial for both environmental and social sustainability. By residing in communities, individuals can support one another and look after each other, leading to a more socially sustainable neighbourhood as well.



Fig 4.2:
Utopian vision of urban blocks
(generated in AI, ImageFX, n.d.)

05.

theory of collectivity

- Introduction
- The commons
- Designing for people
- Conclusion

The next phase of the study on collectivity involves theoretical research. This chapter will delve into theories and principles that underpin the fundamental aspects of the utopian vision discussed in the previous chapter. These theories will offer various perspectives for analysis.

Since the project's approach is centered around collectivity, which can be fostered through shaping communities and an economy based on the commons, these elements will form the basis of this research phase. The exploration of urban commons will kickstart the first chapter, followed by human-oriented research. This sequential approach is essential because spatial distribution isn't only about efficiency; sharing space also leads to a reduction in required space (Umwelt Bundesamt, 2020), while also influencing how people perceive and experience it. Social cohesion and community building aren't phenomena that can be forced; rather, space can serve as a catalyst for them (Lyppens, 2012).

Within this chapter, the theories discussed will be further explained through the examination of several reference projects. These projects will not only offer valuable insights but also assist in guiding the subsequent analysis for establishing design principles.

Fig. 5.1:
Statue at Schiedamseweg



Introduction

In this chapter, the concept of the commons and its importance in promoting sustainable development will be explored. Privatisation has often led to unequal distribution of resources and facilities, making it difficult for residents to access them fairly. The commons offer a solution to this problem by ensuring that resources are shared among all residents, regardless of their social or economic status. To better understand the complex composition of these systems, the commons are being categorised to be able to design and analyse them.

Approach

The categorisation of the commons used in this research is based on an ongoing research project of the action group Shareable (2018), which comprises multiple researchers and designers working towards a more equitable and resilient society through sharing commons.

The categorisation that is made consists of land, housing, mobility, food, work, waste, energy, water, governance, finance and technology. For this research, the focus will be on the categories that have a direct, tangible focus on spatial implications, instead of categories which express themselves mainly in flows or are less tangible to design with (Fig. 5.2).

Land

The first common consists of land. This common will not only be about the ownership of land, which might be less tangible, but also about the functionality of this land. This category will also be about who are the users of a certain amount or type of land.

Mobility

Efficient mobility is a fundamental component of a thriving urban environment. Every citizen should be able to be part of this transportation

network to be able to move themselves. Unfortunately, many cities are struggling to deliver their populace with effective transportation networks. The main problem of this issue lies in the privatisation of transportation infrastructure throughout the last hundred years (Shareable, 2018). This encompasses privately run transportation services, as well as the widespread prevalence of privately owned vehicles.

Housing

By treating housing as a common resource, it can be ensured that housing rights are prioritised over profits. To make more efficient use of the existing occupied spaces, we should distribute them more equitably among people and merge functions.

Work

Commoning work means that the jobs that will become available will add value to the collective good, instead of the individual good.

Energy

If energy were considered a common resource, large corporations would no longer be able to solely profit from it. Instead, it would be used for the benefit of society as a whole, thus encouraging the development of sustainable energy sources. Besides the fact that energy is about flows, it can also have a spatial impact, such as in the case of locally generated energy.

Water

If water was considered a common good, then everyone would have access to fresh and healthy water. As a result, we would all be responsible for its preservation, rather than the current scenario where large industries are the ones responsible for polluting water. This topic is also about spatial impact besides flows. However, redesigning main water structures is quite challenging.

Food

If food were seen as a shared good, the process from production to consumption should be more contained, instead of big companies making a profit from it. It reduces the scale of the food chain, which not only leads to changes in flows but also in space.

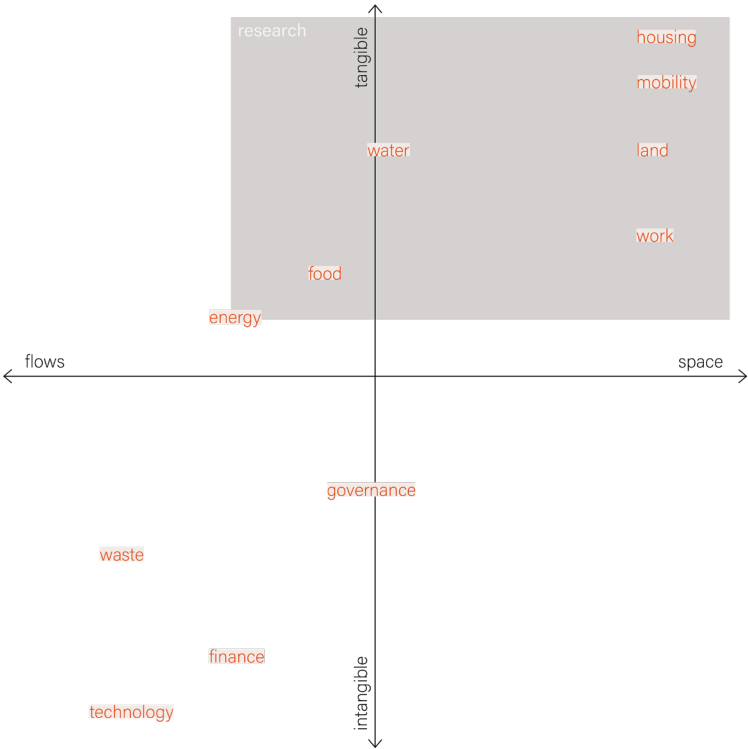


Fig. 5.2: Research scope

Waste

If waste were treated as a common resource, individuals would be more mindful of their waste production, rather than leaving it up to large companies to rectify. As this topic is more about flows and less tangible, I will not elaborate on this element of the commons within this project.

Technology

As long as technological development is dominated by global capital and intellectual elites, it seems difficult to see how it can contribute to the empowerment of local communities (Shareable, 2018). As this category is abstract and non-spatial, it will not be further elaborated within this project.

Governance

The concept of urban city as a commons calls for a governance regime that is more open than what we currently have in most cities, according to Foster and Iaione (2016). Urban collaborative governance is a form of governance that enables ordinary citizens to improve their lives and

their communities in ways that promote human well-being. This type of governance is based on self-organised sharing arrangements and is characterised by the sharing of power, control, and authority (Shareable, 2018). However, this research will focus on the urban transformations of commoning. Even though this will be the result of a change in governance, this will not be elaborated further within this project.

Finance

Collective financing operates on the basis of mutual benefits. This type of funding supports projects that may not result in immediate returns on investment but are extremely crucial to our long-term well-being and the sustainability of natural ecosystems. Needs-based financing prioritises public needs, implying that benefits and risks are distributed equitably among all stakeholders. This can only be achieved if all parties bear ownership, responsibility and participate in decision-making (Shareable, 2018). This is also an intangible category, which means it will not be included further in this study.

Land

From ownership to usership

Currently, lots of surface of land is being privatised. This comes together with visible inaccessibility and inequity in the urban landscape. In the future, land should be dedicated to collective purposes, to create equality in the city instead of profit-oriented plots (Labaeye, 2018). New rules need to be made about the division of power and ownership of urban structures. Commoning land makes people user-sharers, instead of owners (de Moor, n.d.).



Fig. 5.3:
Deeltuinen Utrecht (Delva, 2021)

When land will be hierarchically subdivided into different levels of sharing, plots within building blocks serve for the residents of that specific block, streets that connect different blocks will be collective space for the residents of these different blocks, larger public spaces will be available for the whole neighbourhood and larger streets serve the rest of the city.

Deeltuinen, Utrecht

An example of collective land use can be found in the 'Deeltuinen' in Utrecht, existing of a shared green oasis with the sharing economy being used as a carrier of the plan (Delva, 2019). Private gardens give way to a communal inner garden with various functions. Low vegetation separates the private areas, encouraging social interaction.

Functional division

Besides the division of level of use, the division of functions should also be kept in mind. In the current situation, Rotterdam consists of a small amount of vegetation, which leads to an increased UHI (RIVM, 2020). Besides the fact that this is unsustainable in environmental perspective, a low amount of vegetation also decreases peoples' wellbeing. Enhancing residents' life, enough walkable, community and greenspace should be provided (Taylor & Hochuli, 2014). This division of functions can be translated into guidelines of spatial proportions per category. Per housing unit, a certain amount of work, public space and infrastructure should serve that housing unit, in order to share space fairly and equally among people and to facilitate spatial quality to the neighbourhood.

Mobility

The 15-minute city

If in the future neighbourhoods will develop towards independency, this means that many functions will be situated in this neighbourhood. This will again result into a neighbourhood which is focused on slow traffic, instead of a neighbourhood focused on cars, which is the situation right now.

This idea has a direct link to the theory of Carlos Moreno (2016), which is the so-called 15-minute city.

The 15-minute city epitomises a fresh urban concept advocating for a human-centred and environmentally sustainable urban environment. Essentially, it proposes that cities should be planned or redesigned to enable residents of all demographics and areas to conveniently reach their daily essentials—housing, employment, food, healthcare, education, and cultural and recreational facilities—within a 15-minute walking or biking distance. This model fosters a decentralised city layout and encourages a transition away from dependence on private vehicles, thereby curbing fossil fuel usage and enriching the overall well-being of residents (Moreno, 2021).

However, to avoid complete independency as well as social isolation, people still need to be able to move larger distances than only within the frameworks of a neighbourhood. Shared cars can serve as a viable alternative to private vehicles, alongside a well-functioning public transportation system. Several cities are already experimenting



Fig. 5.4:
Car-Free Livability Program in Oslo
(Pedestrian space, 2021)



Fig. 5.5:
Car-Free Livability Program in Oslo
(Pedestrian space, 2021)

with car-free zones. The immediate outcomes include a reduction in required parking spaces and highways, allowing for the repurposing of such areas for community spaces and social interactions (Marcheschi, et al., 2022 & Figs. 5.4 & 5.5). Moreover, a decline in traffic-related air pollution, noise pollution, and temperatures is also anticipated as the number of cars in urban environments decreases (Nieuwenhuijsen & Khreis, 2016).

Housing

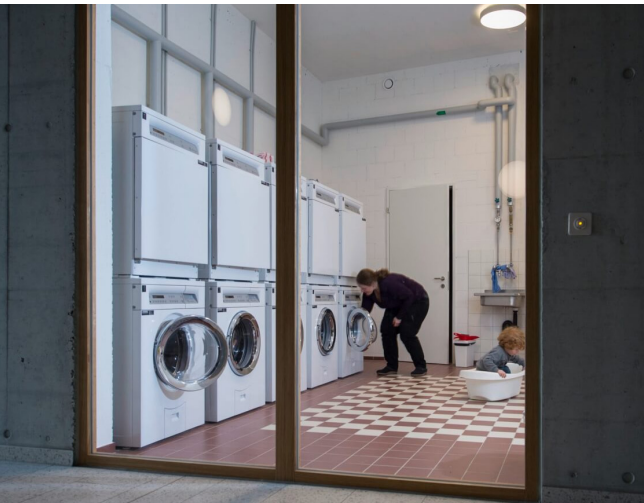


Fig. 5.6:
Common laundry room at Hunziker Areal
(Meisser, n.d.)

Maximise shared spaces

Considering housing as a common (right), space which is devoted to housing should be distributed (more) equally among the residents of a neighbourhood. In such a densed neighbourhood as Bospolder-Tussendijken, it makes sense to share certain housing functions. When functions -such as bathrooms, kitchens, living rooms- within different households will be shared, relatively less space per capita is needed (Umwelt Bundesamt, 2020). Sharing space leads to a more efficient use of space, in which more space will be devoted to the serving community as well as to the individual (Bahner & Böttger, 2016).

Sharing housing elements can be translated as co-living (collaborative living), which is presented as a connected lifestyle which facilitates sustainable living practices by optimising resource and space utilisation while promoting shared consumption, and thus doesn't only include the social dimension of sustainable development (Ataman & Dino, 2019), but also the environmental dimension.

Besides merging households in general, intergenerational clusters may bring even more benefits. On the one hand, this concept works as a measure to gain personal growth for younger people, and on the other hand works against the feeling of loneliness for older people (Gurung, e.a., 2022).



Fig. 5.7:
Community kitchen at Gleis 21
(Prytula, n.d.)



Fig. 5.8:
Centraal Wonen Delft
(Centraal Wonen Delft, n.d.)

Centraal Wonen, Delft

Examples of housing communities demonstrate various ways of sharing. An illustrative case of sharing across different scales is Centraal Wonen Delft (Figs. 5.8 & 5.9). Established in 1981, this housing community accommodates approximately a hundred residents, organised into four clusters comprising two to four small housing units with six to eight people each. Each cluster has its own building equipped with amenities like a garden, bicycle storage, laundry facilities, and other shared spaces. Additionally, each small housing unit features a communal kitchen and living room.

The community management functions effectively in this setup, despite being non-binding. The clusters are interconnected, facilitating interaction among different groups, and residents are not strictly confined to their own residential unit. Moreover, there is flexibility in the rental arrangements; individuals seeking more privacy have the option to rent a room with a small kitchenette.



Fig. 5.9:
Centraal Wonen Delft
(Centraal Wonen Delft, n.d.)

Work

A local economy

Building on Moreno's (2016) concept, the 15-minute city incorporates employment opportunities within the neighbourhood, accessible by walking or biking. This entails a diverse range of job options within the neighbourhood to meet the residents' needs. A locally organised system not only enhances accessibility but also stimulates the local economy (Moreno, 2021).

Treating employment as a shared resource also signifies the importance of leveraging existing knowledge. By fostering knowledge-sharing networks at various scales, communities can benefit immensely. This is particularly relevant given the rising trend of freelancing, highlighting the potential value of such connections (Sharp, 2018).

The democratisation as well as decentralisation of production and consumption are ushering in new work environments, such as Fab Labs and collaborative workspaces (Sharp & Balwani, 2018).



Fig. 5.10:
Makerspace
(Design Engine, 2015)

Energy

Shared distribution

In the future, energy should be extracted from renewable local sources, instead of the current situation in which extraction from fossil fuels are dependent of mines which are located in only a few specific locations in the world, the generation mostly occurs in plants that hold monopolies and a distribution system within the control of a few corporations as well, all with the eye on the profit.

The qualities of the specific locations should be used to be able to generate local energy, and if a specific location is more suitable to generate energy a sharing system is necessary. In this way, localities will be able to exchange energy to even out imbalances in demand as well as supply (Hoeschele, 2018).

Local sharing systems can exist out of systems on building block levels by the use of solar panel systems. Examples show that adding solar panel systems on public buildings can also provide a larger community of energy, as is happening in Brussels (Fig. 5.11).

A next possibility would be the connection to the residual heat network (Gemeente Rotterdam, 2018). This implies that the warmth of industrial activities will be used to heat up residential areas. However, with an eye on the future, this would also not be an optimal solution since the industrial activities may not be sustainable as and might go in transition as well.

Two other sustainable solutions to generate energy from are geothermal heat and thermal



Fig. 5.11:
Shared distribution
(Energyvision, 2023)

heat from surface water (Van der Rest, 2023). Placing the energy systems in the perspective of the commons, the ownership of this energy distribution should be divided among the users as well, so the extracted energy is not profit oriented. In this way, sharing systems in different levels will be realised: on urban block- and neighbourhood level.

Shared demand

Besides the energy distribution, the total amount of energy use will be changed as well. Shareable functions such as washing rooms, bathrooms, kitchens, living rooms, etcetera, lead to a decrease in the needed energy demand (CBS, 2021), as already introduced in the housing paragraph as well.

Water



Fig. 5.12:
Stroom (Baljon, 2018)

Local water management

Currently, water management in the Netherlands is primarily overseen by decentralised government bodies known as water boards. These entities are responsible for tasks such as water supply and drainage, sewage treatment, disposal of polluted water, and maintenance of flood defenses (Waterschappen, n.d.).

In addition to governmental management, ownership of Dutch water is held by several large companies, which are publicly owned (Evides, n.d.). However, there are further possibilities to involve users in the system through cooperative models. For instance, in the United States, there

are over 3,000 rural water cooperatives established to maintain water supply infrastructure in rural areas (Skeehan & Kichler, 2018).

Nevertheless, these efforts primarily involve governance adjustments. Water policy can also become more localised by integrating water retention measures within neighbourhoods or districts as part of community initiatives. This approach would entail spatial considerations, such as the implementation of wadis (Fig. 5.10), green roofs, water squares or underground storage. In this case, rainwater can be used for multiple purposes within the community, such as water for the washing machines or toilets (Zlatanovic, 2021).

Stroom, Utrecht

An example of local water management can be seen in the Stroom project in Utrecht (Blauwhoed, 2021). This enclosed courtyard features a system comprising water walls, garden troughs, and wadis that collect water locally (Fig. 5.12). The collected rainwater can then be used to water plants. Additionally, the visible overflow of rainwater into the wadi raises awareness of sustainable water management practices (Baljon, 2018).

Food

Create awareness

By cultivating own food, awareness will grow. People will gain more knowledge about the food they eat and their former dependency on the global food system.

Less dependency on the global food system will not only support the environmental sustainability, but also the social sustainability. People have a shared responsibility which will have a positive influence on the social cohesion, since communal-based activities that promote collectivity can be implemented to foster a sense of community spirit (Ali, e.a., 2012).

A certain amount of residents of an urban block will own their own cultivation space of which they take care by themselves. However, a maximum of people that use such space needs to be established to achieve efficiency within this cultivation system (Foster & Iaione, 2016).

A diversity in amount of shading, leads to a diversity of cultivated goods, which can eventually be used in a sharing system.

GWL terrein, Amsterdam

An example of collective cultivation can be seen in the GWL terrein in Amsterdam. This neighbourhood features a car-free zone with lots of space for communal green areas, including 80



Fig. 5.13:
Community gardens
(GWL terrein, 2024)

allotment gardens divided into six fields, each with its own unique layout. The gardens will be managed by a purpose-built management association, which will allocate the gardens to interested parties from the surrounding area, giving priority to GWL residents.

The association organises events several times a year where gardening knowledge is shared through workshops or lectures. Additionally, a variety of gardening tools are available for loan from the management (GWL terrein, 2024).

Neighbourhood scale

In addition to the allocation of the commons, it's essential to recognise that designing for people as a community requires additional principles to foster community building and enhance the quality of living environments for residents.

The first scale to be explored is that of the neighbourhood. As discussed in the theoretical framework, the idea of a community at the neighbourhood scale becomes feasible when all urban activities are situated within the neighbourhood boundaries (Krier, 2009).

However, in addition to these core urban activities such as housing, employment/ education, and recreation, community-based initiatives also contribute significantly to fostering a sense of social cohesion (Rosa & Weiland, 2013).

A sustainable neighbourhood

Such community-based initiatives as mentioned above, can be a result of a certain problem or challenge that should be tackled. It involves implementing urban changes within communities or neighbourhoods, driven by local residents using their own resources and efforts (Rosa & Weiland, 2013). In this way, communities on the scale of a neighbourhood can strive towards independency, as is envisioned in the utopian society.

Rosa and Weiland (2013) are stating that community initiatives stem from proactive actions and encourage citizen involvement at the local level. Through these initiatives, individuals identify opportunities within challenges, creatively utilise available resources, and establish partnerships to accomplish specific objectives aimed at addressing their daily needs and ultimately enhancing the quality of life within their communities.

By introducing initiatives centered around collective issues like climate change and fostering active participation and engagement within these initiatives, public awareness and knowledge will expand, thereby enhancing resilience (Khatibi et al., 2021).

Repair cafés

An example of community-based initiatives is the concept of repair cafes. The idea behind these cafes is for individuals to bring in items that need fixing and repair them collaboratively with members of the initiative, rather than purchasing new products. One such example is located at *het Wijkpaleis* (Fig. 5.14), which I have also visited. In addition to having your items repaired, you also have the opportunity to learn how to do it yourself and connect with people from the neighbourhood.

Fig. 5.14:
Repair café at het Wijkpaleis (Wijkpaleis, n.d.)



Learning by doing

Another example is *Archiklas*, an organisation that offers inspiring lessons, workshops, and other activities for children, with societal issues as guiding themes. Within this organisation, designers from the Rotterdam region teach children about climate change and various methods of design through hands-on activities (Fig. 5.15).

However, this organisation operates on a relatively large scale, involving designers from across the entire Rotterdam region. While this may enhance the breadth of knowledge, greater coherence within local communities could be achieved if all participants were from the same neighbourhood.

For instance, if similar initiatives were implemented at the local community level, sharing knowledge between these organisations could be beneficial.

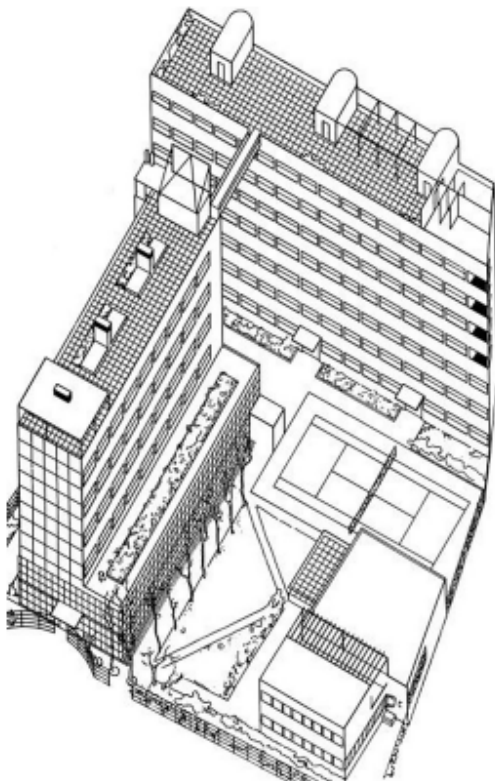


Fig. 5.15:
Archiklas, Rotterdam (*Archiklas*, n.d.)

Urban block scale

Compact housing arrangements centered around collective spaces are often viewed as sustainable models for urban development due to the space efficiency they offer relative to the number of inhabitants they accommodate. However, it's essential to recognise that the mere presence of collective spaces does not guarantee social sustainability within a community, as discussed in the theoretical framework earlier. The specific placement and design of these spaces significantly impact their ability to foster social sustainability (Lyppens, 2020).

Fig. 5.16:
Dom Kommuna
(Berkovich, 2019)



Dom Kommuna

One well-known example of collective housing is the Dom Kommuna (Fig. 5.16), which was invented as a physical realisation of the communist beliefs in 1920's Soviet Union. Following their rise to power in Russia in the autumn of 1917, the left-wing socialists, initiated extensive socialist propaganda campaigns to promote their ideology.

In summary, architects of the Soviet Avant-garde, staunch believers in socialism and strong proponents of the regime, were particularly intrigued by a fundamental aspect of the communist utopia: the concept of cultivating a new, liberated individual whose welfare was intricately tied to the collective interests of society. They viewed it as their responsibility to contribute to the development of physical surroundings conducive to nurturing a communal existence and reshaping individuals (Berkovich, 2019). This means that the invention of this new housing typology was part of an experiment of the Soviet Union to control people's life, while promoting it as equal wealth distribution.

Ultimately, the experiment failed for two main reasons. Firstly, life cannot be contained within rigid and inflexible frameworks. Secondly, the society became increasingly dictated and began to function more like a crowd. The housing experiment initially allowed for a limited degree of self-governance, which posed a threat to Stalin, leading to the termination of the experiment (Berkovich, 2019).

Lessons to be drawn from this example include the necessity for flexibility within collective housing communities, without imposition from external forces. Additionally, individuals should have a voice in determining their needs, desires, and preferred modes of organisation within their neighbourhoods.

Sunnyside Gardens

Another example of a design experiment is Sunnyside Gardens in Queens, New York, realised in the 1920s as part of the progressive American New Town planning movement, inspired by the English social garden city model. The project comprises fifteen building blocks featuring a mix of ground-level terraced housing and apartments clustered around green courtyards. It aimed to deliver 1,200 quality and affordable housing units while preserving over 70% of the land as open green space. Cars were minimised, relegated mainly to parking bays outside the neighbourhood (Lyppens, 2020).

Initially, the project thrived for about thirty years, attracting young families drawn to the safe, green playgrounds. However, around 1960, an upheaval occurred. Original residents departed, making room for a more diverse population that moved into the now somewhat deteriorated homes. With little investment in upkeep, neglect and social deprivation ensued, leading residents to prioritise privacy.

Nevertheless, some housing blocks managed to maintain collectivity. One possible explanation is that residents in these blocks shared similar needs (Lyppens, 2020). This example highlights the unpredictable challenges collective housing can face, including social, economic, and political changes.

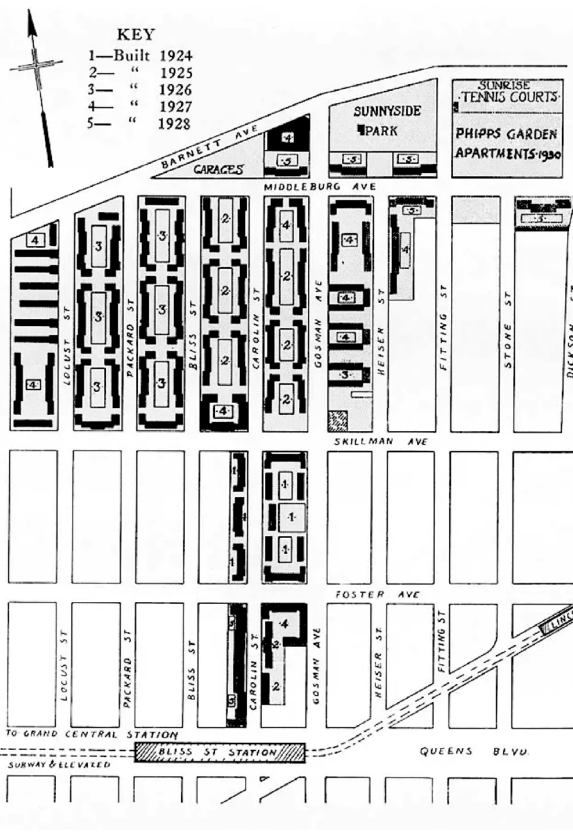


Fig. 5.17:
Sunnyside Gardens
(World Garden Cities, n.d.)

Urban block scale

The preceding pages illustrate examples of collective housing models that ultimately proved ineffective. However, numerous examples exist where collectivity thrives. From these successful examples, design principles can be derived.

Distribution of space

The preceding pages illustrate examples of collective housing models that ultimately proved ineffective. However, numerous examples exist where collectivity thrives. Various typologies showcasing collectivity include the Dutch hofjes, Belgian arbeidersbeluiken (Fig. 5.18), and the mews from London. From these successful examples, design principles can be derived.

Several examples are characterised by row houses oriented toward a common intermediate space, which can manifest in different forms such as a street, square, or alley. Another characteristic is the presence of a barrier to pass through before reaching the collective space. This offers both a degree of privacy and control within the community. However, complete isolation from the public realm is also undesirable. To facilitate exchange between the public and private spheres, open, porous structures are necessary in the city, with in-between spaces acting as membranes (Sennett, 2018).

Another remarkable aspect is the communal utilisation of space in historical examples like beguinages and workers' bellows, which are preserved to this day. However, its function may have evolved. While collective spaces may have once served as areas for communal cooking or laundry, today, they predominantly function as recreational spaces. The open layout of these communal areas allows for flexibility in their usage over time. As mentioned in the theoretical framework, gradual transitions between public, collective, and private spaces provide both privacy and opportunities

for social interactions. These transitions can take various forms such as steps -as seen in the Stampioenwarsstraten (Fig. 5.18)-, gates, facade gardens, or variations in materials that delineate changes in the environment. These transitional elements offer residents a sense of control between the public and private domains.

A common feature across all successful examples is the positioning of the collective in-between space. In each instance, individuals must traverse this space to reach their own front door. Collective utilisation is essential for accessing the private domain.

Fig. 5.18:
Stampioenwarsstraten
(Stampioenwarsstraten, n.d.)



Stampioenwarsstraten, Rotterdam

The Stampioenwarsstraten comprises two car-free streets where residents are organised into a residents' association. Together, they make collective decisions regarding shared spaces and events. Unlike having private gardens, they only have communal areas that are utilised efficiently. However, there is observable evidence of individuals appropriating some private space along the facade. Access to the courtyards is facilitated by a staircase on one side, serving as a clear transition from the public to the communal domain.

Potato rows, Copenhagen

This residential neighbourhood comprises 11 parallel streets situated perpendicularly between two major city boulevards. The 11 streets have been transformed into car-free zones, prioritising slow traffic. A communal space is formed between the row houses with private gardens, where collective functions have been incorporated.

Worker's quarters, Ghent

These housing blocks are common in Belgium, particularly in Ghent. They are typically found in cul-de-sacs or courtyards and are characterised by their rapid, compact, and often inexpensive construction near the factories where the inhabitants worked. The courtyards have been well-preserved, and much collectivity is now evident, attributed to the addition of collective elements.



Fig. 5.19:
Potato rows
(Dejlige days, 2013)

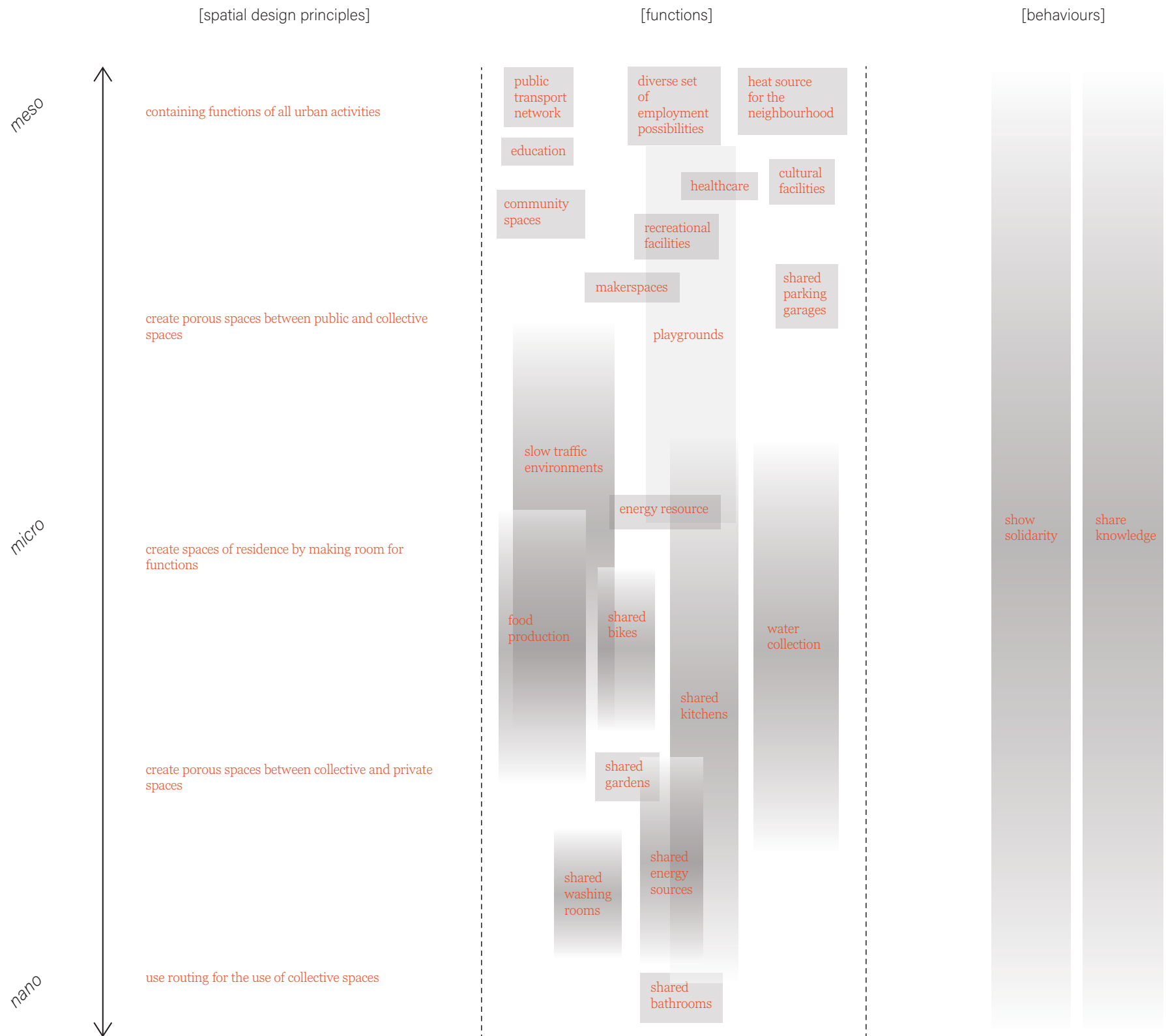


Fig. 5.20:
Worker's quarter
(Stad Gent, 2022)

After conducting theoretical research and reference studies, initial conclusions have been drawn, which form the basis for the first design principles, proposed functions, and important behavioral characteristics.

It can be concluded that designing based on the concept of the commons connects people both literally and figuratively. Interventions at different scales can lead to communities forming at various levels.

Fig. 5.21:
Principles from theories



06.

analysis of collectivity

- Introduction
- Urban biography
- The inhabitants
- Interscalar studies
- Conclusion

To address the question of how current developments at different scale levels may conflict with or contribute to a collective urban approach, it is necessary to gain a comprehensive understanding of the Bospolder-Tussendijken neighbourhood (BoTu). This involves conducting a historical review of the area, which will illuminate the functional evolution of BoTu over time.

Secondly, a demographic study will be conducted to gain insight into the inhabitants of the area, as they represent the target group for the design interventions.

Next, a spatial analysis will be undertaken to assess the current situation in BoTu. Given the potential variation in scales of sharing and community establishment identified in the previous chapter, this analysis will involve categorising different scale levels, providing a foundation for the subsequent analysis. This phase will conclude with an overview of potentials and weaknesses, laying the groundwork for the collective design phase.

The analytical phase will also be instrumental in formulating design principles, which will serve as the basis for the design phase.



Fig. 6.2:
Park 1943



Fig. 6.1:
Bospolderplein



Fig. 6.3
Places of parking

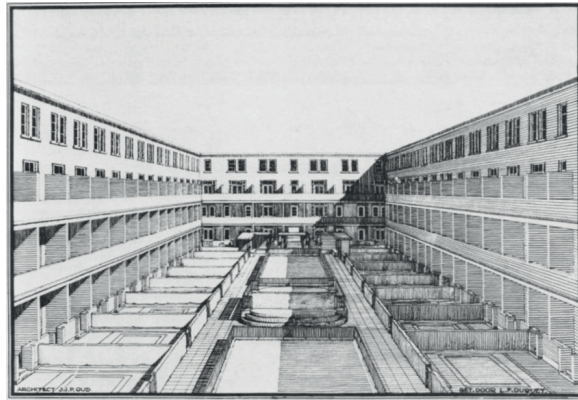


Fig. 6.5:
Situatietekening woningbouw J.J.P. Oud
(Steenhuis stedenbouw/landscap, 2012)

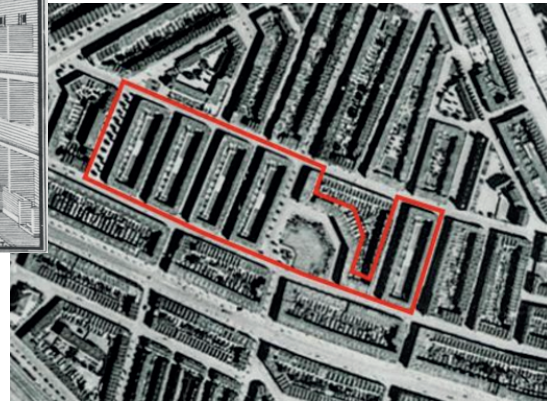


Fig. 6.6:
Luchtfoto woningbouw J.J.P. Oud
(Steenhuis stedenbouw/landscap, 2012)

Het vergeten bombardement
(Ons Rotterdam, 2003)

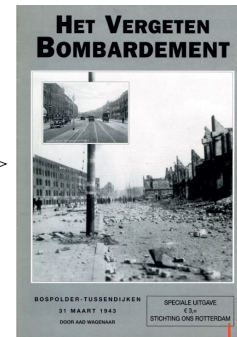


Fig. 6.7:

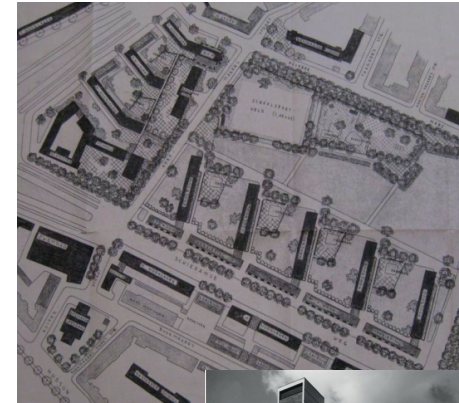


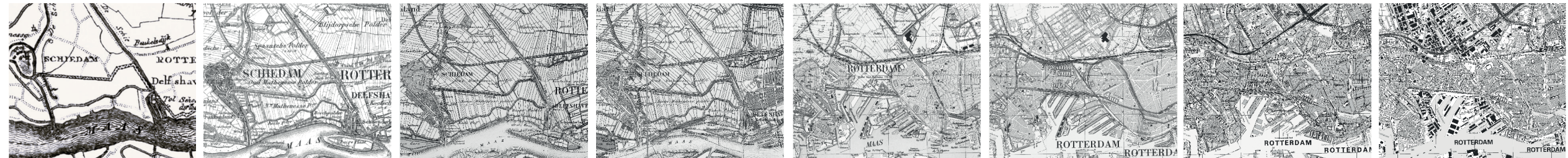
Fig. 6.9: Gijsingflats top view
(Steenhuis stedenbouw/landscap, 2012)



Fig. 6.8: Gijsingflats top view
(Steenhuis stedenbouw/landscap, 2012)



Fig. 6.10:
Schiedamseweg (Archieven.nl, n.d.)



1820

1850

1880

1910

1940

1970

2000

now

The main structuring feature on the map is the 12th-century Schielandse Hoge Zeedijk, extending from Schiedam to Gouda. South of this dyke, the Nieuw-Maternesserpolder and the Bospolder were established, both safeguarded by a dyke running parallel to the Westzeedijk. It is from this configuration that the neighbourhood of Tussendijken derived its name.

Urban expansion of Delfshaven, Schiedam and Rotterdam.

Following the construction of the Schiedamseweg, Delfshaven became less isolated. In anticipation of the port expansion south of Delfshaven, the area behind Delfshaven was prepared for habitation.

Implementation of building blocks designed by architect J.J.P. Oud with a shared courtyard, promoting a 'living in the green' concept.

Bospolder underwent densification to transform it into a residential area for workers.

Speculative construction involved private builders building houses that differed from each other.

Reconstruction.

Introduction of a new building form in Tussendijken with designated open space for public greenery.

Visserijplein functions as a market.

The forgotten bombing in 1943 destroyed a large part Tussendijken.

Migration flows to the Netherlands have altered the identity of this neighbourhood, resulting in a streetscape characterised by numerous non-Western influences.

Becoming the first resilient neighbourhood of Rotterdam.

Fig. 6.11:
Change in streetscapes
(historical images: Steenhuis stedenbouw/landschap, 2012)



1. Bospolderplein



1930

now



Bospolderplein used to be a central square in the neighbourhood, where a church also stood.

Today, the square serves as a playground for children, surrounded by many parking spaces.

2. Spanjaardstraat



1936

now



The Spanjaardstraat used to be a wide avenue with space for a weekly market until the rails for the tram were laid in 1965.

Today, the tram is the main feature of this street. The plinth consists of a few food shops.

3. Grote Visserijstraat



1930

now



Grote Visserijstraat used to be a wide street with many shops, connecting Mathernesserweg with Schiedamseweg. This function has not changed much today.

4. Schiedamseweg



1930

now



This street was designed as a large boulevard, functioning as a main axis within Bospolder-Tussendijken. It was originally constructed to connect Delfshaven and Schiedam.

Today, the street profile has changed, as the middle section functions as a tramway and the outer lanes for cars. Fast traffic dominates this street.

5. Marconiplein



1960

now



Marconiplein originally should become an elevated traffic square. It currently functions as a hub for different types of traffic.

6. Mathernesserweg



1930

now



This road functions as a direct connection from Marconiplein towards the central station via a new bridge that crosses the Schie.

Fig. 6.10:
Places within BoTu

Demographic study

BoTu is widely recognised as a highly diverse neighbourhood, characterised by a rich tapestry of cultures. This diversity is evident in the streetscapes, where one can observe a wide array of shops, food stores, and other establishments reflecting the multicultural fabric of the community.

This chapter aims to know the backgrounds and demographic statistics of the residents within Bospolder-Tussendijken and to get to know what are their needs, to finally be able to create a design for this neighbourhood which will be based on collectivity.

High density population

BoTu encompasses a total land area of 86 hectares and is home to a population of 13,200 (source). When compared to the overall land area of the city of Rotterdam, which spans 11,240 hectares and accommodates a total population of 308,468, it becomes evident that BoTu houses a significantly larger population than the cities average (Fig. 6.12).

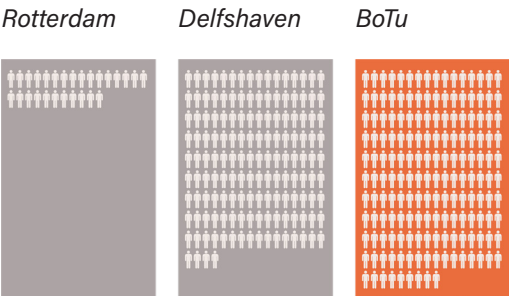


Fig. 6.12:
Comparison inhabitants density
(adapted from AlleCijfers.nl, 2023)

Inhabitants per age

As you can see in Figure 6.13, the 25-45 age group largely predominates in this neighbourhood. People aged over 65 years relate to the lowest number in Bospolder-Tussendijken. It is important to include this data, as different age categories will have different uses and desires.

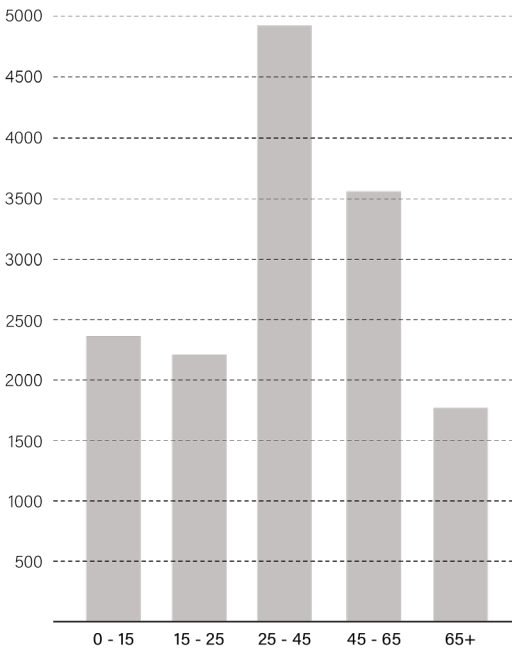


Fig. 6.13:
Inhabitants per age
(adapted from AlleCijfers.nl, 2023)

A diversity of cultures

As mentioned earlier, the neighbourhood of Bospolder-Tussendijken is largely made up of residents from migrant backgrounds (Fig. 6.15), some of which most are of Turkish or Moroccan origin (Fig. 6.16).

The rich cultural diversity is evident in multiple ways; the area is home to mosques and a significant number of non-Western shops.

Given cultural backgrounds can determine residents' needs, this will certainly need to be taken into account in the further design process.

Income

As depicted in Figure 6.14, BoTu is home to residents with comparatively lower incomes when compared to the broader Delfshaven neighbourhood or the city of Rotterdam. However, this socioeconomic characteristic can serve as an opportunity for collectivity, as residents may find support and solidarity within their community.

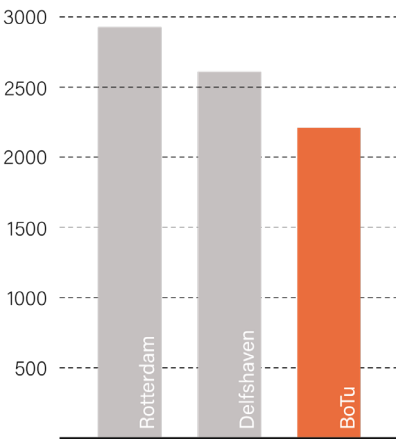


Fig. 6.14:
Comparing incomes
(adapted from AlleCijfers.nl, 2023)

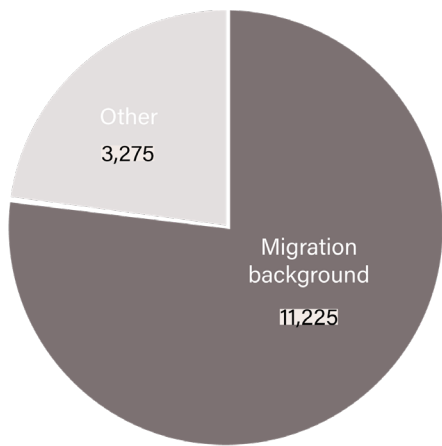


Fig. 6.15:
People with a migration background
(adapted from AlleCijfers.nl, 2023)

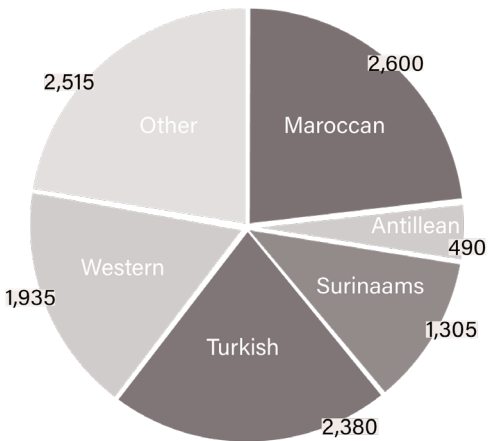


Fig. 6.16:
People with a migration background
(adapted from AlleCijfers.nl, 2023)

Neighbourhood profiles

Wijkprofiel Rotterdam serves as a barometer for the city, providing insights into the social, physical, and safety conditions across its different areas and neighbourhoods. These scores are derived from both tangible data and the perceptions of Rotterdamers.

Utilising the data from the wijkprofiel, the city council and district councils can collaborate with partners, residents, and entrepreneurs to formulate district agreements (Wijkprofiel Rotterdam, 2024).

Statistics

The safety index has shown a significant improvement in the neighbourhood of Bospolder, comparing it with previous years. With a score of 100, the district is gradually approaching the Rotterdam average. This improvement is primarily attributed to objective results, as considerable progress has been made in addressing theft and burglaries.

However, subjective perceptions of safety still trail behind, particularly in Tussendijken. In both neighbourhoods, residents perceive issues such as nuisance caused by young people, disturbance from neighbours, and drug-related problems as ongoing challenges (Gemeente Rotterdam, 2019).

Subjective perceptions of living conditions remain low in both neighbourhoods. Residents express dissatisfaction with their homes and the outdoor spaces. Litter on the streets and dirt near containers are significant sources of annoyance, along with aggressive and anti-social driving behaviour (Gemeente Rotterdam, 2022).

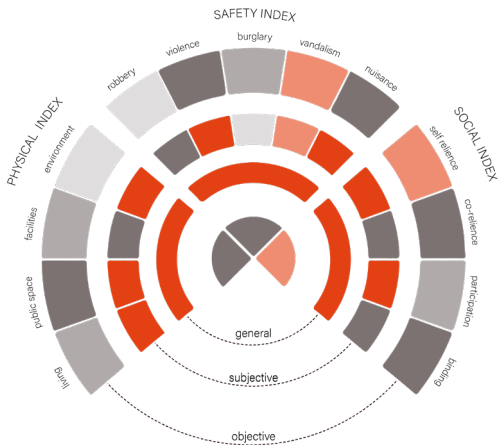


Fig. 6.17: Wijkprofiel Tussendijken (adapted from Wijkprofiel Rotterdam, 2024)

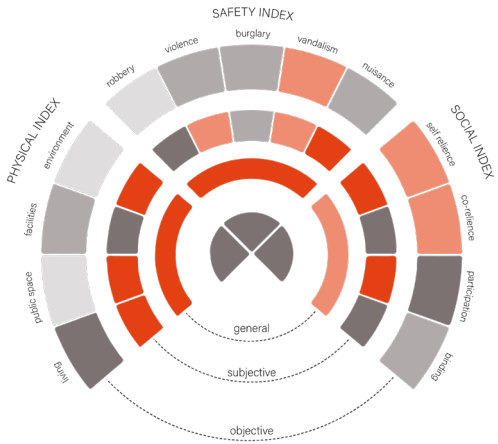


Fig. 6.18: Wijkprofiel Bospolder (adapted from Wijkprofiel Rotterdam, 2024)



A distorted view

Despite the statistics portraying Bospolder-Tussendijken as a neighbourhood rife with economic and social challenges, a markedly different perspective emerges when speaking directly with residents.

Conversations with various individuals (Figs. 6.19 & 6.20) consistently reveal that residents do not perceive the neighbourhood as unsafe, despite what the statistics may suggest. Instead, they express a sense of ease and belonging, feeling that the community looks out for them rather than harbouring ill intentions.


Thanea, 63



“Generally I don’t get out that much late at night, but when I do get out I really don’t feel unsafe in the neighbourhood. During the day I don’t have this concern at all, people say hello in a friendly way or make small talk. The neighbourhood has a nice atmosphere.”

Fig. 6.19: Inhabitant profile 1

Anne, 24



“It hardly ever happens that I feel unsafe in this neighbourhood. Because of my work, I often get home late; friends then often wonder if I don’t find it scary to go home alone, but it never bothers me.”

Fig. 6.20: Inhabitant profile 2

Interviewing inhabitants

An essential element of this research involved conducting a workshop with the neighbourhood residents. The workshop consisted of presenting various statements based on the different categories of commons discussed in the previous chapter. This approach sparked conversations in which residents expressed diverse opinions.

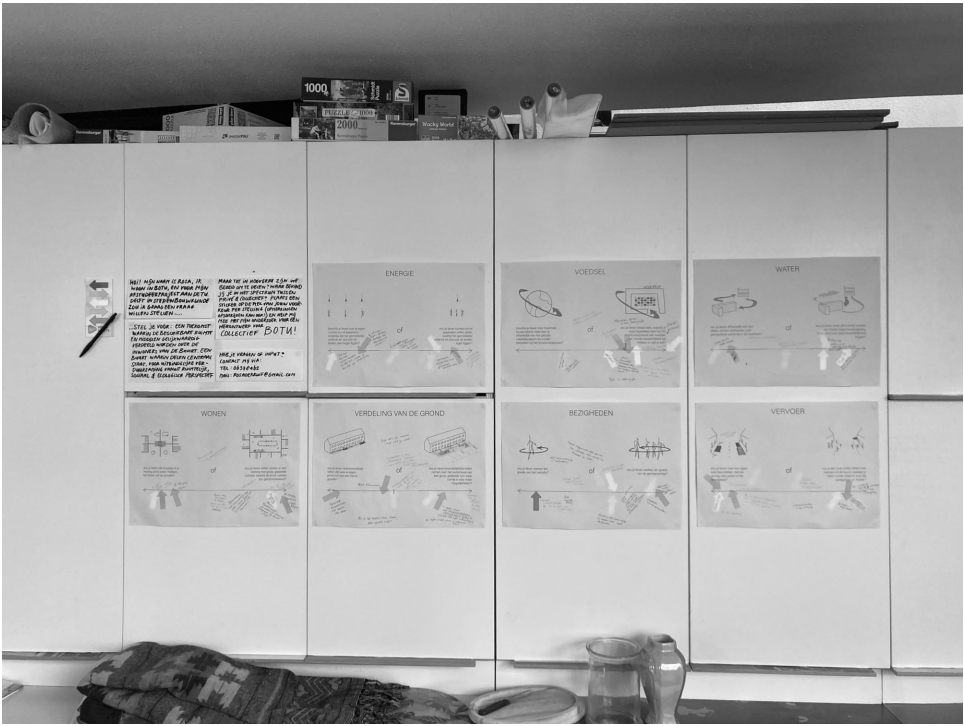
The workshop took place at 'het Bollenpandje', a community centre located in BoTu, during a neighbourhood meeting attended by several residents. In addition to this workshop, several other sessions were held with residents. Input was gathered from various audiences within the neighbourhood, including diverse ethnicities, age groups, and daily activities, thereby capturing a range of desires and opinions.

Finally, the feedback received from the residents will serve as inspiration for the design phase and as a foundation for explaining the phased implementation of the final design.

Fig. 6.21:
Het Bollenpandje



Fig. 6.22:
Workshop set-up



Land

The first section focuses on land use, covering the distribution and infill of available land. It also addresses specific topics such as housing and cultivation on potential land use.

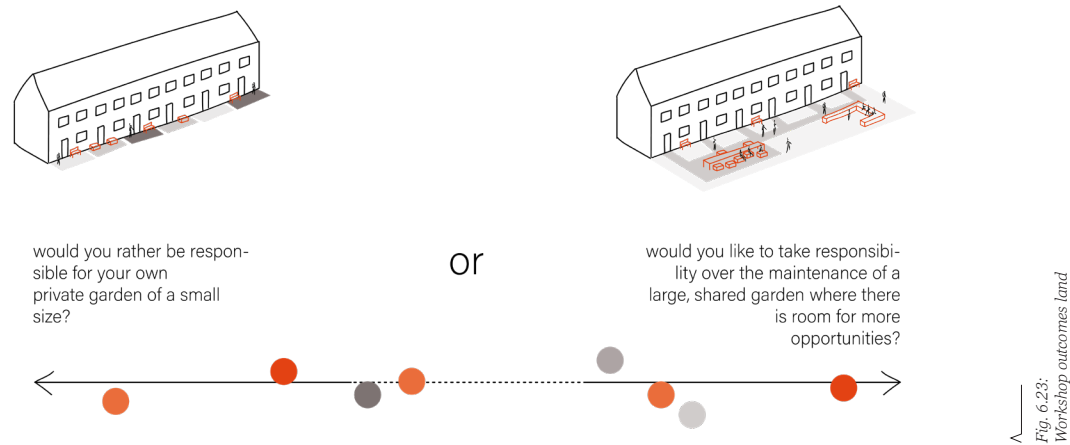
For each topic, extreme scenarios are provided to initiate discussion. In this category, for instance, extremes include having a small private garden versus sharing a larger garden with more possibilities for use, but with the responsibility of maintaining it.

Outcomes

The outcomes in this section were quite varied. There was, however, a clear division between different generations. Older people generally expressed a strong preference for having a private garden, while younger people were very enthusiastic about the idea of shareable land.

However, these conclusions can be seen as logical, as those who were least enthusiastic already had a garden, while those who were keen on sharing only had a balcony.

It was mentioned several times that having the freedom to choose the degree of sharing was important. Additionally, shared responsibility over the shared gardens was also considered important.



Mobility

The next topic concerns mobility. Various forms of shared mobility were discussed, along with the potential space that could be freed up as a result.

The discussion included a proposition that contrasts private car ownership with shared mobility, thereby freeing up more space for pedestrians and cyclists.

Outcomes

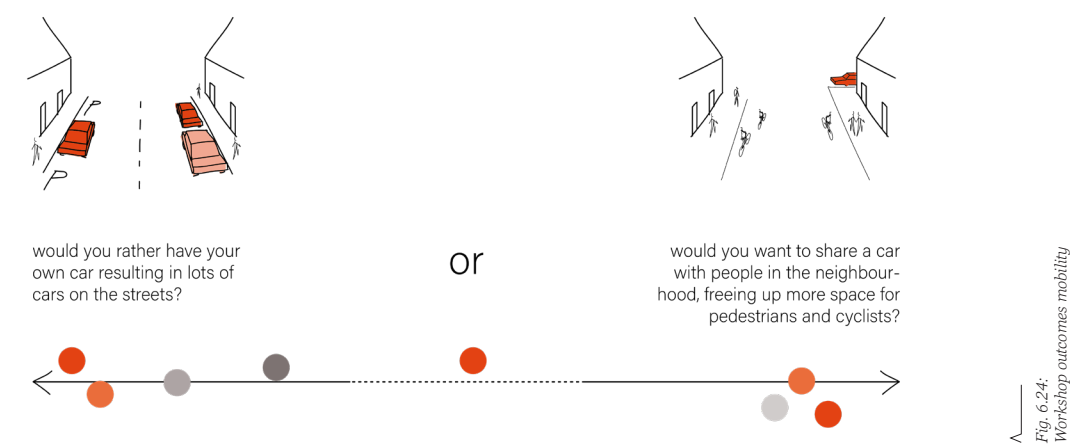
There was also a clear generational divide observed in this section. Older people placed great importance on having their own car and a parking space in front of their home, while younger people disagreed.

Again, this difference in opinion can be attributed to what people are accustomed to. Residents who currently own a car valued this form of mobility the most, expressing their desire to have the freedom to travel wherever they want.

On the other hand, residents who do not have a private car mainly emphasised the importance of good connections to public transportation. They mentioned the importance of having the freedom to travel outside the neighbourhood, even though most amenities would be nearby.

Bicycles were also discussed frequently. Almost every resident expressed a desire to have a bicycle. However, there were discussions about using shared cargo bikes or a communal bicycle for a housing group.

The main conclusion drawn from this chapter is the importance of autonomy. Residents should have the freedom to move around. This aspect will be integrated into the design part of this study.



Housing

The topic of housing was about sharing facilities indoors. The example of the student residence came up a lot. Think of sharing features like living rooms, kitchens, laundry rooms, but on a smaller scale perhaps also bathrooms, etcetera.

The discussion contrasts having a relatively small dwelling containing all facilities -but private- with a situation where the shared functions are maximised there are also more spacious, but the private spaces are minimised and thus also have smaller areas.

Outcomes

In this section, most people expressed the opinion that shared housing should become the norm in the future. It was emphasised that people value the freedom to choose their living situation. They want the option to retreat when needed, and they also desire a variety of housing forms.

Young people, who already live in shared housing, mentioned that the people they live with are crucial. Additionally, the importance of social connections was often mentioned, which can be fostered through shared living arrangements.

However, some residents vehemently disagreed with the idea of sharing indoor spaces. Despite this, many residents mentioned that they would appreciate having a shared kitchen for the neighbourhood. By incorporating various scales of shared spaces, different preferences can be accommodated.

Activities

This topic concerns forms of work that benefit the collective. The topic on work has been enlarged to *activities*, as it can also be about solidarity in the form of volunteering.

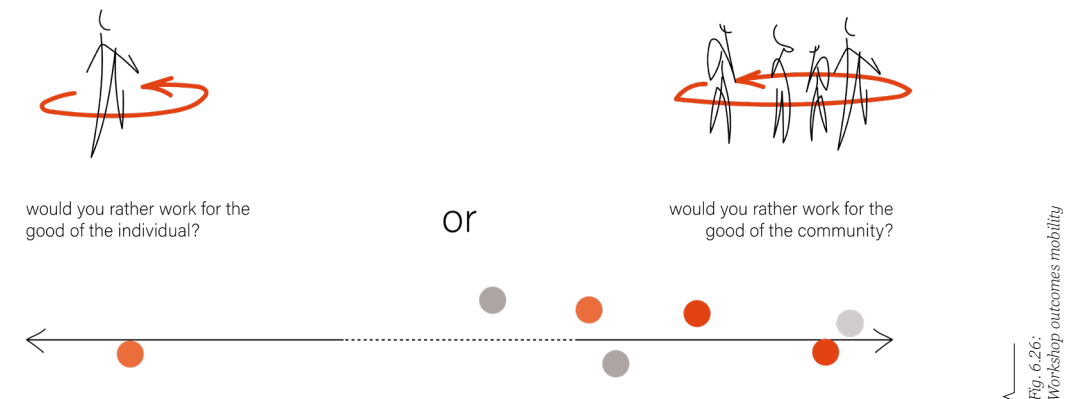
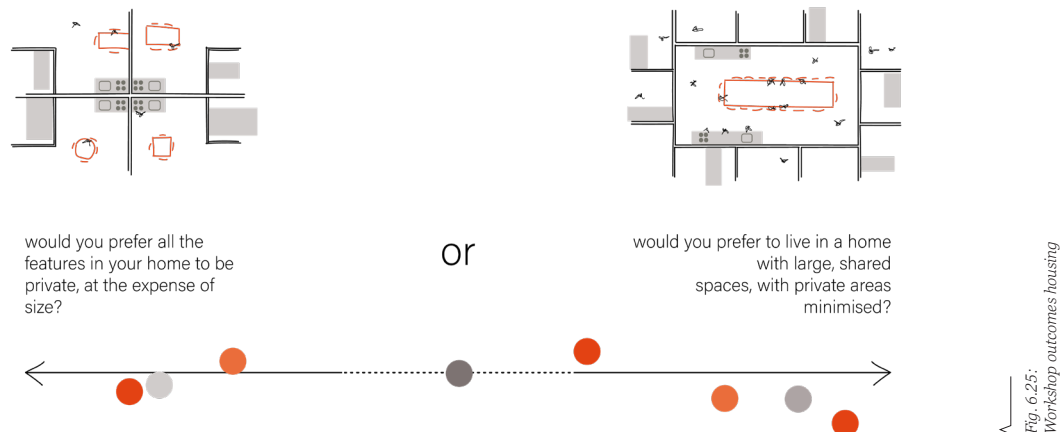
The statement is about working for the good of the individual on the one hand, or working for the good of the community on the other.

Outcomes

Almost all residents spoken to believed that people in the neighbourhood should contribute to the well-being of the community. It was often mentioned that physical health issues could be a barrier to community involvement. There should be a variety of opportunities for involvement to accommodate a diverse group of people.

Residents emphasised the importance of accessibility. Getting involved in neighbourhood activities should require minimal effort.

Finally, there was significant discussion about the importance of solidarity. When others do not show solidarity, it can be discouraging to engage with the neighbourhood community.



Energy

Energy sharing can be viewed as part of housing, but it can also be extended to a larger scale. People can share facilities such as living rooms, dining rooms, and kitchens, thereby reducing overall consumption. Moreover, it involves the generation of energy and how this can be shared, such as through a collective network of solar panels or connection to the city grid.

The discussion on this topic focuses on the sharing of energy-consuming facilities. One proposition contrasts a situation where everything is privately facilitated, leading to higher costs, with a shared model where consumption and therefore costs are lower.

Outcomes

This section also revealed that residents' current habits heavily influenced their opinions. Those currently living in shared housing were most enthusiastic about sharing energy. However, there was significant variation in the willingness to share different types of resources. For example, people were more willing to share a washing machine or dryer than to share a bathroom.

The concept of a shared neighbourhood kitchen was also frequently mentioned in this section, indicating that people value the flexibility to choose the forms and scale of sharing.

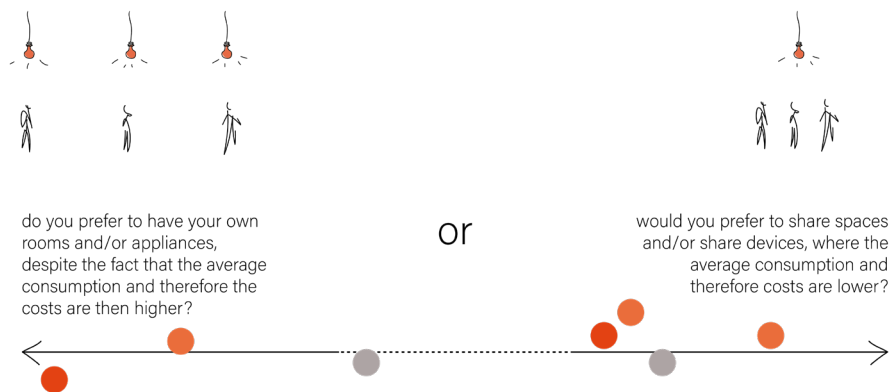


Fig. 6.27: Workshop outcomes energy

Water

Given that water in the Netherlands is regulated by the water boards, which is already a decentralised system, this topic deals with even more localised management. This includes the use of rainwater within a community.

The discussion explores whether people need self-regulation of water systems and can thus make more sustainable use of water within an area.

Outcomes

Overall, the residents interviewed expressed positivity about small-scale rainwater collection. Many of them believed that rainwater storage for a communal garden could help raise awareness about water conservation.

Some residents were satisfied with the current management of the water system. However, others expressed a desire for more management towards a smaller collective.

Consideration could be given to water storage within a specific scale, making it available to a group of people who need it, without burdening those who don't.

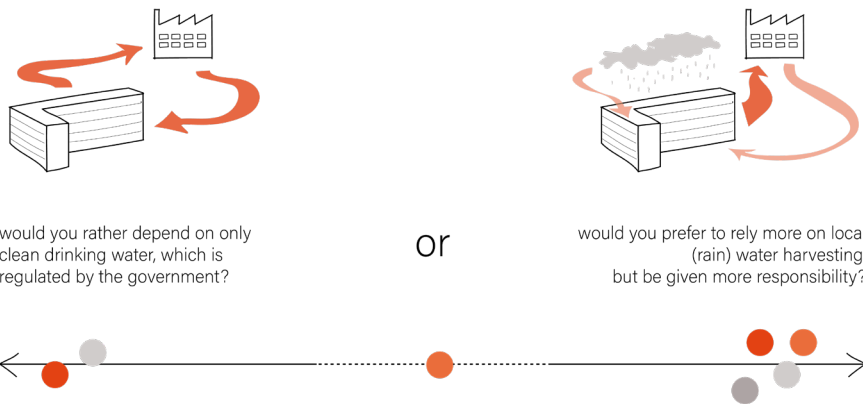


Fig. 6.28: Workshop outcomes water

Food

The last topic concerns food. This topic deals with the origin of food and how it is obtained. The discussions that took place were mainly about awareness of the system and locally obtained food.

The discussion concerned the extremes of maximum freedom of choice, where you are dependent on a global system, or more local food, where you are more involved in the (production) process, but therefore also have less freedom of choice in what you eat.

Outcomes

As evident from the findings, most respondents were highly interested in a shift towards locally sourced food. Many believed that promoting local food consumption could raise awareness about seasonal produce, among other benefits.

There were various opinions regarding local farming. Some expressed concerns about physical limitations, especially among the elderly. However, there was also discussion about implementing a solidarity system where community members could support each other. For example, older residents could offer assistance to younger ones in exchange for help with other tasks, sharing labour or knowledge.

It was also suggested that local cultivation could possibly exist of a swapping system to facilitate cooperation between different types of community gardens. One participant, who had experience growing vegetables, mentioned the importance of different species requiring different amounts of sunlight. By varying the shading within the building blocks, residents could cultivate a diverse range of species, fostering opportunities to swap.

Fig. 6.30:
Interviews with inhabitants at het Bollenpandje
(Picture made by Ximena Davalos, 2024)

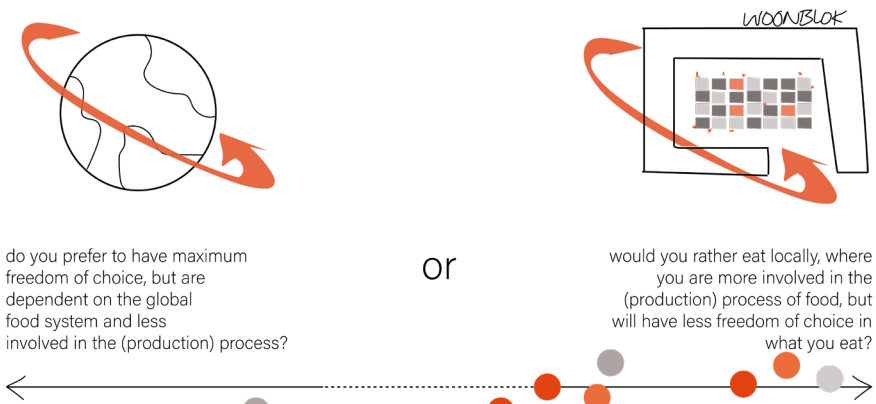


Fig. 6.29:
Workshop outcomes food



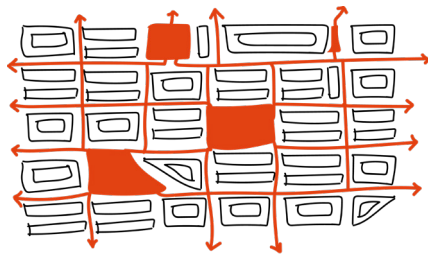
Fig. 6.31:
Interviews with inhabitants at het Bollenpandje
(Picture made by Ximena Davalos, 2024)

Introduction

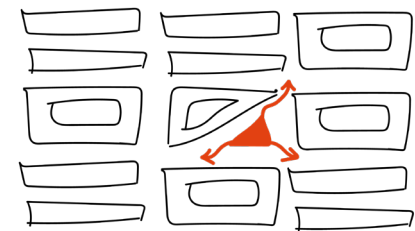
As evident from both theoretical and reference research, collectivity manifests on various scales. Fieldwork conducted within the neighbourhood further confirms these scale differences. Examples include a market serving the neighbourhood and beyond (Fig. 6.33), a playground catering to a cluster of urban blocks (Fig. 6.34), or a street exhibiting collective behaviours (Fig. 6.35).

These scale differences can be categorised into six distinct levels explored within the neighbourhood of Bospolder-Tussendijken:

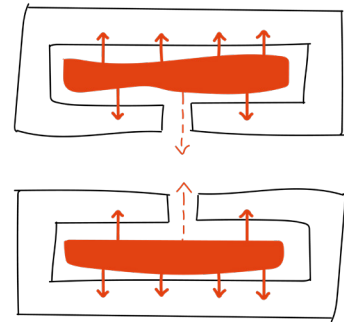
1. Sharing within a neighbourhood



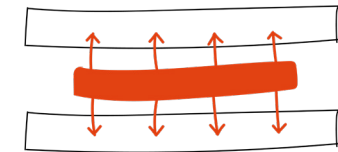
2. Sharing within a district of a neighbourhood



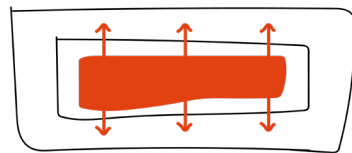
3. Sharing between multiple urban blocks



4. Sharing within a street



5. Sharing within an urban block



6. Sharing within a housing unit

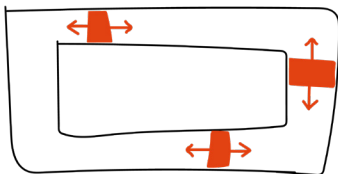


Fig. 6.32:
Scales of sharing

Fig. 6.33:
Market



Fig. 6.34:
Playground Bospolderplein



Fig. 6.35:
Street with collective characteristics



The neighbourhood

This section encompasses the shared elements utilised by residents throughout the entire neighbourhood. It includes spatial components that serve the entire neighbourhood, such as accessible public transportation, sufficiently large public spaces, major roads, but also the more invisible elements, such as community institutes, that support the community on a neighbourhood level.

Functions of BoTu

Krier (2009) contends that a neighbourhood benefits from having a diverse range of functions, fostering a positive environment for community expression.

BoTu exhibits a broad array of functions, facilitating a substantial portion of daily life within its boundaries (Fig. 6.38). As can be seen, certain locations concentrate mixed functions, incorporating a combination of public plinths with residential spaces above, being visible in streets as Schiedamseweg (Fig. 6.36) and Grote Visserijstraat. Additionally, recreational areas are also situated in the neighbourhood as well.

Residents of BoTu have the opportunity to both live and work within its confines. However, the available employment opportunities do not sufficiently accommodate the number of households in the neighbourhood (Wijkprofiel Rotterdam, 2023), and the diversity of available work functions is limited (Fig. 6.38). To enhance self-sufficiency, there should be an expansion of employment options and an increase in diversity.



Fig. 6.36: Mixed functions at Schiedamseweg

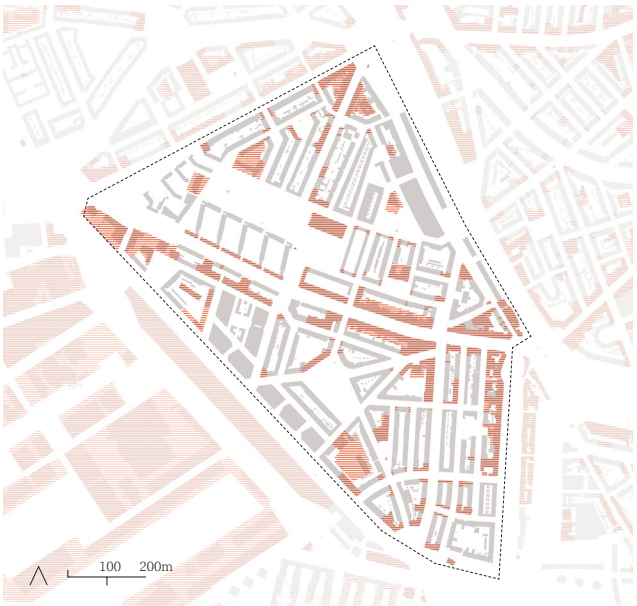


Fig. 6.37: Places of employment in BoTu

Fig. 6.38: Function division in BoTu



Public spaces

The neighbourhood comprises several large public spaces that serve the entire community on this scale level (Fig. 6.39). Visserijplein, for instance, hosts markets twice a week but remains functionally underutilised during the rest of the week. This large space could be repurposed for various activities such as swap markets.

Park 1943, the only relatively large park within BoTu's borders, is situated adjacent to the market square. However, there is significant room for improvement within this park. Currently, it lacks layered greenery, which could be enhanced to improve its ecological quality.

Bospolderplein, another significant public space, primarily consists of pavement. It features soccer fields, a basketball court, play elements for younger children, and picnic tables, catering to various age groups.

A notable addition to the neighbourhood is Dakpark, located south of BoTu. Situated on the dike, this park sits atop several megastores. It offers various amenities, including restaurants, a playground, an urban farm connected to a community centre.

Public transport

BoTu has a metro station situated on Schiedamseweg, connecting the area in both eastern and western directions (Figs. 6.40 & 6.42).



Fig. 6.39:
Public spaces functioning for the whole neighbourhood



Fig. 6.40:
Metro stops within the neighbourhood



Fig. 6.41:
Bospolderplein



Fig. 6.42:
Metro stop Delfshaven

Energy transition

By 2050, all of Rotterdam should transition away from using gas for heating, cooling, and cooking. This transition will occur gradually, neighbourhood by neighbourhood.

For Bospolder-Tussendijken, district heating is the most feasible and cost-effective option. District heating involves utilising the waste heat generated by industries in the Port of Rotterdam. This heat will be distributed to the neighbourhood through an underground pipeline network (Gemeente Rotterdam, 2021).

Networks for communities

In BoTu, numerous local initiatives cater to various needs, as outlined by Veldacademie (2021). These initiatives provide spaces for social interaction and opportunities for learning, both recreational and practical. While many initiatives are inclusive and not aimed at specific demographics, some do target particular groups. For instance, there are schools organising activities for children, and certain locations offer support for vulnerable groups like the homeless or refugees.

However, it's worth noting the scarcity of neighbourhood initiatives specifically geared toward young people, a finding echoed in the Veldacademie survey (2021) and confirmed by local residents.

Data on weekly visitor counts is limited for most initiatives. However, analysis reveals that several initiatives in Bospolder draw significant numbers of visitors, with some attracting over 100 visitors weekly. Pier 80, the neighbourhood hub in Tussendijken which is located on the market square, stands out as a prominent gathering place, welcoming approximately 1,000 visitors weekly. This bustling hub offers a variety of facilities, including rooms and halls for meetings, courses, gatherings, workshops, and sports activities.

The network of community initiatives in BoTu operates within an informal framework, as described by Van Gils (2024), and often goes unnoticed by higher authorities. While BoTu may be labelled as a “socially disadvantaged neighbourhood,” there exists considerable strength within the informal connections and communities that continue to grow annually (Fig. 6.47).

Fig. 6.43:
Places of initiatives for communities
(Veldacademie, 2021)



Fig. 6.44:
Energy initiative



Fig. 6.45:
Stichting Rijnmond

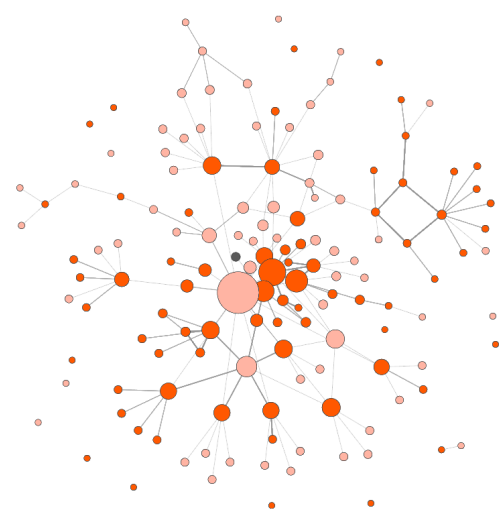


Fig. 6.46:
Community centre



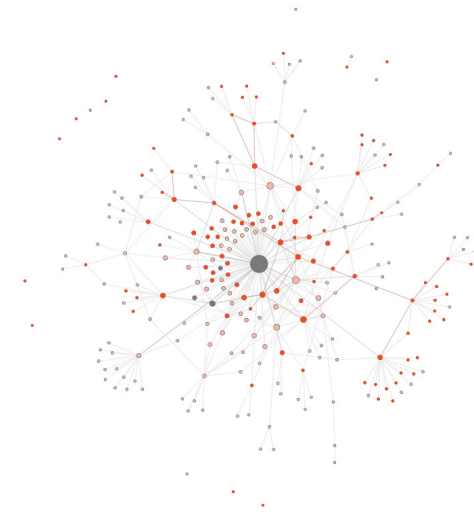
2019

The Municipality of Rotterdam plays a central role in the formal neighbourhood network (Veldacademie, 2024).



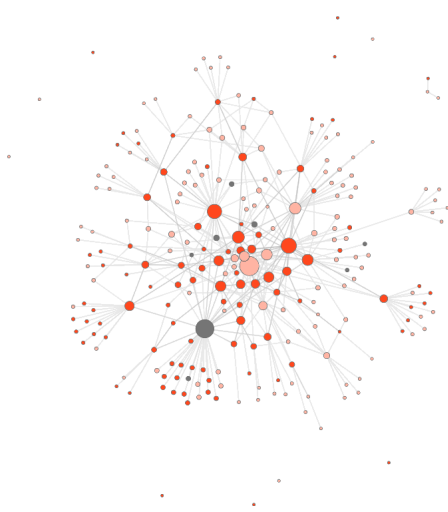
2020

Due to the coronavirus crisis, the neighbourhood network has received a boost, with the crisis prompting new and urgent questions. Various parties are collaborating to support neighbourhood residents during these challenging times, including through the *Delfshaven Helpt* platform. From this platform, various small initiatives have emerged. As a result, the central role has shifted to the informal network (Veldacademie, 2024).



2021

Delfshaven Helpt will continue to be active in the neighbourhood network until early 2021. As COVID-19 measures decrease, the centrality of this organisation diminishes. However, the connections established through this organisation lead to new partnerships, such as the Welzijnscoalitie Delfshaven. This coalition is a network of various initiatives within BoTu and surrounding neighbourhoods. They join forces to participate in the welfare tender and also collaborate on newforms of collective initiatives based on this cooperation (Veldacademie, 2024).



2022

The informal network continues to expand, and the number of connections between different initiatives is also increasing (Veldacademie, 2024).

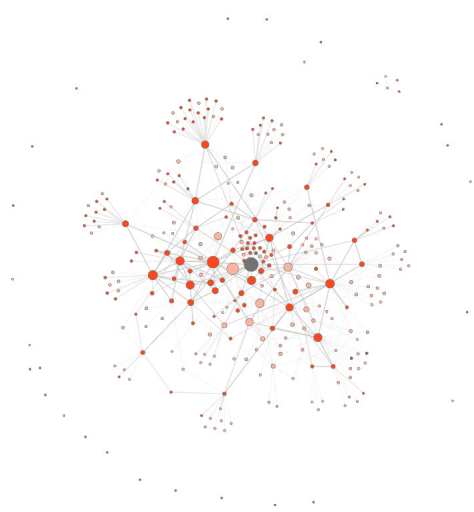


Fig. 6.47:
(edited from Veldacademie, 2024)



District of the neighbourhood

The next scale concerns the district within the neighbourhood. At this scale, the neighbourhood is subdivided into smaller areas based on the distribution of functions. The areas where people are likely to access these functions were estimated and then mapped onto the BoTu maps, taking into account the quality and size of the functions available.



Fig. 6.50:
Park 1943

Fig. 6.49:
Park without seating facilities



Parks

While Park 1943 has the potential to serve the entire neighbourhood, this is not currently the case. During fieldwork observations, it was uncommon to see people from other parts of the neighbourhood spending time in the park.

Additionally, the other parks in the area are of low to no quality; some green spaces are completely unused except by residents walking their dogs.

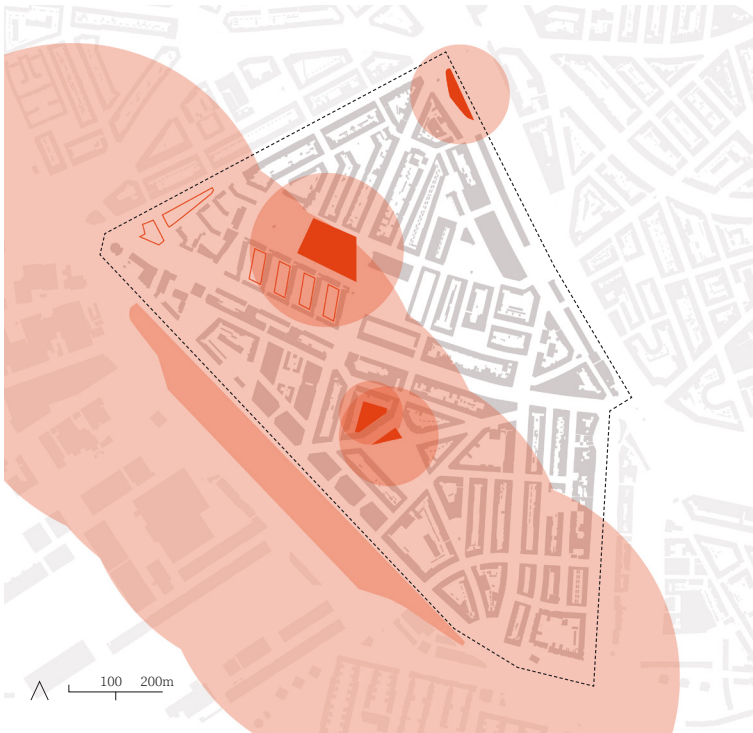


Fig. 6.51:
Parks within BoTu



Fig. 6.52:
Square for district



Fig. 6.53:
Square for district



Fig. 6.54:
Squares within BoTu

Squares

Smaller squares are mainly located in the Bospolder neighbourhood (Fig. 6.54).

These squares often feature seating elements or even shared facilities of the surrounding inhabitants (Figs. 6.52 & 6.53).



Fig. 6.55:
Small playground

Playgrounds [younger kids]

This category includes playgrounds and areas with playground equipment, even if it's just one play element (Fig. 6.55).

These spaces are primarily located in Tussendijken (Fig. 6.56). However, the abundance of these spaces does not necessarily guarantee quality, as they are often lacking additional facilities to make them high-quality living spaces, such as seating facilities or greenery.

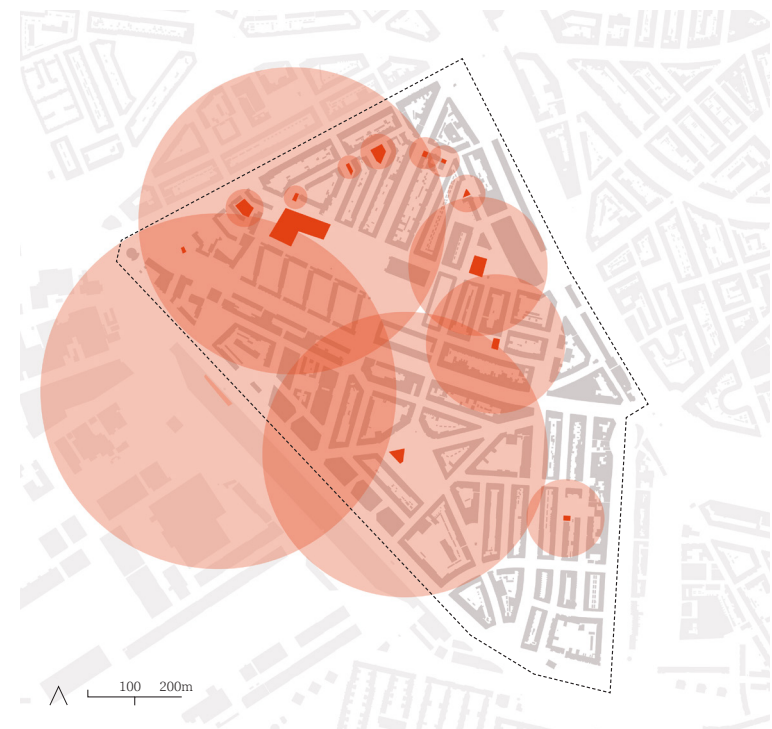


Fig. 6.56:
Playgrounds for younger kids within BoTu



Fig. 6.57:
Paved playground

Playgrounds [older kids]

Spaces designated for sports activities are categorised as playgrounds for older children. The neighbourhood also has many of these (Fig. 6.58).

However, almost all of these sports fields are paved (Fig. 6.57). Introducing greenery to these areas could make them more attractive.

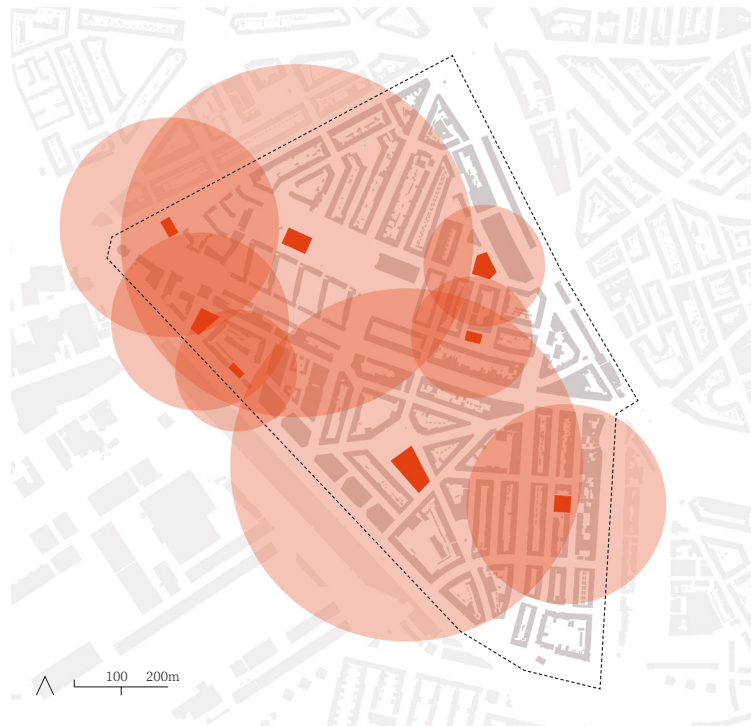


Fig. 6.58:
Playgrounds for older kids within BoTu



Fig. 6.59:
Tram stop

Public transport

For smaller sub-areas, the neighbourhood also includes several tram stops, connecting the neighbourhood to the city centre and the railway station. However, there are plans to suspend several tram lines, which has sparked various demonstrations in the neighbourhood. Suspending these tram lines could potentially lead to increased social isolation of this neighbourhood.



Fig. 6.60:
Tram stops within BoTu

Fig. 6.62:
Neighbourhood fridge



Fig. 6.61:
Neighbourhood fridge explanation



Communicating urban blocks

The next scale involves communication between urban blocks. At this level, different residential blocks cooperate with each other by sharing various collective functions. In Bospolder-Tussendijken, this collaboration occurs mainly along Mathenesserweg (Fig. 6.63).

Mathenesserweg

In the example of these three blocks, it becomes clear that they form a larger system due to the similar aesthetics of the buildings. They all follow the same pattern: an urban block divided into apartments with private gardens on the ground floor and a collective garden.

These collective gardens each have different features. The first consists of a green garden, the second of a playground with seating facilities (6.54), and the third of green space

as well (Fig. 6.65). While this system has the potential to work well on a larger scale, with the three urban blocks functioning together, they lack good connections. The entrances to all the gardens are organised through gates connected to Mathenesserweg, which are not attractive for either passers-by or residents of the other urban blocks in this larger composition. To improve the functionality of this system, different connections between the urban blocks could be added.

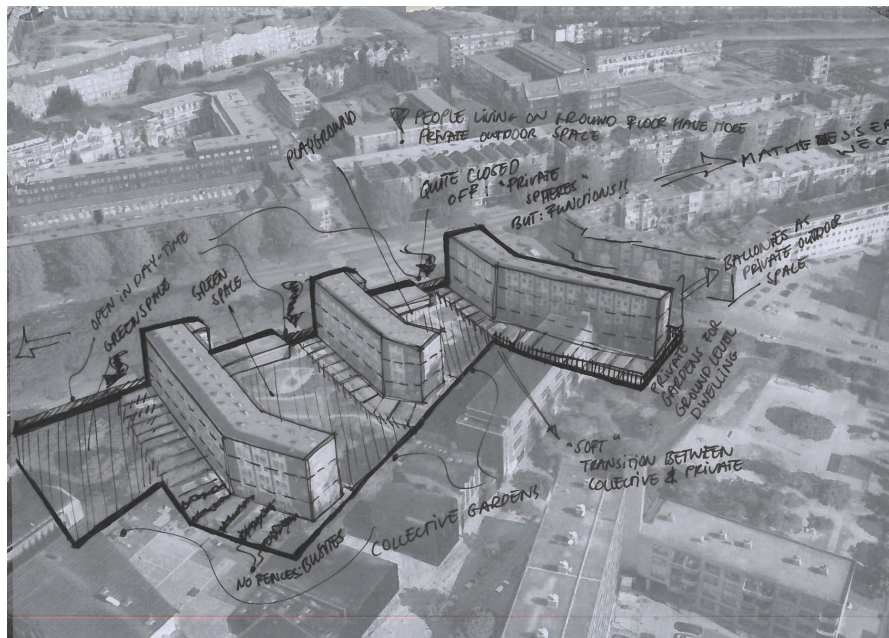


Fig. 6.63:
Spatial analysis of flats along Mathenesserweg



Fig. 6.64:
Collective playground



Fig. 6.65:
Collective green space

Connecting streets

The next scale involves connecting streets. Within this scale, the collective streets are analysed. Most streets within the neighbourhood serve as shared parking spaces for cars and bikes. These streets are mainly paved and unattractive environments for spending time.

However, there are some streets within the neighbourhood that exhibit collectivity, featuring shared green spaces, outdoor furniture, or spaces that encourage social interactions (Fig. 6.66). Various types of these streets are analysed, from which principles can be extracted. Some streets are intentionally designed to be collective, while others manifest collectivity spontaneously.

Sharing parking spaces

Currently, as mentioned, sharing within the streetscape mainly involves the shared use of parking spaces for different types of mobility, including bikes and cars (Figs. 6.67 & 6.68). However, the dominance of bicycles and cars in the streetscape is evident. The introduction of shared cars or even shared bikes could significantly alter the streetscape.



Fig. 6.66:
Collective streets within BoTu



Fig. 6.67:
Cars in the streetscape



Fig. 6.68:
Bikes in the streetscape

1. The Hudsons

What fosters collectivity in this street is, firstly, the absence of cars. This eliminates any hierarchy in the streetscape between traffic flows and allows for a smooth transition between private and collective spaces.

Furthermore, the difference in materials indicates distinct zones, signifying that the space belongs to the residents of these housing blocks. Additionally, there is a variation in materials between the area in front of the houses and the central section between the houses. Consequently, residents place private elements in front of their doors and utilise the space. Because there is no strict separation between the various private spaces, room is created for interactions between residents of different housing blocks and neighbouring houses.



Fig. 6.69:
Collective street within the Hudsons

2. Mathenesserdijk

In this street, it's not just space for slow traffic that contributes to collectivity. The sidewalks are exceptionally wide, providing room not only for pedestrian traffic but also for additional features.

The small private spaces in front of the houses extend onto the sidewalk, creating areas for social interactions. Additionally, collective features are incorporated into the street, such as community vegetable gardens.

The combination of space for slow traffic and areas open for various uses fosters a sense of collectivity in this street.



Fig. 6.70:
Collective street Mathenesserdijk

3. 2e Schansstraat

In this street as well, space for slow traffic is the only factor contributing to its collectivity; cars still dominate the streetscape. However, there is room for various uses on the pavement. Residents extend their private space onto the sidewalk by placing furniture in front of their facades.

Moreover, shared planters add to the vibrancy of the street and create a higher-quality environment.



Fig. 6.71:
Collective street 2e Schansstraat

Fig. 6.72:
Visible porosity



Porosity

Collectivity becomes visible in streets that exhibit porosity for flexible infill (Fig. 6.72). Streets that lack a smooth transition between public and private domains create environments that are uninviting for interactions (Fig. 6.73).



Fig. 6.73:
Invisible porosity

Urban block

The next scale involves the urban block. There are several residential blocks in the neighbourhood with a shared outdoor space (Fig. 6.74).

However, these blocks vary in configuration and therefore in quality. Various types have been analysed in this chapter, from which principles can be derived, based on good or bad qualities that may or may not contribute to the desired collectivity.

Private gardens

Currently, most urban blocks have interior spaces divided into private gardens. However, it is noticeable that many of these gardens are not utilised (Fig. 6.75). Moreover, a large number of these gardens are completely paved, which limits infiltration possibilities (6.76). These outdoor spaces could be used more efficiently and sustainably.

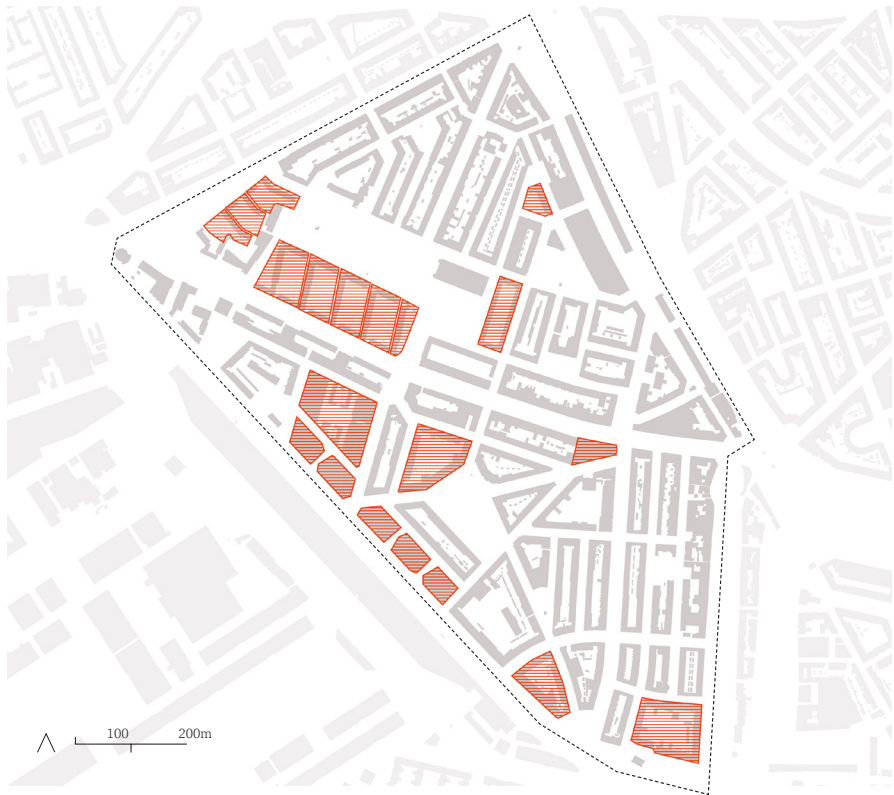


Fig. 6.74:
Collective urban blocks within BoTu



Fig. 6.75:
Unused gardens



Fig. 6.76:
Paved gardens

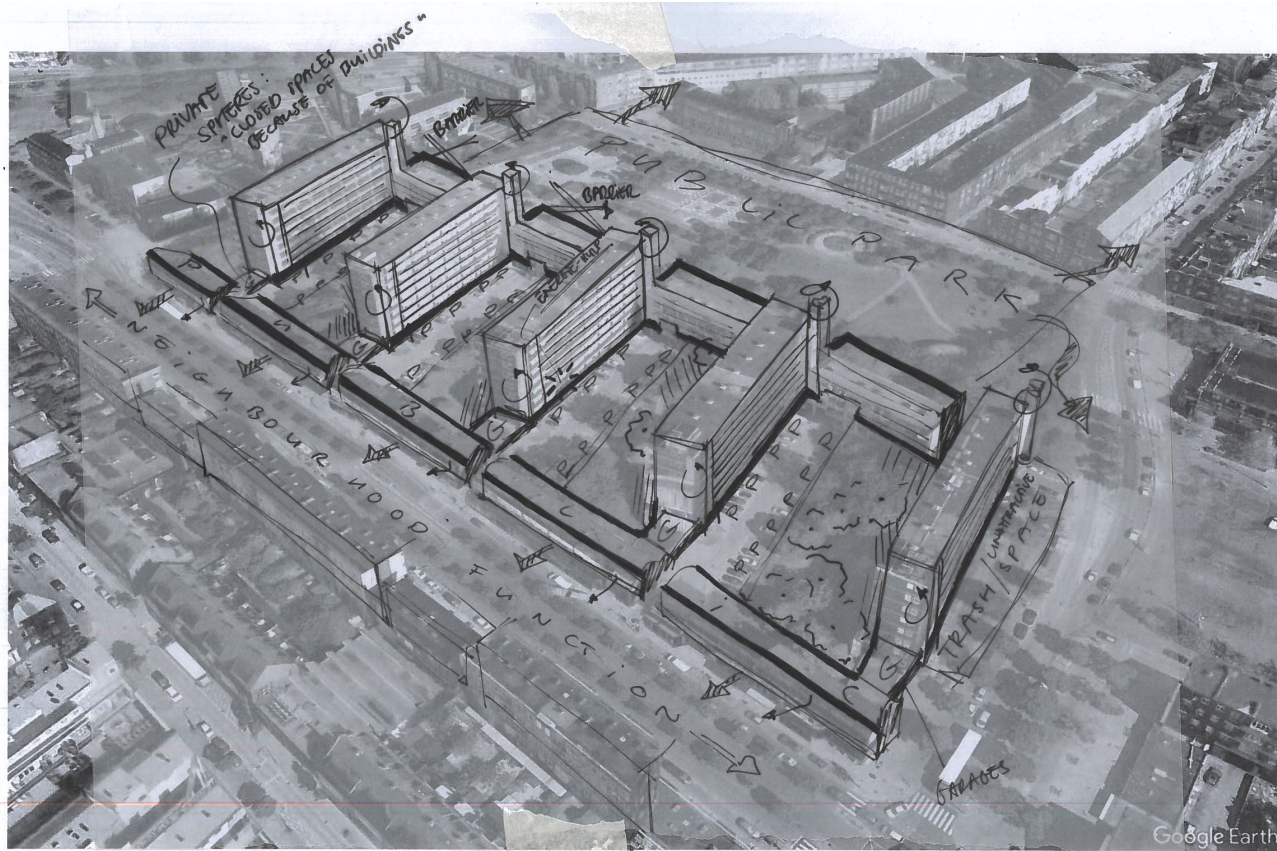


Fig. 6.77:
Collectivity along Gijsinglaan

Gijsinglaan

In this example, it becomes clear that collective space does not always function effectively. Although the space is publicly accessible, its enclosed nature—created by the surrounding building blocks—results in a rather intimate atmosphere.

The collective space is divided into parking and green areas, but only used for parking. The green space lacks quality; for instance, it lacks layering and contains only trees and grass. Additionally, dark corners are created by the closed facades.

The green side of the collective space directly connects to the rear of the houses, with only private balconies, thus creating no transition between public and private areas.

Due to the placement of the stairwells at the ends of the flats, the collective courtyard garden also does not encourage social interactions; residents have no residential purpose in this space.

Visserijplein

This block also features a collective courtyard garden. Although intended for the residents of this block, it is open to the public as well.

However, events organised by *het Huis van de Toekomst*, such as baking bread in the oven or communal meals in the garden, attract few residents from the block itself.

Apart from these events, residents rarely use the collective courtyard garden. Although the oven is available for use, it may not be easily accessible enough for residents. Additionally, the ground floor of the block has private gardens adjacent to the collective area.

However, since the houses are accessible from the outside, this layout does not promote social interactions in the courtyard gardens. Moreover, the private gardens are separated from the collective area by a high hedge, which does not facilitate a smooth transition between the two.

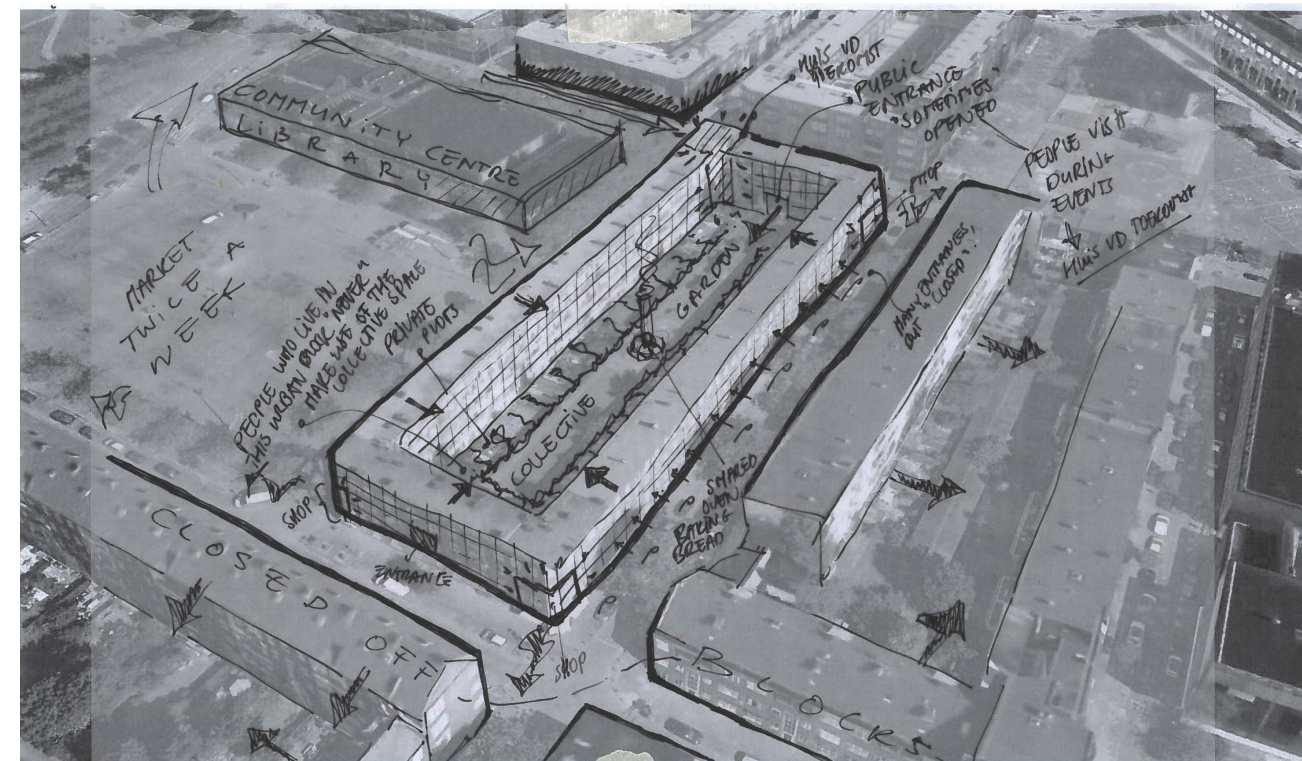


Fig. 6.78:
Collectivity along Visserijplein

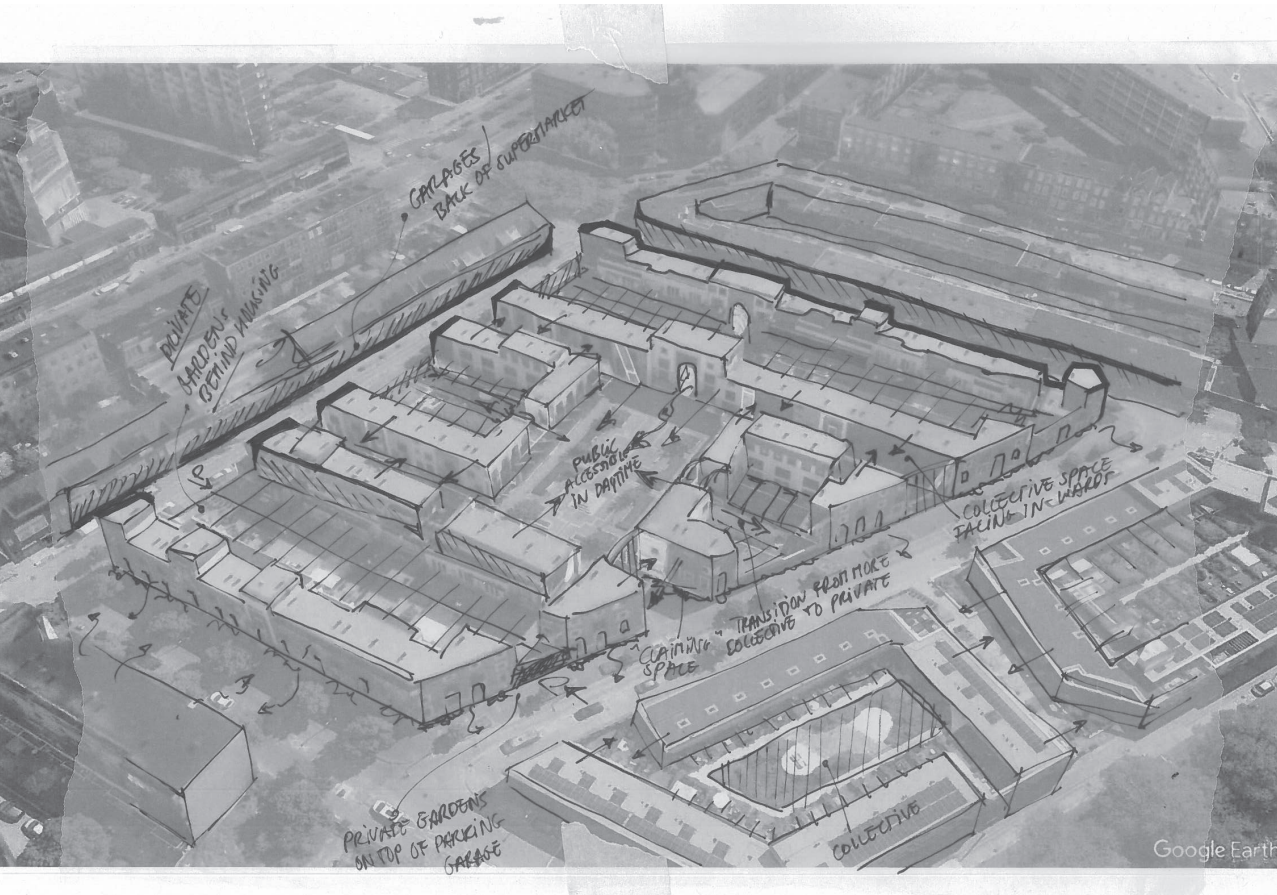


Fig. 6.79:
Collectivity within Le Medi

Le Medi

The next project focusing on collectivity is Le Medi, located in Bospolder. This project showcases collectivity in various forms. Upon entering the project through a gate, there is an immediate sense of entering private property, leading into a communal courtyard. From there, the project extends into a series of collective streets. Another aspect of collectivity is evident in the courtyards, which are accessed through gates and then divided into several private gardens.

Additionally, the project features car parks on the ground floor, with terraces placed above them.

Le Medi demonstrates different levels of collectivity, marked by various barriers and sub-forms, each embodying different types of collectivity.



Fig. 6.80:
First barrier Le Medi



Fig. 6.81:
Collective space Le Medi



Fig. 6.82:
Second barrier Le Medi

The Hudsons

A relatively recent development project is the Hudsons, designed by Orange Architects. This project incorporates various forms of collectivity. Slow traffic lanes are shared between the different building blocks, and each block shares a communal car park. Collective inner gardens have been created, flowing seamlessly into private gardens. However, these collective courtyard gardens are only accessible from within the development, meaning they are not publicly accessible. It is interesting that even though

access to this collective space is not necessary to reach your home, it is still utilised. This can be attributed to the gradual transition from collective to private areas and the quality of the collective courtyard. The greenery and communal furniture make the space attractive and inviting for use.

Additionally, space has been allocated for commercial use in the plinth, making the project beneficial on a larger scale.

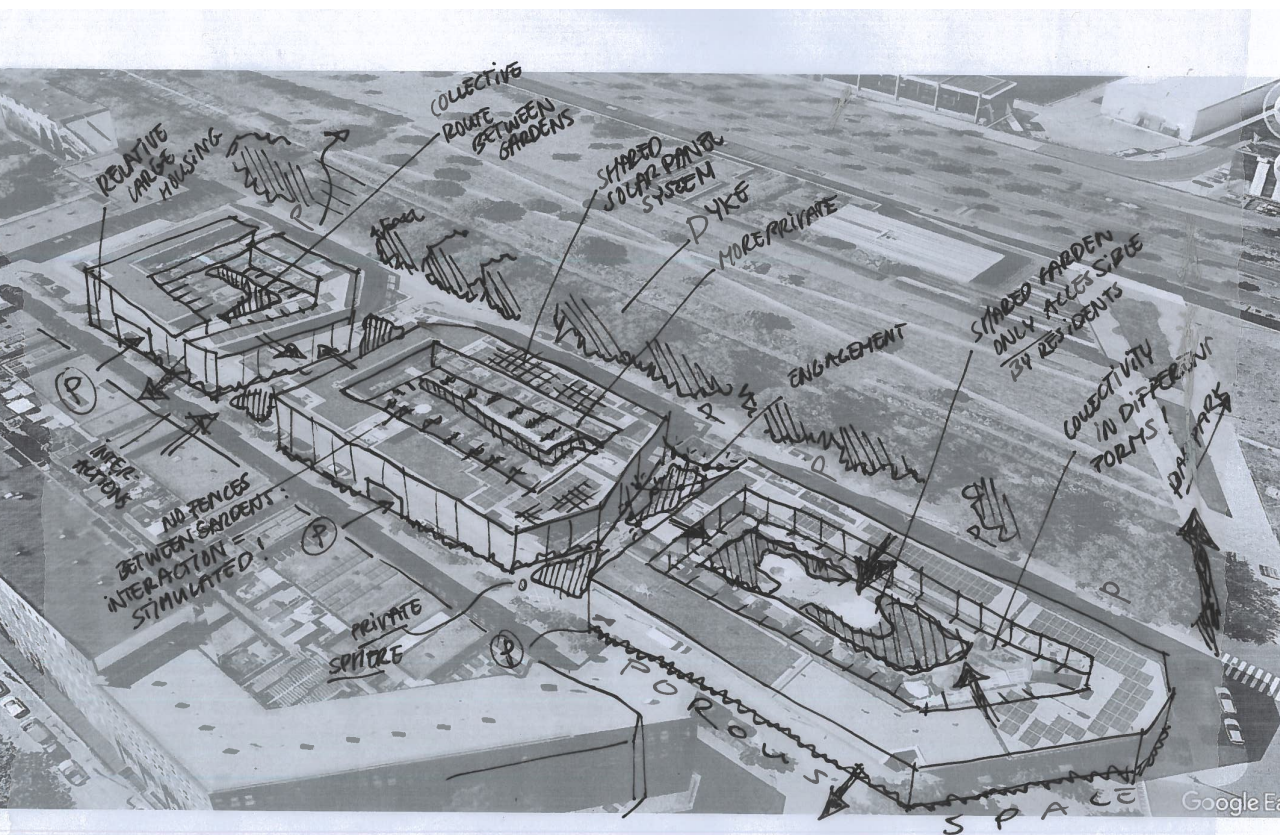


Fig. 6.83:
Collectivity within The Hudsons

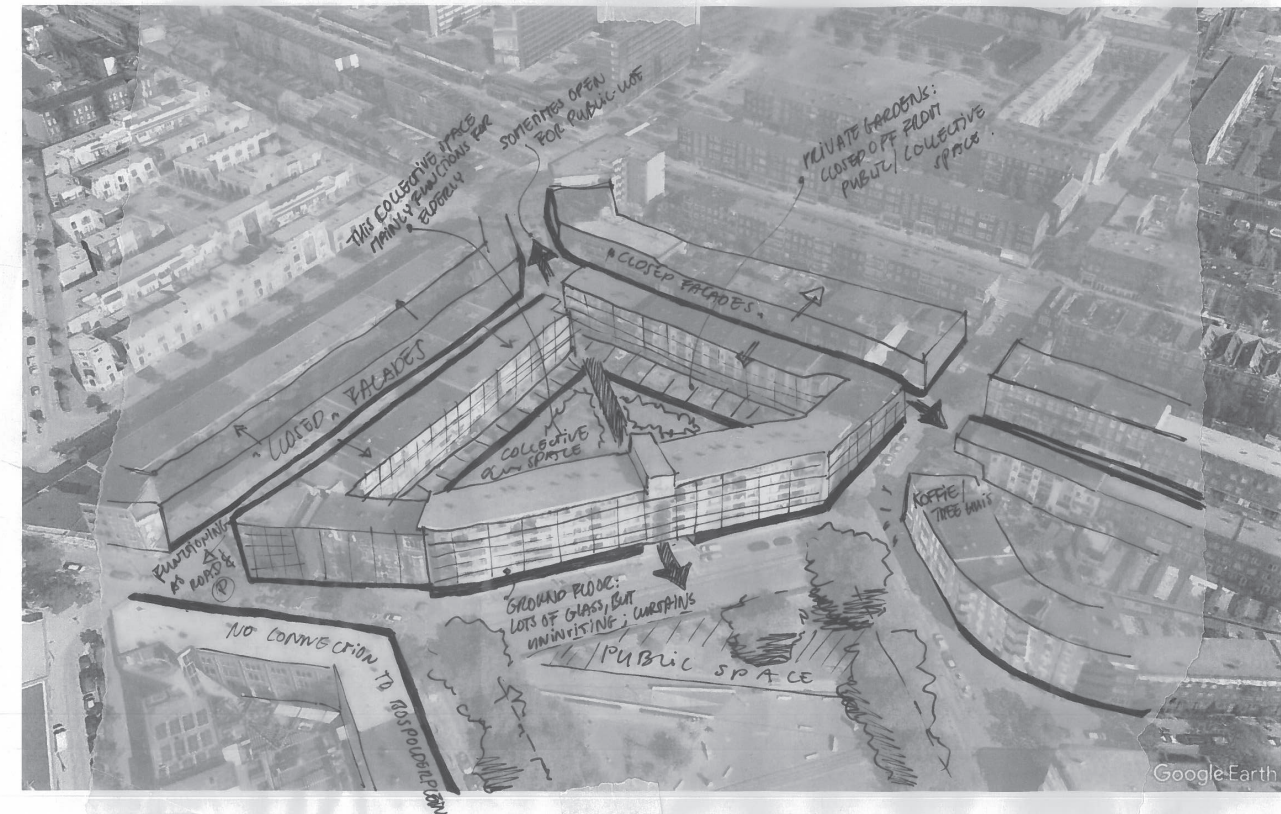


Fig. 6.84:
Collectivity along Bospolderplein

Bospolderplein

The next urban block, located adjacent to Bospolderplein, also features a collective courtyard garden, but it is rarely used. The layout is similar to the courtyard garden next to Visserijplein. The adjacent private gardens are separated from the courtyard, and residents of the apartments above do not need to enter the courtyard to access their homes.

However, the courtyard garden serves as a thoroughfare, as there are openings on both sides, providing a route for the surrounding area. Unfortunately, the courtyard is not very inviting, and this route is seldom used. The ground floor is quite open, with many windows, but most of them are covered with curtains, giving the area an unwelcoming appearance.

Housing unit

Even though most of the inhabitants of BoTu have their own homes with private facilities, the presence of home sharers and elderly people within the area provides an important inspiration for sharing at the housing level.

Elderly

The concept of indoor sharing manifests in various forms. One of them is visible in elderly centres, many of which are present in BoTu. Elderly residents have their own bedroom with basic amenities — a sleeping area, a sitting space, a small kitchenette, and often a private bathroom. Additionally, they have access to large communal facilities. These common areas typically include dining or living rooms, and there is often a large kitchen for communal meals.

Home sharers

Another type of indoor sharing is visible among younger house sharers, such as students or young professionals, private functions are often minimised. For example, the living room, kitchen, bathroom, storage room, toilet, laundry room, garden, and/or balcony are frequently shared, and residents typically have only one private space serving as a bedroom.

This close communal living fosters not only the shared use of facilities but also brings people together. For instance, arrangements can be made for joint meals, activities, and other shared experiences (Fig. 6.85).

Jurre, 27



“I could not imagine living alone at the moment. i find eating alone so unsociable and cooking for myself too. the nice thing about sharing a house is that you can always find sociability to look up to, or do things together.”

Fig. 6.85: Inhabitant profile X



Fig. 6.86: Shared living room

Weaknesses

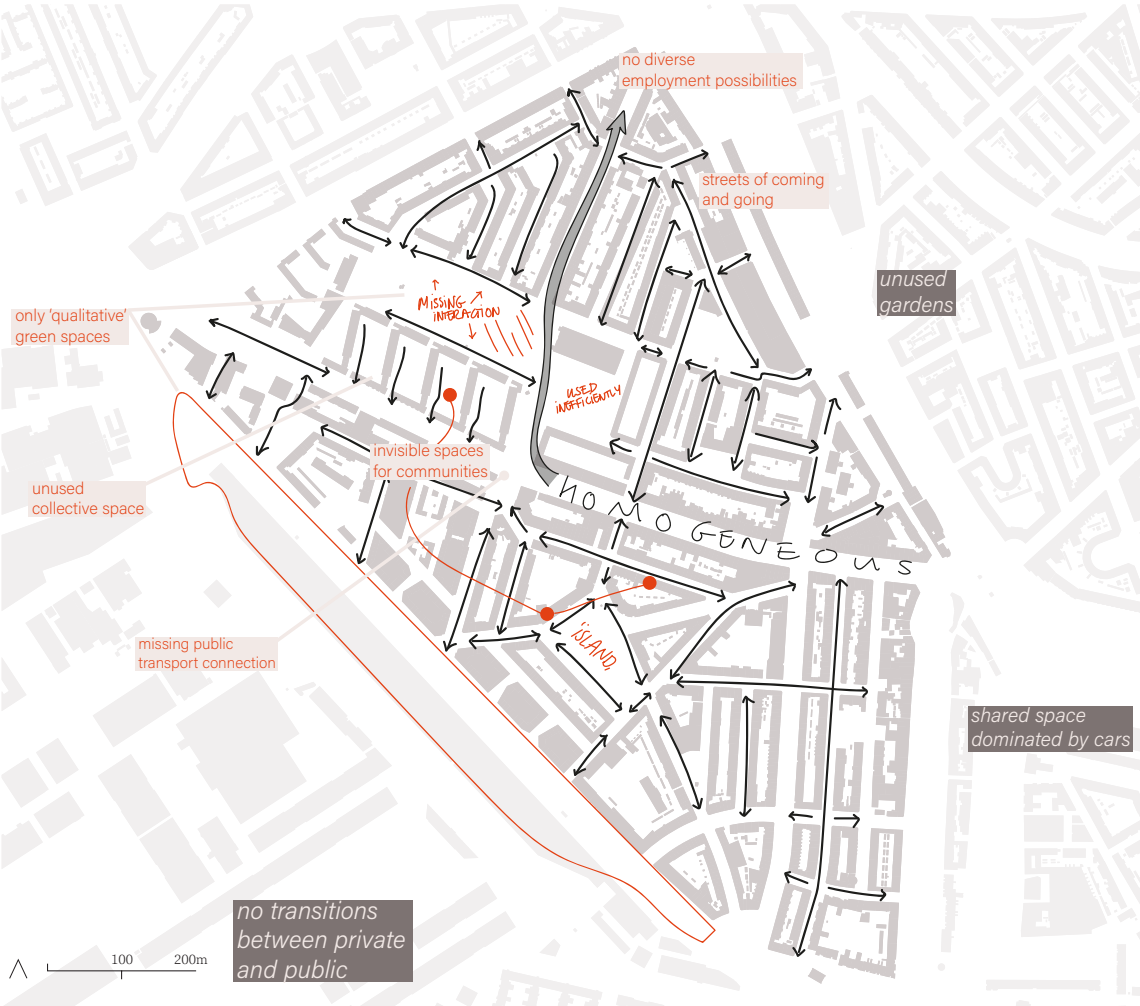


Fig. 6.87:
Weaknesses BoTu

From places of going...

The main conclusions drawn in this neighbourhood have been summarised in the map above. Connections between different scales are a missing link for collectivity, primarily due to the current dominance of cars in the streetscape. BoTu consists of many places of going rather than areas of residence, which negatively impacts collectivity.

Potentials

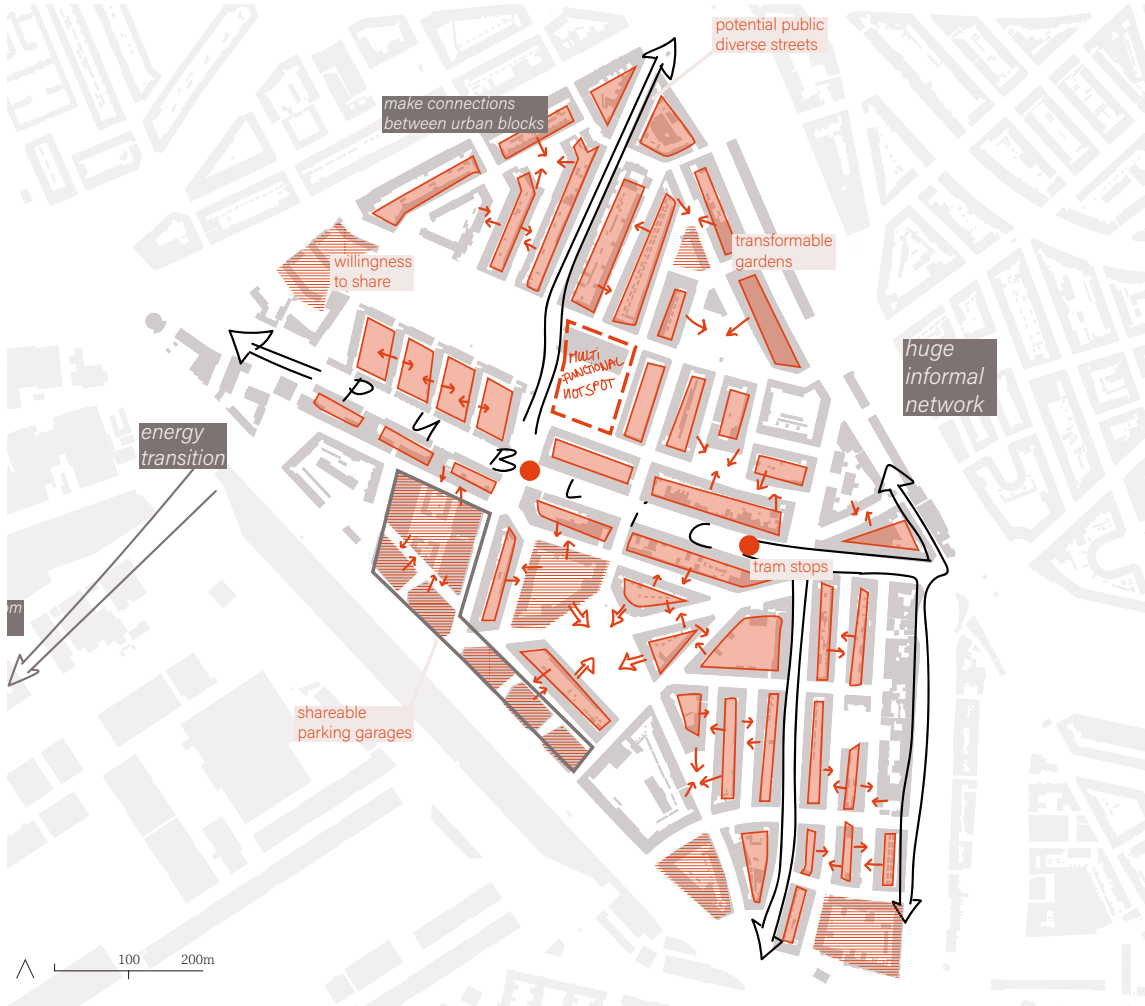


Fig. 6.88:
Potentials BoTu

...To places of residence

BoTu's potential lies firstly in the existing public streets, which already serve the entire neighbourhood. These streets could be improved to accommodate more of the residents' needs, such as providing a more diverse range of employment opportunities.

If the neighbourhood encompasses most urban activities, it could significantly reduce car usage, which currently dominates the entire area. Space currently used for parking or transportation could

be transformed into areas that better connect with the surrounding community.

Design principles

Next, the diagram consisting of design principles developed in the conclusion of the theoretical chapter will be further developed, as shown on the following pages.

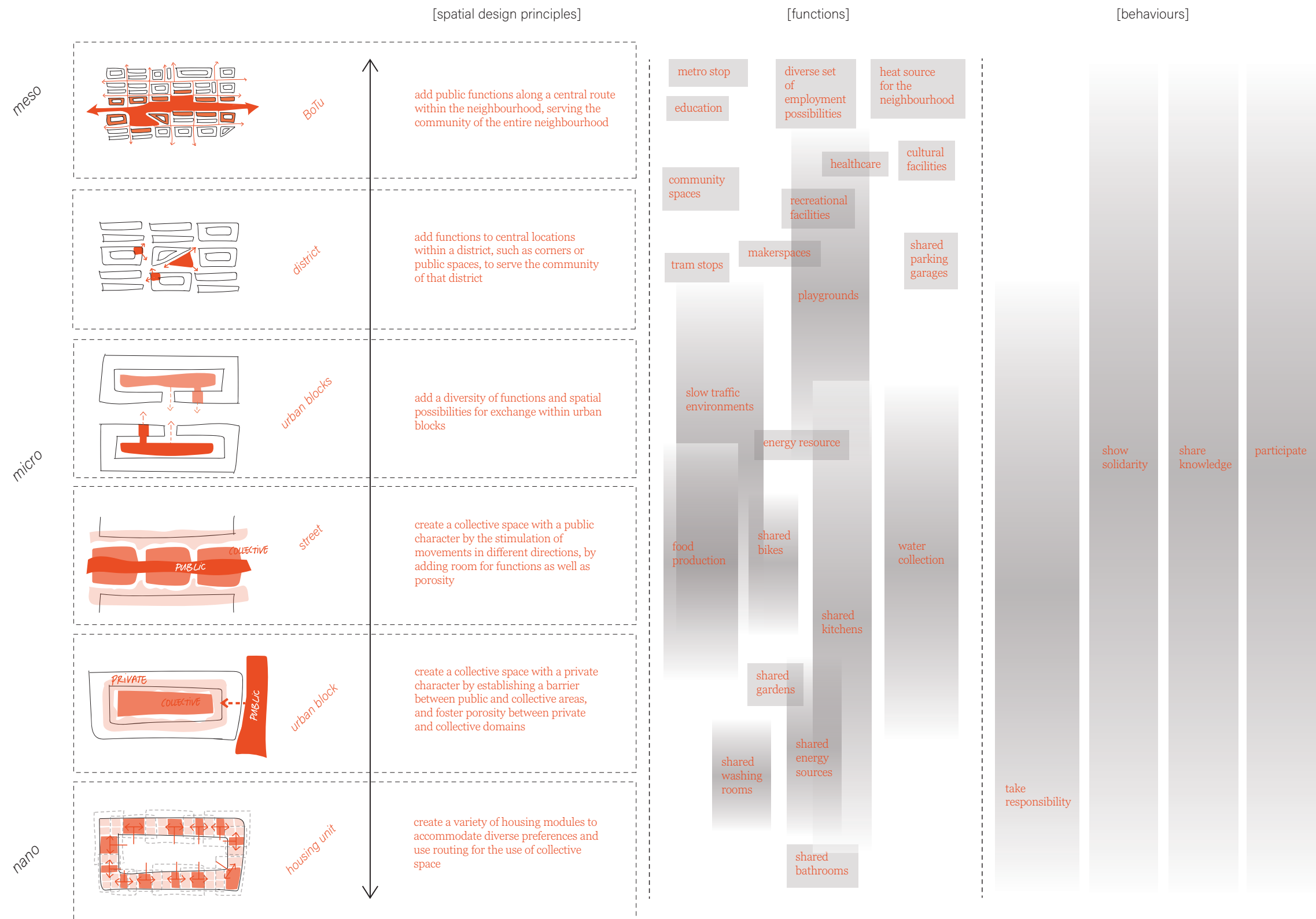


Fig. 6.89:
Design guidelines

07.

design of collectivity

- Introduction
- A collective BoTu
- Systemic design
- Spatial qualities
- Storyline
- Phasing
- Conclusion

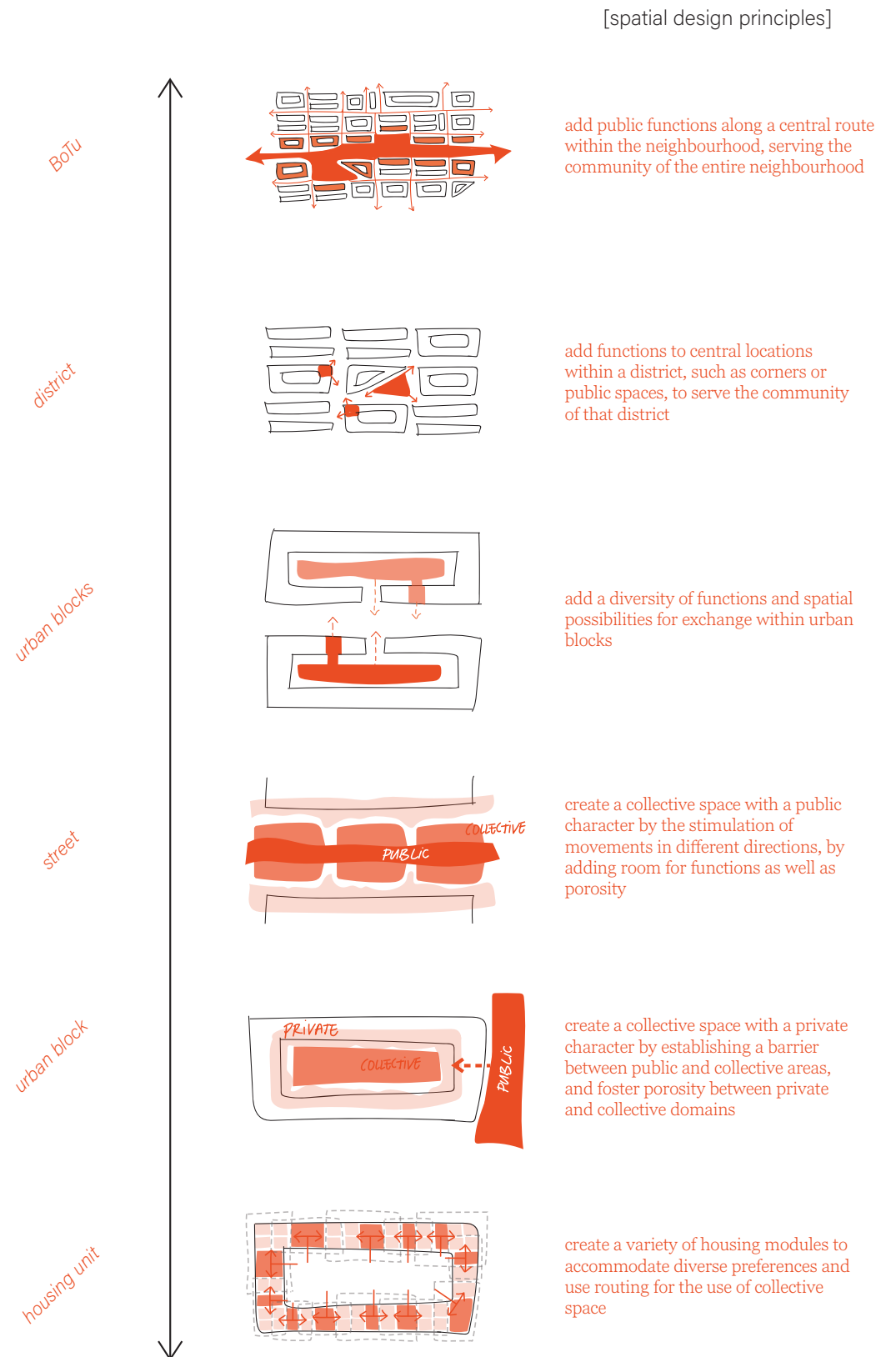
The final phase of this research entails reimagining BoTu as a collective neighbourhood through spatial design. This process will commence by synthesising the conclusions drawn from preceding chapters into a spatial design framework tailored to the entire neighbourhood. This framework will elaborate the various levels of sharing, specifically addressing the context of BoTu.

Subsequent to this, detailed designs will be developed for two specific locations within the Bospolder-Tussendijken framework. These designs will seamlessly incorporate the established design principles from earlier chapters. They will showcase the interplay of sharing across scales, ranging from the most public elements to the most private ones. This inclusive approach will encompass interior spaces as well.

Moreover, the insights gleaned from interviews conducted during the research process will inform the phasing of the design.

In conclusion, this phase will summarise the outcomes of the spatial interventions.

Fig. 7.1:
Interscalar design principles



Spatial design framework

For the spatial design framework of BoTu, the potentials, along with the design principles established in previous chapters, are being translated into a new map (Fig. 7.2). Streets that already feature a mix of functions will serve as the new main roads, from which the gradient from public to private space will emanate.

An interscalar sharing network for BoTu

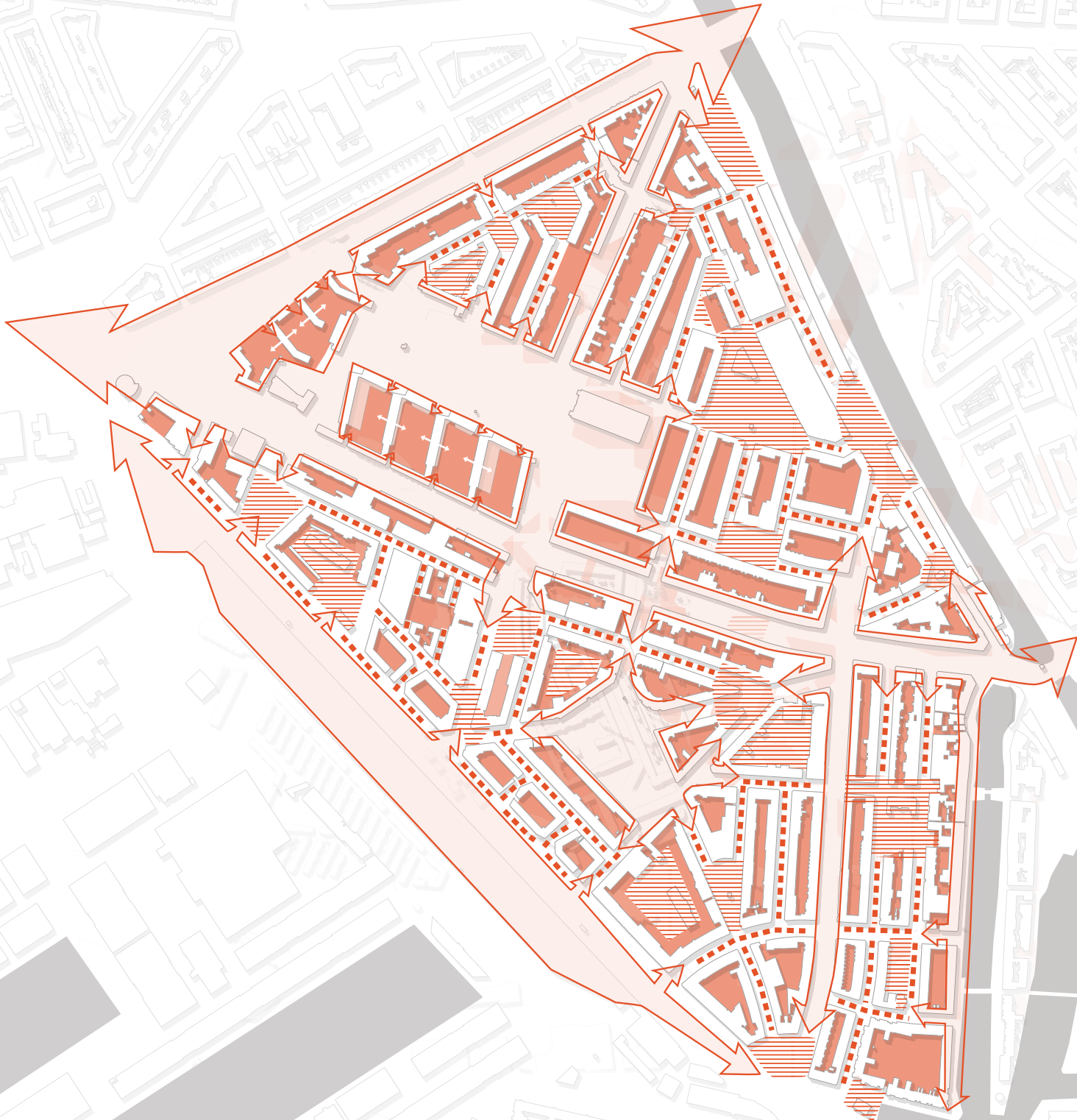
The levels of sharing categorised in the interscalar design principles (Fig. 7.1) serve as the foundation for the spatial design framework. This approach allows for the classification of all functions into these categories, ranging from sharing at the scale of the entire neighbourhood to the level of individual housing units. This interscalar sharing network not only creates a gradient across scales from a plan view perspective but also informs the perspective of a cross-section. This concept will be further developed in the detailed designs.

By translating this framework into a spatial design, all available land in the neighbourhood of BoTu will be utilised and shared among its residents, facilitating functions that promote both social and environmental sustainability.

- public functions for the neighbourhood
- collective functions for the district
- connections between urban blocks
- collective street
- collective space for the urban block

100 200m

Fig. 7.2:
Spatial design framework BoTu



A redesigned BoTu

The spatial framework can be translated into a new plan for the BoTu neighbourhood. As shown in the redesigned plan, a significant amount of space is transformed into green areas. These spaces serve the BoTu community at various scales, depending on the size of the area.

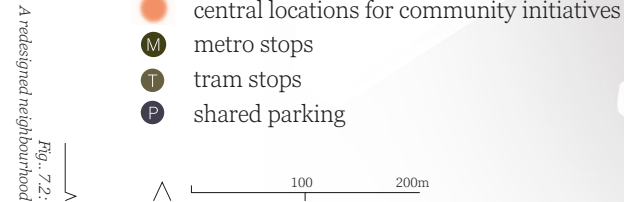
Different types of collectivity

The neighbourhood will feature various forms of collectivity catering to the community at different scales. While Schiedamseweg and Grote Visserijstraat will retain their function as streets with public amenities serving the neighbourhood, Visserijplein will serve the broader BoTu community and beyond. However, to optimise space utilisation, the market square will also be used for events, like neighbourhood swap activities.

Additionally, playgrounds currently reserved for schools will be opened to the public, expanding their accessibility to a wider community.

With urban activities concentrated within the neighbourhood boundaries, residents will rely less on fast traffic, leading to a predominantly car-free environment where public spaces transform from places of going into places of residence.

Furthermore, community initiatives will be strategically located in highly visible areas within the neighbourhood, ensuring greater awareness among residents compared to current hidden locations.



Locations to explore

Next, the development plans for two selected locations will be elaborated. Each location is situated in a different sub neighbourhood (Bospolder and Tussendijken) and serves the community in a different way.

However, before proceeding with the designs for these locations, it is essential to conduct a spatial analysis for each site, providing an introduction to each design.



Fig. 7.3:
Elaborated locations

A unique composition within BoTu

Firstly, the flats along Gijsinglaan will be elaborated upon. This composition is unique within the BoTu area, featuring collective spaces within the urban blocks. However, these spaces are currently underutilised, as explained in the following analysis.

With five similar buildings in this location, a systemic design approach is well-suited. Potential design options can be applied to all buildings but elaborated upon differently. This allows for the development of an interscalar sharing network within this location, starting from a systemic approach and eventually translating into spatial qualities.



Fig. 7.4:
Location Tussendijken

A generic urban block

The next location contains a composition of urban blocks. This type of urban block is often visible. Not only within this neighbourhood, but also within the rest of Rotterdam, or even other cities within the Netherlands. This leads to the option of implementing the design strategy into different locations.

This composition exists of different spatial qualities and compositions, from which a system of a sharing network can be derived. In this way, the design approaches differ from each other.



Fig. 7.5:
Location Bospolder

Spatial configuration

Although this urban composition is intended to have a collective character, as mentioned in the analysis chapter, the current outcome does not reflect this character, as its collective spaces are not used efficiently. To redesign this location, current configurative functioning has to be understood

A collective design

These urban blocks are situated between several public elements of BoTu: Park 1943 to the north, the Grote Visserijstraat to the east, the Schiedamseweg to the south, and primary schools to the west. However, rather than connecting these spaces, these buildings form a barrier between them.

The collective space, although publicly accessible, lacks a clear function and feels sheltered, making it spatially unclear who the desired users of the space are. Passers-by may feel as if they are entering someone's property, while local residents are not encouraged to use the space beyond parking.

As mentioned in the analysis, access to the buildings is provided both from outside and inside the collective space. Residents have the option of entering the buildings from outside, which provides a link between two flats and the potential for interactions between residents. However, without a clear function associated with this entrance, these interactions may be short-lived.

The total number of flats in the original buildings is 360, with an additional 76 units added later. The redesign will need to take into account the existing structure of the buildings.



Fig. 7.6:
Collective space functioning as parking space



Fig. 7.7:
Levels of sharing within location 1

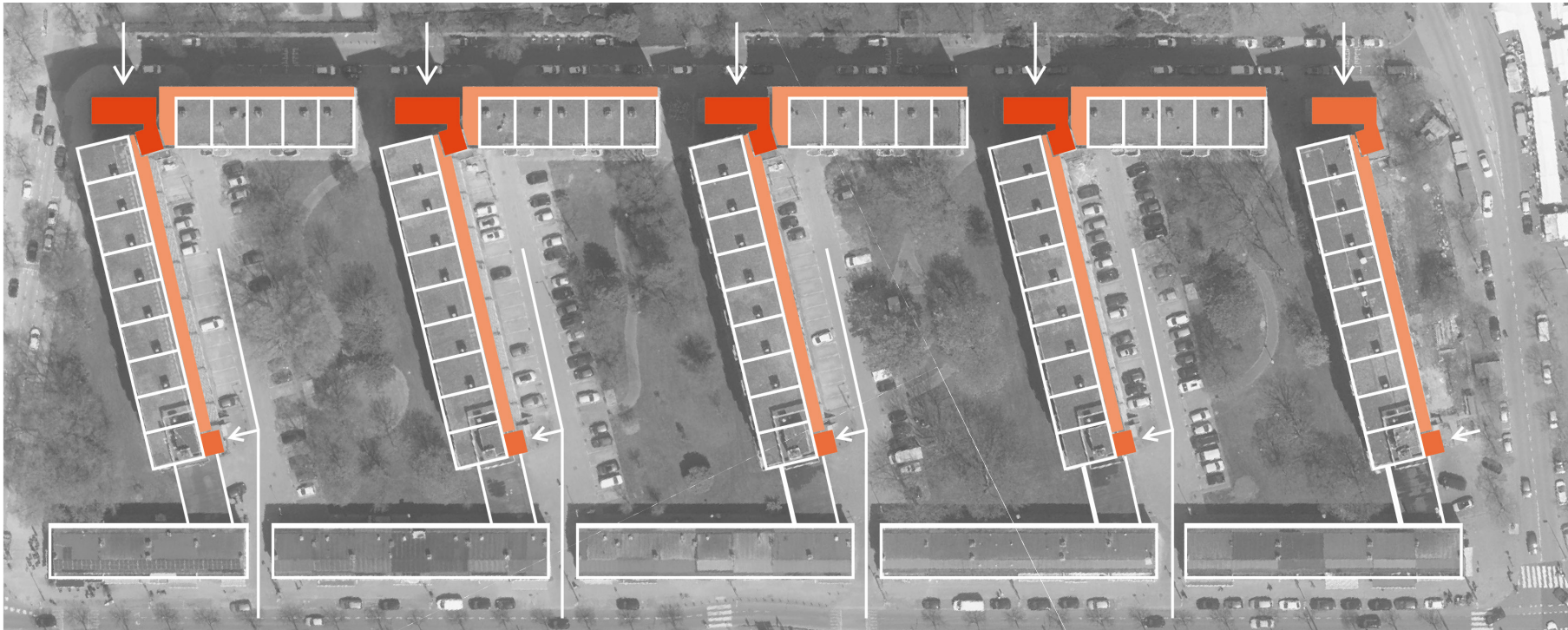
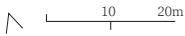


Fig. 7.8:
Levels of sharing within location 1



■ sharing with both buildings ■ sharing with one building ■ sharing with one level

The context

Connect

The redesign aims to establish connections with the surrounding functions. Instead of the current situation, where there is a literal barrier between the buildings and their surroundings due to the semi-raised floor that is only accessible at two points, the raised plinth will be integrated into the context. The galleries will be extended and integrated into the surrounding area.

Furthermore, there will be an exchange of functions with the neighbourhood, allowing the cores of the outer buildings to be opened up to local residents, while considering the adjacent functions.

Since the site is located on the Schiedamseweg, which is accessible to cars, a parking solution will also be incorporated into the redesign of this subarea.

The building blocks will still remain accessible to passers-by to create a connection between the park and the Schiedamseweg.

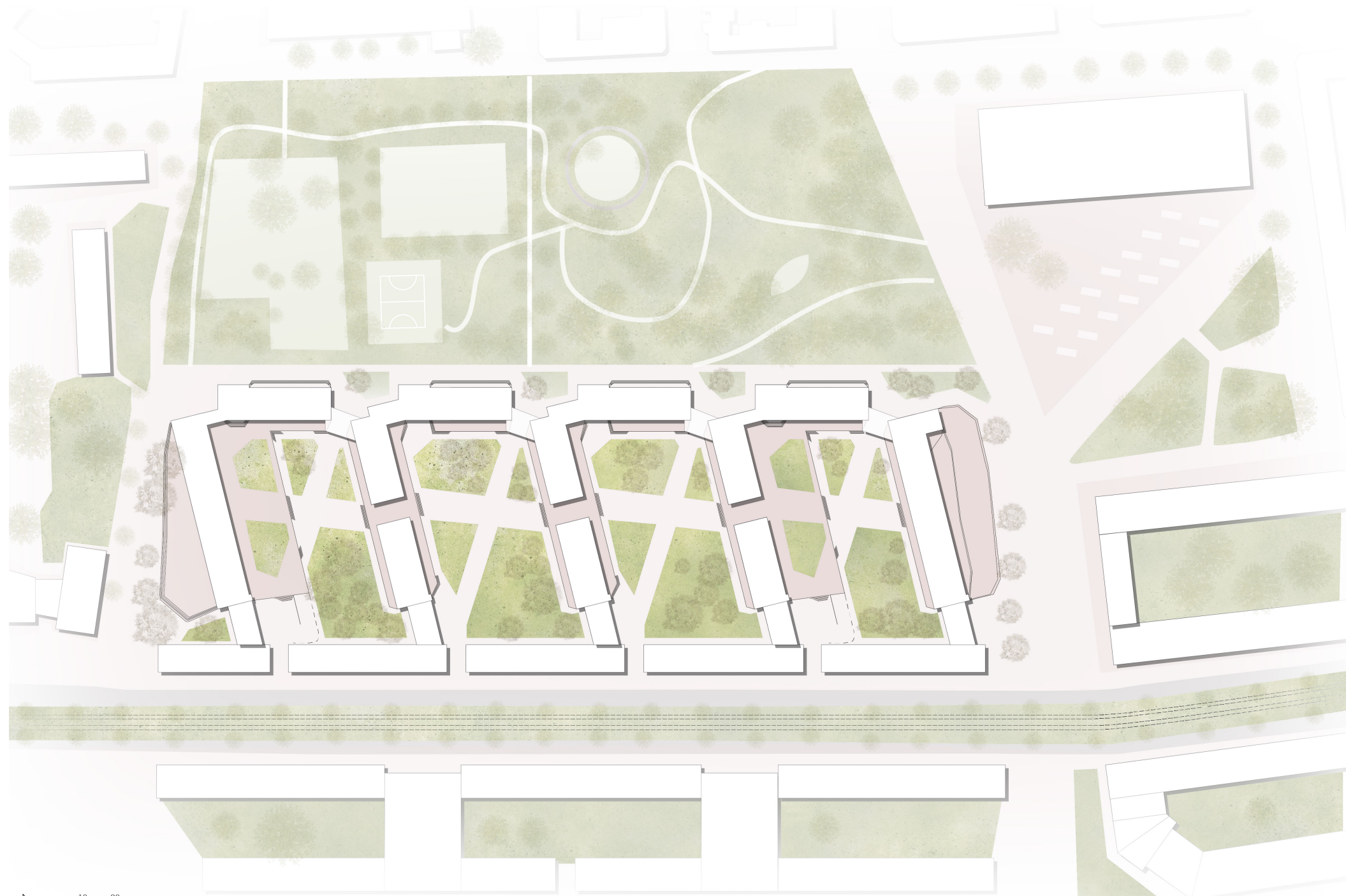


Fig. 7.9:
Design 1 in context

The system

In the redesigned system, forms of sharing come in different shapes and scales. This creates space for different types of housing, taking into account different residents' wishes.

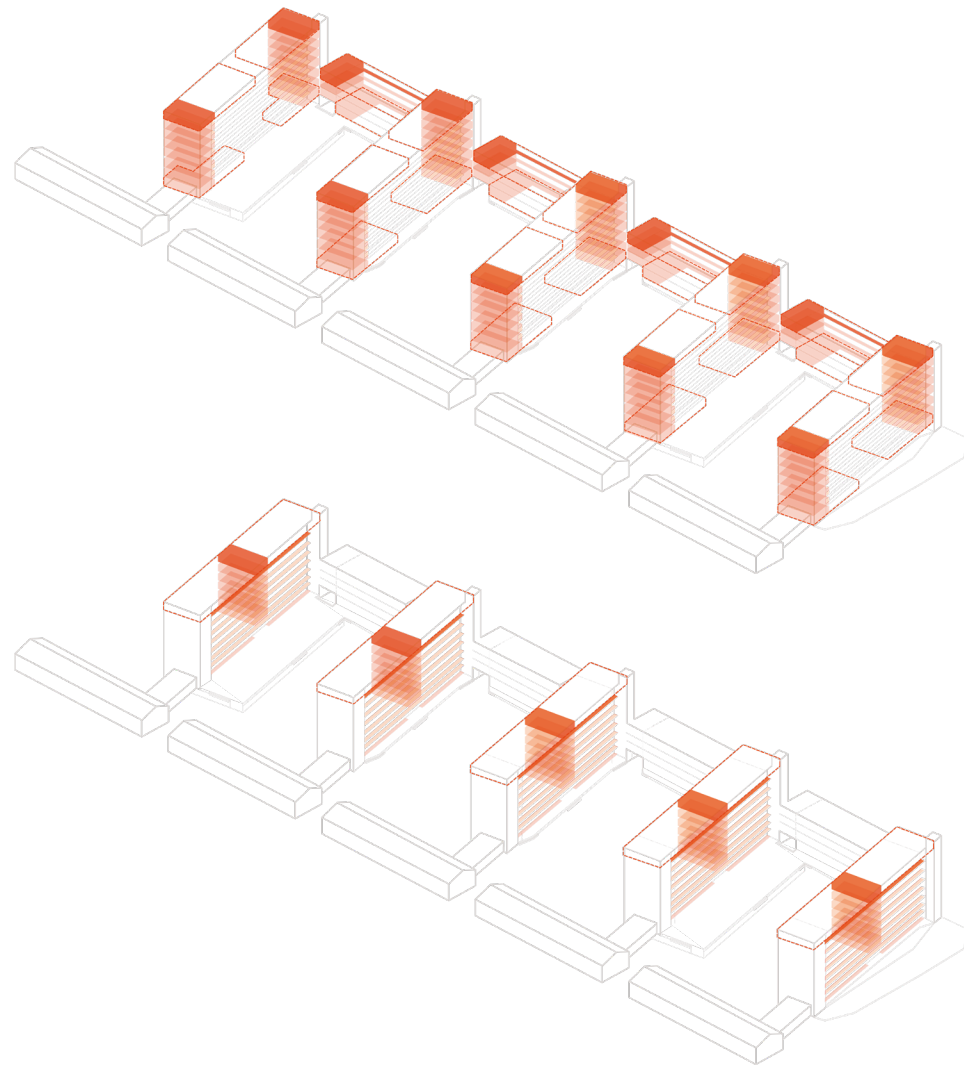


Fig. 7.10:
System 1.1

Fig. 7.11:
System 1.2

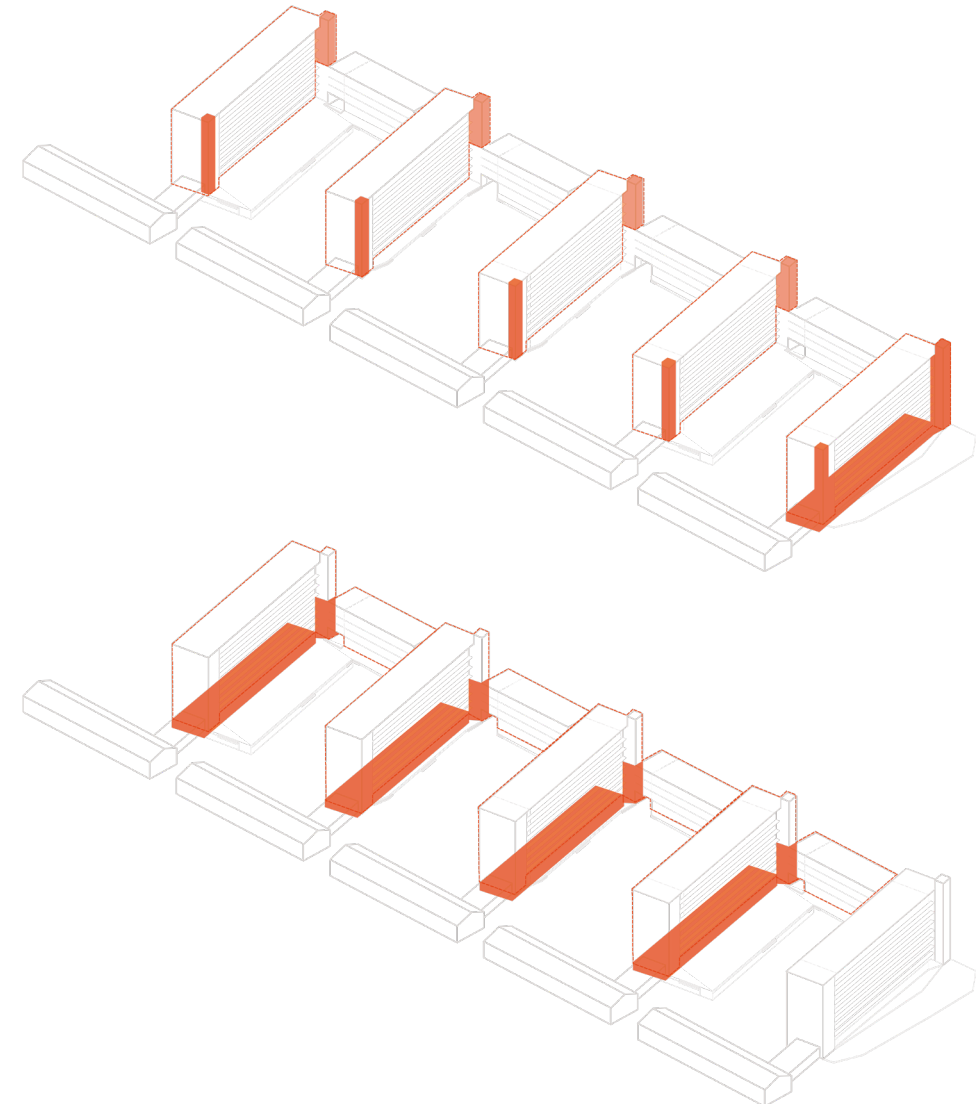


Fig. 7.12:
System 1.3

Fig. 7.13:
System 1.4

Single building

The first scale of sharing occurs within the buildings, with the smallest form being the sharing of living rooms and kitchens (Fig. 7.10). This sharing varies between the two types of buildings within each block; larger flats have more individual units per level, resulting in more shared spaces.

The next sub-scale includes the galleries and shared spaces between two housing groups (Fig. 7.11). These spaces can be arranged freely according to the residents' preferences. They can be used for activities such as laundry, work, or accommodating guests.

Finally, there are the access points (Fig. 7.12). Some access points serve only one building, while at the next sub-scale, there are access points that connect both buildings.

Two buildings

The shared core serves as a link between the two buildings (Fig. 7.13). It also serves as the main entrance for both buildings. Additionally, this main entrance is connected to the communal bicycle storage, providing space for residents of both buildings.

Single urban block

Within the courtyard, another form of sharing occurs, distinct from the previous one (Fig. 7.14). Since the sizes of the larger flats vary, with some flats adjacent to only one courtyard, this facilitates an exchange between different courtyards. Public spaces will provide residents with additional space and enhance spatial quality, and residents will be able to appropriate these spaces. Additionally, the garage boxes already present in the area will be shared on the same scale. Sharing these boxes will allow for shared materials and the exchange of experiences.

Multiple urban blocks

A next step is connecting the various urban blocks in a new way (Fig. 7.15). By integrating shareable functions on the scale of the entire complex within the plinth of the building centres, a route is created between the courtyards. Offering different functions makes exchanges more attractive.

Public

Finally, there is the public scale, which connects the plan to its surroundings (Fig. 7.16). Some functions in the outer blocks will have the option to open up to the public. Additionally, two of the four courtyards will have semi-underground garages, allowing for shared parking.

On the north side, there will be connections to the surrounding area; two of the four bike sheds will include space for repairing bicycles, accessible to both residents and local residents.

Furthermore, there will be an option for passersby to move from north to south. It should be clear to them that they are entering a collective block, which they can use for movement and interaction.

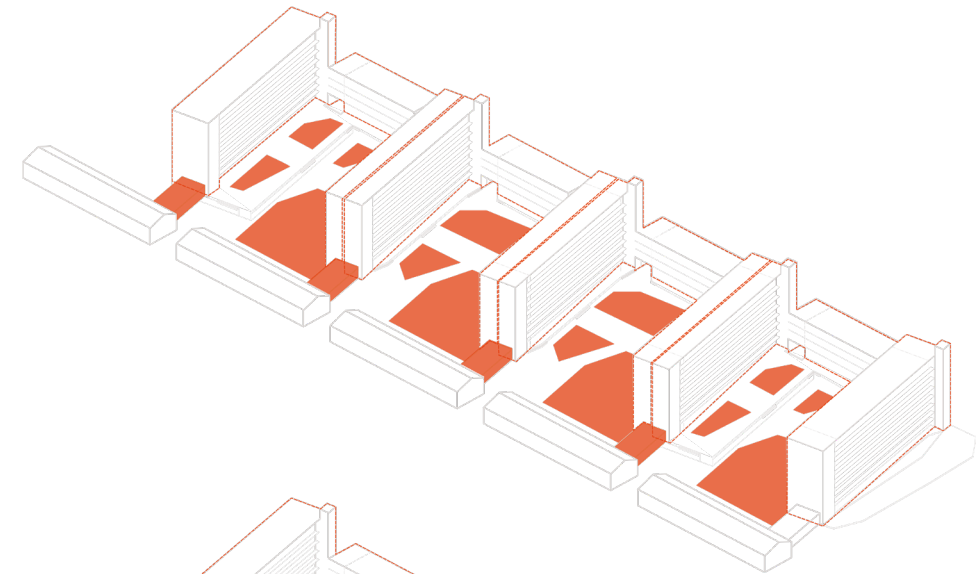


Fig. 7.14:
System 1.5

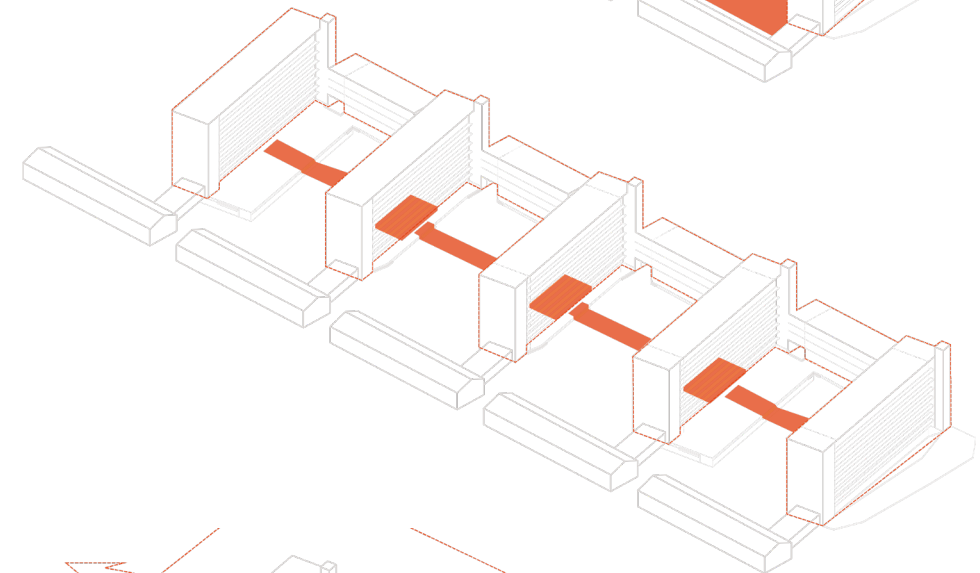


Fig. 7.15:
System 1.6

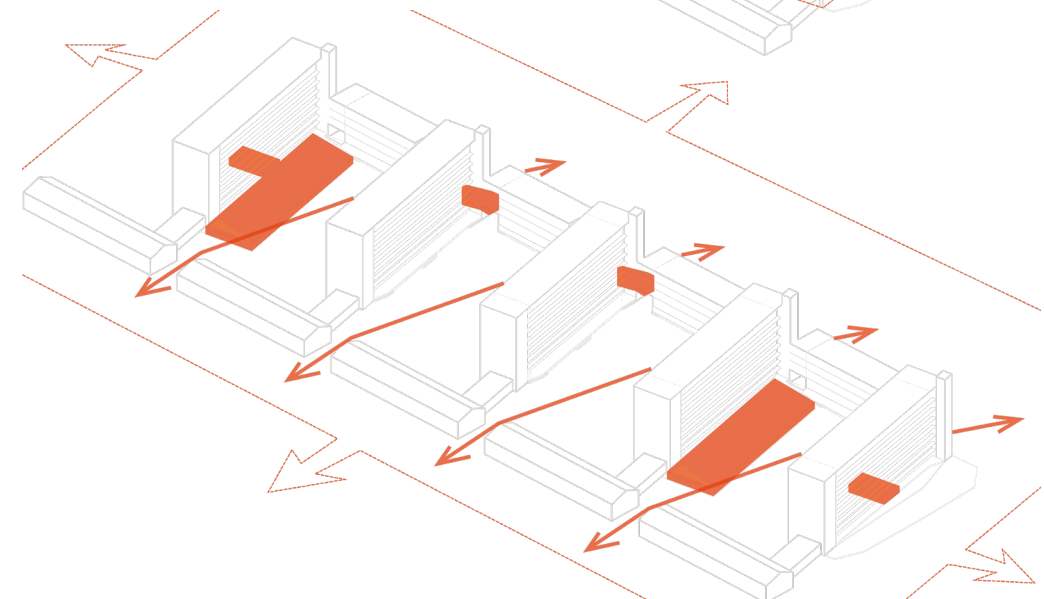


Fig. 7.16:
System 1.7

The design

Fig. 7.17:
Plan design 1

Different functions

The system is reflected in the design presented above. The cores are equipped with various functions, serving the entire subarea. These include a spacious kitchen, workspace, and atelier accessible to all residents.

Additionally, there are shared functions located outside the buildings, accessible to all building blocks. These include play elements for children, a public barbecue area, and outdoor workplaces.

Another sharing element on the level of this entire composition contains a solar panel system which will be placed on top of the buildings.

Each courtyard will feature green elements, with fixed seating and reflecting the red "social" colour. There will also be space allocated for small vegetable gardens. However, due to the presence of buildings and trees, some areas within the courtyards will be shaded. By strategically cultivating plants in both sunny and shaded areas, residents can exchange different types of

vegetables between courtyards. Collecting water also happens on the levels of single urban blocks, which can be used for these community gardens.

The westernmost building features a workshop space within the central core, which can be opened up to the neighbourhood. This space is situated adjacent to primary schools and a kindergarten, providing an opportunity to educate children about climate change through interactive play activities, inspired by *Archiklas*, as mentioned in the theoretical chapter.

The easternmost building includes a kitchen, allowing residents from different building blocks to prepare meals for the neighbourhood. This initiative is connected to the nearby market, where fresh vegetables can be bought for cooking.

Furthermore, the design incorporates parking facilities within the outer building blocks, located in semi-underground basements. By situating these car parks only in half of the courtyard, most of the existing trees can be preserved.

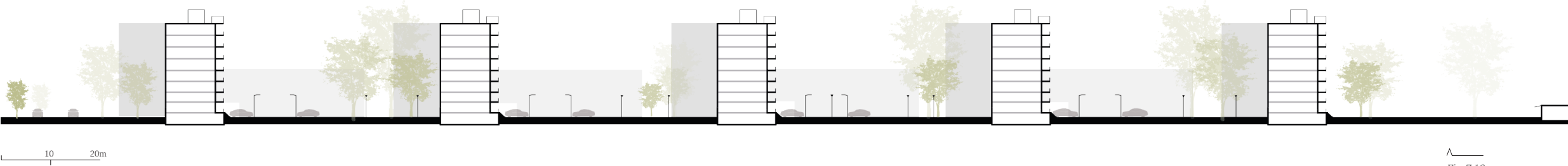


Fig. 7.18:
Section current situation

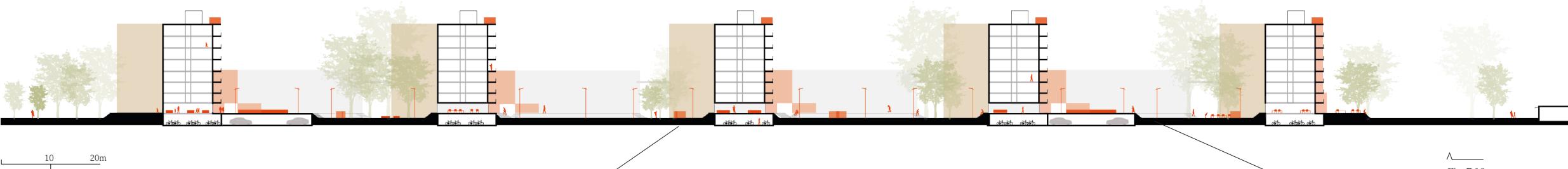
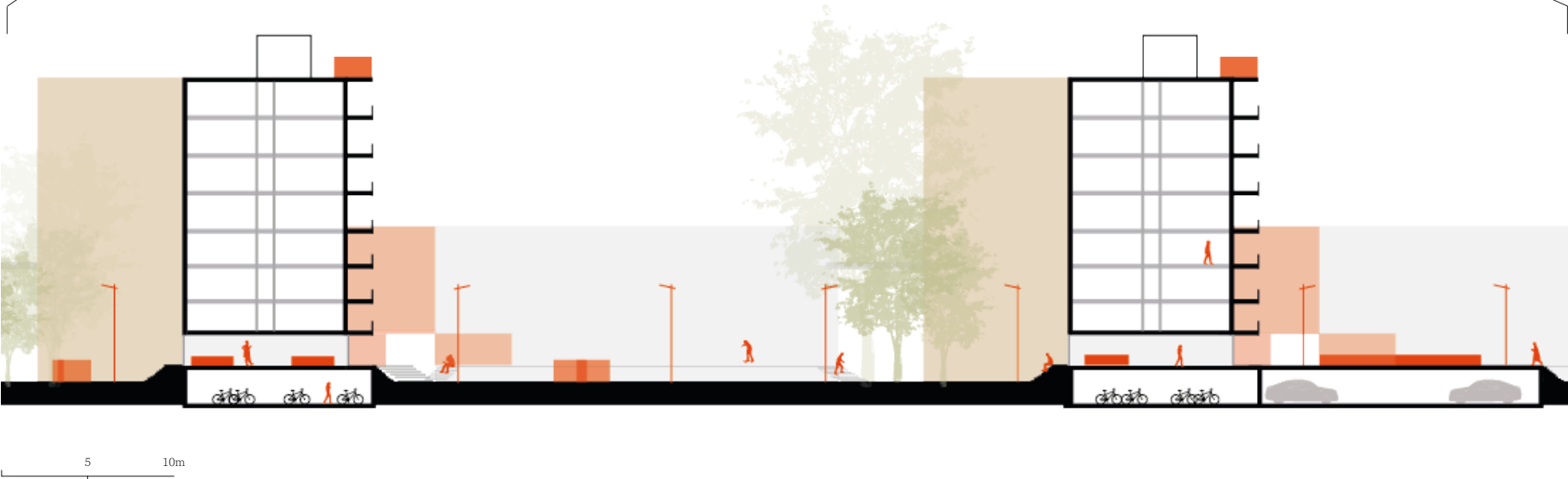


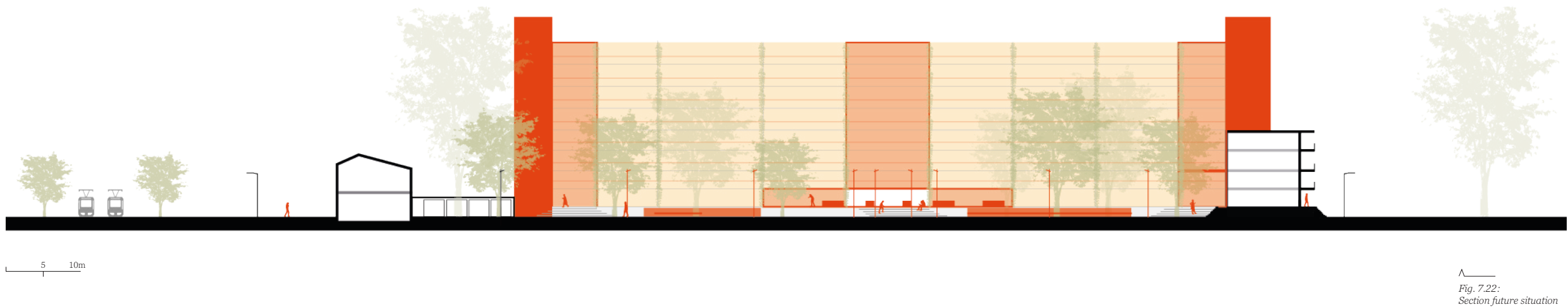
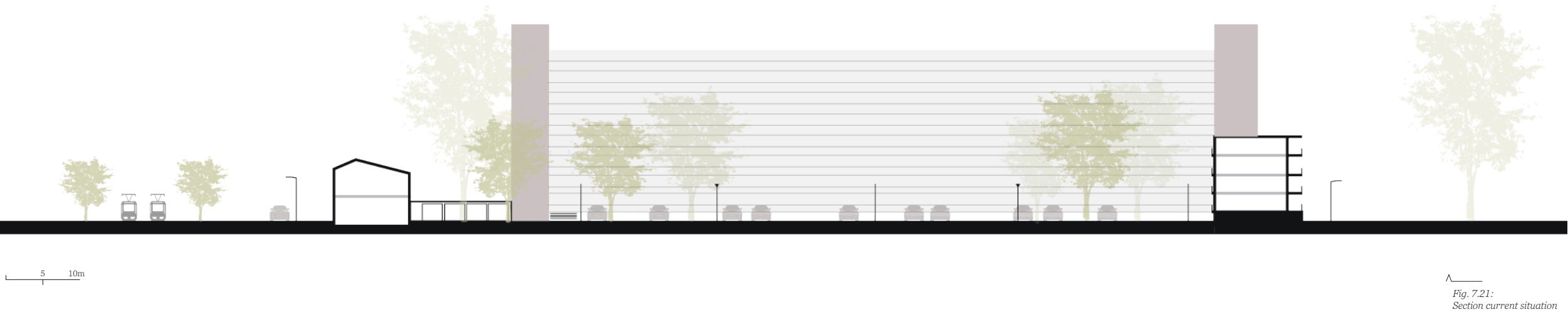
Fig. 7.19:
Section future situation

Connections made

By opening up the centres of the blocks, literal connections are established between the different buildings, encouraging interaction and exchanges. Moreover, by raising the plinth, the buildings become more integrated with their surroundings.







Connecting red

The theme of connectivity will be represented by red accents in various shapes, making the collective spaces visually distinct within the buildings. By incorporating this colour scheme, residents can easily identify the location of shared facilities within the building blocks.

Design experiment

Fig. 7.23:
Design experiment entrance public route



Fig. 7.25:
Design experiment parking garage entrance

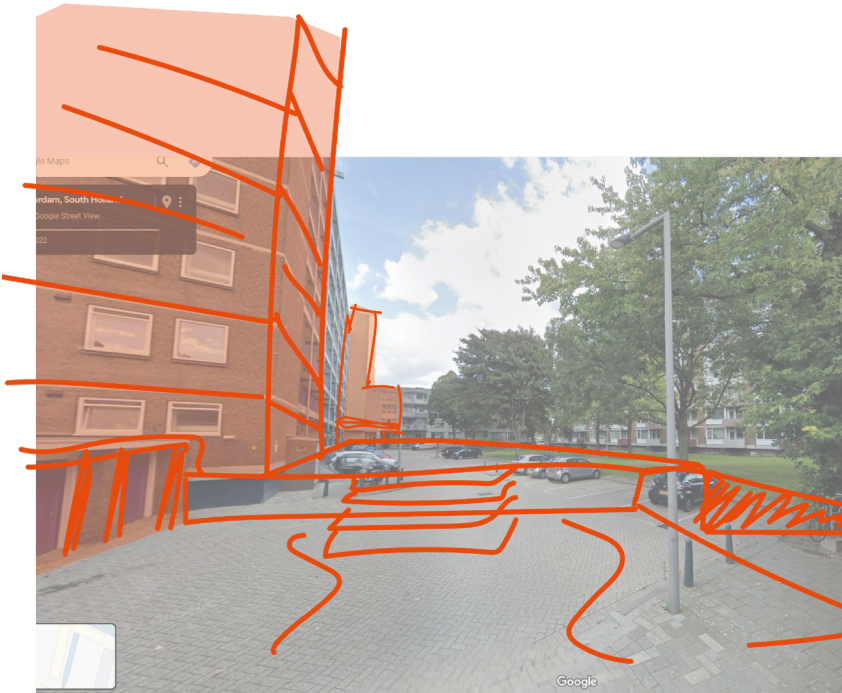


Fig. 7.24:
Design experiment building entrance

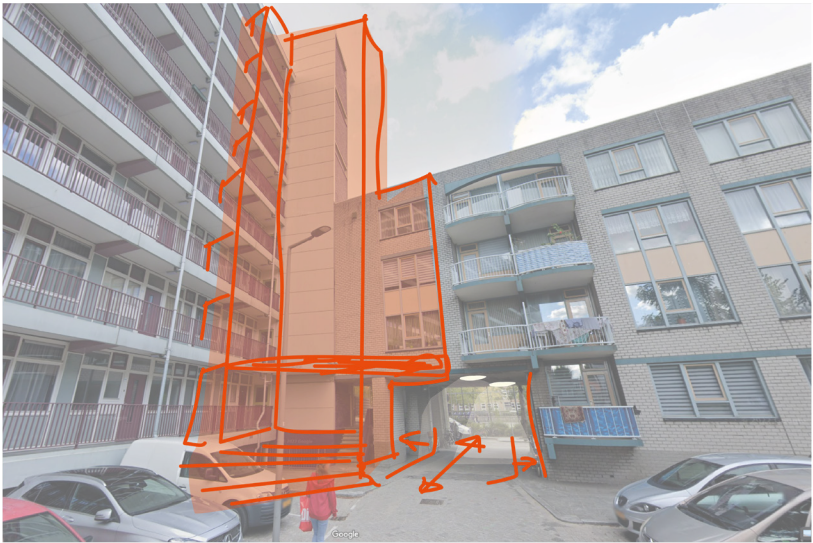
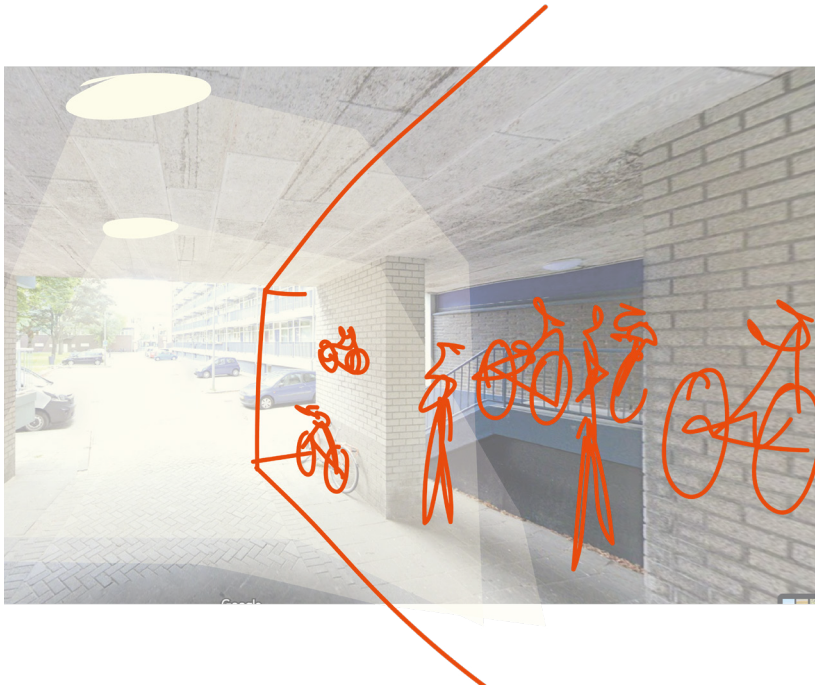


Fig. 7.28:
Design experiment bicycle repair



The materials

The materialisation will be a crucial aspect of the visual outcome of this project, as collectivity will be visually expressed through a differentiation in materials, which will be elaborated on within this section.

Framing the buildings

As mentioned before, the collective parts within the buildings will be highlighted by the use of a red frame-construction.

Levelled transitions

Introducing elevations within the building blocks facilitates the transition from private to collective spaces by creating a height difference. These elevations consist of concrete structures. As they extend towards the collective courtyards, they are surrounded by semi-permeable pavement, which serves as a transition to the open, green areas of the courtyards. Additionally, the main pathways, connecting the various building blocks and accessible to passers-by, are highlighted with dense pavement.

Lighting

Different types of lighting are used in this design. The impressions show that subways are illuminated using spotlights integrated in the ceilings of the structures.

Within the courtyards, lighting is also provided by lampposts that also contain the red accent colour (Fig. 7.32).

Furniture

Lastly, furniture will be added to the courtyards. This furniture will have a collective function within the courtyards as well as for possibilities of exchange between different urban blocks. By adding furniture for collective use, as well as leaving space over for flexible infill, the residents are also free to add their own furniture for the collective good.

These collective added furniture will all exist of the same colour, to make the collective use visible. Varying from playground elements, to seating facilities.

Fig. 7.32:
(Pinterest, n.d.)



Fig. 7.33:
(ADEPT, n.d.)



Fig. 7.34:
(Pinterest, n.d.)



Fig. 7.35:
(Mouhuus, n.d.)



Fig. 7.29:
(Ahmann Canovous Maruri, n.d.)



Fig. 7.30:
(Studio Vulkan, n.d.)



Fig. 7.31:
(MASU planning, n.d.)

Vegetation

As cars disappear from the streetscape, and two of the four blocks have a shared parking garage, space is freed up for adding vegetation in various forms, as explained in this section.

Trees

Since the existing greenery will remain part of the vegetation in the new plan, most of the trees currently in place can be preserved in this design proposal.

Additionally, new tree locations will be added in two of the four urban blocks. When selecting these trees, several factors need to be considered. For example, they must be resistant to drought and paving. Several potential options have been identified, each with its corresponding qualities.

Low tot middle high vegetation

Besides adding trees, there will also be spaces with added vegetation of low to medium class. This will be placed in the raised furniture, as well as on the ground vegetation.

This vegetation has aesthetic value and will contribute to biodiversity.

Free infill

Finally, there is space for free interpretation by the residents of the building block. People can use this space for gardening and cultivation.

However, space is also kept free for grass, on which people can place furniture for collective use.

Red maple (Acer rubrum)

Fig. 7.36:
(Vd Berk, n.d.)



- 15-20 meters
- Drought resistant
- Resistant to hardening
- Orange/red autumn colour
- Gestation tree for bees

Honey locust (Gleditsia triacanthos)

Fig. 7.37:
(Vd Berk, n.d.)



- 20-25 meters (fast growing)
- Drought resistant
- Resistant to hardening
- Yellow autumn colour
- Gestation tree for bees

Honey tree (Styphnolobium japonicum)

Fig. 7.38:
(Vd Berk, n.d.)



- 10-12 meters (fast growing)
- Drought resistant
- Resistant to hardening
- Gestation tree for bees
- Host tree for butterflies

Norway maple (Acer platanoides)

Fig. 7.39:
(Vd Berk, n.d.)



- 15-20 meters
- Drought resistant
- Resistant to hardening
- Golden autumn colour
- Gestation tree for bees
- Host tree for butterflies





Spatial configuration

Next is a composition of generic urban blocks, which are common within this neighbourhood and the rest of Rotterdam. This location differs significantly from the previous one. The buildings mostly consist of four stories and have ground-level connections to private gardens.

To be able to design for this location, its contextual configuration has to be understood, as well as it is important to analyse the differentiation between types of buildings to further develop a rough design for the interior of the buildings as well

Context

The district is located on Schiedamseweg and Spanjaardstraat, both of which have the potential to become streets with a more public character due to their spacious layouts and the public functions located in the ground floors of the buildings. However, the other streets within this district are narrower.

The public space in the southeast block has the potential to be transformed into a qualitative public space for the community of this district. Currently, it serves as a paved football pitch with some playground elements placed around it. Another potential lies in the demolished building block below the four building blocks to be designed, where there could be space for public uses.

The different types of buildings within these streets add complexity to the design of the building interiors. Therefore, it is necessary to understand the differentiation between the buildings. Fig. 7.42 shows the various individual units and the differentiation between different types, indicating differences in storey heights.



Fig. 7.42:
Spatial analysis 2

Slow traffic versus dominating cars

The streets within this district are currently dominated by cars (Fig. 7.43), serving primarily as spaces of going rather than spaces for residents, as there is insufficient quality for residential use. However, there is already a street within this district that is closed off to cars (Fig. 7.44). Despite the absence of fast traffic, residents on this side of the street have not utilised this space to place elements in front of their doors. This may be due to the fact that most facades along this street are mostly blank, with few windows on the ground floor, preventing residents from extending their indoor functions to outdoor spaces.

Closed facades

Going further on the closed facades, it is often visible in these streets that people have their curtains closed on the ground floor in streets that mainly serve as moving rooms, rather than having a residential function. As a result, residents have no control over the people who can see into their homes. No space is left for porosity and the public enters the private space directly.

Potential to collectivity

One of the urban blocks (northeast) already has the potential to become a collective space, as there is already a shared component present (Fig. 7.45). Currently, the gardens of the ground-level houses are accessible from a communal entrance. However, a fence has been erected, creating a barrier that discourages casual passersby. Moreover, the gardens are still completely separated from each other, and only the pathway is for collective use.



Fig. 7.43:
Cars dominating the streetscapes



Fig. 7.44:
Slow traffic street



Fig. 7.45:
Potential to collectivity

The context

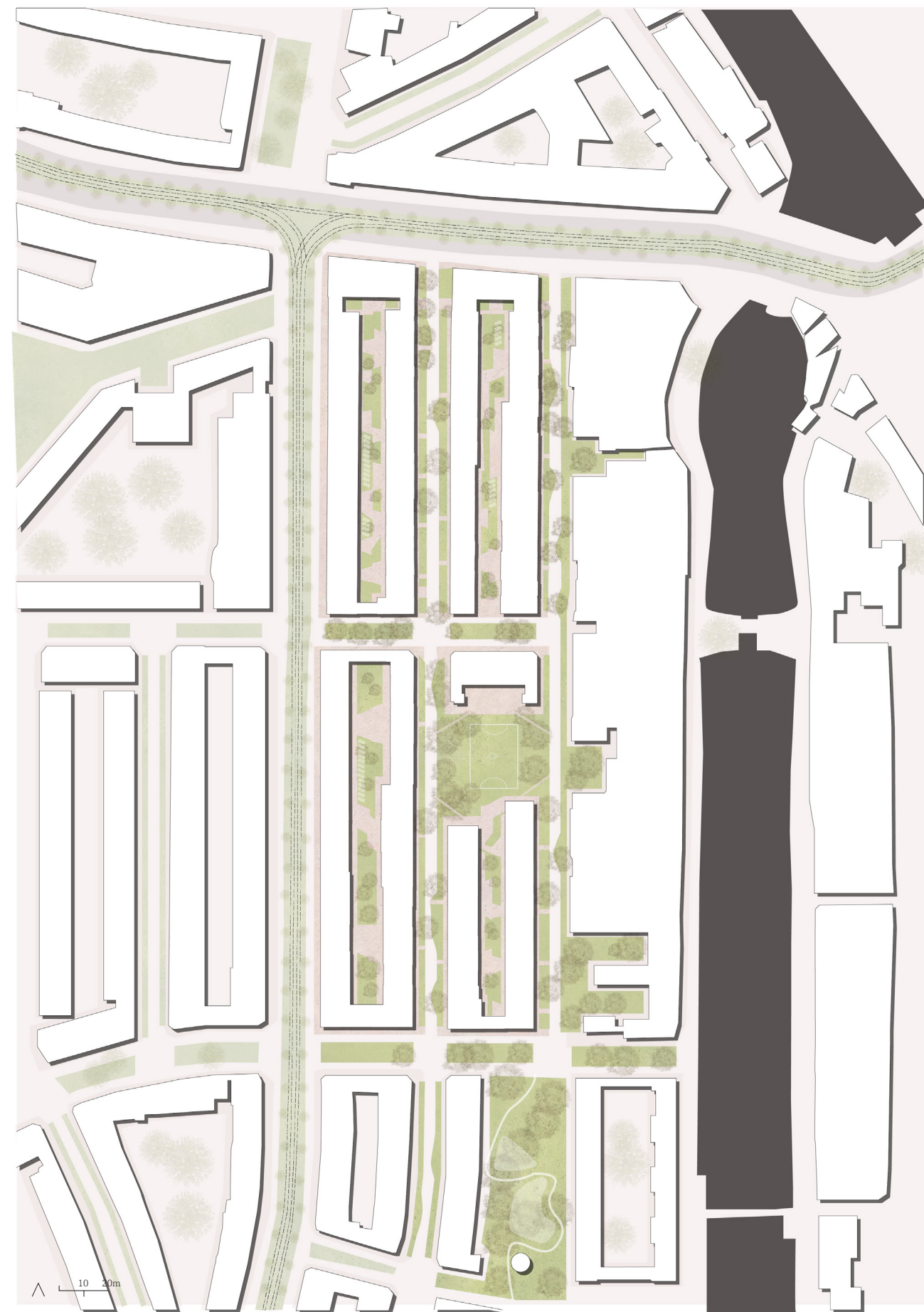
Connect

The redesign of this area also aims to establish a connection between the buildings and their surroundings. Instead of the sharp transitions between private and public domains in the current situation, space for porosity should be provided, made possible by the car-free district. Streets will no longer only serve as passageways; movement in the opposite direction will also be encouraged to foster interactions between neighbours.

Since the Spanjaardstraat will become car-free as well, space becomes free to extend the public function of the Schiedamseweg. This will also provide a softer transition from extremely public to extremely private.

By merging functions, previously built spaces become available, resulting in public spaces that serve the community of the district, as well as providing the possibility of infiltration.

Fig. 7.46:
Design 2 in context



Scales of sharing

The development of this design differs from the first one. While the first design was based on an existing spatial grid, allowing for an easier translation into a systemic design, this district lacks such a typology. Instead, it comprises various types of buildings and street configurations that guide the development of the design elaboration. The diverse spatial qualities can eventually be translated into a sharing system as well.

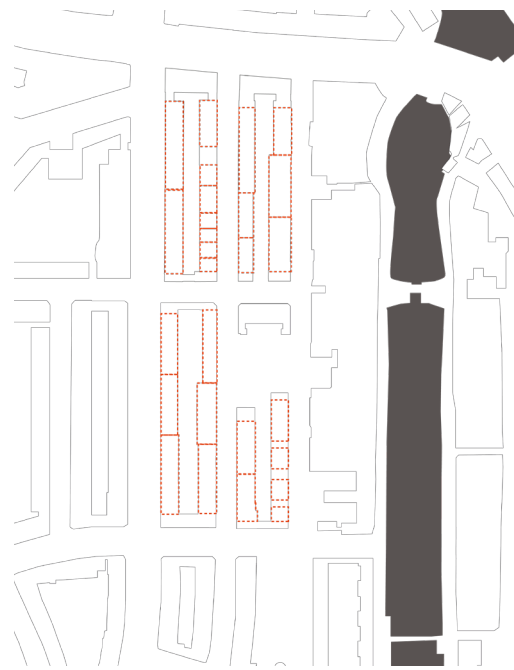


Fig. 7.47:
Collective housing

Collective housing

The analysis revealed that this district contains different types of housing. However, this offers the opportunity to create various collective housing modules, varying in size and degree of shared spaces (Fig. 7.47).

The collective garden

These spaces (Fig. 7.48) are the courtyards of the building blocks and will not be disturbed by passers-by. This results in the possibility to transform them in qualitative green spaces that function as shared gardens for all residents of the urban blocks.

The collective street

Since these streets (Fig. 7.49) are relatively narrow, they facilitate interactions between residents of both building blocks. These interactions will be encouraged by a spatial redesign made possible by the car-free future of this district.

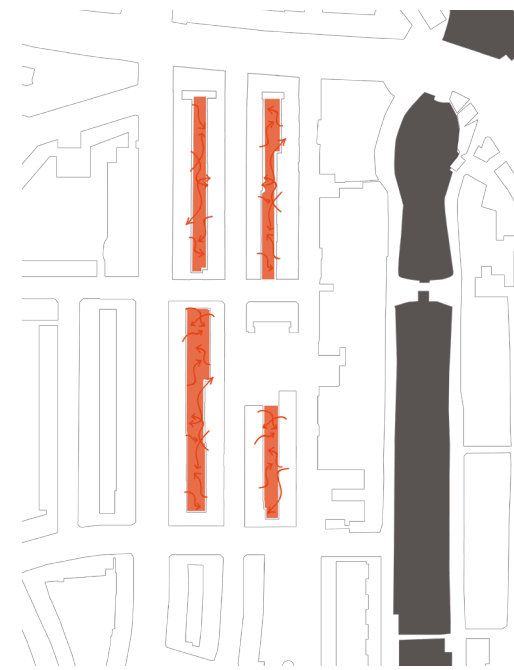


Fig. 7.48:
Collective gardens

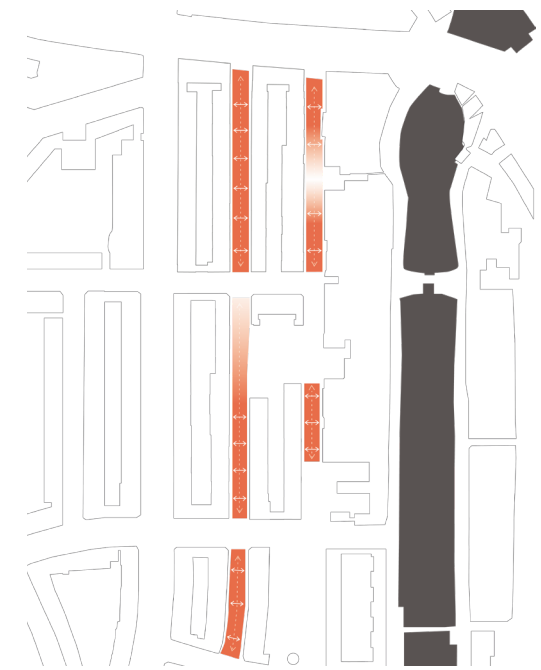


Fig. 7.49:
Connecting urban blocks

Serving the district

Next, these locations serve the district (Fig. 7.50). As they are centrally located within the district, they can serve a wider community. These spaces can be used to accommodate community functions.

The public streets

First, the public streets (Fig. 7.51). The wide layout of the public street allows for the inclusion of public functions, extending the public plinth towards the streets. Due to its spacious design, interactions will mainly occur on the same side of the street. This street serves the entire community of BoTu.

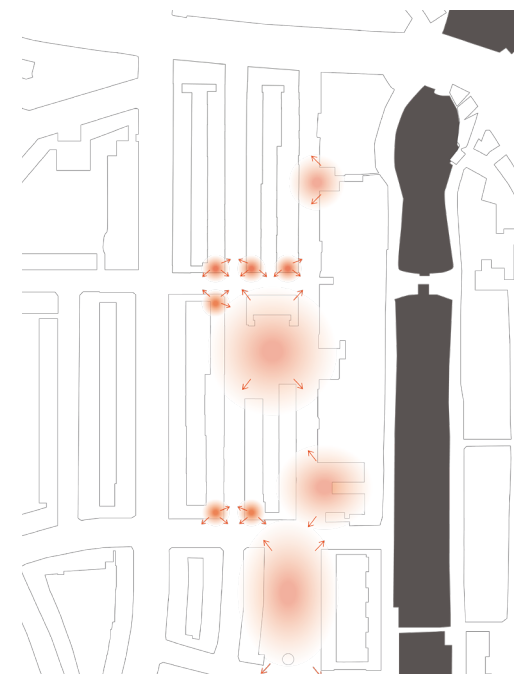


Fig. 7.50:
Serving the district

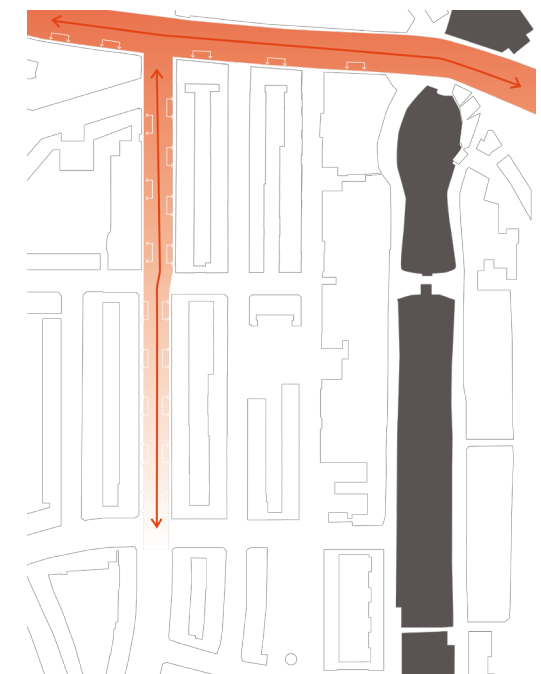


Fig. 7.51:
Serving BoTu

The design

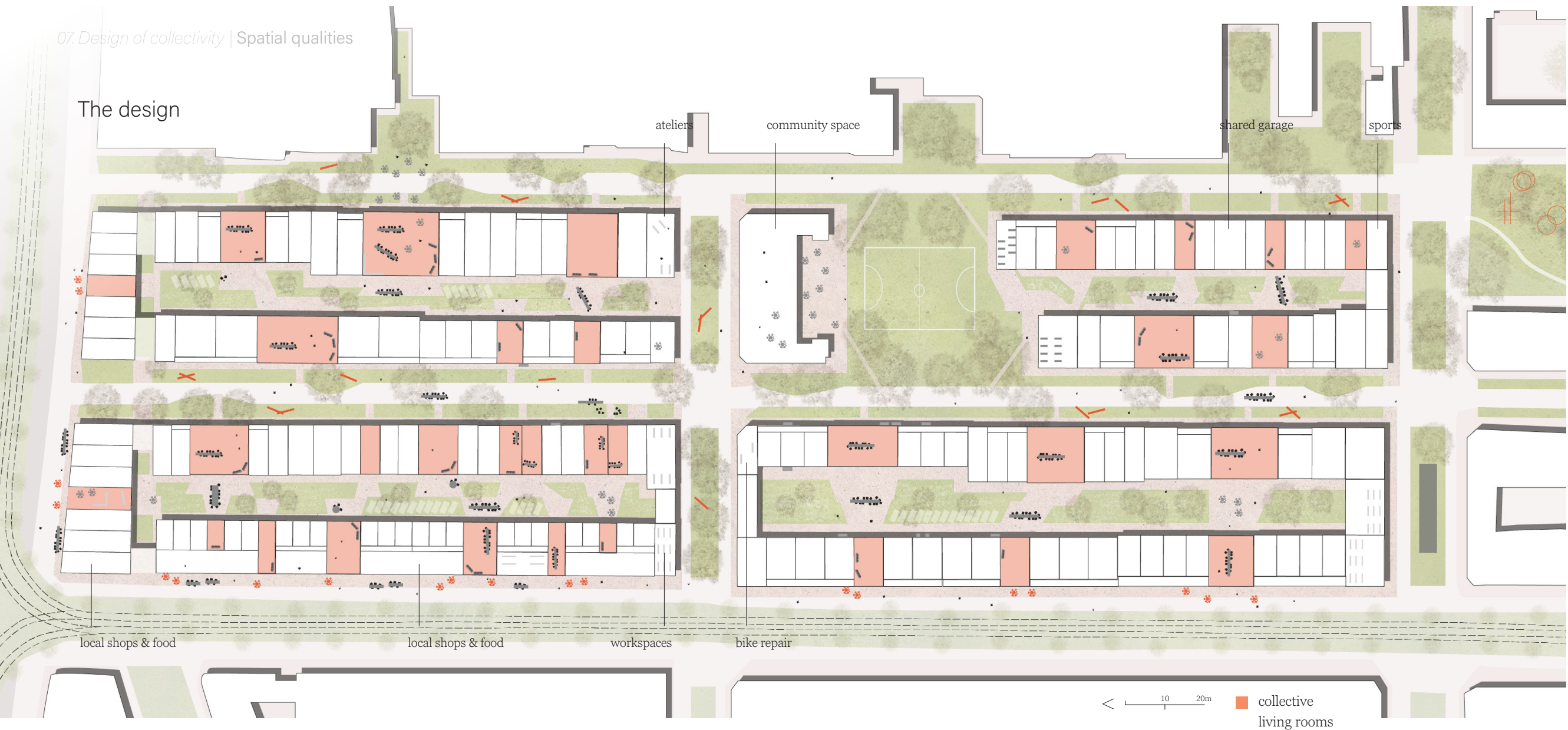


Fig. 7.52:
Plan design 2

Extending porosity

The various types of sharing functions are incorporated into the spatial redesign of the district, resulting in different spatial qualities.

Residents of the northern urban blocks have the option to open a shared kitchen, creating a connection with the public Schiedamseweg. Additionally, certain collective housing modules on other streets also include large shared spaces that can be opened to the public. This allows the community within these collective housing

modules to interact with the community on street level or even the broader district community. Residents can participate in gardening activities within collective gardens, inspiring them to start similar initiatives.

Shared bicycle storage is located within the collective streets, along with shared bikes placed in central locations within the larger district.

The central building in the heart of the district is transformed into a community centre. Here, people can gather, work, dine, or organise events.

Situating this centre next to public spaces, including a playground, facilitates activities that involve different age groups.

Other central locations within this district will also serve the community on the district level. Existing functions will be repurposed or expanded to effectively serve the community at this scale. For example, garages, currently used for repairing cars, will be transformed into a makerspace, while a gym will be connected to public outdoor sports facilities.

The redesigned district consists of a variety of collective housing types, meeting different preferences. Various forms and levels of sharing will be incorporated into these different modules. While some urban blocks will be publicly accessible, others will not. Even those that are publicly accessible will still have a barrier, creating a sense of entering someone's space. However, by maintaining accessibility, people will have the opportunity to be inspired by collective activities or functions.

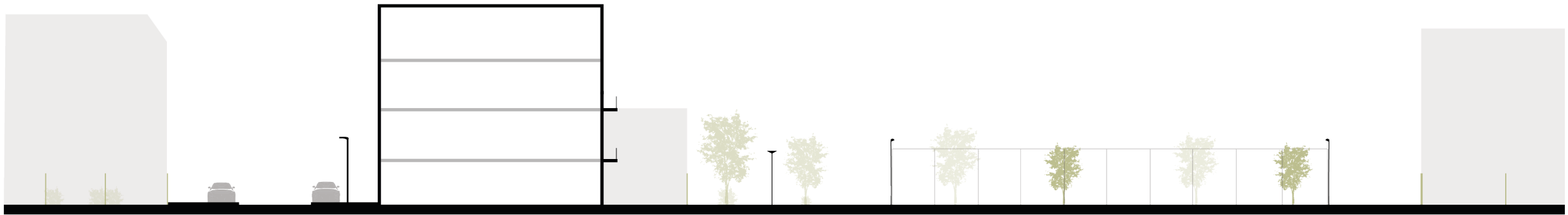


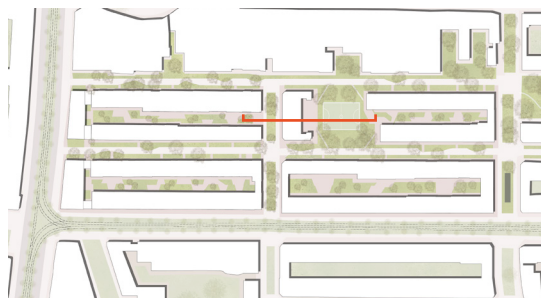
Fig. 7.53:
Section 1 current situation

5 10m



Fig. 7.54:
Section 1 design

5 10m



Central locations serving for the district

Central spaces within this district have been opened up to the community at the district level. A community space has been developed, connected to a playground. The urban blocks adjacent to this community space are publicly accessible, fostering community inspiration and interactions among the surrounding residents.





The spatial qualities

As mentioned, different types of sharing, and thus collectivity, lead to different spatial qualities. In the next section, three of them will be elaborated.

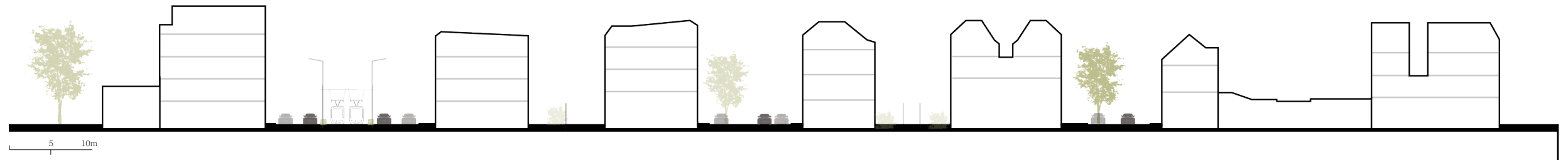


Fig. 7.55:
Section 2 current situation

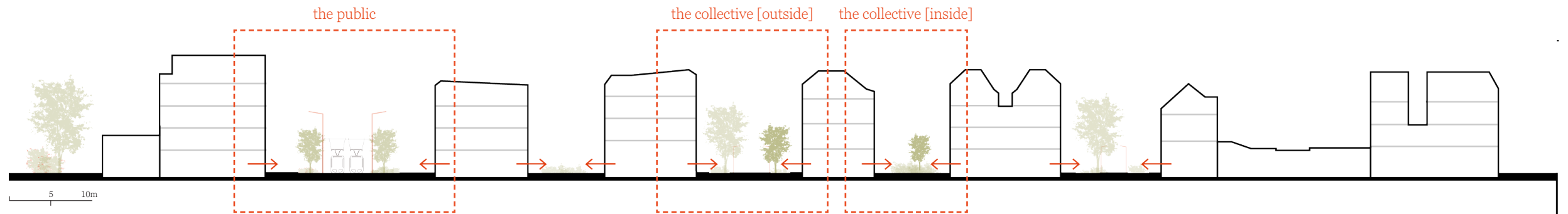
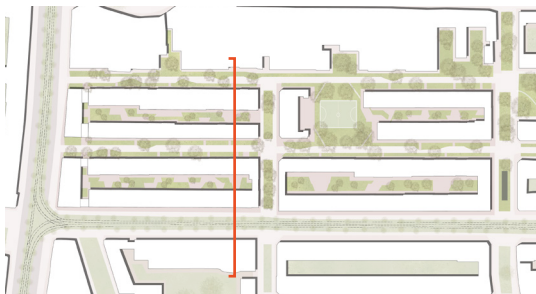


Fig. 7.56:
Section 2 design



The public

An impression of this streetscape is shown on next pages.

This street type serves the community at the neighbourhood scale of BoTu. Public functions, such as local food stores, small restaurants, public workplaces, or community spaces, are located within the plinths.

Because the car will be removed from this streetscape, much space becomes available for

porosity between the plinths and the public, so that the public spheres can be extended from the built to the streetscapes, being visible with terraces.

Different pavement materials indicate the transition from pedestrian space to space for cyclists. In the middle, tram rails will be retained and surrounded by green space to enable infiltration. A transition is visible, from slower movements on the sides towards faster movements in the middle of this street profile.

Fig. 7.57:
The public



Fig. 7.58:
The collective [outside]

The collective [outside]

This street type provides space for interactions between different building blocks, as well as for the public to pass through. Since the car will be removed from this streetscape as well, much space becomes available for greening this street type. However, this street will still function as a space to pass through as well, so the middle of the street becomes more densely paved, making it more attractive to bike on.

The green areas will be alternated with semi permeable pavement, extending the entrances of the buildings towards the street. This design stimulates movements towards neighbours and stimulates interaction. By variations in the green areas with plants and flowerbeds, as well as users-green -grass with trees-, space for seating furniture will be provided as well.

Some space will be left free of provided facilities so that the residents living along this street can claim this space and add collective elements.

The redesign of this street type results in a publicly accessible street with a collective atmosphere. As people enter the street, they will feel like guests, as the street now bears the identity of its residents. Previously, the street primarily served as a thoroughfare, creating an anonymous atmosphere.

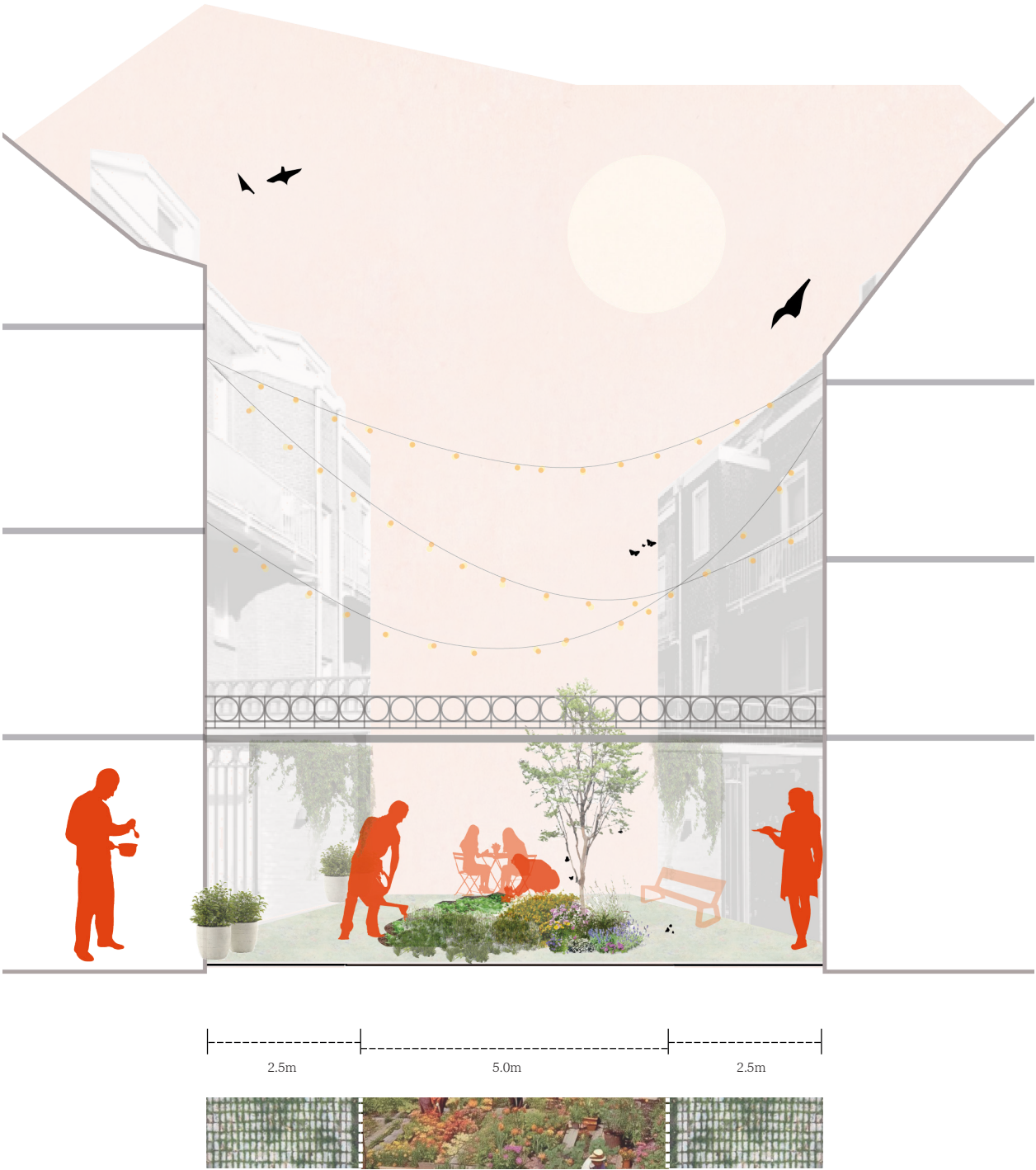


Fig. 7.59:
The collective [inside]

The collective [inside]

This type of space is located within the urban block and represents a more private sphere. Some of these blocks are accessible to the public, while others are not, resulting in different types of spaces. The central area of these collective gardens consists of green space, which can be customised according to the preferences of the residents of the urban block.

Community spaces are also located within this urban block, allowing for community activities such as gardening to take place in the collective garden. Residents of the urban block can participate in these activities, learning and sharing knowledge about gardening and cultivation.



The materials

Collectivity will also be emphasised in this design through the use of materials. Here, some forms of materialisation recur throughout BoTu's neighbourhood, providing extra cohesion at neighbourhood level.

Pavement

In this design, pavement diversity has been used to indicate the level of collectivity. The semi-permeable pavement illustrates the porous nature of the design, allowing people to utilise these spaces.

Additionally, semi-permeable pavement positively contributes to the environmental sustainability of the neighbourhood by allowing water to infiltrate into the soil.

Fig. 7.62:
(Charles Enrich Studio, 2019)



Lighting

Red-coloured street lighting will be used throughout the design of BoTu's neighbourhood. Variations in street lighting will be made based on the type of street, with differences in height and the amount of light.

Fig. 7.63:
(Pinterest, n.d.)



Furniture

The amount of public furniture increases as the streets become more public. Therefore, in the public domain, a significant amount of street furniture is added. However, in the collective domain, space is left open for free interpretation by the residents of that area, allowing them to create a space that reflects the identity of the surrounding community.

Fig. 7.64:
(SWA group, 2023)



Fig. 7.65:
(Pinterest, n.d.)



Bike storage

Bicycle racks will be added throughout the neighbourhood. However, shared bike hubs will be integrated at central locations to serve the district (Fig. 7.66).

Fig. 7.66:
(Vogt, n.d.)



Vegetation

As the neighbourhood will undergo a transition to car-free, a lot of space will become available for adding vegetation, which will improve the quality of the environment. This will manifest itself in different forms, which will be explained in this section.

Trees

The new green structures take into account the existing vegetation, ensuring that existing trees will not need to be cut down. However, additional trees will be planted. Considering the high urban character of the area, these trees must be resistant to paving and drought. Moreover, they should be suitable for planting in relatively narrow streets. A selection has been made and is explained next.

The public

The public street includes tramrails in the middle, which will be lined with greenery. As the space for cars decreases, there will be additional room along the tram track in the Schiedamseweg to incorporate medium-height planting. In the Spanjaardstraat, where cars will be completely removed from the streetscape, even more space will become available for adding medium-height planting and trees.

The collective [outside]

This space will be transformed into green strips on both sides of the road. These green strips will feature trees, as well as low and medium-height vegetation. However, space will also be left for grass, allowing residents to place furniture on it for collective use.

The collective [inside]

This space is entirely left open for flexible use, with paved areas on the sides connected by the same semi-permeable pavement. By designating areas for greenery, residents can decide what to place there. Additionally, this space will accommodate vegetable gardens, which will be encouraged through community activities.

Street parade (Malus baccata)

Fig. 7.67:
(Vd Berk, n.d.)



- 5-8 meters
- Drought resistant
- Resistant to hardening
- White flowers
- Gestation tree for bees
- Feeding tree for birds

Norway maple (Acer platanoides)

Fig. 7.68:
(Vd Berk, n.d.)



- 6-10 metres
- Drought resistant
- Resistant to hardening
- Yellow autumn colour
- Gestation tree for bees

Eco centry (Acer campestre)

Fig. 7.69:
(Ten Hoven Bomen, n.d.)



- 6-8 meters
- Drought resistant
- Resistant to hardening
- Yellow autumn colour
- Gestation tree for bees
- Host tree for butterflies

Chanticleer (Pyrus calleryana)

Fig. 7.70:
(Vd Berk, n.d.)



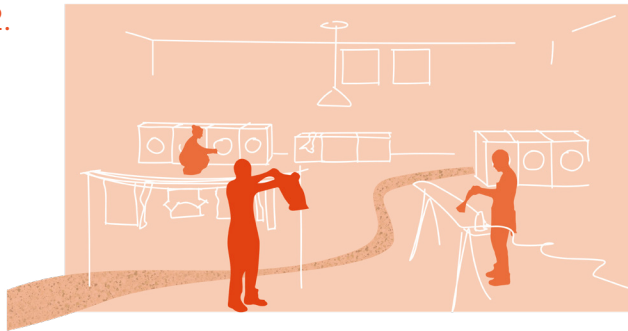
- 8-12 meters
- Drought resistant
- Resistant to hardening
- Yellow/red autumn colour
- Gestation tree for bees
- Feeding tree for birds

Systemic design

The following storyline provides insight into the lives of two fictional personas -based on the people that are interviewed- living in the redesigned neighbourhood of BoTu. One of them, Tom (32), resides in a housing unit within the systemic design. The story illustrates the various levels of sharing and the individuals involved within this district of the neighbourhood.

Fig. 7.71:
Storyline systemic design

2.



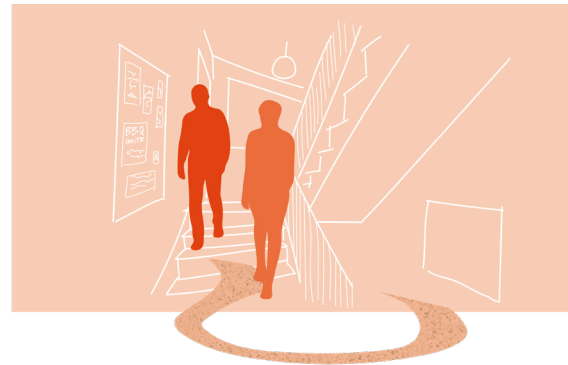
..While doing his laundry two of his neighbours that live on the same level show up and ask him how it's going..

5.



..Considering Tom's neighbour is on holiday, she asked him if he would like to water the collective garden..

3.



..Walking downstairs he walks up to his lower neighbour who reminds him of next week's barbeque..

6.



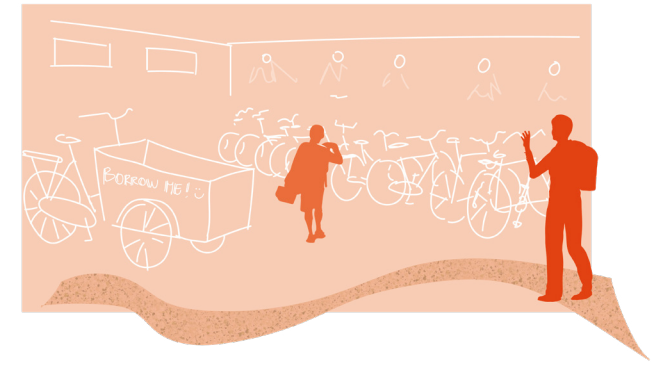
..Later that morning, Tom will take care of some online business for his furniture-making company in the shared workspace in the adjacent building..

1.



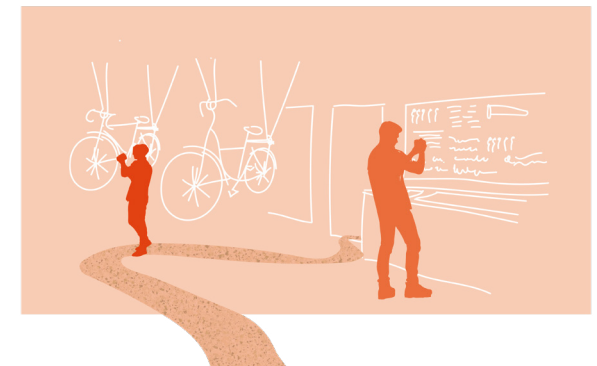
It's Saturday morning and Tom is going to his kitchen to get some breakfast, where he meets two of his flatmates..

4.



..Tom checks downstairs in the bicycle cellar if the cargo bike is in order considering he has appointed himself in charge..

7.



..Where a neighbour from the same district asks him to take a look at his broken bike in the bike repair space within his urban block..

The neighbourhood

This illustrates the interaction between Tom and Gina, who both live in BoTu but in different districts. The market serves the entire neighbourhood.

Fig. 7.72:
Storyline the neighbourhood
√



..In the afternoon, Tom goes to the market to do some grocery shopping for dinner. He bumps into Gina, whom he regularly sees at the community kitchen in his district, near the market..

Spatial qualities

The following continuation of the storyline takes place in the district of spatial qualities, where we follow Gina (68). In the storyline, various scenes depict different interactions with communities being shaped at different scale levels.

Fig. 7.73:
Storyline spatial qualities

9.



..After doing her grocery shopping for her cooking shift at the community centre during lunch, Gina goes for a quick cup of coffee at the community kitchen next to the market..

10.



..Afterwards she goes to the community kitchen along the Schiedamseweg where she cooks once a week to prepare lunch..

11.



..Every weekend, there are open workshops at the central community center in this district, where Gina sometimes takes painting classes...

12.



..On her way back home, she engages in small talk with the neighbouring kids who are playing in the street..

13.



..Walking into her collective garden, she was invited to join her neighbours for dinner, as they had just begun eating..

14.



..Going back inside, Gina wishes her housemate goodnight and goes to bed..

To establish a collective BoTu as proposed, many design interventions have to be made. However, all the proposed interventions are in a way interconnected, which makes it possible to roughly locate the interventions in a timeline, in which sequence they will follow each other (Fig. 7.79).

A car-free BoTu

The most significant intervention in the redesigned neighbourhood is the transition to a car-free environment. This will result in available space that serves the collective good across various scales.

The transition to a car-free neighbourhood will not happen all at once but district by district. Figures 7.74 to 7.78 illustrate a plausible sequence for this transition. Initially, the district around Bospolderplein will undergo this transformation (Fig. 7.74). By encouraging car-sharing, the existing car parks under the Hudsons and Le Medi buildings will be repurposed for shared cars, making this adjacent district the first to become car-free.

The next area to undergo this transition will be the northwest of BoTu (Fig. 7.75). Shared parking facilities will be established in this area, and the surrounding district could take advantage of this initiative, facilitating its transition to a car-free environment as well.

As the willingness to share cars increases, the sharing initiative can be scaled up. The southeast area will prepare to become a car-free district (Fig. 7.76), utilising the shared cars available in Bospolder.

This scaling-up process will also enable the northeast area to transition to a car-free environment (Fig. 7.77), using the shared cars available in the area of Tussendijken.

Finally, the last main roads, until then accessible by car, will become car-free (Fig. 7.78). Only Schiedamseweg and the surrounding neighbourhood roads will provide space for shared cars.

Even though the neighbourhood will become almost entirely car-free, all roads in BoTu will maintain a layout wide enough for cars to access them for logistical purposes or emergencies.



Fig. 7.79:
Phasing



* Since the timeline is strongly dependent on a paradigm shift that needs to change the resident's behaviours, a specific time is not indicated.

* The sequence of different forms of sharing is based on the conducted interviews with residents of BoTu.

After designing across multiple scales, conclusions can be drawn regarding the design approaches and the outcomes they have led to.

BoTu

A shift towards collectivity, reflected in the spatial redesign of the BoTu neighbourhood, has created places to stay rather than just places to go, fostering a deeper connection with the environment in which people live. Communities are formed through shared functions within an interscalar system, allowing people to be closely connected to their nearby neighbours while also sharing functions with those living on the other side of the neighbourhood. With a diverse range of functions included in the redesign, reliance on fast traffic has decreased, shifting the focus to slow traffic. This transformation has allowed the district to develop a green network that serves as a qualitative basis for the neighbourhood.

Design approaches

The further development of the designs at a smaller scale has been approached in different ways. The first design elaboration demonstrates a systemic design, where a grid of collectivity gradation is visibly integrated into the structure of both the buildings and the outdoor spaces. The second design took a different approach, establishing various levels of sharing that resulted in different spatial outcomes and qualities. These spatial outcomes clearly indicate the degree of publicness.

Despite the differences in design approaches, the design interventions, which include several functions, are similar and have been listed alongside.

Neighbourhood scale

- 1. Improve diversity of employment
- 2. Switch to heating network
- 3. Make community spaces visible
- 4. Add makerspaces
- 5. Improve awareness of environmental sustainability
- 6. A car-free BoTu
- 7. BoTu shaped by its green network

District

- 8. Add tram lines
- 9. Car sharing
- 10. Improving residential quality to public spaces
- 11. Add community spaces in central locations

Urban blocks

- 12. Add bike hubs
- 13. Intergenerational models
- 14. Exchangeable functions
- 15. Shared workspaces
- 16. Shared ateliers

Street

- 17. Greening streets
- 18. Make room for porosity

Urban block

- 19. Make room for local cultivation
- 20. Merge gardens
- 21. Solar panel networks
- 22. Water collection
- 23. Shared garages
- 24. Shared kitchens
- 25. Shared washing rooms

Housing unit

- 26. Collective housing models
- 27. Shared kitchens
- 28. Shared living rooms
- 29. Shared bathrooms

Fig. 7.80:
Community living room



08.

conclusion & reflection

- Conclusion
- Reflection

In this chapter, the main research question will be answered. This is done by first answering all the different sub questions, from which the main conclusions can be drawn.

Subquestion 1: **What will the future in 100 years look like if we continue striving towards a collectivist society?**

This question can be answered using the constructed vision outlined in the fourth chapter of this report. The constructed vision focuses on community building and is based on an interscalar network of commons. In this future vision, all neighbourhoods consist of a diverse range of commons, cooperating with surrounding neighbourhoods to ensure that all needs are met. Sharing functions ensure a more efficient use of space, freeing up room for climate-adaptive measures and creating green public spaces to enhance people's well-being.

By providing as many functions as possible within the confines of a neighbourhood, individuals' daily lives will be centred more around the neighbourhood, fostering a stronger connection to their environment.

Visualising this vision reveals a neighbourhood that could be organised in a grid-like pattern of an interscalar system. At the largest scale are functions that serve the entire neighbourhood, such as large public spaces. This grid extends into smaller and smaller sub-forms on progressively smaller scales. This design fosters various forms of coexistence, minimising individual space while promoting shared spaces at different levels.

Subquestion 2: **Which collective interventions strengthen social sustainable development while addressing environmental sustainability issues?**

This question can mainly be answered with the results of the fifth chapter of this report, referring back to the concept of the commons. Within this concept, a sharing network can be established in

which elements are collectivised instead of being privatised.

The commons can manifest itself in many forms and scales. Sharing space and resources leads to the fact that less space and fewer resources are needed for the same number of people, contributing to environmental sustainability. Saved space through commoning can eventually be transformed into green space, which not only serves environmental sustainability but also creates new places for public use and interactions, contributing to social sustainable development as well.

By creating a system based on the concept of the commons, sharing space brings people together, forming communities. Social connections are made, contributing to social sustainable development (Cacioppo & Cacioppo, 2014).

Next, a collective intervention on a neighbourhood scale involves ensuring that all urban activities are present within the neighbourhood. If this is achieved, residents will become more attached to their neighbourhood, while the dependency on car transportation is minimised.

Another collective intervention is investing in neighbourhood initiatives that promote environmental sustainable development by bringing residents together and raising awareness about how to improve this development. This will eventually make people realise they all have the same goal -a sustainable neighbourhood-, which connects.

Subquestion 3: **How to create an efficiently, balanced space to provide environmental quality for residents?**

This question has been addressed in the theoretical, analytical, and design chapters of this report.

The conclusion emphasises the importance of leaving room for flexibility across different scales. Space should be left open within the built environment, allowing for the creation of green public spaces. These spaces serve multiple functions, including infiltration, improving residents' living environments, and providing

open spaces for various uses.

At a smaller scale, it is crucial to create porous spaces between private and collective areas. This allows for free infill and stimulates movement in different directions within streets, transforming them from thoroughfares into places of residence. Allowing residents to claim space within the streets gives them a sense of identity, as opposed to the current situation where streets are mainly anonymous and serve only as thoroughfares.

Another aspect of flexibility that improves residents' environmental quality is allowing them to choose on what scale and with whom they share. This is achieved by offering different forms and options of sharing, so that residents are not limited to interacting only with their immediate neighbours. Offering residents spaces of different sizes depending on their preferences gives them the option of sharing according to their personal preferences.

Subquestion 4: **What current developments through scales contribute to or create frictions with a collectivistic approach and how do they influence sustainable development from different perspectives?**

This question can be answered with the results of the analytical chapter of this report.

The neighbourhood of BoTu

There is a diverse range of functions, but there's also a noticeable monoculture, with certain functions missing, such as workspaces. This currently leads to the fact that many people have to leave this neighbourhood for their daily activities, which are not contributing to the social sustainability within its neighbourhood.

Many residents own cars and highly value them; however, transitioning away from car dependency could free up significant space within the neighbourhood, which contributes on spatial and environmental sustainability perspectives, and makes space for the improvement of social sustainability.

Finally, there is a huge (in)formal network

within BoTu, including numerous small scale initiatives that promote sustainable lifestyles. However, many of these initiatives are located in spaces being invisible for the inhabitants of the neighbourhood.

District level

There are elements that serve as shared spaces between multiple blocks. However, these elements are mainly playgrounds or squares, which are not environmentally sustainable due to being paved. Additionally, green spaces often lack the quality necessary to improve social sustainability.

Multiple urban blocks

Some work together to contain different functions, fostering sharing among residents and creating social connections on this scale. This could be improved by adding more spatial connections. Environmentally sustainable practices, such as sharing green and cultivation elements and creating places for infiltration, are emerging within some urban blocks.

Street

Right now, their main function is for transportation and parking, which is not sustainable from an environmental or social perspective. However, some streets are already car-free, showcasing visible collectivity. Some streets with more space for functions have initiated shared green spaces, contributing to social cohesion and environmental sustainability.

Urban bock

Some of them already include collective spaces, but these spaces do not always work effectively, since people don't always use them. There is an opportunity to transform these spaces and make the space more efficient, since private space will not be eliminated.

The main issue in this section concerns all the existing private gardens, many of which are paved. Currently, these spaces occupy the potential for collective interactions and also limit the possibility of infiltration. Transforming all of these spaces will be challenging, as many residents are attached to them.

Housing unit

Right now, their main function is for transportation and parking, which is not sustainable from an environmental or social perspective. However, some streets are already car-free, showcasing visible collectivity. Some streets with more space for functions have initiated shared green spaces, contributing to social cohesion and environmental sustainability.

Subquestion 5: How will integration of the principles influence the environments on the scale of Bospolder-Tussendijken and urban blocks?

This question can be answered using the design chapter and refers to all spatial interventions that are proposed, listed in the conclusion of the design chapter. The design principles influence the environments on different scales within BoTu, resulting in a collective interscalar sharing system.

At the scale of BoTu, the principles alter its spatial distribution by creating a green network throughout the neighbourhood, facilitated by the removal of cars from the streetscape. A gradient from the most public axes towards the most individual spaces is established by creating different types of collectivity throughout the neighbourhood.

On the smaller scales that are elaborated, the outcomes show that the design translation can be approached in different ways.

First, a systemic design approach is used, as seen in the flats along the Gijsinglaan. The system of a gradation of sharing is projected onto the composition of these flats. This approach was possible due to the systemic spatiality of the composition of these flats.

Secondly, differences in sharing lead to different spatial qualities. In this approach, the urban blocks are more integrated within their context, resulting in different outcomes and sharing types, such as streets serving the public or streets with a more collective character.

Both design outcomes use the same principles.

Central locations within the compositions in both designs serve a larger community at the district level, creating passages from the collective towards the public domain, establishing a collective identity within a publicly accessible domain by adding collective functions, creating porous spaces between the private and the collective domain, and utilising routing for the locations of collective functions, while providing residents with the freedom of choice.

Main RQ: In what way can the shift from an individualistic towards a collective approach in urban design contribute to a sustainable development in spatial, environmental and social perspective, focusing on BoTu?

Finally, the main research question can be answered, by referring back to all sub questions. The first four research questions led to a design proposal that answered the final sub-question, which finally can be assessed in the way of contributing to sustainable developments from the given perspectives. This has been done, by adding all design interventions into a framework on the next pages, which shows the collaborative working between spatial, environmental and social sustainable development.

Spatial perspective

The redesigned commons network, consisting of sharing networks, saves space.

Less total space is needed for the same number of people. However, for this to work effectively, these shared elements should offer quality to replace individual spaces. This quality is not limited to collective gardens but also includes streets, which need to be transformed into places of residence instead of places of going. Stimulating movements in different directions by adding collective functions will enhance spatial quality.

Commoning on a the level of BoTu will manifest in a neighbourhood in which all urban activities are localised, which saves space for current transportations. Cars will be removed from the neighbourhood, which allows the spatial transformation.

Environmental perspective

The redesigned commons network, saves resources and built space.

More space is available for infiltration possibilities, as well as energy is being saved by the collective housing modules, because of the use of shared kitchens, bathrooms, living rooms, etcetera. The network of BoTu consists of all urban activities on the neighbourhood scale, because of which less transportations are needed, saving resources as well.

Community activities, such as local cultivation or repair cafes in the added makerspaces improve awareness of environmental sustainable developments among BoTu's residents.

Social perspective

The redesigned commons network shapes communities through various forms of sharing.

Neighbourhood: A qualitative network of green public spaces, main axes with public functions, and a visible network of community initiatives for the neighbourhood. Community initiatives focus on creating a sustainable neighbourhood, providing inhabitants with a common goal that fosters connection.

District: Communities are formed by central functions added to these districts, such as large living rooms or kitchens that can be opened up to the district.

Multiple urban blocks: Communities emerge through the differentiation of functions shared by the network of these different urban blocks. Different generations can exchange knowledge.

Street: Communities exist through sharing elements within these streets. Vegetation and collective furniture will be added to the streets, along with space that will remain free of functions to allow for free infill.

Urban block: Different collective housing modules converge in a shared garden, where people can interact, learn, and also withdraw from the collective.

Housing unit: Communities are formed by sharing collective elements such as a kitchen, dining room, or living room.

Sharing shapes communities, and the way this distribution is designed makes it flexible, ensuring it works effectively. Flexibility is manifested through porosity, as well as the freedom for people to choose the extent to which they share, as well as with whom they share. By arranging locations in gradients from public to collective to private, people are encouraged to interact in a pleasant way.

Design assessment

The following design assessment serves as the foundation for addressing the main research question: "In what way can the shift from an individualistic to a collective approach in urban design contribute to sustainable development in spatial, environmental, and social perspectives, focusing on BoTu?" An evaluation of these three perspectives is essential to determine whether the design interventions genuinely contribute to sustainable development.

The assessment utilises a framework that encompasses all three sustainability perspectives. Evaluations have been conducted at various scale levels, as the impact of specific design interventions varies with scale.

Neighbourhood scale

- 1. Improve diversity of employment
- 2. Switch to heating network
- 3. Make community spaces visible
- 4. Add makerspaces
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- 6. A car-free BoTu
- 7. BoTu shaped by its green network

District

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- 9. Car sharing
- 10. Improving residential quality to public spaces
- 11. Add community spaces in central locations

Urban blocks

- 12. Add bike hubs
- 13. Intergenerational models
- 14. Exchangeable functions
- 15. Shared workspaces
- 16. Shared ateliers

Street

- 17. Greening streets
- 18. Make room for porosity

Urban block

- 19. Make room for local cultivation
- 20. Merge gardens
- 21. Solar panel networks
- 22. Water collection
- 23. Shared garages
- 24. Shared kitchens
- 25. Shared washing rooms

Housing unit

- 26. Collective housing models
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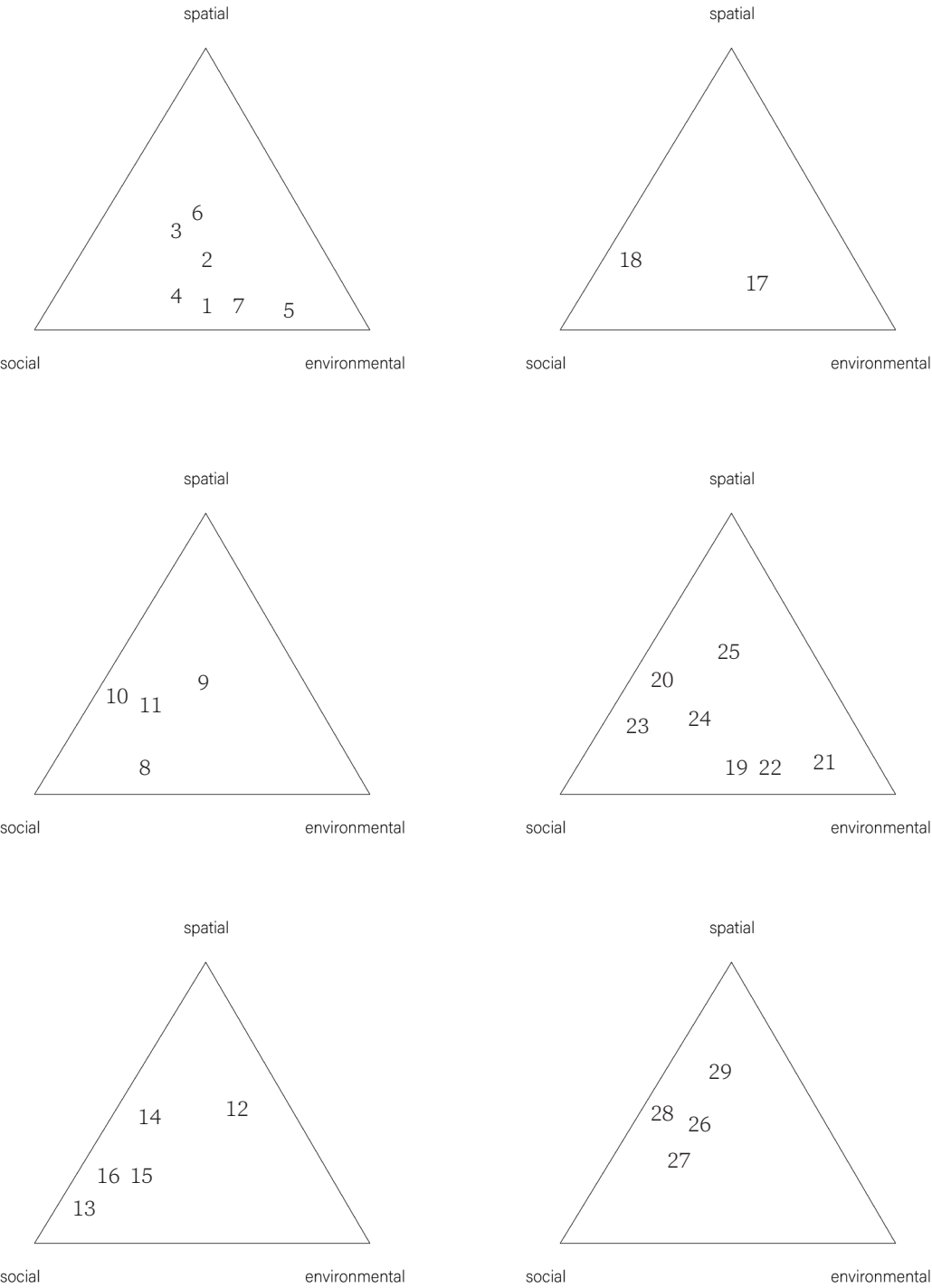


Fig. 8.1:
Design assessment

Various domains are interwoven with each other, and these domains can be categorised as follows: society, product, process, interactions, learning, and self (Hermsen et al., 2022). All these domains are considered while reflecting on different aspects of the project.

The relation between this project topic, the graduation studio Design of the Urban Fabrics, the master track Urbanism and the master programme MSc AUBS

A shift towards collectivity within the approach of urban design will have a direct impact on the spatial configuration of the urban fabrics.

The aim of the master track is to develop the ability to integrate social, cultural, economic, and political perspectives within specific sites to shape and plan for more sustainable development (TU Delft, n.d.). To integrate a new design approach that strives towards collectivity, a comprehensive understanding of the site of Bospolder-Tussendijken had been necessary, to finally contribute to sustainable development in spatial, social and environmental perspectives.

The relation between research and design

The alternation between research and design persisted throughout the study, with the emphasis being more on research than design at the beginning of the process.

In the initial phase, design was used to transform theoretical knowledge into future scenarios, based on the different types of commons. These scenarios were outlined from different perspectives, which served as a basis for analysis.

Research-based design was also eventually undertaken. Many options have been considered before making final design decisions. At the

end, the context was guiding. For example, different options have been elaborated for the new main entrances of the systemic design of the flats along the Gijsinglaan. But since these flats already consisted of two elevation points, a new construction around this existing structure became the final design. In addition, designing in different forms -sections, plan views, perspectives- was also part of the research. By designing at eye level, the spatial qualities experienced by users were taken into account.

Research methods and approach

The approach of this project involves backcasting a utopian vision of collectivity into the context of BoTu. The primary methods that contributed to this research included theoretical research, analysis of reference projects, and site-specific analysis. The contextual analysis officially commenced after constructing the vision, aiming to be as least restrictive as possible.

During the theoretical and analytical research, a framework was developed for the spatial distribution of levels of sharing within BoTu, along with a framework outlining integrable functions and spatial guidelines for these integrations.

Another method that contributed to the site-specific research was a workshop with the inhabitants of BoTu. This workshop helped in developing a rough phasing for the project and provided inspiration for future design principles.

Societal relevance

The individualistic trend is associated with social implications such as social isolation, a lack of solidarity, exclusion, and polarisation. However, as cities expand and the demand for housing rises (Rijksoverheid, 2023), it becomes imperative to explore new ways of living together. This thesis proposes a new approach to communal living by utilising space and resources more efficiently

through a sharing model that operates at various scales and forms.

By redesigning the BoTu neighbourhood to foster a collective environment, this project addresses the challenges posed by individualism, making a significant contribution to the societal relevance of this project.

Academic relevance

This thesis contributes to the knowledge of designing collective environments across various scale levels. It addresses a knowledge gap related to spatial inter-scalar design, focusing on achieving a balanced synergy among residents, communities, and the commons. Here, the commons concept is optimised for elements within the urban fabric that may not traditionally be considered public.

Additionally, this project contributes to the practice of backcasting, translating a collective utopian vision into the spatial reality of an existing context.

Ethical considerations

This project focused on a neighbourhood predominantly composed of relatively smaller social housing units. While it could be argued that greater impact might be achieved by focusing on a site with high-end homes, which typically have larger residences for fewer occupants, the choice of the BoTu neighbourhood was deliberate. BoTu is undergoing a transition towards becoming a resilient neighbourhood, providing an ideal starting point to transform it into not only a socially, but also spatially, and environmentally sustainable community.

Given that this project proposes a design for a neighbourhood characterised by high ethnic diversity, it is essential to consider the diversity of cultures and preferences regarding the living environment. The proposal entails a collectively

built neighbourhood, accommodating a variety of coexisting forms at different levels. By offering a diversity of forms, ranging from more collective to more private modules, the design allows for the fulfilment of various housing preferences.

Transferability

The project involves projecting a utopian vision onto BoTu's context. However, after constructing the vision, the research takes the environment of BoTu directly into account, examining specific areas from a particular perspective. Consequently, the guidelines are partly context-specific.

However, the main principles guiding collective design can be applied in different contexts. The spatial design framework can be adapted to different locations, although the specific potentials of each location must be considered.

Since one of the zoom-in locations developed concerns a composition of urban blocks that is common in the rest of Rotterdam, or even in other cities within the Netherlands, the way these urban blocks are developed is the most suitable for implementation in other locations, taking into account the contextual circumstances for further development.

Limitations

Given the complexity of studying collectivity and its encompassing all elements of the urban landscape, it was necessary to narrow the focus to make the project feasible within the given time frame. Initially, a utopian vision was outlined as the basis for the final design. However, this vision was kept relatively concise. Despite my best efforts to develop a utopian visualisation throughout the year, I was unable to summarise the right elements in a single image. Once I started using an AI image generator, it became very difficult to improve the visualisations on my own. Additionally, the design case in BoTu itself was already challenging enough to occupy the

entire year. Focusing on the utopian aspect might have resulted in a less detailed redesign of BoTu.

Furthermore, when exploring the commons, a selection of commons was made based on Shareable's ongoing project (2018) and an established framework, which determined the scope of the topics to be explored. Due to this approach and the studio's direction, certain aspects, such as 'governance', were not included. However, governance is an important aspect of collectivity as it concerns the distribution of ownership. While this research did not focus on ownership, but rather on 'usership' and how spatiality indicates the scale of sharing and use, further research could delve into the policy side and involve stakeholders.

Another limitation is the scale at which the detailed design was elaborated. By focusing on two different locations, the design mainly emphasised the interaction between different residential blocks. However, less emphasis was placed on the scale of the entire neighbourhood during the design process, and the interior could be further developed. Further research could refocus on a larger scale and develop a variety of collective housing in a more detailed way.

Recommendations

After developing a strategy for the neighbourhood of BoTu, several recommendations can be made for the stakeholders involved, including the municipality, the owners of various housing units—mostly housing associations—and the users of the spaces. These recommendations encompass different design principles linked to the scales studied in this research: the neighbourhood, the district, a couple of urban blocks, streets, an urban block, or a housing unit.

This research shows that transitioning towards a car-free neighbourhood creates space that can become porous and greenified, enhancing the quality of environments at various scales. Transforming areas from mere transit zones to

places of residence encourages social interactions and community building, thereby allowing spaces to reflect the identities of their users.

Another finding of the research shows that the visibility of community spaces significantly influences community engagement. Currently, community initiatives within BoTu are often situated in hidden locations, resulting in relatively low awareness of these places.

Although implementing changes at scales beyond individual housing units will be easier—since significant behavioural changes are required for collective living inside housing units—indoor transformations are also feasible. For example, creating collective spaces that can be shared by a larger community, such as a neighbourhood kitchen, offers an additional venue for bringing people together while allowing them to maintain their private kitchens. By starting with larger-scale initiatives and gradually moving to smaller scales, individuals will be encouraged to engage with the concept of collectivity, which can help shift mindsets.

Implementing collectivity according to the principles developed during this research highlights the importance of engagement and responsibility for its success. To make the collective system work, appointing individuals responsible for specific areas at various scale levels could be effective. This approach allows for management to be organised around certain collective aspects, which is crucial for ensuring proper operation, particularly in the initial phase.

In what way can this project really be implemented into BoTu?

While this project presents a utopian vision, it may seem unrealistic to translate it into reality. However, the outcome is not as far-fetched as it might appear, as many elements of the urban landscape already exist but are used differently or serve different purposes. In the proposed design, almost all elements within the urban fabric are intended to be shared, whereas in the current



Fig. 8.2:
Using public space in BoTu

situation, many elements are privatised.

As discussed in the theoretical framework of this report, achieving this transition requires a paradigm shift. In a world where much of the land is privatised and capitalism is a dominant force, a significant amount of public land has been claimed. This transition needs to be halted, and a shift from individualism to collectivism is necessary.

Personal experience

Before starting this final year of my studies, I viewed this project as a significant and exciting one. However, it wasn't without its challenges.

Although the year was divided into different stages, which helped me maintain a reasonable overview, I found the duration of the project quite long for an independent one. Throughout this year, I came to realise how much I value

collaboration and the opportunity to exchange ideas with others. Working independently sometimes made it challenging for me to see the value of certain aspects of my process, even when they might have been significant.

Although the different stages of the process were helpful in maintaining a reasonable overview, as mentioned, part of this project was getting lost at some point. This was quite a challenge for me because I always wanted to understand the purpose of each stage of the process. Eventually, all the parts came together, but this took time.

Designing for the neighbourhood where I live was both confronting and instructive. Being so close to the project in a literal sense made it difficult for me to maintain a certain distance. However, this proximity also allowed me to meet many people and discover numerous interesting and important initiatives.



Fig. 8.3:
Personal view on BoTu

09.

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10.

appendix

- Spatial analysis
- Workshop outcomes
- Collage

Neighbourhood scale



Fig 10.1:
Gardens

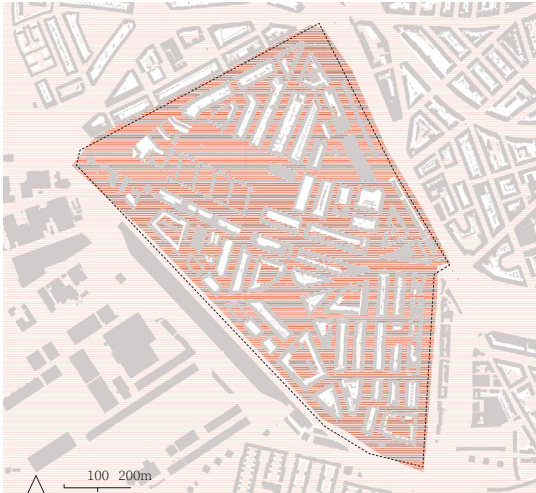


Fig 10.2:
Public & collective space

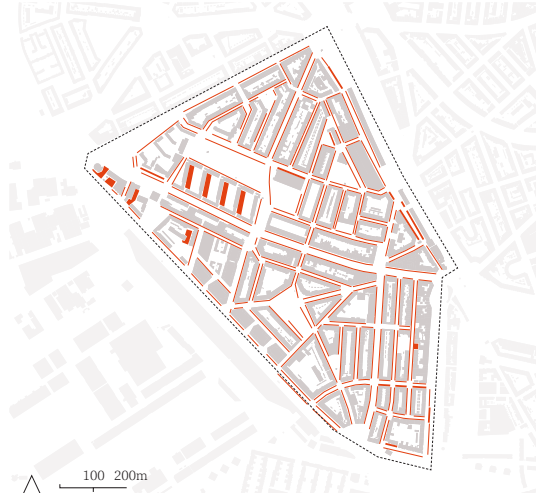


Fig 10.5:
Parking lots BoTu



Fig 10.6:
Solar panels in BoTu



Fig 10.3:
Private rental

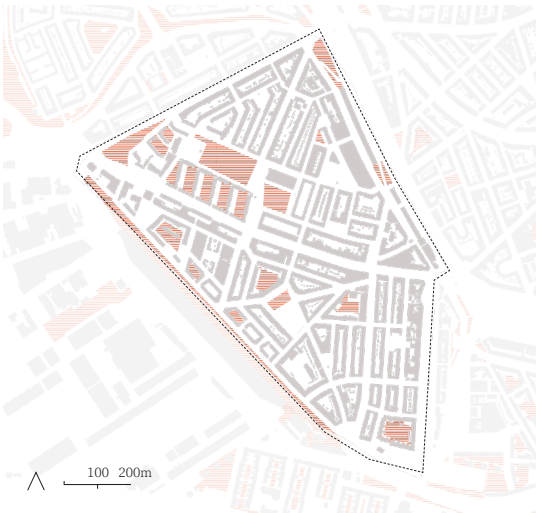


Fig. 10.4:
Public green

Urban block scale

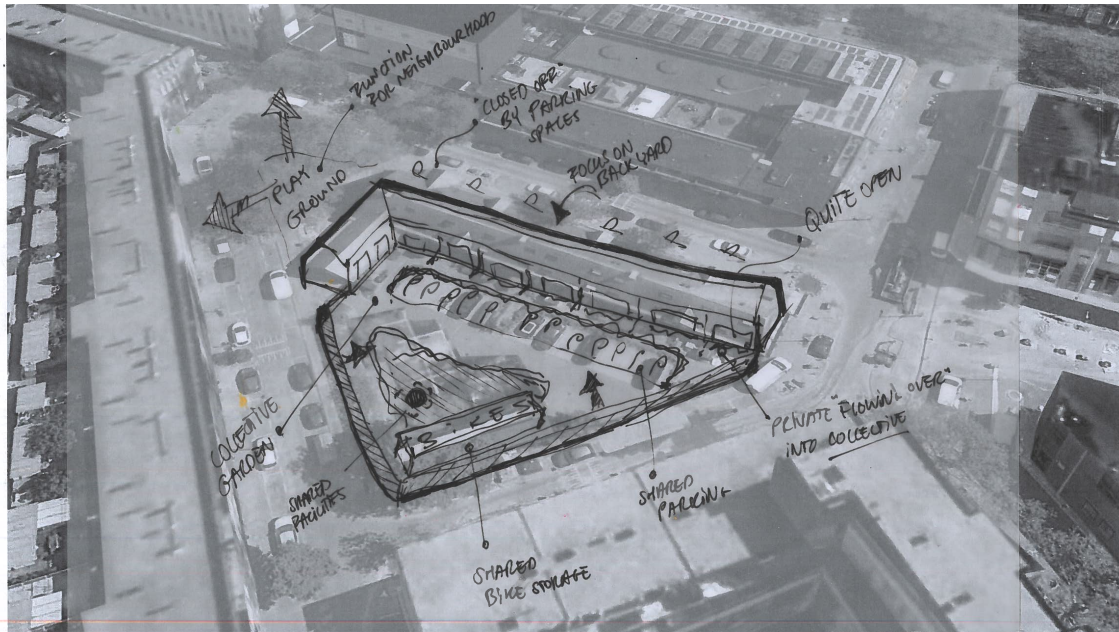


Fig 10.7:
Collective garden Tussendijken

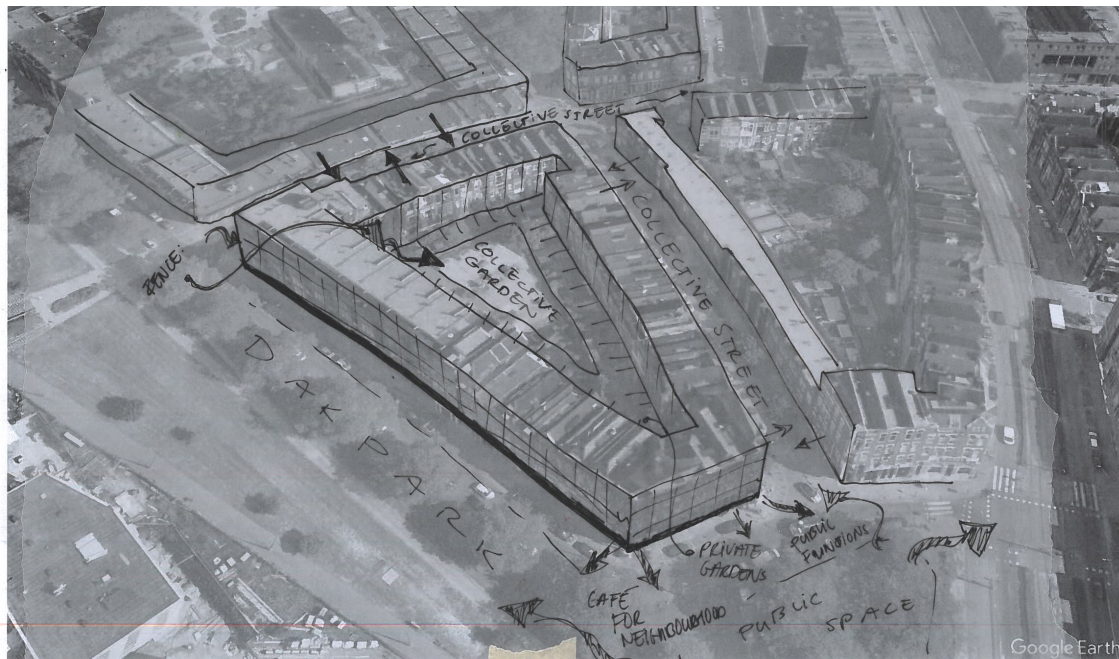


Fig 10.8:
Collective garden Bospolder

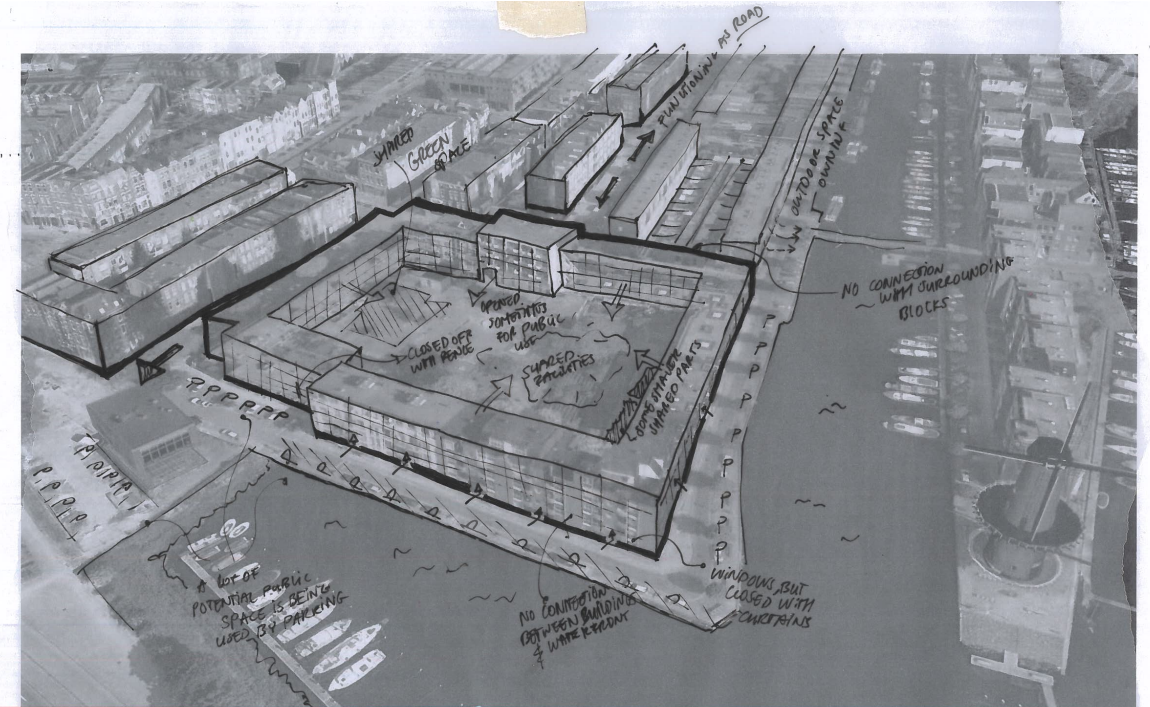
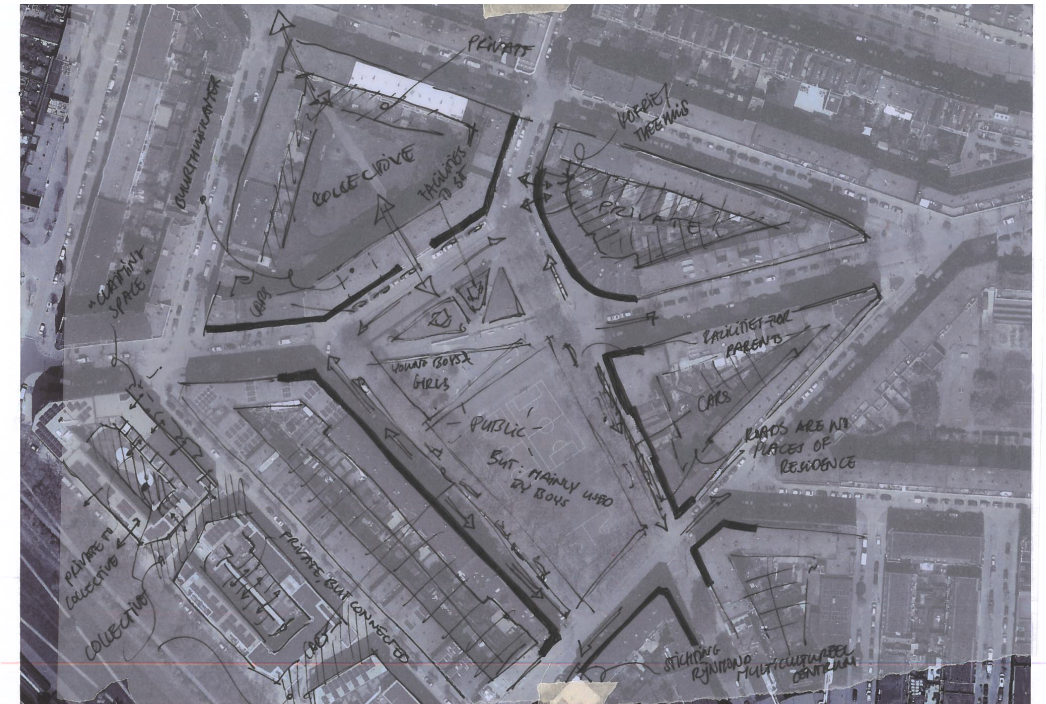
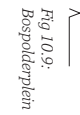


Fig 10.10:
Collective garden Bospolder

Fig 10.11:
Workshop outcomes land

VERDELING VAN DE GROND

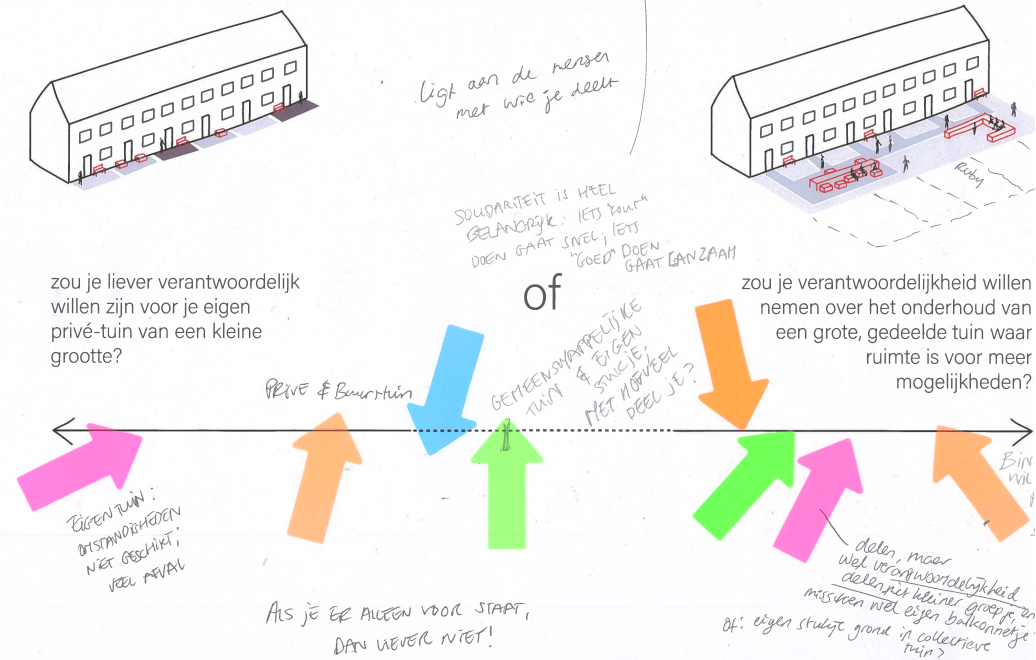


Fig 10.12:
Workshop outcomes food

VOEDSEL

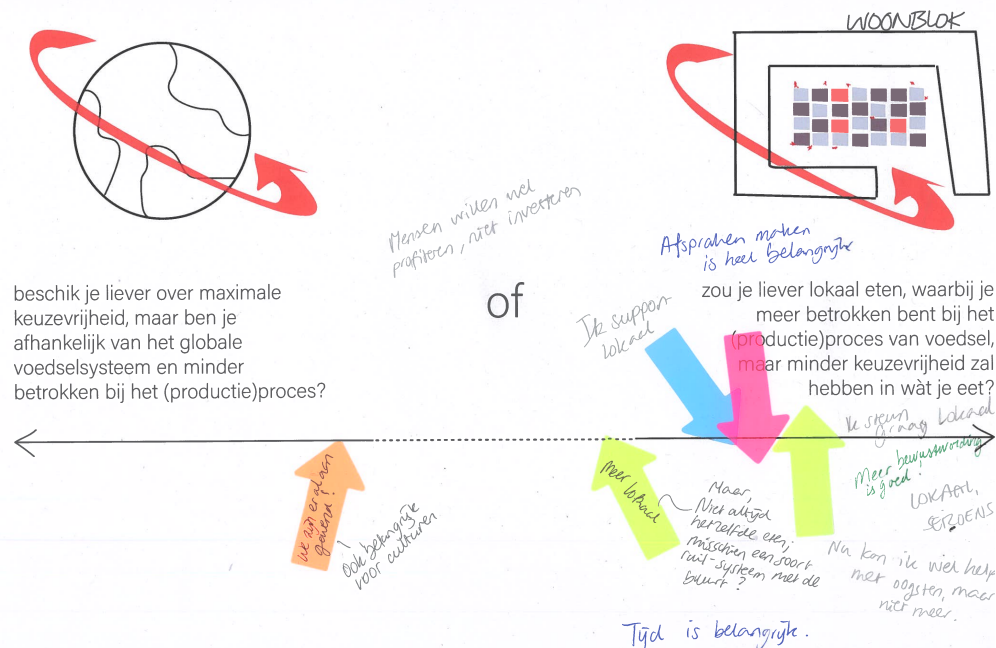


Fig 10.13:
Workshop outcomes housing

WONEN

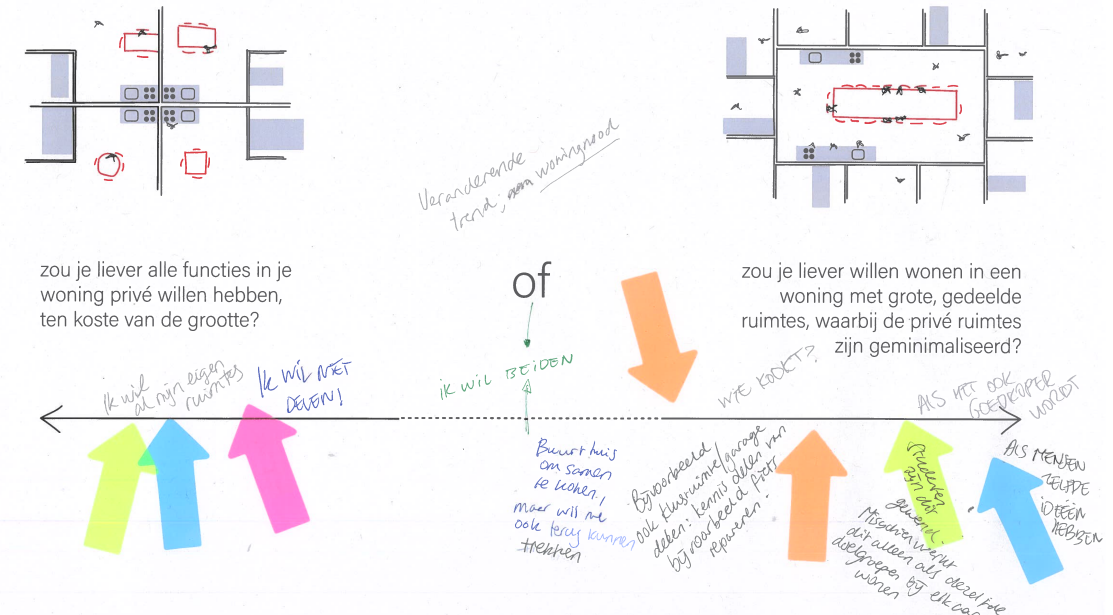


Fig 10.14:
Workshop outcomes water

WATER

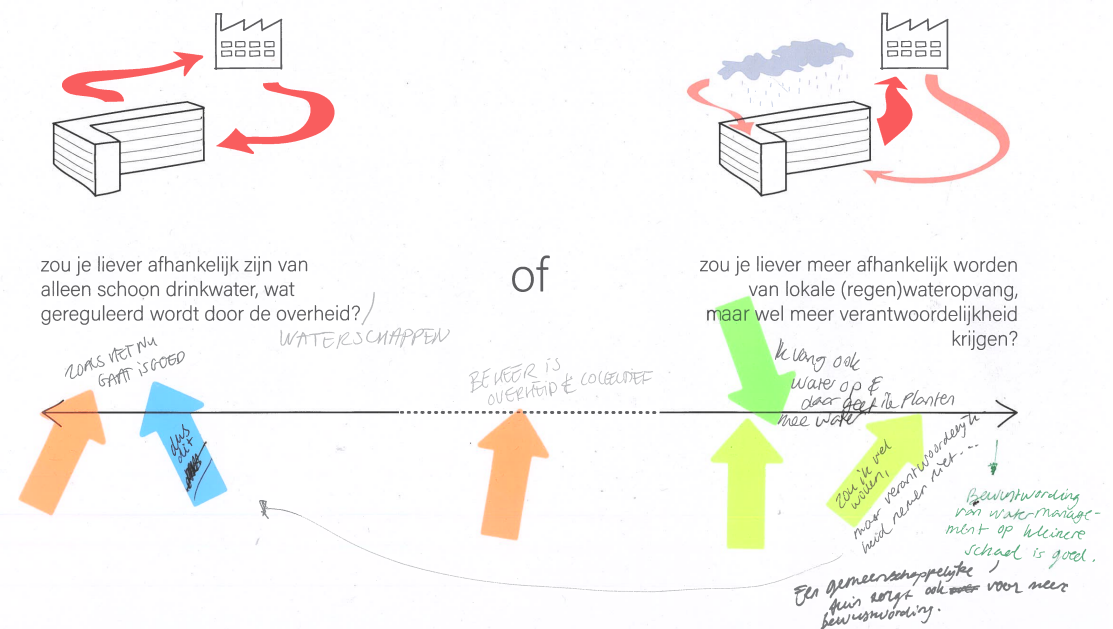


Fig 10.15:
Workshop outcomes energy

ENERGIE

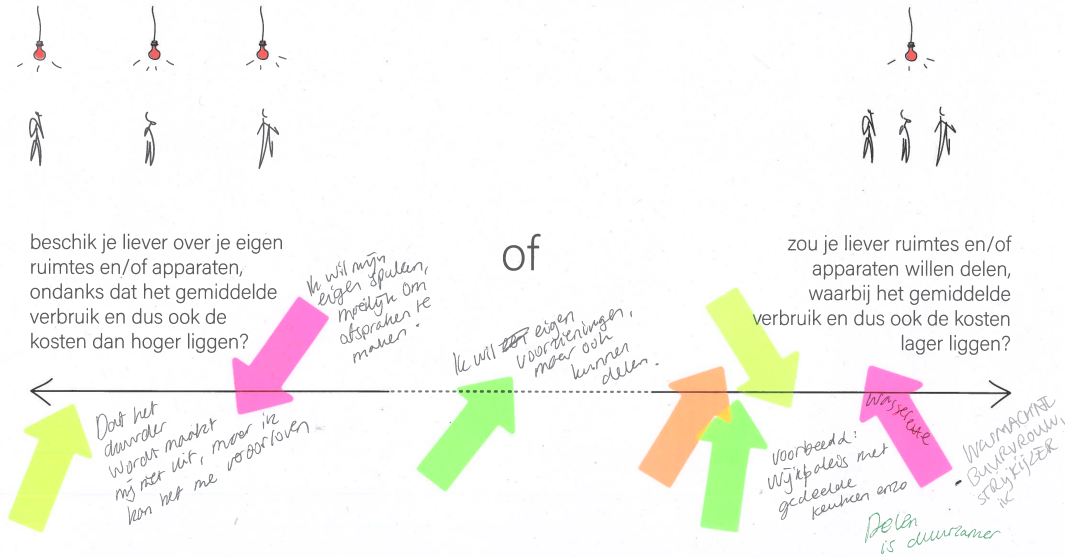


Fig 10.17:
Workshop outcomes activities

BEZIGHEDEN

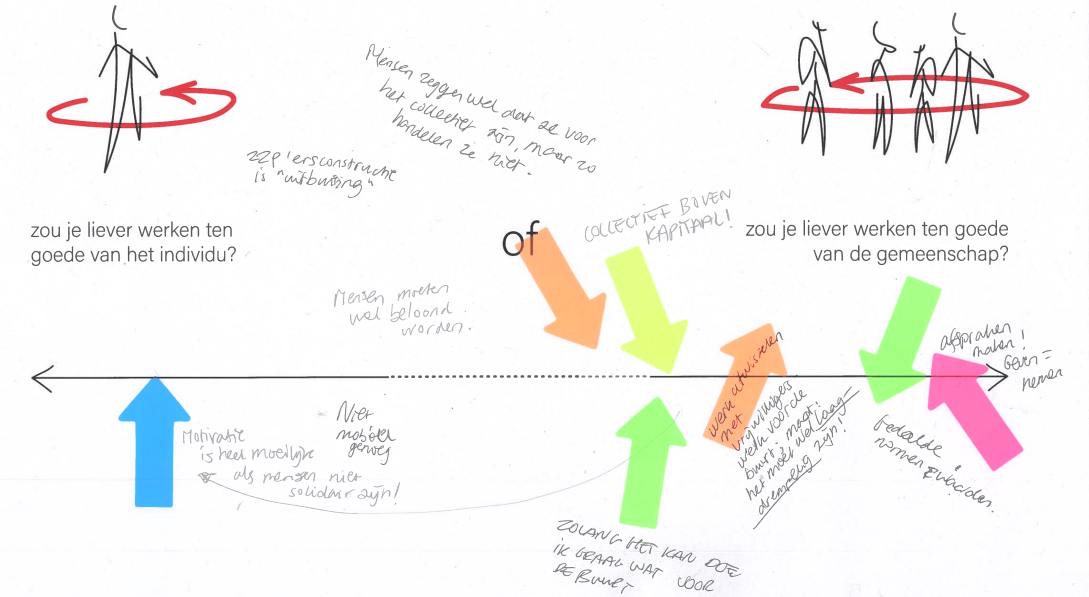


Fig 10.16:
Workshop outcomes mobility

VERVOER

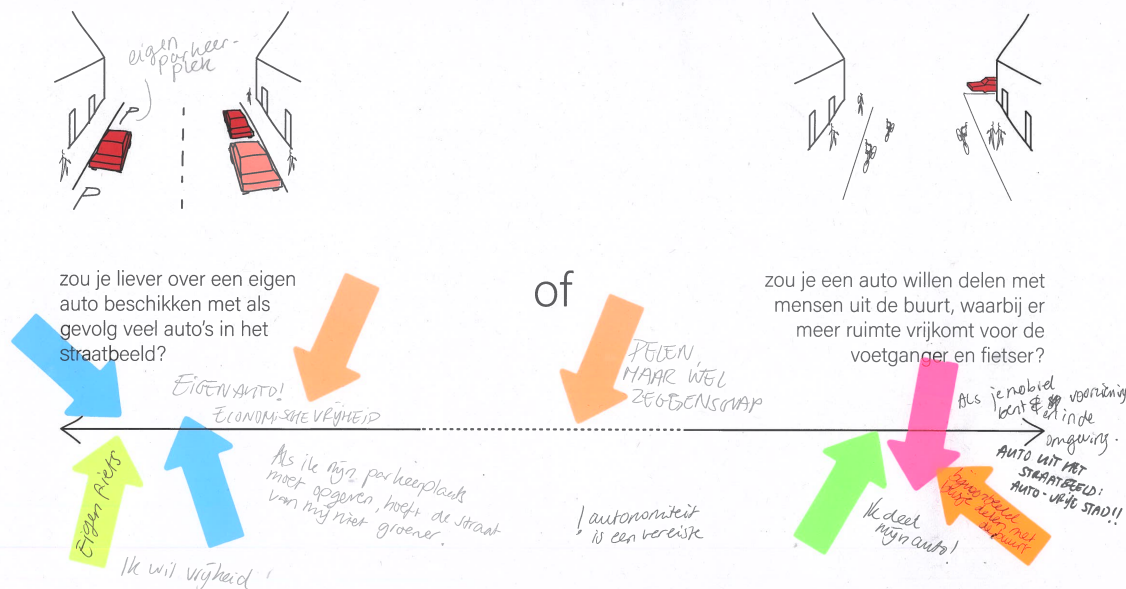




Fig. 10.18:
Collage

