GRÄTZLTRANSFORMATION

Implementing the Superblock 2.0

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GrätzItransformation

Implementing the Superblock 2.0

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ABSTRACT

The IPCC (Intergovernmental Panel on Climate Change) report published in 2021 shows that global warming and its consequences progress at a rapid rate. (Masson-Delmotte, V. et al. 2021, p.4) In order to mitigate and adapt to the consequences of climate change, urban planning and design play a crucial role. In 2016, transport was responsible for almost 30% of the total CO2-emissions of the EU (European Environment Agency, 2019). 72% of those 30% could be accounted for by road transport (ibid. 2019). How cities are planned strongly influences the mobility patterns of its citizens which consequently impacts the carbon footprint.

The concept of the so-called superblock has been used as a tool in Barcelona to reorganise traffic and create more walkable and cyclist-friendly neighbourhoods. This facilitates less pollutant forms of mobility and creates more room for lively public spaces. The theoretical part of this thesis will explore the block as a typology and then focus on the superblock. It explores how the superblock could help to mitigate the consequences of climate change and relate it to the ecological and social dimension of sustainability. In order to do so, the concept and origin of the superblock will firstly be introduced as well as an already implemented project in Barcelona presented.

In the second part of the thesis, I will delve into my research question:

How could a superblock in Vienna be implemented?

This second, practical part of the thesis is based on the feasibility study SUPERBE that was published by the Austrian Federal Ministry for Transport, Innovation and Technology in 2020 (Frey et al. 2020). In the study, the authors examined which residential blocks in Vienna would theoretically be suitable for the implementation of a superblock. They did that by conducting a GIS (Geographic Information System) -based analysis of Vienna. The parameters for the selection of the suitable blocks were the following:

- Good access to public transport
- Little access to public green space
- Few trees in public space
- Higher amount of space for cars than for pedestrians
- High population density

Based on those parameters, a site was chosen that meets several of the stated criteria listed above. Besides that, the data of the Urban Heat Island Vulnerability Map of Vienna published in 2019 was taken into account (Bhattacharjee, S. 2019).

After choosing a site, a superblock is planned in the chosen block by reorganising the traffic and proposing design solutions for the new streetscapes. Furthermore, the work explores how nature-based solutions could be integrated in the superblock as a typology to help adapt to the consequences of climate change. By doing that, an “advanced version” of the original superblock - *the Superblock 2.0* is being developed.

Key Words:
Superblock
HumanScale
Transformation
TacticalUrbanism
Climateadaptation

KURZZUSAMMENFASSUNG

Der im Jahr 2021 veröffentlichte IPCC (Intergovernmental Panel on Climate Change) - Bericht zeigt, dass die globale Erwärmung und ihre Folgen rasch voranschreiten. (Masson-Delmotte, V. et al. 2021, p.4) Um die Folgen des Klimawandels abzumildern und sich an sie anzupassen, spielen Stadtplanung und -gestaltung eine entscheidende Rolle. Im Jahr 2016 war der Verkehr für fast 30 % der gesamten CO2-Emissionen in der EU verantwortlich (Europäische Umweltagentur, 2019). 72 % dieser 30 % entfielen auf den Straßenverkehr (ebd. 2019). Die Art und Weise, wie Städte geplant werden, hat einen großen Einfluss auf das Mobilitätsverhalten ihrer BürgerInnen, was sich folglich auch auf den CO2-Fußabdruck auswirkt. Das Konzept des sogenannten Superblocks wurde in Barcelona als Instrument zur Neuorganisation des Verkehrs und zur Schaffung von fußgänger- und fahrradfreundlicheren Vierteln eingesetzt. Dies erleichtert weniger umweltbelastende Formen der Mobilität und schafft mehr Raum für lebendige öffentliche Räume.

Der theoretische Teil dieser Arbeit wird sich mit dem Block als Typologie befassen und sich dann auf den Superblock konzentrieren. Es wird untersucht, wie der Superblock dazu beitragen könnte, die Folgen des Klimawandels zu mildern und die Überlegungen mit der ökologischen, wirtschaftlichen und sozialen Dimension der Nachhaltigkeit in Verbindung gebracht. Zu diesem Zweck werden zunächst das Konzept und der Ursprung des Superblocks vorgestellt sowie ein bereits umgesetztes Projekt in Barcelona präsentiert.

Im zweiten Teil der Arbeit werde ich mich mit meiner Forschungsfrage auseinandersetzen:

Wie könnte ein Superblock in Wien umgesetzt werden?

Dieser zweite, praktische Teil der Arbeit basiert auf der Machbarkeitsstudie SUPERBE, die vom österreichischen Bundesministerium für Verkehr, Innovation und Technologie im Jahr 2020 veröffentlicht wurde (Frey et al. 2020). In der Studie untersuchten die AutorInnen, welche Wohnblöcke in Wien sich theoretisch für die Umsetzung eines Superblocks eignen würden. Dazu führten sie eine GIS (Geoinformationssystem)-basierte Analyse von Wien durch. Die Parameter für die Auswahl der geeigneten Blöcke waren die folgenden

- Gute Anbindung an den öffentlichen Verkehr
- Wenig Zugang zu öffentlichen Grünflächen
- Wenig Bäume im öffentlichen Raum
- Mehr Platz für Autos als für FußgängerInnen
- Hohe Bevölkerungsdichte

Anhand dieser Parameter wurde ein Standort ausgewählt, der mehrere der oben genannten Kriterien erfüllt. Darüber hinaus wurden die Daten der 2019 veröffentlichten *Urban Heat Island Vulnerability Map of Vienna* berücksichtigt (Bhattacharjee, S. 2019). Nach der Auswahl eines Standorts wird in dem ausgewählten Block ein Superblock geplant, indem der Verkehr neu organisiert und gestalterische Lösungen für die neuen Straßenschnitte vorgeschlagen werden. Darüber hinaus wird untersucht, wie naturbasierte Lösungen in den Superblock als Typologie integriert werden könnten, um die Anpassung an die Folgen des Klimawandels zu unterstützen. Auf diese Weise soll eine „erweiterte Version“ des ursprünglichen Superblocks - der *Superblock 2.0* - entwickelt werden.

Schlüsselwörter:
Superblock
MenschlicherMaßstab
Transformation
TaktischerUrbanismus
Klimaanpassung

SAMMANFATTNING

IPCC (Intergovernmental Panel on Climate Change) rapporten som offentliggjordes 2021 visar att den globala uppvärmningen och dess konsekvenser fortskrider snabbt (Masson-Delmotte, V. et al. 2021, p.4). För att mildra och anpassa städer efter konsekvenserna av klimatförändringarna spelar stadsplanering och design en avgörande roll. År 2016 stod transporterna för nästan 30 % av EU:s totala koldioxidutsläpp (European Environment Agency, 2019). 72 % av dessa 30 % kom från vägtransporter (ibid. 2019). Hur städer planeras påverkar starkt medborgarnas mobilitetsbeteende, vilket följaktligen påverkar koldioxidavtrycket.

Konceptet med det så kallade superblock har använts som ett verktyg i Barcelona för att omorganisera trafiken och skapa mer gång- och cykelvänliga stadsdelar. Detta underlättar för mindre förorenande former av mobilitet och skapar mer utrymme för livliga offentliga rum. I den teoretiska delen av denna avhandling kommer det slutna kvarteret som typologi utforskas, med fokus på superblocks. Arbetet utforskar hur ett superblock kan bidra till att mildra konsekvenserna av klimatförändringarna och relaterar det till de ekologiska, ekonomiska och sociala hållbarhetsdimensionerna. För att göra detta kommer först konceptet bakom samt ursprunget till superblock att presenteras och sen analyseras ett projekt som redan genomförts i Barcelona.

I den andra delen av avhandlingen kommer jag att fördjupa mig i min forskningsfråga:

Hur skulle ett superblock kunna genomföras i Wien?

Denna andra, praktiska delen av avhandlingen bygger på genomförbarhetsstudien SUPERBE som publicerades av Österrikes federala ministerium för transport, innovation och teknik år 2020 (Frey et al. 2020). I studien undersökte författarna vilka bostadsområden i Wien som teoretiskt sett skulle lämpa sig för genomförandet av ett superblock. De gjorde detta genom att genomföra en GIS (geografiskt informationssystem)-baserad analys av Wien. Parametrarna för valet av lämpliga kvarter var följande:

- God tillgång till kollektivtrafik
- Liten tillgång till offentliga grönområden
- Få träd i det offentliga rummet
- Större utrymme för bilar än för fotgängare
- Hög befolkningstäthet

På grundval av dessa parametrar väljs en plats i Wien ut som uppfyller flera av de ovannämnda kriterierna. Dessutom inkluderas *Urban Heat Island Vulnerability Map of Vienna* som publicerades 2019 (Bhattacharjee, S. 2019). Efter att ha valt en plats planeras ett superblock i det valda kvarteret genom att omorganisera trafiken och föreslå designlösningar för det nya gaturummet. Dessutom undersöker arbetet hur naturbaserade lösningar kan integreras i ett superblock som en typologi för att hjälpa till att anpassa kvarteret till konsekvenserna av klimatförändringarna. På så sätt kommer en „avancerad version“ av det ursprungliga superblock - *Superblock 2.0* - att utvecklas.

Nyckelord:
Superblock
HumanScale
Transformation
TacticalUrbanism
Klimatanpassning

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GLOSSARY

Albedo
The albedo indicates how heat-absorbing a material is. Dark materials have a very low albedo (0=lowest) and absorb sunlight to a high percentage. (0%=total absorption) Light materials have a high albedo (100=highest) and reflect sunlight to a high percentage. (100%=total reflection)

Adaptation
The IPCC defines adaptation as “the process of adjustment to actual or expected climate and its effects.” (Noble, I. R et al., 2014, p. 838)

Floor Area Ratio (FAR)
The FAR is calculated by dividing the total area of the building by the total area of the plot (WTN, 2021).

Gentrification
Previously underfinanced areas undergo urban renewal and rents rise because of these improvements. Low-income communities that typically lived there before are forced to move somewhere else as they cant afford the higher rents (Hammel, D.J. 2009, p.360)

Grätzl
Austrian slang expression for urban neighbourhoods in Vienna. Rather than a clear area/district, a Grätzl describes a felt area one identifies with.

Gründerzeit
The character of Vienna is strongly influenced by “Gründerzeit” blocks that were built between 1848 and 1914. (1849 to 1859: Early Gründerzeit; 1860 to 1883: Main Gründerzeit; 1884 to 1918: Late Gründerzeit). Their height typically varies between 4 and 5 storeys.

Human Scale
Planning in a human scale implies to planning and designing environments that are perceived as comfortable to people. This could for example mean to not build above a certain height.

Mitigation
The IPCC defines mitigation as “a human intervention to reduce the sources or enhance the sinks of greenhouse gases” (Edenhofer, O.R. et al., 2014, p. 4)

Modal Split
The modal split (also called mode-share) describes the percentage of travellers using a certain type of transport. The modal split usually differentiates between pedestrians, cyclists, people using the car and people using the public transport.

Nature-based solutions
The European Comission defines nature-based solutions as ones that are „inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience.“ (European Commission, 2022)

Red Vienna
The period of Red Vienna refers to the time when the Social Democrats were leading between 1919 and 1934.

Slow modes of transport
Slow modes of transport include walking and biking.

Superblock
There are various definitions of a superblock, but in this thesis, it suggests the combination of several blocks to a unit, slowing down the traffic in the interior streets and using the freed-up space for public uses.

Superille
The term superille refers to a proposal published in the Urban Mobility Plan of Barcelona 2013-2018. It foresaw the reorganization of the traffic and the transformation of the chosen intersections in Barcelona.

Tactical Urbanism
Tactical Urbanism is a planning approach that works with small, low-key interventions that facilitate long-term change.

Urban Heat Islands (UHI) effect
The phenomenon of Urban Heat Islands (UHI) describes the difference of temperatures between built-up areas in comparison to areas in the less dense parts of the city.

15 - minute city
The 15 - minutes city is a concept where all amenities necessary for working and living (e.g work, doctor, supermarket,..) are easily reachable with public transport, by bike or by foot.

PART I: THEORETICAL BACK

XGROUND

INTRODUCTION

1

Fig. 1.01: Flooding in Vienna (Navy, G. 2013)

1. INTRODUCTION

1.1 Introduction

In recent years, the consequences that occur due to climate change have globally become more and more visible and felt by many. Extreme weather events such as flooding and long drought periods have become „the new normal“ and also have an increased presence in the public discussion. Movements such as Fridays for Future that emerged from the school strike of climate activist Greta Thunberg in 2018 demand concrete actions to deal with the climate crisis (Fridays for Future, 2022). As the public awareness of climate change rises, experts in different fields seek various solutions for adaptation and mitigation. In the field of urban planning, influencing the mobility behaviour of citizens can be a strong mitigation measure. Other global challenges such as the Covid-19 pandemic changed the use and perception of public and recreational spaces of many people worldwide. Restrictive meaures such as lockdowns affected daily routines and mobility patterns which in some countries led to an open discussion on the distribution of public space. From one day to the other, it became very relevant how far away from home recreational areas were for example, as in some countries citizens were only allowed to move freely within a certain distance during lockdowns. The Covid-19 pandemic also brought up a discussion about other topics relevant to urban planning and design, such as the future of working, food security and the importance of communities that can support each other. The public discourse on these topics brought forward various ideas on how to deal with such challenges, one of them being the implementation of superblocks. Since the introduction of the concept superilles in the Urban Mobility Plan of Barcelona 2013-2018 (Ajuntament de Barcelona Ecology, 2014) the concept of superblocks has been more prominent in the public discussion and is of interest for many different fields: urban planners, designers, architects, sociologists, ecologist and many more. Whilst the concept is interesting to investigate as it is simple and easily understandable, this thesis and the project is not dependent on the definition of a superblock. The concept of the superblock is the starting point of the project, but this work also investigates planning instruments such as tactical urbanism and explores how to transform an area with small interventions. At the core, this work aims at questioning the current division of space and suggests alternative uses.

1.2 Relevance

1.2.1 Climate Change and its consequences: Our planet is burning!

The IPCC report published in 2021 shows that global warming and its consequences progress at a rapid rate (IPCC: 2021, p.4). Some of these consequences can already be felt in large parts of the world, as is the case in Vienna, Austria. In 2019, the temperatures were higher than 30 degree Celsius on 38 days, whereas just 10 years ago only 14 days were counted as “heat-days” with temperatures above 30 degree Celsius (ZAMG Klimaabteilung, 2021). These heat periods lead to extreme drought and especially in very urban areas can cause so-called *Urban Heat Islands*. The phenomenon of *Urban Heat Islands (UHI)* describes the difference of temperatures between built-up areas in comparison to areas in the surroundings. The main factors for the UHI effect to take place are the

number of sealed surfaces, the choice of materials and the shape of the buildings. In urban situations, there is usually a large number of sealed surfaces where rainwater mostly runs off quickly and can therefore not be retained for evaporation in the ground. Moreover, heat absorbing materials lead to buildings and streets heating up even more. How heat-absorbing a material is, is indicated by the albedo. Dark materials have a very low albedo (0=lowest) and absorb sunlight to a high percentage. (0=total absorption) Light materials have a high albedo (100=highest) and reflect sunlight to a high percentage. (100%=total reflection) Urban areas are often characterised by being denser and impede air circulation. In comparison, rural areas often have more open spaces covered with vegetation and thus a larger number of permeable spaces. These have a cooling effect as they can more easily absorb rainwater which then evaporates. (Brandenburg, C. et al., 2018) As stated by Oke (Oke, T. R., 2002) in 1978, the difference between temperatures in urban and rural areas can be as high as 12 degree Celsius (in Eliasson, I. (2000)). As the high amount of sealed surfaces causes the rainwater to run off quickly, heavy rain events can easily cause flooding. In comparison to 1976-1995, the total rain sums in Austria between 1996-2014 decreased by 7% in winter, but increased by 14% in summer (Blöschl, G. et al., 2017). The calculations show that the total rainfall between 2021-2050 will increase by 3% in summer and by 14% in winter. Regarding floodings, it is estimated that the occurrence of 50- and 100-year floods will increase in the whole of Austria, in Eastern Austria (where Vienna is located) by 5% (ibid, 2017).

1.2.2 Division of space: City for cars or for people?

The Plan Voisin (also known as la ville contemporaire/the contemporary city), a redevelopment plan for Paris proposed by the architect Le Corbusier in 1922 showcases the main urban paradigms of the time (Le Corbusier, 1987, p.14). This modernist movement was characterized by the strong separation of working and living and thus planning car-oriented cities. According to Le Corbusier, the functionality of the buildings should be the driving force, just as it is the case for designing vehicles (Righini, P. 1999, p.101). A strong countermovement arose in the late 1960s and 1970s with people like Jane Jacobs at the forefront criticising how architects like Le Corbusier disregarded the importance of communities (Jacobs, J. 1961). Since then, urban planning has slowly shifted towards cities that foster a people- instead of a car-centred design. Ideas such as the 15 - minute city characterize the planning regime of the New Urbanism. New Urbanism advocates for a community-driven mixed-use city that is walkable and well connected which leads to more people naturally choosing slow modes of mobility such as walking and biking (Talen, E. 2014). Architects and urban planners like Jan Gehl promote to plan cities in the "human scale“ and focus on the public space rather than the built structure itself (Gehl, J. 1987. p. 75). These planning approaches challenge the current division of space (fig 1.02) and propose alternative uses.

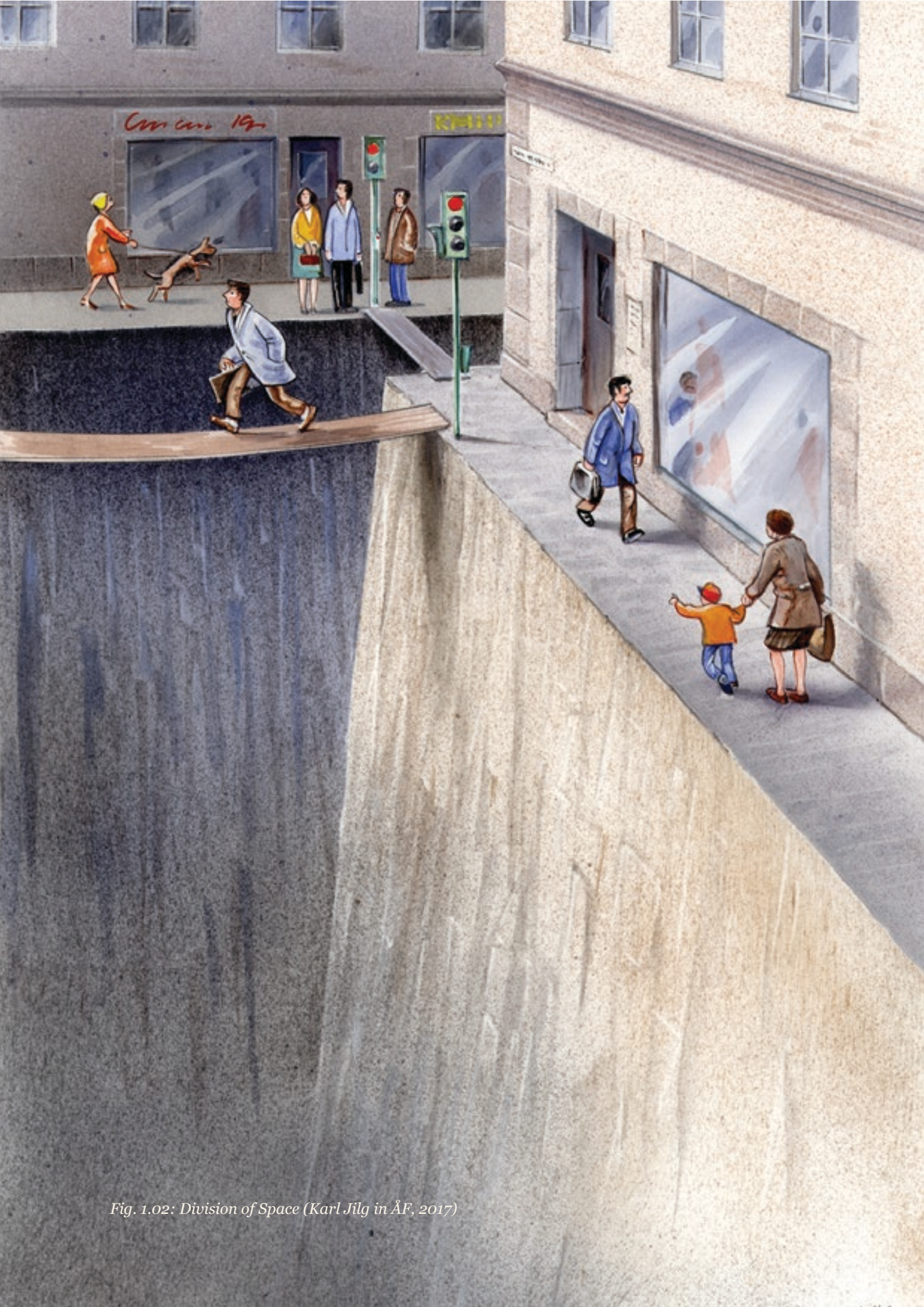


Fig. 1.02: Division of Space (Karl Jilg in ÅF, 2017)

1.2.3 Urbanisation: Growth, Growth, Growth

More and more people move to cities. In 2022, around half of the world's population lives in urbanised settings (Ritchie, H. & Roser, M., 2018). It is projected that this number will increase to two thirds of the world's population until 2050 (ibid, 2018). This trend also appears in Vienna. In 2022, slightly more than 1.9 million people live in Vienna (Mohr, M. 2022). It is estimated that by 2028, more than 2 million people will live in the Capital of Austria (Wieser, P. et al., 2021). As the growth of the population often comes with urban development, more land is used and surfaces are sealed. By having - on average - sealed 11.5 hectares of new land daily in the past years, Austria is among the countries with the highest soil loss in Europe (Umweltbundesamt GmbH, 2022). As a result of sealed surfaces in combination with extreme weather events, phenomena like the Urban Heat Island (UHI) effect take place. Strategies and measures on how to deal with such phenomena are very relevant for urban planners and designers. Implementing nature-based solutions both when developing new districts as well as introducing them in already existing urban areas can be a measure to cool cities and counteract the UHI effect. Reorganising the traffic by realising a superblock and changing the streetscapes into ones with a higher environmental performance can facilitate the implementation of these nature-based solutions.

1.2.4 E-Commerce and its consequences

A recently published study that investigated the impact of CEP (courier-, express-, parcel) service providers on urban road traffic in Vienna suggests that vehicles above 3.5 tonnes comprise only 13.5 % of the total traffic (Kummer, S. et al., 2021, p.5) while passenger cars account for the other 86.5%. They point out, that only 0.8% of the total traffic volume is related to CEP's (ibid 2021, p.1) Another study however reveals that the delivery of goods has increased due to e-commerce (Pettersson, F. et. al. 2018, p. 16). The share of e-commerce has grown considerably in the past years and the Covid-19 crisis enhanced this trend even more (OECD, 2020). In 2020, 75% of internet users in Austria bought goods or services online (Lone, S. & Weltevreden, J.W.J. 2022, p. 60). With the continuation of this trend, an increase of the traffic volume is to be expected if the distribution methods are not being optimized. As suggested by Visser and Lanzendorf, the increase in the traffic volume and related issues such as „congestion, noise, pollution and lack of parking space" will „provide urban (transport) planners with a huge a challenge" (Visser, E. J. and Lanzendorf, M. 2004, p. 203). New solutions for more efficient urban logistics are needed that tackle the challenges that arise due to e-commerce. Consolidation-based strategies, meaning the location of more CDP's (Collection-and-Delivery Point) might represent a minor inconvenience for the consumer as they have to pick up their parcel and don't get it delivered to their door. Overall, consolidation-based strategies could however lead to more efficient logistics and lower the expenses for the operator (Calabrò, G. et al. 2022, p. 161).

1.3 State of Research

The concept of superblocks is well known, especially among professionals that work in urban planning and design. In Vienna, the first "Supergrätzl“ is planned to be implemented in the summer of 2022 and located in the 10th district, Favoriten. It foresees the reorganisation of traffic, planting of trees and placement of urban furniture (Stadtentwicklung - Stadt Wien, 2021).

1.4 Structure and Methodology

This work is divided into two parts, the *Theoretical Background* and the *Design Part*. For the theoretical background, both primary and secondary literature were used. The guided expert interview conducted with Daniel Glaser was used as a method and aimed at getting a better understanding of the City‘s view towards the planned project. It was held digitally, recorded and transcribed in German. The interview was then translated to English. For the design part, several site visits helped to understand the project area in depth.

1.5 Goals of this thesis

The *Theoretical Part* of this thesis focuses on the analysis of the concept of superblocks as a starting point. Primarily however, the work aims at questioning the current distribution of public space and seeks to renegotiate it by showing alternative uses. The *Design Part* of this thesis focuses on one site in Vienna, but also demonstrates how the concept is easily applicable on various sites as the grid structure that constitutes the urban fabric is suitable for it. The design proposal aspires to be easily multiplied and thus represent a prototype.

1.6 Research Question

In order to improve the social and ecological sustainability of the chosen site in Vienna, this thesis seeks at answering the following research question by applying the previously described methods (1.4):

How could a superblock in Vienna be implemented?

The thesis approaches this question by first investigating the concept of superblocks and the urban structure of Vienna in depth and then finding an appropriate strategy and tools for the implementation of a superblock on the chosen site.

UNDERSTANDING THE FOOTPRINT OF VIENNA

2

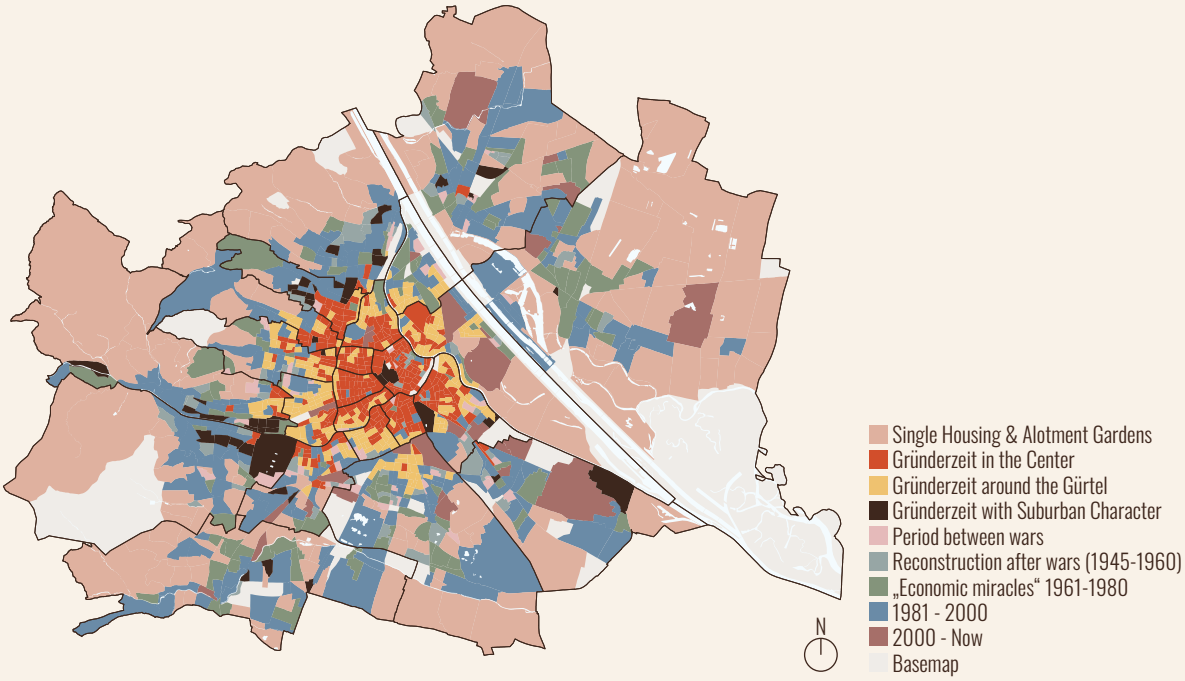


Fig. 2.01: The Urban Fabric of Vienna
(Own graphical representation from Nitsch, D. 2016)

2. URBAN FABRIC

The urban fabric of Vienna is characterized by different epochs, that can be divided into the following:

Before 1848: Renaissance, Baroque, Rococo, Classicism-Biedermeier
1848-1918: Founder period („Gründerzeit“)
1918-1938: Period between wars
[**1919-1934:** Red Vienna]
After 1945: Period after 2nd world war

In 2016, around 1,8 million people lived in Vienna. Around 38 % of them lived in buildings that were constructed between 1848 and 1914 in the so-called "Gründerzeit". Approximately 10% of the population lived in single-family houses and around 4% of the inhabitants lived in buildings that were built during the period of Red Vienna. The rest of the population lived in buildings that were built after the war (Nitsch, D. 2016). The Gründerzeit period and the period of Red Vienna are the most relevant for this thesis which is why they will be described in detail.

2.1 Gründerzeit

Around 31 percent of the urban fabric in Vienna consists of so-called Gründerzeit buildings that were built between 1848 and 1914 (Hannappel, L. et al. 2018). The heights of the buildings constructed in the Gründerzeit were shaped by the building regulations that were changed 4 times throughout the period. Based on these changes, the maximal height of the buildings was raised from the initial height of 20 metres to then 25 metres. Each room had to have a minimum height of 3 metres but they often reached around 3,20 to 4 metres (Psenner, A., 2012). The width of the street also varies largely from below ten metres to more than 20 metres (Hannappel, L. et al. 2018). Even

though they were all built in the same time period, the different types of Gründerzeit blocks vary greatly and can be categorised into three major groups (Nitsch, D. 2016):

- Gründerzeit blocks in the centre
- Gründerzeit blocks around the "Gürtel"
- Gründerzeit blocks with a suburban character

2.1.1 Gründerzeit blocks in the centre

The blocks are located in the central parts of the city (district 1-9) as well as the 17th, 18th and 20th district. They are characterised by around 3 to 5-storey high buildings, large apartments and ground floor zones with higher ceilings and often non-residential uses. When drawing a line in an angle of 45 degree from the eave to the street level, one realises that most of the ground floor zones are shaded due to the often very narrow streets. Surprisingly, still a majority of the ground floor zones in these blocks are "active" (fig. 2.02) even though there is often non-sufficient sun exposure.

Fig. 2.02: Gründerzeit in the 7th district (Fischer, V. 2021)

Fig. 2.03: Gründerzeit in the 16th district (Own picture, 2022)

2.1.2 Gründerzeit around the "Gürtel"

The Gründerzeit blocks that are located around the ring road "Gürtel" separating the inner districts from the surrounding city are mostly rectangular in their shape and consist of small apartments. Apart from the districts around the "Gürtel", they can also be found in the 5th, 10th and 12th district. They usually consist of smaller apartments but are with 3 to 4 storeys lower than the ones in the city centre. The blocks around the "Gürtel" are characterised by wider streets, typically between 15 to 20 metres. Even though the floor height of the ground floor zones would be suitable for an active ground floor zone, there rarely is one. The streetscapes are characterized by parking (see fig. 2.03) in large parts of these blocks. Depending on the heights of the buildings in relation to the street widths, potential expansion of the attic or a green roof is possible.

Fig. 2.04: Gründerzeit in the 19th district (Schulz, H. 2020)

2.1.3 Gründerzeit blocks with a suburban character

The blocks with a suburban character are located in the 13th, 17th and 18th district. They are characterized by a low building density (floor area ratio <2) and wide streets. As these blocks mostly consist of private single houses (see fig. 2.04), there is rarely any active use of the ground floor zone.

2.2 The Red Vienna

The period of *Red Vienna* refers to the time when the Social Democrats were leading between 1919 and 1934. During this time, the politicians aimed at creating better living conditions for everyone, but especially workers with children. They didn't only improve the standards of housing but also built several institutions that were important to create an overall better-functioning welfare system. A total of 382 municipal buildings, designed from 199 architects were constructed during the period of Red Vienna (Wien Geschichte Wiki, 2020). Well-known examples that were constructed during this time are the *Karl-Marx Hof* or the *Sandleitenhof* that will be described in detail in the next chapter about Superblocks (3).

Gründerzeit in the city center

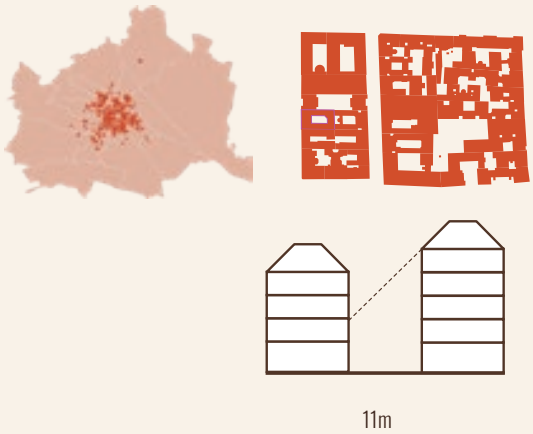


Fig. 2.05: Gründerzeit blocks in the city centre (Wien gv.at, 2022)

Gründerzeit around the „Gürtel“

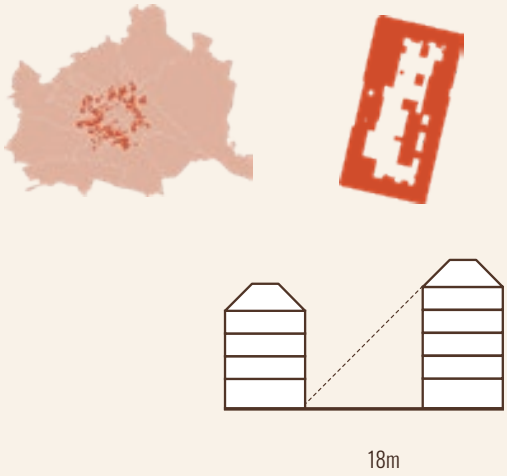


Fig. 2.06: Gründerzeit around the "Gürtel" (Wien gv.at, 2022)

Gründerzeit with suburban character

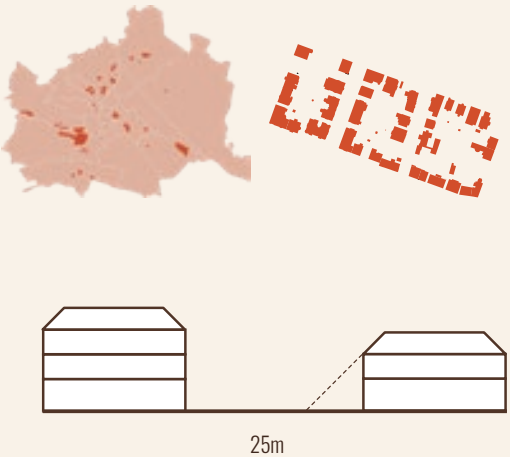


Fig. 2.07: Gründerzeit with suburban character (Wien gv.at, 2022)

SUPERBLOCKS

3

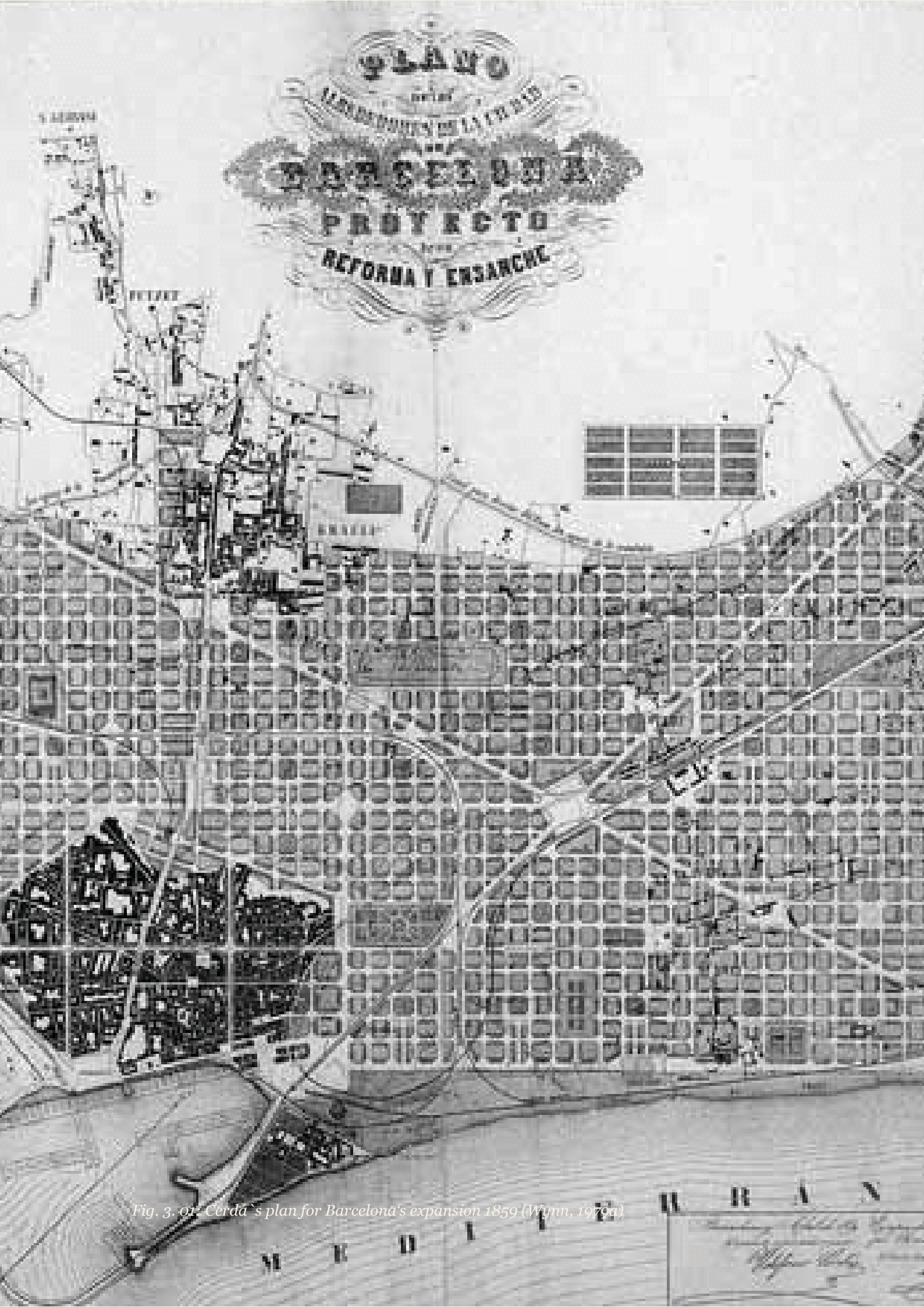


Fig. 3. 01: Cerdá´s plan for Barcelona's expansion 1859 (Wynn, 1979a)

3. SUPERBLOCKS

3.1 Origin

Whilst the "Superille", a term that was coined by the Urban Mobility Plan Barcelona published in 2014 might be the most known among urban planners and architects nowadays, similar concepts existed before that. Already in 1929, Clarence Perry writes about the Neighbourhood Unit that should be regarded "both as a unit of a larger whole and as a distinct entity in itself" (Perry, C.: 1929, p. 488) His idea of the neighbourhood unit arose from the challenge to create an environment suitable for families with children. Therefore, every such unit had a school as its central point that served as a community centre in the evenings. (ibid. 1929, p. 487) Perry laid out the following six basic principles for those neighbourhood units: (1): The amount of residential units that are developed should correspond to the size of the elementary school within the neighbourhood unit; (2) Arterial streets work as the boundaries of the neighbourhood unit; (3) Sufficient green spaces for recreational purposes that are organised in a network should be provided for the neighbourhood.; (4) Institutions like schools should be centrally located within the neighbourhood unit.; (5) Local Shops should be located next to other such neighbourhood units.; (6) The internal street system should primarily facilitate moving around within the neighbourhood unit but impede traffic going through the unit. Comparing these principles to the Barcelona superblock model proposed in the Urban Mobility Plan Barcelona, many similarities can be found.

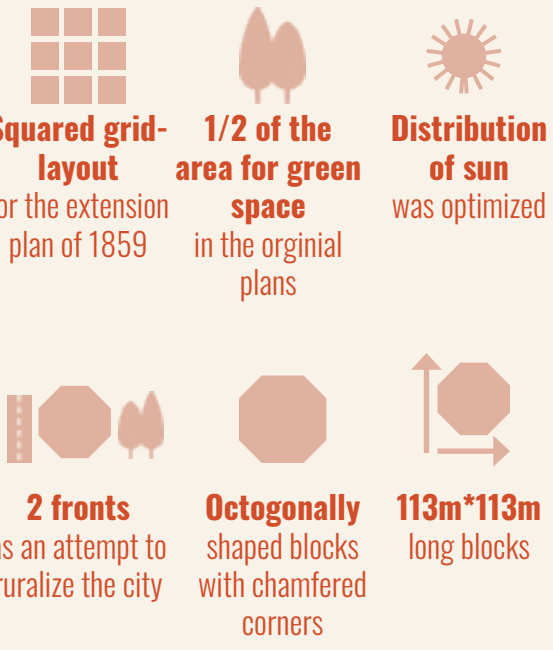
3.2 Ecosystemic Urbanism

Salvador Rueda founded the "Urban Ecology Agency Barcelona" that is a key player in the implementation of superblocks in Barcelona. According to him, the superblock is one of the main instruments of ecosystemic urbanism. He defines the term as „the integration of urban models for city shape, organisation and flows of materials, energy and information“ (Rueda, S. 2018, p. 135) and argues for more resilience as the future of cities compromises a lot of uncertainty. The conceptual framework of the ecosystemic urbanism views the city and its challenges as a whole and tries to provide holistic solutions. Hence [eco] systemic urbanism - as the challenges urban planners are faced with in cities are approached in a very systemic manner and focus on the city as an organisational entity. The "eco" in the term refers to the environment that is composed both of humans and the city structure itself (Duchêne, D. 2019, p.22).

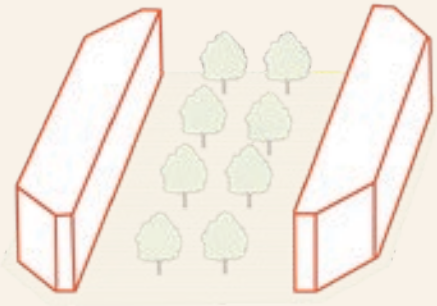
3.3 Superille: The Barcelona Superblock

3.3.1 Development of Ildefons Cerdá`s Block

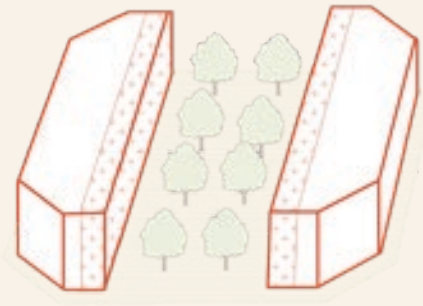
The Spanish engineer Ildefonso Cerdá (1815-1876) was of the opinion that every action - and with that he also meant every line drawn - should have a theory-based justification (Soria Y Puig, A.: 1995, p.17). When he was then working on the urban extension plan of Barcelona in 1855, he paid special attention to bringing together the varied disciplines that came into play in order to design a realistic plan rather than just concentrating on the artistic aspects like architectural aesthetics. Being both an accurate theoretician and a practitioner, a solid fundament was crucial to him and he even researched statistics about Barcelona and undertook thorough surveys himself which was quite unusual for an engineer/architect back then (ibid.: 1995, p.21).



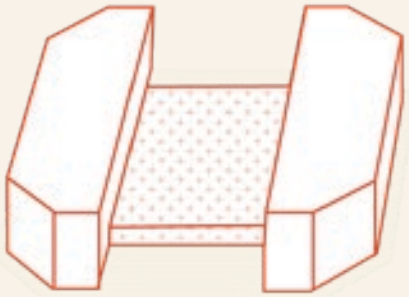
As he also calculated the potentially ocurring costs, he decided against his plans proposed in 1855 as they wouldn‘t have been financially reasonable. In 1859 he then proposed new plans for the extension of Barcelona (fig. 3.01) that suggested large open blocks (ibid.: 1995, p.24). These blocks are called "illes" in Catalan, which explains why the superblocks were later called "superilles" in the concept of the Urban Mobility Plan Barcelona published in 2014. Cerdás considerations regarding the width and function of streets strongly influenced the outlay of the grid which changed from rectangular grids from the 1855 plan to then squared grids for the extension plan of 1859 (ibid.: 1995, p.29). It foresaw a regular grid system with octagonal-shaped blocks that were each 113,3 * 113,3 m2 large with wide streets in-between. Besides that, both optimising the distribution of sunlight as well as isolation were prioritised in his design. (ibid.: 1995, p.34) He designed a variation of streets and different block sizes, but made sure that these weren’t completely closed. Inside these blocks with chamfered corners, he proposed green space and by that „attempted to ruralise the city and improve the living standards of local residents with two fronts: one giving on to the street and the other on to an extensive inner garden.“ (ibid.: 1995, p.36) However the original plans that kept around half of the blocks free for green space were adapted over time (fig. 3.02) under the influence of various actors. This resulted in the typical block to have a built-up area of almost 295,000 m3 compared to 67,000 m3 in the original plans (Wynn, M.: 1979).



67,200 m3



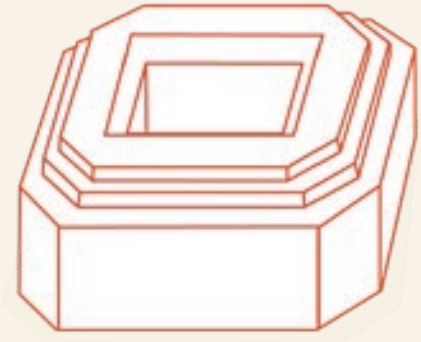
+ 29,440 m3



+ 18,944 m3

+ 52,865 m3

+ 126,323 m3



= **294,771 m3**

Fig. 3.02: Development of Ildefons Cerdá `s Block (graphically adapted from Wynn, M. 1979b)

3.3.2 Barcelona Superblock Model

The Urban Mobility Plan 2013-2018 (Ajuntament de Barcelona, 2014) is a strategic planning document that was published by the City of Barcelona in 2014. The main objectives of the document were to promote safe, sustainable, equitable and efficient mobility. Among other measures, it foresaw the implementation of superblocks in order to provide more space for slow modes of transport with a higher quality.

The Superblock Model from Barcelona (also called Superille) typically consists of 3*3 urban blocks that form a new urban entity. Within this entity, the interior streets are dedicated for slow modes of transport and the space that is freed from parking is transformed into public space (fig. 3.03). Motorized traffic is still allowed in these interior streets, but not as through-traffic and with a reduced speed of 10 km/h. The exterior streets are foreseen as the main network of the city, where motorized traffic can move freely alongside pedestrians and bicycles.

In order to improve the quality of the reclaimed public space, a variety of measures are proposed. To improve the accessibility, the transformed streets are all on one level and the asphalt is replaced with panot (cement tiles) which is a very typical paving for Barcelona. Furthermore, urban furniture is placed and new trees are planted. Besides calming the interior streets within the superblocks, planners also considered the integration of amenities such as urban distribution centers within the units. They defined a total of 120 potential intersections that could be redesigned. According to the strategic document, these intersections would be connected by a total of 750 ha of pedestrian areas (from an initial area of 74,5 ha). The network for public transport and bicycles was proposed to be expanded as well as the parking possibilities for bicycles increased.

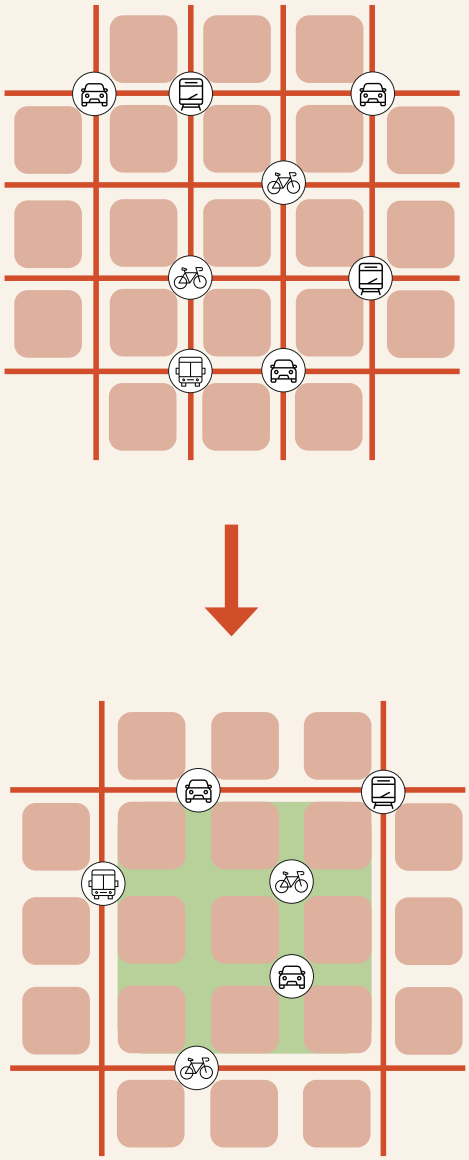


Fig. 3.03: The Superblock Model (graphically adapted from Ajuntament de Barcelona Ecology, 2014)

Fig. 3.04: Bird-Eye View Barcelona (Upmanis, K. 2019)

Fig. 3.05: Superblock in Poblenou (Walther, H. 2022)

3.3.3 Implemented superblocks in Barcelona

In 1993, the neighbourhood *El Born* in Barcelona was freed from cars and is therefore often mentioned as the first superblock that was implemented in Barcelona (De Boeck, S. 2021, 28). Due to the fact however that the pedestrianization of city centres was a common practice all over Europe in the past years, the example of *El Born* is not perceived as the archetypal superblock by many (ibid 2021, 28). This explains why the superblock that has been implemented in the neighbourhood Poblenou (fig. 3.05) in 2016 might be the most known. In total, 8,000 m2 of the total area in Poblenou have been transformed to public squares. This didn‘t happen overnight though, but by the continual introduction of tactical interventions. Whilst the transformation of the squares in Poblenou was characterized by citizen concerns and protests in the beginning, these abated with time (Duchêne, D. 2019, p.27). The initial resistance was explained by the loss of parking possibilities, concerns regarding rising rents and the fear of gentrification. The other superblocks that have been implemented so far are located in Sant Antoni (ibid 2019, 31) and in Eixample (De Boeck, S. 2021, 45).

The City of Barcelona has defined a total of 503 potential superblocks that could be implemented over time (Mueller, N. et al. 2020, p.2).

The superblock model can best unfold its potential when the neighbourhood units form a network of several superblocks within the city. Thus, the bigger picture might not be as visible with only a few superblocks implemented. However, the study "Changing the urban design of cities for health: The superblock model" published in 2020 (ibid, 2020) estimated the potential health impact of all the planned 503 superblocks and came to the following results:

- The share of motorized traffic would be reduced by 19.2 % from the baseline mean percentage and shifted to public transportation and soft modes of transport such as walking or biking (ibid 2020, p. 9).

- The prevention of 667 premature deaths annually is estimated, the greatest share of these is explained through the improved air quality and reduced NO2 levels (ibid 2020, p. 9).

- The mean baseline percentage of 6.5 % green space in the neighbourhood Eixample would be increased to 19.6 %.

3.4 Previously implemented “Superblocks” in Vienna - A city in a city

Numerous examples of already constructed superblocks can be found in Vienna, just implemented with a different driving force than the concept known as the superille or Barcelona superblock. Most of these large blocks were constructed during the period of Red Vienna, which refers to the time between 1919 and 1934 and is described more detailed in the previous chapter (2). The large blocks often foresaw generous courtyards to ensure enough sunlight, fresh air and places for people to meet. In the internationally known Karl-Marx Hof (fig. 3.06) with the 1.2 km long facade for instance, only 20% of the total area was used for the building itself, the rest can be assigned to green space and infrastructure for cars. (Wien Geschichte Wiki, 2021a)

Fig. 3.06: Karl-Marx Hof, 1190 Vienna (Wien gv.at, 2022)

The largest social housing built during the period of Red Vienna however is the Wohnhausanlage Sandleiten. (fig. 3.07) The 1578 flats were back then planned to provide housing for around 5000 to 6000 people. The architects and planners already considered including amenities such as pharmacies, laundromats, retail spaces, a cinema and much more within the block to create “A city in the city”. The complex partly opens up to the street and therefore does not architecturally express the distinction between public and private as strongly as other blocks built during Red Vienna. However large parts of the housing block Sandleiten are closed to cars driving through (Wien Geschichte Wiki, 2021b).

Fig. 3.07: Wohnhausanlage Sandleiten, 1160 Vienna (Wien gv.at, 2022)

PART II: DESIGN

INTRODUCTION & ANALYSIS

4

4. THE SITE

4.1 Choice of the site

The choice of the site is based on two main pillars, the Urban Heat Islands Vulnerability Map of Vienna that was published in 2018 (Vienna City Administration Municipal Department 23: 2018) as well as the feasibility study SUPERBE that was published in 2020. In addition to that, an interview was conducted with a representative of the district that has a deep understanding of the site and its surroundings. As I, the author of this thesis, grew up in Ottakring where the site is located I consider to have an "insider" knowledge which was a reason for the choice of the site and helped me with the design later on.

4.1.1 Urban Heat Islands Vulnerability Map Vienna

Studying the Urban Heat Islands Vulnerability Map and the especially affected areas of Vienna was one of the main reasons for the choice of the site. The Urban Heat Islands Vulnerability Map is the outcome of an assessment conducted by *ECOTEN* in 2019 (ECOTEN, 2019, p.14). They took three factors into account to create an index that displays how vulnerable a given site is to heat stress:

1) Heat exposure (High temperatures that were measured between 2015-2019)
2) Sensitivity of the population (People that are younger than 17 or older than 65 are considered sensitive to heat)
3) Adaptive Capacity (Identifying green and blue structures in the city)

The results of the map (fig. 4.01) are not surprising: the densely built-up areas of the core city with less green and blue structures are more vulnerable than in the fringe of Vienna where important green structures such as the forest "Wienerwald" are located. The project site stands out negatively as it reaches the highest ranking in how vulnerable a location can be according to the vulnerability index.

4.1.2 Feasibility study SUPERBE on superblocks in Vienna

The feasibility study SUPERBE investigated where superblocks could potentially be realised in Vienna. Working with GIS (Geographic Information System) as a tool, they investigated the suitability of the blocks for superblocks for the 5 following criteria:

- Access to green spaces (Based on the assumption that a poor access to green spaces increases the need for the implementation of a superblock)
- Number of trees in public space (Based on the assumption that few trees increase the need for the implementation of a superblock)
- The ratio of spaces for slow modes of transport to spaces for motorised traffic (Based on the assumption that a high amount of space for motorised traffic increases the need for the implementation of a superblock)
- Access to the public transport system (Based on the assumption that a good access increases the suitability)
- Population density (Based on the assumption that a high population density increases the need for the implementation of a superblock)

The following maps showcase the potential superblock candidates for the individual criteria. The site is always highlighted with an orange-coloured rectangle.

4.1.2.1 Access to green spaces

An area was defined to have poor access to green spaces when 85% of the total area of the block were further away than 250 metres to the next public green space, such as parks. The quality of these green spaces were however irrelevant for the calculation. The map shows that the site has a poor access to public green space and is therefore matching the criteria. (fig. 4.02)

4.1.2.2 Number of trees in public space

An area was defined to have few trees in public space when less than 0.2% of the total area of the block were covered by the crowns of the trees. Trees on private ground were not considered for the calculation. The map shows that the site has more than 0.2% of its total area covered by the crowns of the trees and is therefore not matching this criteria. (fig. 4.03)

4.1.2.3 The ratio of spaces for slow modes of transport to spaces for motorized traffic

For this criteria, the total m^2 of the space for slow modes of transport was compared with the total m^2 of the space for motorized traffic. The map shows that the site has a higher percentage of areas that are designed for motorized traffic and is therefore matching the criteria. (fig. 4.04)

4.1.2.4 Access to the public transport system

An area was defined to have good access to the public transport system when 90% of the total area of the block were within 250 metres to the next public transport stop. The quality of these green spaces were however irrelevant for the calculation. The map shows that the site has a good access to the public transport and is therefore matching the criteria. (fig. 4.05)

4.1.2.5 Population density

For this criteria, the population density was calculated. A high population density was defined with more than 250 people/hectare. The map shows that the site has more than 250 people/hectare living in the area and is therefore matching the criteria. (fig. 4.05)

In summary, the site was matching four of the in total five investigated criteria.

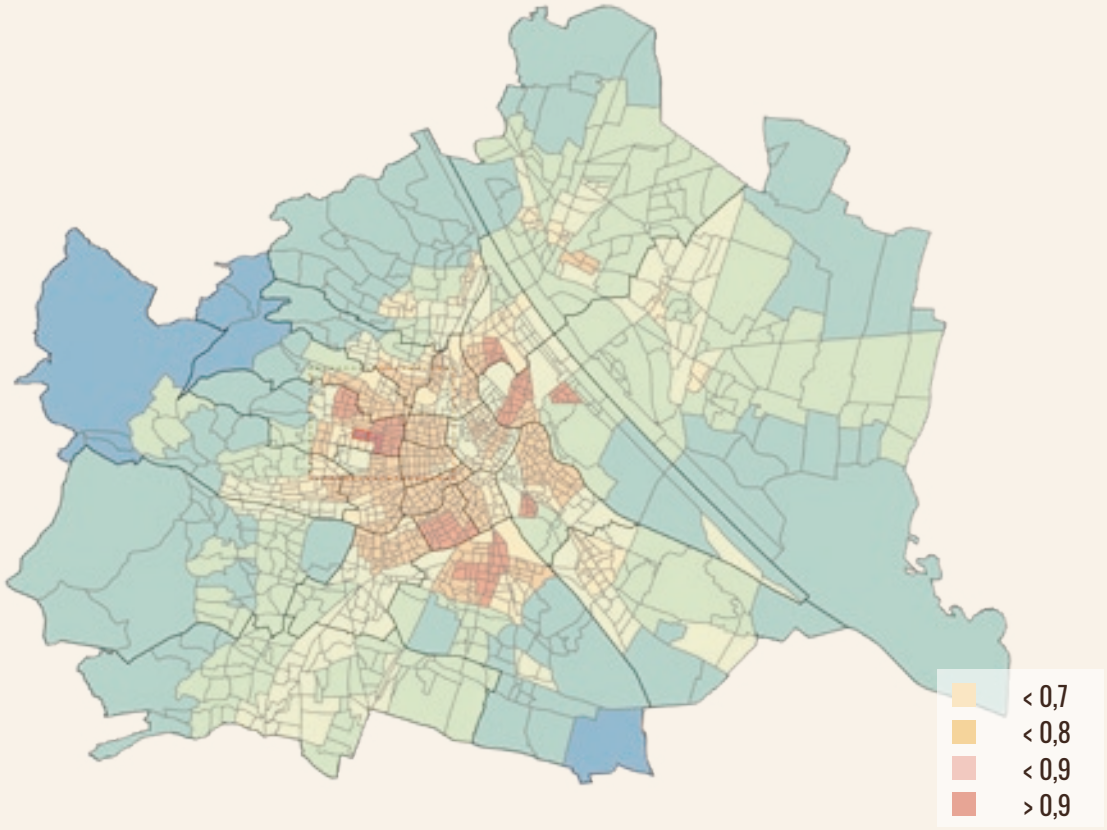


Fig. 4.01: Urban Heat Vulnerability Map
(Bhattacharjee, S. 2019)

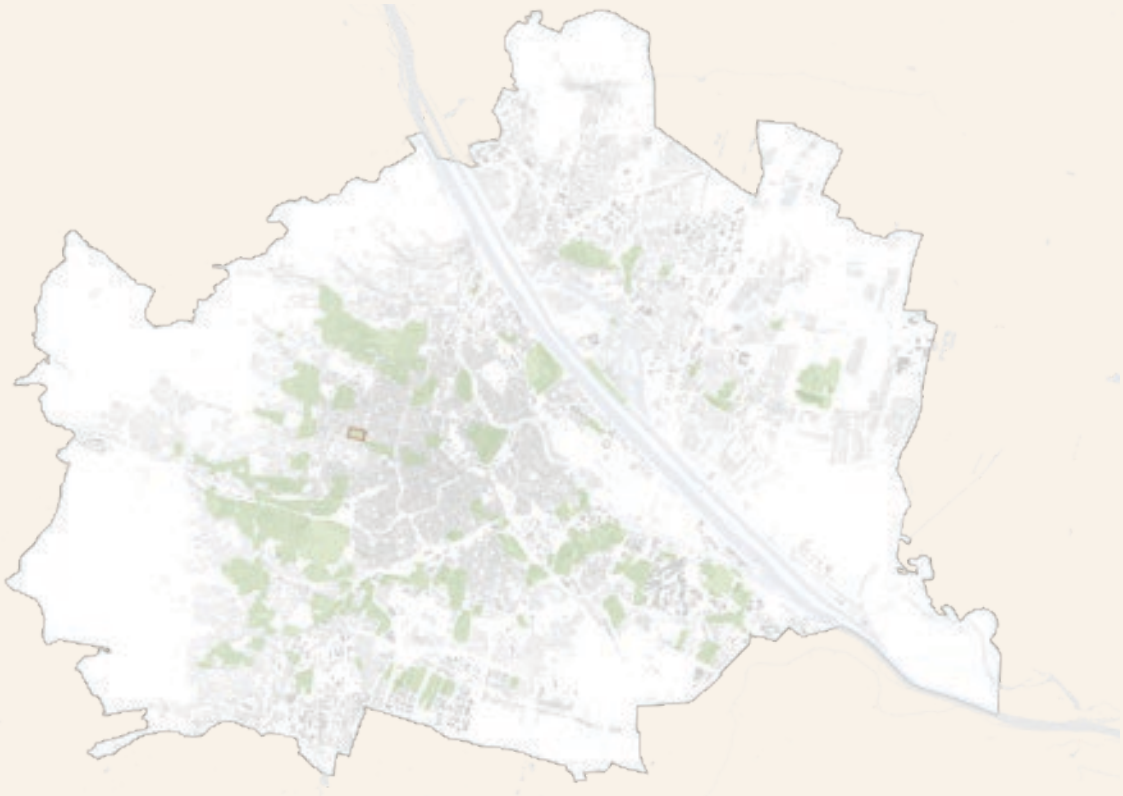


Fig. 4.02: Poor access to green space
(Own graphical representation from Frey, H. et al. 2020)

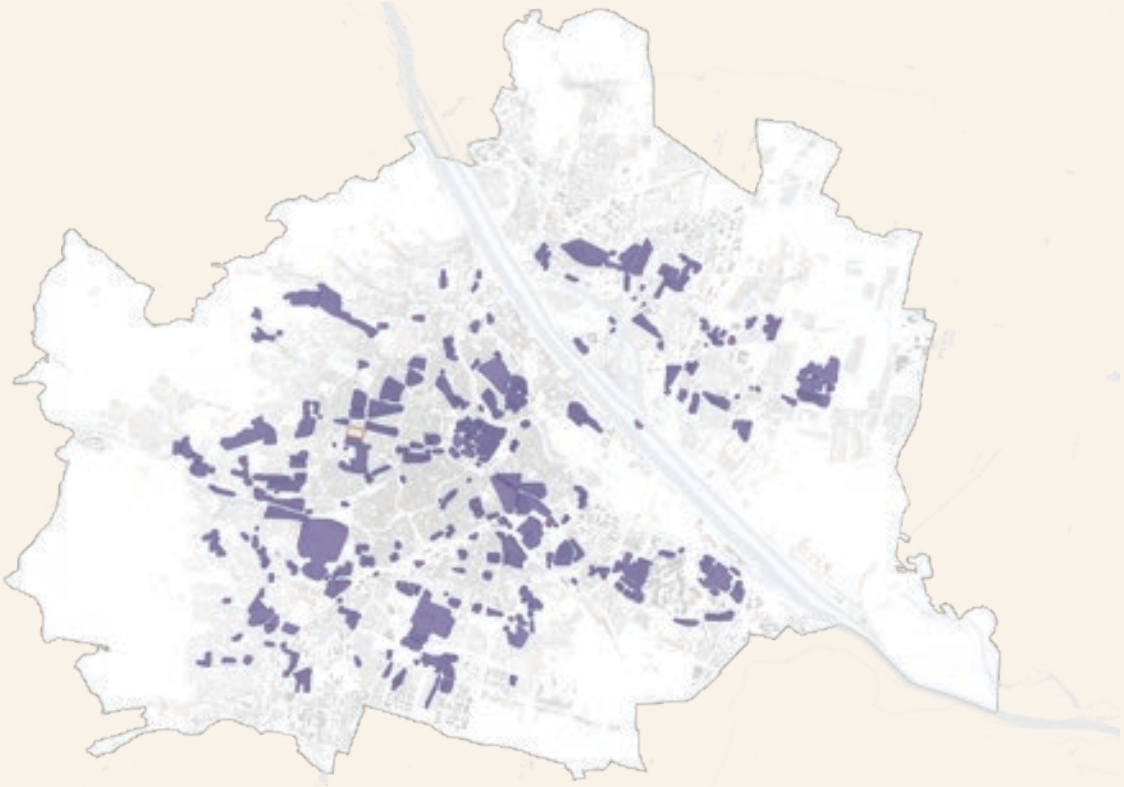


Fig. 4.03: Few trees in public space
space (Own graphical representation from Frey, H. et al. 2020)

Fig. 4.04: High amount of space for motorized traffic
(Own graphical representation from Frey, H. et al. 2020)

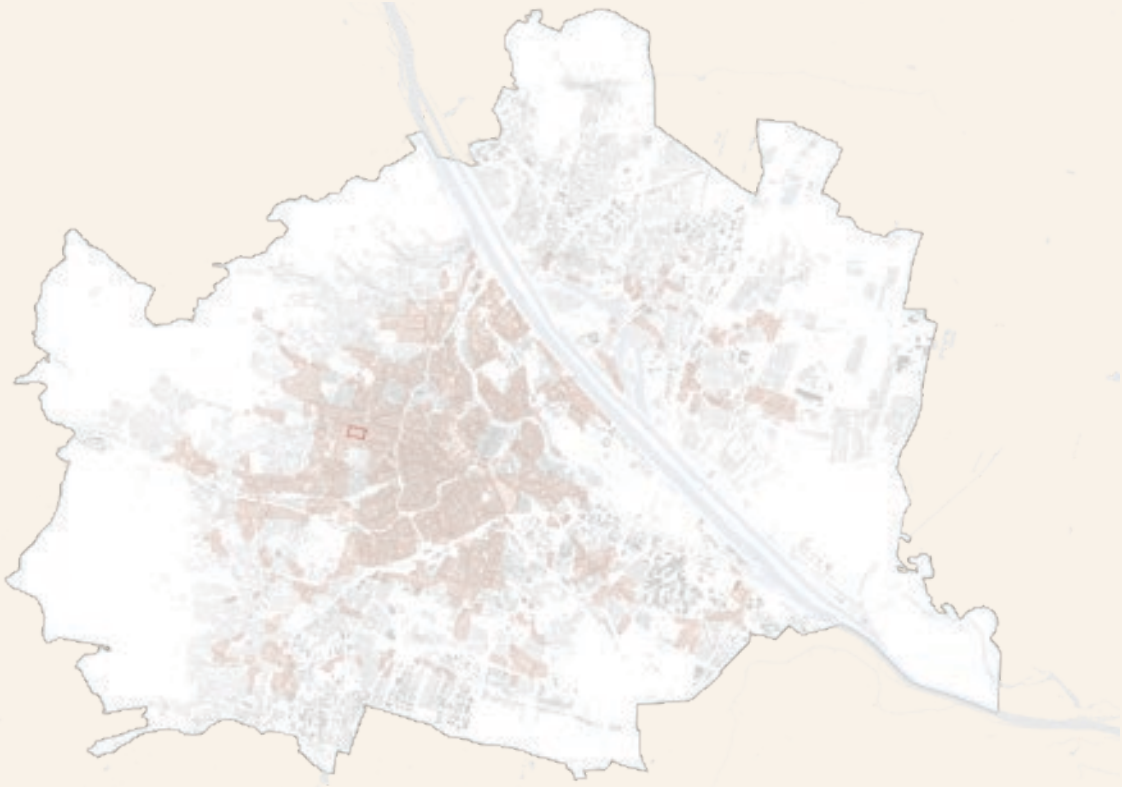


Fig. 4.05: Good access to the public transport system
(Own graphical representation from Frey, H. et al. 2020)

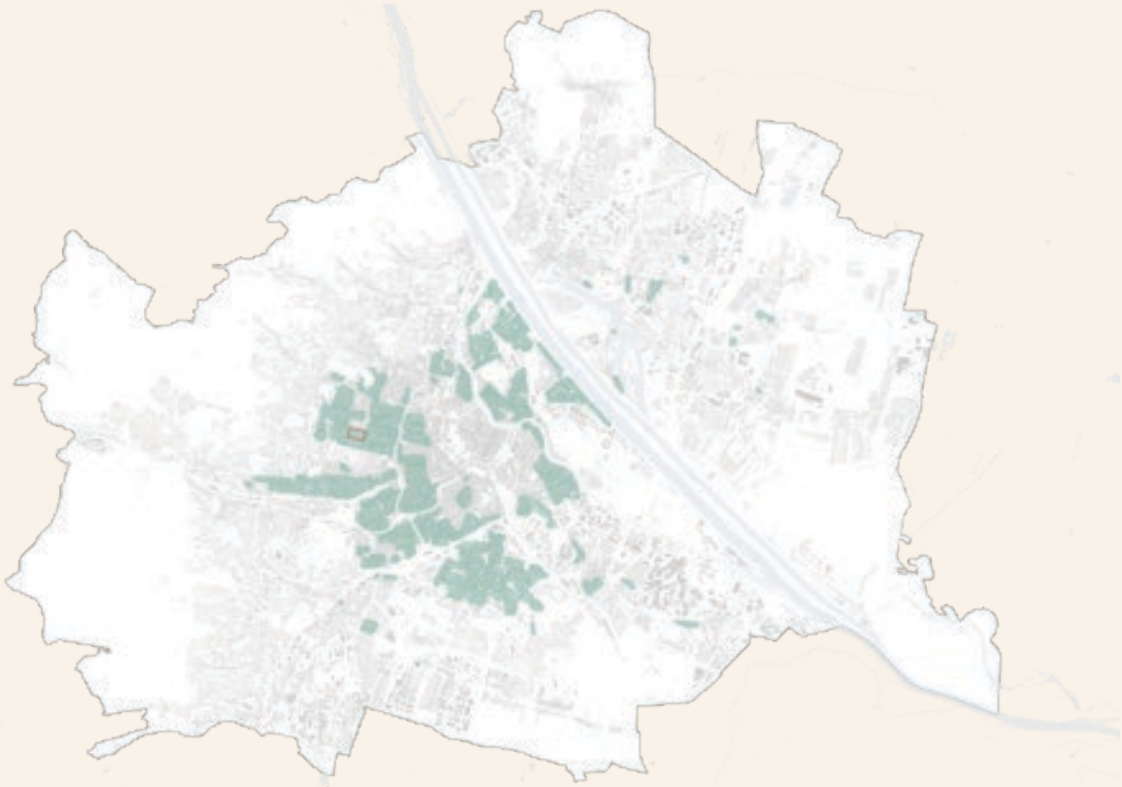


Fig. 4.06: High population density
(Own graphical representation from Frey, H. et al. 2020)

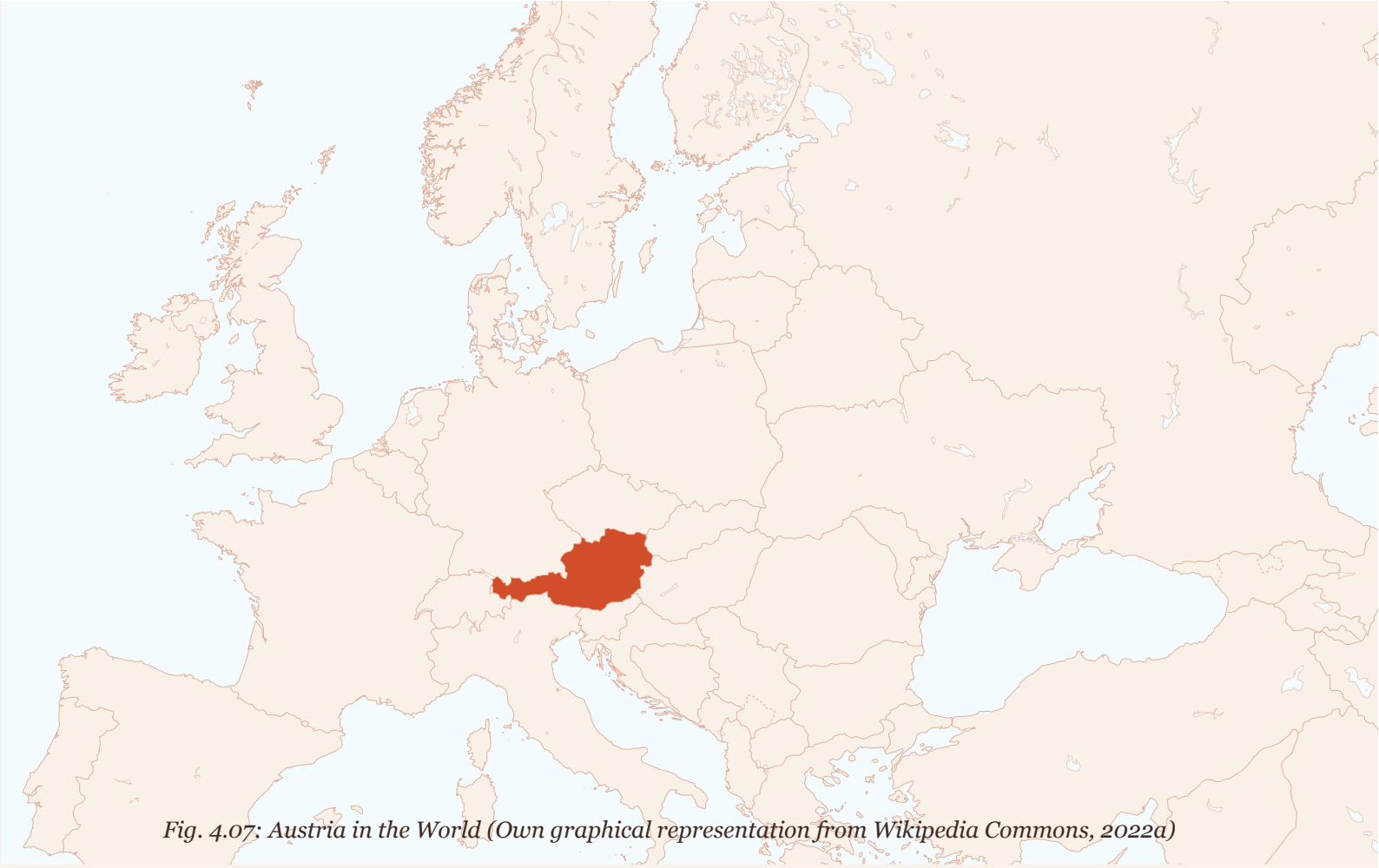


Fig. 4.07: Austria in the World (Own graphical representation from Wikipedia Commons, 2022a)

4.2 Overview of the site

4.2.1 Austria in Europe

Austria is located in the centre of Europe and has Vienna as its capital. In 2020, Austria counts around 9 million inhabitants.

4.2.2 Vienna in Austria

The capital is one of 9 counties and located in the east of Austria. In 2020, Vienna had a population of almost 2 million inhabitants, the city is growing.

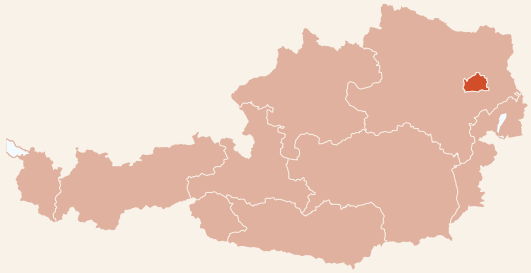


Fig. 4.08: Vienna in Austria (Own graphical representation from Wikipedia Commons, 2022b)

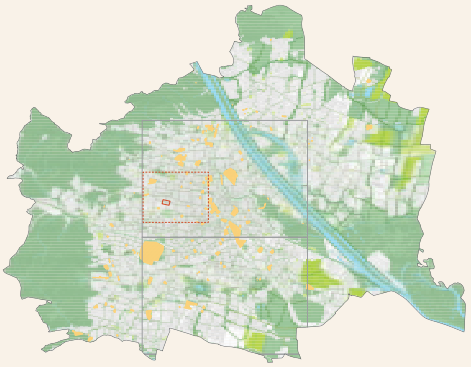


Fig. 4.09: Green & Blue Structures in Vienna (Wien gv.at, 2020)

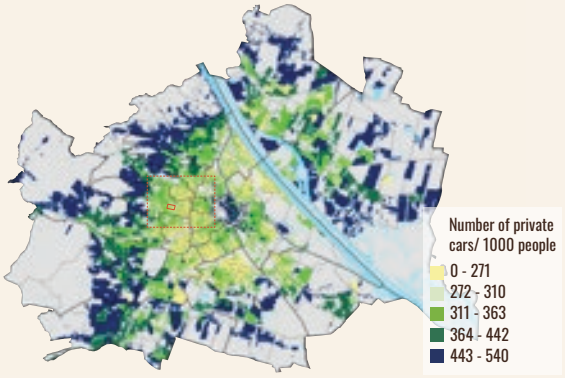


Fig. 4.10: Car ownership in Vienna (Stadt Wien MA 18, 2020)

4.3 Mobility Patterns & Trends

4.3.1 Car Ownership in Vienna

Even though the City offers an excellent and cheap public transport system, a relatively high share of the population (especially in the fringe of the city) owns a car. (fig. 4.10)

4.3.2 Modal Split in Vienna

Looking at how the modal split has changed in Vienna from 2010 (fig. 4.11) to 2019 (fig. 4.12) it is evident that the share of slow forms of transportation and public transport are slowly increasing whilst the share of ways that are made by car is decreasing. The relatively high share of trips being made with public transport can be explained by three main reasons: The public transport network in Vienna is

1) Cheap
A ticket that allows to ride with busses, trams, the subway and trains within the City's limits only costs 1€ (around 10 SEK) per day which is far below the usual fare in other capital cities.

2) Well connected
A combination of busses, trams and the subway facilitate to get from A to B fast.

3) Reliable
The intervals of the public transport are - especially in the densely built-up parts of the City - very frequent.

Taking a closer look at the share of trips being made by bike however, Vienna has to address this very low number and implement measures to increase the share. In Copenhagen, known to be a best-practice example when it comes to bike-oriented urban planning and design, 28% of all trips in 2018 were made by bike (City of Copenhagen, 2018, p.6).

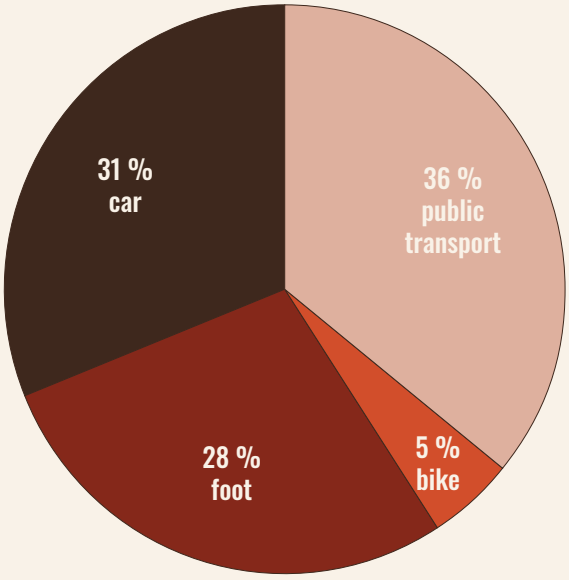


Fig. 4.11: Modal Split in Vienna 2010 (Own graphical representation from Stadt Wien, 2011)

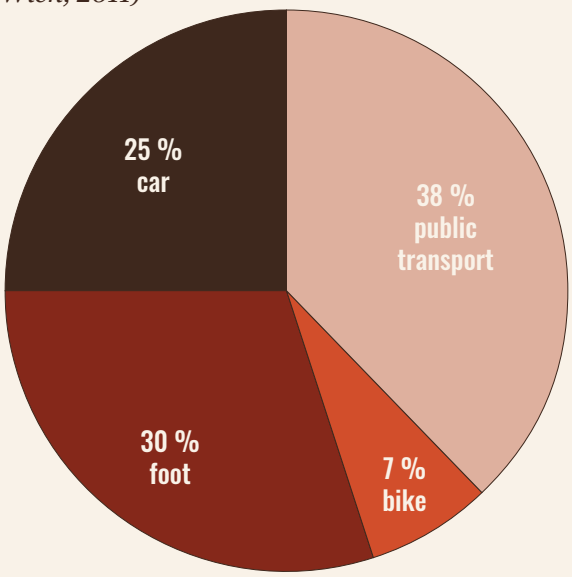


Fig. 4.12: Modal Split in Vienna 2019 (Own graphical representation from Mobilitätsagentur Wien GmbH, 2019)

4.4 How cool is the City? Green & Blue Structures in Vienna

Blue (water bodies like rivers, but also smaller entities like bioswales) and green structures (trees, shrubs, raingardens, etc.) have countless benefits for a City. Depending on - among other factors - how big are, where they are located and in what way they are connected, they offer

different values. Some of those are an improved adaptability to heat stress and the creation of a comfortable microclimate. Other advantages are that the structures provide habitats for a variety of species and thus an increased biodiversity and offer a place of leisure and recreation for people. As shown in the map visualizing the green & blue structures in Vienna (fig. 4.09), most of the green spaces are located in the outskirts of the City. The percentage of green spaces in Vienna varies strongly: In the inner districts, only 2 to 15 % of the area consists of green spaces. In the outer districts however, this number reaches up to 70% with important green structures like the Wienerwald. (Stadt Wien Wirtschaft, Arbeit und Statistik, 2021, p.15)

4.5 Site Analysis

4.5.1 Facts & Figures

The site is situated in the 16th (Ottakring) of a total 23 districts in Vienna, Austria. Ottakring is in the west of the Austrian capital and counts 103 117 inhabitants which represents 5.4 % of the total Viennese population. The district's area is 8,65 km2 and has a population density of 11 847 inhabitants/km² which is relatively dense compared with the other districts in Vienna. (Bauer, R. et al.: 2020) With 15 % of the inhabitants coming from countries in the EU [that aren't Austria] (compared with 13.4% in Vienna) and 21.8 % from countries outside of the EU (compared with 17.4% in Vienna), Ottakring has a disproportionately high share of residents coming from a foreign country. Over the last ten years, the population of Ottakring has increased by +8.8 % which is below the capital's average of 13.1 %. Regarding the living situation, around 19% of people from Ottakring are living in public housing on an average area of 31 m² per resident.

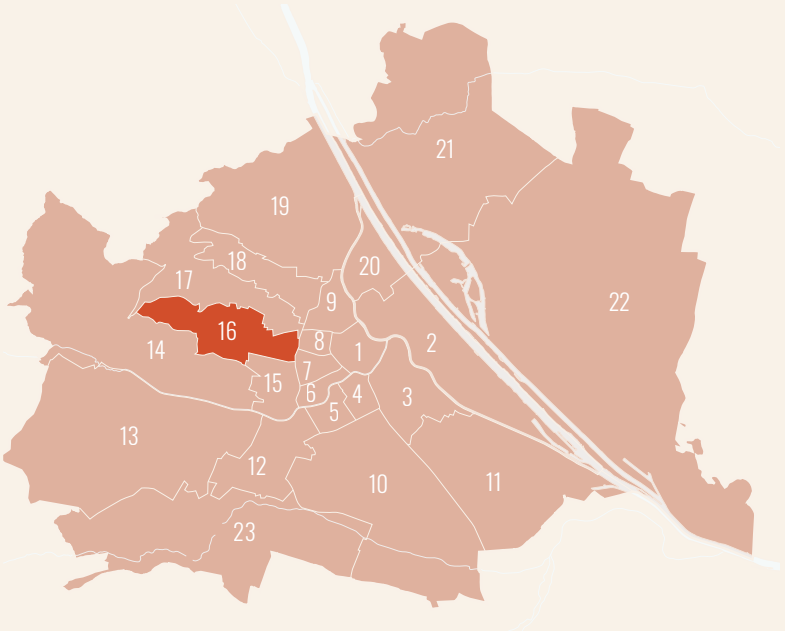


Fig. 4.13: Ottakring in Vienna (Own graphical representation from Wikipedia Commons, 2022c)

52 % of the total area of Ottakring (compared to 36 % in Vienna) is built land, the share of the area used for infrastructure, streets and parking is slightly more in Ottakring (18%) as it is for the whole of Vienna (14%). Ottakring has a share of 30% of green and blue areas like parks and water bodies, compared to a total of 50% in Vienna. (Bauer, R. et al. 2020)

4.5.2 Characteristics

The 16th districts has many faces. It is a very lively district with markets like the "Brunnenmarkt" (fig. 4.14) that is open every day and sells groceries and other things like clothing, flowers or spices. There are also many bars and clubs that are located underneath the "Stadtbahnbögen", the old arches where the subway drives above ground. What is exceptional is that there are several production sites within the district's limits. One of them is the "Ottakringer Brauerei", a beer brewery that is located in the northern border of the site and also is a venue with events taking place on a regular basis.

Fig. 4.14: Brunnenmarkt (Gugerell, P. 2010)

4.5.3 Built structure

The built structure within the site consists of a total of twelve urban blocks that are laid out in an orthogonal street grid and each stretch out over 130 metres in length and 70 metres in width. The buildings found on the site vary between 3 and 5 storeys with a higher ground floor zone. The majority of the buildings were constructed between 1848 and 1918 during the Gründerzeit. (fig.4.15) The characteristics of a Gründerzeitblock were described in detail in chapter 2. Some other buildings found on the site were constructed after 1945. (wien.gv/kulturportal)

4.5.4 Uses

Within the site, the majority of the buildings have a residential use (fig. 4.16). In the north-west corner there is a social counselling service, a library and indoor playground. Just opposite of that building in the south, there is a school. Furthermore, there are some kindergartens on the site, small restaurants and other local businesses can be found in some of the ground floor zones. There is however also a high proportion of vacant ground floor zones on the site (fig. 4.17).

4.5.5 Green & Blue Structures

Although there is a relatively high amount of green space on the site (4.18), it is private and not accessible as it is in the courtyards (fig. 4.34). Green space that can be accessed publicly is only to be found in the small playground in front of the library in the west of the area. There are however several trees on the site, especially along Hasnerstrasse. There are a large amount of horse chestnut trees (lat. Aesculus hippocastanum) that are between 11 and 15 metres high. They strongly characterise the streetscape as they are planted very densely and have been there for a long amount of time, most of them were planted in 1925. (wien.gv.at/umweltgut) Other, smaller grown trees that can be found along Hasnerstrasse are Ulmus New Horizon (lat. Resista Ulme) and the Red Horsechestnut (lat. aesculus x carnea briotii). In contrast to Hasnerstrasse, the other streets on the site are lacking greenery. Along Brüsslgasse, so-called Old French cultivar (lat. acer platanoides columnare) can be found and in Kreitnergasse, some Red Ashes (lat.fraxinus pennsylvanica cimmaron) were planted in 2020. An important green structure for the district is "Die Schmelz" that is located just in the south of the site. It is one of the largest allotment settlements mostly consisting of private gardens. The paths connecting these gardens are however publicly accessible and offer a great possibility for leisure and recreation.

4.5.6 Urban Heat Islands

Even though there are many trees to be found on the site, the site is very exposed to heat and due to the high number of sealed surfaces has a low capacity to adapt to heat stress (fig. 4.19). The site reaches the highest ranking in how vulnerable a location can be according to the Urban Heat Islands vulnerability index and stands out negatively within the whole of Vienna.

4.5.7 Motorized Streets

All streets going through the site except one small section at Hasnerstraße are motorised (4.20). Within Hasnerstraße, one can drive in both directions with a speed limit of of 50 km/h. On Arltgasse, Brüsslgasse and Kreitnergasse, cars can currently drive in one direction with a speed limit of 30 km/h, from south to north. On Thalhaimergasse and

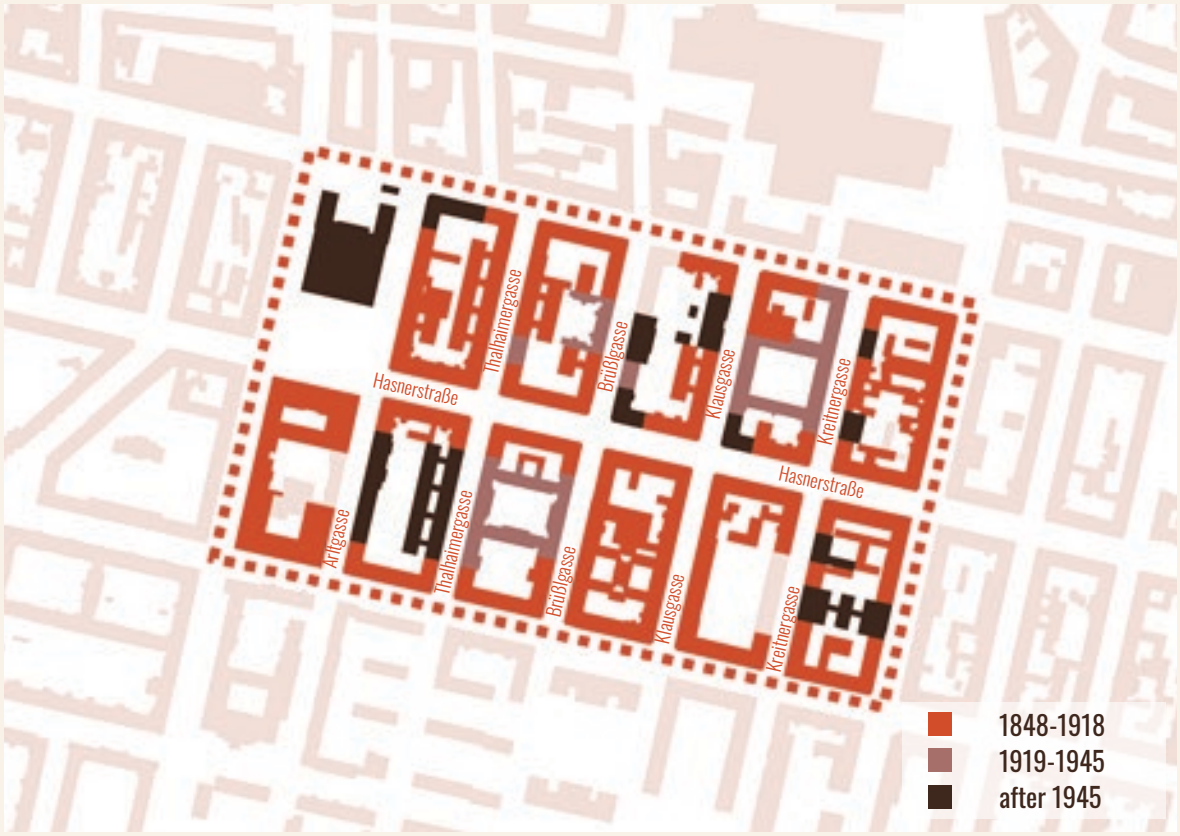


Fig. 4.15: Built structure, 1:10 000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Fig. 4.16: Uses, 1:10 000 printed on A4
(own graphical representation, wien.gv.at, 2022)

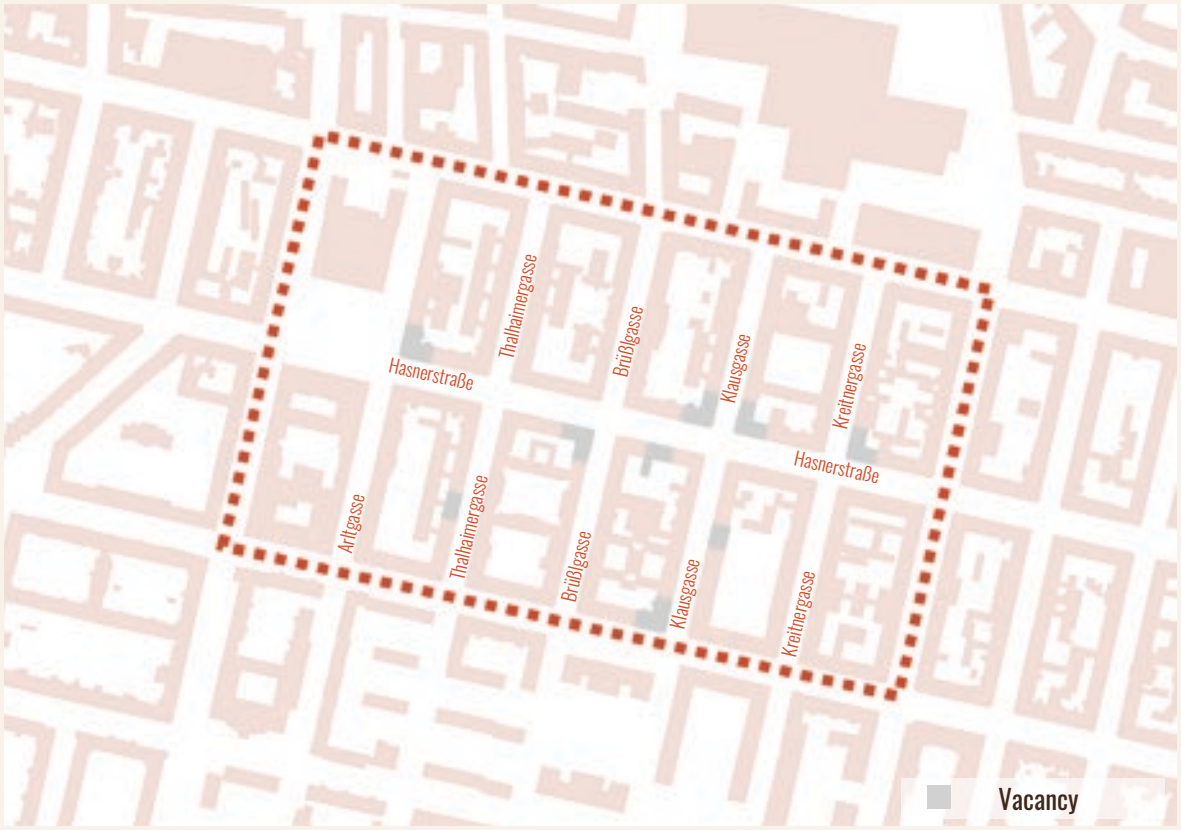


Fig. 4.17: Vacancy, 1:10000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Fig. 4.18: Green & Blue Structures, 1:10000 printed on A4
(own graphical representation, wien.gv.at, 2022)

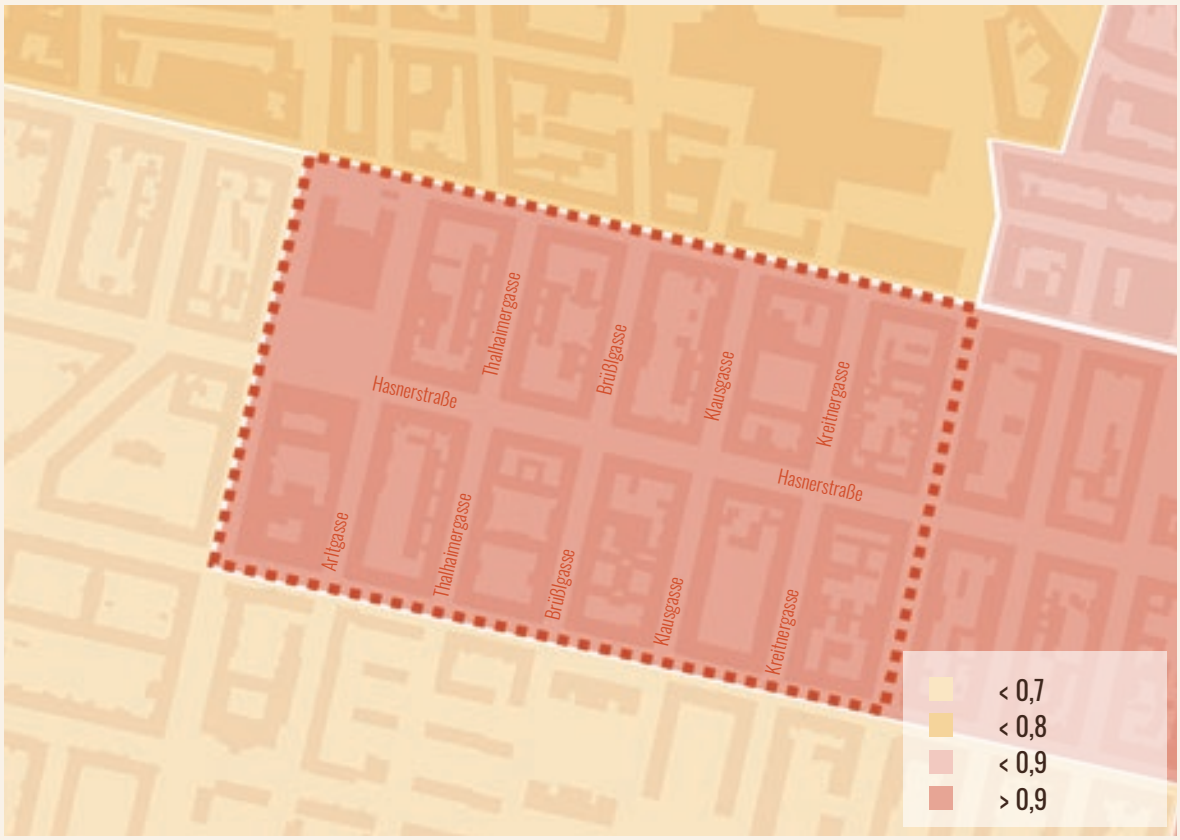


Fig. 4.19: Urban Heat Islands, 1:10000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Fig. 4.20: Motorized Streets 1:10000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Klausgasse cars are currently allowed to drive in one direction from north to south with a speed limit of 30 km/h.

4.5.8 Modal Split in Ottakring

The modal split of Ottakring (fig 4. 21) is comparable to the one in Vienna in 2019 (fig 4.12). With 21%, the share of trips being made by car are however less compared to the 25% on the City-level. The share of trips made by the bike are therefore slightly higher in Ottakring with 11% compared to 7% in the whole of Vienna.

4.5.9 Parking

On street parking is currently allowed in the entire area of the site (fig. 4.20). From the 1st of march 2022 onwards, residents have to have an adhesive label on the windscreen that gives them permission to park in the borders of their district for 10€/month. Estimating the occupancy rate by counting the empty spots during a site visit, 455 of the entire 635 counted parking spots were occupied which in percentage is 72% (see appendix, parking situation analysis). There are also various parking garages in proximity of the site, where residents could potentially also park their vehicles for an unlimited amount of time. To name a few, there are *BOE Garage Wattgasse*(98€/month), *Garage Klausgasse* (84€/month), and *WIPARK Hofferplatz* (98€/month).

4.5.10 Public Transport

The site is very well connected (fig. 4. 23). It has both busses operating in the southern and western edge as well as trams running in the eastern and northern edge of the site. There are subway stations of two different lines in the east and west of the site, both of them can be reached by foot in around 10 to 15 minutes.

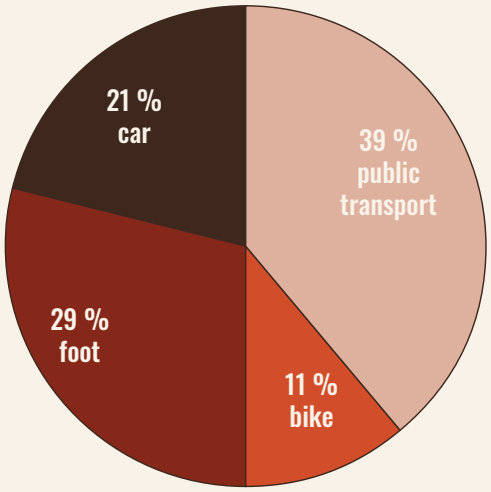


Fig. 4.21 Modal Split in Ottakring 2010-2019 (own graphical representation, wien.gv.at, 2022)

4.5.11 Slow Modes of Mobility

4.5.11.1 Pedestrian Connections

Pedestrians are allowed on all streets of the site, but the infrastructure provided for them is at times very poor. During the site visit, a lack of accessibility was determined on various locations. Apart from the one short section that stretches out from Arltgasse to Possingergasse that is entirely determined for slow modes of mobility, pedestrians are to walk on the sidewalks that are separated by the street with parked cars.

4.5.11.2 Bike Connections

The infrastructure for bikes on the site is relatively poor (fig. 4.25). The majority of bike paths are not separated from motorised traffic at all, but simply share the street with the cars. In total, there are 76 bike parking spots, divided onto a total of 10 bike parking stations on the site.

4.5.12 Topographic elevation

There is a considerable change in height, sloping around 12.4 metres from south to north. (fig. 4.24|fig. 4.27) However there is hardly any height difference from west to east. (fig. 4.28)

Fig. 4.22: Parking, 1:10000 printed on A4
(own graphical representation, wien.gv.at, 2022)

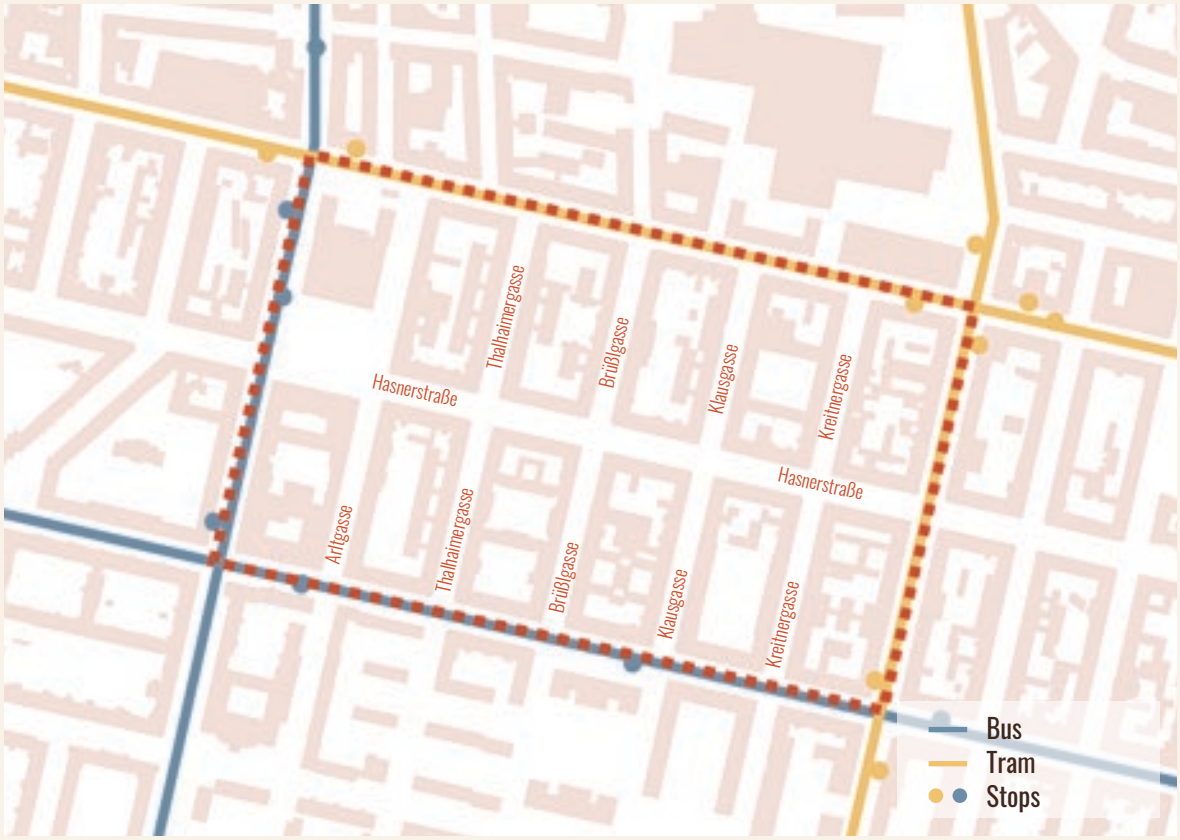


Fig. 4.23: Public Transport, 1:10 000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Fig. 4.24: Street sloping from south towards north (own picture, 2022)

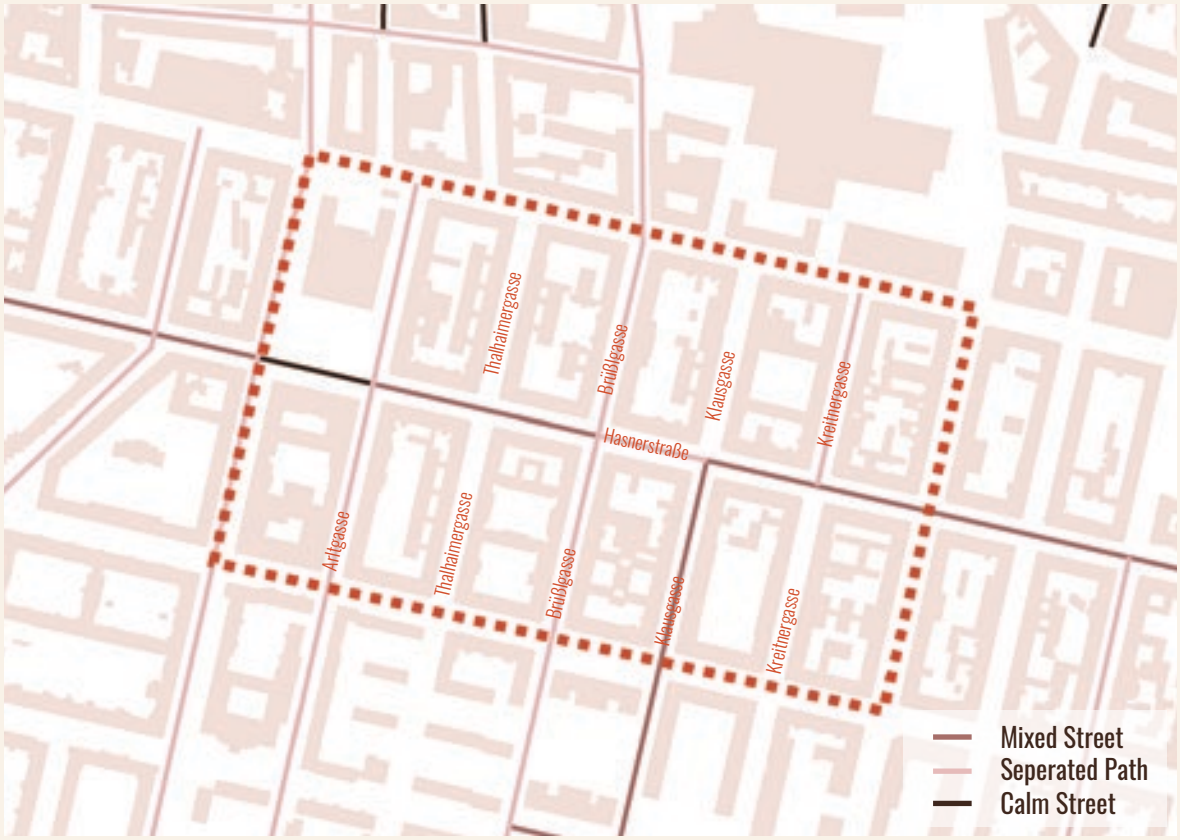


Fig. 4.25: Bike Paths, 1:10 000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Section Aa

Section Bb

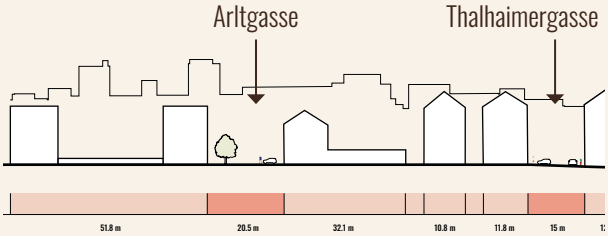


Fig. 4.28: Section Bb, 1:2000
(own graphical representation, 2022)

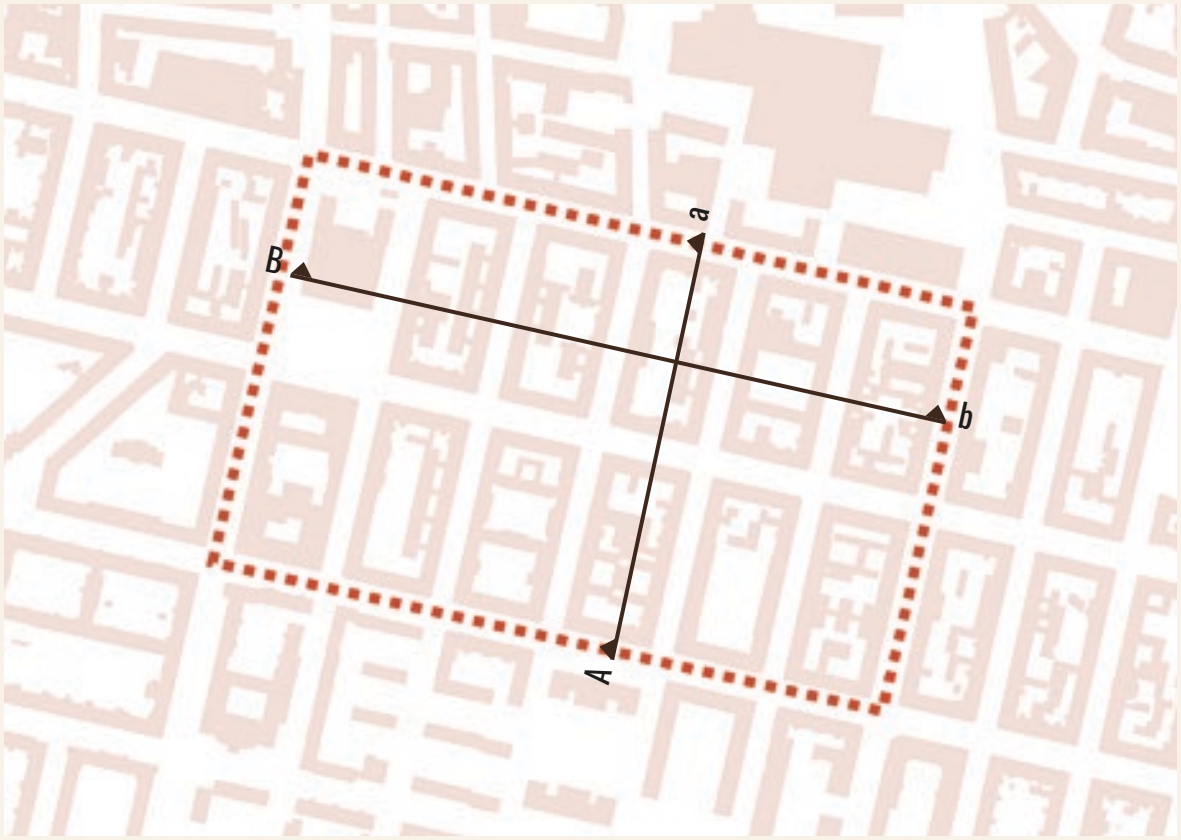


Fig. 4.26: Location Sections, 1:10 000 printed on A4 (own graphical representation, wien.gv.at, 2022)

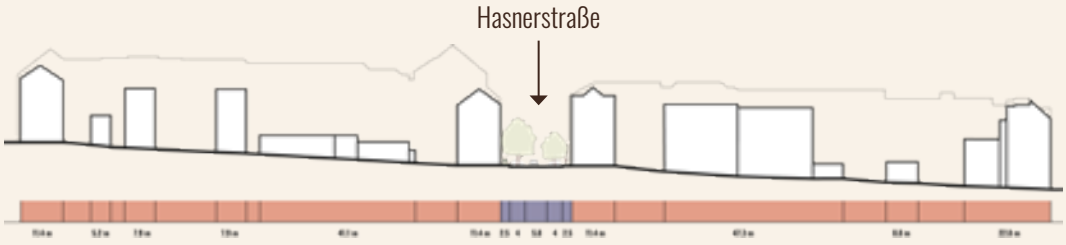


Fig. 4.27: Section Aa, 1:2000 (own graphical representation, 2022)

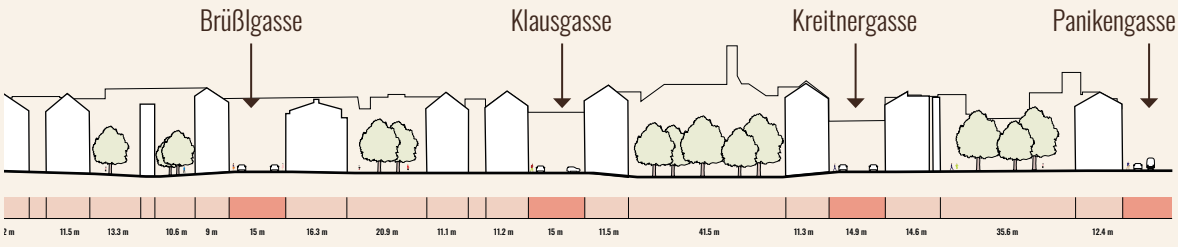


Fig. 4.29: Built Structure Ottakring from above (Fürthner, C. 2019)

Fig. 4.30: Built Structure (own picture, 2022)

Fig. 4.31: School (own picture, 2022)

Fig. 4.32: Library (own picture, 2022)

Fig. 4.33: Vacant Ground Floor (own picture, 2022)

Fig. 4.34: Private Green (own picture, 2022)

Fig. 4.35: Parking (own picture, 2022)

Fig. 4.36: Bike Stands (own picture, 2022)

VISION

5

5. SUSTAINABLE SUPERBLOCK AND THE QUALITIES OF THE NEW GRÄTZL

A possible vision for a sustainable superblock (fig. 5.01) includes a set of tools to improve both environmental and social sustainability. It builds on the original Barcelona concept of the superblock to slow the traffic in the interior streets and therefore make space for alternative uses. In the plans of Barcelona, the implementation of the Superblock mainly focused on allowing different uses on the street and the planting of some trees. In the vision of a sustainable superblock, *The Superblock 2.0*, rainwater management and other tools of climate adaptation are foreseen.

5.1 A Flexible Grätzl

There are some perimeters that already have to be decided on in the planning and design phase. There should however be room left for flexibility, with module urban furniture that can be changed according to the citizens‘ needs for example.

5.2 A Social Grätzl

The Social Grätzl foresees multiple common spaces in the ground floor zones that can be rented by the community and used for different programmes or events. This could for example be a bookclub, a community workshop or a flexible space that can be rented for different events.

5.3 An Ecological Grätzl

Green and blue structures are an essential part of the Ecological Grätzl. The protection of existing trees, as well as the implementation and maintenance of new green structures will be crucial. Within the new plant beds, a variety of plants will be planted that support biodiversity within this very urban area. The integration of water within the streetscapes is relatively new in the context of the city, but blue structures are an essential measure to manage rainwater on the surface level and to counteract urban heat islands.

5.4 A Smart Grätzl

Within the new Share-Hub, a delivery centre will be placed. This will significantly lower the through traffic that is nowadays caused by package delivery. If the package is too heavy, electrical carriage bikes can be rented for free.

5.5 An Active & Healthy Grätzl

An active and healthy Grätzl aims at fostering slow modes of mobility such as biking and walking. To achieve this, the new paving stretches out over the entire streetscape and changes the street hierarchy. It provides a safe ground for both pedestrians and cyclists to move around in the area. The new trees provide additional shading and facilitate activities such as collective moving on the streets.

5.6 A Pioneer Grätzl

The pioneer Grätzl is understood as a testbed for planning experiments such as the Sustainable Superblock. Different planning interventions can be tested and then multiplied over larger parts of the City. This should both facilitate testing projects, but also learn from them and improve the projects before scaling them up. Citizens are being invited to engage in various workshops that take place over the course of the different projects. The learnings from these participatory planning events should then help future projects.

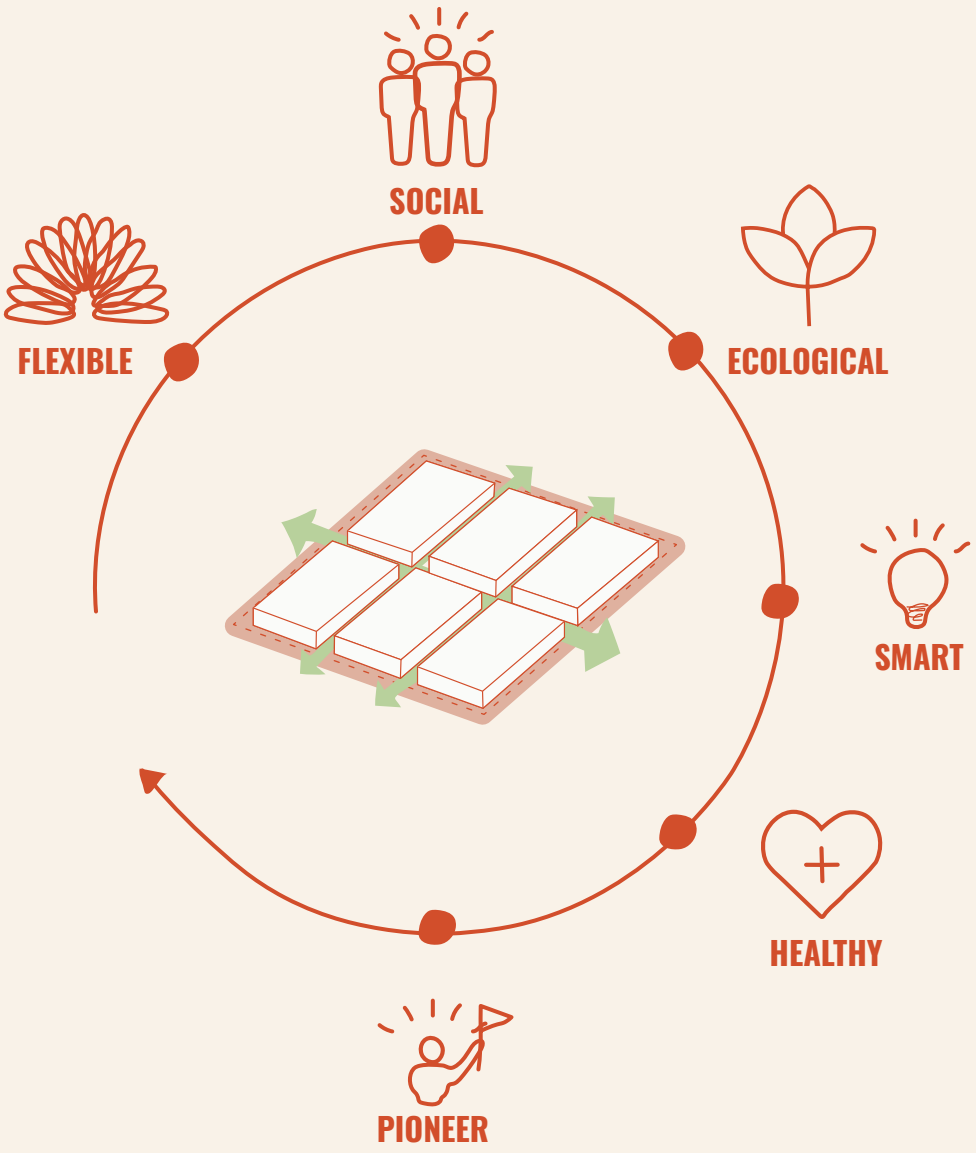


Fig. 5.01: Sustainable Superblock and the Qualities of the New Grätzl (own graphical representation, 2022)

STRATEGY

6

Abb. 6.01: Green-Blue Strategy 1: 10 000 printed on A4
(own graphical representation, wien.gv.at, 2022)

Abb. 6.02: Section Aa 1: 2000
(own graphical representation, wien.gv.at, 2022)

6. STRATEGY

6.1 Green Blue Strategy

As the site is sloping from south towards north, rainwater can be led to rain gardens and other green structures retaining water on Hasnerstraße (fig. 6.01). The site has a total height difference of 12.4 meters from south to north as shown in Section Aa (fig.6.02)

6.2 Programming Strategy

Based on the existing functions (fig. 4.16), a programmatic focus for each street was decided on (fig. 6.04) These are not set in stone and can be adapted, but provide a framework of what potentially could be possible and help to strengthen the design.

6.3 Activation Strategy

The activation strategy is based on the ground floor zones that are currently vacant (fig. 4.17). Depending on the focus of each street and in collaboration with the citizens, the vacant ground floor zones can be activated (fig. 6.03) and filled with the uses.

Abb. 6.03: Activation Strategy 1: 10 000 printed on A4 (own graphical representation, wien.gv.at, 2022)

Fig. 6.04 Programme Focus 1: 10 000 printed on A4 (own graphical representation, wien.gv.at, 2022)

6.4 Scalability of the Superblock

The superblock concept varies in size and can easily be multiplied (fig. 6.05). Transforming one street that is leading through two building blocks and redirecting it to the surrounding streets characterizes a transformation in the smallest form (XS) possible.

Scaling it up and revitalizing two streets (S) and redirecting the traffic to the surrounding streets holds even more potential. The square where the streets intersect can be transformed and represents a new public space that is freed from traffic going through.

Following the logic of the concept, this pattern can be scaled up (M,L) and multiplied potentially endlessly (XL).

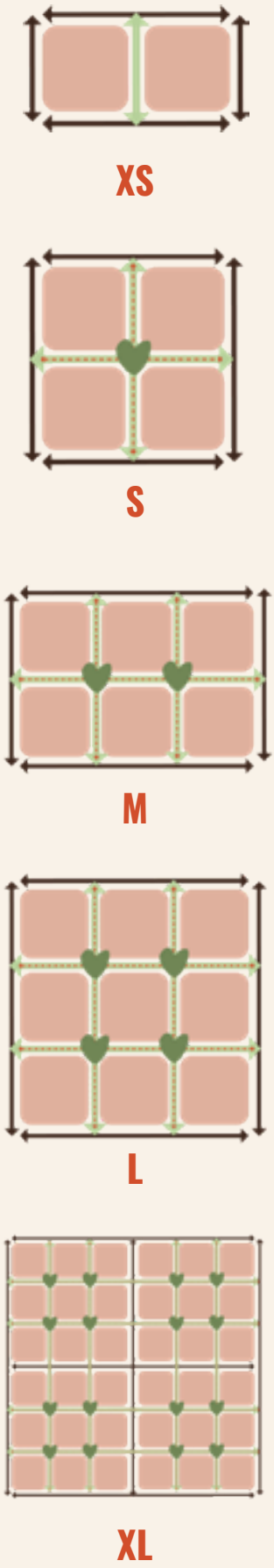


Fig. 6.05: Scalability of the Superblock (own graphical representation, 2022)

6.5 Transformation in Phases

6.5.1 Current Situation
Currently, motorized traffic is going through the entire project area. There´s a 50km/h speed limit in the streets going East-West (Koppstraße, Hasnerstraße, Thaliastraße) and a 30km/h street limit on the streets connecting North- South (Arltgasse, Thalhaimergasse, Brüßlgasse, Klausgasse, Kreitnergasse)

6.5.2 Reorganisation Phase I
The first step (fig. 6.06) will be the transformation of Hasnerstraße. By banning through-traffic, there is space to implement green infrastructure such as retention beds. Some of the ground floor zones can be activated in order for community life to take place.

6.5.3 Reorganisation Phase II
In the second phase (fig. 6.07), community life is already taking place in Hasnerstraße. This strong new connection can act like a catalyst for the surrounding streets. 2 more streets (Thalhaimergasse & Klausgase) will be transformed in this phase.

6.5.4 Reorganisation Phase III
In the third, main phase (fig. 6.08), all the streets except for Brüßlgasse will be transformed into pedestrian and cyclist friendly streets and the parking drastically reduced. The entire block can unfold its green strength.

6.5.5 Reorganisation Phase IV
As a similar grid system characterizes the surrounding area of the project site, the concept can be easily multiplied in the neighbouring blocks (fig. 6.09). Thus, a system will be formed that will strengthen the microclimate and the community life on the streets.

Fig. 6.06 Reorganization Phase I (own graphical representation, wien.gv.at, 2022)

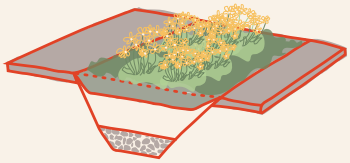
Fig. 6.07 Reorganization Phase II (own graphical representation, wien.gv.at, 2022)

Fig. 6.08 Reorganization Phase III (own graphical representation, wien.gv.at, 2022)

Fig. 6.09 Reorganization Phase IV (own graphical representation, wien.gv.at, 2022)

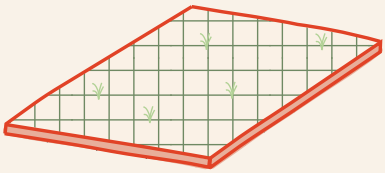
6.6 Mind the Context and pick fitting tools!

6.6.1 Rainwater management tools



Bioswales, raingardens and other blue-green structures can help to manage the rainwater whilst improving the microclimate and representing an important habitat for biodiversity.

6.6.2 New pavement



Designing a pavement that stretches over the entire street on one level creates a more accessible and inclusive environment. It also translates the idea of renegotiating the space into the design. The uniform pavement signalises that the streets are shared and everyone should therefore use it accordingly in a respectful manner. The chosen pavement should be in a lighter material with a high *albedo*. Pavements with a high *albedo* reflect more light and don‘t absorb as much sunlight, but rather reflect it. Wherever possible, the chosen pavement should be permeable. This is economically efficient as the pavement isn‘t as prone to damage that occurs through heavy rain events. Furthermore, it is also ecologically sustainable as the water can be retained, stored in the sponge layer and used for watering the plants.

6.6.3 Vertical Greenery

Planting greenery to grow on walls is another effective measure to improve the microclimate in the street, increase the biodiversity and also cool the indoor of the buildings.

6.7 Tactical Urbanism as a tool(box)

The term Tactical Urbanism was first coined by Mike Lydon in 2015 and describes an action-based planning approach that works with small, low-key interventions that facilitate long-term change. (Lydon, M. 2015) It offers a variation of tools that can be easily implemented and are comparably cost-efficient. The main focus thereby is at testing planning- or design measures and therefore easily show how they could improve the liveability of the citizens. This can be compared with a laboratory in which prototypes of measures can be adapted after a test phase and implemented in an improved form. An example of an implementation process that works with tactical urbanism could be the integration of a bike path. As a first step, traffic cones might indicate where cars won‘t be allowed to drive in the future. This step should mostly demonstrate that alternative uses are possible. As the next step, the street could be coloured with a non-permanent colour before a bike path is finally implemented.

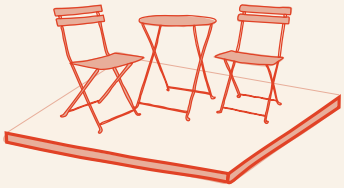
Abb. 6.10: Reference uniform pavement (Rijkenberg, R. 2016)

Fig 6.11: Reference bioswale (Gibb, T. 2014)

Fig. 6.12 Reference Vertical Greenery in Norra Sorgenfri, Malmö (own picture, 2022)

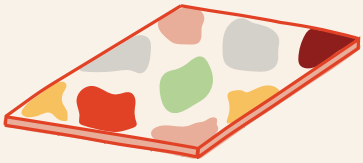
Fig. 6.13 Reference Urban Furniture (Opel, C. 2022)

6.7.1 Urban Furniture



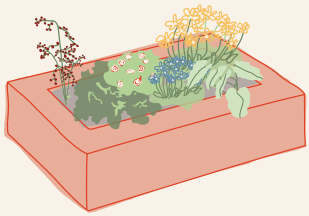
The placing of urban furniture - either temporarily or fixed - is an effective measure that can easily be implemented. The placement of seating possibilities helps people to appropriate the space, the orientation and type of seating play a high role in the effectiveness of this measure. (Gehl, J. 1987: p. 159)

6.7.2 Street colouring & Pavement Marking



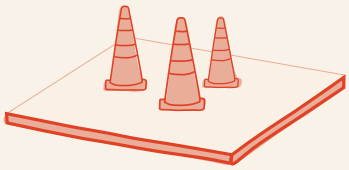
Street painting is an effective measure to question the current division of space and showcase alternative uses. Pavement parking can also be used as a tool to demonstrate limitations in plannings due to the canal system or other installations below the ground level.

6.7.3 Planters and Urban Farming Boxes



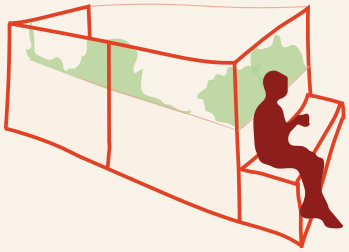
Planters are an easily implemented measure that can be placed to mark a potential bike path or pop-up public space. Urban farming boxes can be put up and cared for by a community as a neighbourhood project.

6.7.4 Road obstacles or barriers



Any kind of object - may it be a traffic cone, planters or car wheels - can be used to define a certain space that should be transformed over time.

6.7.5 Parklets



Parklets are an effective tool to transform existing parking spots to public space for a certain amount of time. They normally span over one or two parking spots and often offer possibilities for people to sit, or lie down. In Vienna, the LA21 - a state-funded association that has the “promotion of citizen participation processes as their goal” - supports citizens, institutions like schools or shop owners by implementing their own parklets. Interested parties can apply with their concept and receive funding up to 4.000€ (Verein Lokale Agenda 21, 2022). The association also supports the participants with the application process and acts like a mediator between the applicants and the City.

Fig. 6.14 Reference Street Colouring (Mangione, J. 2020)

Fig. 6.15 Reference Planters (Iota, 2022)

Fig. 6.16 Reference Road obstacles (CCCB, 2019)

Fig. 6.17 Reference Parklets (Liebentritt, C., 2020)

DESIGN

7

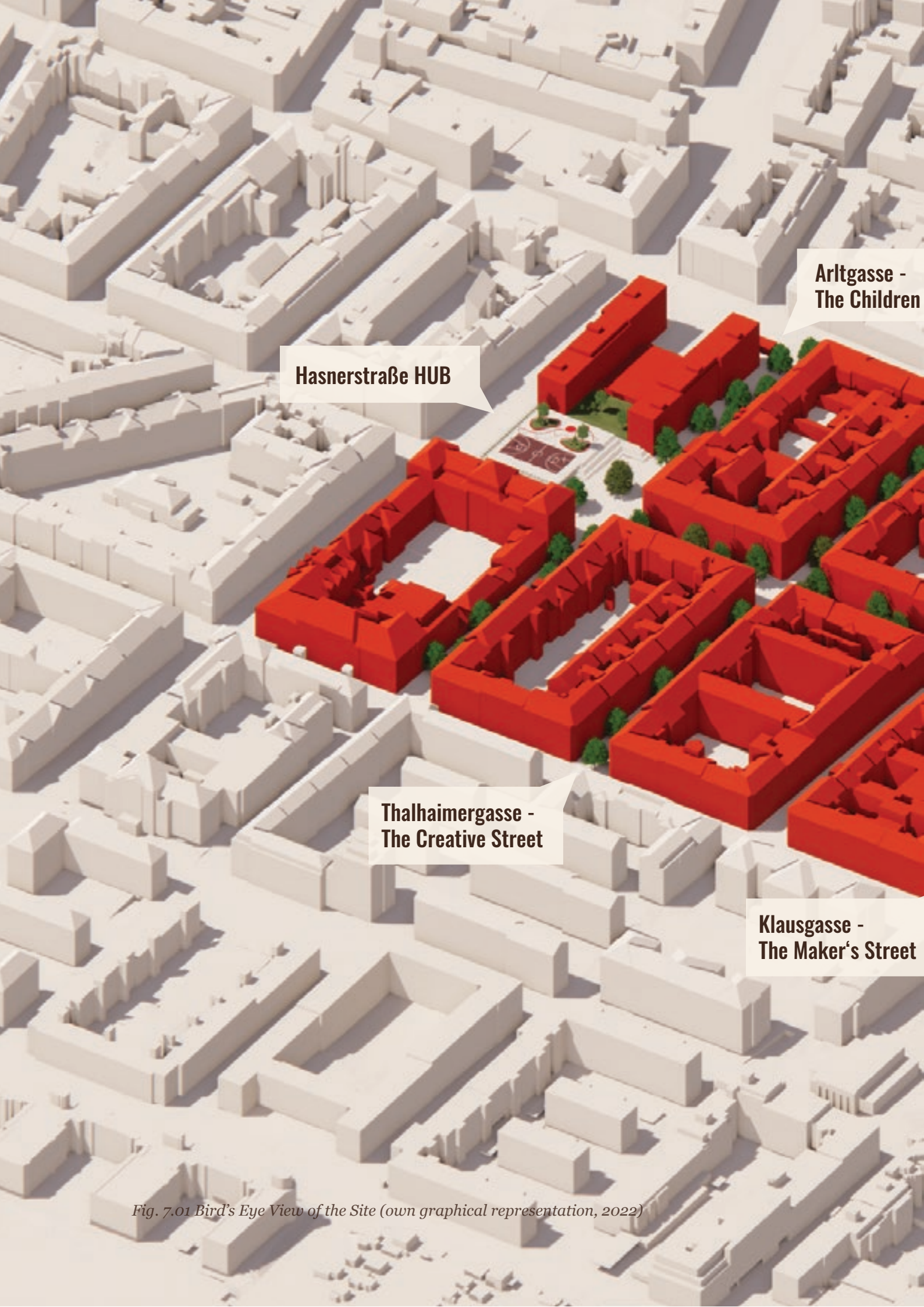
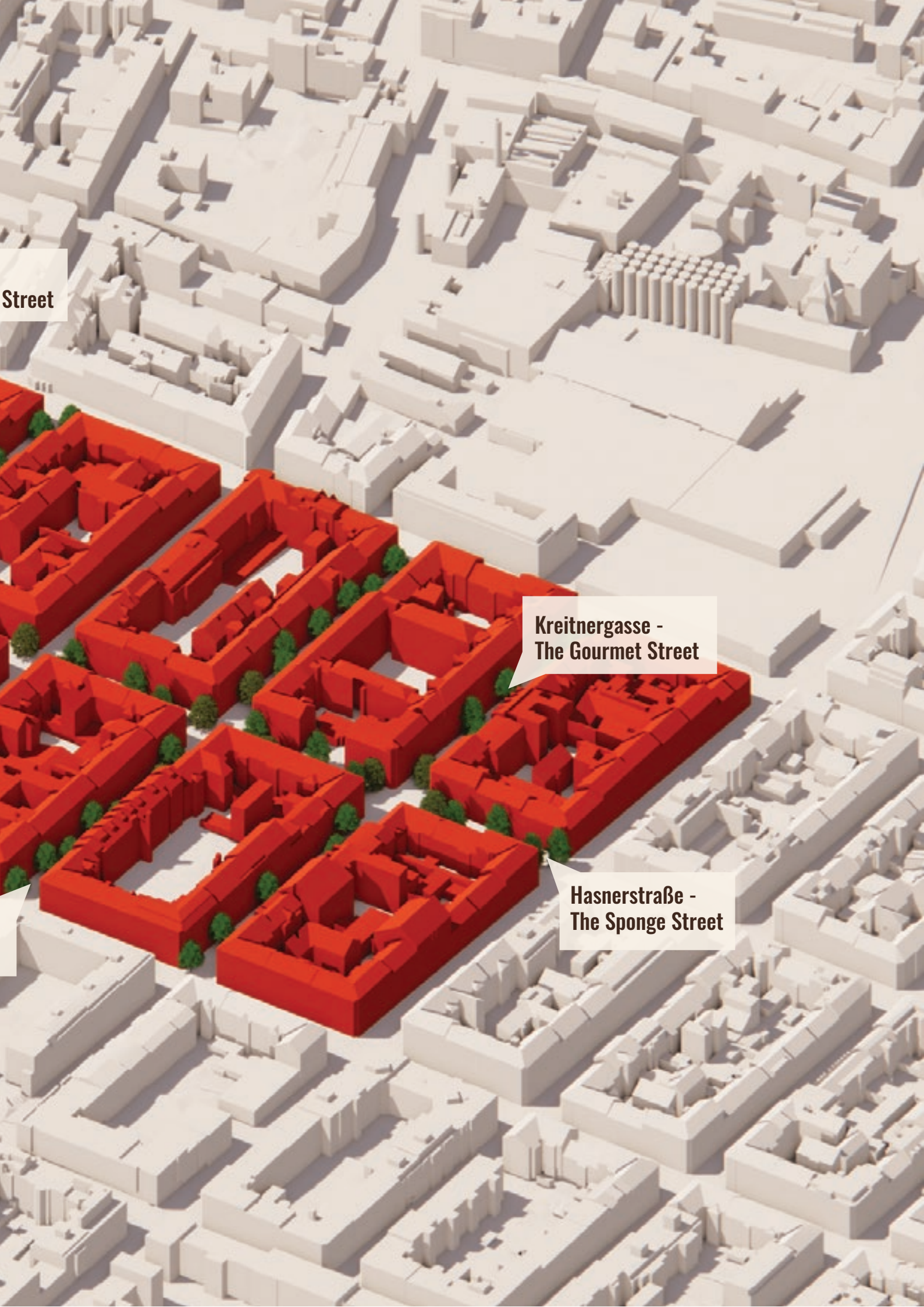


Fig. 7.01 Bird's Eye View of the Site (own graphical representation, 2022)


Street
Kreitnergasse -
The Gourmet Street
Hasnerstraße -
The Sponge Street

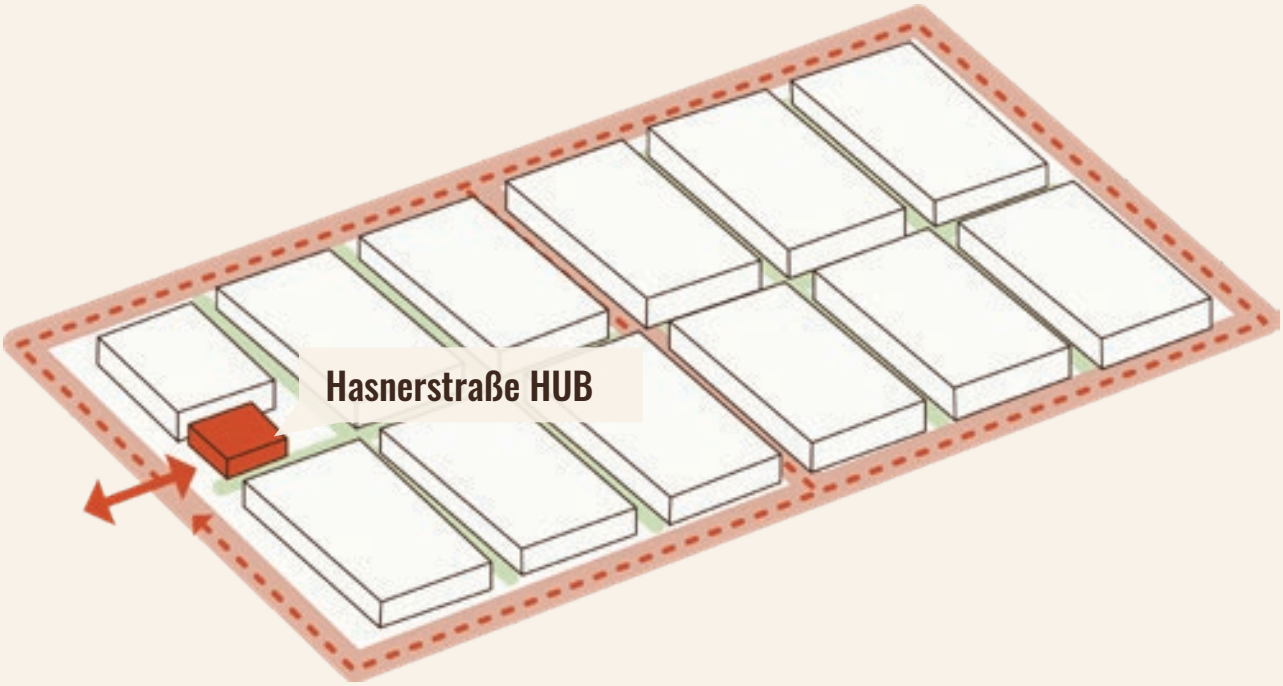


Fig. 7.02 Parking Strategy (own graphical representation, 2022)

7. DESIGN

The following chapter will highlight the suggested measures for the transformation of each street in the project area. As freeing up space for these measures and thus removing or relocating parking spots is necessary, a mobility hub is proposed and presented in detail.

Fig. 7.03 Schuhmeierplatz today I (own picture, 2022)

Fig. 7.04 Schuhmeierplatz today II (own picture, 2022)

7.1 Parking Strategy

Based on the interview held with the District‘s representative Daniel Glaser (see Annex, p. 126-129: 199-242), around 100 to 200 parking spots are removed within the district every year. Another deciding factor on how many of the existing parking lots could be removed was the count carried out on the 22.05.2022. (see Annex, p. 131) As 71.65% of the counted spots were occupied on the day, it became clear the existing parking possibilities couldn‘t be

removed without offering an alternative. This is why the Hasnerstraße HUB is proposed. It offers parking possibilities and offers an added value for the citizens as there is a public space on the rooftop. Additionally, 20 % of the existing on-street parking is kept. Cars are only allowed to go through the transformed streets whenever absolutely necessary, e.g. in case of moving or for emergency cars and can temporarily park their cars on the remaining spots.

Fig. 7.05 Reference ParkNPlay (Hjortshøj, R., 2016)

7.2 The Hasnerstraßen HUB

The Hasnerstraße HUB is located strategically at the edge of the area to consolidate the parking and therefore also minimize the traffic as much as possible (fig. 7.02). To blend the hub into the surrounding structure, the height of the ground floor zones only reaches slightly over 3 meters and meets the existing roof of the neighbouring building (fig. 7.13). In parts of the ground floor zone, two shops with a public function will be placed: a bike rental shop and a package shop (fig. 7.10). As explained in the introduction (*see p. 22, 1.2.4 E-Commerce and its consequences)* the delivery of goods causes an increasing amount of traffic. By placing a package shop in such a central location, packages can be delivered and picked up there. The rooftop will represent one of the main new public spaces (fig. 7.09), with a basketball field, greenery (fig. 7.11) and other possibilities to play or hang out. The stairs leading to the rooftop can also be used to linger on (7.08). As they are connected to the existing building, people can lean onto the wall facing south and enjoy the sun.

Abb. 7.06: Reference Rooftop Gardening Ostergrø (Lu, M. 2021)

Abb. 7.07: Reference Cubicycle (Post&Parcel, 2015)

Fig. 7. 08 View Public Space Hasnerstraße HUB (own visualization, 2022)

The stairs are connected to the wall of the existing building so that the south sun can be enjoyed.

Fig. 7.09: View Rooftop Hasnerstraße HUB (own visualization, 2022)

Fig. 7.10: View Ground Floor Zone Hasnerstraße HUB (own visualization, 2022)

Fig. 7.11: View Plant Boxes Rooftop Hasnerstraße HUB (own visualization, 2022)

Fig. 7.12: Bird-Eye Hasnerstraße HUB (own visualization, 2022)

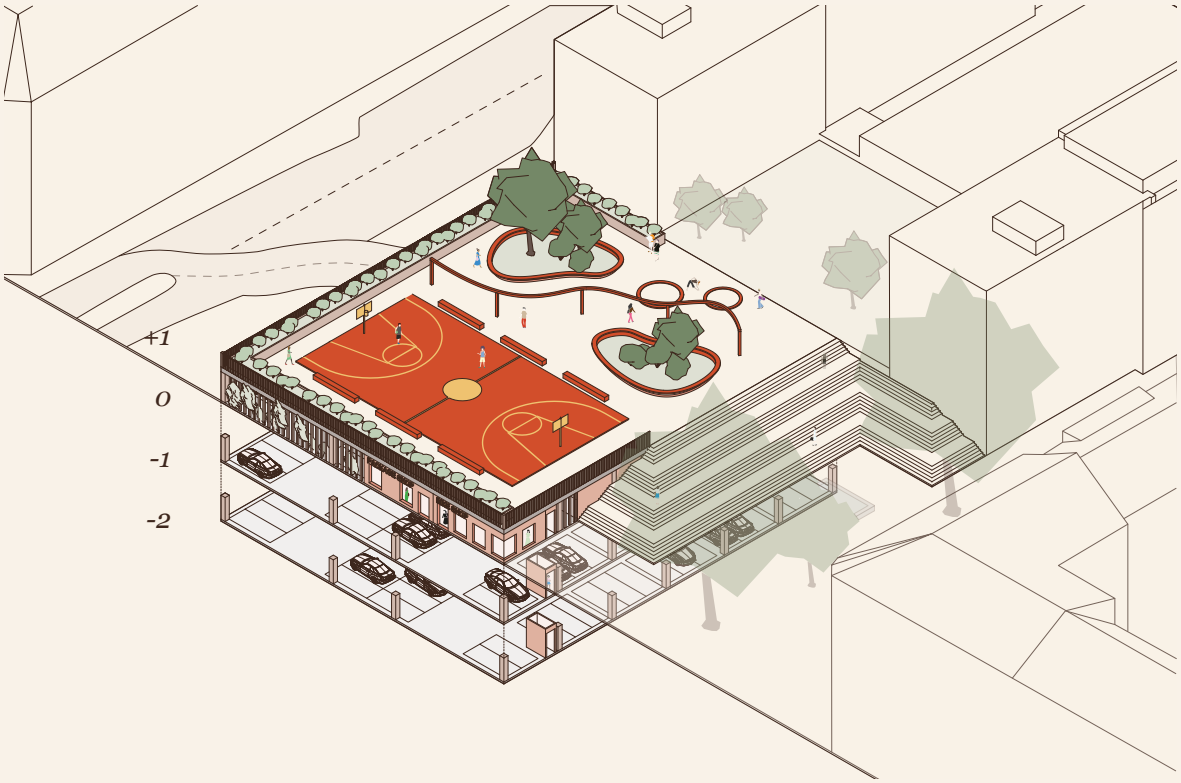


Fig. 7.13: Axo Hasnerstraße HUB (own graphical representation, 2022)

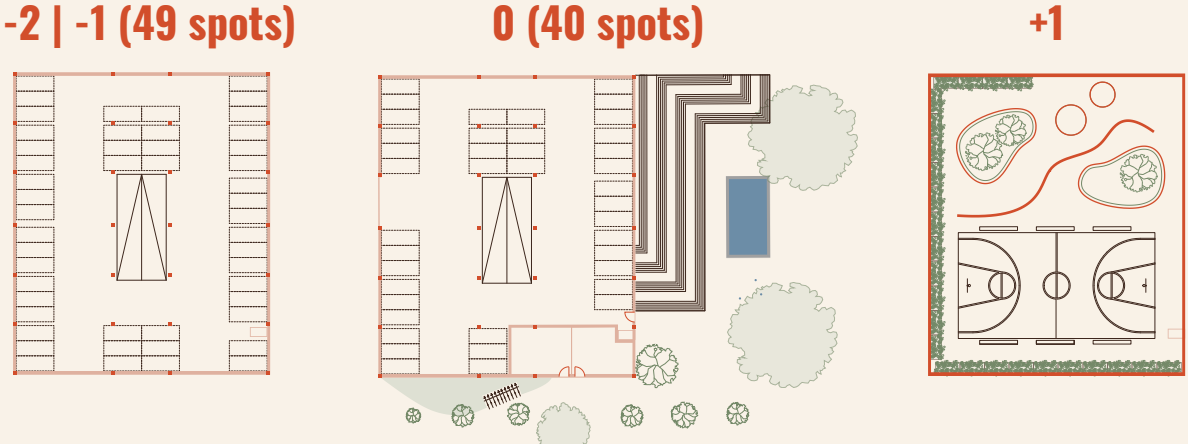


Fig. 7.14: Floorplans Hasnerstraße HUB 1:1000 printed on A4 (own graphical representation, 2022)

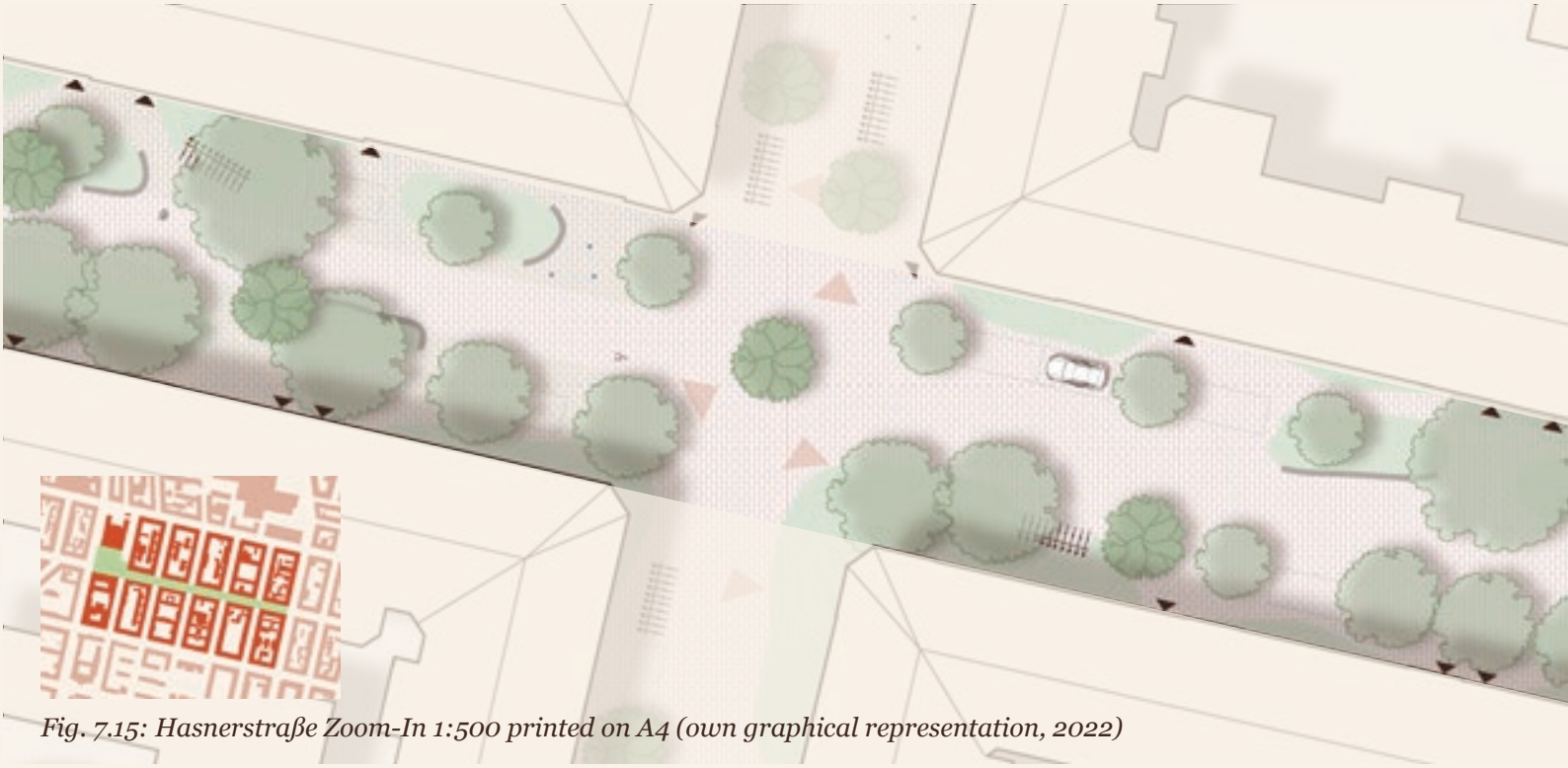


Fig. 7.15: Hasnerstraße Zoom-In 1:500 printed on A4 (own graphical representation, 2022)

7.3 Transformation Hasnerstraße: The Sponge Street

7.3.1 Challenges

Hasnerstraße today is characterized by many trees, but equally parked cars along the entire street (fig. 7.16). The width of the street would allow for an active ground floor zone as they are exposed to the sun throughout most of the day and offer ceilings heights of 4 meters or more. However currently there is little to no connection between the ground floor zones and the streets. Another challenge is the poor quality of the sidewalk that often doesn‘t provide enough space for the pedestrians.

7.3.2 Toolset & Programming

Hasnerstraße will mainly handle the rainwater in the future and is therefore planned with the principles of a sponge. The plants in the sunken rain gardens clean the surface water before it can slowly retain into the sponge layer (fig. 7.21) . They also offer space for (additional) trees that help to cool the street and contribute to improving the microclimate. The design foresees to add maple trees (*lat. acer*) to the existing chestnut trees (*lat. catanea*) as they are considered to be very resilient to heat. Other cooling measures will be the placement of water mist poles. The street is of importance for the regional bike network (fig. 7.21) and aims at creating a safe and comfortable experience for bicyclists as well as

Abb. 7.16: Hasnerstraße today (own picture, 2022)

pedestrians. The entire street will be on the same level which will also allow both handicapped people, elderly or people with a stroller to move around freely. As most of the parking spots are removed, space is provided for both the sunken rain gardens, but the new street scape also offers space for activities such as an outdoor café.

Fig. 7.17: Vision Hasnerstraße (own visualization, 2022)

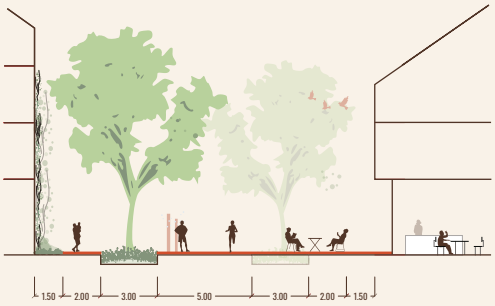


Fig. 7.18: Hasnerstraße new 1:400 (own graphical representation, 2022)

Fig. 7.19: Hasnerstraße now (own graphical representation, 2022)

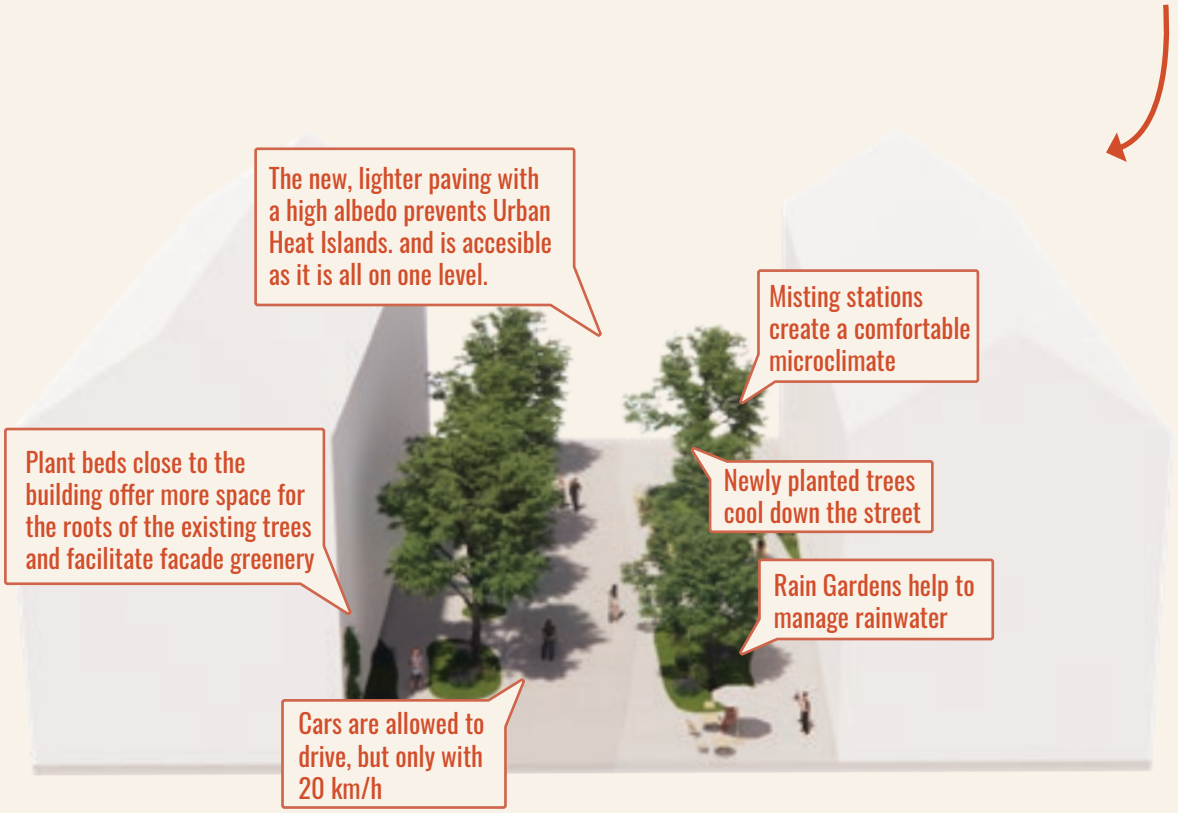


Fig. 7.20: Hasnerstraße then (own graphical representation, 2022)

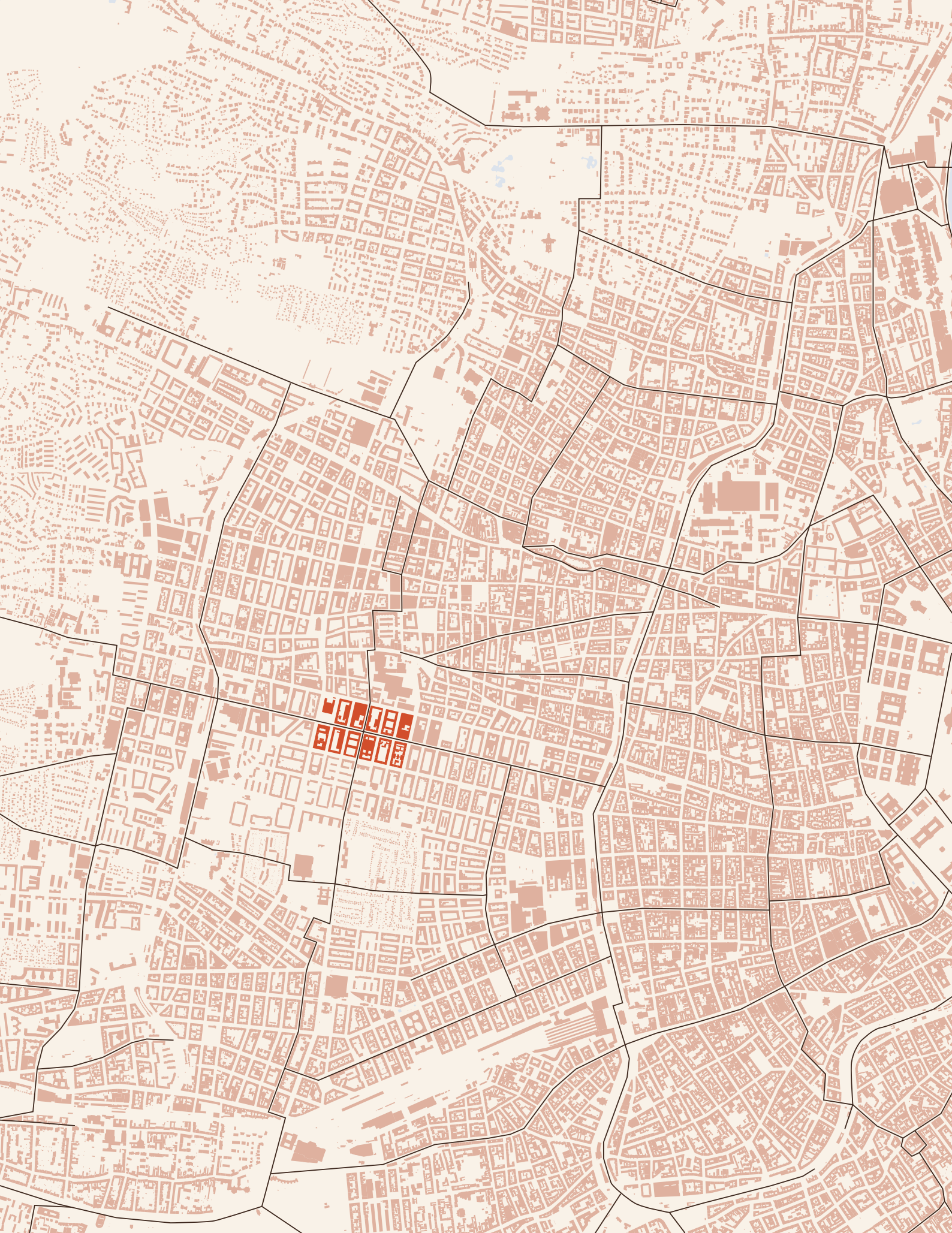


Fig. 7.21: Regional bike network (own graphical representation, 2022)


Built structure
Site
Bike Network (Priority 1)
N

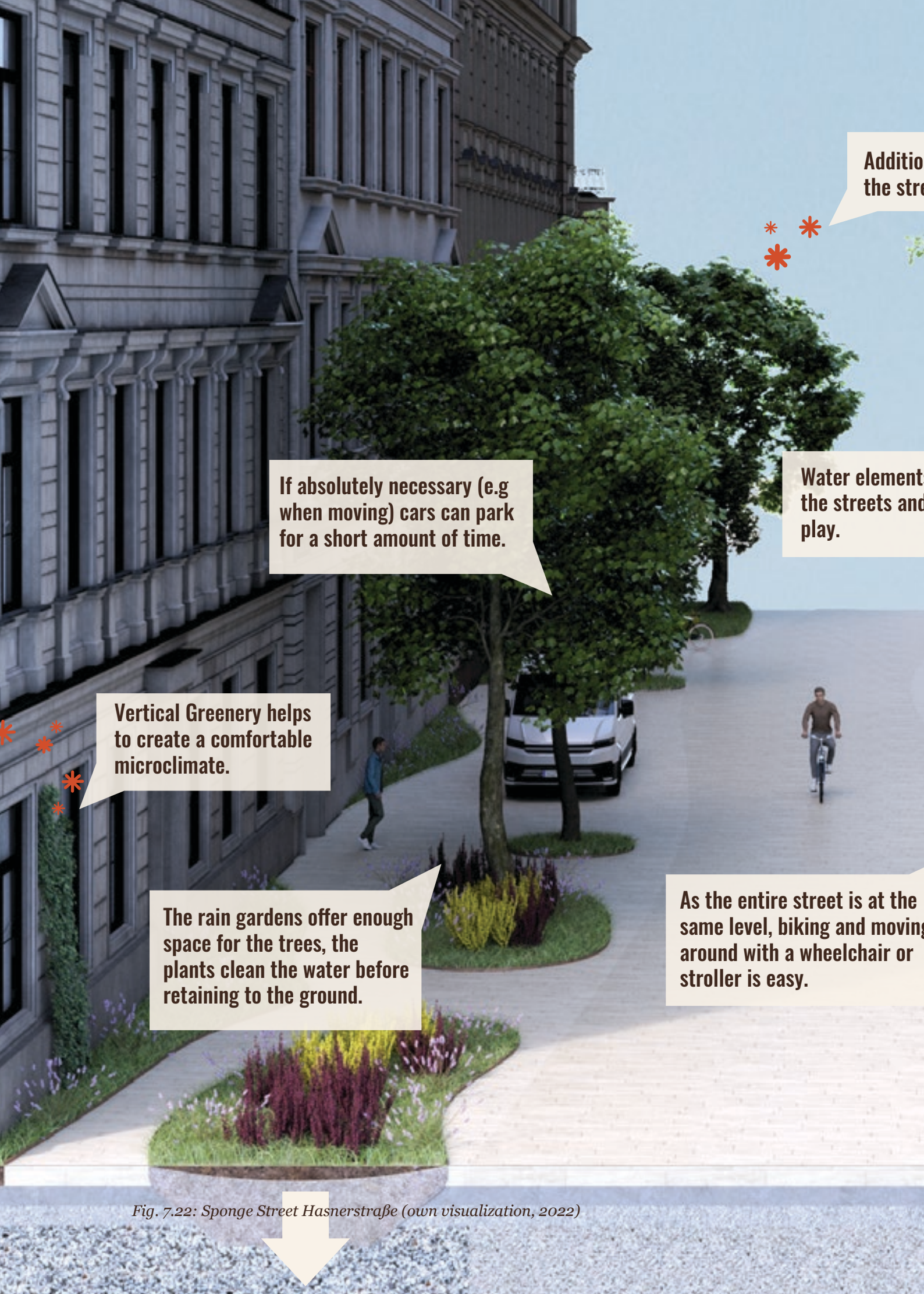
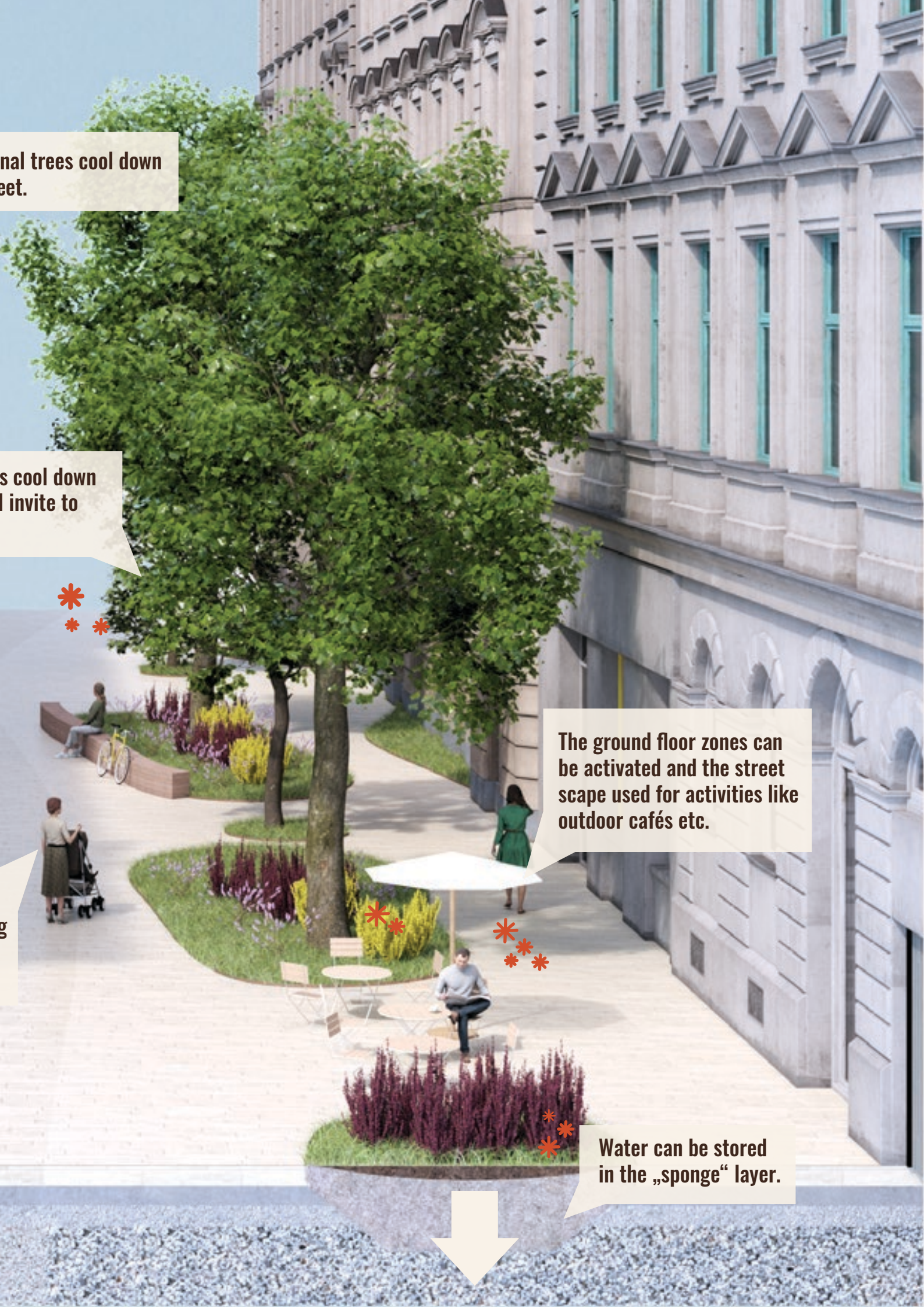


Fig. 7.22: Sponge Street Hasnerstraße (own visualization, 2022)


nal trees cool down
eet.
s cool down
l invite to
The ground floor zones can be activated and the street scape used for activities like outdoor cafés etc.
Water can be stored in the „sponge“ layer.

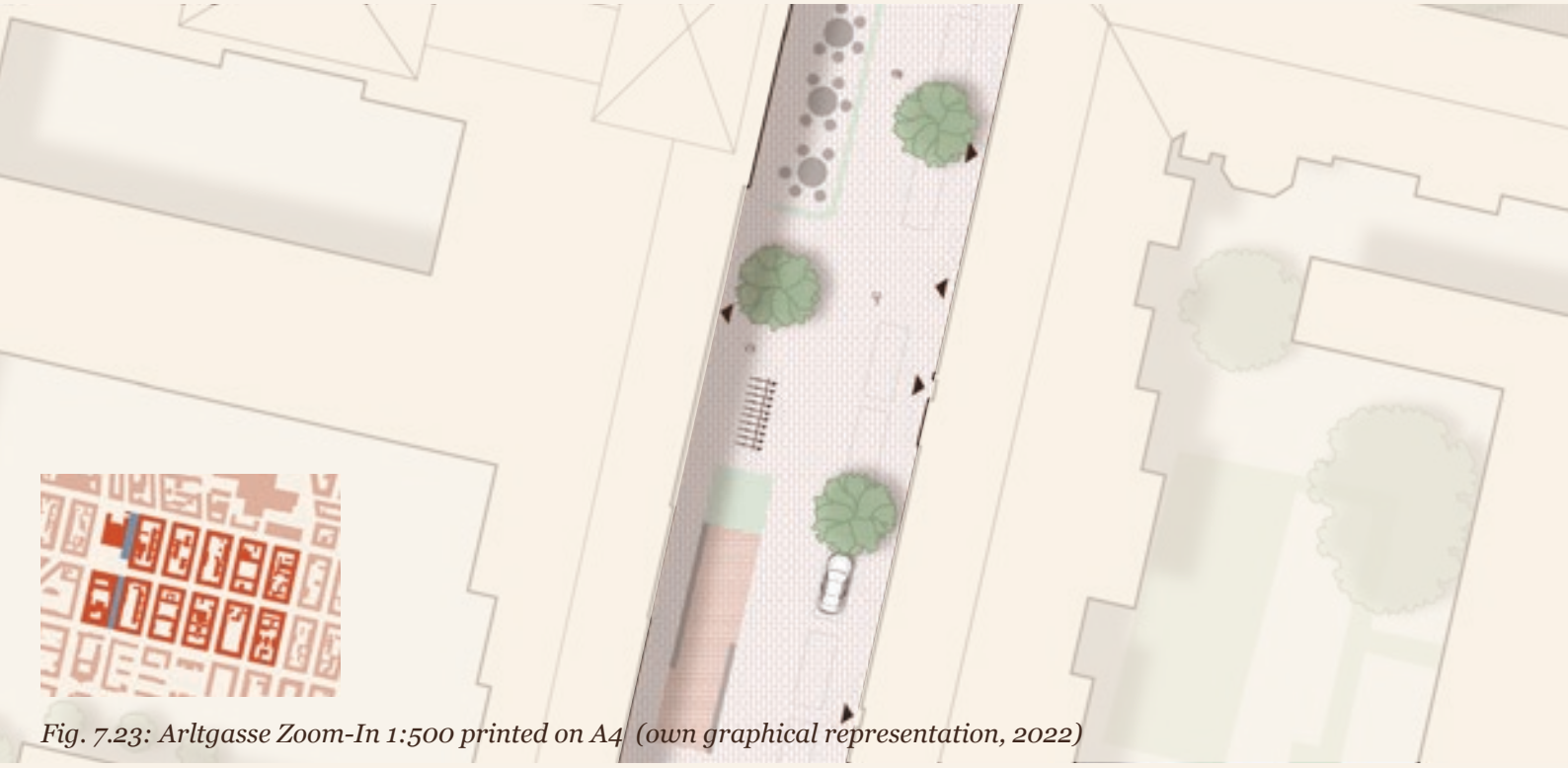


Fig. 7.23: Arltgasse Zoom-In 1:500 printed on A4 (own graphical representation, 2022)

7.4 Transformation Arltgasse: The Children Street

7.4.1 Challenges

Arltgasse today is characterized by a severe lack of trees (fig. 7.24). Cars are currently allowed to park on both sides and take up most of the total 15 meters street width. Even though the street meets the only car-free public space in the project area, it doesn‘t respond to it at all.

7.4.2 Toolset & Programming

As there is a school and a kindergarten located along the street, Arltgasse will have children of all ages as its main focus. Within the southern part of the street (between Koppstraße and Hasnerstraße), the activities for the children are located on the left (western) sidewalk. This is because the school is located on that side and children and youngsters should have access to the activities as easily as possible. 20 parking spots (20 % of the existing spots) will still remain within the first phase. They will however only be available for emergencies and will be placed close to the right (eastern) sidewalk, alternating with newly planted trees. The programme foresees activities such as boule, seating for outdoor classes and a playground. In the northern part of the street, a kindergarten is located and the programming therefore is targeted at

Fig. 7.24: Arltgasse today (own picture, 2022)

smaller children. Within this section, activities such as trampolines and other possibilities to play are foreseen. The transformed street opens up to the main public square and invites people to use the rooftop of the mobility hub where a basketball field is located.

Fig. 7.25: Vision Arltgasse (own visualization, 2022)

Fig. 7.26: Arltgasse new 1:400 (own graphical representation, 2022)

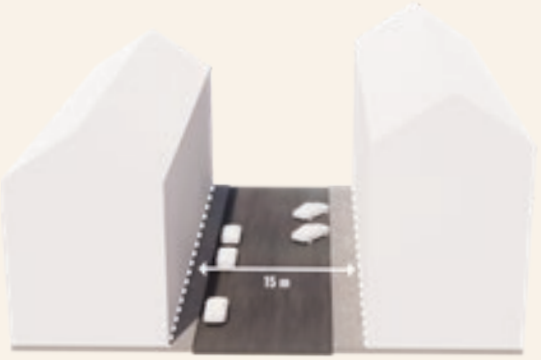


Fig. 7.27: Arltgasse now (own graphical representation, 2022)

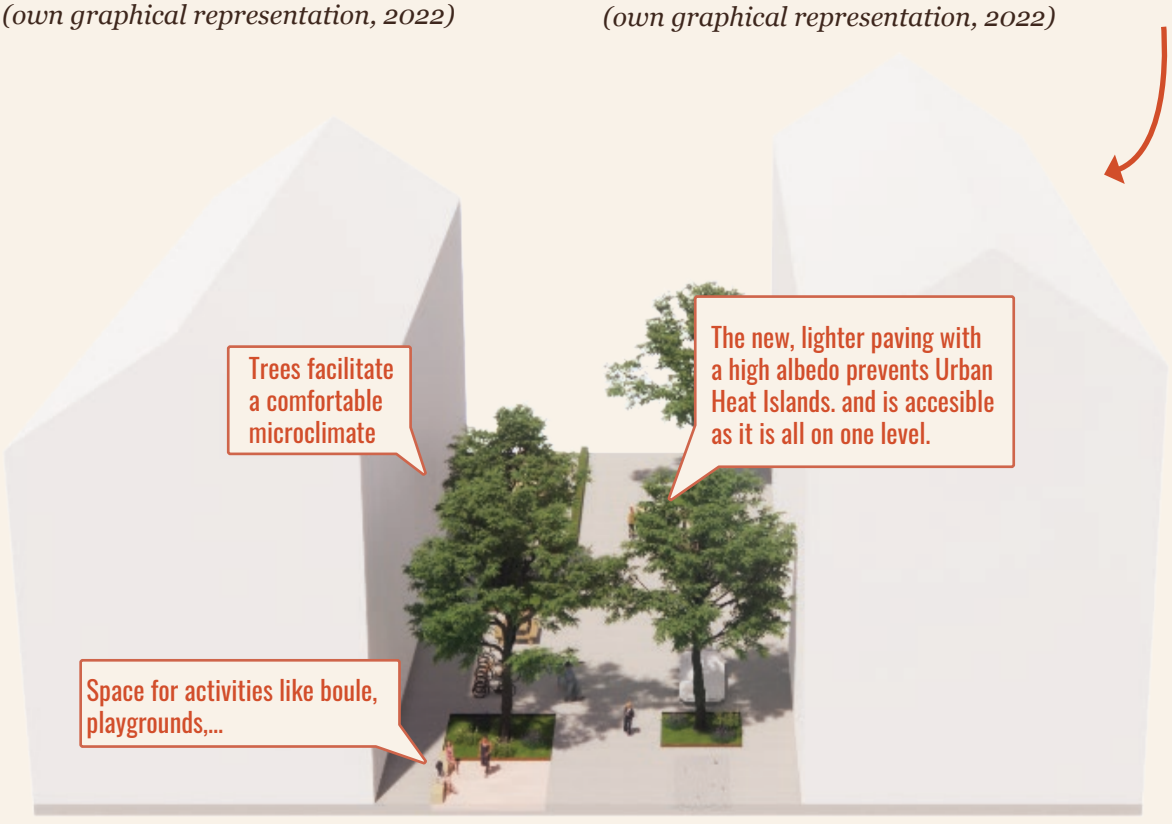


Fig. 7.28: Arltgasse then (own graphical representation, 2022)

Fig. 7.29: Thalhaimergasse Zoom-In 1:500 printed on A4 (own graphical representation, 2022)

7.5 Transformation Thalhaimergasse: The Creative Street

7.5.1 Challenges

Thalhaimergasse today is characterized by the parked cars on both sides of the street, not a single tree is located within the 15 meter wide street (fig. 7.30).

7.5.2 Toolset & Programming

As the district is both very central and quite affordable, many artists are living there. Within this street, there also is an existing paint shop in one of the local shops in the ground floor zones. This is why Thalhaimergasse will have creativity as its main focus and foresees multiple new activities in the public space. To translate this vision into the redesign of the street, the pavement that will stretch over the whole street will have unique design elements. Programming such as public stages and music elements that can be enjoyed by different age groups will be placed in the transformed street. Furthermore, newly planted trees will create a more comfortable microclimate.

Fig. 7.30: Thalhaimergasse today (own picture, 2022)

Fig. 7.31: Vision Thalhaimergasse (own visualization, 2022)

Fig. 7.32: Thalhaimergasse new 1:400 (own graphical representation, 2022)

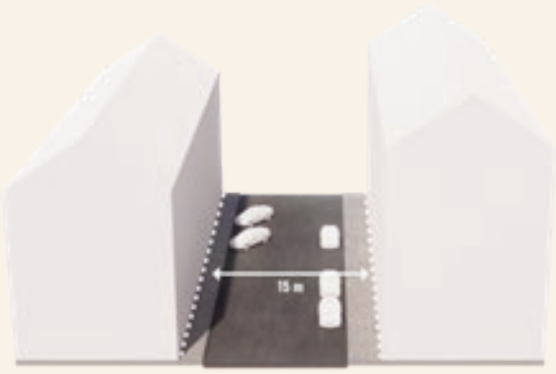


Fig. 7.33: Thalhaimergasse now (own graphical representation, 2022)

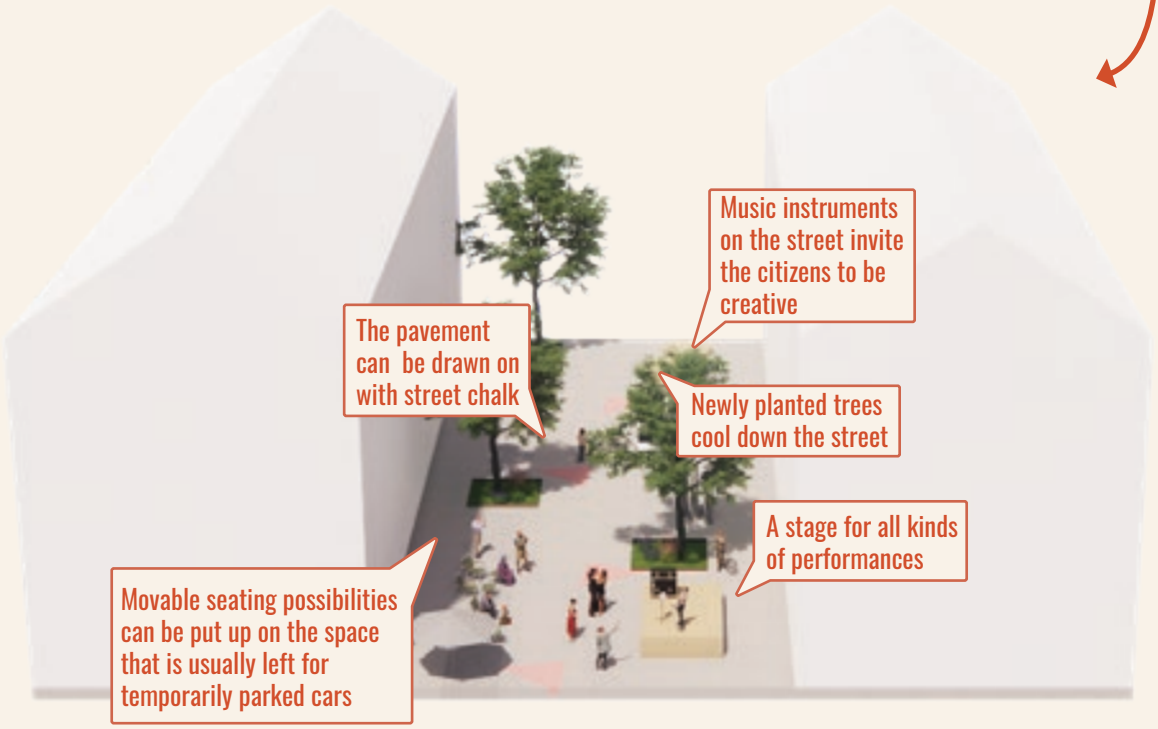


Fig. 7.34: Thalhaimergasse then (own graphical representation, 2022)

Fig. 7.35: Klausgasse Zoom-In 1:500 printed on A4 (own graphical representation, 2022)

7.6 Transformation Klausgasse: The Maker's Street

7.6.1 Challenges

Klausgasse today is facing several challenges. One of them is - similar to the other streets within the project area - the nonexistence of trees or other greenery and the high number of parked cars (fig. 7.36) . Another challenge is the relatively high amount to vacant ground floor zone. This fact reinforces the feeling of abandonment when walking through the street.

7.6.2 Toolset & Programming

The transformation of Klausgasse is based on the strategy of activating the vacant ground floor zones with new uses. The new streetscape reacts to the predicted pedestrian flow and also offers space for activities on the street. This way, the activities of the ground floor zones can also „spill-out" to the street and create an interaction. To improve the experience of walking and cycling even more and also make it accessible for everyone, the pavement will be on the same height on the entire street. The planting of new trees will both define the new pedestrian flows and create a comfortable microclimate.

Fig. 7.36: Klausgasse today (own picture, 2022)

Fig. 7.37: Vision Klausgasse (own visualization, 2022)

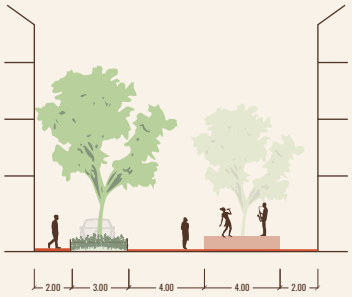


Fig. 7.38: Klausgasse new 1:400 (own graphical representation, 2022)

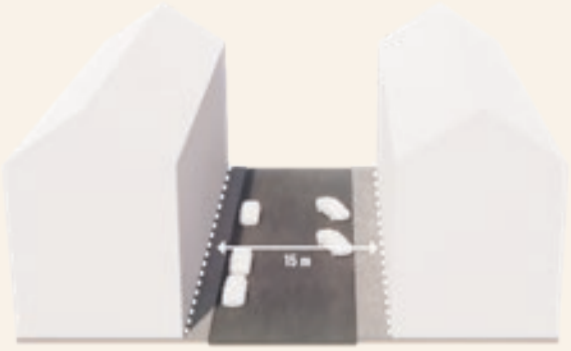


Fig. 7.39: Klausgasse now (own graphical representation, 2022)

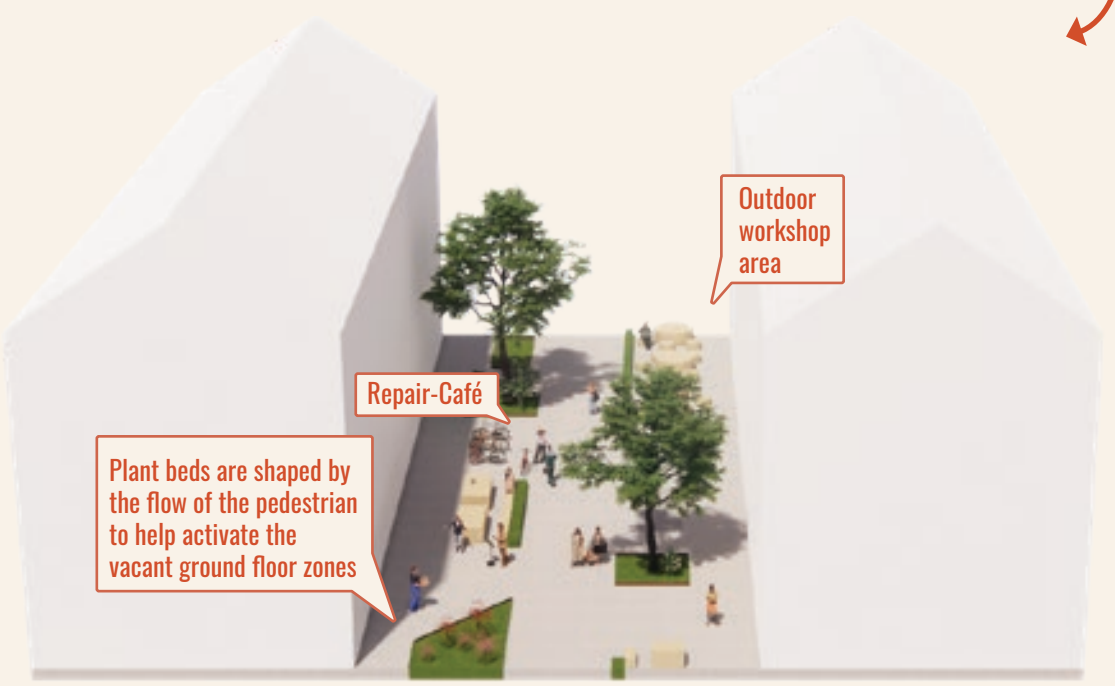


Fig. 7.40: Klausgasse then (own graphical representation, 2022)

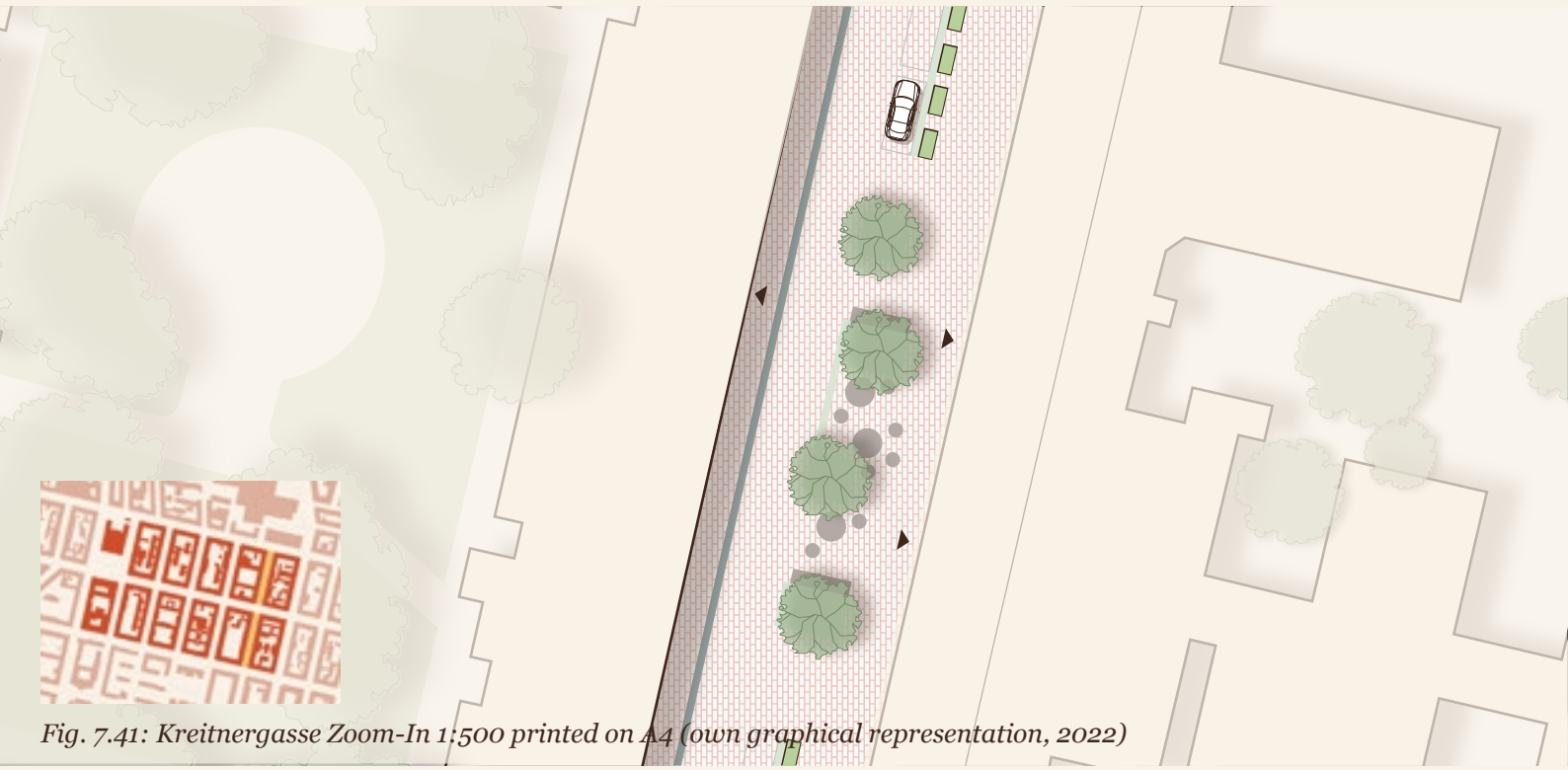


Fig. 7.41: Kreitnergasse Zoom-In 1:500 printed on A4 (own graphical representation, 2022)

7.7 Transformation Kreitnergasse: The Gourmet Street

7.7.1 Challenges

Similar to the other streets in the project area, Kreitnergasse today doesn‘t have any existing trees (fig. 7.42). Most of the 15 meter wide street is characterized by the parked cars on each side.

7.7.2 Toolset & Programming

The street leads to *Ottakringer Brauerei,* a local brewery that is only a few minutes away. The brewery both is of higher importance as a work place, but also as a public space as its often a venue for food festivals or other events. Because of this and as there are some local restaurants in the ground floor zones of Kreitnergasse, the street has a focus on food. To also introduce small scale urban farming, raised plant beds will be placed in the street. To prevent pollution that could occur by vehicles that drive through the street occasionally, the newly planted trees will be placed in the middle. Due to this different streetscape, there will be an additional measure to help with the rainwater management: A bioswale that leads the water to Hasnerstraße, the "Sponge Street". The space that was freed due to the elimination of 80% of the parking lots can be used as an outdoor area from the cafés or small markets.

Fig. 7.42: Kreitnergasse today (own picture, 2022)

Fig. 7.43: Vision Kreitnergasse (own visualization, 2022)

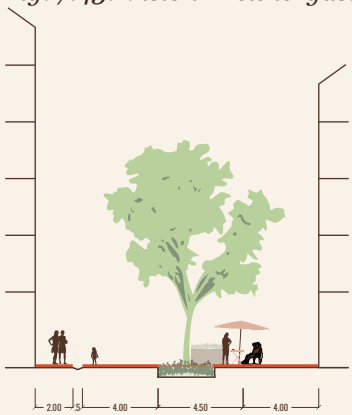


Fig. 7.44: Kreitnergasse new 1:400 (own graphical representation, 2022)

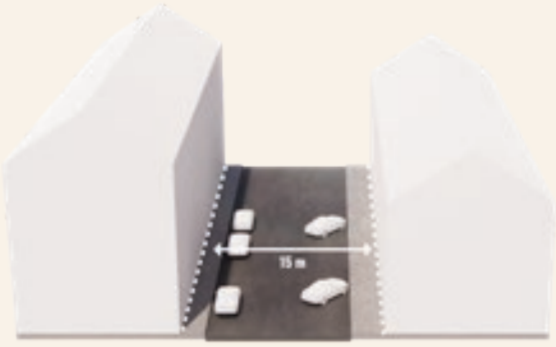


Fig. 7.45: Kreitnergasse now (own graphical representation, 2022)

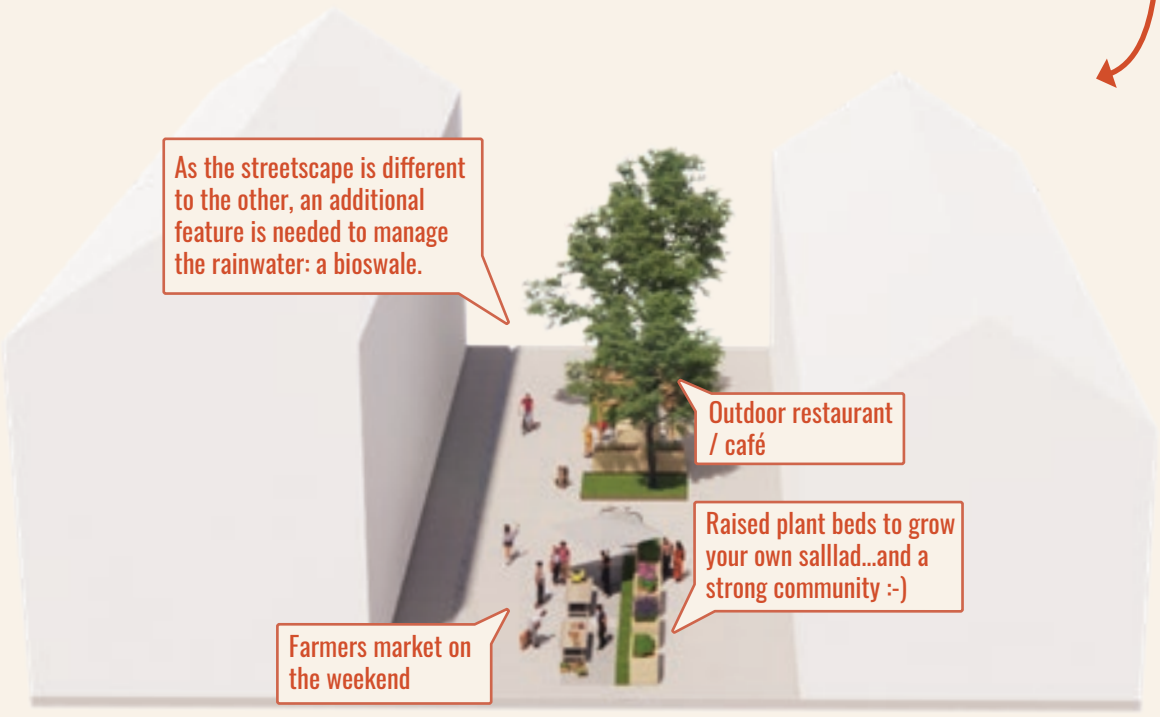


Fig. 7.46: Kreitnergasse then (own graphical representation, 2022)

Fig. 7.47: Zoom-In Plan 1:250 printed on A4 (own graphical representation, 2022)


Existing Buildings
Mobility Hub
Public Floor
Motorized Street
Public Green
Roof Top Green
Existing Trees
New Trees
Water Basin
Water Mist
N

7.9 What comes next?

This thesis proposes cost-efficient and easily implemented tools to transform the streetscapes and improve the quality of life for the citizens. The proposed measures only represent prototypes however and should be developed and adjusted together with the citizens.

Therefore, a first step would be to host several workshops in one of the vacant ground floor zones on the site. In the frame of the workshops executed by the planner, the citizens could bring forward their ideas and collaboratively develop interventions. To get an even better understanding of the respective site, the planner could bring maps where the citizens can point out and mark places they like and dislike which encourages engagement. Through this method, a SWOT analysis (Strengths - Weaknesses - Opportunities - Threats) can be compiled. The planner then proposes a toolbox of possible measures and interventions to the citizens. Based on that, the desired interventions can be prioritized in their importance and tested with placemaking.

After this test phase, the implemented interventions can be evaluated together with the citizens and adjusted before they are eventually being realized more permanently.

7.10 A critical view on the suggested measures

There are two main threats that need to be addressed for this thesis: *Induced Traffic* and *Gentrification*

7.10.1 Induced Traffic

An argument by many that favour to continue building car-centred cities is to improve the infrastructure of heavily used streets in order to counteract congestion. The phenomenon of induced traffic however describes how the opposite effect will take place and the traffic volume will actually increase. This is due to the fact that people actually adapt their mobility behaviour to the existing infrastructure but also past lessons learned by taking these. If major prerequisites change, for example that a street is changed to a highway in order to handle larger traffic volumes, people might adapt their life decision to it. This could take place by people that might consider moving further out from the city simply because they feel like the highway might get them from A to B quick enough. The traffic volume will however not increase indefinitely but rather reach a new equilibrium after the road improvement (Litman, T. 2022, p. 4). The question remains if this phenomenon is only true in one direction: If you build or improve streets, cars will follow. But if you take these streets away, will there also be less traffic or will the cars just be somewhere else? A possible outcome of this thesis could be that the traffic is simply redirected to the surrounding streets. Following the logic of induced traffic, this would allow drawing the conclusion that people might actually want to avoid these streets then and that they - over time - decide for other modes of transport. Proving that deconstructing streets could actually help to suppress traffic is not possible in the framework of this thesis. But just as there is induced traffic that occurs through the improvement of streets, it is very likely that the improvement of pedestrian and bike paths will encourage soft modes of mobility. Streets that are more vital, green and engage the citizens curiosity by offering a variety of streetscapes may be a strong enough incentive to choose to bike or walk instead of using the car to get from A to B.

7.10.2 Gentrification

Another main threat of the project is the phenomenon of gentrification. There are several definitions of gentrification. In the field of Urban Sociology, it is defined as a process where previously underfinanced areas undergo urban renewal and rents rise because of these improvements. Low-income communities that typically lived there before are forced to move somewhere else as they cant afford the higher rents (Hammel, D.J. 2009, p.360). The threat of this type of displacement taking place after the implementation of the project is real. There are however various measures in Vienna - such as a rent cap that regulates the rise of rents - in place, that helps prevent drastic rent increases.

8

DISCUSSION

8. DISCUSSION

8.1 Discussion

Referring back to the research question „*How could a superblock in Vienna be implemented?*“ that the thesis had as a starting point, this work illustrates how a superblock could potentially be implemented in a chosen site in the 16th district of Vienna, Austria and by doing that, improving the ecological and social sustainability. The main threats and possible limitations are both traffic that might be redirected to the surrounding streets and gentrification that could occur due to the revitalization measures. Another severe challenge is the transformation of such a large amount of parking spots. Although another superblock has not yet been implemented in Vienna by 2022, this thesis is built up on a strong argumentation with the feasibility study SUPERBE as a basis. Due to the comparable street grid in the rest of the district and other parts of the city, the proposed measures could easily be adapted and the Superblock 2.0 multiplied. Thus, the concept can be scaled up to almost the entire city. This would nevertheless require a site analysis of the respective sites to understand the individual conditions. This thesis' project site was chosen based on - among other factors - a high vulnerability according to the Urban Heat Vulnerability Map. The proposed measures have a high probability of improving the heat adaptability of the site. This was however not scientifically proven with heat exposure simulations or similar methods. Besides ecological sustainability, the proposed measures aim at improving social sustainability. Possible positive impacts on the community of the neighbourhood could however not be measured within the framework of this work.

8.2 Conclusion

The proposed project ranges between very bold and utopian. The changes within the streetscapes itself aren't affecting the site, as it is mainly about adding green and blue structures as well as modular urban furniture and other programming. The utopian aspect of the project is that around 450 parking spots are proposed to be converted into urban space and partly placed in the shared mobility hub. Whilst 20% of the existing on-street parking spots would actually be maintained for people that have an urgent reason to use them, 80% is relocated to the mobility hub or disappears. Such urgent reasons could be in the event of moving, people with a handicap or otherwise limited mobility will still be able to drive to their home and park nearby. Taking into account the interview with Daniel Glaser, a representative of the city, removing all of the counted 635 parking spots within a short amount of time is too extreme. According to him, the district removes around 100 parking spots over the course of one year. In a way though, even a partial implementation would not hinder the project in its entirety. Even if only one or two streets were revitalised, citizens might feel the positive outcome of these changes and be open for further changes. To conclude, the project aims at opening a discussion and questioning the current division of space while proposing alternative uses.

8.3 Recommendations

As mentioned in the conclusion, a partial implementation might be better than none at all. This thesis offers a utopian view on what could be achieved with simple measures. The phasing is to be taken seriously and the project developed accordingly as there is a hierarchy of importance. The transformation of Hasnerstraße must for example be prioritised as it has the best capacity to manage rainwater locally. Another urgent recommendation is to include the citizens and their ideas in the planning. They have an incredible knowledge of their neighbourhood and should be taken very seriously.

ANNEX

9

9. ANNEX

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9.3 Interview with Daniel Glaser held on the 29.03.2022 [translated from German to English]

I have already written in my email that the thesis and this interview is about the implementation of a superblock. Did you also study spatial planning?

Yes.

Then you are familiar with the concept I assume. In the master's thesis I'm planning a theoretical part that deals with the concept in general as well as a design part in which I'll try to implement a superblock. I wanted to do something in Vienna, I grew up in Hasnerstraße myself, and I thought that the blocks characteristic for the district would be a good place to implement a superblock. That is the basic idea. As my methodology, I will do literature research as well as the site analysis and the design implementation. But I thought it would be great to talk to a representative of the district as well, especially after you just redesigned Thaliastrasse. The reason I picked this exact block was because it is marked as very vulnerable in the map that shows Urban Heat Islands in Vienna. In addition, this block was matching many factors that were analysed in the Superbe study and there is also a school there, which is why I chose it. My first question would be whether there have already been considerations to implement a superblock in Ottakring?

Not on this scale. Of course, we have always had individual transformation projects or streets that have been improved. For example, there is a square called Johann Nepomuk-Berger-Platz that we have worked with. There was a piece of land between Neulerchenfelderstraße and Friedmanngasse that we have now integrated into park. But we have not yet implemented a superblock in the sense that at least two streets are calmed down from traffic in four building blocks that are connected. There are also so-called miniblocks, but the classic superblock is 3*3 blocks between which the traffic has been calmed down. I am not proposing a „classic" superblock either, but 6*2 blocks. The Superbe study has identified different blocks and possibilities for superblocks and has given criteria according to which the division could be carried out, right?

Exactly. They identified all kinds of criteria, for example population density, access to public transport or number of trees. This is why I decided on the section between Thaliastraße-Koppstraße and Possingergasse-Panikengasse. All the criteria apply there, except that there are few trees in this section. I think Hasnerstrasse in particular would be a good place to calm down the through-traffic. Of course, the fact that all these small streets are one-way streets also plays into my hand. However, a challenge could be that by reducing traffic on the inner streets, the traffic would be directed to the larger streets surrounding the superblock. In the end, it will probably be mainly about the redesign of the street and also whether perhaps other green elements can be integrated alongside trees, such

as infiltration basins.
If I may quickly go back to the question of whether a superblock has already been implemented in Ottakring. The superblock concept is very popular at the moment. But historically it is not entirely new. The blocks of Red Vienna are also called superblocks. The topic of cars simply didn‘t play such a big role back then. At that time, people said that they would build a huge residential building that would go beyond the scale of this block. In other words, going „super“ or „beyond“ the normal block. The street space, which was used quite differently at that time, was then made part of the housing development. Sandleitenhof, for example, was also planned as a superblock. The fact that there are now cars everywhere, that are asphalted and that the areas are no longer open to insurance is the result of the last fifty years. It was successively asphalted and provided with parking spaces. But of course, in the original idea, Matteottiplatz, Rosa-Luxemburg-Gasse and Liebknechtgasse were all open spaces with life, shops and bars.
That‘s right, these blocks were a closed, functioning system.
Exactly. The Sandleitenhof is actually a superblock. There were similar concepts in the early days of urban renewal. One of the first urban renewal areas was at Wichtelgasse, where a house was demolished and a park was built inside, along with residential streets. Parking spaces are still there. There are at least some kinds of traffic-calmed areas, which are now maybe a bit outdated. The planning has been quite straight-forward: through traffic is directed to the exterior streets Ottakringerstraße, Wattgasse and Thaliastraße, the interior streets were calmed.
It‘s very exciting that the courtyards have been opened up like this. Vienna is very proud to be one of the greenest cities. However, the greenery is mainly at the city limits or in the courtyards and then not accessible to everyone. In order to make this urban green in the inner courtyards accessible, you would have to plan an opening or demolish part of the building.
Yes, that was back then in the phase of urban renewal at the end of the 1970s and beginning of the 1980s. Of course, there are also modern developments, such as the Gartensiedlung Ottakring. This is a former brewery site where new buildings were constructed. Arnethgasse was made accessible for cyclists and pedestrians, but closed to cars. Actually, two former blocks were combined there. Before that, there were a few old storage areas and older buildings, and at the end of the 80s or beginning of the 90s a new building was constructed.

Fig. 9.01 Daniel Glaser (SPÖ - Bezirksorganisation Ottakring, 2022)

Daniel Glaser is an urban planner and a district council for Ottakring, the 16 th district of Vienna

So, these are mini versions of a superblock, aren't they?
Exactly.
Because we have now also touched on the subject of parking: Are there concepts to reduce parking on the street?
Yes, I think in this last example there is an underground car park, where parking on the street is not allowed anyway. With the Sandleitenhof or also in the Wichtelgasse it's not an issue.
And in the section I'm looking at for the thesis? There is a lot of on-street parking there, but there are also some multi-story car parks nearby. Has something changed due to the new parking regulation, is it less busy?
Not anymore. At the beginning the streets were noticeably emptier, as you can also see now in the 21st and 22nd district. But then people who had previously rented an underground car park used the streets to park once there was space again One could say that it evened out in the end. It is still better than before the new parking regulation. But it's not as if it's easy to find a parking space. The district's approach is to reduce parking lots, but something has to happen in exchange. If you plant a tree, you lose one or two parking lots. If you put up a bike stand, you lose a parking space. But it wouldn't be appropriate to have an empty area where you only prohibit parking but don't offer to use it for anything else.
So there always has to be an added value?
Exactly, there must always be added value for the population. In Thaliastrasse we have just rebuilt the first section, the second will follow. In Thaliastrasse itself, we will probably lose more than half of the parking spaces due to redesign measures. This is accepted there because people see that 91 trees have been planted. Then it is also understandable that 91 parking lots will be lost.
These parking lots are not planned elsewhere in the district, but are simply gone?
Yes, they are simply gone and aren't created anywhere else. But the district can tolerate this change. I would estimate that roughly hundred parking lots are taken away in Ottakring every year. Maybe even two hundred, but nicely distributed over the whole district, very much acupuncture-wise one could say. There are of course certain emphases, but its not as radically as some might wish. Nevertheless, people still drive. Especially in the blocks you chose, people from very mixed milieus live there. People like you and me live there, but also completely different milieus that think about mobility in a very different way than we might do. This is also our approach as the *SPÖ* - in contrast to our coalition partner *Die Grünen* - to consciously listen to this broad spectrum of the population, who are also our voters. We jokingly say: If everyone is dissatisfied with us, we have done it the right way. If one group is totally satisfied, but the other group hates you, then you have done clientele politics. But if everyone is unhappy, you have obviously found a compromise that is not just following the wish of one group.
So to summarize that progress towards softer forms of mobility is possible, but slowly and not so radically. It has to be balanced and give the added value for those who live there. Now a more general and also very big question. Are there any efforts from the district to tackle Urban Heat Islands or even other effects of climate change?
We have our projects internally. The Thaliastrasse is the most important project at the moment and will tie up resources this year and also in the following year. There are always smaller

projects, but they come up for other reasons and we try to follow them. In the case of Ottakringerstraße, for example, it was the expansion of the district heating system. At Johann Nepomuk-Berger-Platz it was the crossing of two trams. Panikengasse, for example, is in a very bad condition and needs to be renovated anyway. There are often meetings where the MA28 says that a certain street is broken and therefore needs to be renovated. Depending on the available budget, we then say that we will join our efforts and, for example, widen the pavement or plant a few trees. Such things then fall into our laps to a certain extent, because certain costs are then taken over by a paving contractor or Wiener Linien. This allows us to implement our measures, but we do not have to bear the total costs. The topic of tree planting is one of the most important in this respect, because in our opinion it is the most sustainable. Of course, it costs a lot at the beginning, because watering and taking care of the tree has to be taken into account and it takes time until the trees are big enough. But in twenty or thirty years we will be glad that we planted these trees. When we look at the tree plantings, we see that we are planting about twice as many trees now - compared to five years ago. Road safety is also always an issue. If there is an accumulation of accidents in one place, something has to be done. When a safety measure is implemented, for example to make a crossroad safer, something can also be done. Otherwise, there are also projects that do not only affect the district, but are of overriding importance, for example the main cycle path network. If you manage to get a road included in the main cycle path network, you get additional money from the central budget.

Apart from tree planting, do you also have considerations such as vertical greening or possibly green roofs?

We have little influence on that. We always try to make it palatable to the homeowners. Ultimately, the homeowner has to agree and also pay for a large part of it. There are subsidies for the construction, but they have to take care of the maintenance and upkeep themselves. It is similar with green roofs. What we will now present after Easter is the Walking Master Plan. This is a concept for the 16th district to support walking, which also includes many measures. Of course, part of it is greening and traffic safety, but also accessibility and attractive bus stops with bus shelters.

This is a bit of a longer-term plan where we have defined certain streets that are important to us. We don‘t have an ad hoc plan or concept for that now, but we know that it‘s a place where something could happen in the next ten years. For example, Herbststrasse. We feel that Herbststrasse is not that important for motorized private transport. There are many schools, it has a good width, but unlike Hasnerstrasse or Koppstrasse, there are a lot less trees. So, we have always had the feeling we could pay much more attention to it. It is also in an area that is strongly affected by Urban Heat Islands. In the Walking Master Plan, it is therefore also identified as an important space.

So, you have identified the spaces that have a high potential for redevelopment. Because you mentioned Hasnerstraße - is it already sufficiently designed in the district's point of view?

Parking there is of course not so easy, but we don‘t have to plant any more trees. We have to make sure that the ones that are there don‘t die. But Hasnerstrasse does not have a great need for landscaping. Or rather, there are other streets that have a

higher priority.
I have now gone through all my questions. Thank you very much for your time!
You‘re very welcome.

9.4 Parking Situation Analysis on 22.05.2022 between 09-11h

As this work deals a lot with mobility patterns and tries to influence them, having an overview of the curring parking situation is crucial. Initially, I planned to only count the existing parking spots, but then decided to differenciate between empty and occupied ones. My goal was to get an understanding of the occupancy rate to decide how radical the transformation of the streetscapes could be. The following list shows how many empty and occupied parking spots there were on the 22nd of May between 9-11 am. In total, there are 635 parking spots on the site of which 455 were occupied during the parking situation analysis. A spacial thank to my mum at this point who went around the site with me and counted parking spots. To achieve a better & differenciated result, those counts should have been made several times which was unfortunately not possible due to time reasons. However it became clear that in all streets of the site, more parking spots were occupied than not.

Fig. 9.03 Site Plan (own graphical representation, 2022)

Fig. 9.04 Counting parking spots on the site (own picture, 2022)

Arltgasse:
Empty: 21 (21%)
Occupied: 77 (79%)

Thalhaimergasse:
Empty: 29 (23%)
Occupied: 99 (77%)

Brüßlgasse:
Empty: 24 (38%)
Occupied: 39 (62%)

Klausgasse:
Empty: 50 (38%)
Occupied: 81 (62%)

Kreitnergasse:
Empty: 33 (34%)
Occupied: 65 (66%)

Hasnerstraße:
Empty: 23 (20%)
Occupied: 94 (80%)