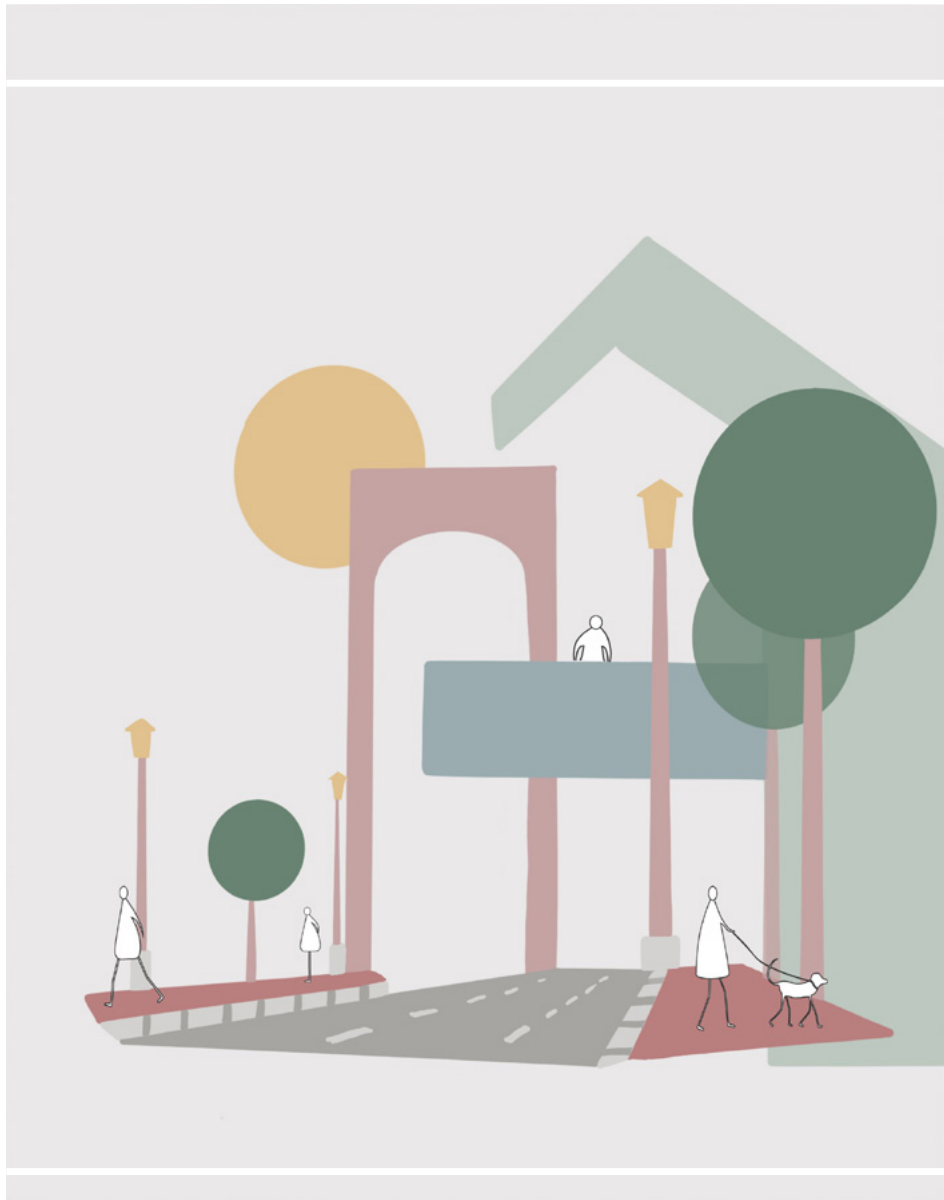


BOULEVARD OF DESIRES

Reintroducing Schweizer Platz & Schweizer Straße,
Frankfurt am Main



Sayali S Tidke



Hochschule Anhalt, Bernburg
Master of Landscape Architecture
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Supervised by :
Prof. Dr.-Ing Nicole Uhrig | Mrs. Bianca Porath

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Reintroducing Schweizer Platz & Schweizer Straße,
Frankfurt am Main

Thesis submitted in partial fulfillment of the requirements for the Degree
of Masters in Landscape Architecture at Anhalt University of Applied
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Sayali Sudhir Tidke
Matriculation Number: 5047035
Date of Birth: 29.03.1994

Prof. Dr.-Ing Nicole Uhrig
Hochschule Anhalt
Master of Landscape Architecture (MLA)
Stranzfelder Allee 28
D-06406 Bernburg
+49 (0) 3471-355 1215
nicole.uhrig@hs-anhalt.de

Mrs. Bianca Porath
Dipl.-Ing. Landschaftsarchitektin AKNW BDLA
Planergruppe GmbH
Heinickestraße 44–48 / 45128 Essen
+49 201 74 71 79 23
porath@die-planergruppe.de
info@die-planergruppe.de
www.die-planergruppe.de

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ABSTRACT

It is believed that by 2050, the majority of the population would be living in cities. This increasing population would lead to pressure on the urban infrastructure which in turn compels us to ask the question, what would be the quality of life of people in these growing cities?

This thesis is a redesign proposal for Schweizer Straße and Platz in Frankfurt am Main, Germany. Schweizer Straße is the lively street which is the heart of the Sachsenhausen district in Frankfurt am Main. It was built in 1871. By 1910, mainly late-classical residential and commercial buildings were being built on the street and almost 140 trees were planted. Over years, it has changed drastically and has evolved as the needs of the people changed. This mainly resulted in vehicles being the priority instead of pedestrians and cyclists. The urban street characteristics of metropolises have become chaotic and need to be simplified.

As landscape architects, it is upon us to improve the experience of the open space by nurturing and creating a balance between the built and the open environment. The ongoing climate changes, loss of biodiversity, exploitation of non-renewable energy resources, pollution, and depletion in the quality of natural resources are great examples of this pressure. Therefore, there is a need to make the cities inclusive, safe, resistant, and sustainable. A sensitive intervention addressing societal aspirations is exactly what Schweizer Straße and Platz need.





KEY TERMS

Constructed Inland Wetland -

Constructed inland wetlands are engineered systems to assist in treating wastewater by utilizing natural processes like wetland vegetation, soils and their associated microbial groupings. In cities and neighborhoods, constructed inland wetlands can help balance the negative effects on the environment, and help cities adapt to climate change.¹

Bio-retention -

Bio-retention is a nature-based solution and uses storm water. Bio-retention areas are typically designed as shallow vegetated depressions that can capture and treat storm water flow.¹

Green Corridors -

Green corridors, can be called linear natural infrastructure, and are becoming an essential part of the urban landscape ecology. They are generally strips of trees, plants, or vegetation in different scales and typically connect green spaces in a city, creating a green urban infrastructure network. They help in protecting the natural habitat.²

Universal Accessibility

Universal Accessibility is when it is facilitated for human diversity. By applying these principles, the urban environment can be more functional and more user-friendly for everyone.³

Quality of life -

The general well-being of people living in society can be defined as the quality of life. It consists of different dynamics like materialistic aspects, resources, health, living conditions as well as subjective perceptions like likes and dislikes.⁴

Sustainable Urban Mobility -

Movement of people and goods in a city through any medium of transport is called as Urban Mobility. When mobility is planned to achieve higher-level environmental, social, and economic objectives, it can be called as Sustainable Mobility.⁵

Gray and Green Infrastructure -

Green infrastructure refers to natural systems like trees, water, plants, fauna etc. Gray infrastructure refers to structures such as buildings, waste management, roads, pathways etc .

1. Natural Walking Cities (NWC). 2019. *Creating and promoting walkable and natural infrastructure for sustainable cities*. <http://naturalwalkingcities.com>
2. International Bank for Reconstruction and Development / The World Bank (Washington DC). 2021 *World Bank - A catalogue for Nature Based Solutions*
3. Bangun IR Harsritanto (The 2nd International Conference on Energy, Environmental and Information System (ICENIS 2017)). 2018. *Urban Environment Development based on Universal Design Principles*. <https://doi.org/10.1051/e3sconf/20183109010>
4. Eurostat Statistics explained. *Urban Rural Europe - quality of life in cities*. 2022
5. Oyofa, Ash. *What is sustainable Urban mobility Plan*. 2019

**“Think of a city and
what comes to mind?...”**

**...Its streets. If a city’s streets
look interesting, the city looks
interesting; if they look dull,
the city looks dull”**



1.1.1 : Street Amsterdam



1.1.2 : Street Asia



1.1.3 : Street London



1.1.4 : Street Australia



1.1.5 : Street India



1.1.6 : Street Africa



1.1.7 : Street London



1.1.8 : Street New York



1.1.9 : Street Asia

Streets around the World...

Quality of life can be characterized by different components like economic, social, and environmental as well as several other subcomponents. Each one defines different aspects of citizens and levels of satisfaction. Just as there is a pressure of population flux on the infrastructure, a huge pressure is also on the environment. Cities keep evolving according to the needs and demands of the inhabitants.

“Think of a city and what comes to mind? Its streets. If a city’s streets look interesting, the city looks interesting; if they look dull, the city looks dull.”, said Jane Jacobs in her book *The Death and Life of Great American Cities*(Jacobs).⁶ Streets are one of the most significant elements of an Urban Space. It’s the easiest way people can connect to a city as it represents the social, cultural and economic scenario of a city.⁷ Every street goes through a process of evolution; value, philosophy, technology, innovations, traffic, population, economy, government and public opinions keep changing and influencing the city and public spaces. Even though majority of the people in the world travel on foot, cycle or by public transport, our streets are designed for the cars. There is a visible in ways our cities are planned. Our public places must be for the people.

We can observe that the evolution of streets has come to a full circle. For centuries city streets were dynamic and vibrant where various functions came together, but over time vehicles took the front street and dominated the city streets. In the early ages of civilization, streets were a place of public gathering, trade and the basic function of movement. Streets were meant for the people. After industrialization, streets were occupied by cars and the needs of the public took a back seat. Trade on roads was restricted to small roadside corridors and public gatherings moved to public squares. The importance of the human scale was lost. Road safety was at stake. And then after about hundred years there was a paradigm shift, designers aimed to create streets that cater to everyone’s needs irrespective of their mode of travel. The views started changing back to making streets people and environment-friendly. The growing environmental challenges compel us to rethink our choices. With the growing number of people opting to walk, cycle or use public transport it is necessary to evolve our streets to

accommodate their needs. The Frankfurt city council had been contemplating making such changes to Schweizer Straße which were the need of the hour. The design decisions we make today will be responsible for the tomorrow. These design decisions not only affect the development of cities, but also the health and safety of the residents and the environment for e.g., Quality of air and water, carbon footprint etc.

Schweizer Straße is the gateway to the main metropolis of Frankfurt which connects the Main river bank in the north with the western entrances to the Südbahnhof over one kilometer. It offers the citizens a unique experience making it popular and thus being the “Boulevard of Desires.” It offers its visitors everything from retail shops to fine butchers and bakeries and from tea and wine shops to boutique cafes, cider bars and multiple Restaurants. We see various age groups and users on this street making it dynamic. “After being invaded by cars and traffic for 50 years, we’re now seeing many examples of cities being reconquered for people” (Gehl, *Cities for People*).⁸ This is exactly what we need Schweizer Straße and Platz to be.

6. Jacob, Jane. *The death and life of Great American Cities*. New York: Vintage Books, 1993
 7. Turaga, Kavya. *Changing Street face: The evolution of the street identity in relation to its activity*, Bangalore
 8. Gehl, Jan. n.d.-. *Cities for People*. Washington: Island Press, 2010 edition



I.1.10 : View of pedestrian street art installation on Fulton Street, West Loop, Chicago by Studio Number One

The question is “HOW”

- How do we improve the quality of stay so that the street doesn't lose its character and vibrant public life, but at the same time make positive change in user experience and how do we achieve that? How can the Landscape Design of Public spaces influence the experience of different age groups?
- How can we address the questions concerning climate change, loss of bio diversity and sustainability? How do we work towards making our streets safer and inclusive?
- How can we accommodate the needs of the public, the retail owners, the residents as well as the Government?



I:1:11: View of Schweizer Straße

This master's thesis aims to be design-focused. The feasibility study which already examined all the possibilities, including public participation defines elements and qualities of the street that should be retained, supplemented and redesigned. This feasibility study forms the framework for the design brief and the public requirements become the key goals of the thesis.

Following points can be established as the scope of the design:

- Improvement of the quality of stay by calming the eastern and western areas of the square.
- Greening and unsealing
- Barrier-free tram stop "Schweizer Platz."
- Maintaining the avenue character and improving the quality of stay through design/furnishing/lighting.
- Different pathways for pedestrians and cyclists.
- Guidance of motorized private transport in a straight line across the square



I.1.12: View of Schweizer Straße

Redesigning Schweizer Straße and Platz requires a good amount of research and analysis, and understanding the dynamics through case studies to come to the best possible solutions for the required intervention. To achieve that, the thesis would be carried out in three phases.

1. Research and Analysis:

The first phase will be research and analysis. Apart from the literature reviews and research, feasibility reports and the available data will also be studied. This phase also includes Site visits to understand different contexts and to collect all the necessary required data. (E.g., Mapping User analysis, Photographs, Sketches, existing scenarios, and material analysis with the help of on-site observations, interaction, GIS and Google Earth.)

2. Case Studies:

The second phase will be Case studies. Studying similar examples from different perspectives would be the main aim of this phase. These examples would be studied by either visiting them or through different written media. This will help generate design guidelines and design concepts.

3. Design Proposal:

The third phase will be Design Proposal. This phase will focus on design outcomes in terms of Master-plan, Detailed plans, Sections, Perspectives and Visuals to help explain the design. (This would be achieved with the use of various software like Vectorworks, AutoCAD, Photoshop, Illustrator, InDesign, and Rhino)

**“Spending more time
outdoors, moving about,...**

**...And experiencing ‘Life in
between buildings’ is more
important than ever”**

2.1 Quality of life in Urban Cities

2.1.1 Introduction

Worldwide, the percentage of people living in urban areas will increase from 50% in 2010 to nearly 70% by 2050.⁹ This increasing influx of people will result in the expansion and/or densification of urbanized areas. The need for sustainable urban development is becoming important because of this influx of people to urban areas. This affects resource management and quality of life. It is hence very important to design our cities keeping this influx in mind. Creating resource-efficient systems with good, engaging urban design would improve the quality of life in cities and make them attractive.

These growing cities always face a dilemma as to whether they should accommodate the sprawling development by creating a better network of highways, or promote denser neighbourhoods by growing sustainably, with a focus on public transport and walkable cities. The decisions then taken by the cities affect not just the local people but also the environment and hence the entire world.¹⁰

2.1.2 What is Urban Sprawl?

When the increasing urban population reflects in the rapid expansion of geographical extents of cities and towns, it is called Urban sprawl, also called sprawl or suburban sprawl. These Urban Sprawls are often categorized by low-density residential spaces, single-use zoning, and increased dependence on private modes of transportation.¹¹

Urban sprawl is not only caused by the rising urban population but also because of the desire to have bigger living areas or spaces and other amenities and better living conditions than in crowded cities. This expansion of cities results in increased energy use, pollution, and traffic congestion. It also declines community individualism and coherence. The biggest effect of sprawling is the increase in physical and environmental footprints which leads to the destruction of wildlife habitat and other natural areas.

9. Haaland, Christine. *Challenges and strategies for urban green-space planning in cities undergoing densification: A review*, Sweden, 2015.

10. Global Designing Cities Initiative. *Global Street Design Guide*, New York, Island Press, 2016.

11. Rafferty, John P. *Urban Sprawl*, Britannica.

12. Designing Buildings, The construction Wikipedia, 2022

13. Burohappold. *15 min Cities*, 2023

2.1.3 What is Urban Densification?

When the increasing urban population reflects in the rapid densification of cities and towns, it is called Urban Densification. According to Urban Planners, there are several methods by which Urban density can be measured, these include:

1. Floor area ratio: Total building floor area divided by the area of the land buildings are built on.
2. Residential density: Number of dwelling units in a given area.
3. Population density: Number of people in a given area.
4. Employment density: Number of jobs in a given area.¹²

2.1.4 Urban Sprawl vs Urban Densification

Though Urban Sprawl and Densification are largely debated topics, most of the reports state that densification is more sustainable than sprawl. It is argued that denser cities use less energy per person than suburban or rural areas because since in rural areas people are more spread out, they need to travel wider distances often. Public transport is not viable in such cases and people resort to private transport whereas in dense cities people use cycles, public transport or walking. Also, the waste produced by dense cities is lesser as smaller spaces take less energy to heat and cool and hence use fewer resources.

15min city is a concept in Urban planning. Developed by Pantheon-Sorbonne professor Carlos Moreno, this urban planning concept aims to create communities in which people have access to the services they need to live, learn and thrive, all within a 15-minute walk or cycle ride from their home.¹³

2.1.5 Securing open spaces in dense cities

With the increasing population, the concept of compact cities has gained global attention. It is considered a sustainable planning approach for the development of

the cities. The problems of energy consumption, and increasing physical and environmental footprint arise due to sprawling and reduced through densification and compact building. It eliminates the negative effects of ineffective land use and various other problems. Though there are numerous benefits of the Urban Densification approach, there are certain challenges as well. Multi-functional green spaces are often emphasized to have functions related to ecology, biodiversity, culture, recreation, social interaction and aesthetics. The densification of cities has a threat to these multi-functional green areas or open spaces.

In such circumstances, open space planning and management can be very challenging. The most important problem then becomes limited areas to develop such open spaces. There is growing evidence for the loss of urban green space due to densification processes worldwide.⁷ Available spaces are often used ineffectively and finding unused open spaces becomes a challenge and requires a lot of patience. In such cases, developing the existing open areas, decluttering the spaces and redesigning unused wastelands into pocket parks seems like a good solution. These little parks tend to act as scaled-down neighbourhood parks, but still often try to meet a variety of needs like that of multi-functional open spaces.

Streets are our most important public spaces. Decluttering and differentiating the uses on the street, making them more for the people can make them multi-functional open spaces in these dense cities. Well-designed city streets can integrate other functions which are at risk due to urban densification.

2.1.6 Quality of life in Urban Cities

The general well-being of people living in society can be defined as the quality of life. It consists of different dynamics and dimensions and can be a broad concept. Some of the major factors that contribute to the quality of life can be materialistic aspects, resources, health,

living conditions as well as subjective perceptions like likes and dislikes. Green infrastructure has a direct impact on one's physical and mental health. This green infrastructure in urban areas can consist of vegetated green areas, such as parks, public squares, yards, and also private gardens. These green spaces not only affect human health but also have environmental benefits in dense urban cities. It provides a habitat for flora and fauna by supporting biodiversity, they help in facilitating climate change adaptation/mitigation by lowering urban temperatures, reducing the risk of floods, and providing cleaner air.¹⁴

All the Cities across the Globe want to be 'most livable city', it can be called as a measure of success. When people experience a city through its positive public spaces, it increases the livability of a city. Streets are also one of the biggest factors on which livability is highly dependent. When streets are safe, comfortable, efficient, and vibrant, they connect well with its citizens, increasing its quality. Streets encourage social interaction and helps build stronger communities.

Rapidly densifying cities face various problems that challenge the quality of urban life. Despite this fact, cities continue to play a vital role in development and would continue to do so. Hence, increasing the quality of life in these ever-densifying cities is of utmost importance. Parks and other green infrastructure relieves stress, rejuvenates, and connects with nature and surroundings. It also boosts neighbourhood connections and social interactions. Parks and other natural areas helps considerably in development, public health, economic growth, and therefore quality of life.

14. Eurostat Statistics explained. *Urban Rural Europe - quality of life in cities*. 2022

2.2.1 Introduction

An urban built environment is a system that consists of many organized spaces supported by social, political and technological factors. They are one of the largest urban public spaces and can be traced back to the evolution of man. They have a profound connection with man and his social well-being. After years of rapid urbanization, planners all around the world are working towards the “human first” and “the urbanization of people” concepts, paying attention to the quality of the urban space. It is vital to design streets which are safe and comfortable for all the users as well as the environment. In cities, more than 60% are public spaces but we have failed to create opportunities for connections, communities, value and efficiency. City streets had natural vibrancy and dynamics for centuries, and they catered to various functions. Until the mid-20th century, the street was an integrated system of movement and social and economic life. But then this changed in the 1960s and 1970s when large-scale interventions in the urban fabric emphasized traffic, and put the importance of exchange in second place.¹⁵

To design better streets for tomorrow, it is essential to study the evolution and history of streets and identify the mistakes or highlight the positives.

2.2.2 Streets before the invention of the wheel

The first roads appeared in the landscapes probably thousands of years before urban planning, autos, or even the wheel. They were naturally formed by humans and animals walking the same paths again and again to find water, food and for trade. Later these natural roads became more formal roads connecting the villages. These streets became hubs for the exchange of goods, culture, knowledge and ideas. It creates access and brings people closer. Following the introduction of the wheel about 7,000 years ago, things gradually started to change. The earliest stone paved roads have been traced to about 4,000 B.C. in the Indian subcontinent and Mesopotamia.¹⁶

15. Kent, Ethan. *Streets as places to come together: The next evolution for transportation revolution*, Social life project, 2022.

16. Abrams, Steve, *The unseen history of our roads*, Road & Track, 2013.

17. Hawkes, Amber et al., *Rethinking the street space: Evolving life in the streets*, Planetizen, 2009.

2.2.3 Streets until 1850: Modification of Street

Social and economic activities in the 19th century took place on the squares or streets. These were the places where everyday markets were held. The concept of shopping streets that we have today did not exist during those times and it was common for working, living and trading to take place in the same street. People would display their goods ranging from vegetables and fruits to arts and crafts in front of their homes. Segregation of private and public was not clearly defined. The flourishing exchange of trade increased the activity and traffic on the streets. The number of streets started to increase. These Streets were paved with cobblestones. But they suffered from their own set of design and maintenance issues: rotting trash, horse droppings, crowding, crime, and noise.¹⁷



I.2.1: Streets during 19th century

2.2.4 Streets in 1900s: Streets for Vehicles

In the early 20th century, the functions on the streets were segregated, which led to increased traffic in the neighbourhood. As the cities modernized, new and wide boulevards evolved around the city centres and

circulation improved by separating the traffic flows and creating sidewalks for the pedestrian to have their place in the crowded streets. Separate tramways were introduced, and trees were planted along the sides to act like barriers. Stalls along the roadside had become permanent and were incorporated into the façades. These permanent stores and shops were developed along the streets and squares, it was a new trend to create boulevards with shopping and office buildings. This led to an entirely different experience on the streets. The façades of these buildings were getting transformed into attractive storefronts to display the goods with high glass windows, with the purpose to lure the passerby. These boulevards became not only for shopping but also for strolling.

However, things soon started to change when cars became affordable for normal people to buy. They became an instant hit. The number of automobiles suddenly surged from 8,000 to 8 million.¹⁸ Street widths, designs and paving materials were dominated by cars. By the mid-20th Century bikes, trains, trolleys, and pedestrians became secondary users of the streetscape.

In Germany for example, the turning point came after the Second World War. Most of the cities were then massively destroyed and had to be rebuilt. During this time, since automobiles were already in the boom, the roads were planned for the cars as it was considered modern. This idea and planning was based on the Athens Charter, which separated work and living, so the long distances were inevitable.¹⁹

2.2.5 Streets of today

Much like the 1890s, our streets have found themselves at a pivotal moment for urban reorganization. More and more cities are now looking to promote “livability” and “sustainability”. Cities need to be vibrant where business, education, innovation and social life can thrive to be able to be liveable. And in order to be

18. van der Werf, Jouke et al., *History of city street and plinth*, The City at Eye Level - Second and Extended version (2016), The Netherlands, 2016

19. https://de.wikipedia.org/wiki/Autogerechte_Stadt

sustainable, cities need to grow and develop to provide healthy environments and healthy lifestyles.¹⁷ Designers like Jane Jacobs, Kevin Lynch and Gordon Cullen pointed out the importance of the human-scale of the street. They mention that the city has to be designed from how people experience it: at eye level. Their design philosophies have become relevant now more than ever. We now see a growing awareness regarding the change in cityscapes.



I.2.2: Streets during 20th century

2.3.1 Introduction

As the population increases, the infrastructure in our cities needs to be reintroduced to accommodate this change. We must work to make our streets and public spaces safer for all users. Also, the increasing climate change adds another challenge, requiring our cities to be safer and more resilient. Streets being an important aspect which would be affected by these changes also needs to be re-imagined. We need to rethink, re-imagine and redesign the aspects that outline our streets to function more efficiently for these growing challenges. We need to access the infrastructure we already have, and creatively improve the capability of our streets to be more livable, and sustainable for future generations. It is necessary to design strategies to help cities prioritize sustainable mobility choices, and design safe streets for all users.²⁰

2.3.2 Streets for People

For the last many decades, streets around the globe were built around automobiles. The cities were planned with them into consideration. Larger lanes for cars and smaller lanes for pedestrians became the fundamental design concept of streets worldwide. Now, the new generation of planners, designers, and city residents are working hard to take back the streets which belong to the people. Roads in some cities have already been transformed to be safe, attractive, and resilient.

Fabrizio Prati, director of design at the Global Designing Cities Initiative says, "Our vision for the city of tomorrow is quite simple: a city that puts people at the centre. It is designed on a human scale from the point of view of the most vulnerable: children, the elderly, and people with disabilities. It takes into account the gender approach, rethinking what has hitherto been defined according to predominantly male 'lenses.'" ²¹

Apart from mobility, people use urban streets for leisure as well. Everyone experiences streets in different ways

20. Global Designing Cities Initiative. *Global Street Design Guide*, New York, Island Press, 2016.
 21. Zappa, Giulia, *People First: Changing the streets to change the world*, Infrajournal, Milan.

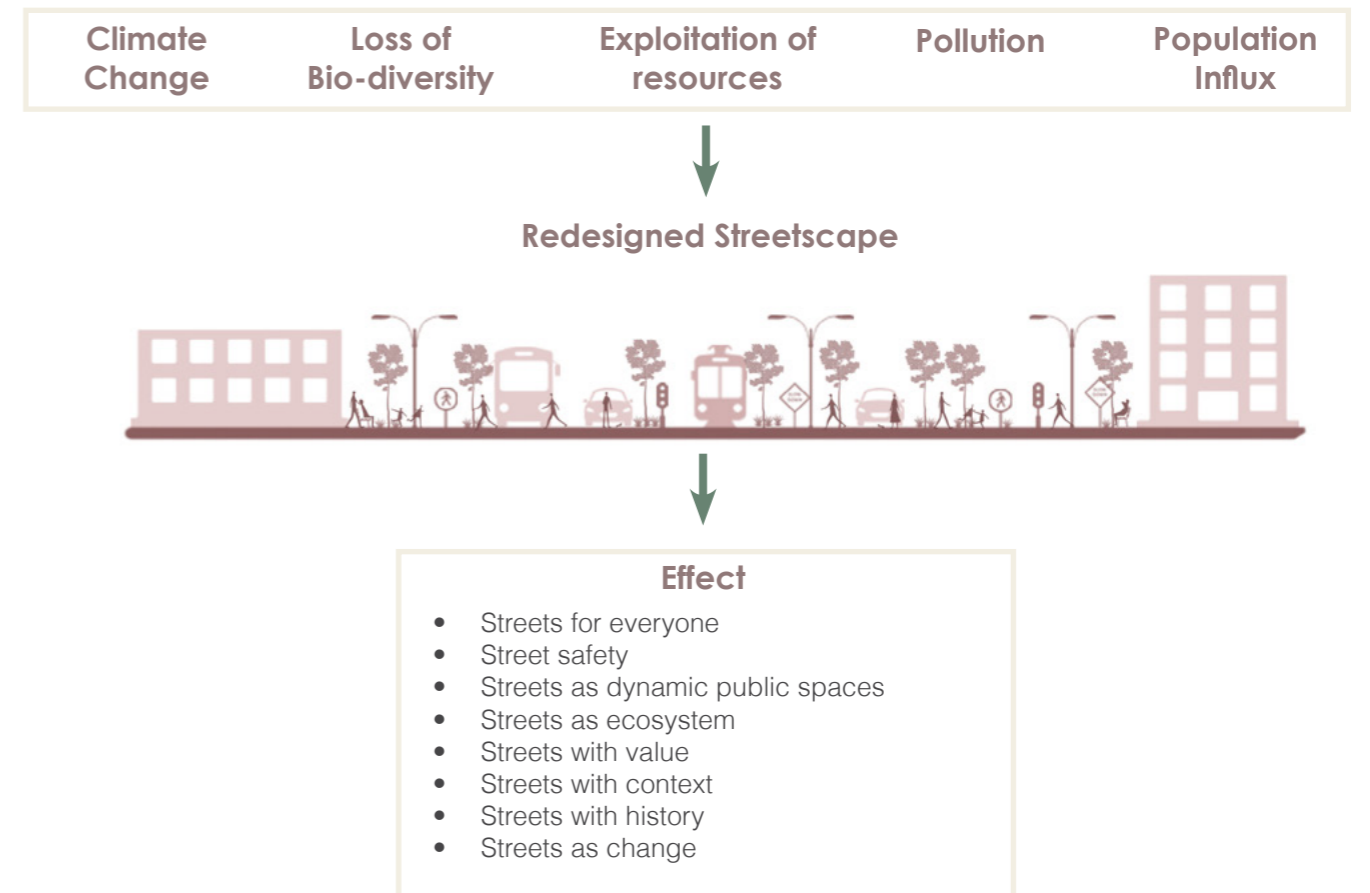
and has many unique needs. This can range from more sitting facilities to spaces for loading and unloading the goods. When all the activities are accommodated and prioritized to shape the streets, it increases the livability of the area. The types of users and the density of the people on the street largely depend on the function of the street, the location of the street, their context as well as on time of the day and weather. Each user also moves at a different speed, within the limited geometry of the street, each user also needs a different amount of space.¹⁹ When streets are designed keeping all these factors into account, they become safe, comfortable, and are enjoyed by all.

2.3.3 Paradigm Shift

Today's Urban population needs walkable, cyclable, and transit-oriented neighbourhoods, where they can reach their daily needs within the vicinity. Also called 15-minute cities. Streets are catalysts for such urban transformation. Cities are finally rediscovering the benefits of designing safe and livable streets that balance the needs of all users.²⁰ Streets are now not evaluated by only successful transport systems but also by multiple other factors. Now, there is a high demand to change the old practices and redefine what constitutes successful streets.

Some of the factors which evaluate streets as successful are:

- Quality of life
- Health and safety of the users
- Environmental sustainability
- Economic
- Universal accessibility
- Inclusion



2.3.4 Conclusion

Streets all around the globe are unique and are always evolving, and every city and its streets have different contexts around them. To make our streets for the future, we need clever and careful solutions to balance the growing demands. Streets boost social and economic life. They change their functions throughout the day, from providing a space for physical activity to being nightlife destinations, along with being our transportation mediums. Streets need to provide for every user, be it walking, cycling, riding public transport, driving, making deliveries, selling goods, or simply stopping to take a breath. The changing approach from stereotypical to streets for the people

will play a prominent role in the future of city life. Designing people-centric streets would invite people to pause, stay, and spend time experiencing a city in between the buildings at their own pace. Our future streets will provide a place of respite in dense urban areas, activate underutilized niches, and boost local businesses.

By creating streets that are pedestrian-priority in the neighbourhoods of all cities, we create opportunities for community interaction and recreation, a healthy lifestyle, and better quality of life.

2.4.1 Introduction

Since the last few decades, the global urban population has increased tremendously. As discussed in the sub-chapters before, this increasing urbanization creates other problems. The challenge of urbanization, however, is magnified when tied to climate change.²² Climate change refers to long-term shifts in temperatures and weather patterns. In the past, these temperature shifts and disasters that followed were mostly natural, caused because of changes in the sun's activity or large volcanic eruptions. But since the 1800s, we humans and our activities have been the main cause of climate change.²³

The main reasons that are causing climate change are the increasing production of gases like carbon dioxide and methane. They come from burning fossil fuels like petroleum for cars, or coal for heating a building. Also, cutting down trees and deforestation for urban infrastructure leads to an increase in carbon dioxide levels. These are just a few of the many reasons which are causing this climate change.

It is believed that climate change will lead to more extreme weather events like severe floods, droughts or heat waves. Such events would be a disaster for our cities, especially now when we are already facing other challenges. It is of utmost importance that we protect our natural systems and invest in green infrastructure. We still have an opportunity to build resilience and protect our world for future generations.

2.4.2 Impact of Urbanization on the Environment

Urbanization means transforming vacant or thinly occupied land into densely populated cities. Urban areas of cities are growing due to the increasing human population and migration of people into urban areas. Deforestation, habitat loss, and extraction of resources from the environment can lead to biodiversity loss. Factors responsible for climate change also affect the health of other species in the environment.²⁴

22. Climate-KIC. *Blue Green Solutions*, London.
 23. United Nations, *Climate Action*, <https://www.un.org/en/climatechange/what-is-climate-change>.
 24. University of California Museum of Paleontology, *Understanding Global Change*, <https://ugc.berkeley.edu/background-content/urbanization/>

Following are just very few of the impacts of urbanization on the environment:

- Causes loss of natural habitat due to deforestation which can decrease the species populations, often until extinction.
- The transmission of diseases. We have all witnessed what happened during the Covid -19 pandemic. It is easier in densely populated areas to spread the diseases rapidly.
- Urbanization also creates disturbed environments where native species of plants are being overpowered by invasive species.
- The use of asphalt and other dark-coloured materials in urban infrastructure increases the amount of sunlight absorbed causing the rise in temperatures.
- Paved areas increase water runoff, increasing soil erosion and therefore, decreasing soil quality. This also further decreases water quality as this water then flows into the rivers.

2.4.3 Impact of the Climate Crisis on Urban Resilience

Cities all across the world are facing challenges as climate risks are combined with urbanization, loss of biodiversity, poverty, wars and rising socioeconomic inequality. The probability of events with extreme effects like heavy rainfalls, flooding, heatwaves, and droughts affects not only human life but also economic loss and total well-being. It is expected that over time, these challenges would increase. Due to urbanization, there will be higher exposure to such events of the people living in cities.

These rapidly urbanizing areas put low-density, unplanned settlements in the outskirts at risk. These vulnerable areas face even more intense impacts of climate. Also, poorly maintained infrastructure, such as drainage systems and the wrong choice of materials can increase the scale of natural hazards, such as

flooding and urban heat island effects.²⁵

2.4.4 Sponge City Concepts

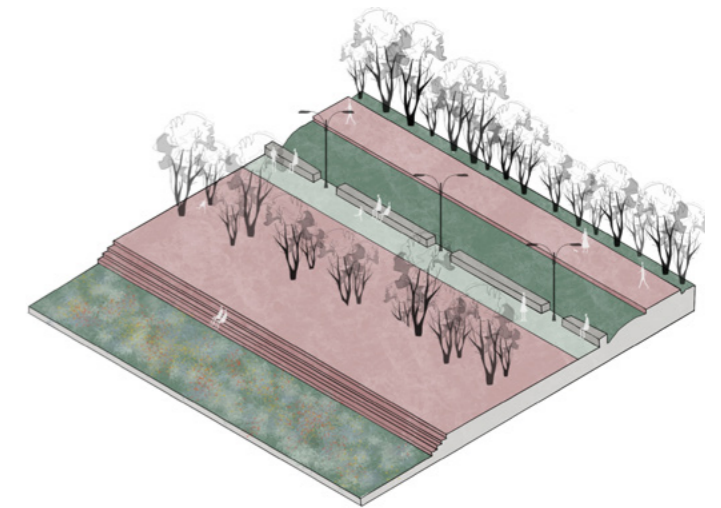
The climate change that we are facing has increased the amount of rainfall we receive. Our infrastructure is not planned in a way to accommodate this change in the volume of rainwater. This causes large volumes of accumulated surface water, which result in floods that can cause great damage to urban infrastructure. As a solution to this problem, the sponge city concept is a kind of green infrastructure which helps the permeation, storage, absorption and purification of this surface water.

Sponge Cities are cities which are designed to keep and absorb the rainwater where it falls through sustainable systems. Sponge cities reduce the damage to urban infrastructure which is caused by flooding. It includes elements of green infrastructure and technologies that allow greater absorbency in the soil for rainwater. Some of these concepts are permeable pavements, plants, green walls and green roofs, rain gardens, infiltration and retention wells etc. These elements can be combined with the road and drainage systems which help in the natural flow of water when they are not completely retained or absorbed. Apart from the absorption of rainwater, these systems also improve the quality of the water making it cleaner and reusable. They also help in improving the micro-climate and enhancing urban areas, help fight the heat island effect, increase biodiversity, bring leisure and aesthetics, and increase groundwater quality.²⁶

2.4.5 Urban Heat Island Effect

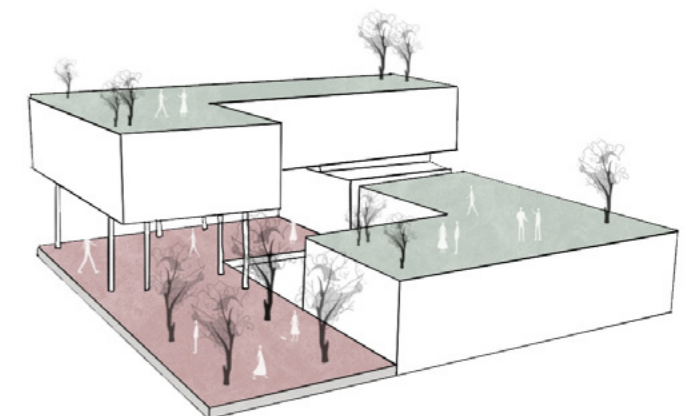
The urban heat island effect, or UHI, is a phenomenon where heat is accumulated in an urban area due to human activities. It is recognized as one of the reasons contributing to the global climate crisis. The increase in temperature caused by the UHI effect affects the urban

25. International Bank for Reconstruction and Development / The World Bank (Washington DC). *2021 World Bank - A catalogue for Nature Based Solutions*
 26. Archdaily, *What is a sponge city and how does it work*, <https://www.archdaily.com/979982/what-is-a-sponge-city-and-how-does-it-work>, 2022



F.2.1 Some of the concepts for greater absorbency of rainwater (Sponge city concepts)

- Permeable Pavements
- Plants and Green areas
- Meadows
- Trees
- Rain Gardens



F.2.2 Some of the concepts for greater absorbency of rainwater for Buildings (Sponge city concepts)

- Green Roofs
- Green facades
- Local materials

ecological systems, urban climates, biological habits and people's health.²⁷

There are several reasons which cause the Urban Heat Island effect.

- **Reduced Natural Landscapes**
Trees, vegetation, and water bodies tend to cool the air by providing shade. Hard, dry surfaces in urban areas provide less shade and contribute to higher temperatures.
- **Urban Material Properties. (Albedo Effect)**
Materials used such as asphalt, pavements, and metals absorb and emit more of the sun's heat. Also, dark surfaces lead to higher uptake of energy and, hence, warming.
- **Urban Geometry.**
Due to population growth, cities are becoming denser with buildings being constructed very close to each other. The heat generated has nowhere to escape and it remains between buildings. Narrow streets and tall buildings block the wind flow which helps in cooling the temperatures.
- **Heat Generated from Human Activities.**
Vehicles, air-conditioning units, buildings, and factories all emit heat into the urban environment contributing to the rising temperatures.²⁸

Nighttime temperatures in such areas also remain high. The surfaces where heat is trapped throughout the day, slowly release the heat during the night. Urban heat islands contribute to the worsening of air and water quality. It is perceived that urban heat islands might contribute to global warming.²⁹

It is high time we address this issue and design our cities to reduce their impact on the environment and climate change. Using green roofs, planting more trees and green areas, and using local and lighter-coloured materials could be some of the solutions to reducing the urban heat island effect.

27. Kim Rutledge et al., *Urban Heat Island*, National Geographic, 2022
 28. Yang, Li et al. *Research on Urban Heat-Island Effect*, Procedia Engineering, 2016
 29. United States Environmental protection agency, *learn about heat islands*, <https://www.epa.gov/heatislands/learn-about-heat-islands/>, 2022
 30. International Bank for Reconstruction and Development / The World Bank (Washington DC). 2021 *World Bank - A catalogue for Nature Based Solutions*

2.4.6 Nature-based Solutions in Urban Spaces

Nature-based solutions are methods that use nature and natural processes for delivering infrastructure, services, and integrative solutions to meet the rising challenge of urban resilience.³⁰ Nature-based solutions can provide many advantages to cities climate resilience, restoration of biodiversity, aesthetics, creating opportunities for recreation and leisure, cleaner water and air, human health. They also help in the events of flooding, drought, and extreme heat. Nature-based solutions can be applied on various scales in and around cities.

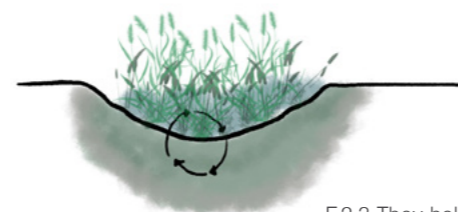
Following are some of the methods of Nature-Based Solutions:

Constructed Inland Wetland

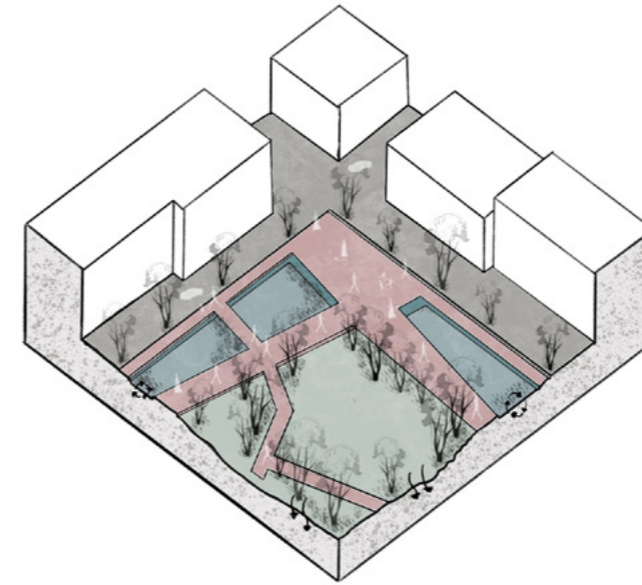
Constructed inland wetlands are engineered systems that have been designed and constructed to utilize nature in treating wastewater.³⁰ Constructed inland wastelands can help urban cities adapt to climate change. Constructed inland wetlands can be of various sizes.

Some of the major benefits of constructed inland wetlands are:

1. Reducing Flood risks
2. Lowering temperatures
3. Tourism and recreation
4. Human health
5. Biodiversity
6. Water quality and soil management



F.2.3 They help in gray water recycling in buildings and neighborhoods.



F.2.4 Isometric showing an example of constructed inland wetland in Urban context

- Constructed inland wetlands as recreation in the city to transform the neighborhood and add diversity to green spaces.
- They also increase the aesthetic and sensory experiences

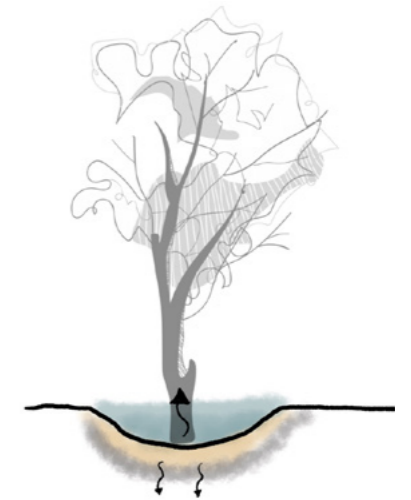
Bio Retention

Bio retention is another nature-based solution used to expand storm water and sewage infrastructure. Bio-retention areas are shallow vegetated depressions that treat storm-water flow. Plants in these bio-retention areas remove pollutants from stormwater.³⁰ Some examples of Bio retention are rain gardens, retention ponds etc. Whether a water retention area should be Depending on the storm-water volume to be collected, a bio-retention area dry or wet depends on the storm-water volume that needs to be collected in that area.

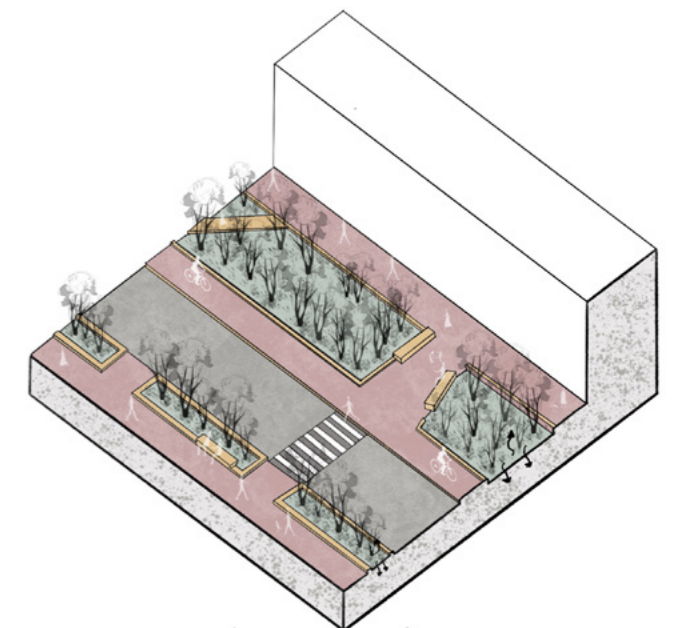
Systematically planned Bio Retentions areas can:

1. Enhance urban green infrastructure
2. Enhance biodiversity
3. Improve aesthetic,
4. Create recreational opportunities
5. Improve the quality of life

30. International Bank for Reconstruction and Development / The World Bank (Washington DC). 2021 *World Bank - A catalogue for Nature Based Solutions*



F.2.5 Bio-Retention is shallow vegetated depressions that can absorb, filter, and treat storm-water flow.



F.2.6 Isometric showing an example of Bio-Retention Areas in Urban context

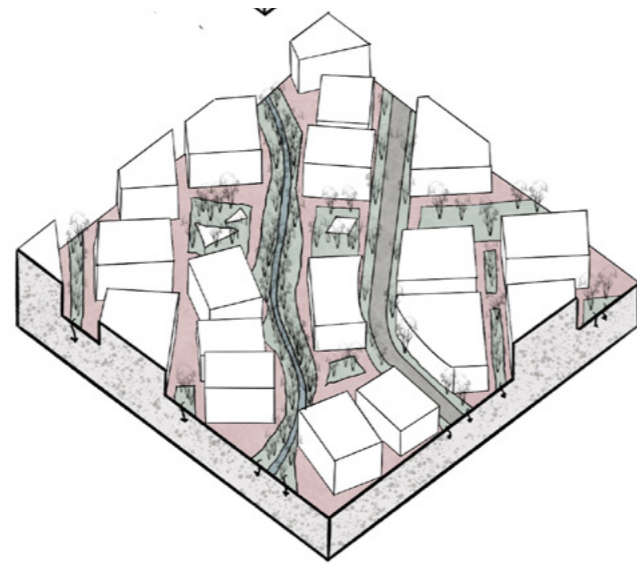
- Create natural and ecological spaces for recreation.
- Reduces the dominance of Cars and gray infrastructure and brings nature into public spaces.
- Improves transition into different spaces.

Green Corridors

Green corridors, can be called linear natural infrastructure, and are becoming an essential part of the urban landscape ecology. They are generally strips of trees, plants, or vegetation in different scales and typically connect green spaces in a city, creating a green urban infrastructure network. They help in protecting the natural habitat.³⁰ Street tree canopies, Green avenues, and urban green corridors are some ways in which green corridors can be introduced in a city.

Some of the major benefits of green corridors can be the following:

1. Reduces temperatures
2. Reduces carbon-di-oxide levels
3. Improves air quality
4. Reduction in noise pollution
5. Enhances biodiversity
6. Reduces flood risks
7. Creates opportunities for recreation
8. Creates Identity
9. Provides shade
10. Improves aesthetics
11. Improves Human health

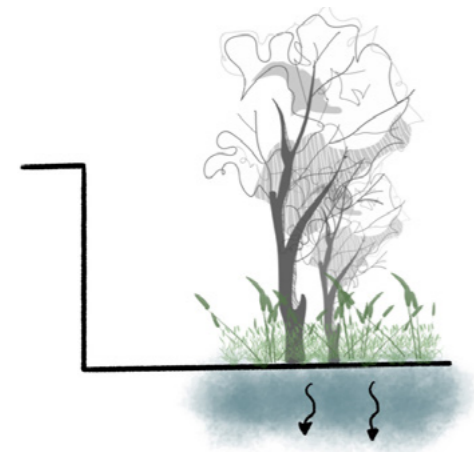


F.2.8 Isometric showing an example of Connecting Green Corridors Urban context

- Green Corridors along drainage lines improves water quality and provides habitat linkages for wildlife.
- Pocket parks act like stepping stones for the bio-diversity in urban jungles.
- Trees along roads enhance aesthetics, reduces heat, and provides shade for pedestrians.

2.4.7 Integration of Nature-based solutions for urban resilience

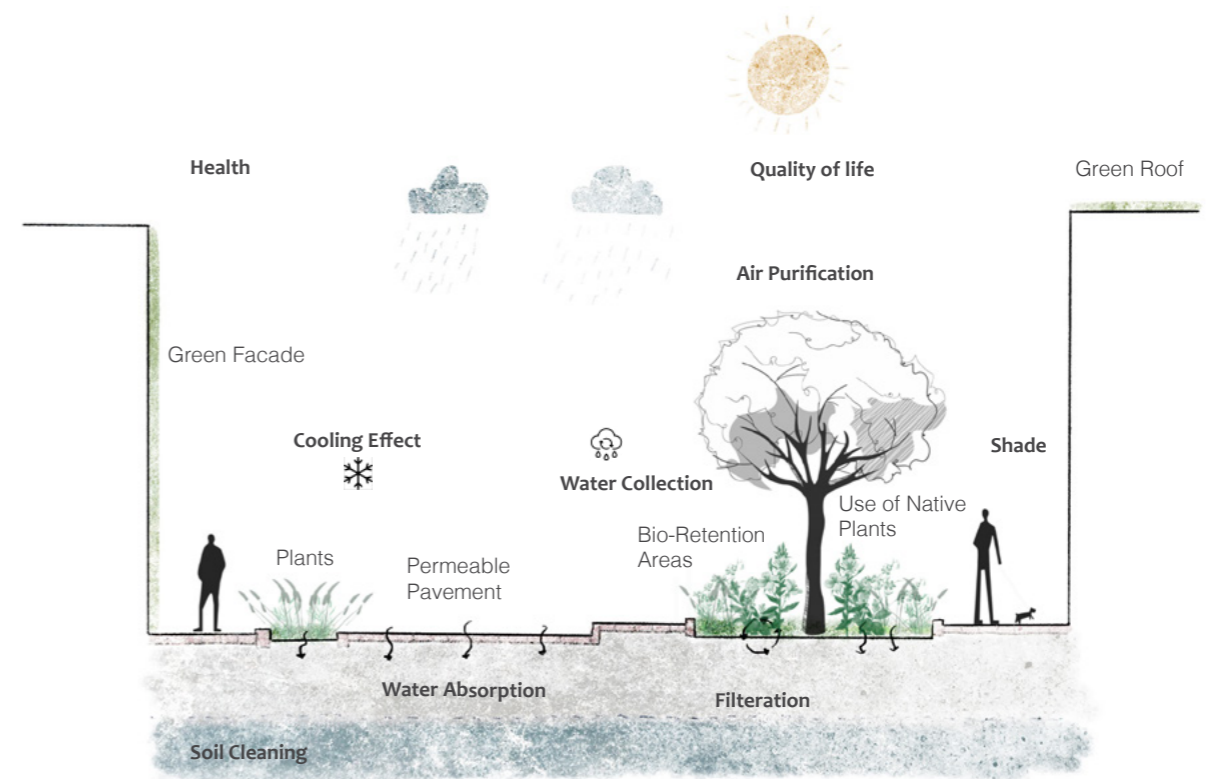
The urban landscape is an interrelated system. Nature-based solutions aim to increase urban resilience. When they are planned in a way keeping urban complexities in mind, they are generally effective. They can be applied at various scales in urban landscapes as most of the nature-based solutions are multifunctional. They are helpful in the management of various urban crises such as flooding and heat waves, pollution etc. The key benefits of NBS systems are urban resilience and biodiversity. They have aesthetic benefits that make neighbourhoods attractive.



F.2.7 Green corridors help in biologically absorbing, storing, and recirculating water.

They create opportunities for leisure, recreation and relaxation contributing to human health and quality of life. At the scale of the neighbourhood, measures for urban challenges are taken at a local level involving the buildings, the public places and the streets. The small-scale interventions can also build resilience. They can effectively manage storm-water and heat island effects. These NBS systems at the neighbourhood level can mitigate the impacts of air, water, and soil contamination. They also help reduce heat levels in cities by providing shade.

Some examples of nature-based solutions at the neighbourhood scale can be green roofs, green facades, private gardens in combination with green streets, Retention basins, rainwater retention ponds, and green water squares to store water.³⁰



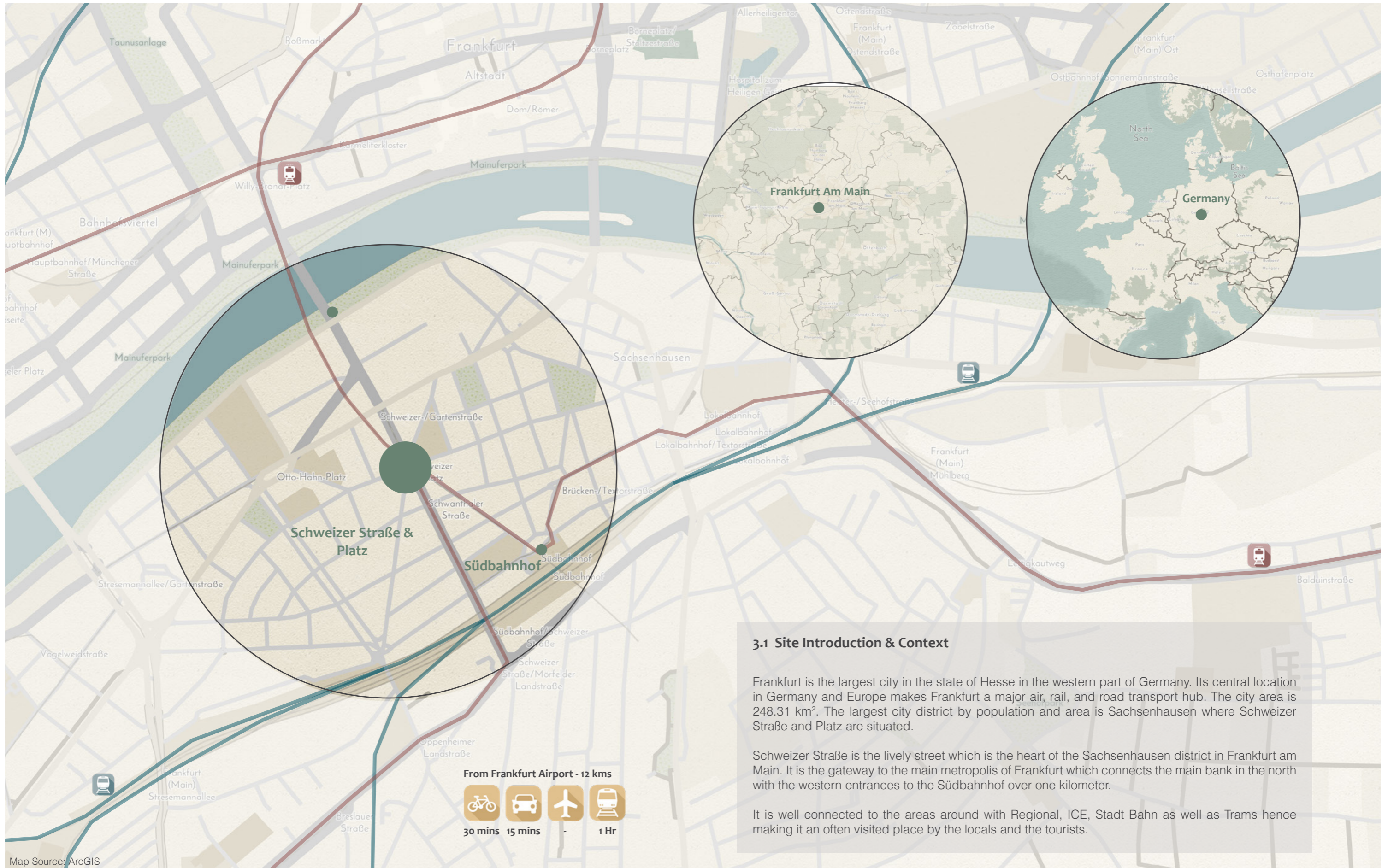
F.2.9 Examples of hybrid Nature-Based solutions integrating green and gray infrastructure and their effects.

30. International Bank for Reconstruction and Development / The World Bank (Washington DC). 2021 World Bank - A catalogue for Nature Based Solutions

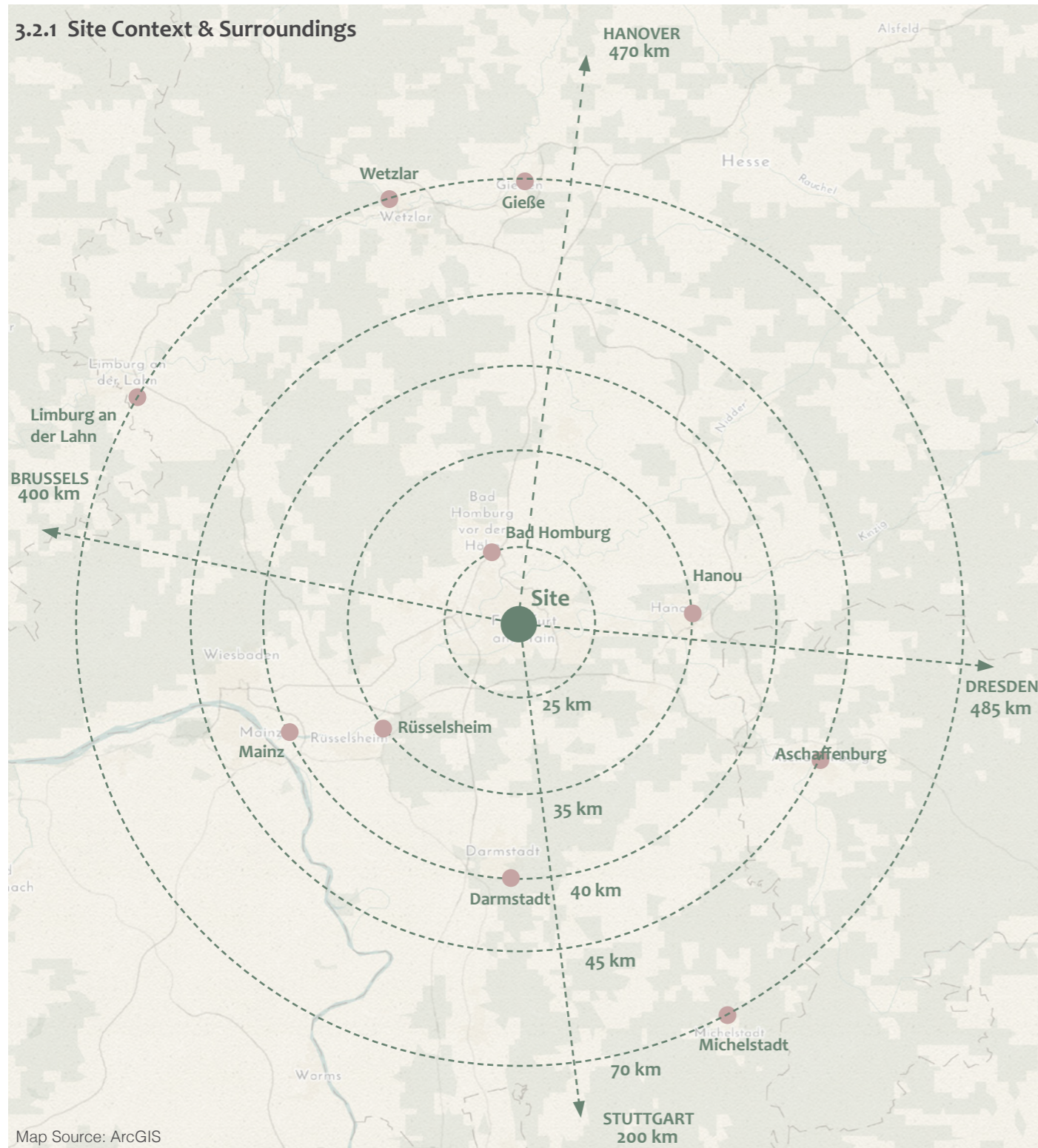
30. International Bank for Reconstruction and Development / The World Bank (Washington DC). 2021 World Bank - A catalogue for Nature Based Solutions

**“Cultures and climate
differ all over the world,...**

**...But people are the same.
They will gather in public if
You give them a good place
to do it.”**



3.2.1 Site Context & Surroundings



3.2.2 Site Context & Neighbourhood



I.3.1 : History Museum



I.3.2 : Städel Museum



I.3.3 : Metzler Villa



I.3.4 : Metzler Park



I.3.5 : Mainuferpark



I.3.6 : Eiserner Steg



I.3.7 : Schweizer Straße

3.2.3 Transport Infrastructure & Road Hierarchy



F.3.1 Main Road



F.3.2 Cycle Tracks



F.3.3 Walking Paths



F.3.4 U-Bahn Route



F.3.5 Straßenbahn Route

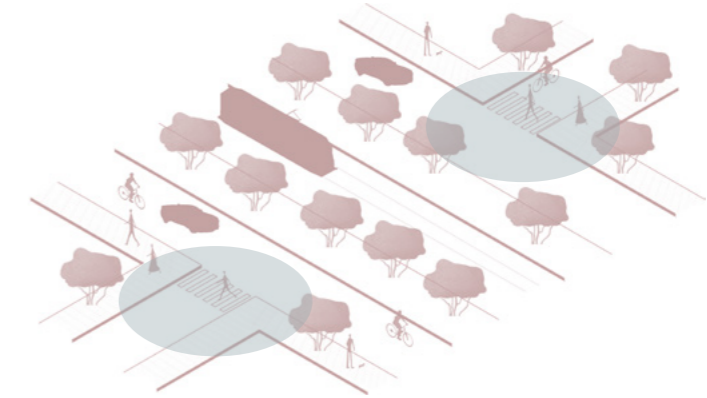


F.3.6 Railway Route

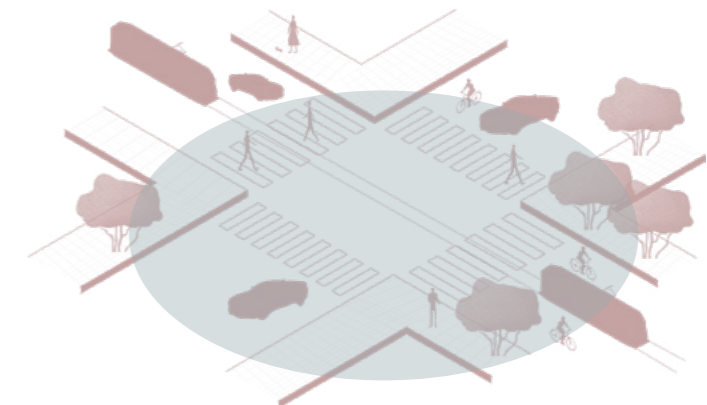
Motorized individual traffic is routed in a straight line via Schweizer Platz as well as the tram. Motor vehicle traffic is also from the adjacent side streets on Schweizer Platz and along the roundabout. This affects the quality of stay on the square also making it less safe for pedestrians and cyclists.

There are a few lanes which are reserved only for cycles and some for pedestrians, but not along the Schweizer Straße.

3.2.3 Transport Infrastructure & Road Hierarchy



F.3.8 Conflict area created at the junctions near Schweizer Platz. Inaccessible central green area



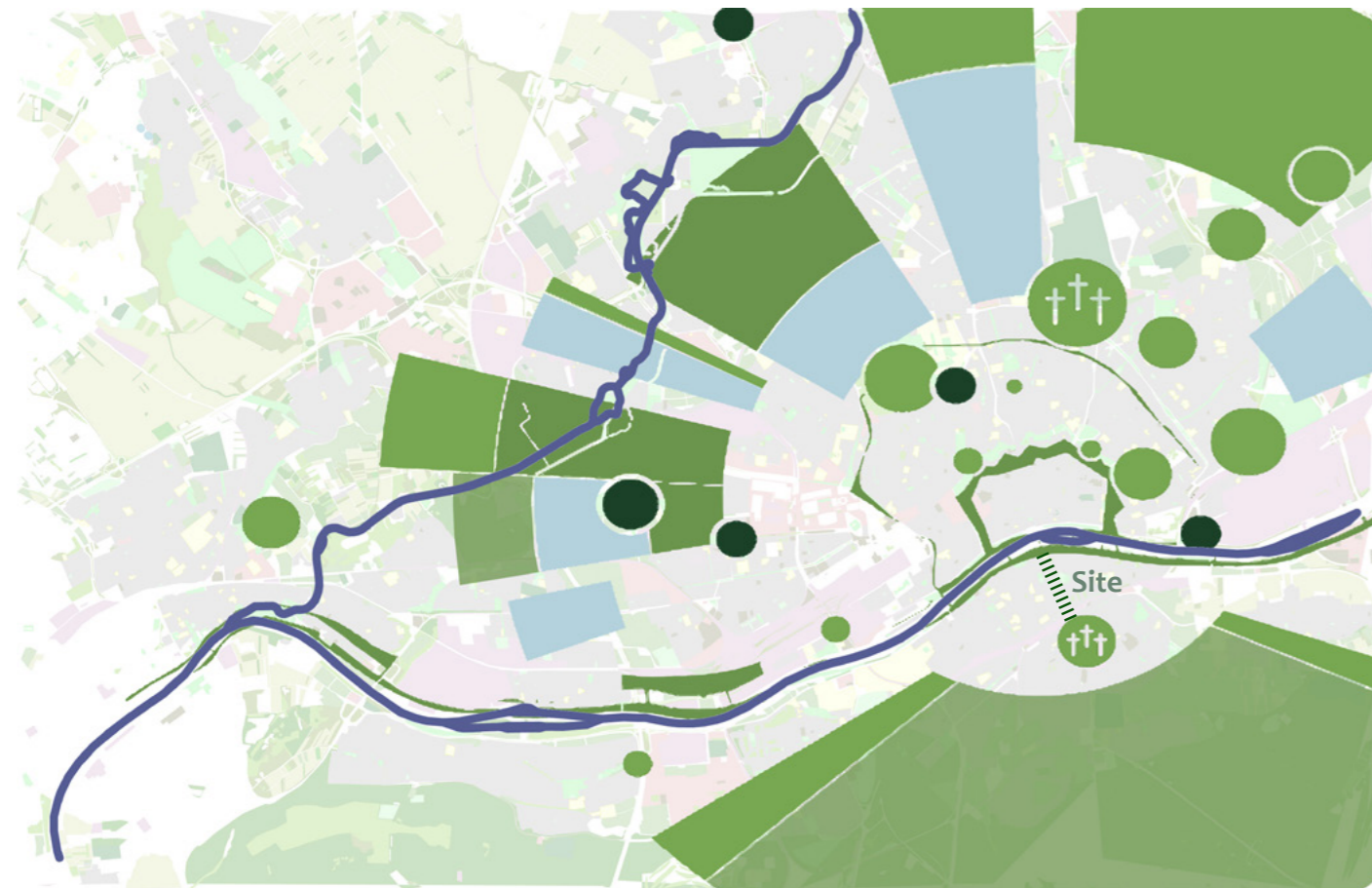
F.3.9 Conflict area created at the junctions.

Schweizer Strasse is very well connected by public transport system. We have multiple bus stops here on the street as well as around. Apart from the parallel parking available on the street, there are also few parking areas especially near the Bahnhof and the School. There are multiple opportunities for cycle parkings as well as stands for cycle on rents.

At Schweizer strasse, the quality of stay has been hampered by the dominance of cars. The areas for pedestrians, cycles, cars and trams is not properly segregated giving rise to conflict areas causing concerns for accidents and making the street less safe especially for the kids, the older people and the differently abled people.

Hence, many stakeholders would like to see a clean Schweizer Platz and a tidy Schweizer Strasse that offers walking and strolling opportunities without losing the individuality of the street. They also wish to minimize CO2 emissions by reducing motorized traffic, specifically "more people and nature instead of traffic" as well as improved noise protection. Increasing the quality of stay at Schweizer Strasse and Platz is therefore one of the most important aspects of the design proposal

3.2.4 Green & Blue Infrastructure



F3.10 Proposed Green Planning 2030 by Frankfurt City Council.

Legend :

- New Parks
- Historical Parks
- Bahnhof
- Public Green Area
- City Forest Area
- Other Green Areas
- Water

When taking a closer look at Frankfurt's green and open spaces, it is possible to distinguish between many individual features, e.g. the historic parks, the green parks or the green corridors, using typology, areas with similar qualities and functions can be grouped together. Inspired by the specialized concept of Green and Open Space STEP 2025 of the City of Vienna, 2015, a typology of public and publicly accessible green spaces was developed for the city of Frankfurt. It describes eleven open space typologies and their qualities, functions, opportunities and future visions in urban development. Pedestrian Zones, Avenues, Neighbourhood squares, Green Axes, Green Corridors, Parks, Urban Forests, Open lands, and other open land are these 11 typologies.³¹

Schweizer Straße can act like a green link connecting these other green areas as seen in the map.

31. Stadt Frankfurt Am Main, Integriertes Stadtentwicklungskonzept Frankfurt am Main 2030+, Fachbeitrag Grün und Freiraum, 2019



F3.11 Existing Open Areas map

Legend :

- Common Meadows
- Parks
- Garden
- Sport Field
- School Yards (Specific times only)
- Weekly Market
- Platz
- Trees

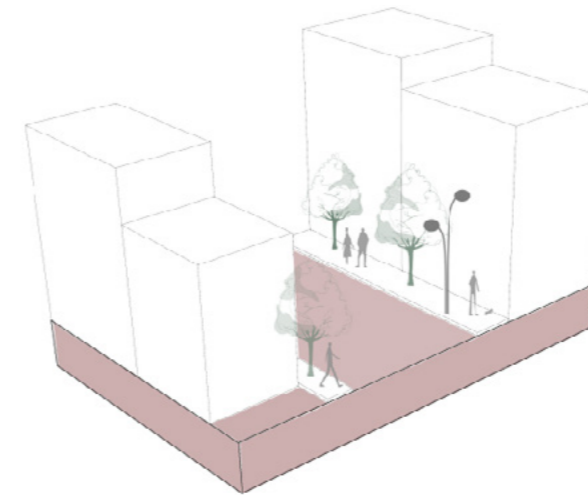
3.2.5 Built Environment - Building Density and Use



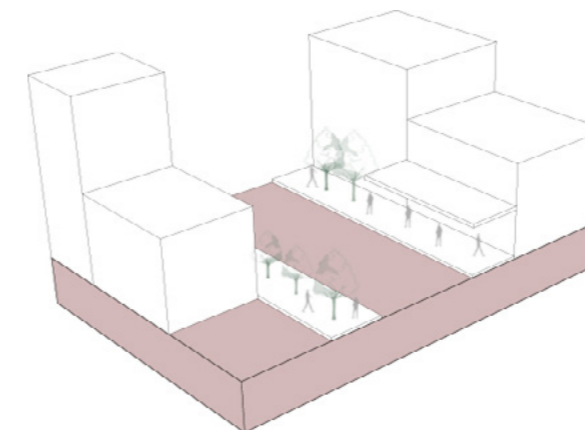
F.4.12 How a busy day at Schweizer Straße looks like in current times



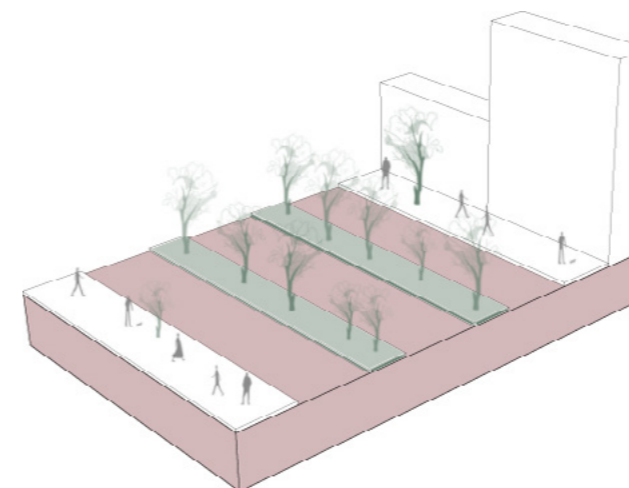
F.4.13 Understanding the density with open - built ratio around Schweizer Straße



F.3.14 Condition 1: Tall buildings on both sides with small Footpaths



F.3.15 Condition 2: Combination of short and tall buildings on both sides with wider Footpaths and Canopies



F.3.16 Condition 3: Near the Schweizer Platz with inaccessible Green area in center

Building Density

Since Schweizer Straße is centrally located in the city and at a walking distance from Süd Bahnhof, it is not a surprise to see the area so densely populated (with built structures) with lesser open spaces around.

The experience of walking along the street changes at every nook and sometimes it is not very safe and pleasant. Following are the three conditions observed at Schweizer Straße and Platz.

1. There are tall buildings on both sides and narrower footpaths. The trees are sparse and it is not a very pleasant experience to walk along such corridors.
2. Then there is a combination of tall and short buildings, with wide footpaths and dense tree foliage but the wider the footpaths, the more space occupied by the outdoor gastronomy seatings.
3. This condition is along the Schweizer Platz where the road gets bigger and opens up forming a central green circle but inaccessible to the public.

3.2.5 Built Environment - Building Density and Use



Legend :

- Education
- Bakery
- Gastronomy
- Retail
- Health
- Super Market
- Post/Bank

Building Use

The majority of the buildings along the Schweizer Straße are either Gastronomy or Retail Outlets making it one of the most visited streets in Frankfurt. Apart from these there are two schools which makes our user profile more diverse. Building use plays an important role in the quality of the street as it decides the user profile of the site. This also affects the quality of stay of the street. Quality of stay helps people connect and gives them a sense of belonging and rootedness.

Buildings are an important part of the street geometry, they provide a frame as well as define a character to the street. Buildings and their uses make each street unique and hence should be taken into consideration.

F.3.17 Building Use Map

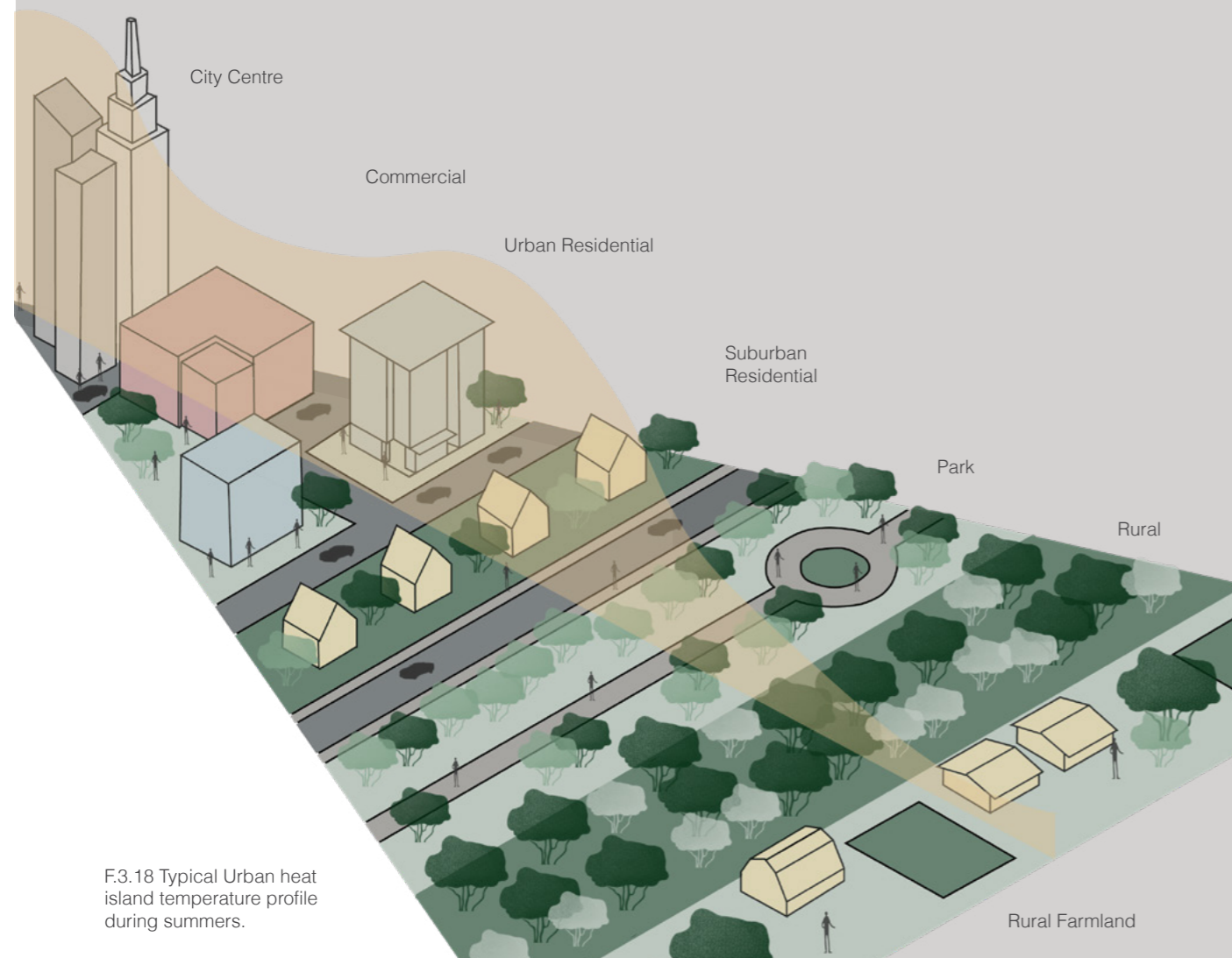
3.2.6 Micro and Macro Climate

Heat Island Cooking German Cities!

Cities are always warmer than their surrounding rural areas, this phenomenon is known as the 'Urban Heat Island effect'. Paved surfaces, building materials and density in the cities absorb more heat than the rural areas causing this temperature difference. This effect is being experienced in German cities as well. This dramatic rise in the temperatures is harmful not only to human health but also to the ecosystem.

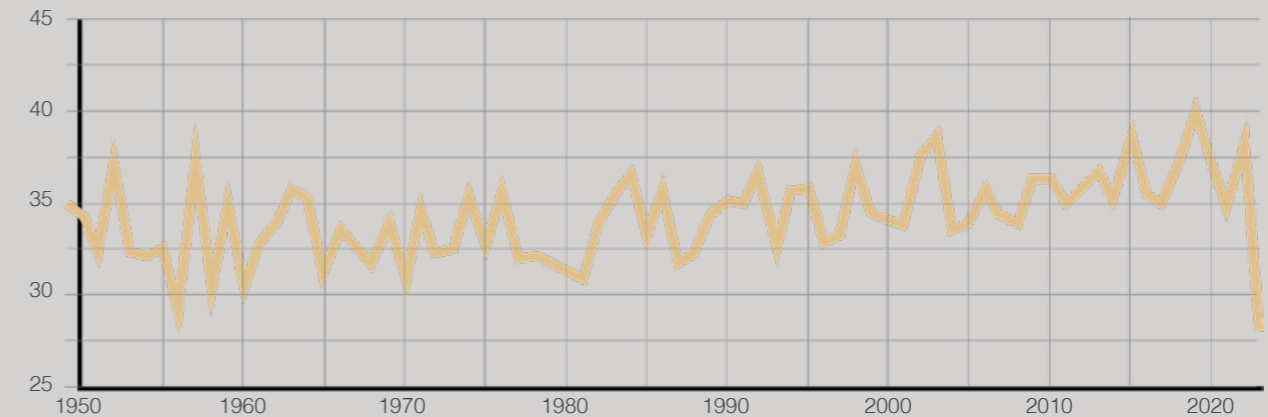
Heat Island Effect affecting Micro Climate of Schweizer Straße

Schweizer Straße is a typical commercial urban area with mid-rise building density and some trees. Even so, the building materials are non-reflective and therefore absorb heat. Also, road surfaces and other paved areas absorb large amounts of heat due to their dark colour. This heat is absorbed during the day and then released slowly at night, increasing the temperature. With the increasing traffic at Schweizer Straße, the pollutants from cars add up to this. The absence of a water body (apart from the Main River) and green areas to cool down these rising temperatures by evaporation, the urban heat island effect is strongly felt here. This affects the micro-climate of the site.

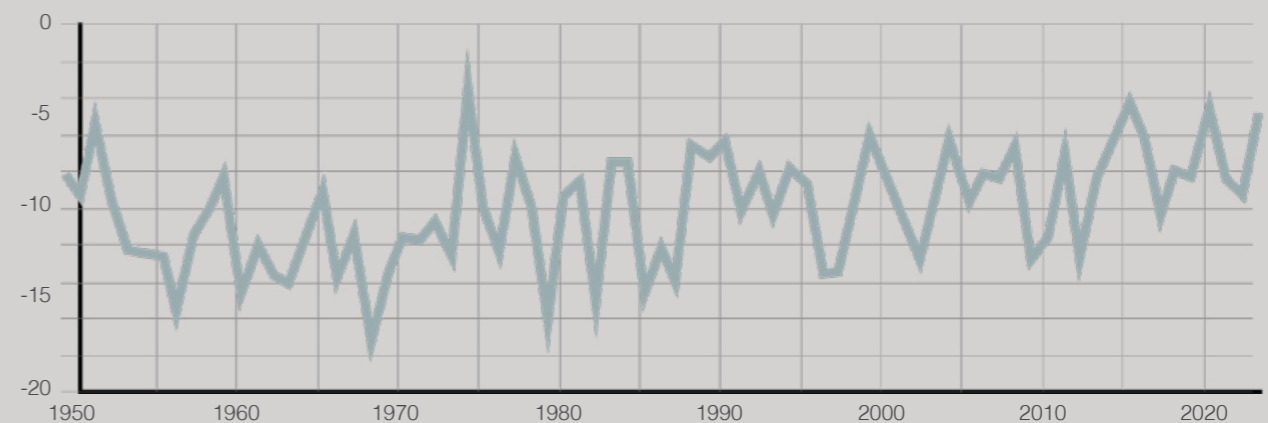


F.3.18 Typical Urban heat island temperature profile during summers.

Temperature Fluctuations in Frankfurt Am Main in the last few decades.



F.3.19 This graph shows maximum temperatures recorded every year from 1950 - 2023



F.3.20 This graph shows minimum temperatures recorded every year from 1950 - 2023

The above charts have been made as per the recordings and archive sources of 'Deutscher Wetterdienst' and 'Wetter Zentrale'. Tobias Fuchs, Head of Climate and Environment at the Deutscher Wetterdienst, said, "Climate change is advancing. Greenhouse gas emission is increasing unchecked. The consequences are clear: the average annual temperature in Germany has already risen by 1.6°C – more than anywhere else in the world. We are feeling the effects here at home: the number of hot days with maximum temperatures above 30°C has almost tripled and winter precipitation has increased by 27 percent."³²

If climate change is strong, all of Germany would become a hot-spot for climate change risks by the end of the century. With an increase of 0.25 degrees Celsius in every decade (between 1951 and 2015), the temperature increase in Germany is well above the global average of the increase. A significant change can be seen from the late 1980s. The minimum daily low temperature and the maximum daily high temperature rose even more sharply than the average air temperature (on average just under +0.5 degrees Celsius per decade in the period from 1950 to 2015).³²

32. Umwelt Bundesamt, 14.06.2021

33. adelphi research gemeinnützige GmbH et al. - Climate Impact and Risk Assessment 2021 for Germany, Umwelt Bundesamt, 2021

3.3.1 Neighborhood Structure

This analysis was done by the Frankfurt City Council's team of Schweizer Straße reinvention and was later published for the general public in their feasibility report. It gives us a clear picture of the kind of neighborhood structure we have at Schweizer Straße.

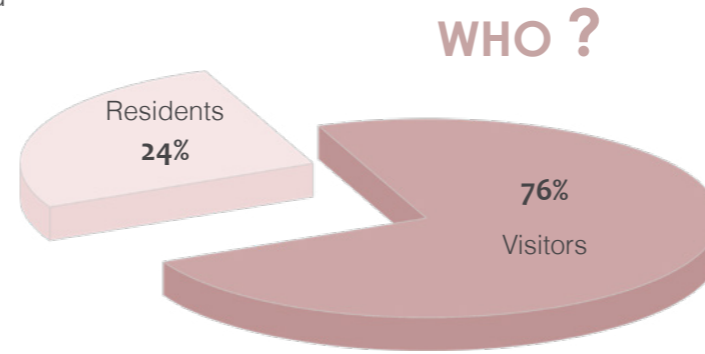
A total of 794 people were interviewed during this process and their feedbacks were documented. The questionnaires were mostly about the kind of experience they would want Schweizer Straße and Platz to have but they also collected information about general demographics of the site. The following statistical explanations refer to the data collected after receiving the answers to the interview questionnaires.³⁴

This data represents:

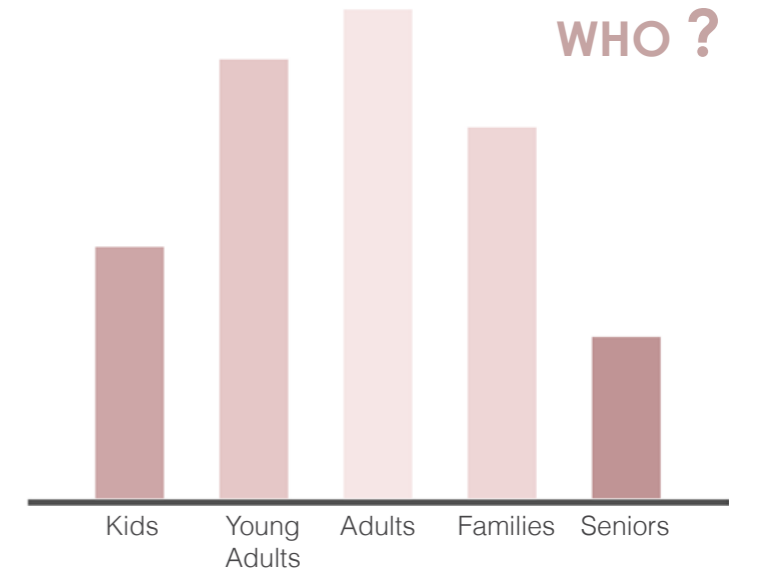
1. The Ratio between Residents and Visitors.
2. User Profiles/Categories.
3. Frequency of visitors.
4. Age Groups.



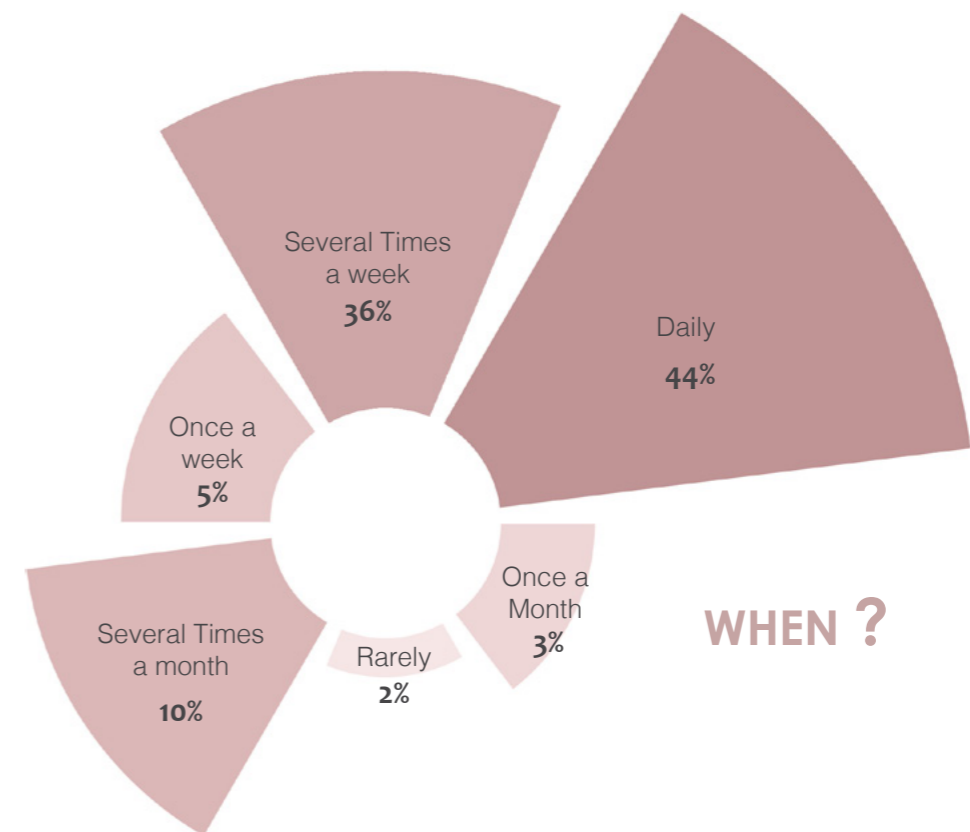
F.3.21 There is diversity of type of visitors coming in at Schweizer Straße and Platz. Some people also claimed to fall into multiple categories



F.3.22 This chart shows that the group was a mix of residents and visitors, but majority are visitors.



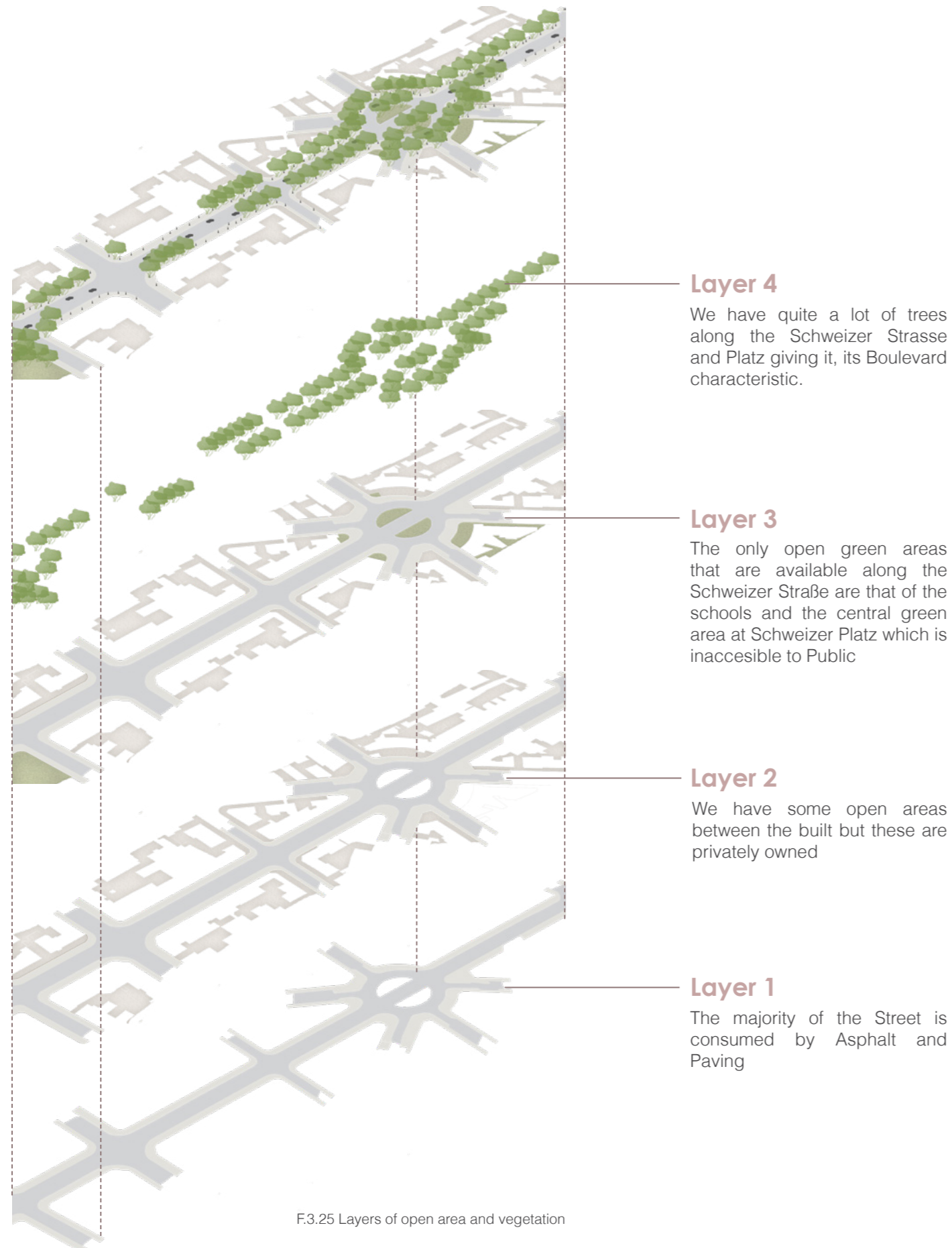
F.3.23 The age group of the visitors is varied and hence the design should be catered to all



F.3.24 This chart shows the frequency of the times interviewees visit Schweizer Straße and Platz. There are a lot of people who visit it daily.

34. Stadt Frankfurt, Öffentlichkeitsbeteiligung, Umgestaltung der Schweizer Straße und des Schweizer Platzes, Ergebnisdokument, Frankfurt, 2023

3.3.2 Open Areas and Vegetation



Ulmus laevis

Large tree with a broad, ovoid, loose crown, relatively fast-growing. 15 to 25 (35) m in height and 10 to 20 (25) m in spread. Annual growth of 40 to 50 cm in height and 30 cm in width.

Type: Deciduous Tree
Location: Sunny to semi-shady.
Blooming Period: From March to April.

Platanus acerifolia

Large, fast-growing tree with strong main branches and a wide, domed crown, 20 to 30 m tall, occasionally taller, crown diameter 15 to 25 m.

Type: Deciduous Tree
Location: Sunny to shady.
Characteristics: Generally very adaptable.

Robinia pseudoacacia

Medium to large tree with a rounded crown, branches asymmetrical, often twisted, upright or widely spreading. 20 to 25 m in height and 12 (15) to 18 (20) m in spread.

Type: Deciduous Tree
Location: Full sun.
Blooming Period: From late May to early June.

Tilia platyphyllos

Mighty, large native tree with free standing short, strong trunk, branches very low-lying, fast growing. Larger and mightier than the small-leaved lime.

Type: Deciduous Tree
Location: Sunny to semi-shady, in a cool, humid climate.
Blooming Period: From June to July.

Acer platanoides

Large, round-crowned tree with a densely closed crown and fast-growing. 20 to 30 m in height and 15 to 22 m in spread. Annual growth in height 45 to 60 cm

Type: Deciduous Tree
Location: Sunny to semi-shady.
Blooming Period: From April.



I.3.8: Ulmus laevis

The Schweizer Straße was built in 1871. By 1910, mainly late-classical residential and commercial buildings were being built on the street and almost 140 trees were planted. But since then there have been a lot of changes. As the streets had increasing motor traffic a lot of trees were fallen. Also, changes in the climate have decreased the number of trees. It's the trees which give Schweizer Straße its character or genius loci and hence it is extremely important to preserve these trees. Today Schweizer Straße has around 86 healthy trees, some being old and some newly planted.

The tree which is mostly seen and identified at Schweizer Straße is the 'Platanus acerifolia' or the Plane Tree. Apart from these, I was able to identify the following species of trees:

1. Ulmus laevis
2. Robinia pseudoacacia
3. Tilia platyphyllos
4. Acer platanoides

3.3.3 Utilities and Infrastructure



I.3.9 : Dustbin at Schweizer Straße



I.3.10 : Cycle Park Stands at Schweizer Straße



I.3.11 : Traffic Signal near Schweizer Platz



I.3.12 : Dustbin at Schweizer Straße



I.3.13 : Bench near Schweizer Platz



I.3.14 : Street Light on Schweizer Straße

The infrastructure and utilities available at Schweizer Straße can be distinguished in positive and negative. As seen in the pictures we can identify them to be the following:

Positive:

- Well lit areas
- Universal Accessibility
- Parking

Negative:

- Health and Sanitation (more dustbins needed)
- Organized Cycle Stands
- Unsafe areas due to traffic
- Absence of adequate sitting equipment (only 5 benches available near the Platz)
- Undedicated organization of space

3.4.1 History

The construction of Schweizer Straße was started in 1871 after the completion of the Untermain Bridge. In the same year, the staff of the “Royal Prussian Directorate of the Bebraer-Hanauer Eisenbahn zu Kassel” moved into the newly built directorate and residential buildings on both sides of Hedderichstrasse in the late classical style. Around 1910, the development of Schweizer Strasse was completed. It has always been a busy place for traffic. First the horse-drawn tram, then from 1889 (until 1929) the steam-powered forest railway and from 1899 the electric tram. Since 1984, underground trains 1, 2 and 3 have crossed the Main to the city center.

Schweizer Platz, laid out in 1877 and planted with plane trees, has changed its appearance several times. From January 20, 1933, to January 30, 1961, it was called Gustav-Adolf-Platz. A beating heart from which seven streets branch off: it is often compared to squares in Paris. The edge of the square was built around 1885-1888. Today it is passed by the tram and underpassed by the subway. Fruit stands, a kiosk and a café make it a lively meeting place.



I.3.15 : Map of Frankfurt Am Main from ca. 1715



I.3.18 : Schweizer Platz 1953



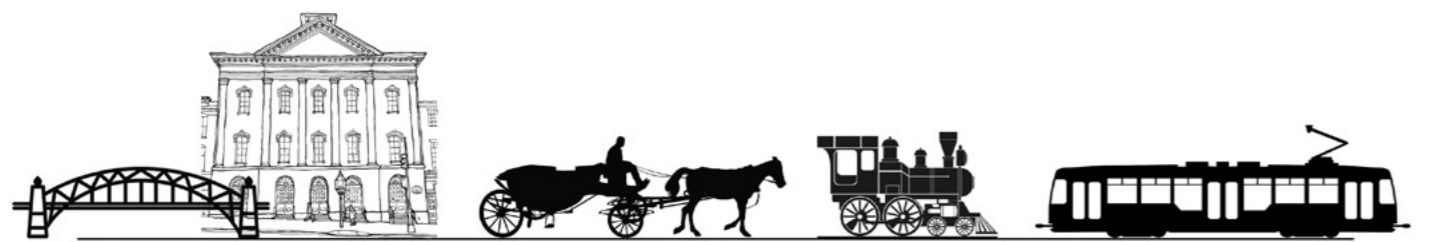
I.3.16 : Map of Frankfurt Am Main from ca. 1911-1912



I.3.17 : Zoomed in image of the map near Schweizer Straße



I.3.19 : Schweizer Platz 1910



- 1874**
Construction of Untermain Bridge completes.
Construction of Schweizer Straße ends
- 1878**
Residential buildings on both sides in the late classical style.
Horse carts for Transport.
- 1899**
Steam Powered street trams for transport
- 1984**
Use of Electric Trams at Schweizer Straße begins
- 2023**
?

3.4.2 Shading Typologies

The existence of shading affects the behavior modes of street users by diversifying their activities. Shading provides a transitional medium for users, adds flexibility and provides moments of respite from the blazing weather.

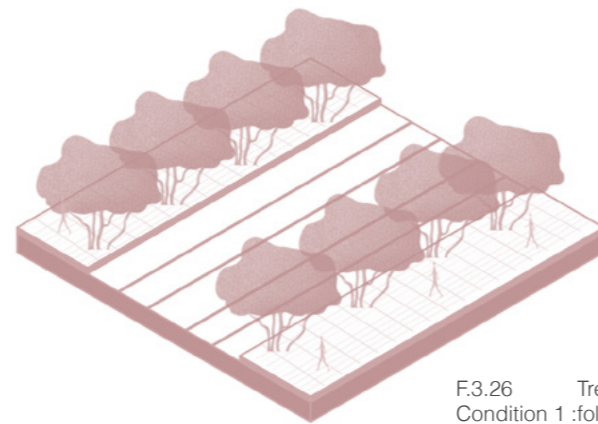
At Schweizer strasse, in combination with the built environment, shading plays a vital role. These are some kinds of typical shading typologies that were observed on the street.

1. Trees with dense foliage on both sides of the road.
2. Trees with a mix of dense and sparse foliage on either both or one side of the road.
3. A combination of sparse trees and Restaurant/Shop canopies provide shade to pedestrians.
4. Very less to no shading elements are present.

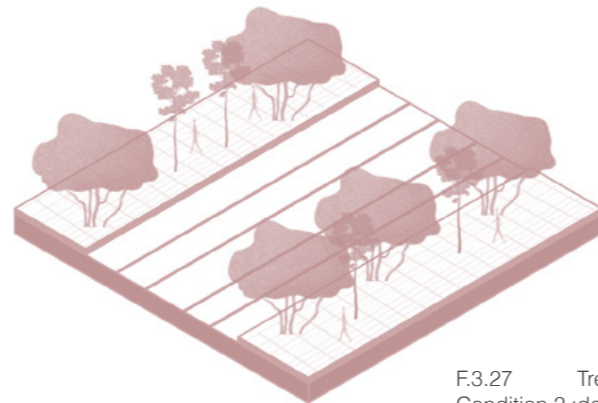
In this 4th typology, it was observed that no people stayed and just walked past the area also the speed of walking in such areas increases.



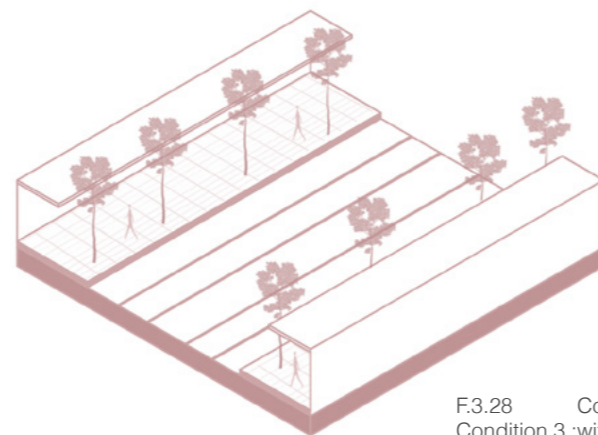
- Positive:
- Condition 1
 - Condition 2
- Acceptable:
- Condition 3
 - Condition 4
- Negative:
- No trees



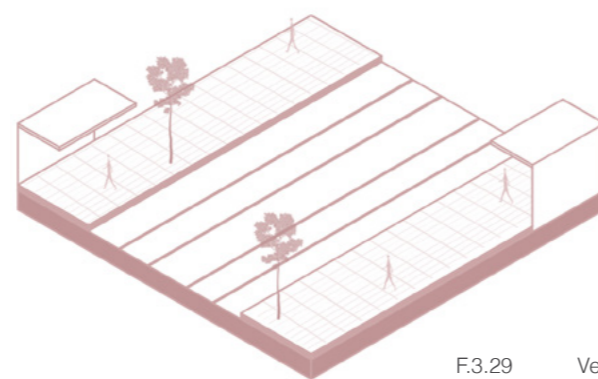
F.3.26 Trees with dense Condition 1 :foliage.



F.3.27 Trees with mix of Condition 2 :dense and Sparse foliage.

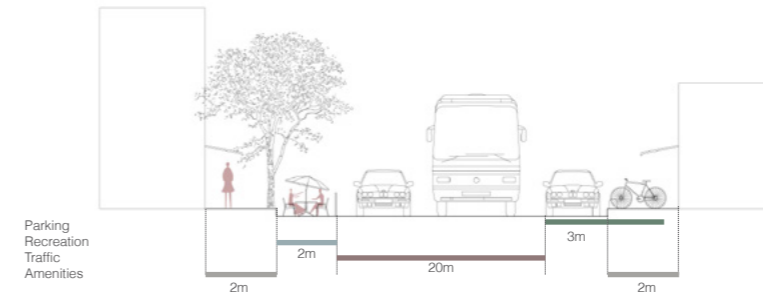


F.3.28 Combination of Trees Condition 3 :with Sparse foliage and Canopies

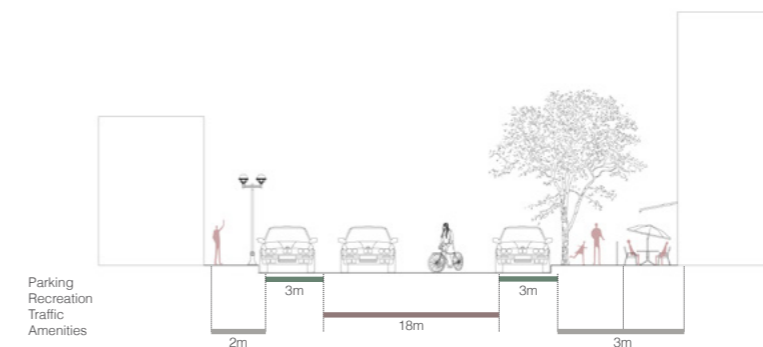


F.3.29 Very less to no Condition 4 :shaded areas

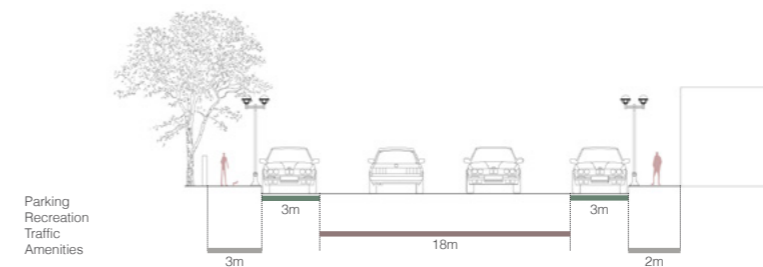
3.4.3 Street Experience - Schematic Site Sections



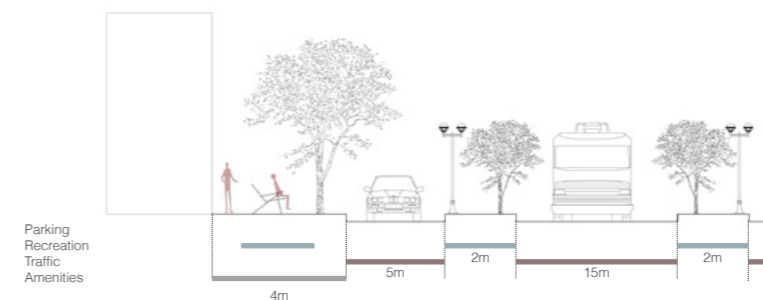
F.3.30 Section 1



F.3.31 Section 2



F.3.32 Section 3



F.3.33 Section 4

I have cut four sections along the street to compare the use of street spaces during everyday life. The dynamics of Schweizer Strasse continue to change multiple times and are adapted by the users. To compare the use of street I have distinguished them into four categories: Parking, Recreation, Traffic and Amenities.

While Traffic takes the majority of the street width followed by parking and amenities, the use for Public recreation is very restricted. It is observed that the streets are dominated by vehicles and pedestrians take a back seat. It is also of equal concern that the uses are not clearly distinguished in some areas and appear to overlap.

3.4.4 Edge Conditions



- Condition 1
- Condition 3
- Condition 2
- Condition 4

Edge conditions of the street affect the movement of the people. It also contributes in making streets as dynamic spaces. More the interaction of the edge conditions with the street, more the engagement of the people. Following are few of the edge conditions observed at Schweizer Straße and their description.



I.3.20 : Edge Condition 1 on Schweizer straÙe



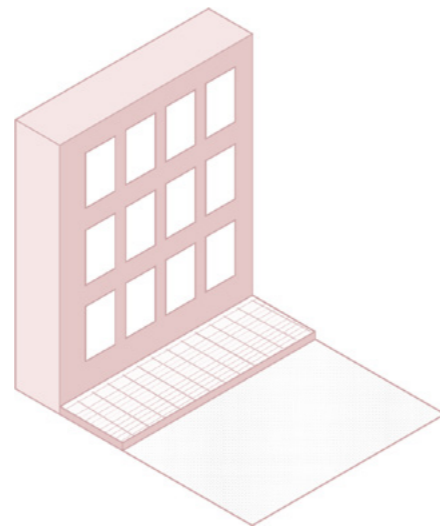
I.3.21 : Edge Condition 2 on Schweizer straÙe



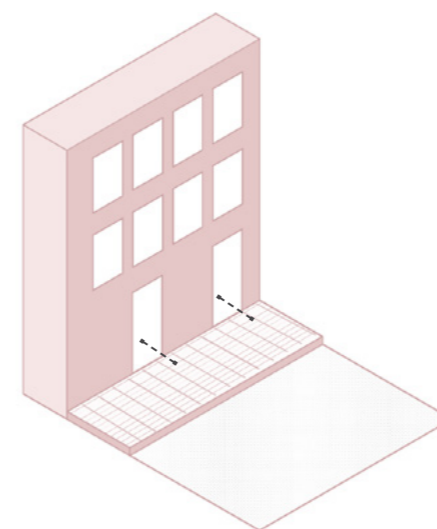
I.3.22 : Edge Condition 3 on Schweizer straÙe



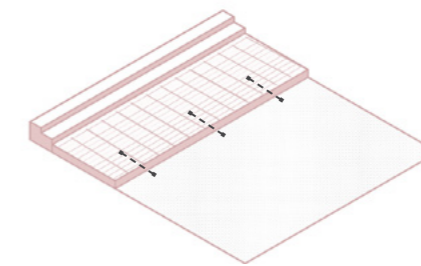
I.3.23 : Edge Condition 4 on Schweizer straÙe



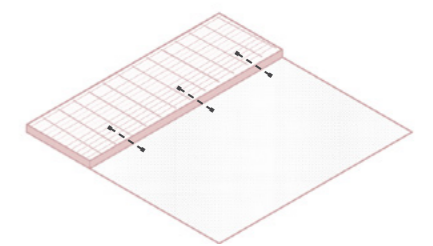
F.3.34 Condition 1 :Dead Wall



F.3.35 Condition 2 : Open Entry



F.3.36 Condition 3 : Stairs



F.3.37 Condition 4 : Only Curb

Opaque:

- Physically and visually impermeable.
- Does not offer any scope of participation directly.
- Allows no exchange between the street and interiors.

Semi Permeable:

- Physical permeability but less visual impermeability.
- Does not offer any scope of participation directly but some indirect participation possible.
- Allows some exchange between the street and interiors.

Permeable:

- Visually and physically permeable but has a limit. (eg. People on wheelchairs)
- Allows possibility of direct participation.
- Unlimited exchange between the street and interiors.

Permeable:

- Visually and physically permeable.
- Allows maximum possibility of direct participation.
- Unlimited exchange between the street and interiors.

3.4.5 Material and Colour Palette



I.3.24 : Schweizer Platz



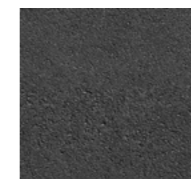
I.3.25 : Schweizer Straße



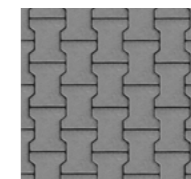
I.3.26 : Schweizer Straße



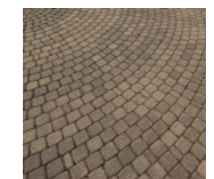
I.3.27 : Schweizer Straße



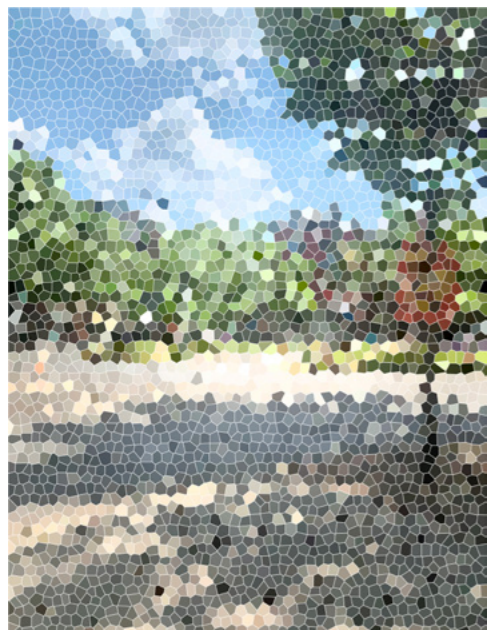
I.3.28 : Asphalt



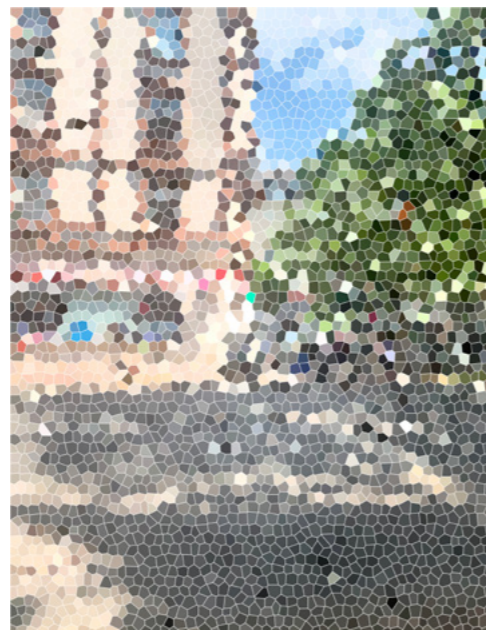
I.3.29 : Paving Block in Gray



I.3.30 : Paving Block in Beige



F.3.38 Colours observed at Schweizer Platz



F.3.39 Colours observed at Schweizer Straße



F.3.40 Colours observed at Schweizer Straße



F.3.41 Colours observed at Schweizer Straße

Colour is an important tool in selecting the materials, colours and textures needed for the design. The analysis of the colours is very site as well as season specific and hence would always keep changing.

The colours of the materials and the built environment would be called permanent colours while that of the sky and the vegetation is seasonal. Another factor that determines the colour analysis of a site is that of people and other changing elements.

The palette of materials is rather simple and commonly found in German cities. The biggest percentage of it is covered by the Asphalt of the road and the paving of footpaths.

S

STRENGTHS

- Located in the centre of the Sachsenhausen district in Frankfurt am Main making it easily accessible by everyone.
- The Schweizer Straße also hosts Das Schweizer Straßenfest every year in June since 35 years and it attracts a crowd of around 200,000 people. This includes tourists as well as local people.
- Well-established connection of roadways and railways as well as it's proximity to the city centre and also to the neighboring districts and cities makes it a lively street.
- There is diversity of type of visitors coming in at Schweizer Straße and Platz.
- Trees such as Platanus acerifolia planted along the street giving it a typical characteristic of a Boulevard which needs to be enhanced and preserved.
- Participation of the public in order to make Schweizer Straße and Platz a better and inclusive place for everyone.

O

OPPORTUNITIES

- Knowledge of the development potential by the city council, the feasibility study, public participation and necessary economical factor for the same.
- Surrounding tourist spots attracting and boosting the visitors of Schweizer Straße and Platz.
- The Schweizer Straße offers the citizens a unique experience making it popular and thus being the "Boulevard of Desires". It offers its visitors almost everything from retail shops to fine butchers and bakeries and from tea and wine shops to boutique cafes, cider bars and multiple Restaurants.
- Most of the street is visually and physically permeable which helps in interaction between the street and the built environment.
- Enhancing the street experience would make Schweizer Straße a place for community and culture.

W

WEAKNESSES

- Poorly maintained as well as inadequate infrastructure and materials which hinders the quality of stay.
- Unorganized segregation of areas, where uses are not clearly distinguished resulting in the clash of activities.
- Traffic dominates Schweizer Straße and occupies majority of the street width followed by parking and amenities, the use for Public recreation is very restricted.
- Undefined cycle tracks, less walkways for pedestrians result in unsafe spots, thereby reducing the experience and the potential of the street.
- Absence of appropriate guidance systems for the visually impaired. Unaccessible green areas at Schweizer Platz.
- Lack of attractive social activity space.
- Lack of space to pause without having to shop/eat at the Schweizer Straße

T

THREATS

- Increasing traffic along the street of not only cars, but also of tram, hop on-hop off tourist buses and delivery vehicles.
- Increasing amount of noise pollution as well as adverse effect on climate. Use of inappropriate materials and design giving rise to urban heat islands.
- Absence of porous materials and increasing rainfalls affecting the water absorption at Schweizer Straße.
- Lack of continuous maintenance of the infrastructure.
- Ample space for parking but inversely taking most of the space for pedestrians, also absence of parking areas for differently-abled and loading/unloading of goods.

All suggestions and hints were screened and first examined for the frequency of the topics mentioned. For the qualitative evaluation of the proposals, they were grouped according to these six thematic focal points:

- Road Safety and Pedestrian Importance
- Quality of Stay
- Variety of offers
- Accessibility and Parking
- Outdoor Gastronomy
- Meeting Spaces and Cultural Context

Road Safety and Pedestrian Importance -

Many of the comments contain a request to give pedestrians priority. Improved safety for cyclists is also described as urgent. There is a need for designated cycle lanes (also in the side streets), more parking spaces for bicycles and cargo bikes and repair stations. Many stakeholders would like to see less vehicle traffic on Schweizer Straße. Suggestions range from speed limits of 30, 20 or 7 km/h to a completely traffic-free zone. Overall, the respondents would like to see a clearer separation of the different types of use in public space.

Quality of Stay -

Schweizer Platz should become an insect friendly green oasis where urban gardening projects are possible. Another important concern is the unsealing of surfaces according to the idea of a sponge city. Rubbish bins and public, barrier-free toilets are needed around the square. More seating options are requested. The furniture should be of high quality, timeless and practical. Due to environmental changes, there is a growing need for drinking water points, more sun protection or shading and cooling of the square using environmentally friendly methods. It was often said that there should also be opportunities to stay without having to eat, in order to enable a consumption-free stay - rest and recreation are the main focus for many.

Variety of Offers -

The users of Schweizer Straße demand that it be maintained as a place for shopping and leisure. Users also want to see Swiss Square as a space for children with Trampoline, slide or a playground, Child-friendliness, Safe and bright areas and fewer parked cars. Youth also want more space for leisure and Playgrounds, skate parks or graffiti walls. Users request that under no circumstances should the street degenerate into a "food or booze mile".

Accessibility and Parking -

Maximum people want fewer cars in public spaces, reject short-term parking and want more greenery in public spaces. Many suggestions point out that sufficient parking spaces are needed for elderly and disabled people as well as care services. Wide and barrier-free footpaths as well as appropriate guidance systems for the visually impaired are requested. The position of the barrier-free tram stop on Schweizer Platz is highlighted as important. More loading zones

for deliveries and other services are suggested. People also pointed out that Quick errands should be possible.

Outdoor Gastronomy -

Many participants are in favor of a diverse outdoor gastronomy, also in the side streets. Some point out that outdoor gastronomy should not, however, restrict pedestrian traffic and impair the strolling quality of the street.

Meeting Spaces and Cultural Context -

Many participants in the public participation suggest redesigning Schweizer Platz as recreational, social space that is used by people and accessible to all. Users mentioned Schweizer Platz should be supplemented with seasonal offers for young and old. Examples include sports activities, a public bookcase, an „More art and culture, and a weekly market that invites people to stroll around and helps to revitalize the surrounding shop.



WHAT ?

The most important factor of the Feasibility Study is what exactly do people want?

**“After being invaded by cars
and traffic for 50 years,**

**we’re now seeing many
examples of cities being
reconquered for people.”**

4.1 Case Studies

4.1.1 Case Study 1 - Passeig De St Joan Boulevard, Barcelona, Spain by Lola Domènech³⁶

Selection Criteria:

The focus of this project is to make the street safer and more usable to the pedestrians and the cyclists which is a similar principle for redesign of Schweizer Straße.

Data:

Landscape Architect - Lola Domènech
 Project collaborators - Teresa Galí Agronomy Engineer, City Council- Barcelona, Cicsa-engineer, FCC (Fomento de Construcciones y Contrats)
 Area - 31.455m²
 Drafting - 2008-2009
 Execution - 2010-2011
 Photographer - Adrià Goula

About the project:

There is a 50m distance between the buildings along the entire street which is constant, but we can distinguish 3 different sectors along the length of the street:

- Sectors 1 and 2, are identical and the only difference is that of the distribution of the traffic lanes. It has a symmetrical layout with 12.5m pedestrian footpath, a 25m road for vehicles and a central cycle lane. These two sectors are not maintained properly and hence cause problems to pedestrians.
- The layout of sector 3 is very different from the other two due to the intervention it received. This sector has a central 29m pedestrian promenade with three 7.5m car lanes and a 3m pavement on each side. It also has a two-way bicycle lane.

The redesign of the street has two basic objectives:

- To give priority to the pedestrians and safety
- To make it as a new urban green zone extending right up to Ciutadella Park.

Three important criteria have been taken into consideration for this project:

- Despite having 3 different sectors, the redesign intends to create a new sector identical to maintain the character of the Boulevard. This new sector has a pedestrian footpath of 17m instead of 12.5m. It also maintains the century-old trees. Apart from that, two new rows of trees have also been planted.
- This new section caters to the different user groups and enables them to coexist harmoniously. The 17m of pedestrian space has been designed creatively by keeping the central spine of 11m under the trees for recreational uses and 6m is for pedestrian movement. The two-way 4m bicycle lane which is located in the middle of the road, is physically segregated, protected and signposted. The important aspect of this redesign was to reduce the number of traffic lanes, create leisure zones under the trees and segregate the bicycle lane.
- The third criterion was to make it a sustainable urban green zone. Proper drainage of the subsoil has been ensured. The survival of the vegetation has been guaranteed by the treatment of the soil and the automatic watering system that uses groundwater. Native plants have been used to enrich the subsoil biodiversity.³⁵

Inferences:

- Multi-Disciplinary project which takes into consideration different user profiles and their safety with holistic design approach.
- Different approaches for Climate change and sustainability have been considered such as use of native plants and trees, porous pavement options, rain gardens for urban flood management.
- It is a multi-faceted urban project that represents urban sustainability and flexibility.

Conclusion:

The design strategies used especially street sections is something which could be translated at Schweizer Strasse. The opportunities to pause and experience the streetscape have been beautifully designed.



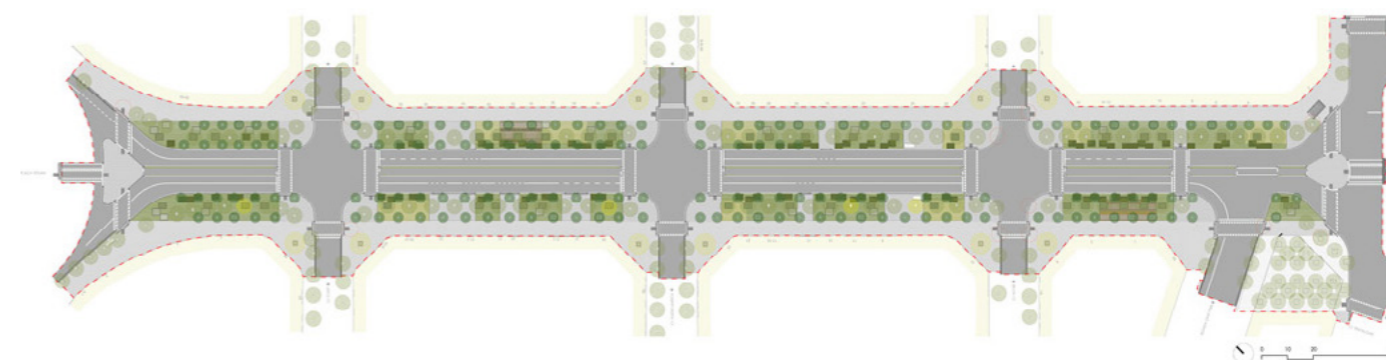
I.4.1 : Central Sitting Area. Photo by - Adrià Goula



I.4.2 : Central Sitting Area. Photo by - Adrià Goula



I.4.3 : Kids Play Area. Photo by - Adrià Goula



I.4.4 : Site Plan. Credits - Lola Domènech

36. Lola Domènach. - Landzine, <https://landezine.com/passeig-de-st-joan-boulevard-by-lola-domenech/>, 2012

4.1.2 Case Study 2 - Vanke Shangjiaohuan Redevelopment, Shenzhen, China by PLAT Studio³⁷

Selection Criteria:

Similar to Schweizer Straße, this project has a lot of cultural context. The project is about greening and unsealing, creating places to pause in the neighbourhood, and a central green promenade like Schweizer Platz.

Data:

Landscape Architecture - PLAT Studio
 Other companies involved - H&S, Zubo Design Co., Ltd, Shenzhen Green Environment Technology Co., Ltd., Pudi Design, Golden Talent Advertising Co., Ltd, OLC
 Photography credit - ZHIYI, Shenzhen Vanke & PLAT
 Project location - Longgang District, Shenzhen, China
 Design year - 2021
 Year Built - 2022

About the project:

This project involved creating an important new open space between the existing community park and the new Community Centre. It includes a two-lane road streetscape and the fragmented spaces along the road, surrounded by new buildings and the existing community park. The neighbourhood consists of high-density residential buildings, surrounded by an abundance of cultural context, proximity to the park and mountains.

The greatest challenge was the shape of the site and its under-construction status requiring entrances from different directions and at different elevations. Also, the new street being much lower than the park edge was another topographical challenge. Hence the design focuses on connecting the park, streetscape, and residential areas. The aim was to create continuous, vibrant spaces that encourage community interaction and promote a sense of community while diversifying neighbourhood interactions. A central green promenade that runs parallel to the new buildings is the “spine” of the site, and then there are other pockets in between the buildings which function to create different opportunities for various community activities. It also acts like a vibrant connection. It was designed to create a park-like experience for the people. This central green promenade has tall trees with straight canopies, water fountains and dark grey paving. This central promenade is also very well-lit. On the edges, they have provided comfortable seating for rest, and recreation, and encourage community interaction.

Sustainability is another important aspect of this project. The planting areas are designed and located at lower points topographically to collect and then reuse the rainwater. Also, the design consists of different permeable materials to help in rainwater infiltration. Near the Community Center, is a rain garden planting belt with benches and paths which acts as a green extension to the street.³⁶

The bike lane and sidewalk are elevated from the car lanes and separated by trees and plants. This helps not only to ensure safety but also gives a pleasant experience.

Inferences:

- The strong cultural context which was very important for the people was carefully integrated into the design. This cultural experience is not only maintained but also elevated.
- Reuse of rainwater and other Climate responsive strategies have been used in the design. Rainwater Infiltration systems used have also been explained and communicated to the public to create awareness.

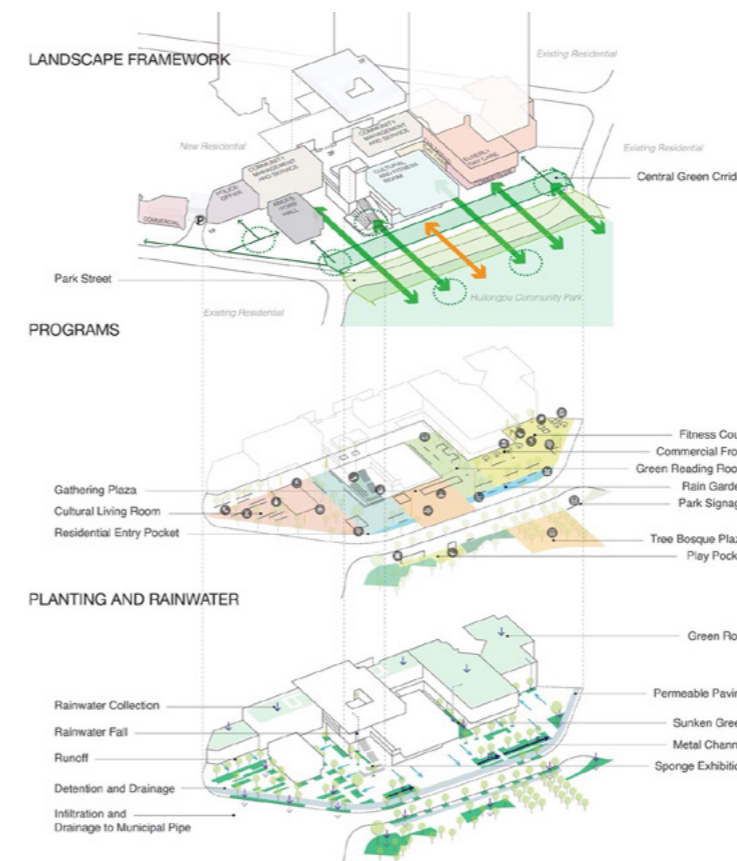
Conclusion:

The central green promenade, the strategies for bike and pedestrian lanes and sustainability concepts used can be implemented similarly at Schweizer Straße.

37. PLAT Studio. - Landzine, <https://landzine.com/green-neighborhoods-by-plat-studio/>, 2023



I.4.5 : Overall Bird eye view. Photo by - ZHIYI



I.4.6 : Spatial Plan. Credits - PLAT Studio



I.4.7 : Central Promenade. Photo by - ZHIYI



I.4.8 : Central Promenade. Photo by - ZHIYI

4.1.3 Case Study 3 - Károly Boulevard, Budapest, Hungary by Lépték-Terv³⁸

Selection Criteria:

The trams run from the centre of this street. The project was about unsealing areas and designing accessible green areas. It was also about traffic calming and pedestrian safety.

Data:

- Landscape Architecture - Lépték-Terv
- Other designers involved - Fmterv Zrt., Közlekedés Kft., Város-Teampannon Kft. Consortium
- Project location - Districts V, VI & VII, Budapest, Hungary
- Design year - 2009
- Built Year - 2011
- Area - 15 000 m²

About the project:

One of the most important routes especially for Trams in Budapest is the Károly Boulevard which runs along the historic boundaries of Pest. This is also a landmark boulevard as Károly Boulevard along with Museum Boulevard and Vámház Boulevard form the well-known Kiskörút (Small Boulevard) defining Pest inner city's boundary. They also have famous buildings like the Budapest city hall and Dohány Street Synagogue (Europe's largest synagogue) located along them which increases the cultural and regional context.

The Károly Boulevard was long dominated by the vehicles but the redesign introduced more green surfaces, larger pedestrian areas and traffic calming measures. Some of the connections had previously been lost such as the connection with Madách Imre square and street, which are now re-established and improved. A central tree alley, with a double row of pleached Hornbeams planted between the tramlines no. 47 and 49 become the focus or the spine of the design. In Hungary, mostly ornamental gardens are seen and hence this tree alley becomes one of a kind in a public space. The tram infrastructure and the traffic regulations being very rigid, there was a need to plant compact trees with restricted canopies and hence pleached Hornbeams were the ultimate solution. The central green corridor which is the spine of the design is 8m wide between Dohány Street and Deák Square. At regular intervals, water fountains have been placed which match the appearance of the underground metro line's ventilation shafts. These elements together form a strong geometry to define the character of the street. These water fountains raise at different heights.

The street lights, the water fountains and the trees enhance the appearance of the boulevard in the evening hours. The Budapest Transport Company leads a program called Budapest Szíve (Heart of Budapest), under which the Pedestrian footpaths have been completely redesigned and reconstructed with a tailored pavement designed exclusively for Károly Boulevard. The introduction of larger green areas, trees, the water fountains has had a positive effect on the microclimate of the area. Also, enlarging the pedestrian walkways, and reducing vehicular dominance has visually and psychologically helped the regular users and residents. The more open space invites community gatherings and increases the footfall for local commerce. It also allows the annual markets and other events to take place here.³⁷

Inferences:

- The Károly Boulevard regeneration project helped in calming the traffic and inviting pedestrian traffic. It is a street made for the people.
- The water fountains which are highlighted with exciting lighting, enhance the elegance of the central green corridor.
- The trees not only enhance the character of the central green corridor but also have a positive effect on the urban environment.

Conclusion:

Similar strategies for traffic calming, unsealing of the areas around the tram routes and positioning of the tram routes could be used at Schweizer Straße.

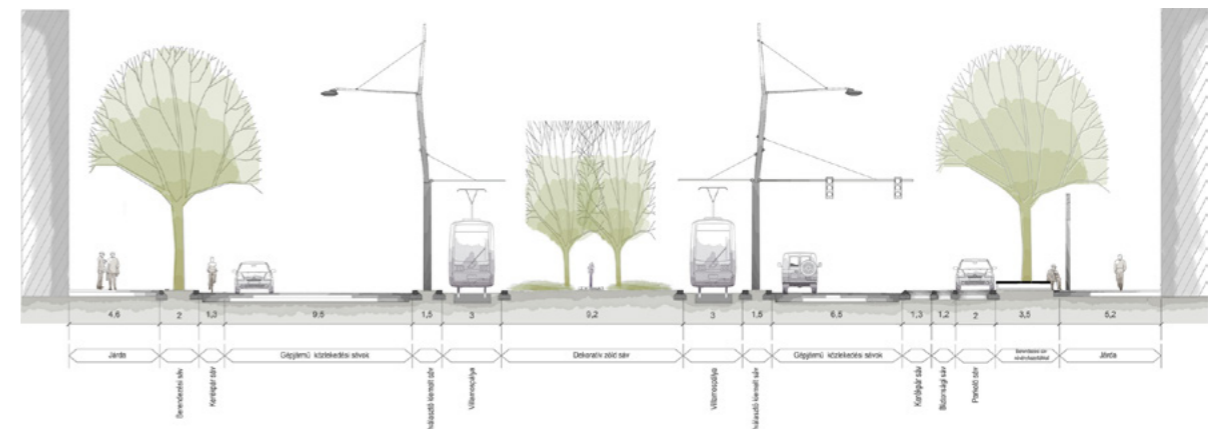
38. Lépték-Terv. - Landzine, <https://landzine.com/karoly-boulevard-by-leptek-terv/>, 2023



I.4.9 : Overall Bird eye view. Credits -Lépték-Terv



I.4.10 : Master Plan. Credits - Lépték-Terv



I.4.11 : Typical Cross Section. Credits - Lépték-Terv

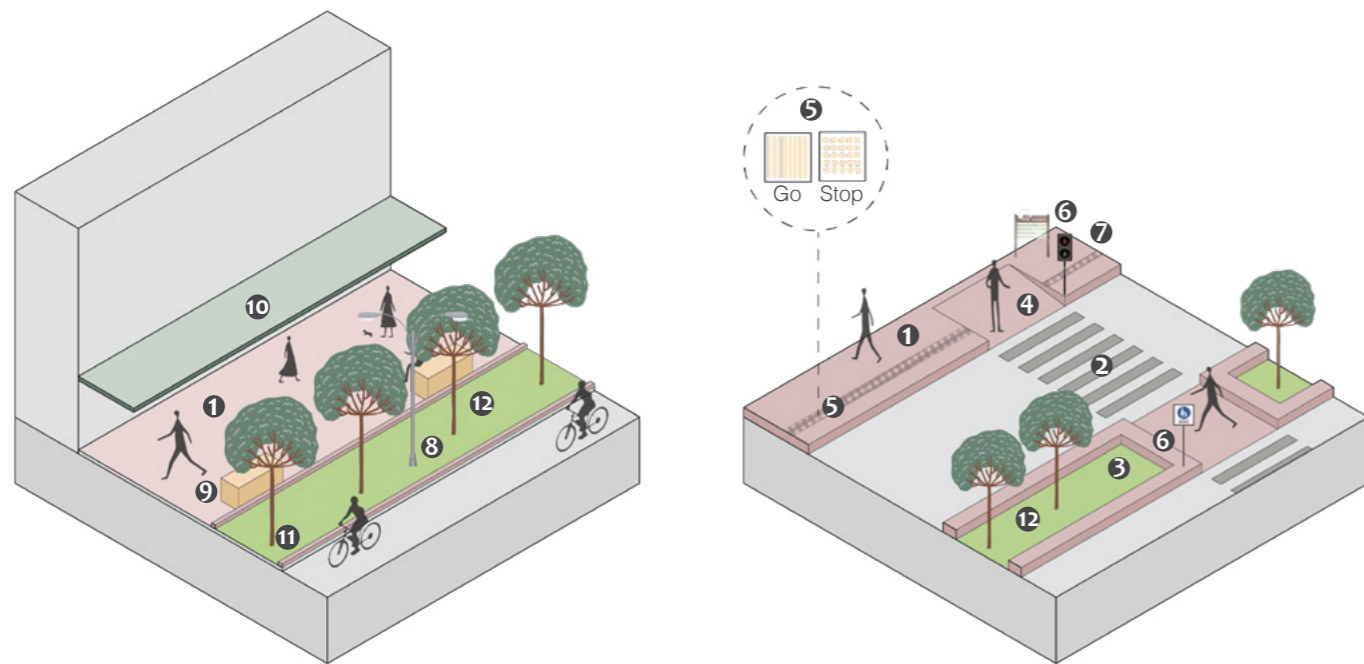
4.2.1 Design Strategies for Pedestrians.

Cities are places for people, making people the highest priority in street design. Streets are for people of all abilities and for all age groups. Different activities that are seen on streets are - walking, running, resting, sitting, playing, and pausing.

Space - 1m x 1m

Speed - 5-7km/hr

Distance covered in 10 mins - 0.8km.



F.4.1 Key Design Elements to be considered for Designing Streets for Pedestrians.

Key Elements of Design for Pedestrians :

1. Sidewalks. (Area assigned only for pedestrians)
2. Pedestrian Street crossing
3. Pedestrian Refuge Areas
4. Ramps
5. Guidance for visually impaired
6. Signage and way finding
7. Pedestrian crossing countdown signal
8. Lighting
9. Seating
10. Weather protection
11. Curbs.
12. Trees and Landscaping

Some other elements to consider:

1. Sidewalk Extensions
2. Drinking water access & waste management



F.4.2 Typical cross-section to determine distances for pedestrians

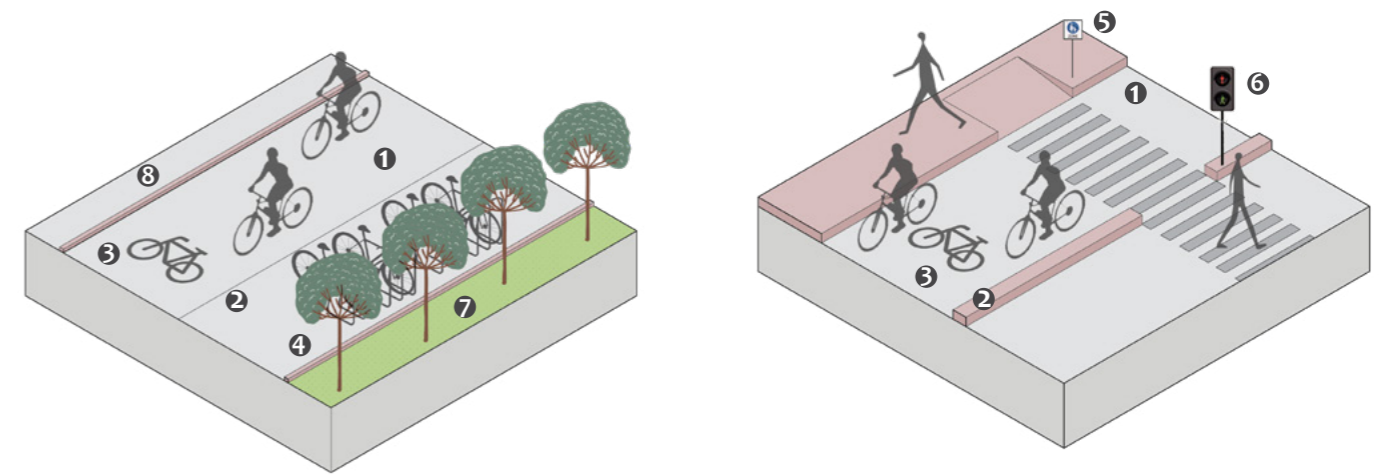
4.2.2 Design Strategies for Cyclists.

Encouraging cycling as a mode of transportation requires the provision of safe infrastructure. Cyclists ride at different speeds depending on their purpose, the length of their total route, their confidence level, their age and the facility they are using. While cyclists can share the road with motor vehicles, it is safer to build dedicated lanes and intersections.

Space - 2m x 1m

Speed - 15-20km/hr

Distance covered in 10 mins - 2.4km.



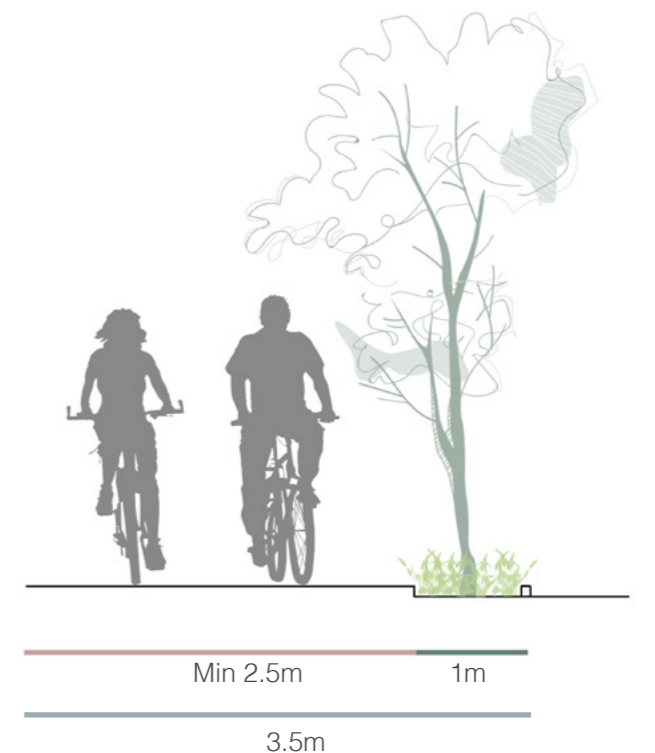
F.4.3 Key Design Elements to be considered for Designing Streets for Cyclists.

Key Elements of Design for Cyclists :

1. Dedicated Lanes
2. Dividers (Marked, Constructed, Concrete)
3. Markers on the Street
4. Cycle Parking stands and areas
5. Signage and Way finding
6. Traffic signals
7. Trees and Landscaping
8. Curbs

Some other elements to consider:

1. Refuge Islands
2. Cycle Charging stations
3. Shared Cycle parking areas
4. Shared electric scooters areas



F.4.4 Typical cross-section to determine distances for Cyclists

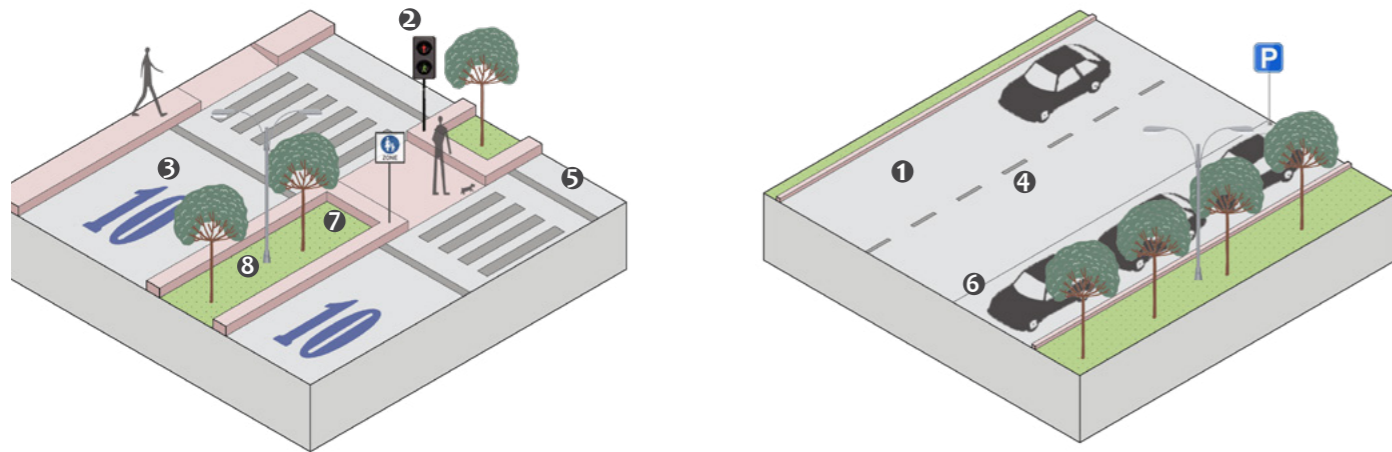
4.2.3 Design Strategies for Cars.

Even though cars have become dominant on the streets, to make streets safer for the pedestrians we need to consider strategies for cars and traffic calming. When the streets are shared with pedestrians, it may be necessary to limit speeds to 15 km/h or less.

Space - 2.5m x 5m

Speed - 25-30 km/hr

Distance covered in 10 mins - 4.2 km.



F.4.5 Key Design Elements to be considered for Traffic calming and cars

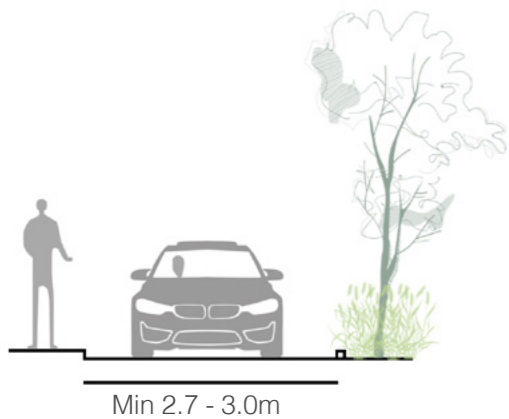
Key Elements of Design for Cars :

1. Dedicated Lanes
2. Traffic signals with longer time
3. Speed limit markings
4. Markings on Road
5. Stop Bars
6. Street side parking
7. Traffic Calming Strategies

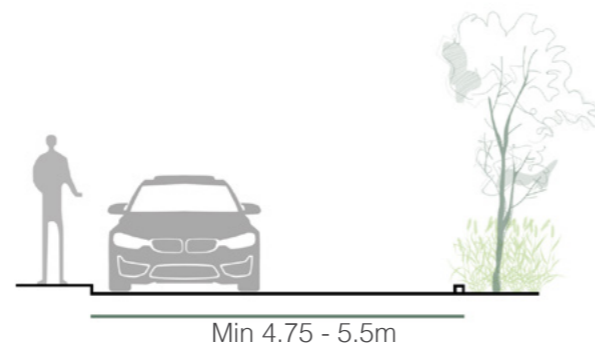
8. Lights

Some other elements to consider:

1. Bollards
2. Accessible Parking areas
3. Parking meters



F.4.6 Typical cross-section to determine distances for Car Lanes (Case 1)



F.4.7 Typical cross-section to determine distances for Car Lanes (Case 2)

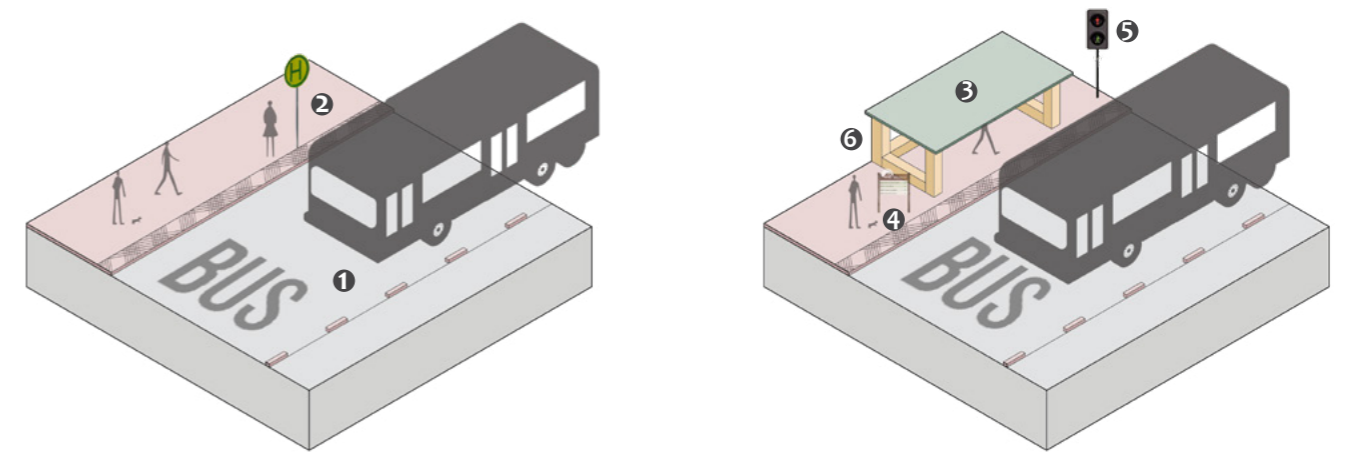
4.2.4 Design Strategies for Transit Riders

Public transport offers a sustainable and efficient way to move people in an urban setting. Public Transport allows mobility for longer trips without use of private vehicles hence reducing their numbers. Designing streets to accommodate public transport encourages people to use them.

Space - varies (Bus, Tram)

Speed - 20-25 km/hr

Distance covered in 10 mins - 3.3 km.



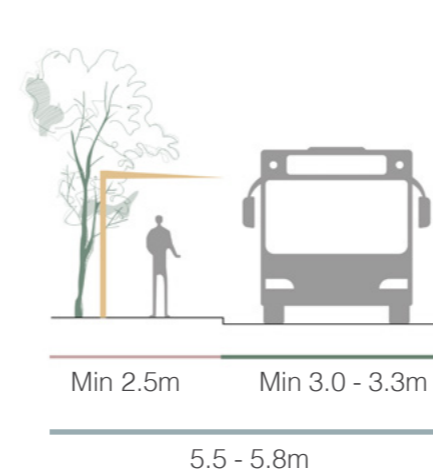
F.4.8 Key Design Elements to be considered for Designing Streets for Transit Riders

Key Elements of Design for Transit Riders :

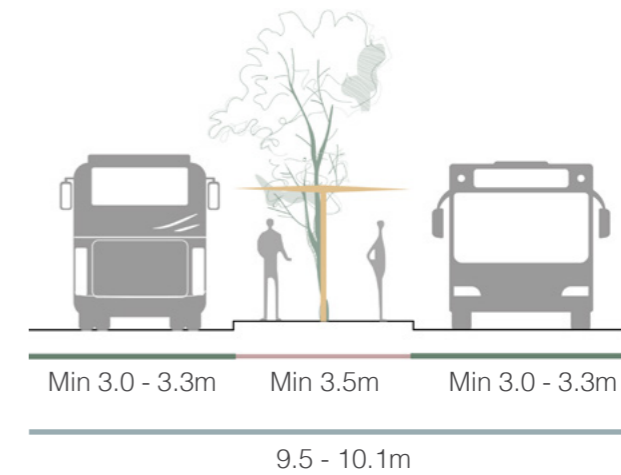
1. Dedicated Transit Lanes
2. Transit Stops
3. Transit Shelters
4. Way finding and Signage
5. Signal
6. Seating

Some other elements to consider:

1. Real Time Arrival information
2. Universally Accessible
3. Ticket vending machines



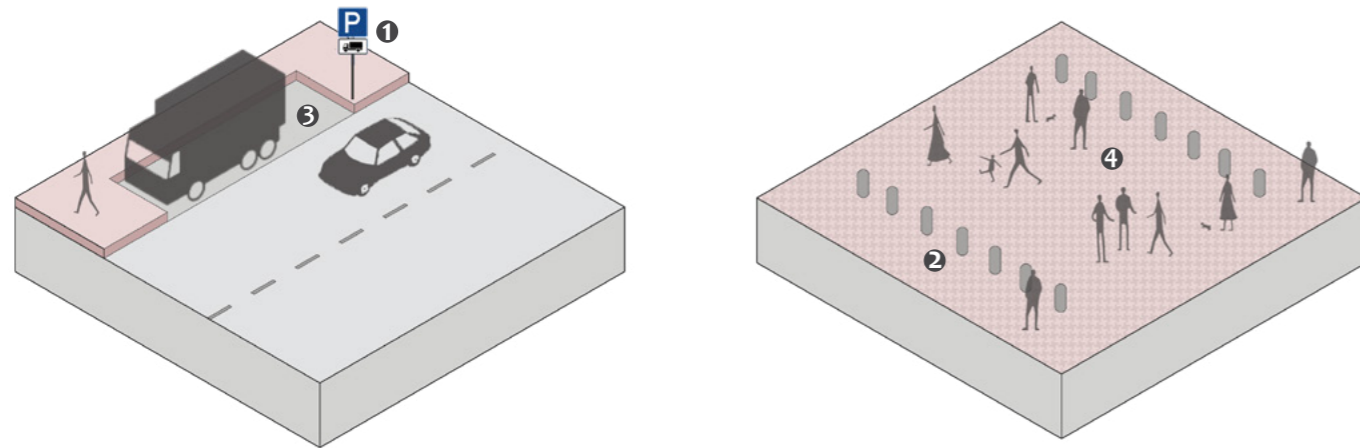
F.4.9 Typical cross-section to determine distances for Transit Riders (Case 1)



F.4.10 Typical cross-section to determine distances for Transit Riders (Case 2)

4.2.5 Design Strategies for Loading/Unloading and Service Vehicles.

A significant amount of traffic on urban streets is generated by the transportation and delivery of goods to stores, hotels, and other businesses on that street. These vehicles are larger than regular cars and require more space. Service vehicles like Garbage pick-up, fire fighting also need to be accommodated.



F.4.11 Key Design Elements to be considered for Loading/Unloading and Service Vehicles

Key Elements of Design for Loading/Unloading and Service Vehicles :

- | | |
|---|-------------------------------|
| 1. Signage | 4. Heavy Duty paving material |
| 2. Retractable Bollards at Pedestrian Areas for emergency vehicles/Service vehicles | |
| 3. Dedicated Parking area | |

- Some other elements to consider:**
1. Time Restrictions

4.2.6 Design Strategies for People doing Business on Road.

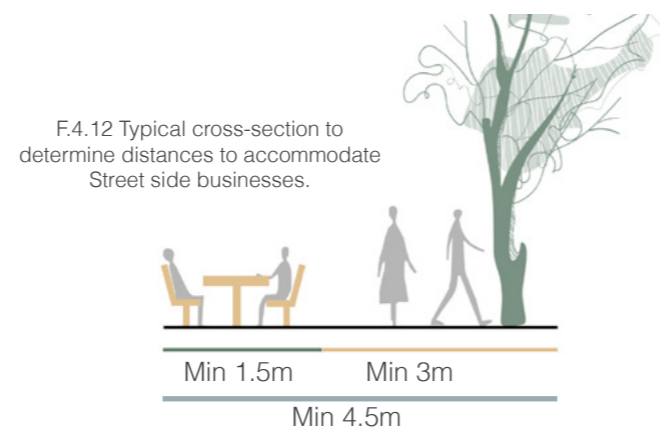
Many people use the street to conduct daily business. Their front doors line the street edge; their goods and services extend out onto the sidewalks; they run stalls or kiosks on the street. These people play a key role in shaping vibrant and dynamic streets and are an important part of streets.

Key Elements of Design for Road Side Businesses :

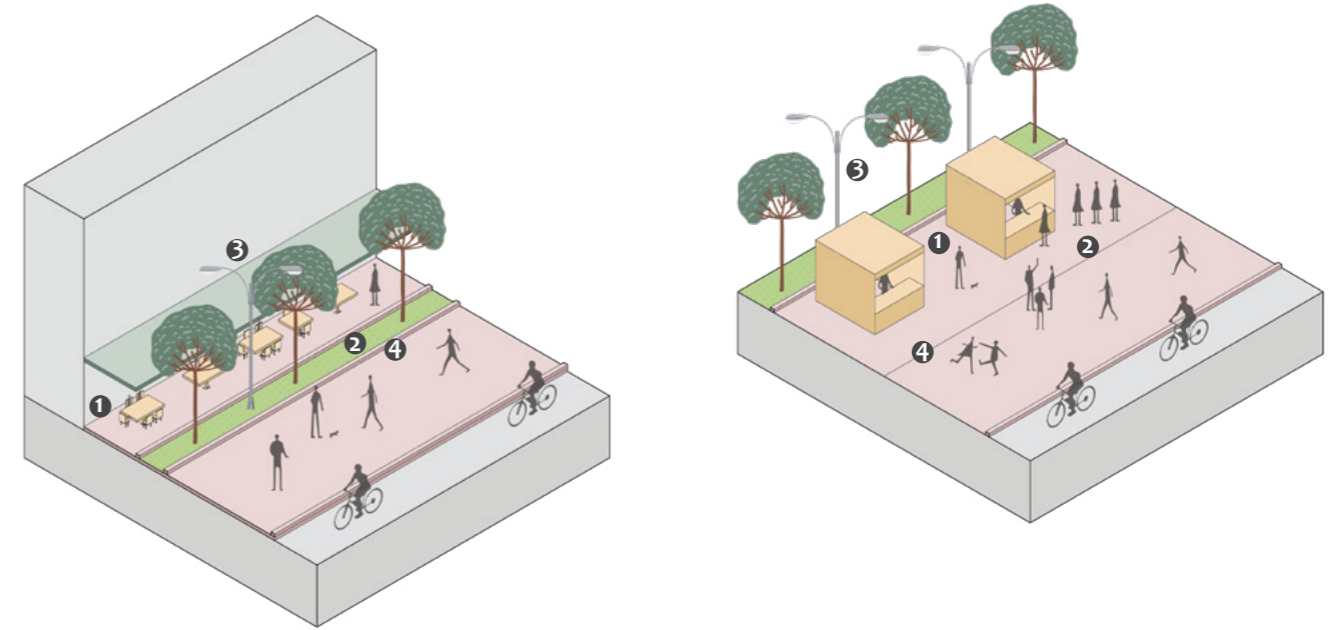
1. Dedicated Area
2. Buffer Areas
3. Appropriate Lighting
4. Easy Accessibility

Some other elements to consider:

1. Waste Management
2. Hours of operation



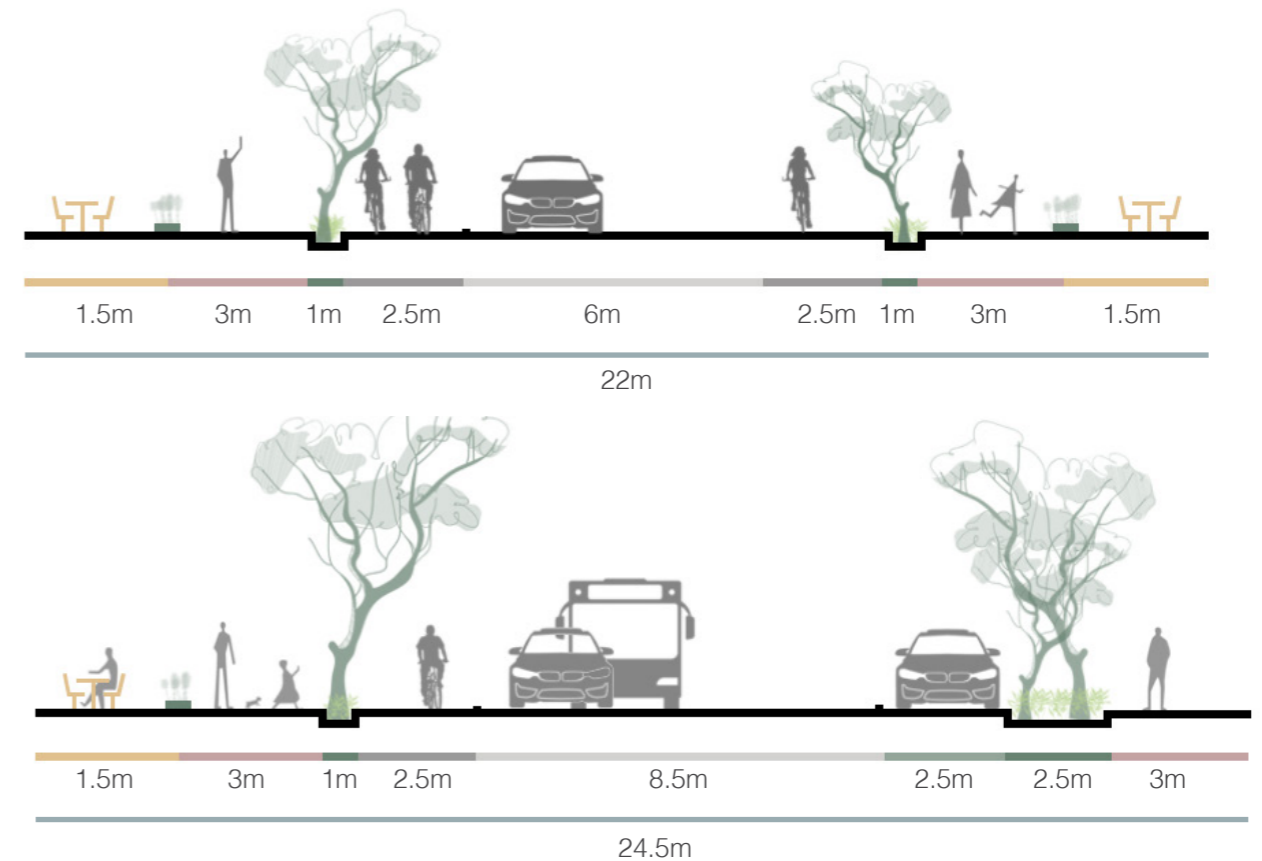
F.4.12 Typical cross-section to determine distances to accommodate Street side businesses.



F.4.13 Key Design Elements to be considered for Designing Streets for People doing Road Side Business.

4.2.7 Conclusion -

After determining the space needed for different important activities on the street, we can design streets in multiple ways to make them more efficient and people centric. Following are some of the cross sections for street lengths which can be derived after exploring all the activities above. (F.4.14)



**“First Life, then Spaces and
then Buildings...”**

**...The other way around
never works”**

A one-way roundabout single separate lane has been provided for the vehicles to safely pass through the adjacent roads. Change in the materials indicates the pedestrian priorities and helps in traffic calming. A separate cycle track has been provided on both the sides of the square as well as the street enabling a safe street experience for the cyclists as well. At Schweizer Straße, the cycle track is at a raised level from the main road making it safer for the cyclists. Opportunities for road crossing have been created at every junction. Appropriate lighting would make the street safe for nighttime use. There would be restrictions on speed and appropriate markings on the roads. The walkways for the pedestrians are unhindered, barrier-free and universally accessible. Their position between the buildings and the outdoor gastronomy/green areas makes them safer to walk for people of all ages and abilities.

Schweizer Straße as Identity

The current location of the Schweizer Platz is like the heart of the street. The circular character of the square, with green areas around forms the identity of this place. This identity needs to be preserved and enhanced, hence, the redesign of the square is similar with the core of the heart being the new Schweizer Platz tram stop, the cycle tracks go around these tram stops. The green areas and other recreational spaces are arranged concentrically with similar circular designs around this "core". This arrangement not only preserves the identity of the square but also tries to create a balance between the new and the old. At Schweizer Street, apart from the building facades, the Plane trees along the street give it its character. These trees become the spine of the redesign weaving the spaces together. The green areas for unsealing have been arranged taking into consideration these existing trees. New Plane trees are planted where there is a need for shade.

WHO?



Schweizer Straße for everyone

Schweizer Straße and Platz is designed for everyone across all age groups and abilities, hence making it universally accessible. At the square, there are no major level differences apart from the Tram stop and some outdoor gastronomies but they can be accessed through the ramps. All the recreational areas are designed to be enjoyed by everyone. A special guiding system has been implemented in the paving patterns for the visually impaired. The main street is separated from the recreational areas with a buffer of Bio-retention areas making it safer for kids and seniors. On the street, the pedestrian walkways are unhindered, barrier-free and universally accessible with the implementation of a guiding system for the visually impaired. The position of them between the buildings and the outdoor gastronomy / green areas makes them safer to walk. The level differences are connected with ramps and way-finding boards are placed.

Existing Scenario



Function Assignment



User Profile



F.5.3 Design concept diagram

Design Development in terms of Vehicular, Cyclists and Pedestrian circulation.

During the process of Design Development, 5 possible options were explored to help get the best possible design outcome as per different criteria derived through the analysis. The positive and the negative points of each option were analyzed to finalize the design, especially in terms of Vehicular, cyclist and Pedestrian Circulation.

Option 1

In this option, the idea was to keep the circulation as it is right now, except to introduce the Tram station at the centre of the square as it is a requirement from the council. The only change would be to change the street sections to accommodate more accessible green space and unseal some of the areas.

Positive points - no change, convenience, accessible green areas.

Negative points - lesser unsealing, lesser public space, safety.

Option 2

Here, the idea was to make a part of the Schweizer Straße one-way between Gartenstraße to Schwanthalerstraße. Private vehicles would still be allowed on to the Platz but would have restrictions for speed and pedestrians would be a priority. It would be like a shared space. The tram stop would still be in the centre, cyclists would have a better connection and we would have more green and unsealed areas.

Positive points - less change, convenience, accessible green areas, more unsealing.

Negative points - high risk for pedestrian safety in shared space.

Option 3

In option 3, there was a thought about providing retractable bollards at the crossroads where adjacent roads join Schweizer Platz. These would restrict the vehicular entry. The idea was to have these connections open for private cars on certain days and times and certain days it would be restricted. For eg, on Weekends vehicular entry would be restricted and the entire square would be for the public, for weekly market or cultural events.

Positive points - Lot of green and unsealed areas, pedestrian safety and priority.

Negative points - Lot of change, Inconvenience for private vehicles, confusion

Option 4

After thinking over option 3 and what else could be done, option 4 became a bold option where entry to the square was completely closed for private vehicles and restricted only to emergency vehicles and loading/unloading trucks.

Positive points - Lot of green and unsealed areas, pedestrian safety and priority.

Negative points - Lot of change, Inconvenience for private vehicles.

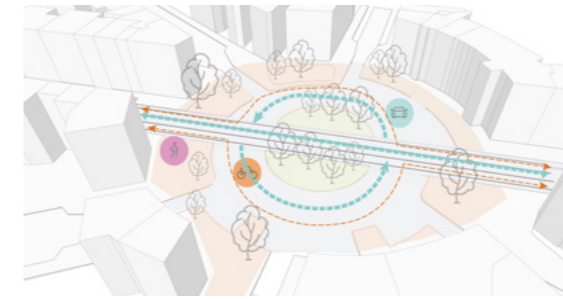
Option 5

In this option, the positive points of all the other 4 options were considered and the negative aspects were tried to minimize. The vehicular circulation on the main Schweizer Straße is both ways and vehicles are allowed on the Platz as well to minimize the inconvenience of private vehicles. However, the priority would still be Pedestrians and there would be Speed limits to the vehicles. A part of Schweizer Platz would be sealed for complete pedestrian movement. Separate lane of 3m for cars around the Platz moving in one direction. We can see in the concept diagram the proposed final circulation for cars, cycles and pedestrians as well as the unsealed green areas.

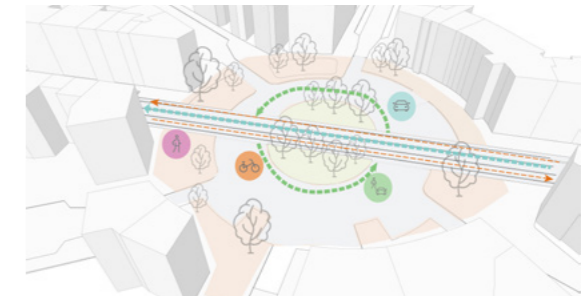
Positive points - Lot of green and unsealed areas, pedestrian safety and priority, less change, less inconvenience for cars.

Negative points - Pedestrian safety can still be compromised.

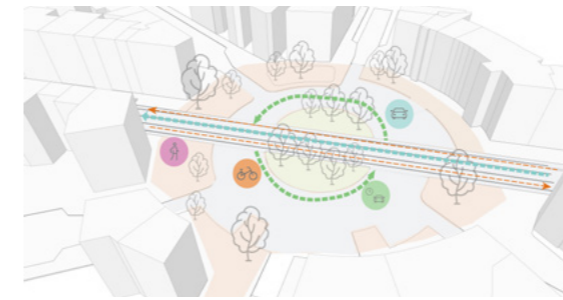
The main aim of the redesign in pedestrian priority and safety. Slight inconvenience would somehow force people to make a change. It might make people walk more or use public transport or cycles. It can be a nice start to initiate conversations amongst the people and their priorities.



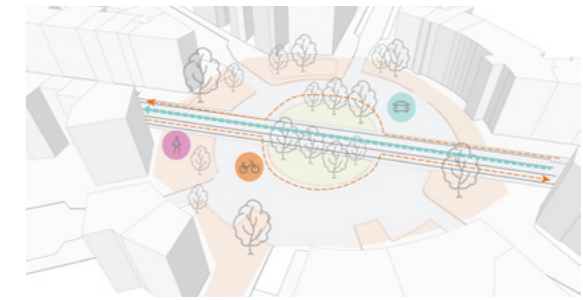
F.5.4 Option 1



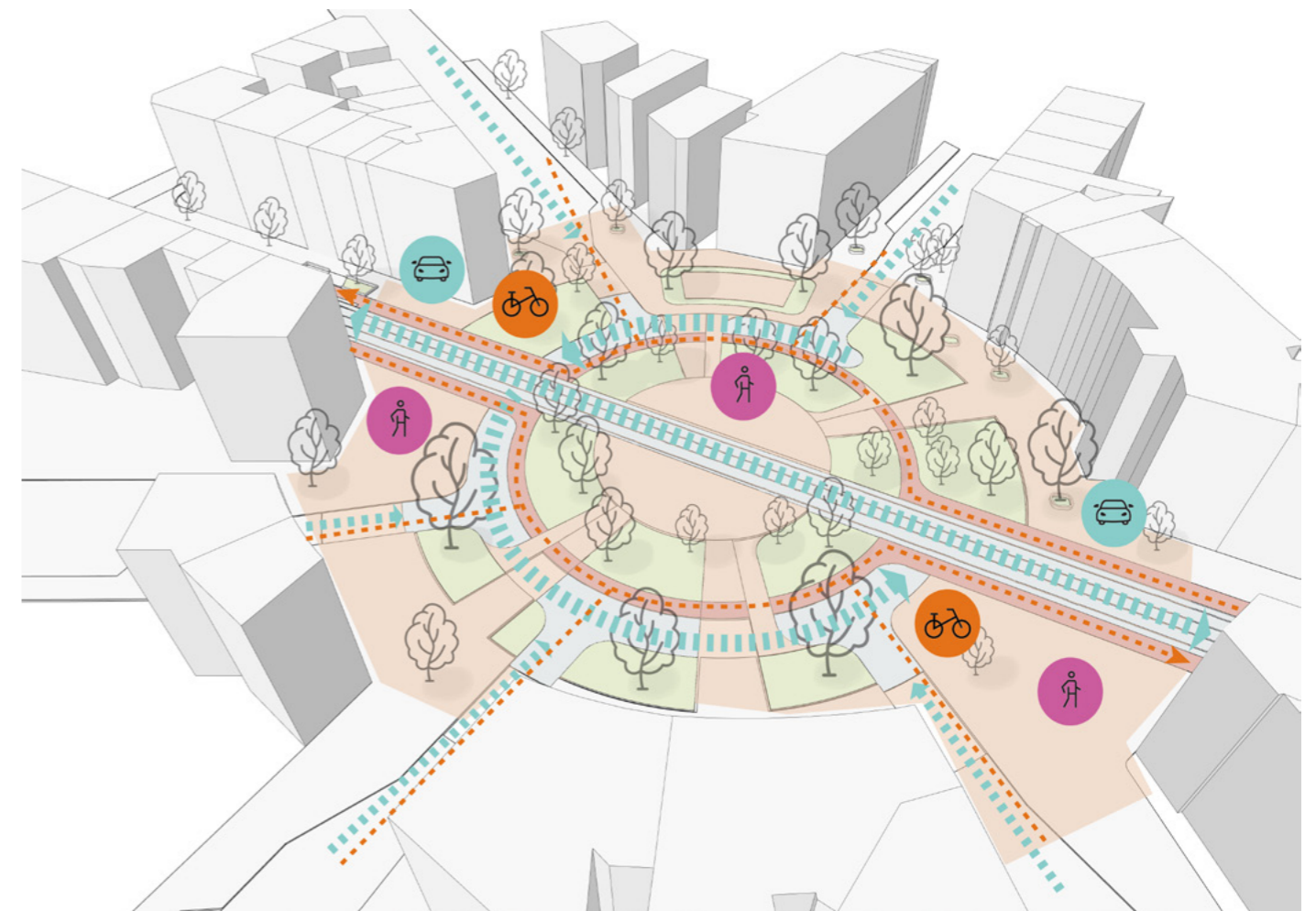
F.5.4 Option 2



F.5.5 Option 3



F.5.5 Option 4



F.5.6 Option 5.(Circulation of Proposed Design)



F5.7 Zoning and different activities in Proposed Design

Design Development in terms of Zoning and different activities

Designing Schweizer Platz to integrate people of different abilities and age groups was one of the important criteria. The survey conducted by the Frankfurt city council gave us different ideas as to what people wanted or imagined Schweizer Platz to be. Based on this, different activities were identified and different user groups were established:

1. Recreation and consumption free stay for everyone
2. Play Area with a focus on children and youth
3. Accessible Green Areas
4. Outdoor Gastronomy
5. Meeting Spaces and Cultural Context

The structure of the Schweizer Platz which gives a strong identity has been maintained. At the centre of the Platz are barrier-free Tram stops surrounded by green areas catering to different users. The ones marked in Yellow, have a focus on being Bio Retention Areas with Native plants, shrubs and grass. There would be sitting decks to sit amidst the greens and experience nature. The plants would be such to attract birds, bees and butterflies. The areas marked with Orange and Magenta are recreation areas for different age groups, ranging from play areas for kids, graffiti walls for the youth, picnic benches for families and friends as a meeting space and existing fruit kiosks. The areas marked in Green are where outdoor Gastronomies would be. To help bring down the heat during the summer months, a constructed inland wetland has been designed which would also be a water play area for the kids and adults. It has been marked with Blue. The inland wetlands are engineered systems, where the surface and wastewater would be recycled naturally, as well as with the help of engineered systems and used for recreation.

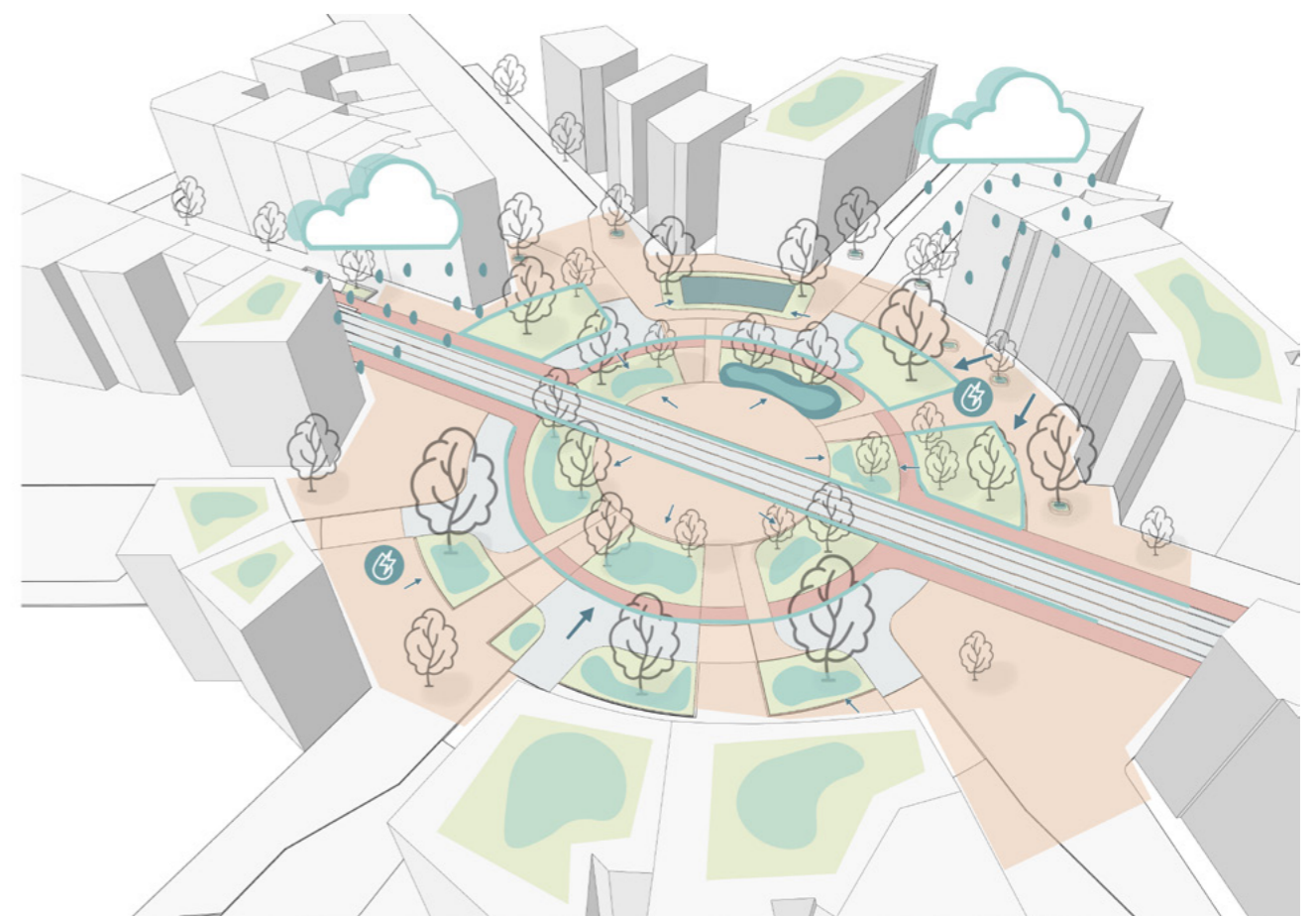
Design Development in terms of Conceptual Water Management

Sponge city concepts and the unsealing of the areas to accommodate climate change has always been an important factor. Due to increasing environmental changes, there is a growing need for drinking water points, and more sun protection or shading and cooling of the square using environmentally friendly methods

To help design Schweizer Platz and Straße for Urban resilience different nature-based solutions for climate change were studied and then utilized in the design. The new design and infrastructure are planned in a way to accommodate this change in the volume of rainwater. The pavement used at Schweizer Platz and the walkway on Schweizer Straße is permeable. This would help large volumes of accumulated surface water to absorb, which would otherwise result in floods that can cause great damage to urban infrastructure. The green areas designed with native plants and grass act like bio-retention areas which help permeation, retention, absorption and purification of the surface water. These natural elements are combined with the road and drainage systems which help in the natural flow of water when they are not completely retained or absorbed.

Apart from the absorption of rainwater, these systems also improve the quality of the water making it cleaner and reusable. They also help in improving the micro-climate and enhancing urban areas, help fight the heat island effect, increase biodiversity, bring leisure and aesthetics, and increase groundwater quality.

The water management system used can be understood with the help of the following concept sketch. The blue areas are where water could be absorbed and retained and the slopes direct the surface water to these retention areas. The blue lines represent engineered road and drainage systems to help drain water naturally.



F5.8 Conceptual Water management sketch

Planting Concept and Planting list

The main concept is to use a mix of grasses and wildflowers to minimize the weeds and maximize the environmental benefits.

Typology	Plant Name	Height
Trees	Platanus acerifolia	20 - 30m
	Robinia pseudoacacia	20 - 25m
	Sophora japonica	15 - 18m
Perennials	Calamagrostis arundinacea	100 cm
	Perovskia atriplicifolia	50 cm
	Lavandula angustifolia	50/60 cm
Grass	Deschampsia cespitosa 'Tauträger'	40 cm
Ground-Cover	Galium odoratum	20 cm

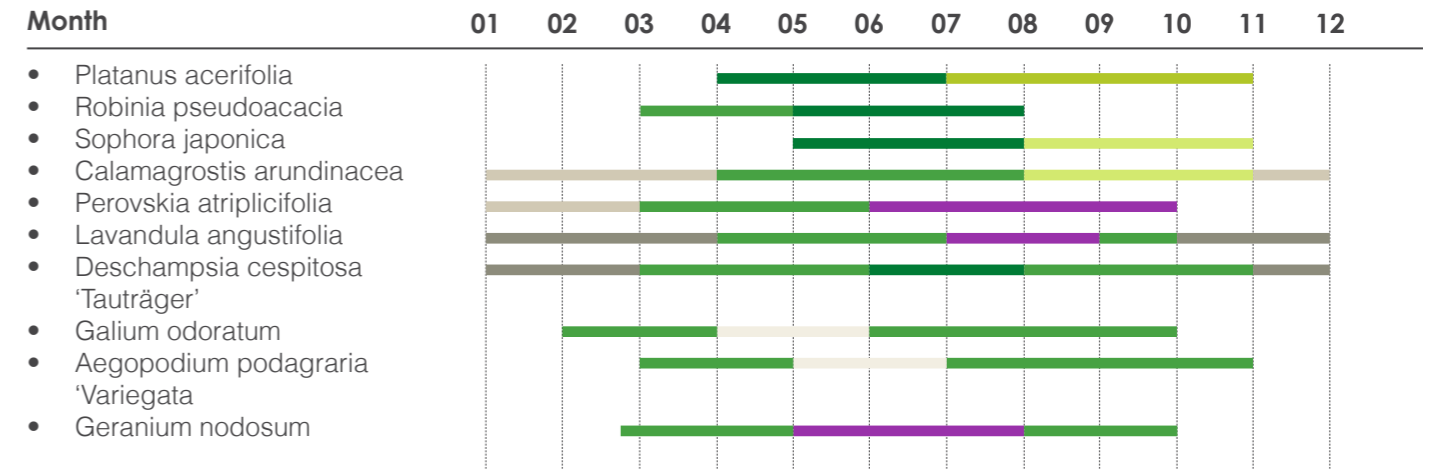
Increase in Bio-Diversity

- Acts like a Green Corridor
- Insect and Bird friendliness
- Native Plants
- Seasonal flowering Aspects
- Climate Resilience

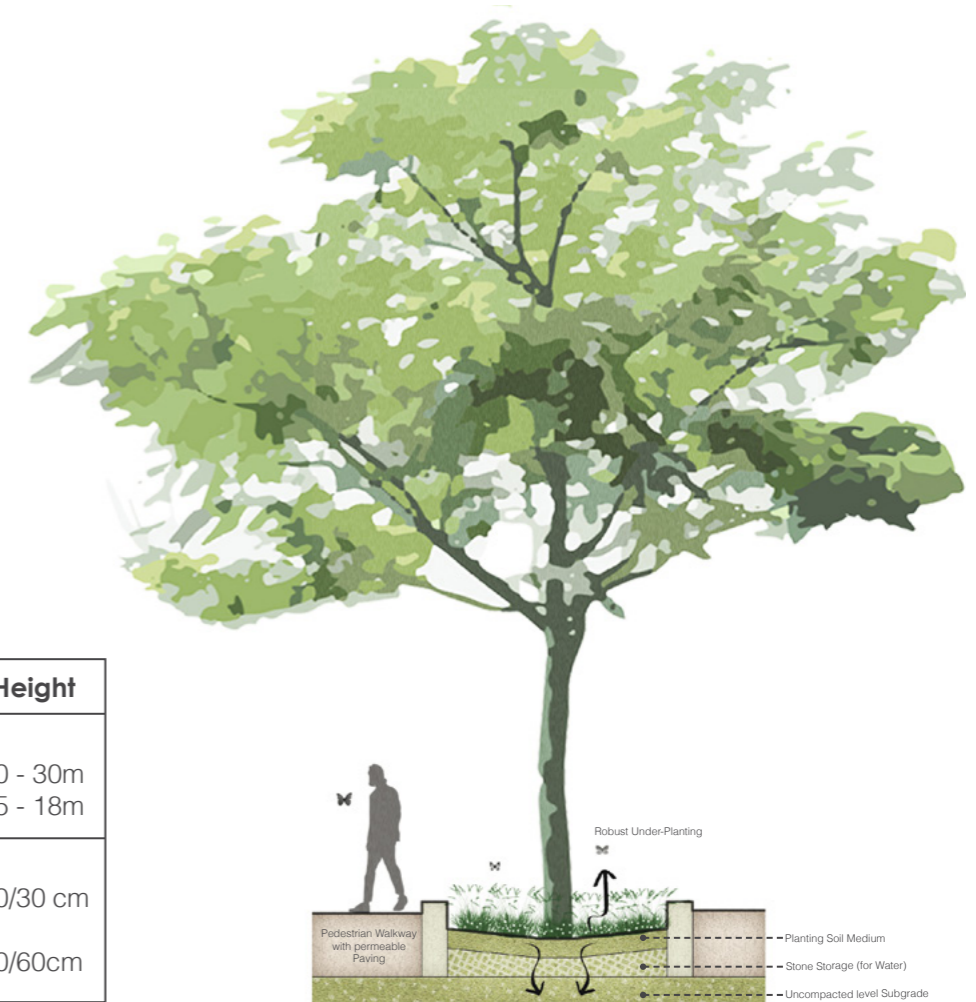
F.5.9 Conceptual Sketch Section of Bio Retention Areas



Bloom Chart : Seasonal Flowering Aspects



F.5.10 Conceptual Sketch Section of Robust Under planting



Plant Name	Height
Trees: Platanus acerifolia Sophora japonica	20 - 30m 15 - 18m
Perennials: Aegopodium podagraria 'Variegata' Geranium nodosum	20/30 cm 50/60cm

**“It is difficult to Design a
Space that will not attract
people...”**

**...What is remarkable is
how often this has been
accomplished”**

- William H. Whyte



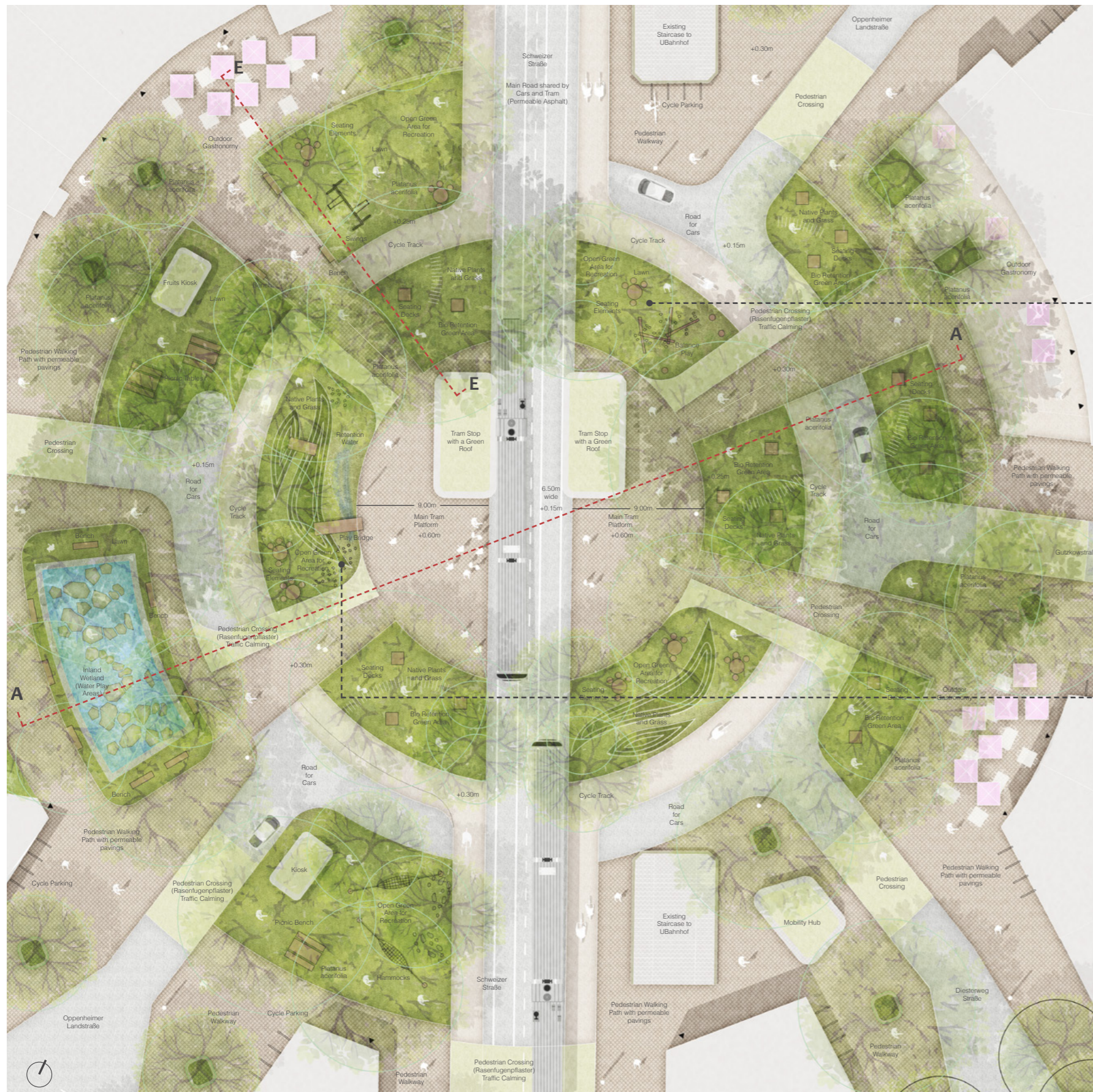
- Existing Trees
- Planned Trees



Master Plan - Schweizer Straße & Platz
Not to Scale

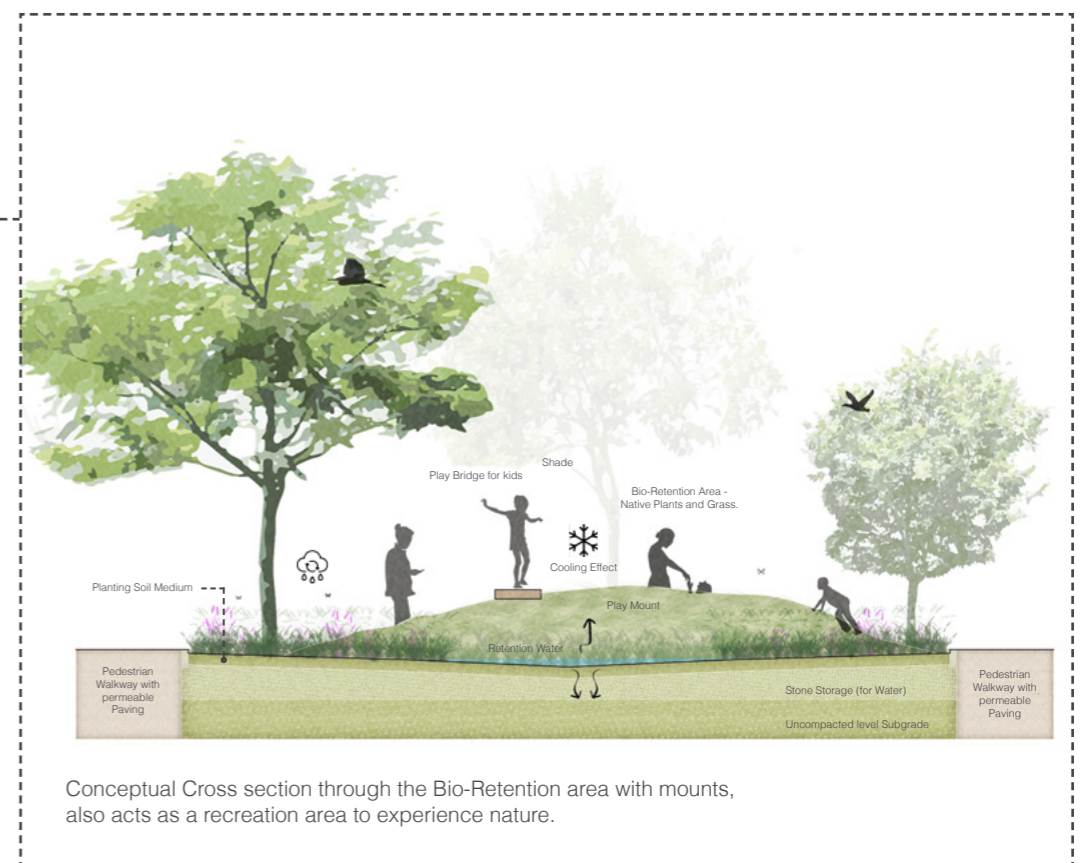
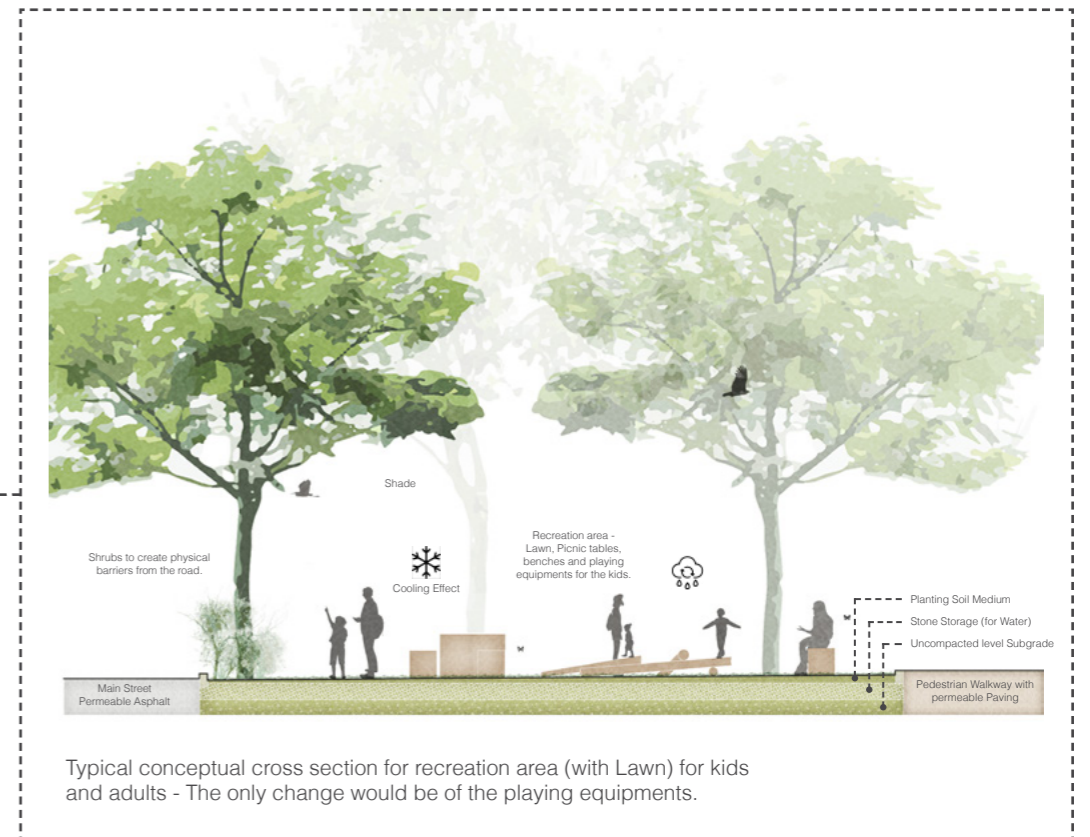
Section AA through Schweizer Platz
Scale - Not to scale

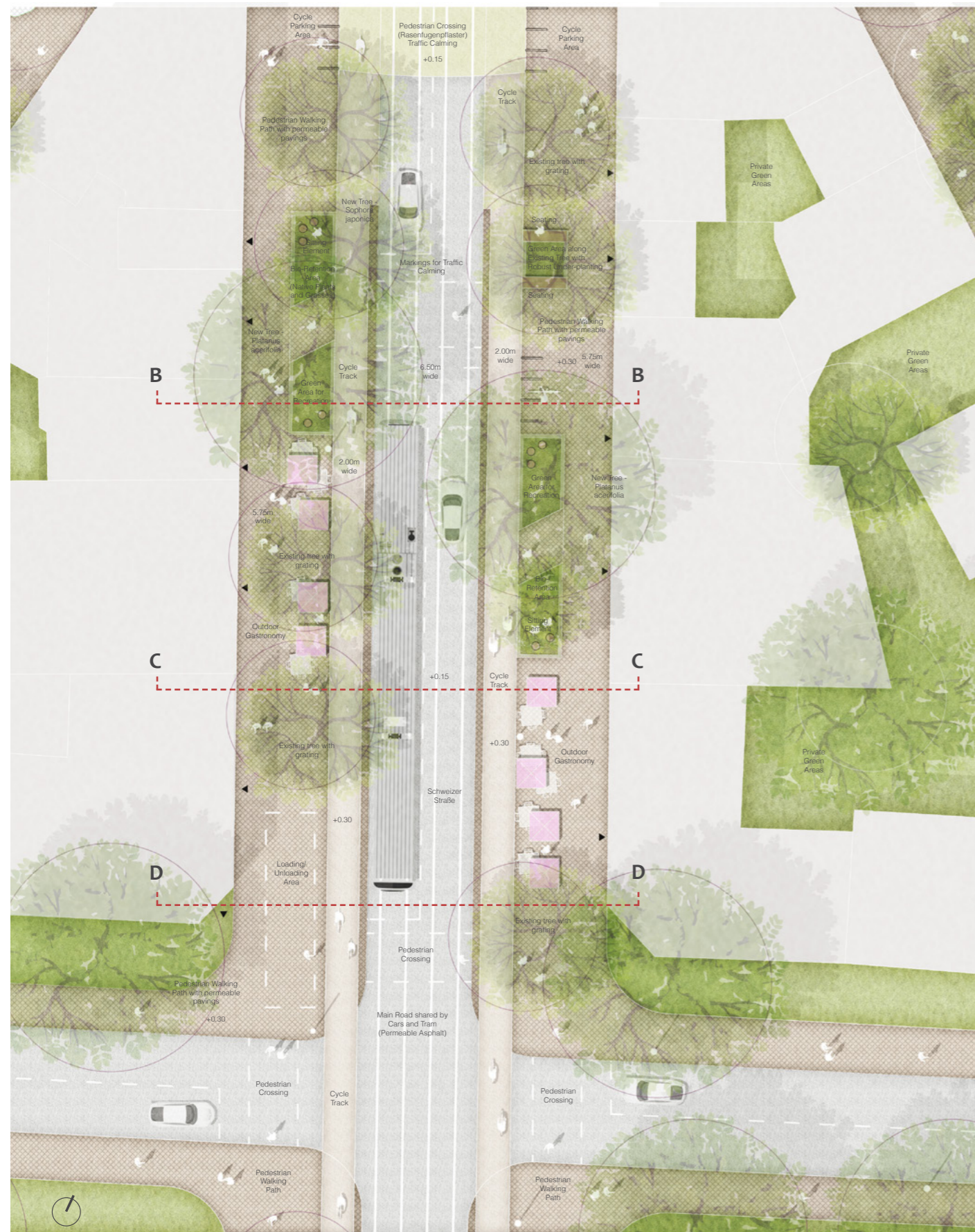




Detail Plan - Schweizer Straße

Not to Scale





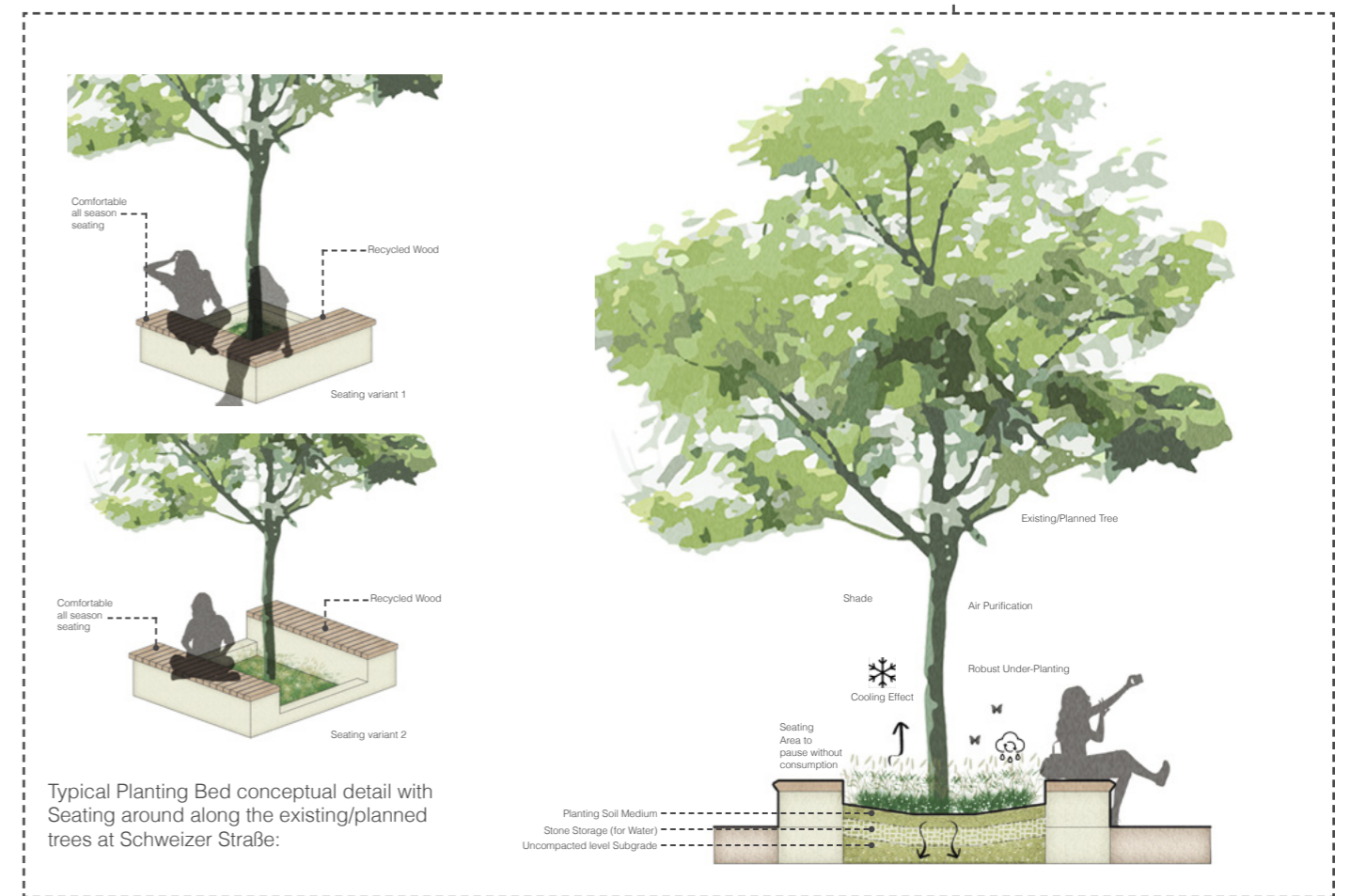
Detail Plan - Schweizer Straße

Not to Scale



Section BB
Typical through Schweizer Straße

Not to Scale

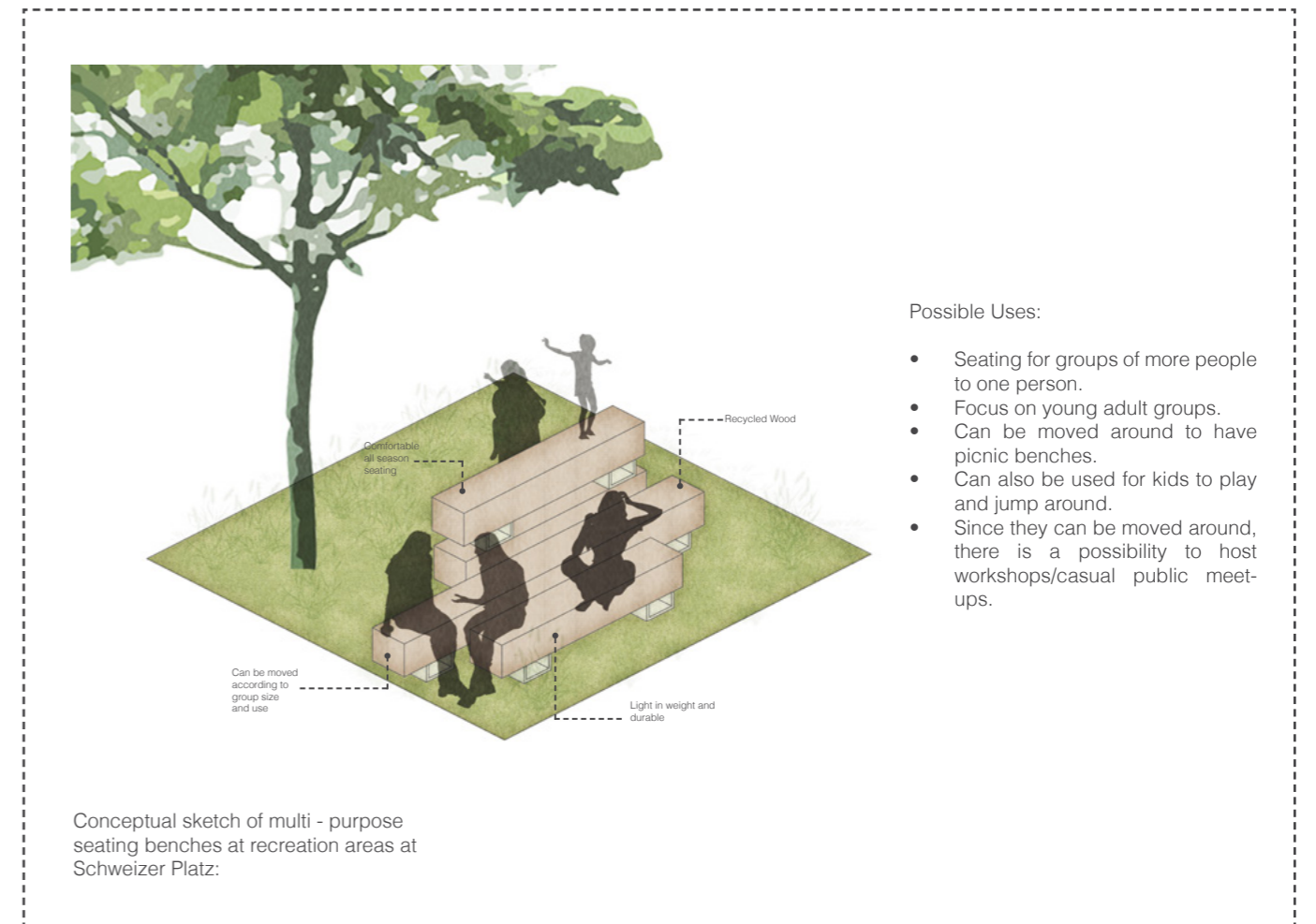


Typical Planting Bed conceptual detail with Seating around along the existing/planned trees at Schweizer Straße:



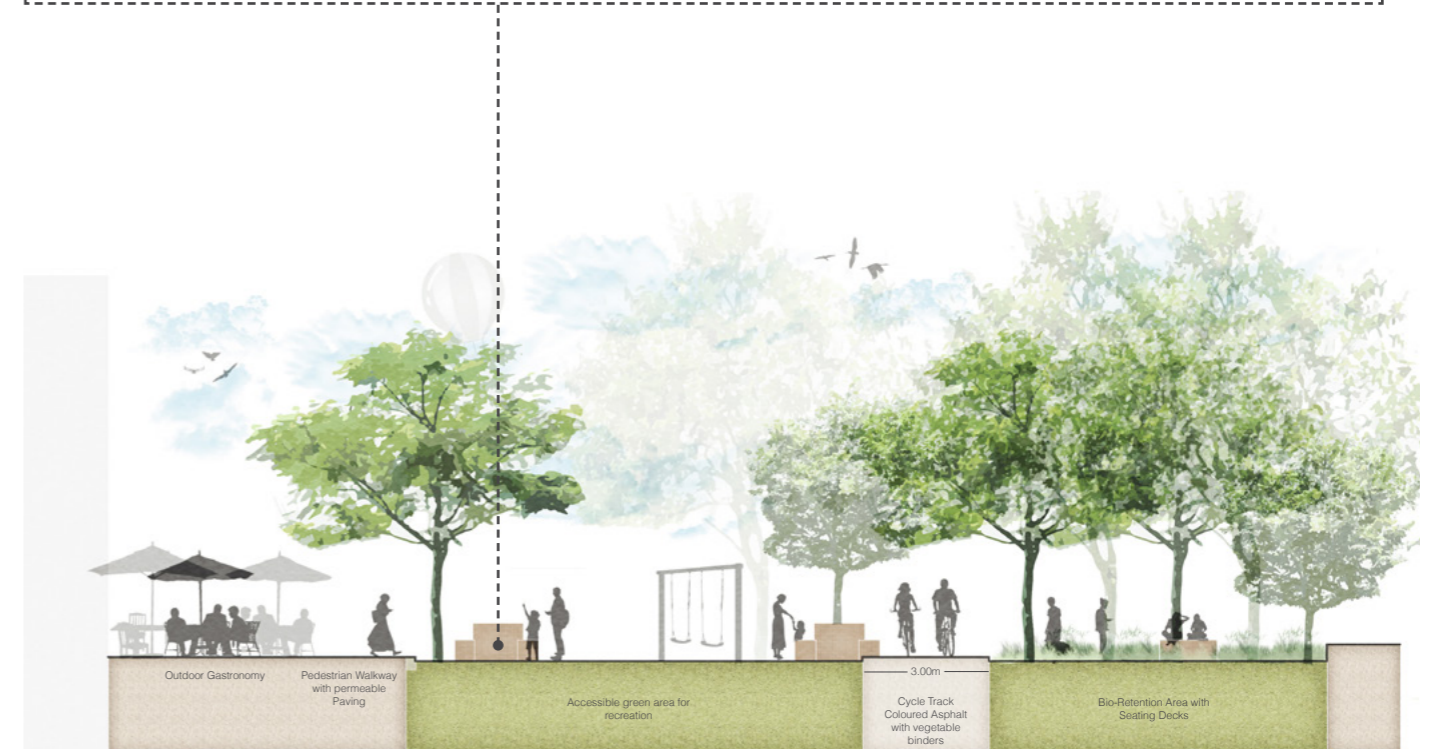
Section CC
Typical Section through Schweizer Straße

Not to Scale



Section DD
Typical Section through Schweizer Straße

Not to Scale



Section EE through Schweizer Platz

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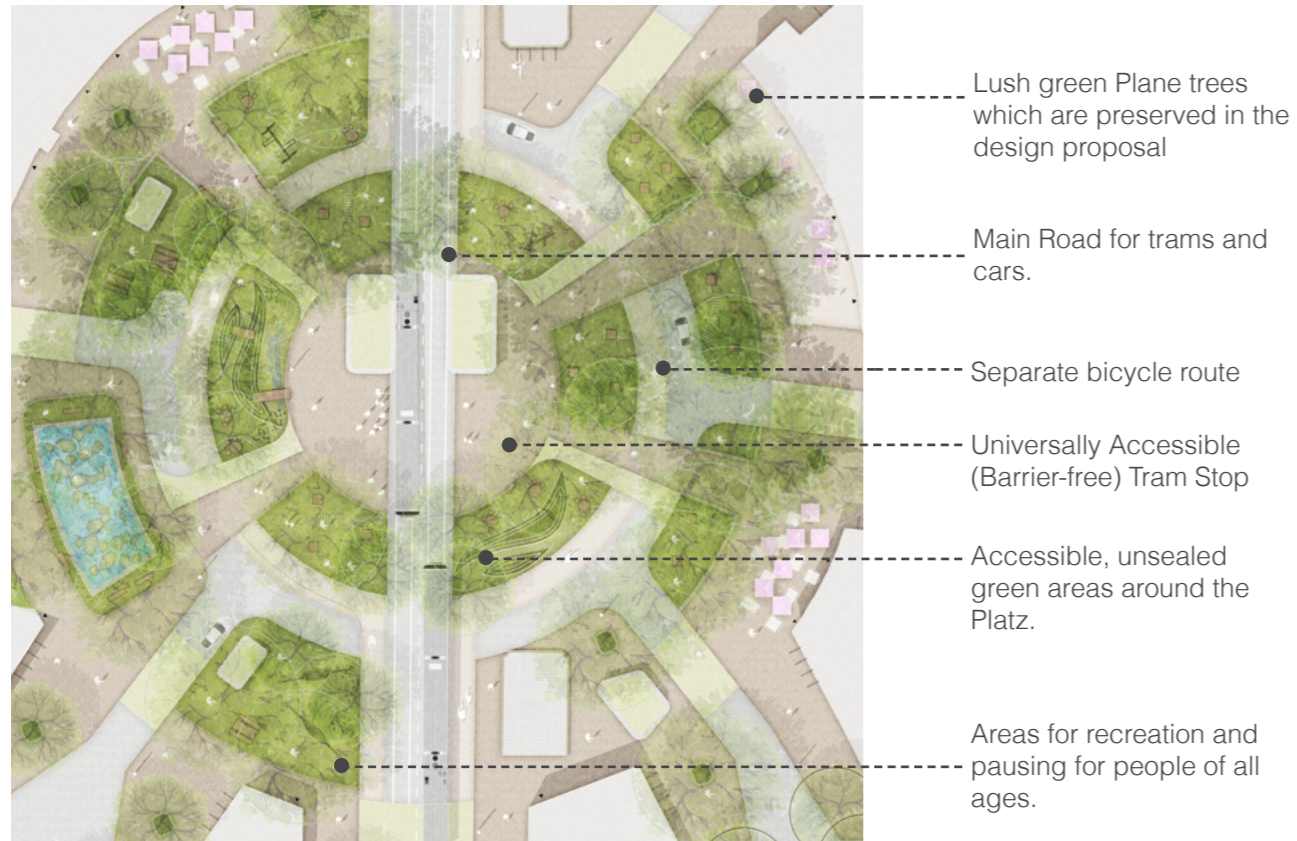


Perspective at Schweizer Straße

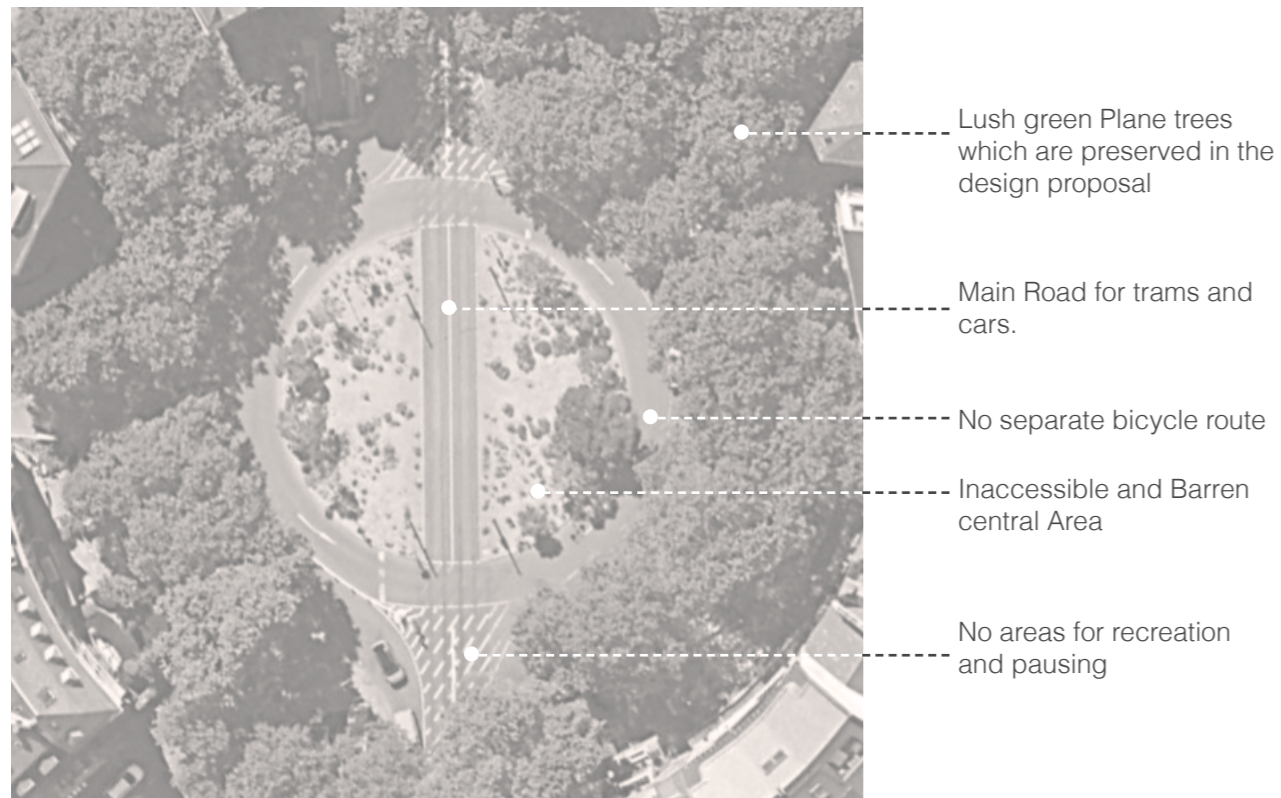


Perspective at Schweizer Platz

Schweizer Platz (Before - After)



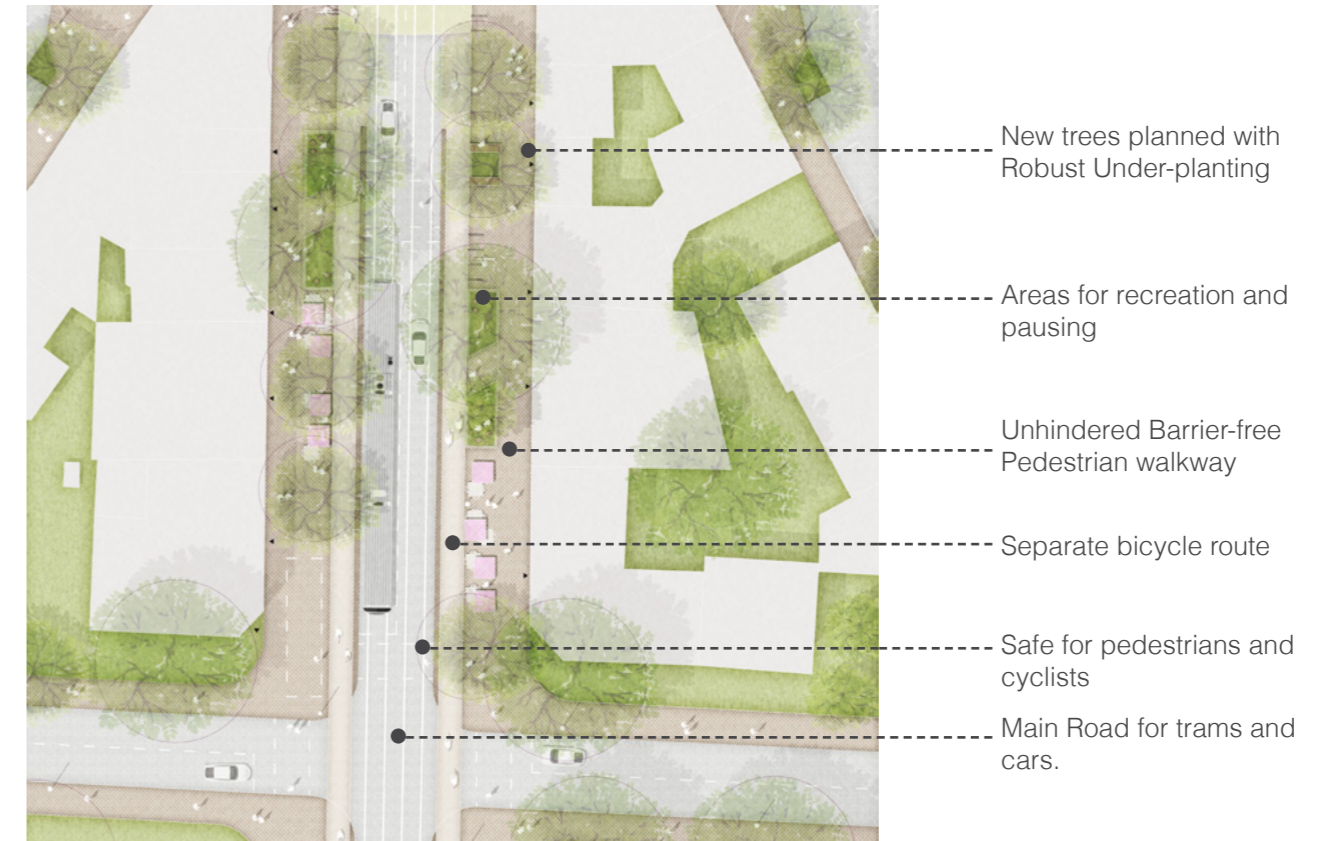
Design Proposal (After)



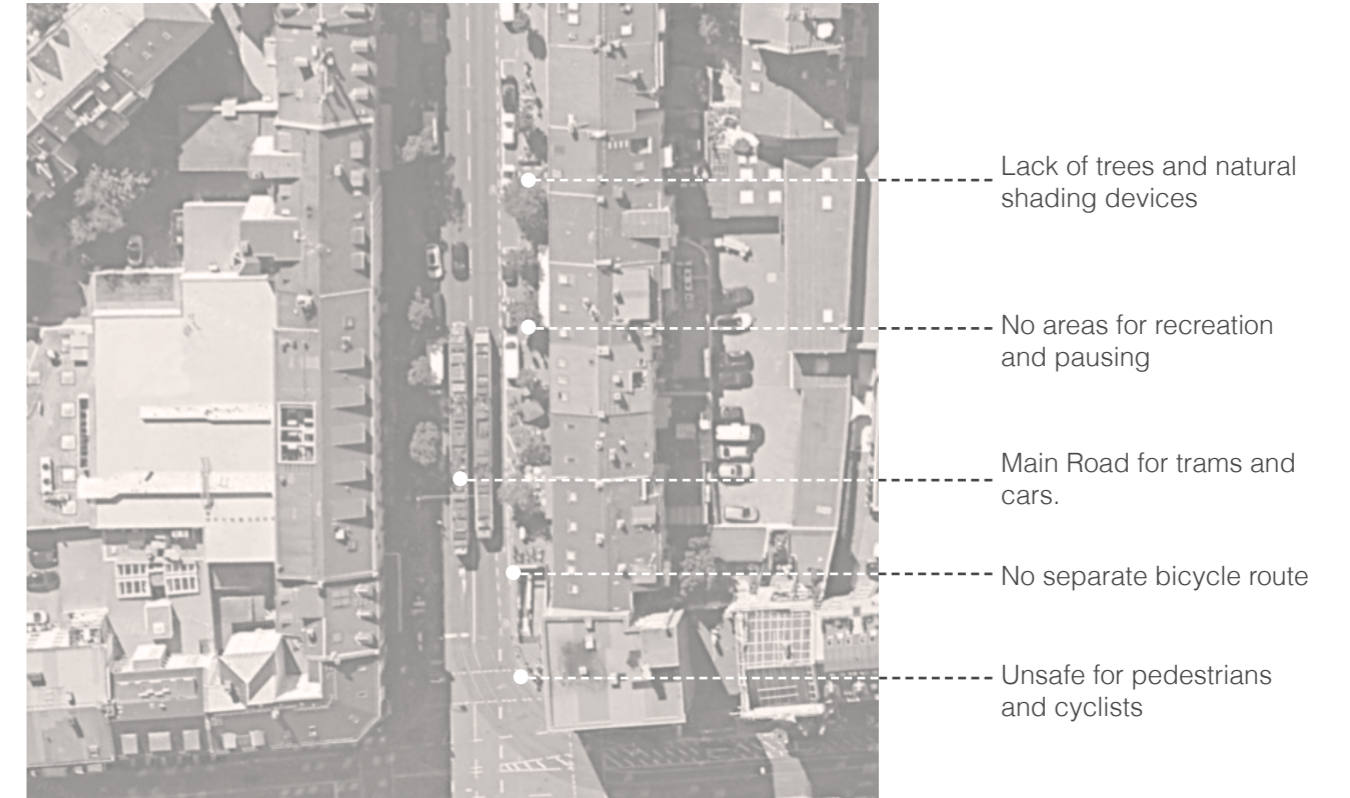
F.6.1 Before Image

Source: Google Earth

Part of Schweizer Straße (Before - After)



Design Proposal (After)



F.6.2 Before Image

Source: Google Earth

CONCLUSION

As landscape architects, it is upon us to improve the experience of the open space by nurturing and creating a balance between the built and the open environment. Rapidly densifying cities face various problems that challenge the quality of urban life. This challenge is magnified when we also think about the increasing climate crisis. Along with our cityscapes, our streets have also found themselves at a pivotal moment for urban reorganization. More and more cities are now looking to promote "livability" and "sustainability". By creating streets that are pedestrian-priority in the neighbourhoods of all cities, we create opportunities for community interaction and recreation, a healthy lifestyle, and a better quality of life.

The Frankfurt city council had been contemplating making such changes to Schweizer Straße which were the need of the hour. The design decisions we make today will be responsible for tomorrow. Being the gateway to the main metropolis of Frankfurt which connects the Main River bank in the north with the western entrances to the Südbahnhof over one kilometre, Schweizer Straße indeed needs to be the Main green link.

The main questions that were to be answered were "How can we improve the quality of stay, how to we address climate change and how to we respond to the needs of the Public and the government". After extensive study of the past and the present conditions, uses and evolution of Urban city streets as well as the climate crisis and how nature-based solutions can help mitigate this crisis, it was possible to seek answers to these questions. The next step was to implement these answers in the design.

The feasibility study which already examined all the possibilities, including public participation defines elements and qualities of the street that should be retained, supplemented and redesigned. This feasibility study became the framework for the design brief and the public requirements became the key goals of the thesis. Apart from the feasibility study, the detailed site analysis helped us understand the advantages and disadvantages of the existing scenario. The case studies provided a perspective on how different designers solved similar problems all over the world.

The proposed redesign of Schweizer Straße and Platz

is a holistic outcome of all these studies and analyses. The scope of design established at the beginning has been achieved. Schweizer Straße is now

- Safe for Pedestrians and Cyclists
- For everyone of different age and abilities (Universally Accessible/Barrier-Free)
- With improved quality of stay
- Unsealed and Green
- With the same Avenue Character

Schweizer Straße is indeed the "Boulevard of Desires"

Limitations and further research:

While the proposed design has tried to achieve the scope set for this thesis, there can be certain limitations, loopholes and grey areas. Further detailed research could help in implementing and understanding the proposed ideas practically. This thesis can become a base to start conversations and discussions with different stakeholders including the public. Various experts like Traffic Planners, Urban Designers, Architects, Environmentalists, Hydrologists, Botanists, Climatologists, Ecologists etc could be involved to understand the design through different perspectives and make Schweizer Straße an outstanding example.

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Sayali S Tidke

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