

CLIMATE LINEA NEW STREET TYPOLOGY FOR ZURICH

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Cooperation Partners: Klumpner / Gret-Regamey / Kaufmann

ANALYSIS CLIMATE LINE



Analysis Description

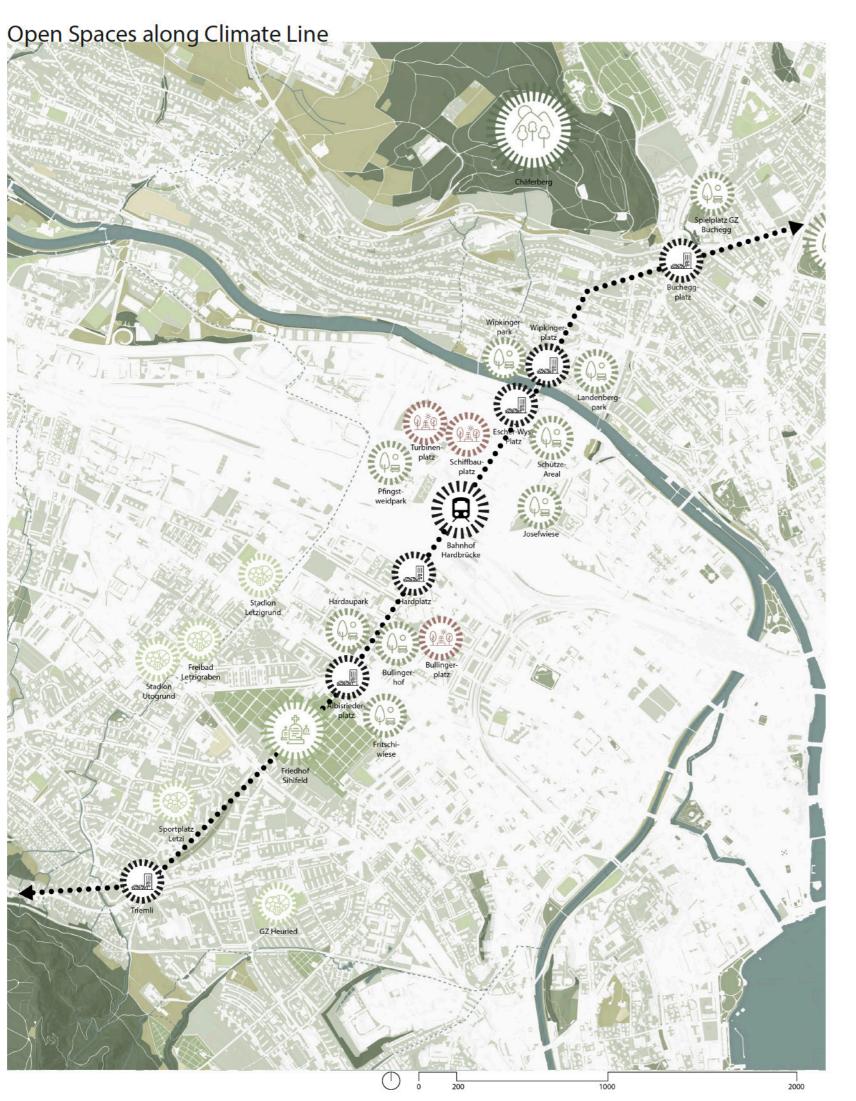
The analysis of the lifeline addresses the surface sealing and densification as well as traffic congestion, causing climate issues such as bad air quality or overheating which are very present along the site.

First I am analysing the different open spaces along the site to show the challenges regarding surface sealing and which climate mitigation tools can be used here. The neighbourhood of Wipkingen has a large amount of mainly private green open spaces. The potential would be increasing the biodiversity, working with water retention and water in public space as well as further greening. In Escher-Wyss there is a large problem with surface sealing. The main priority would be unsealing surfaces and greening them, working with water and shading to mitigate the climate issues. In contrast Hard has a variety of private and public open spaces. Besides the potential of enhancing their quality there are still some areas that can be unsealed and included in the bioclimatic network. Lastly along the Triemlifussweg there are vast green areas. These can be made more climate active by introducing more biodiversity with green and blue elements.

Second I am analysing the different street types along the site to highlight the problem of asphalted and car oriented streetscapes while giving an impression of how the streets could change in the future. The Rosengartenstrasse is mainly a concrete corridor for cars at present. With the reduction of car lanes, the introduction of the tram of green buffer zones it could become a livable street and ground floors can be activated. The Hardbrücke nowadays is very much traffic oriented. In the future I can imagine both the ground level and upper deck to be partly car traffic free or reduced. This would give the opportunity to create an urban but also blue and green pedestrian area. Along the Hardstrasse there are a lot of green spaces and trees, yet it still suffers from a high amount of traffic. The approach here would be to favour the tram and slow traffic, but also upgrading the existing open spaces in a climate ecological way. Finally the Triemlifussweg is a semi-private path. Yet with the densification of the area it could become a stronger, more accessible connection. The path together with the transformed open spaces and ground floors could become more of an entity.

Hypothesis Climate Line Analysis

In the present the streetscape of the lifeline is car traffic oriented as well as sealed and is not prepared for future challenges such as climate change and densification. The transformation into a climate line has the potential to generate an axis which has its own identity and is sustainable.









Schütze-Areal





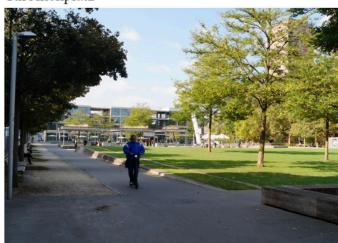
Albisriederplatz



Wipkngerplatz



Turbinenplatz



Hardaupark



Sihlfriedhof

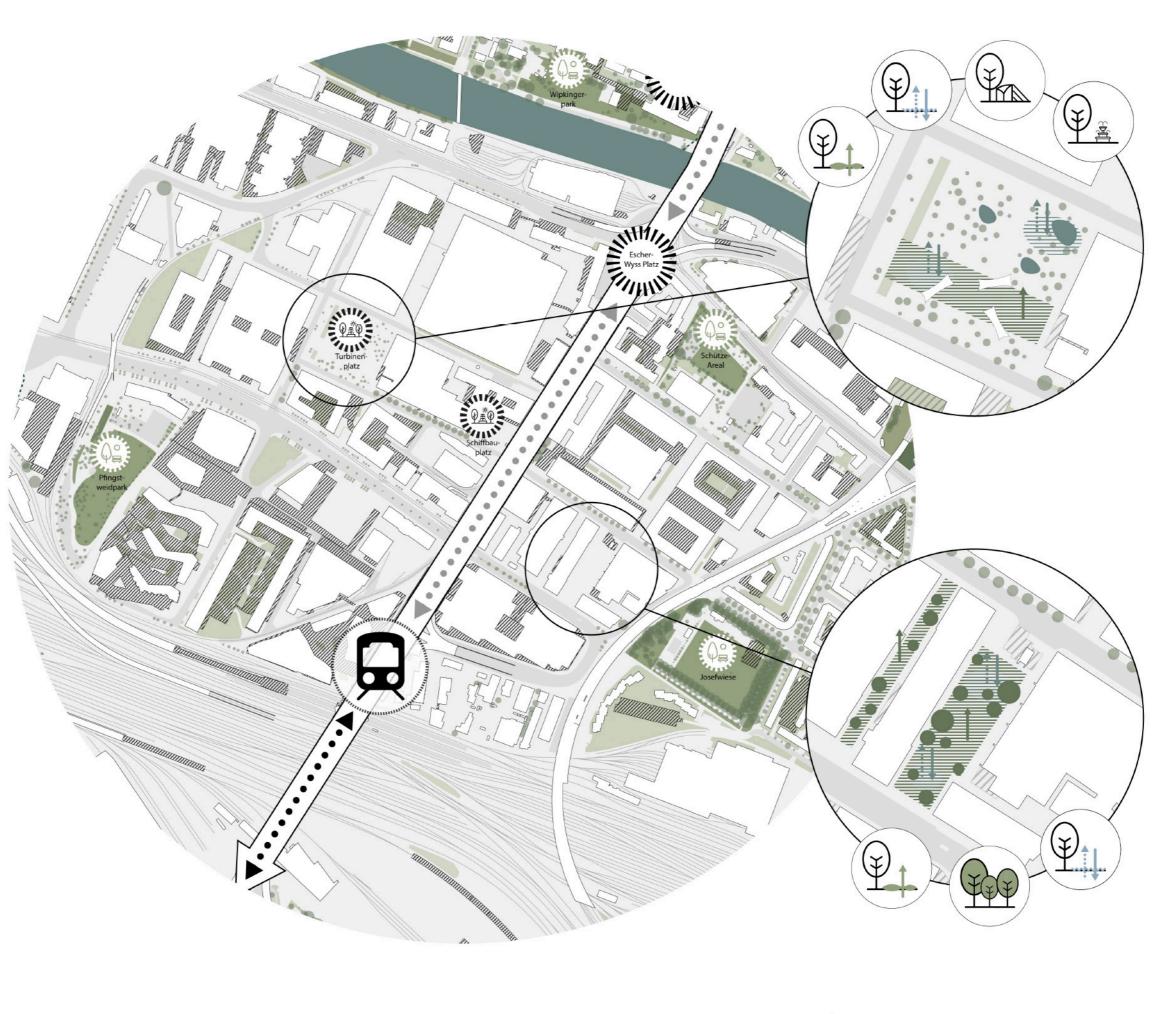
Potential of Open Spaces Wipkingen

Toolbox Unsealement Planting trees Climate ecology/ Biodiversity Water retention Water in urban Stream revitalization Legend Forest Pasture Garden Public green Private green Sports Cemetery **Building OG** Building UG Stream open ----- Stream ditched Water



Potential of Open Spaces Escher-Wyss

Toolbox Unsealement Planting trees Escher-Wyss Platz Water retention Water in urban Shading Legend Forest Pasture Garden Public green Private green Sports Cemetery **Building OG** Building UG Stream open ----- Stream ditched Water



Potential of Open Spaces Hard

Toolbox Unsealement Planting trees Water retention Water in urban High albedo Legend Forest Pasture Garden Public green Private green Sports Cemetery **Building OG** Building UG Stream open ----- Stream ditched Water



Potential of Open Spaces Triemli

Toolbox



Unsealement



Planting trees



Climate ecology/ Biodiversity

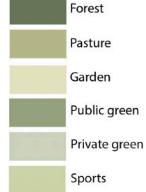


Water retention



Water in urban space

Legend



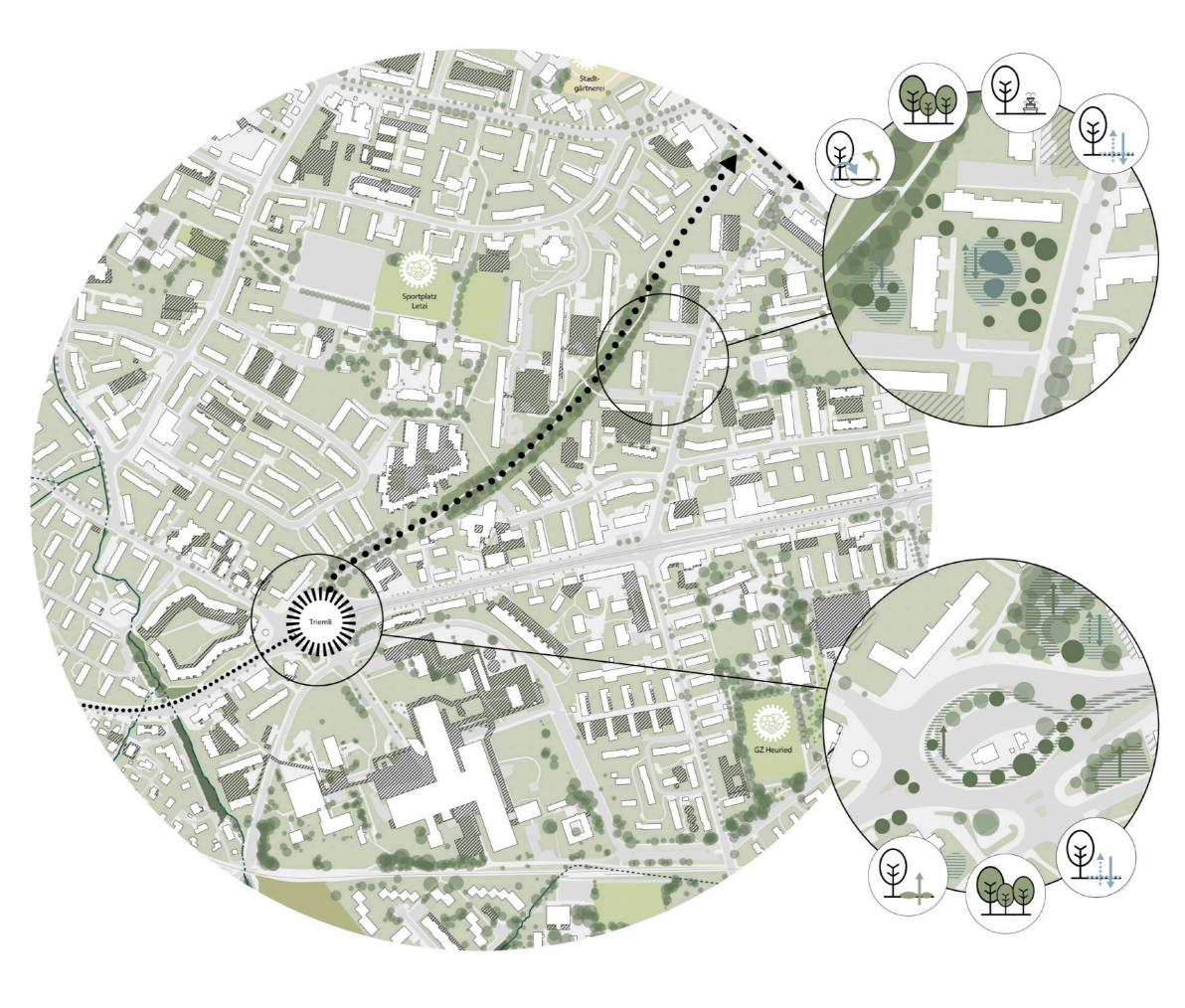
Cemetery

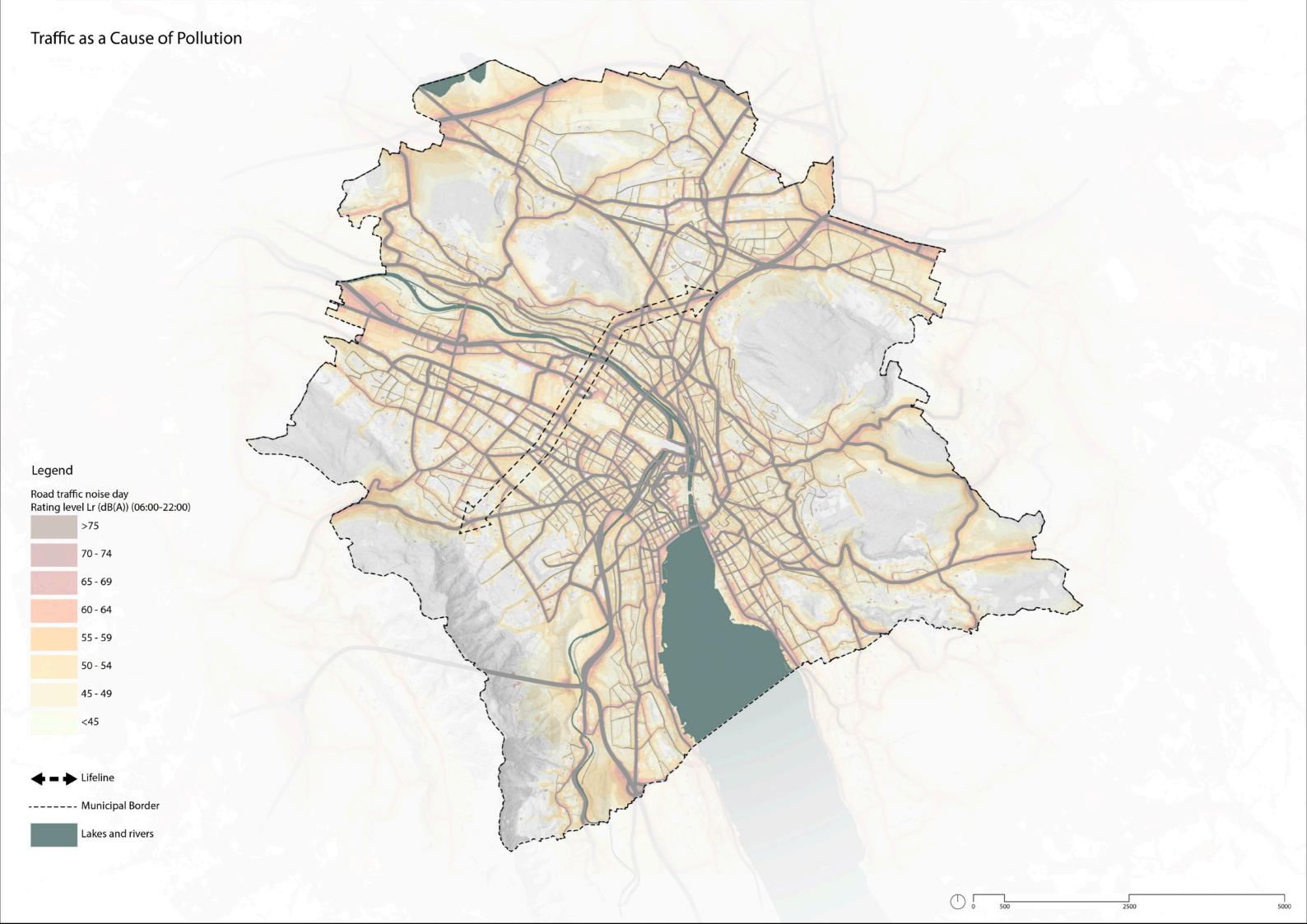
Building OG Building UG

Stream open

----- Stream ditched

Water









Wipkingerbrücke



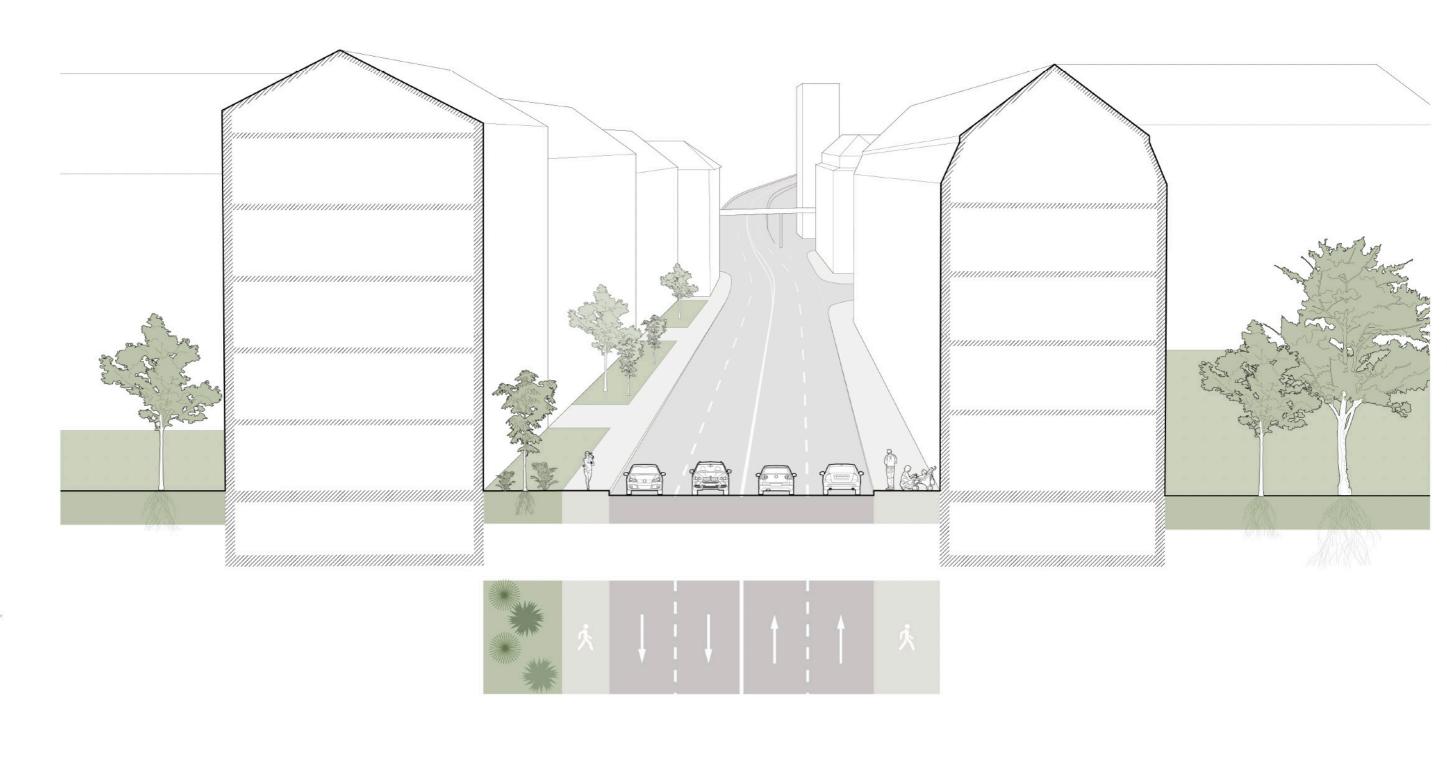
On Hardbrücke



Hardstrasse

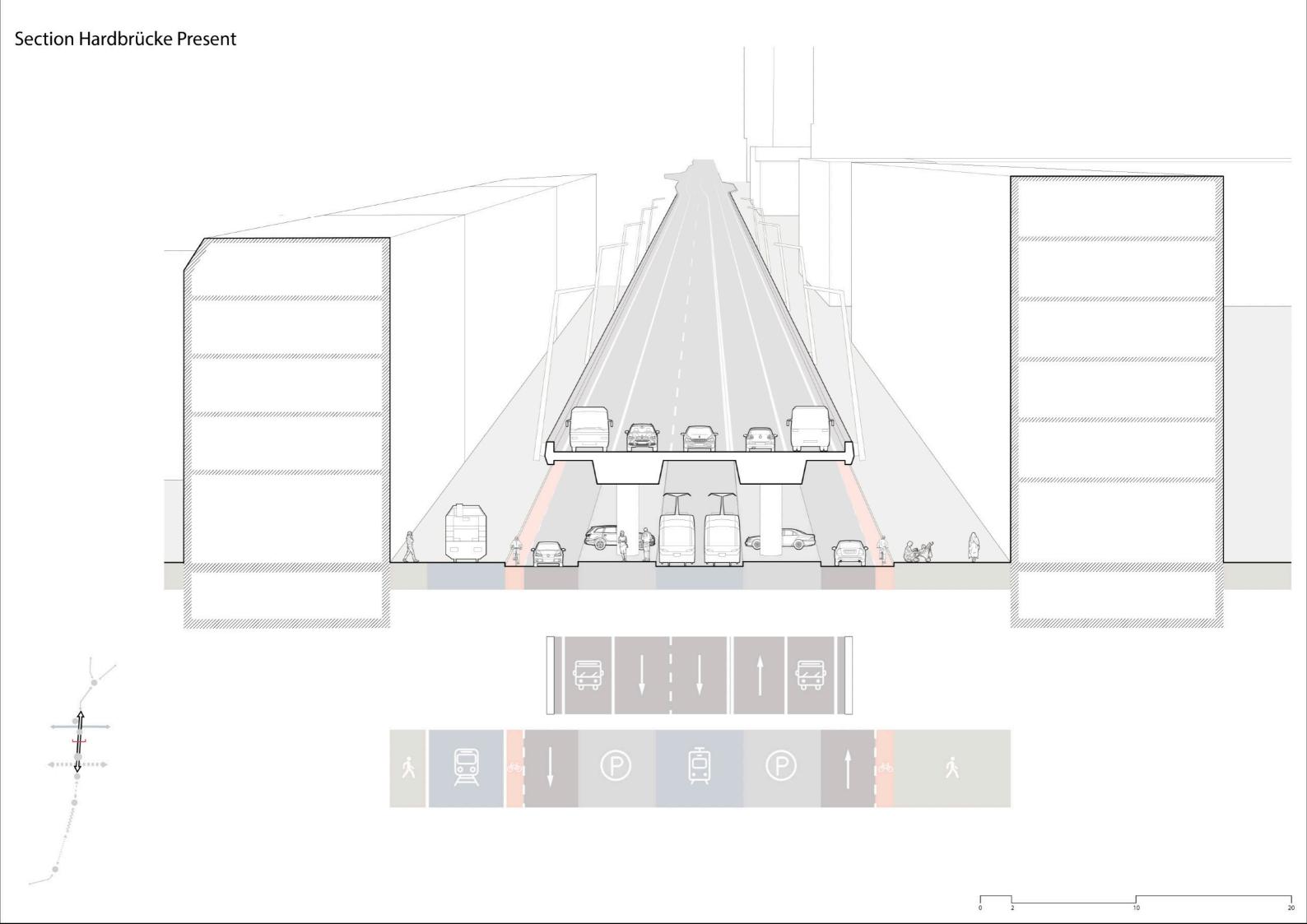


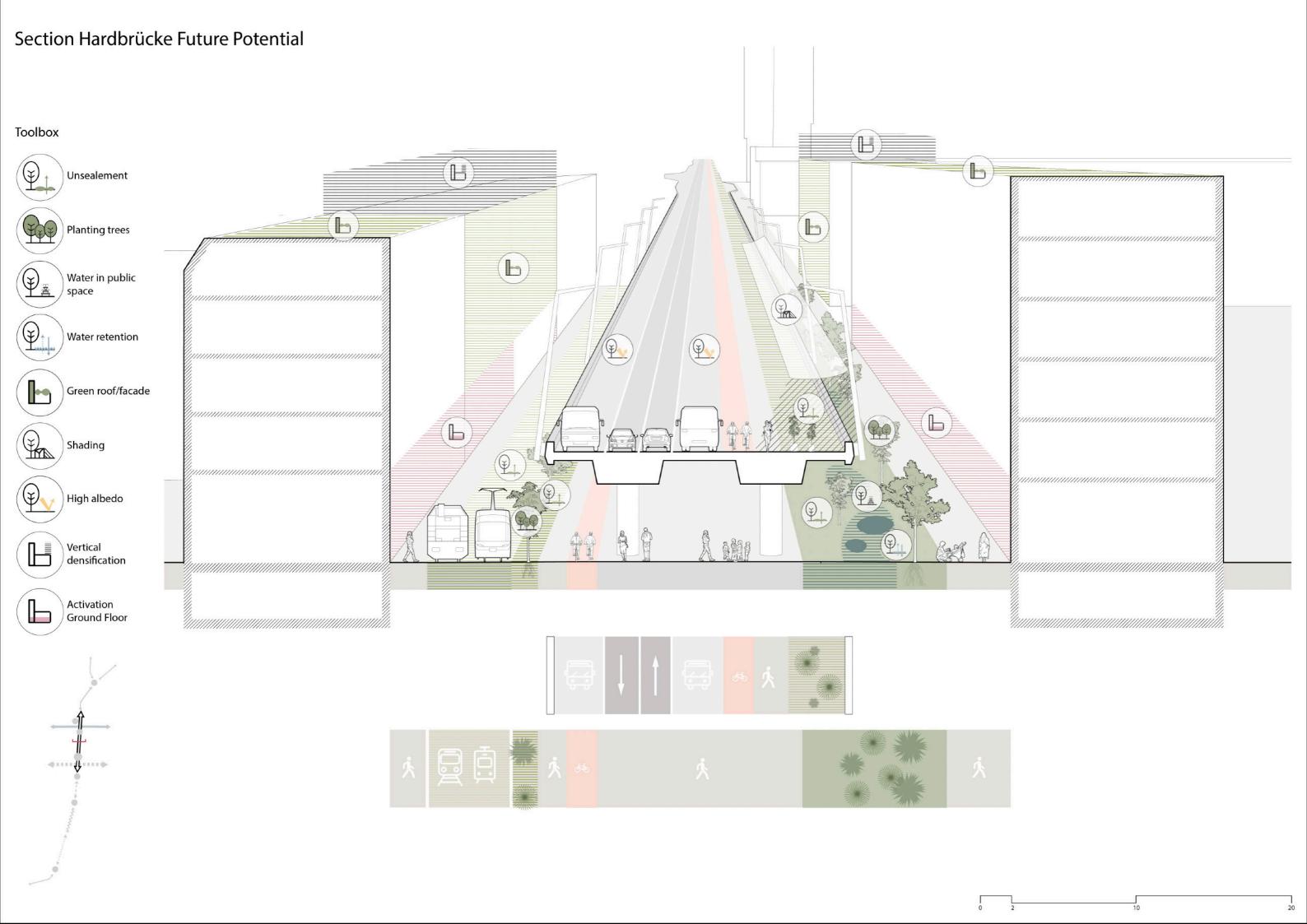
Triemlifussweg

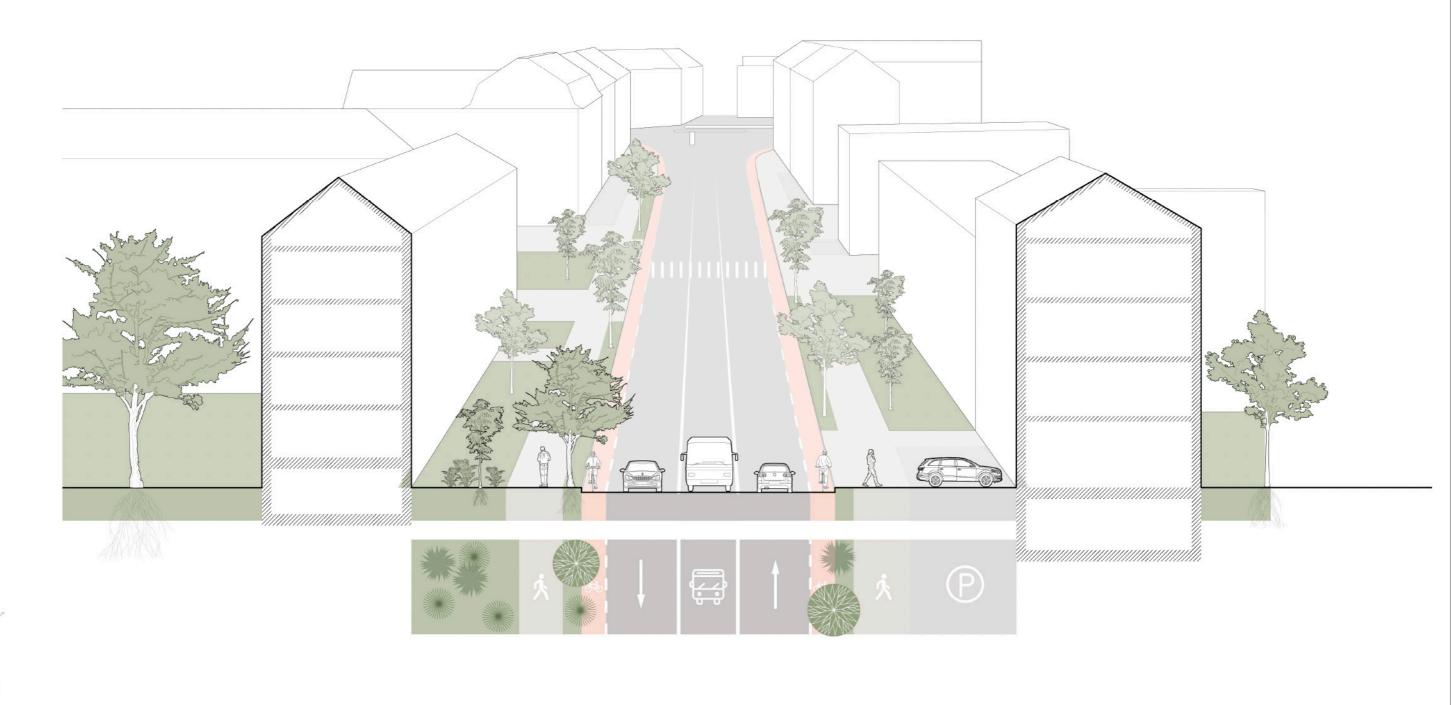


Section Rosengartenstrasse Future Potential

Toolbox Unsealement Planting trees Climate ecology/ Biodiversity Water retention Green roof/facade Clean energy High albedo Renovation Activation Ground Floor









Section Hardstrasse Future Potential

Toolbox Unsealement Planting trees Water in public (**b**) (H) Water retention Green roof/facade High albedo Vertical densification Renovation Clean energy

Section Triemlifussweg Present

Section Triemlifussweg Future Potential (b) Toolbox Planting trees Water in public Water retention Green roof/facade Climate ecology/ Biodiversity Air circulation Shading Horizontal densification

ANALYSIS HARDBRÜCKE



Analysis Hardbrücke Description

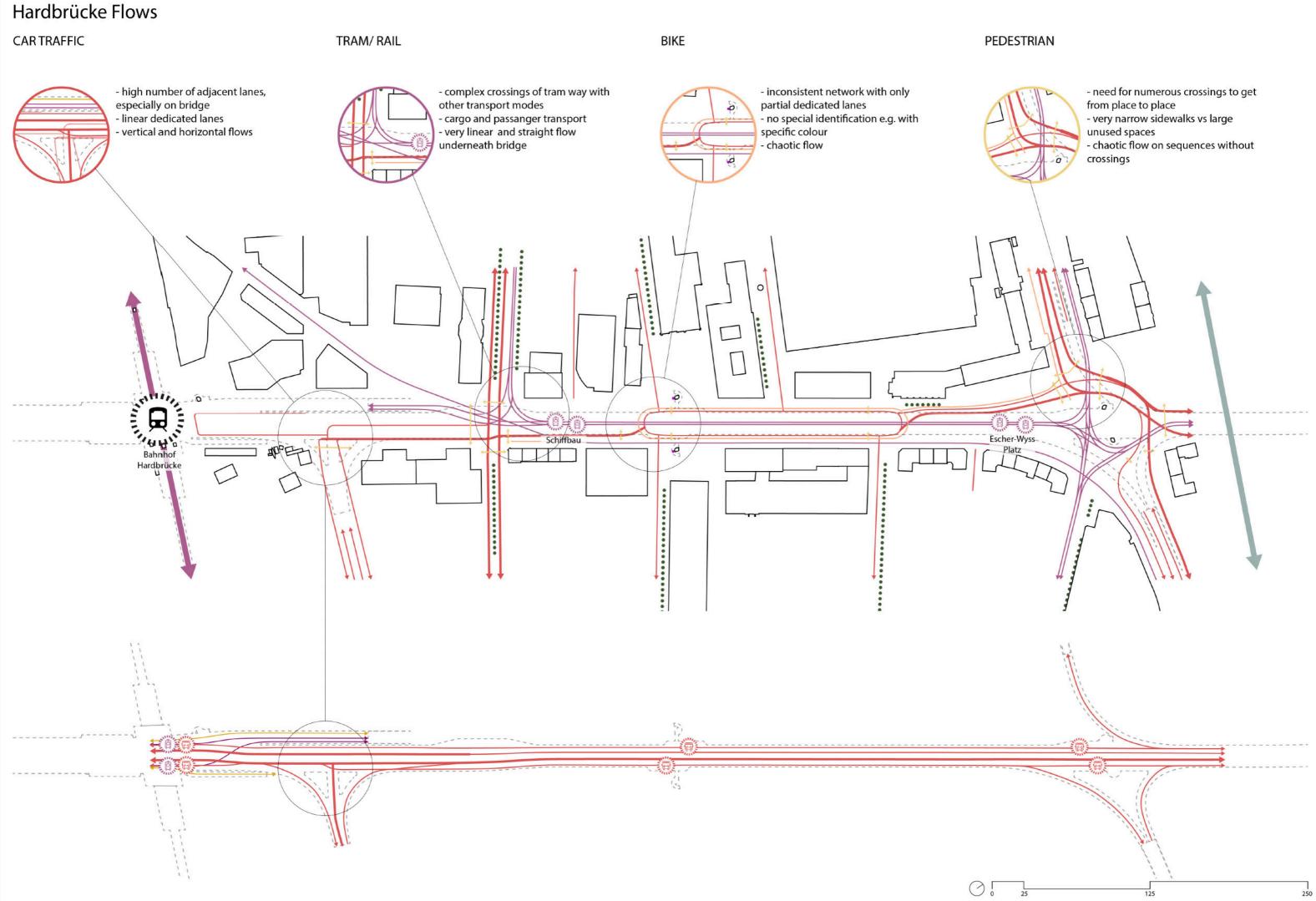
Based on the analysis of the climate line I decided to focus on the Hardbrücke as my project site as the challenge of surface sealement and traffic congestion is most present in this area.

Looking at the different users of the streetscape and traffic flows the car dominates the space both under and over the bridge with a lot of lanes and a high amount of parking areas. The tram lanes and cargo lane create complex and chaotic intersections with the mororized traffic. While there are a lot of dedicated spaces for motorized and rail traffic bikers and pedestrians have to deal with the chaotic flow as there is an inconsistent network for slow traffic. People need to cross the streets numerous times to get from place to place and bikers often do not know where to drive. Additionally the upper deck is not accessible for pedestrians and bikers at all, except for the bus and tram stops and the part above the trainfield. Interestingly there are some very large pedestrian areas but these are mostly unused.

Besides the different flows the streetscape also consists of places. Large areas especially underneath the bridge are parking lots thus there is more parking and traffic than places of stay and interaction. The large linear parking space underneath the bridge also separates the streetscape into two unrelated sides. The public spaces along the Hardbrücke differ in their quality. As an example the Schiffbauplatz is lively mainly due to the Schiffbau building itself which is a general quality that the neighbourhood still has with its industrial heritage. Yet there are also spaces such as the Maag-Platz or the backyard of the Industriehalle which are rather in-between areas. Additionally a square such as the Escher-Wyss-Platz is an archipelago of traffic islands and thus cannot be really considered a square. Some building frontyards are lively due to ground floor uses but these outdoor spaces are mostly very narrow and in direct proximity of traffic. Another challenge is the lack of green or natural areas. Besides some distance green the surface of the Hardstrasse is entirely asphalt and there are only a few trees on the larger squares. There are some high quality green spaces in the neighbourhood such as the Schütze-Areal yet the Hardbrücke is not connected to these in any way.

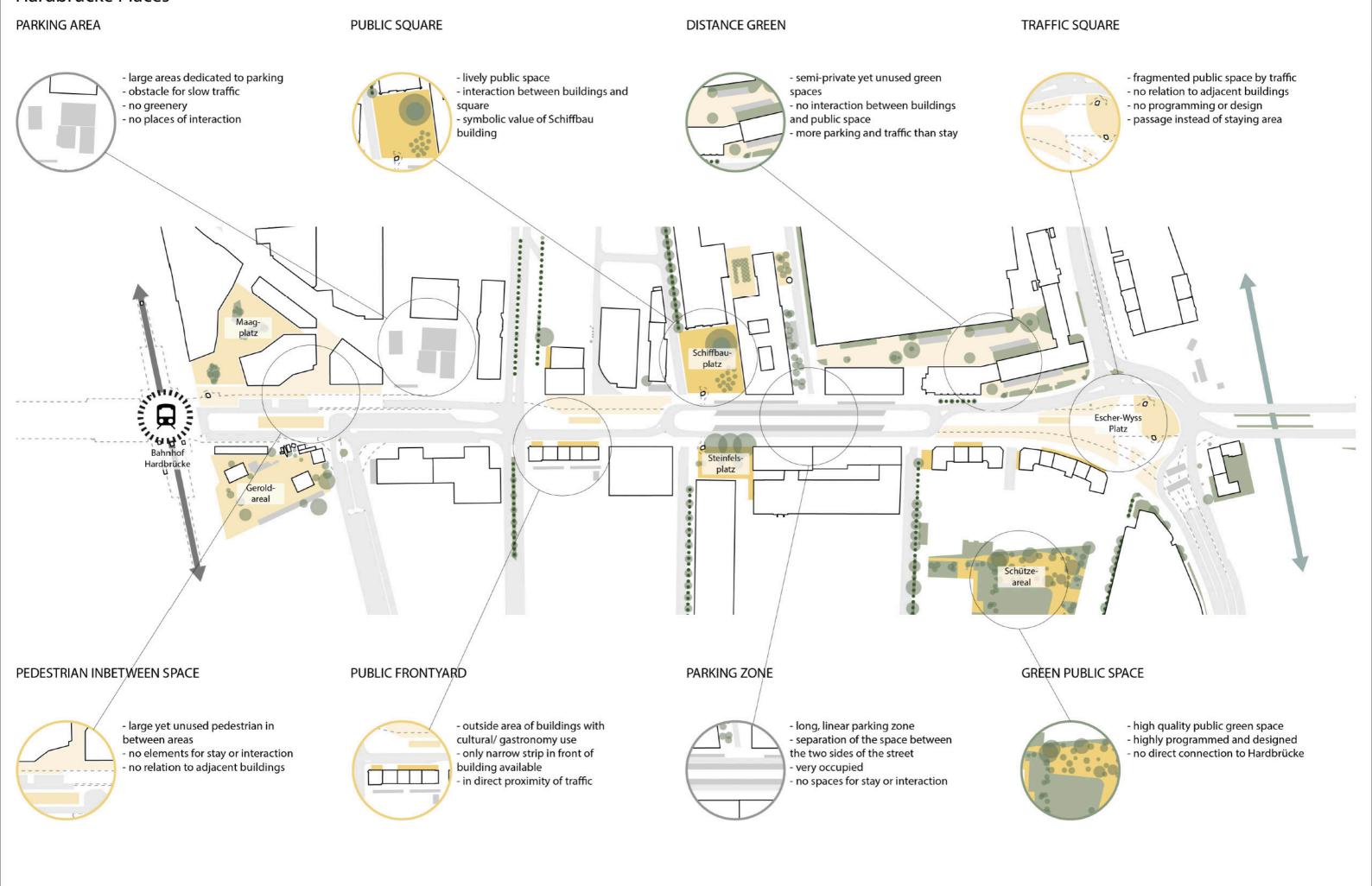
Hypothesis Site Analysis

The space underneath and above the bridge are an extreme example of a car oriented, asphalted street typical for Zurich. In order to be able to face the climate and traffic issues in the future the streetscape has to be radically transformed under the aspects of sustainable mobility, open space quality and climate mitigation.



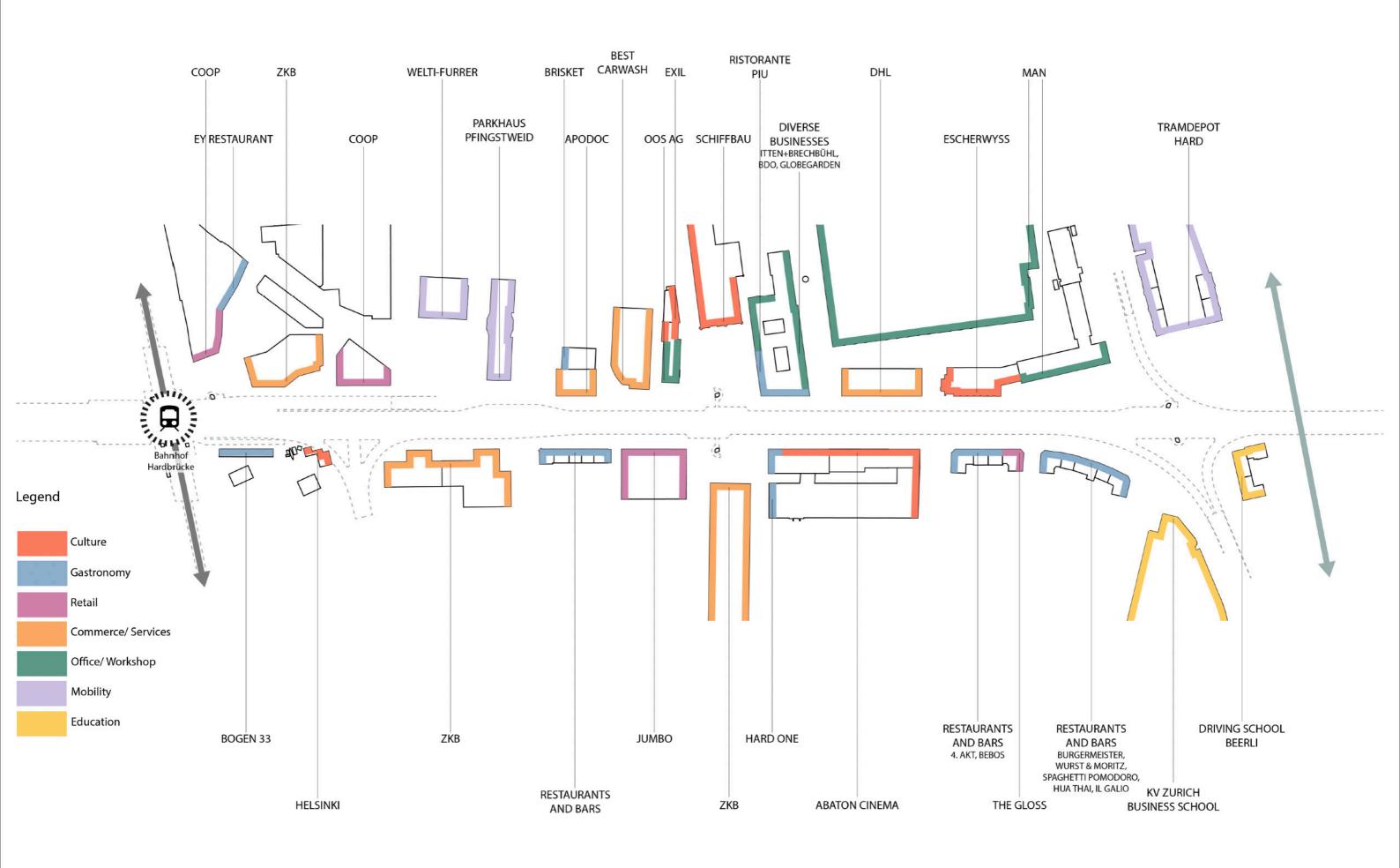


Hardbrücke Places





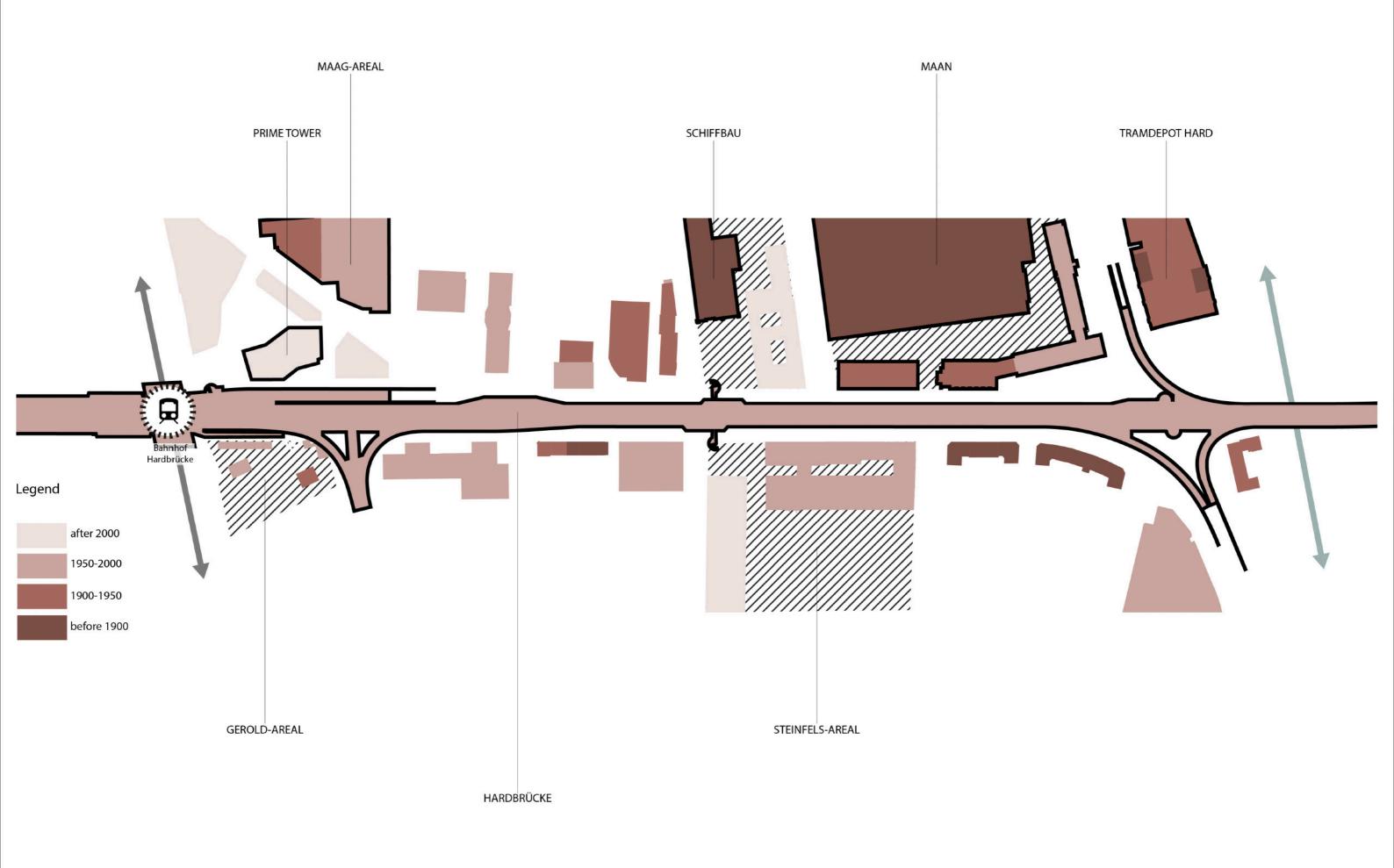
Hardbrücke Ground Floor Uses



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Hardbrücke Building Ages and Symbolic Elements



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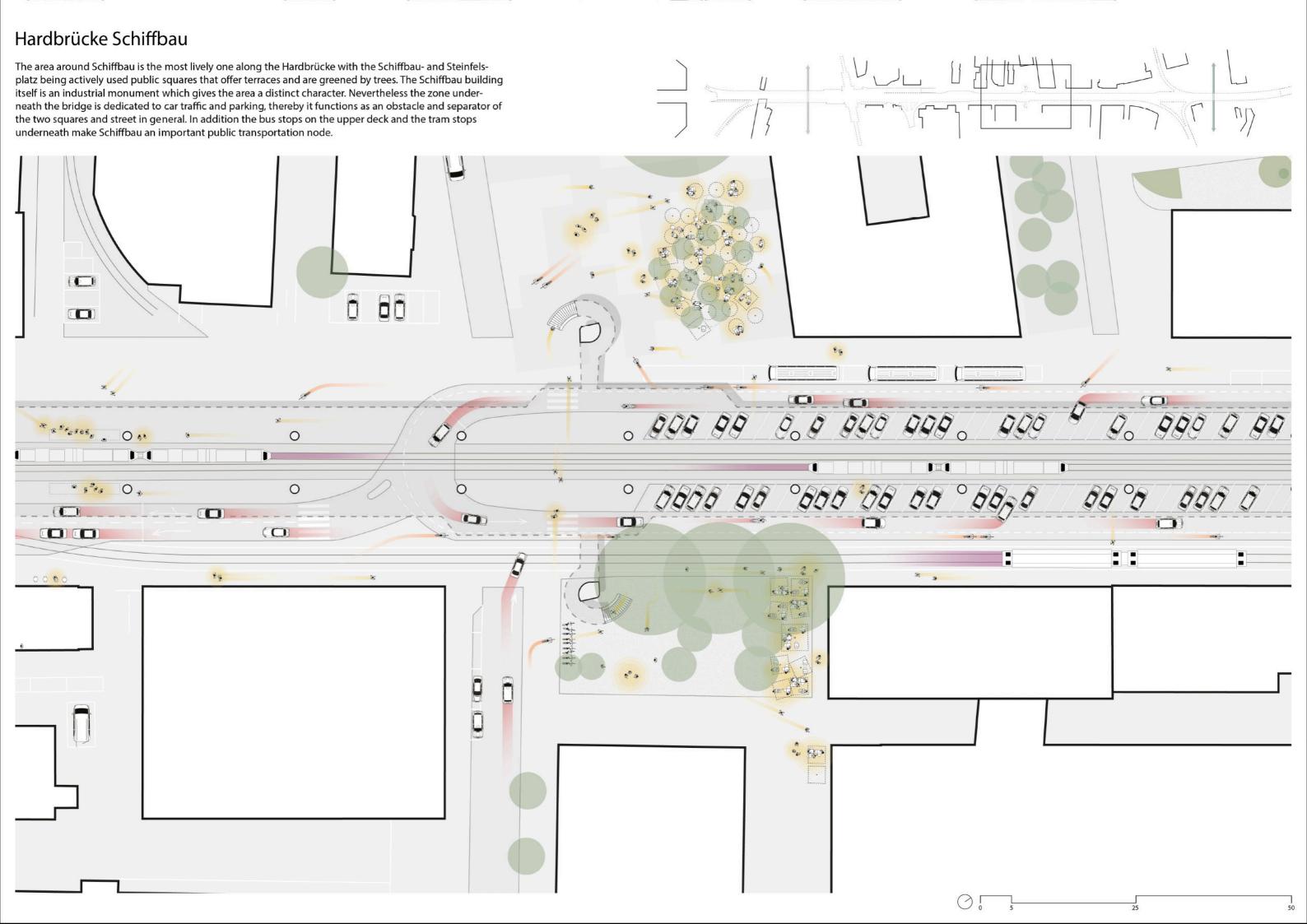


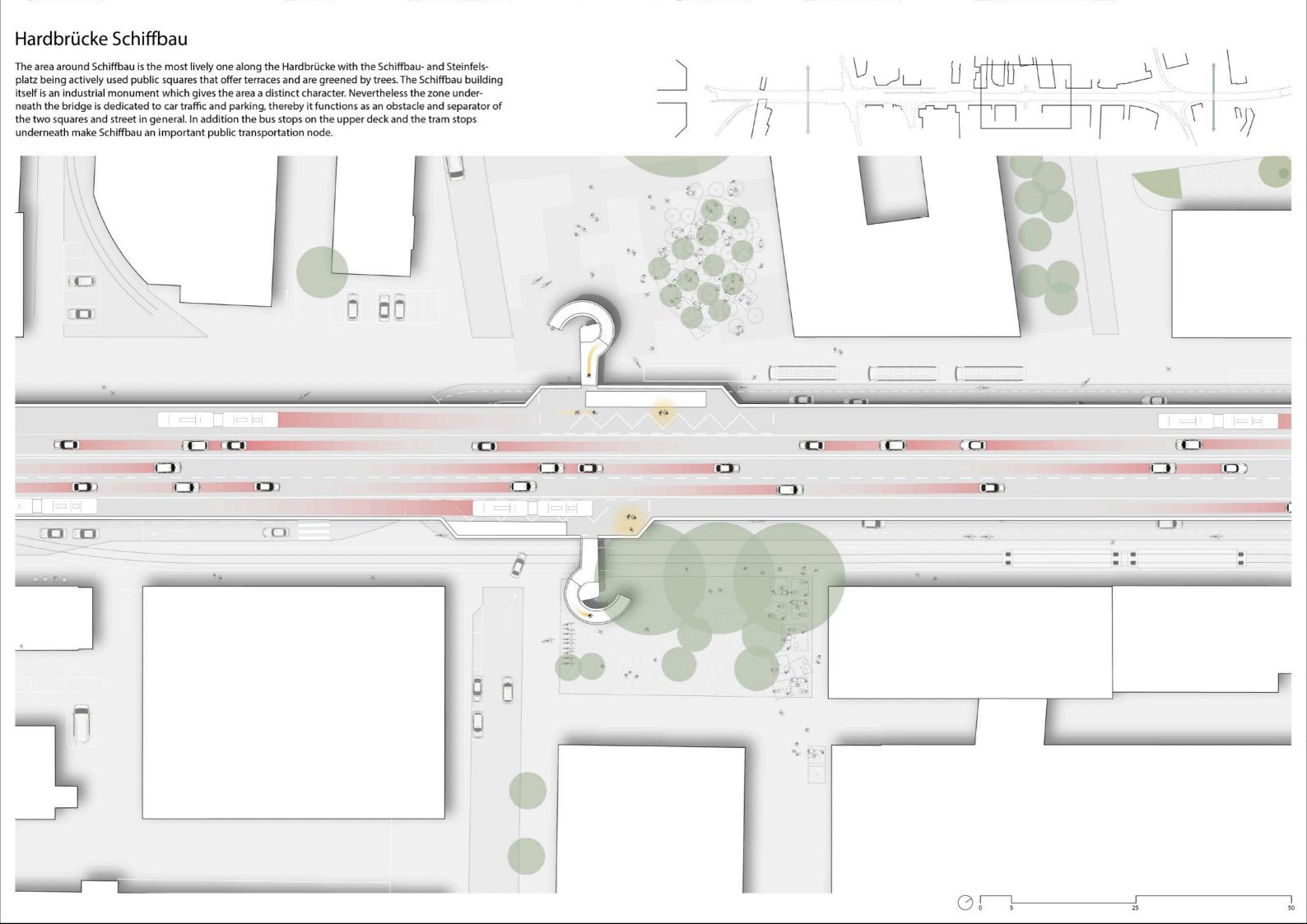
Hardbrücke Station Area The Station area is characterized by a linear flow of pedestrians coming up the ramp and further dissolving into the neighbourhood in a chaotic way as they have to get through traffic and parking areas. Many of them are heading towards the Gerold- or Maag area which are lively, yet other than that there is no direct relationship between buildings and their frontyards. In addition attractive green open spaces are very limited as a lot of space is taken for parking or simply not designed. The upper deck is mainly a public transportation hub extending into a narrow pedestrian and bike path to Hard. 0 0 0 O 11+11111++11111 O 111110 000 0

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Hardbrücke Intersection Pfingstweidstrasse The intersection between Hard- and Pfingstweidstrasse is very chaotic as many different modes of transportation come together. While the cars, tram and cargo train have their own dedicated lanes, bikers have to navigate through the traffic without a continous path and pedestrians have to pass several roads and traffic islands to get across. In certain parts the pedestrian zone is very large yet unused due to non-activated ground floors. In other parts where gastronomy creates a lively frontyard the pedestrian zone is very narrow and close to the motorized traffic lanes. The upper deck is solely dedicated to car traffic. R Congress O 42 0 0 * 5 ° 0 9 0 0 0 0 (0) 0

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Hardbrücke Abaton and Escher-Wyss-Areal The area between Schiffbau and Escher-Wyss is a transitional zone as there is a lack of public spaces and uses or elements which would create an identity for the area. The only building it is known for is the cinema Abaton which does not offer an active ground floor. The area underneath the bridge is mainly occupied by parking and traffic creating a space which is not used by pedestrians. Being one of the only areas with a biking path it is still only a fragment and does not continue further. Along some of the ground floors there are lively terraces yet they have to be limited to a narrow pedestrian area. The upper deck continues to be solely used by cars and busses. (0 B 888 B 600 TI 999 9 99 99 999 990 0 0 0 0 "000 00 °000 po 00° # # t#### O 0 0 0. O 4. **2.2020**4 p. 3 3 di D @000000

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Hardbrücke Escher-Wyss Platz The Escher-Wyss Platz is more a traffic intersection than a square which shows in how poorly it is used by people as a place to stay with even the urban furniture remaining unused most of the time. Tram lines and congested wide car lanes divide the square into separate islands making it difficult for pedestrians and bikers to move around. On one side the building frontyards are actively used as terraces, yet on the other the frontyard of the building consists of distance green and parking spaces. Just as Schiffbau the Escher-Wyss Platz is a public transport node connecting the space underneath and above the bridge. 90 dd 40 00 I 一一批技术 0 0 98 6 0 0 0. 0 0) 0

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PROJECT CLIMATE LINE HARDBRÜCKE



Project Description

Based on the analysis of the Hardbrücke and the climate, traffic as well as quality of space challanges it faces I am proposing to transform the streetscape into a unique street typology for Zurich.

The transformation of the street is based on a future outlook that car traffic and parking spaces will be reduced but also on the introduction of a park and ride system that brings a shift towards public transport use.

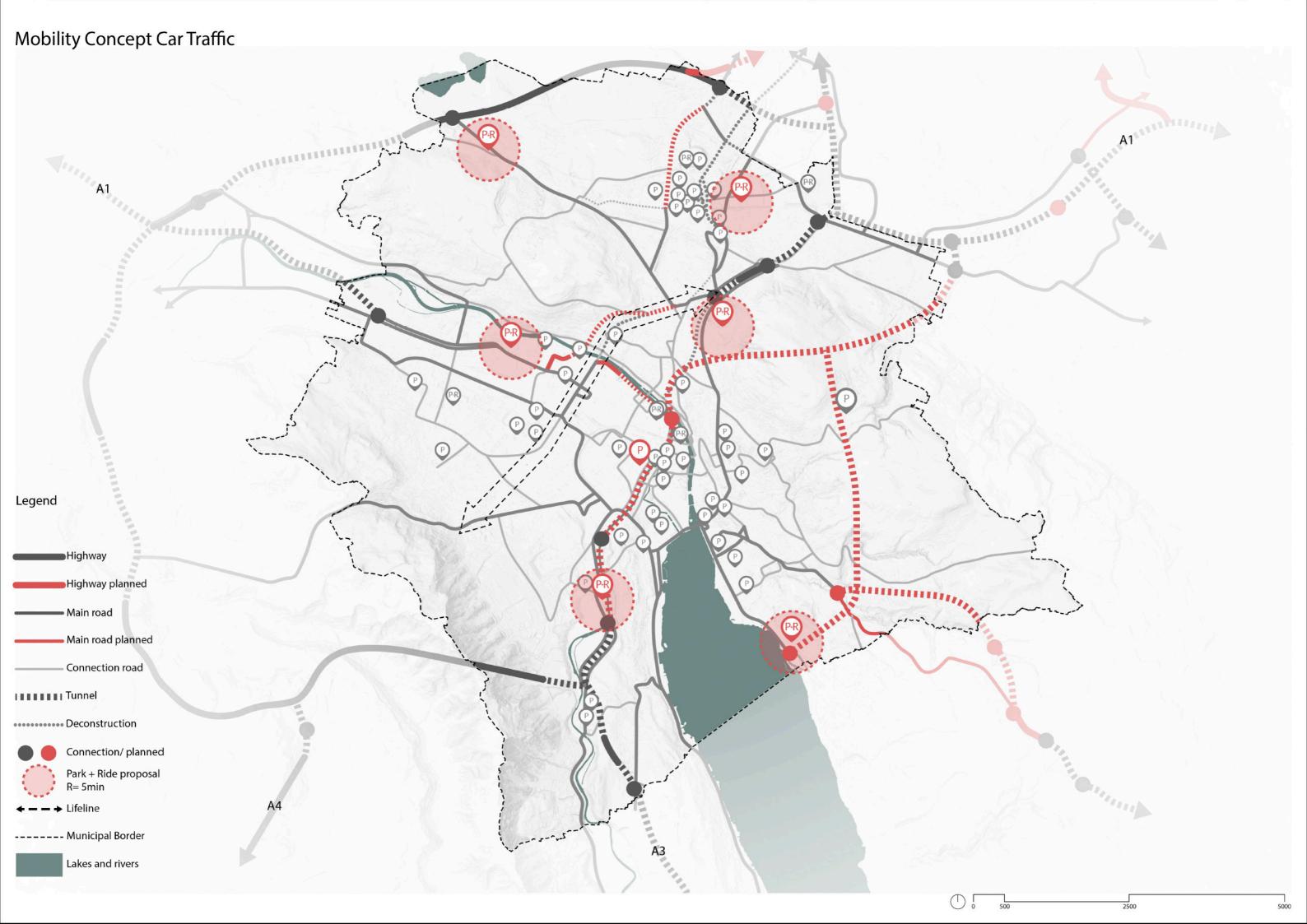
The new design of the area underneath the Hardbrücke has a continous pedestrian zone as its core element. In order to create it the motorozied and rail traffic have to be adjusted. The main orthogonal street axes are kept but reduced in the number of lanes. The large inefficient parking areas underneath the bridge as well as the roads leading to them are removed altogether. The tramlines running underneath the bridge are moved to the more shaded side of the street while the ones at Escher-Wyss-Platz are rearranged to free the square. Further a bike network along the main axis is introduced. On the bridge the car traffic is reduced, rapid bus lanes are introduced and a green pedestrian and bike area is created on one side covered by a pergola.

The new entrance squares at the station connect the Maag to the Gerold area, the Schiffbau- and Steinfelsplatz are joined to form the urban heart of the street and the Escher-Wyss-Platz becomes an active park with spaces for arts exhibitions. Along the main pedestrian zone there is a dedicated space for temporary pavillions. The more sunny side of the street is characterized by a strip with green and blue elements and lush vegetation. The more shaded side is reserved for mobility such as the tram and main bike lane. Overall green connections to neighbouring important open spaces and parks are strenghtened.

The shift in thinking about streets in Zurich my project tries to achieve is based a lot on replacing asphalt with more permeable but also diverse and aesthetically interesting materials. I am also proposing a water collection system for plants irrigation, cooling during hot periods and open space quality. The water system is based on the rainwater being collected on the Hardbrücke as well as on unpermeable sidewalks flowing into a collection swale in the middle of the green strip. Further the specific types of trees chosen are ones that are estimated to be more robust in face of harshening climate conditions.

Hypothesis Proposition

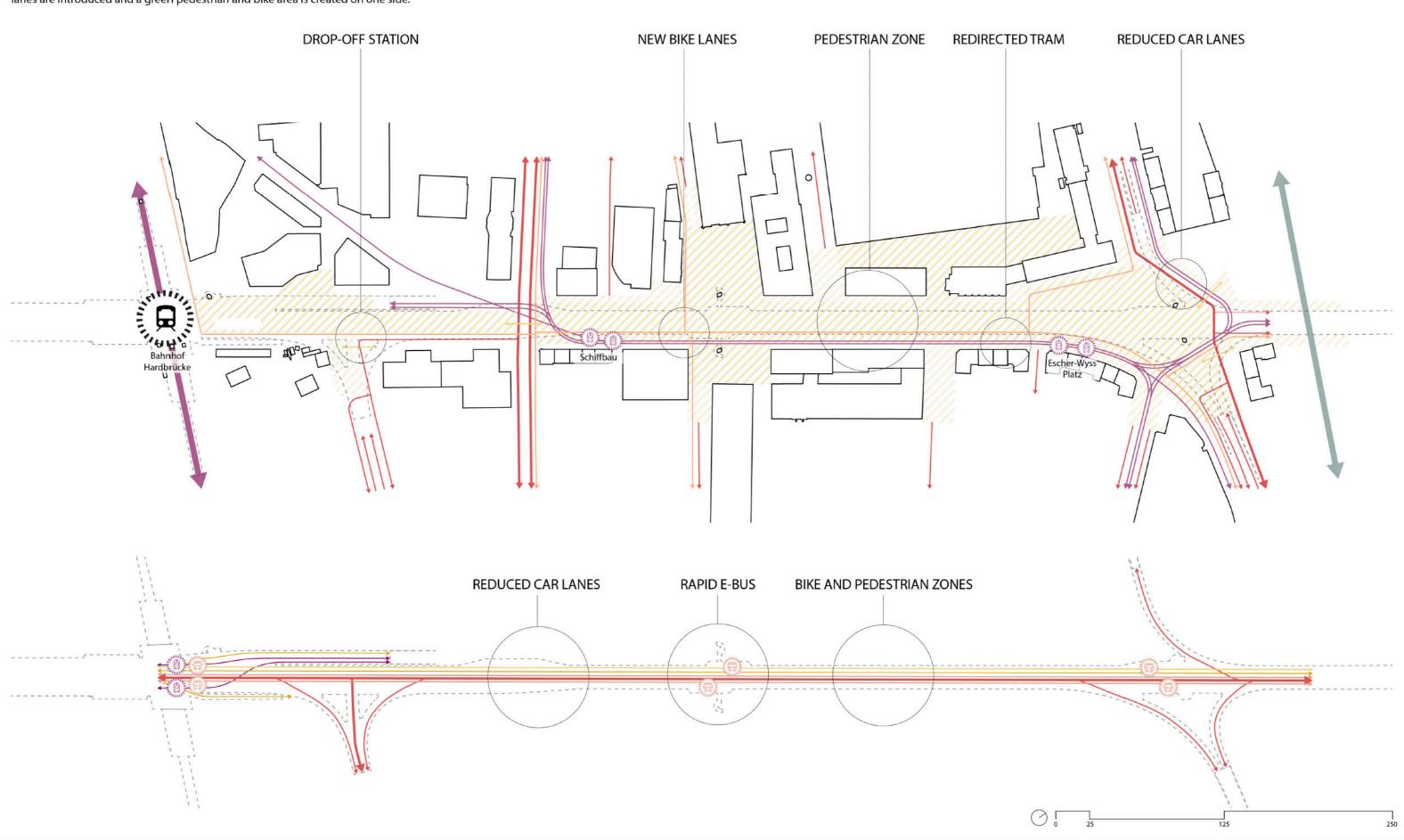
The project transforms a streetscape typical for Zurich, challenged by climate and traffic issues into a prototypical new street typology which is ecologically, functionally and socially durable. The climate line Hardbrücke becomes a unique urban destination but also a nature informed, climate-friendly streetscape.





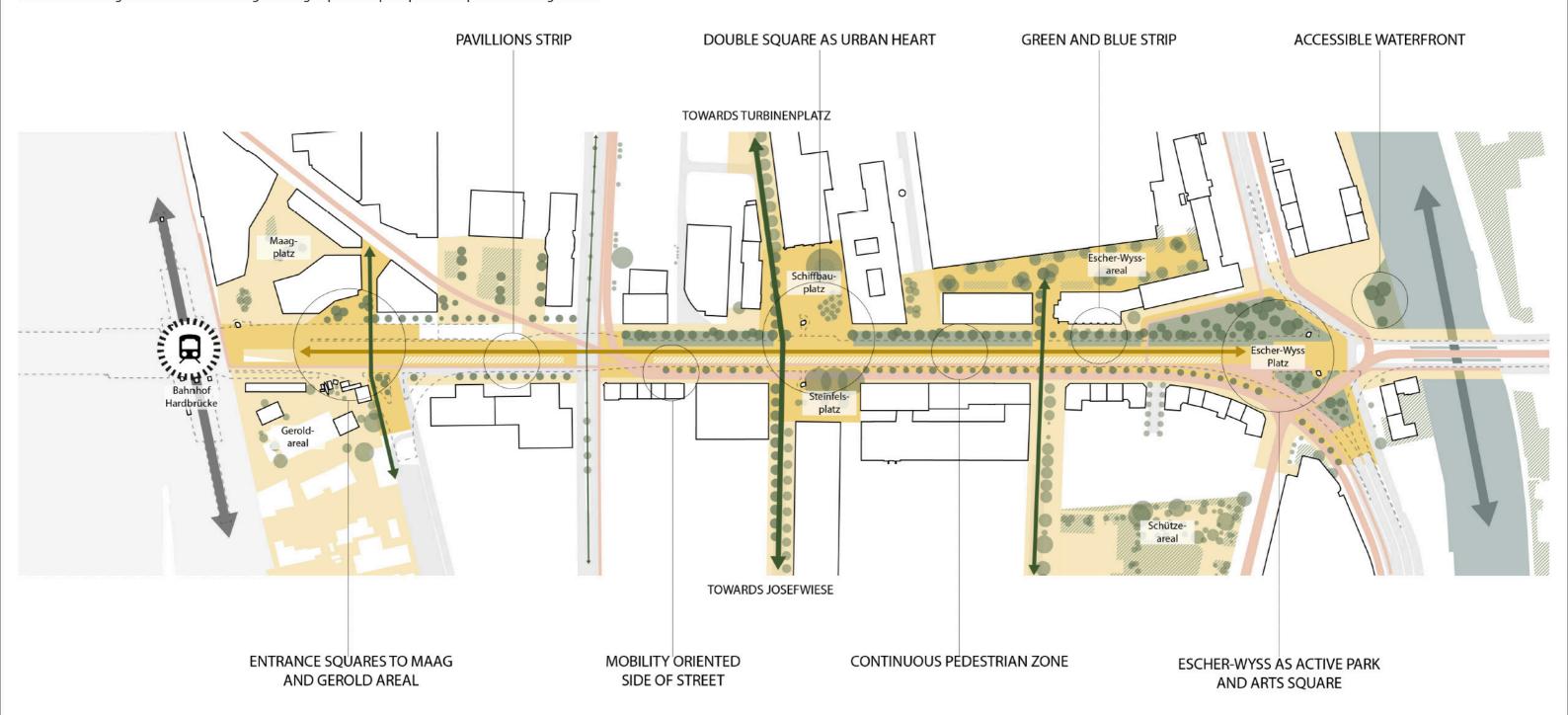
Hardbrücke Flows

In order to create a continuous pedestrian area along the Hardstrasse the motorozied and rail traffic have to be adjusted. The main orthogonal axis of the Pfingstweidstrasse and Hardturmstrasse are kept but reduced in the number of lanes. The large inefficient parking areas underneath the bridge as well as the roads leading to them are removed altogether. The tramlines running underneath the bridge are moved to the more shaded side of the street while the ones at Escher-Wyss-Platz are rearranged to free the square. Further a bike network along the main axis is introduced. On the bridge the car traffic is reduced, rapid bus lanes are introduced and a green pedestrian and bike area is created on one side.



Hardbrücke Places

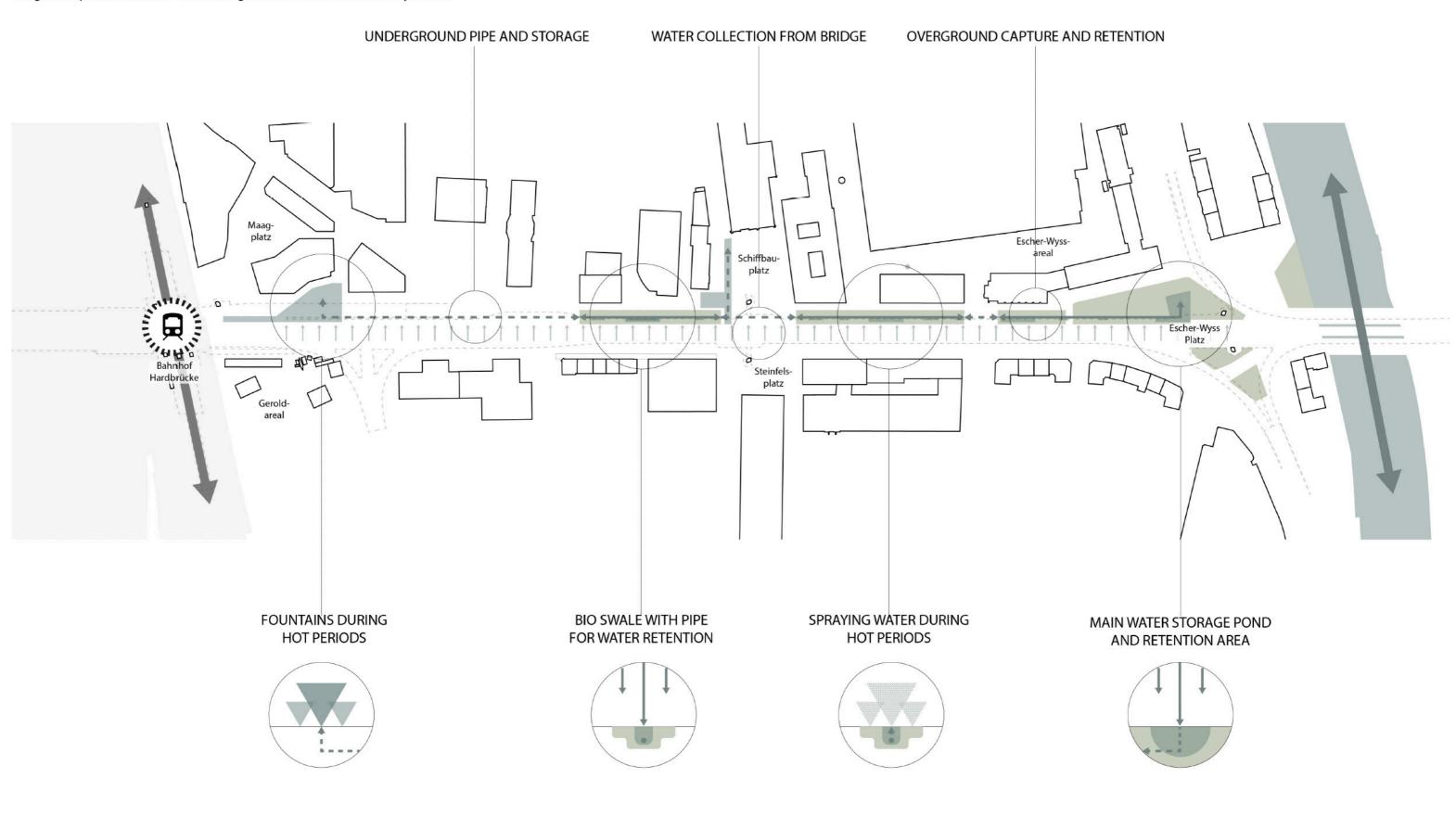
The new design of the area underneath the Hardbrücke has a continous pedestrian zone as its core element. The new entrance squares at the station connect the Maag to the Gerold area, the Schiffbau- and Steinfelsplatz are joined to form the urban heart of the street and the Escher-Wyss-Platz becomes an active park with spaces for arts exhibitions. Along the main pedestrian zone there is a dedicated space for temporary pavillions. The North-Western, more sunny side of the street is characterized by a strip with green and blue elements. The South-Eastern side is more reserved for mobility such as the tram and main bike lane. Overall green connections to neighbouring important open spaces and parks are strenghtened.



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Hardbrücke Water System

Water is an essential element for the new street design as it fullfills many functions being used for plants irrigation, cooling during hot periods but also has an aesthetical quality. The water system is based on the rainwater being collected on the Hardbrücke as well as on the unpermeable sidewalks flowing into the swale which is placed in the middle of the green and blue strip. From the swale the water seeps into a pipe which can have additional water storage entities underground. Depending on the season the water can be simply stored or used to create water features such as fountains or spraying fountains on squares and along the strip or it can be used to create larger waterbodies in the Escher-Wyss-Park.



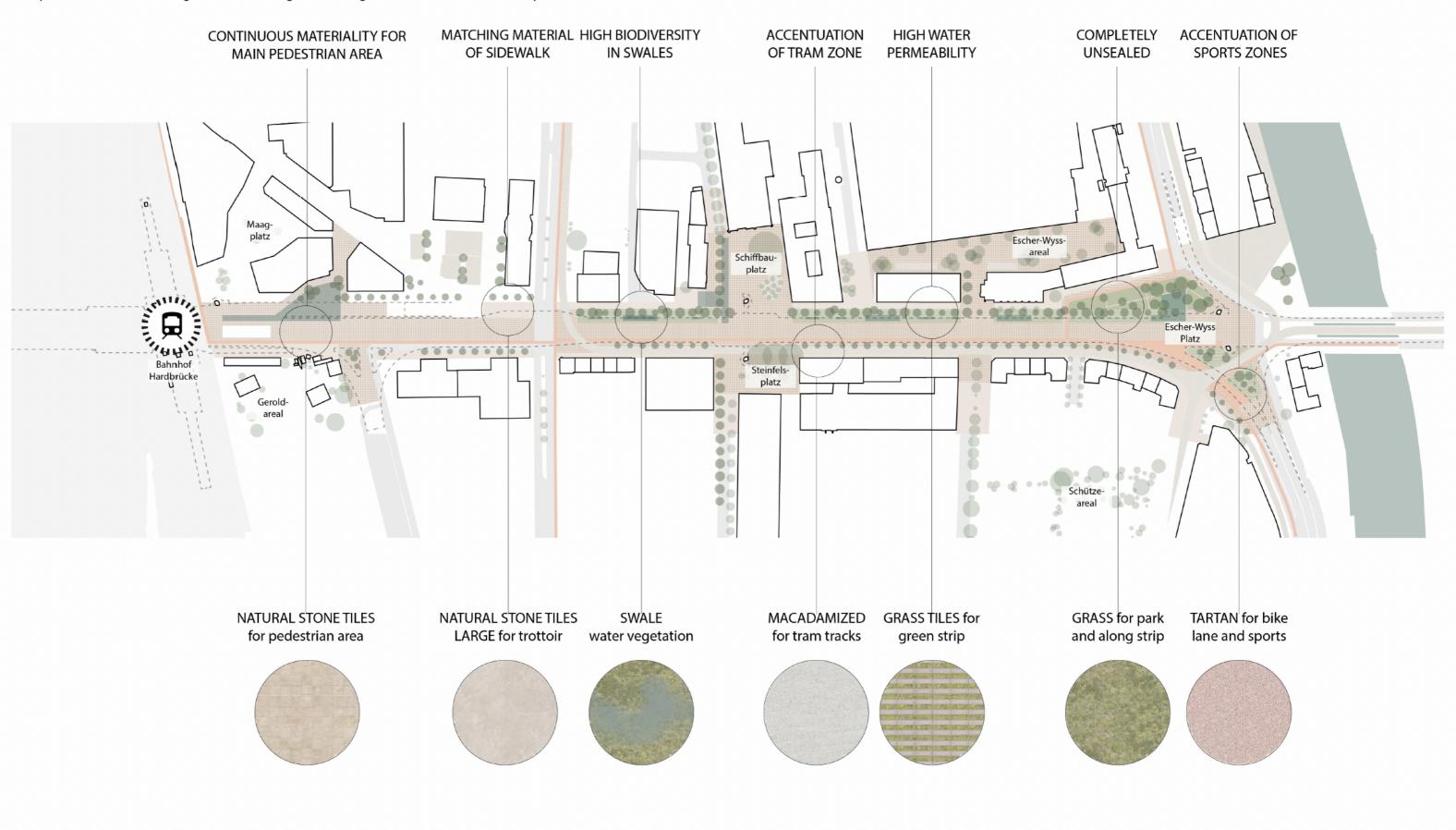
Hardbrücke New Tree Species

Planting trees along the new pedestrian zone is a very important measure in both mitigating the climate issues the neighbourhood faces but also an incredibly attractive natural element to enhance the streetscape. The specific types of ash, linden and maple trees chosen as street trees are ones that are estimated to be more robust in face of harshening climate conditions such as very dry summers or cold winters. The smaller growing trees will be placed on the more shaded side of the street while taller ones can grow on the sunnier side. The specific types of elm and oak trees chosen for situations like in the park or on squares where there is more space and sunlight have also been proven to be resistent.

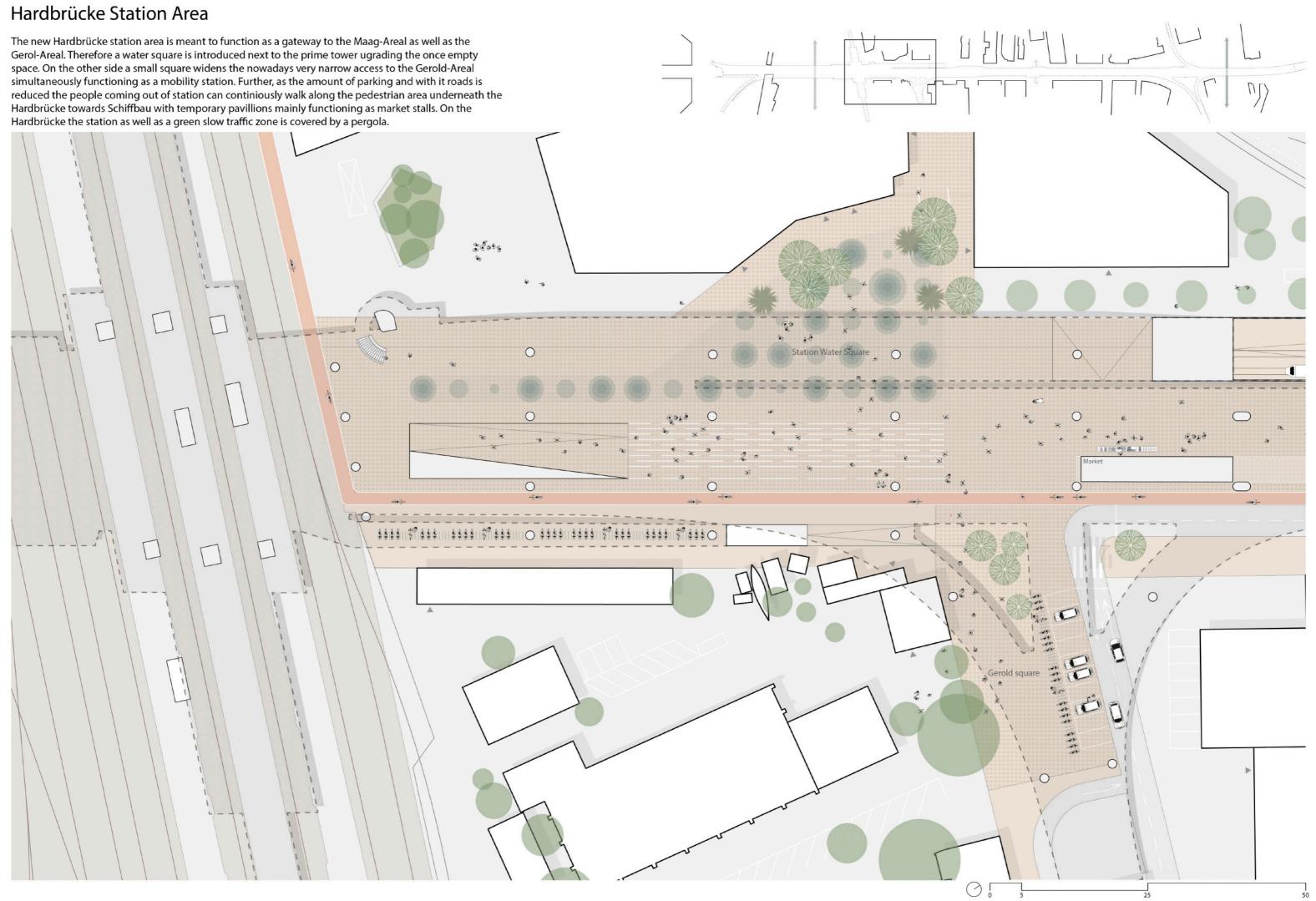


Hardbrücke Surfaces

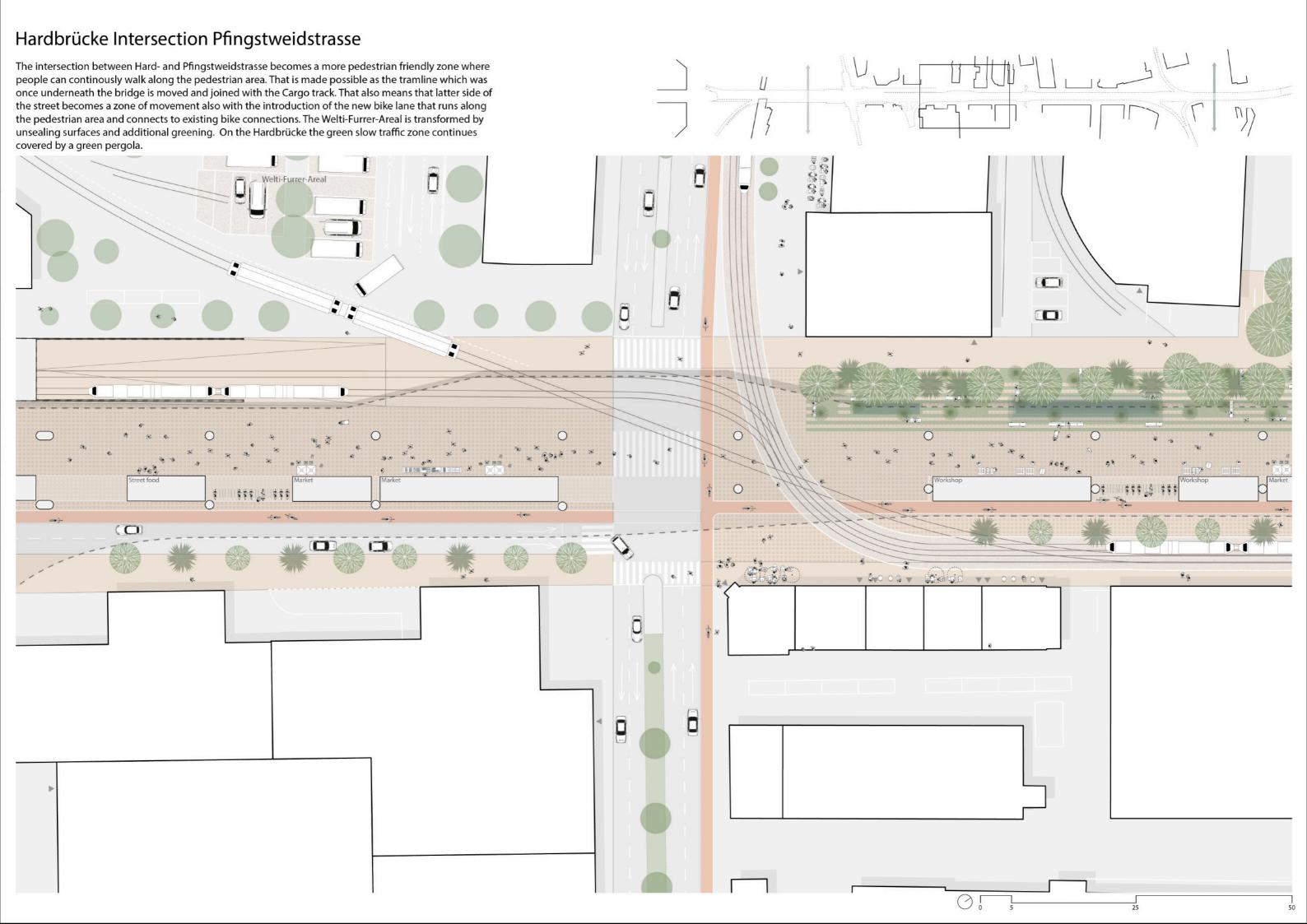
The large shift in thinking about streetscapes in Zurich my project tries to achieve is based a lot on replacing asphalt with more permeable but also diverse and aesthetically interesting materials which can reflect the atmosphere of a certain neighbourhood. The tiles chosen for the pedestrian area and sidewalks reflect on the colours of the industrial buildings of Escher-Wyss. Further surfaces for mobility such as bike lanes, sports areas and the tram tracks receive a special material so that these zones can become more recognizable and the overall picture more diverse. Yet the most important part is creating more permeable or semi-permeable surfaces such as grass tiles for walking on or actual green areas that create biodiversity.

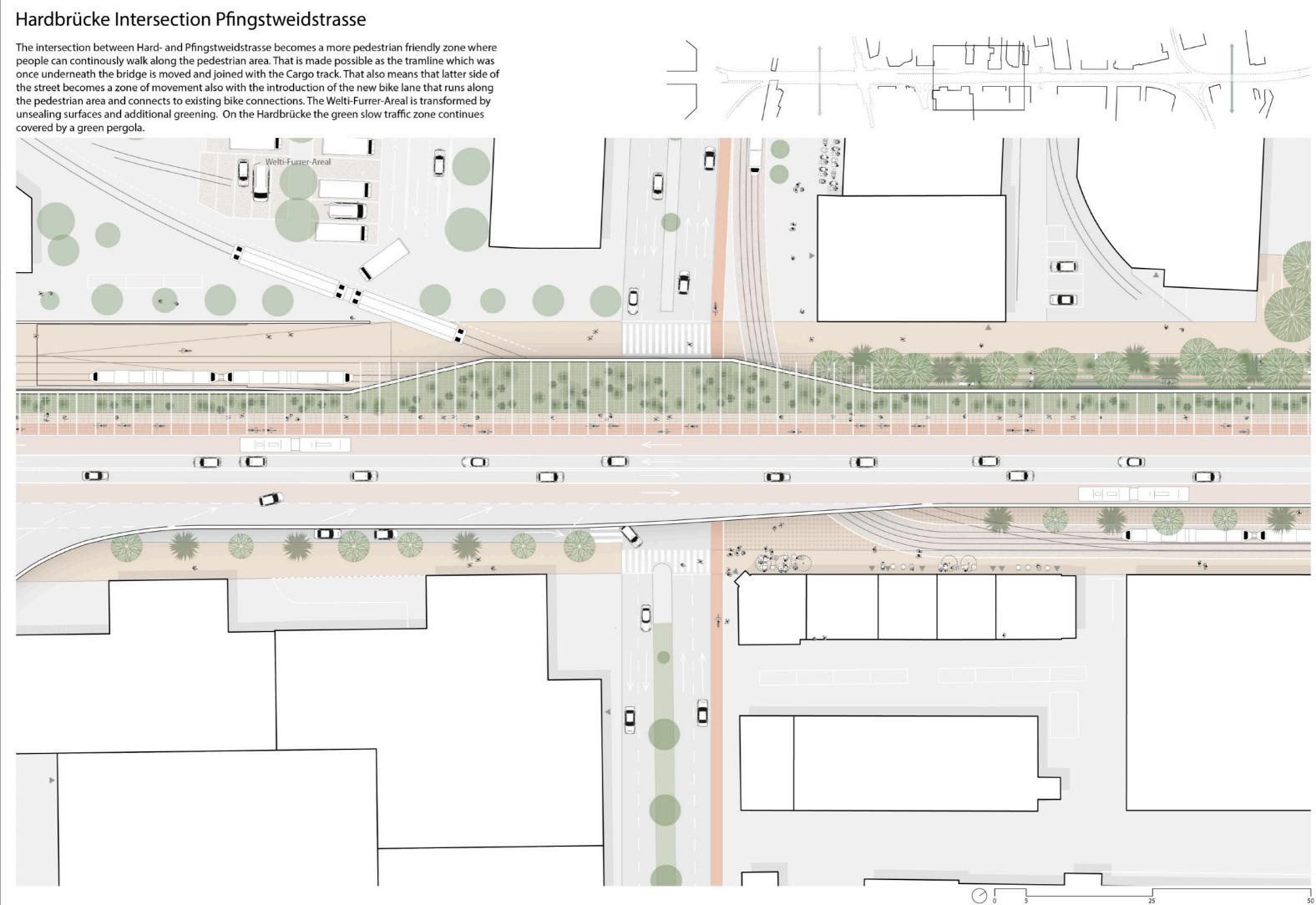


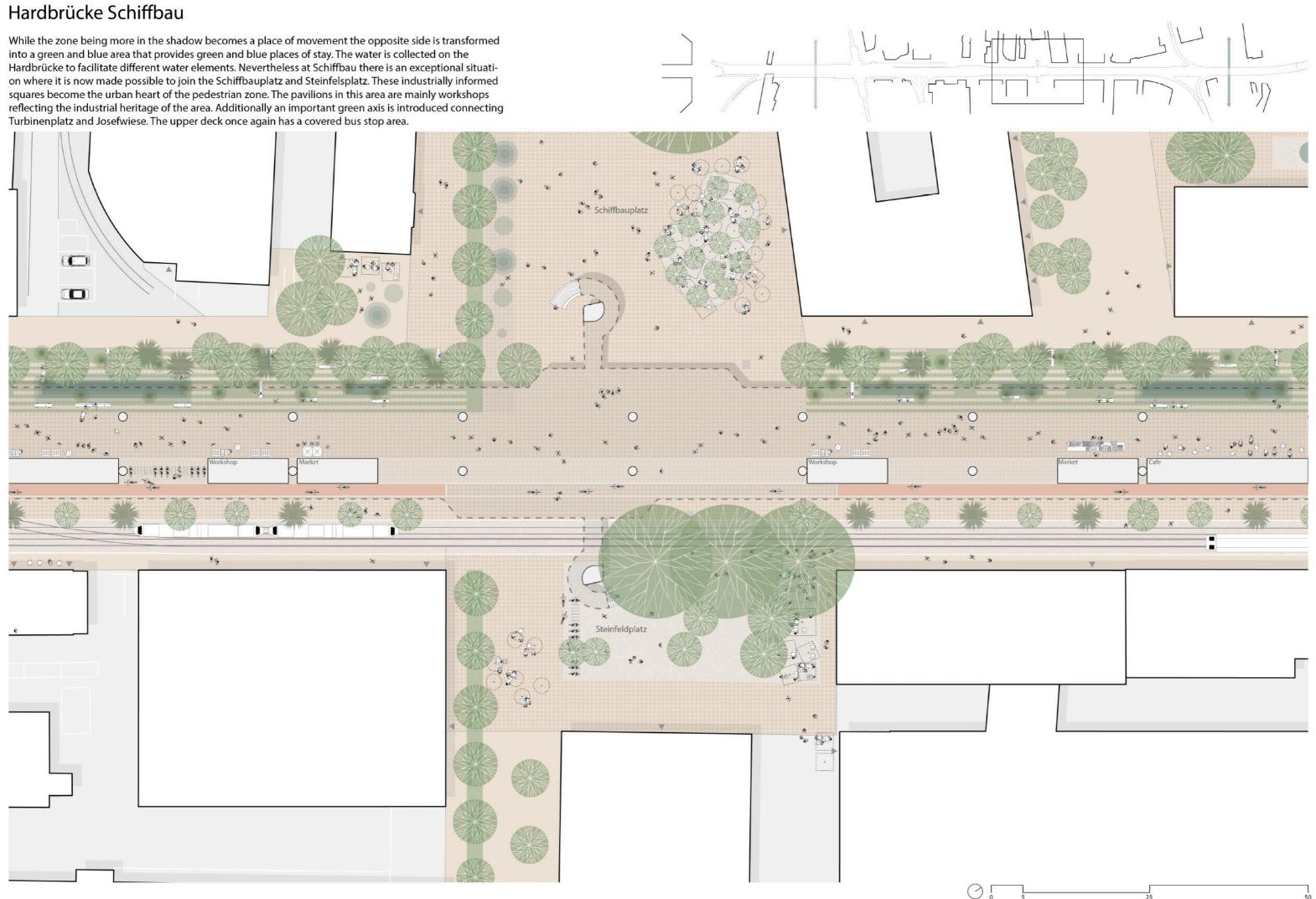


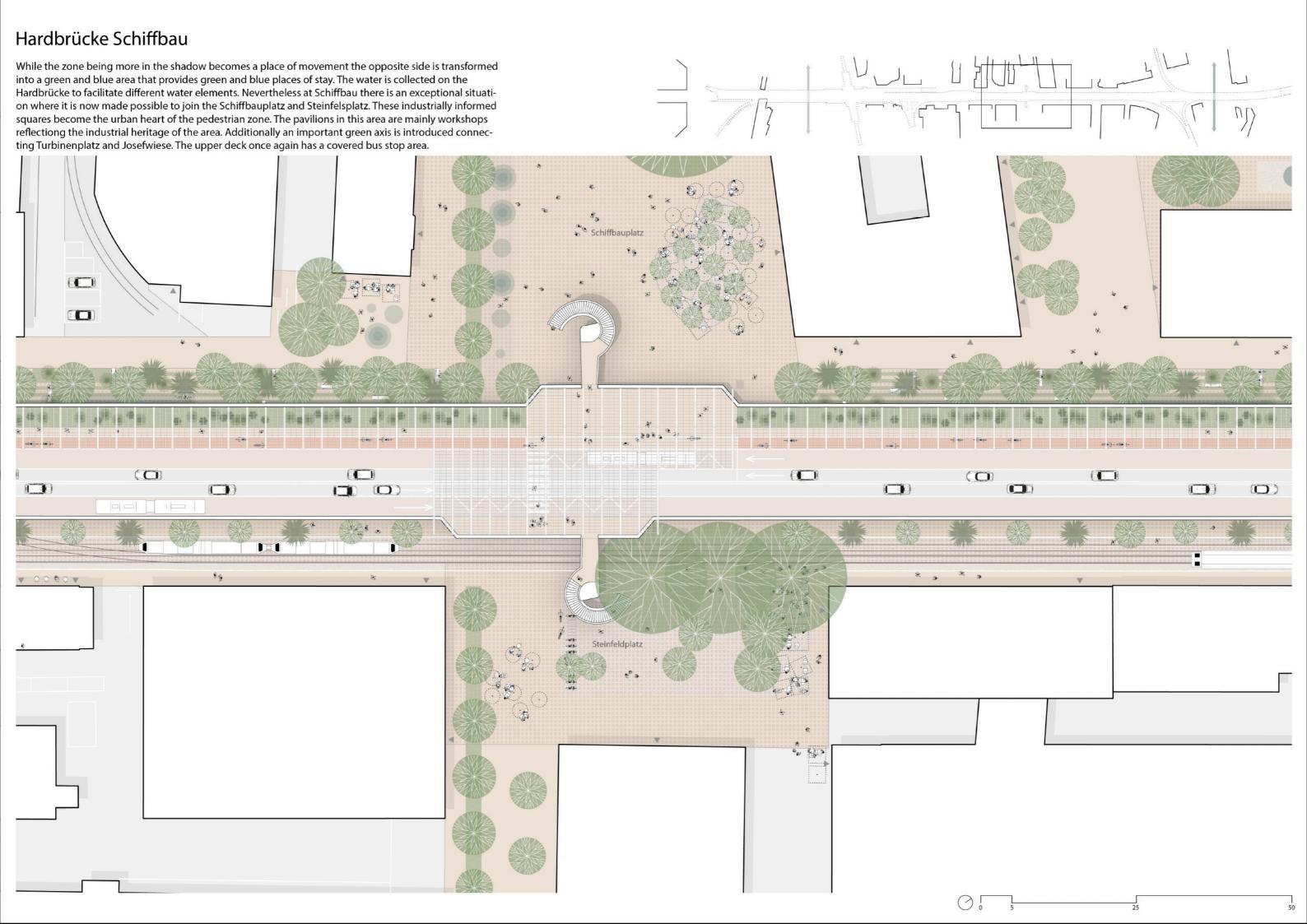


Hardbrücke Station Area The new Hardbrücke station area is meant to function as a gateway to the Maag-Areal as well as the Gerold-Areal. Therefore a water square is introduced next to the prime tower ugrading the once empty space. On the other side a small square widens the nowadays very narrow access to the Gerold-Areal simultaneously functioning as a mobility station. Further, as the amount of parking and with it roads is reduced the people coming out of station can continiously walk along the pedestrian area underneath the Hardbrücke towards Schiffbau with temporary pavillions mainly functioning as market stalls. On the Hardbrücke the station as well as a green slow traffic zone is covered by a pergola. 0 (\mathbf{O})







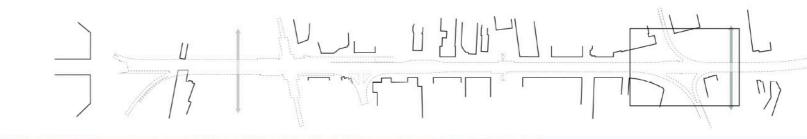


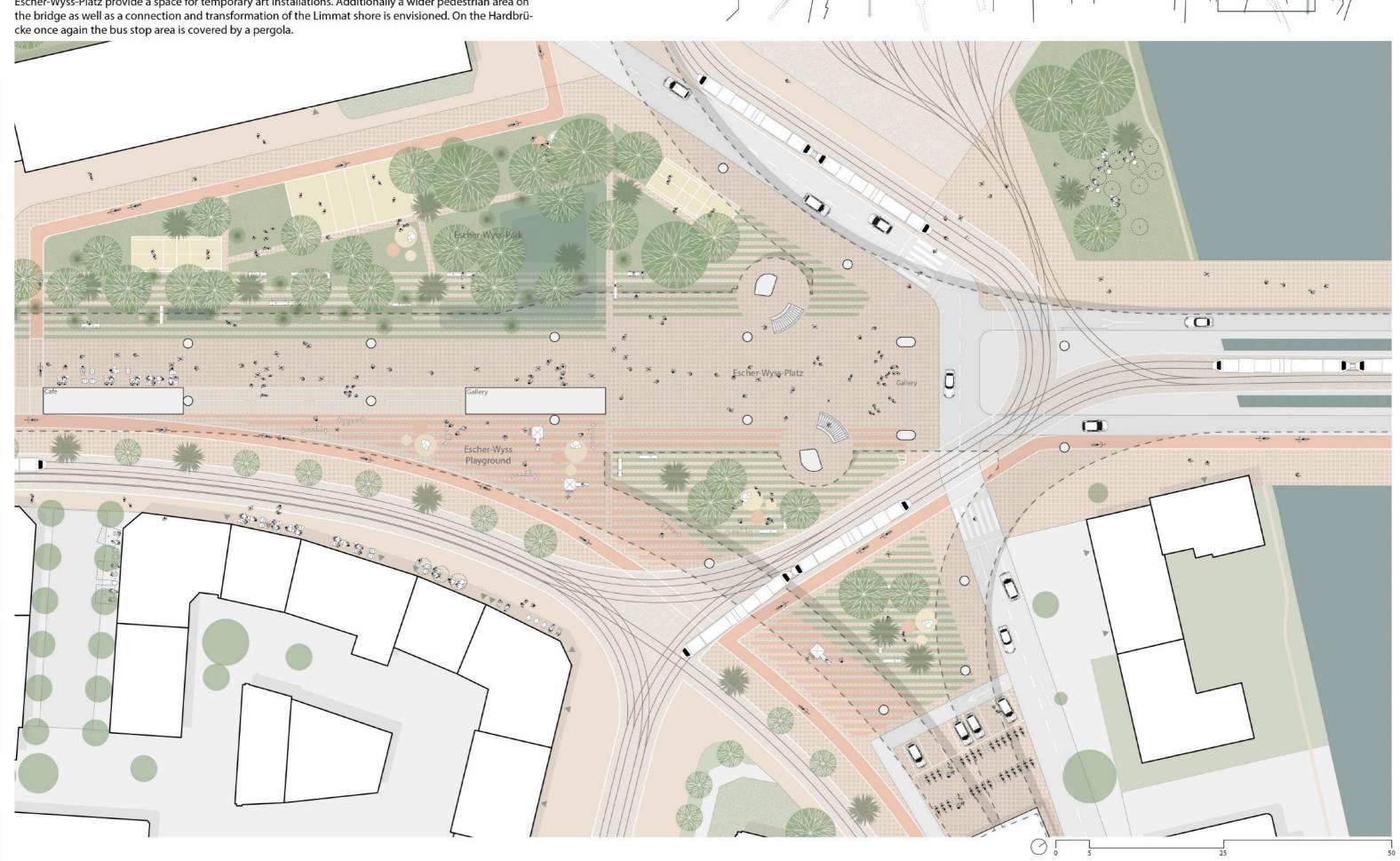
Hardbrücke Abaton and Escher-Wyss-Areal The area at the Abaton cinema and Escher-Wyss-Areal is characterized by the spatial relation of the pedestrian zone with the backyard of the Escher-Wyss-Areal. A green axis is introduced connecting the backyard with the Schütze Areal as it is one of the most lively parks in the neighbourhood. The street profile in this section mainly stays the same with pavilions offering gastronomy and street food as this area is expected to become more lively. This part of the pedestrian area links the Schiffbauplatz with the transformed Escher-Wyss-Platz bringing more street life and places of interaction. On the Hardbrücke the covered slow traffic zone continues. Escher-Wyss-Areal 45 3

Hardbrücke Abaton and Escher-Wyss-Areal The area at the Abaton cinema and Escher-Wyss-Areal is characterized by the spatial relation of the pedestrian zone with the backyard of the Escher-Wyss-Areal. A green axis is introduced connecting the backyard with the Schütze Areal as it is one of the most lively parks in the neighbourhood. The street profile in this section mainly stays the same with pavilions offering gastronomy and street food as this area is expected to become more lively. This part of the pedestrian area links the Schiffbauplatz with the transformed Escher-Wyss-Platz bringing more street life and places of interaction. On the Hardbrücke the covered slow traffic zone continues. Escher-Wyss-Areal (0) 48 2

Hardbrücke Escher-Wyss Platz

By redirecting the existing tram lines and reducing traffic it is possible for the Escher-Wyss-Platz to be completely transformed from a traffic island into an active park. On one side there is a green area hosting small sports fields, vegetation and water elements. The other side becomes a playground using the openening of the bridge to introduce vegetation. The pedestrian area as well as installations on the Escher-Wyss-Platz provide a space for temporary art installations. Additionally a wider pedestrian area on the bridge as well as a connection and transformation of the Limmat shore is envisioned. On the Hardbrücke once again the bus stop area is covered by a pergola.

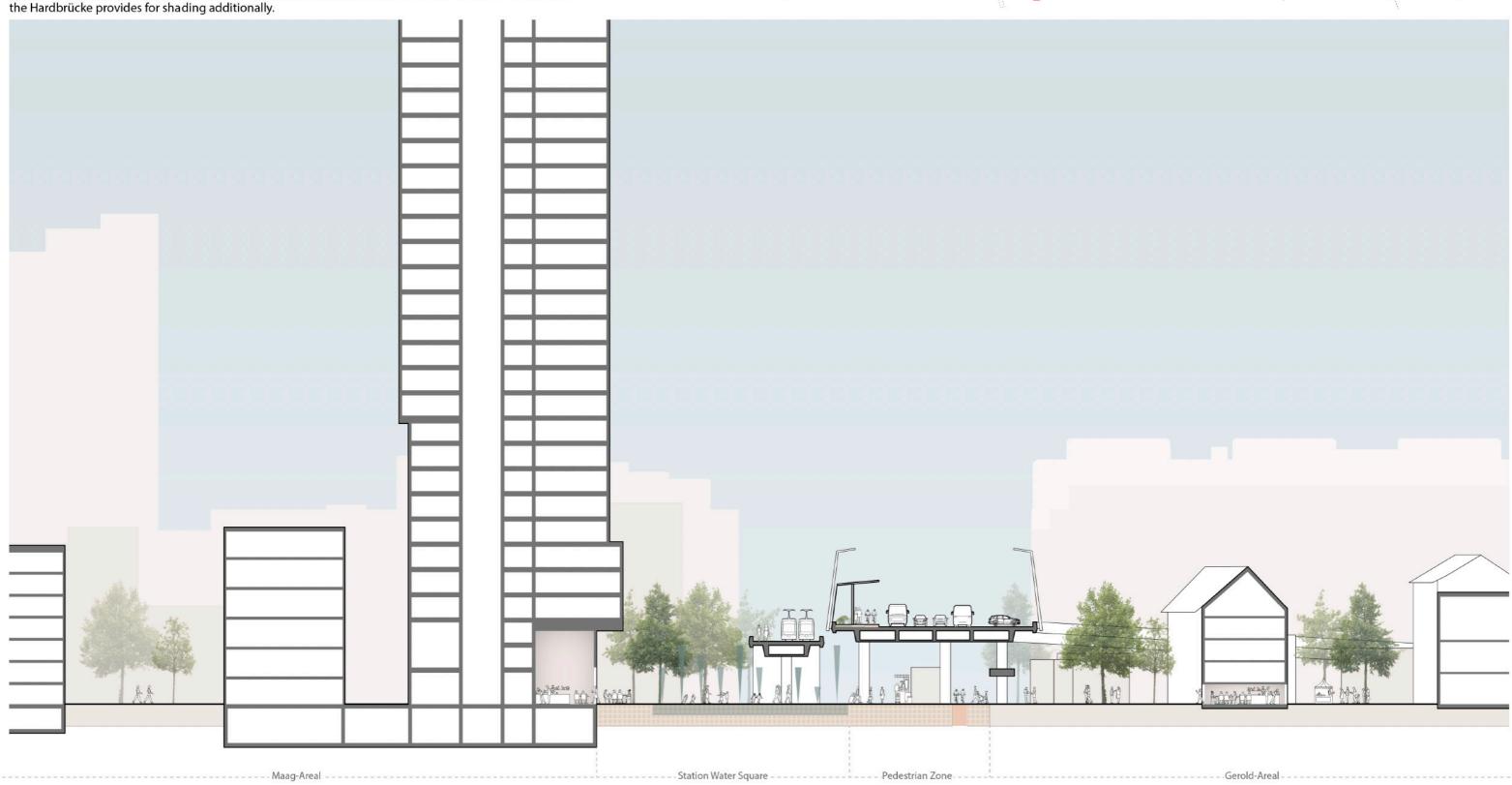




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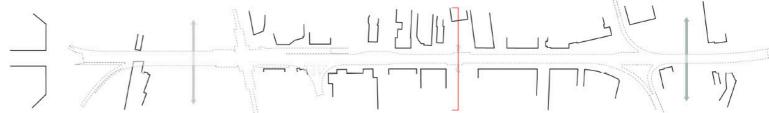
Section Bahnhof Hardbrücke - Summer

The section trhough the redeveloped station square shows its connection to the Maag-Areal as well as the Gerold-Areal. The summers in Zurich have a high amount of rainfall, at the same time peridically it can get very hot and dry. Therefore the rainwater collected on the bridge and street surfaces on one hand can be directly used to water plants and trees, at the same time excess water can be stored in order to facilitate watering during dry periods but also create water features in the public space for cooling. In the case of the station square this element is a fountain providing cooling but also being a playful element. The pergola on the Hardbrücke provides for shading additionally.



Section Schiffbau - Autumn

The section through the Schiffbau area shows how the Schiffbauplatz and Steinfelsplatz are connected by the new pedestrian area but also the relationship of the squares towards the ground floors of the surrounding buildings, most remarkably the Schiffbau. As all seasons in Zurich have a large amount of rainfall autumn is no exception. As the first months are still mild water elements can be pleasing in terms of cooling. Later on the water becomes a landscape element trough its retention and irrigation. In autumn public spaces such as the squares are used differently depending on the weather, on rainy days roofs, pergolas and the bridge itself provide for shelter. The Schiffbau bus stop is interely covered by the pergola.

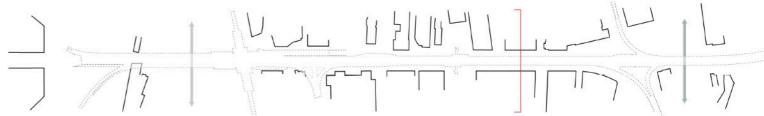




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Section Abaton and Escher-Wyss-Areal - Winter

The section through the redeveloped area at the Escher-Wyss-Areal shows the relationship of the new pedestrian zone to the industrial backyard of the Industriehalle as well as its groundfloors. In winter time the high amount of rainfall can either mean rain or snowfall. Both are stored through surface irrigation. During winter time the space underneath the bridge and courtyards can become spaces themed around winter activities such as christmas markets. An important aspect during the winter months is also the illumination as it gets dark very quickly and people are prone to feel less comfortable. Therefore even simple lighting elements such as lanterns can be helpful.

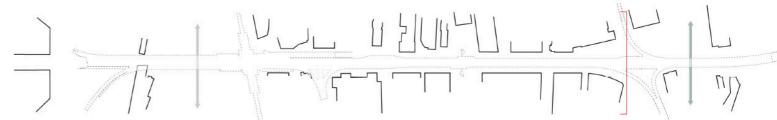




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Section Escher-Wyss-Platz - Spring

The section through the Escher-Wyss-Platz shows the new different zones introduced making the square an active park instead of a traffic island it once was. Similar to autumn spring in Zurich can be both mild and rainy. In the case of the Escher-Wyss-Park excess water is stored in a large pond and helps to irrigate the green park that hosts places of stay and sports activities. On the other side the active park becomes a space where people can do sports outdoors beeing covered by the bridge in case of rainfall. The square itself is dedicated to art functions. Just like at Schiffbau the pergola on the bridge covers the bus stop.





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