



Roots & Routes:

Weaving a Tapestry of Access and Community Public Open Space Design

Supervisor:

Emanuela Dentis

Co-Supervisors:

Mauro Mazzali, Giammarco Paris

Students:

Junyan Chen 10818437

Shengxia Huang 10813125

Abstract

The municipal planning for Piacenza in the forthcoming five years (2022-2027) proposes the establishment of a green belt encircling the urban area to promote sports activities and bolster urban vibrancy. However, the fragmented green spaces, underutilized land, and sunken lane within the Green Ring region have undermined its accessibility, continuity, and safety, leading to a decline in Piacenza's urban vitality. This thesis conducts an analysis of the top-tier planning of the Piacenza government over the next five years, along with a comprehensive exploration through theoretical research, case studies, and on-site investigations. It explores the influencing factors of sustainable public open spaces emphasizes the significance of site accessibility and safety for public open spaces, and proposed the following suggestions: Based on the government's plan, connect the large north-south green areas in Piacenza, update existing bike lanes and unused green spaces, break the blockade of sunken lane within the green ring to improve safety, and introduce sports activities to revitalize the green belt, providing the citizens of Piacenza with an engaging and secure public open space.

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01

Theoretical Background

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4 NEW YORK PLAZA OPEN 24 HOURS

THIS PUBLIC PLAZA CONTAINS:
180 LF OF SEATING
1 TREE
10 TABLES
40 MOVABLE CHAIRS

OPEN TO PUBLIC

OWNED BY: 4NYP VENTURES LLC
MAINTAINED BY: MICHAEL CLARKE
EDGE FUND ADVISORS
4 NEW YORK PLAZA
212-248-2100
MCLARKE@EDGE-FUNDS.COM

COMPLAINTS OR QUESTIONS: CALL 311 AND REFERENCE THE PLAZA AT 4 NEW YORK PLAZA

1.1 Introduction of POS

Public Open Space design typically refers to the planning and design of open spaces shared with the public for leisure, recreation, communication, and activities in the fields of urban planning and landscape design. These spaces may include parks, squares, playgrounds, pedestrian streets, bike paths, community gardens, outdoor sports facilities, among others. Our site is located in Piacenza, Italy, a city with a rich history. We are dedicated to designing public open spaces in Piacenza to create a humane, pleasant, safe, and multifunctional public environment. Our goal is to promote social interaction, encourage a healthy lifestyle, and provide leisure and activity areas for urban residents.

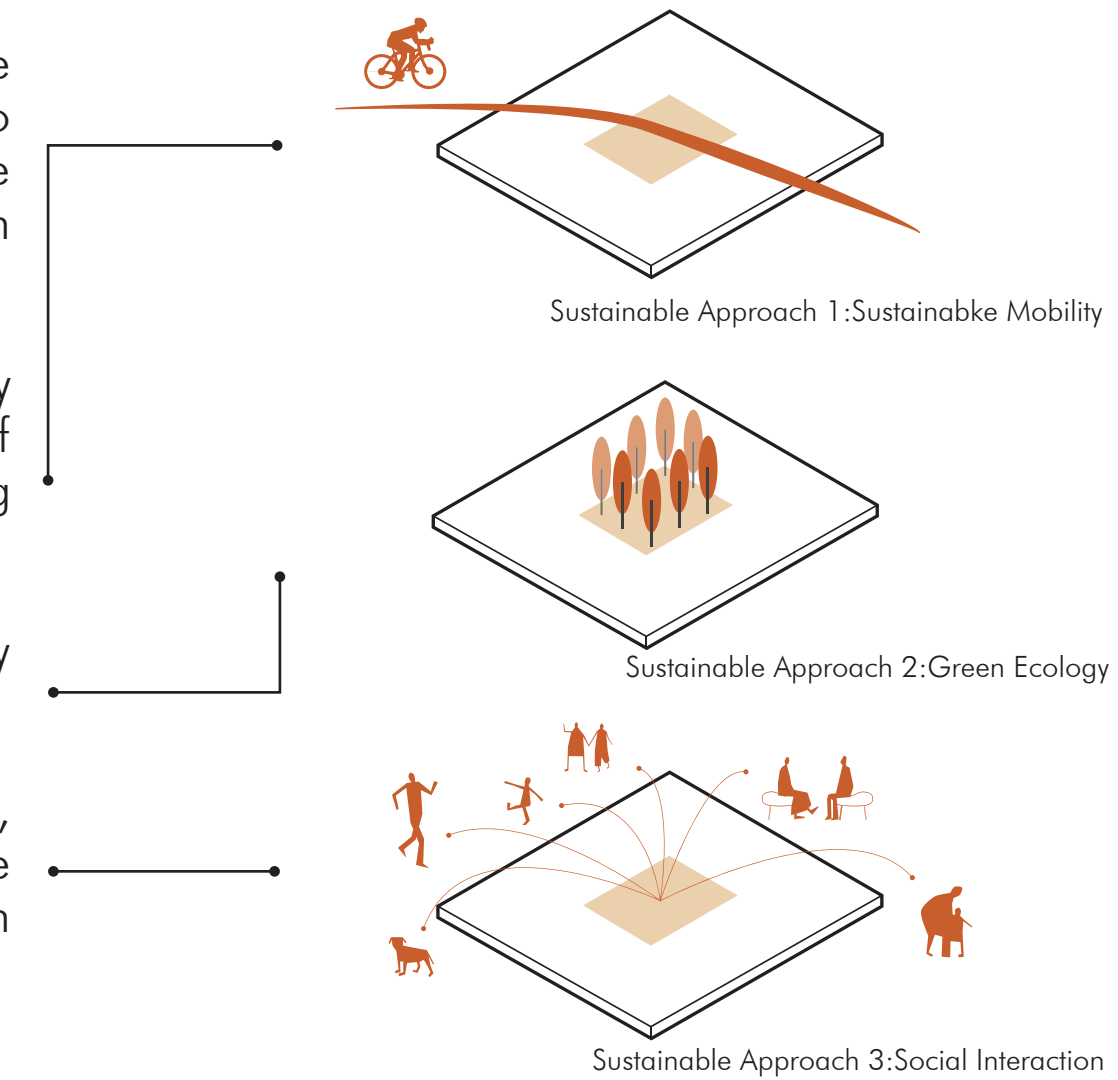
1.2 Sustainable Approach for POS

Public open spaces play a significant role in contemporary cities, and with the emergence of sustainable urban strategies, the planning and design of public open spaces should also align with sustainable development goals. Scholars suggest that incorporating appropriate **sustainable mobility, green ecology, and social interaction** into public open spaces can yield corresponding well-being.

Bicycles in urban areas are experiencing a resurgence after a long, dark era dominated by automobiles. The **benefits of cycling**, such as promoting the physical and mental health of residents, as well as mitigating traffic congestion and reducing air and noise pollution, have long been recognized. Therefore, we should not sever the use of bike lanes in public open spaces.

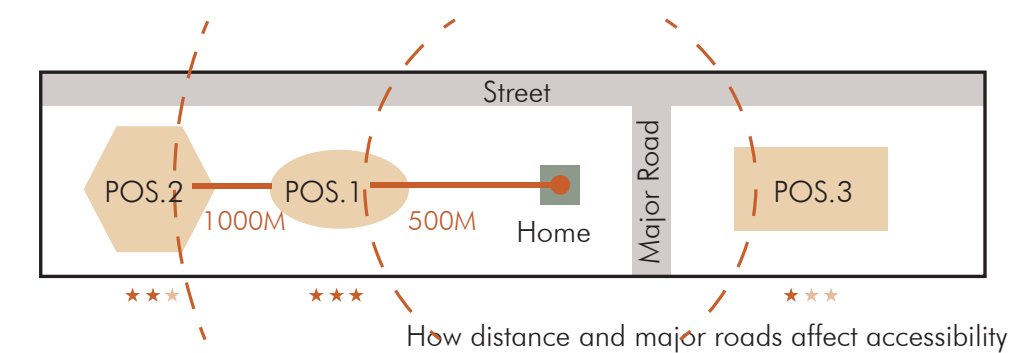
Having more natural greenery in public open spaces inherently possesses strong regulatory properties and can quickly rejuvenate visitors in nature, **enhancing their sense of well-being**.

Thoughtfully designed public open spaces are integral components of **recreational complexes**, providing opportunities for physical activities and social interaction, which may contribute to the health of local residents, thereby achieving the goal of "GOOD HEALTH AND WELLBEING" in urban sustainable development.

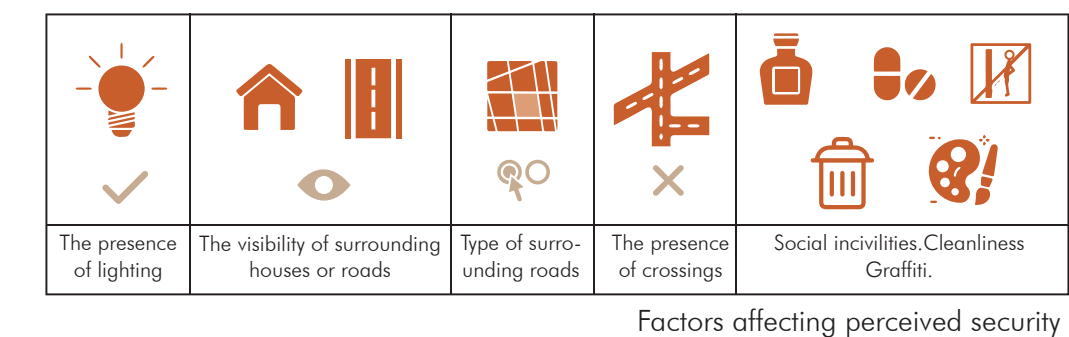


1.3 The Importance of Accessibility and Safety to POS

POS are the third most popular place for physical activity after streets and homes. Factors influencing use of POS include perceived **proximity** and **accessibility** (i.e. the absence of major roads), **distance from home to POS** also seems to influence the frequency of use and type of usage (for physical activity or for passive recreation). Australian surveys of users of smaller parks have found that, provided there are no physical barriers affecting access (e.g., a major road), distance is a major determinant of park use, with most users being drawn from **within a 500-m radius** of the park.



A factor that also influences POS use is **perceived safety (PS)**. The safety of the environment consists of four main items: the presence of **lighting**, the **visibility** of surrounding houses or roads, **the type of surrounding roads**, and the presence of **crossings**. The safety of social activities includes **social incivilities** (public drunkenness, drug consumption, public urination, etc.), cleanliness and graffiti. The survey found that parks perceived to be safer attracted more females, different age groups, disableds and physical activity. Perceived safety regarding a specific public open space was strongly connected to perceived safety at the **district level**.



1.4 Sunken Lane

1.4.1 Definition of Sunken Lane

Sunken lanes are **roads or tracks, 2 m** or more wide, that are incised at least **0.5 m**, but often by several meters, below the general level of the surrounding land surface. They are formed by the passage of people, animals, vehicles and erosion by water and gravity.

1.4.2 Age of Sunken Lanes

In Europe and the Middle East, sunken lanes began to form in prehistoric times. In later periods, as population, settlement density, arable land area and traffic increased, sunken lanes were further deepened and widened, and new sunken lanes were formed. Some of these evolved into large permanent ditches, while others **became footpaths** or fell into **disuse** altogether, and dormant sunken lanes can still be seen in ancient forests today.

1.4.3 Processes Shaping Sunken Lanes

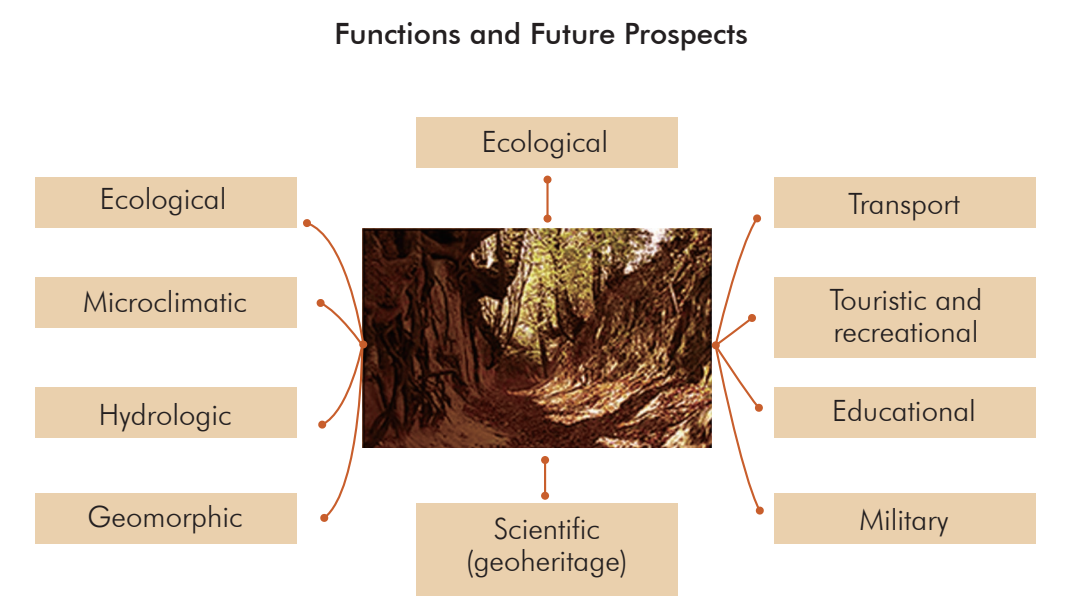
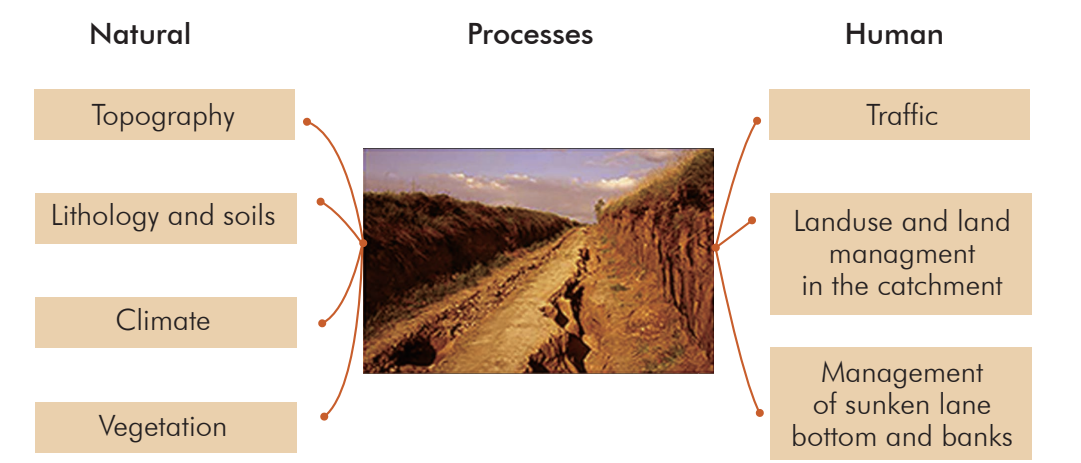
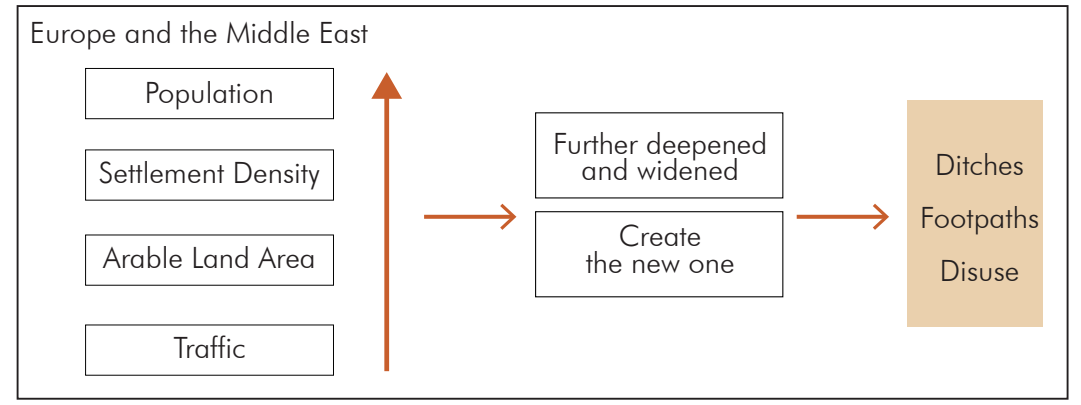
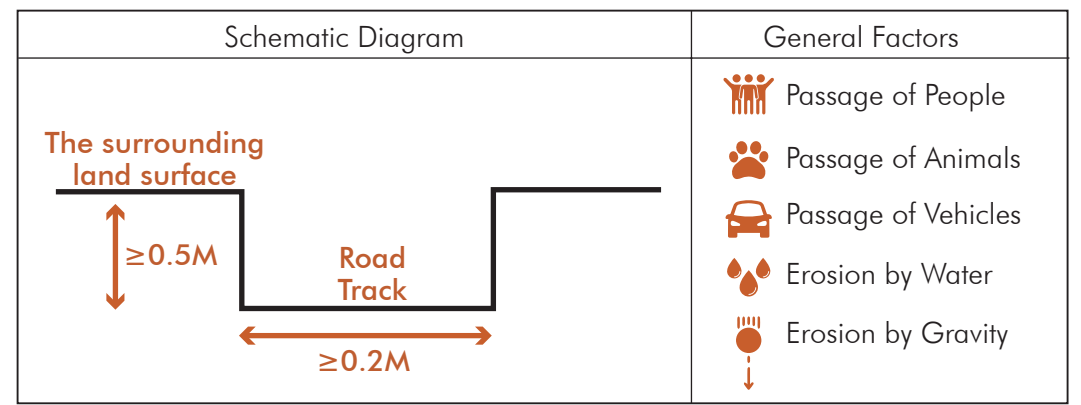
Because of the large range in slope gradients, microclimate and vegetation (cover and type) within sunken lanes, sunken lanes are also affected by several soil erosion processes: i.e. various water erosion processes, as well as mass movement processes, soil transport by tree uprooting and digging animals on the steep sunken lane banks and anthropogenic erosion.

Another process of sunken lane formation results from **direct digging** of the sunken lane by **humans**. Recently, sunken lanes are mostly broadened by heavy machinery, scraping the sunken lane banks to allow large transport vehicles to pass.

1.4.4 Future Prospects

Sunken alleys have a great tourist potential due to their multiple values and functions: **namely scenic beauty** (reflected in paintings), **leisure (hiking, cycling)**, science (biodiversity, geomorphology), education and geological heritage. Thus, they allow for multiple types of tourism: **sports, leisure**, ecotourism, geotourism.

Sunken lanes are part of **Blue-Green Infrastructure (BGI)**; i.e., an interconnected network of natural and designed landscape components, including bodies of **water, and green and open spaces**, that provide a variety of functions and have an impact by regulating temperatures, improving the aesthetic and social attractiveness of rural environments, and enhancing recreation (**tourism**).



02

Project Background_Macro

2.1 Urban Analysis of Piacenza

- The Development History of Piacenza
- Green and Blue Infrastructure Analysis
- Urban Service and Landuse Analysis
- Mobility Analysis

2.2 Conclusion of the Analysis

2.3 Location and Dimension

2.4 Policy Documents Analysis

- <PSC>
- <La Città Che Vogliamo2022-2027>

2.5 Sustainable Development Goals

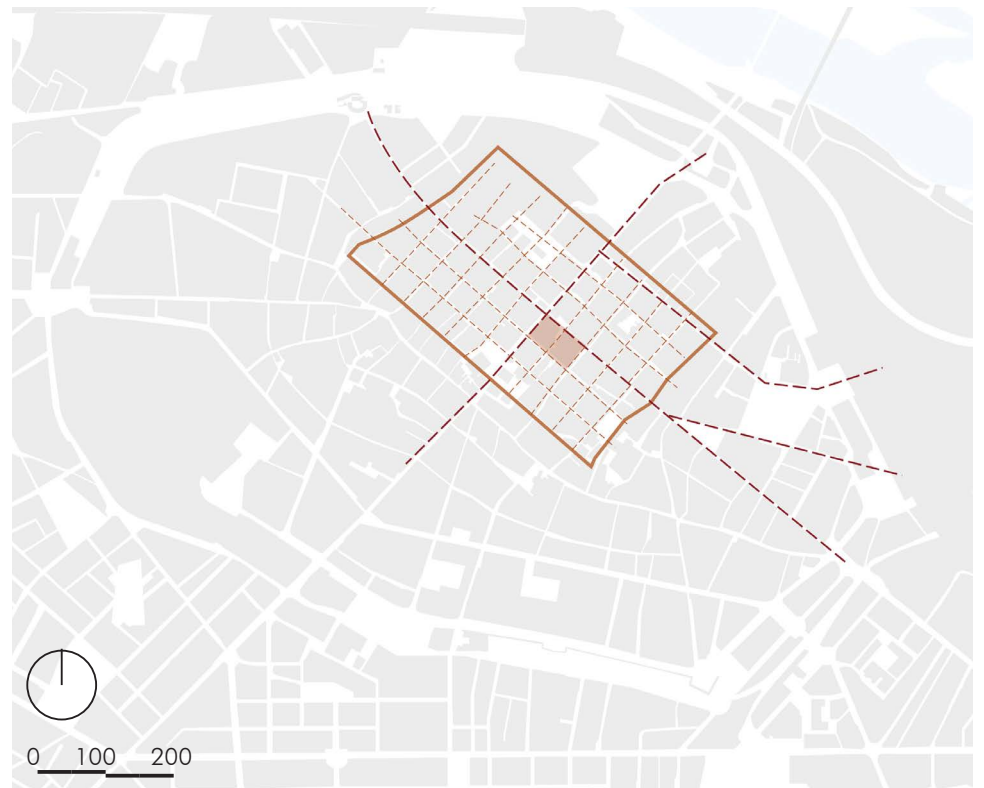
- Selected SDGS and Sub Targets

2.6 Urban Challenges

2.1 Urban Analysis of Piacenza

The Development History of Piacenza

Ancient Streets



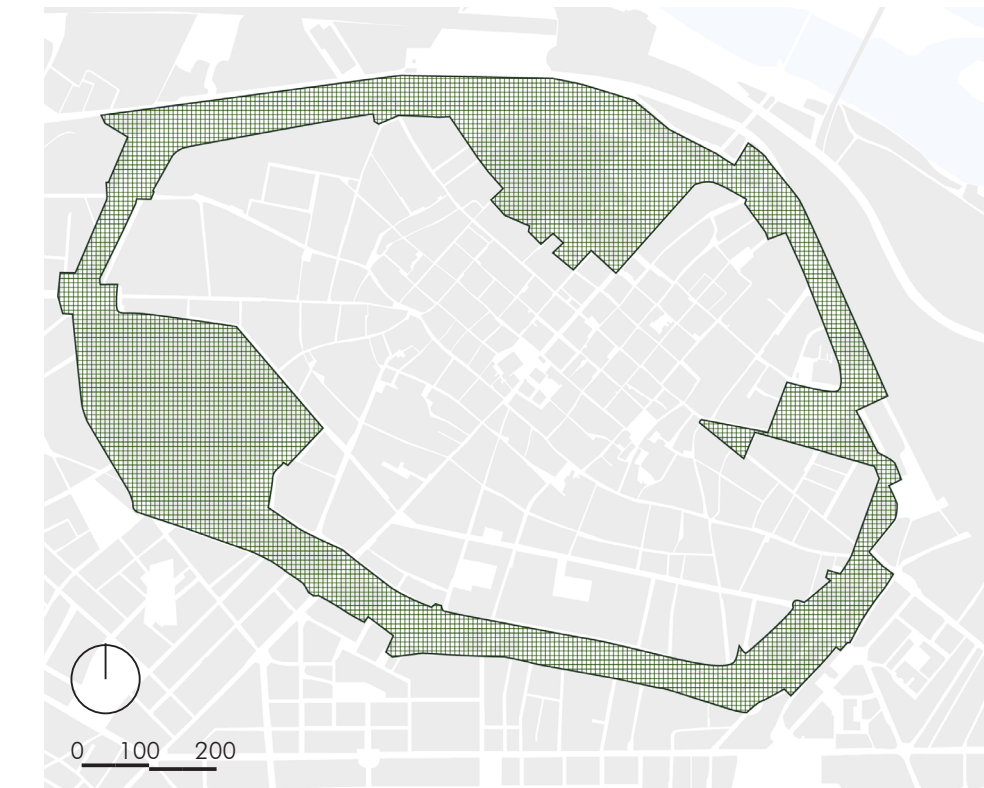
- Roman City Center
- - - Roman City Border
- - - Main Street
- · · · · Minor Street

Ancient Walls



- Roman City Walls c.III-XII
- Municipal Walls c.XII
- Podesta's Walls c.XIII
- Visconti Walls c.XIV-XV
- Farnese Walls c.XVI

Green Ring



- Green Ring

Piacenza is a historic city surrounded by city walls and green areas. This place is suitable for the development of historical tourism. Tourists can appreciate ancient buildings, cultural relics and feel the charm of history. At the same time, the green spaces around the city also provide citizens with places for exercise and leisure. They can jog or exercise on the city walls and enjoy the beauty of nature. This combination of history and nature brings a unique charm to Piacenza, attracting the attention and participation of tourists and citizens.

2.1 Urban Analysis of Piacenza

Green and Blue Infrastructure Analysis



Through the analysis of green and blue infrastructure, it was found that the green spaces around Piacenza are fragmented and not connects, the green ring planned by the government has not yet been formed, and there is a tendency for peripheral green spaces to penetrate into the main urban area.

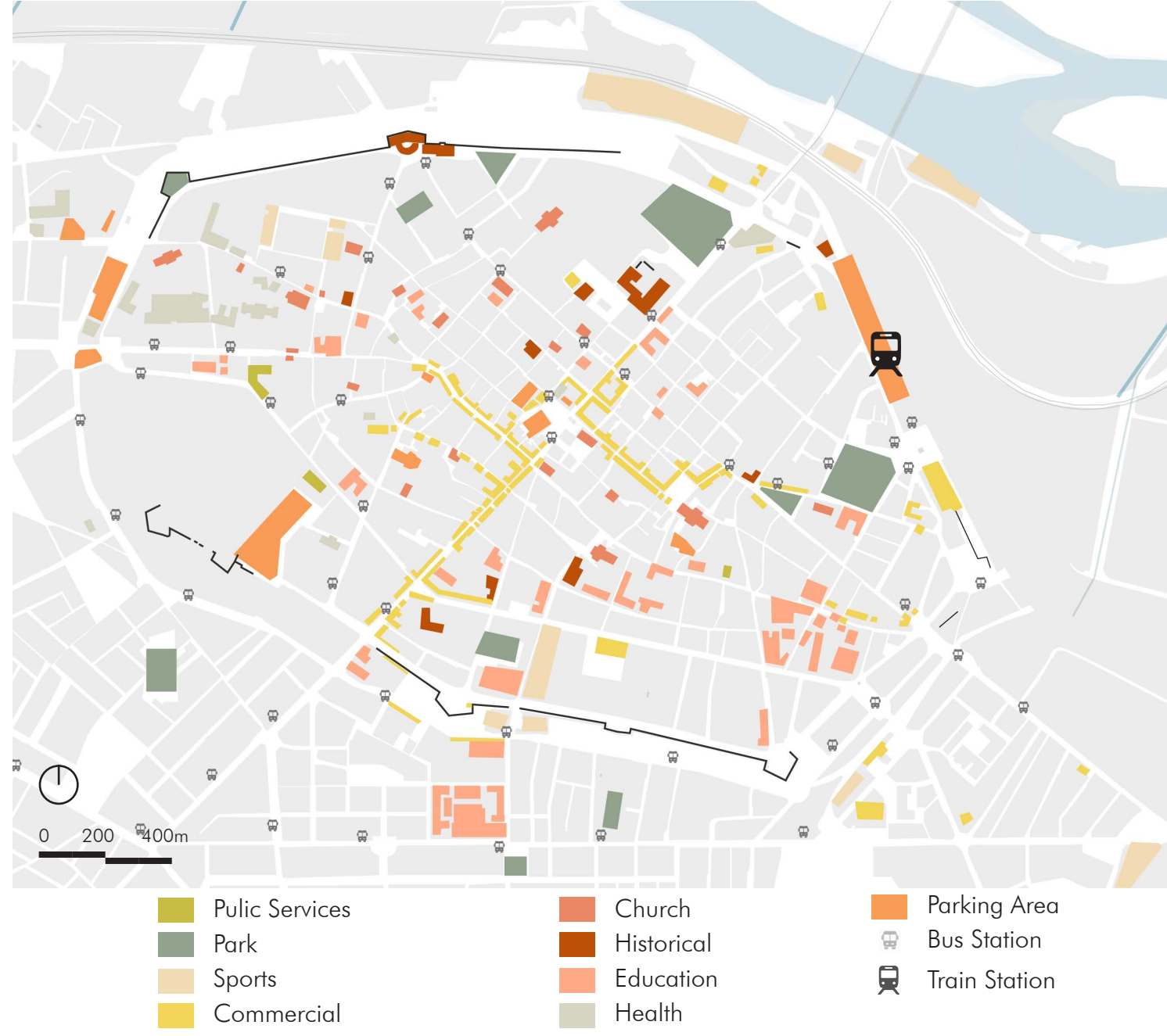
- Park
- Children's Playground
- Garden
- Woods
- Farmland
- Bush
- - - Treeline

2.1 Urban Analysis of Piacenza

Landuse Analysis



Urban Service Analysis



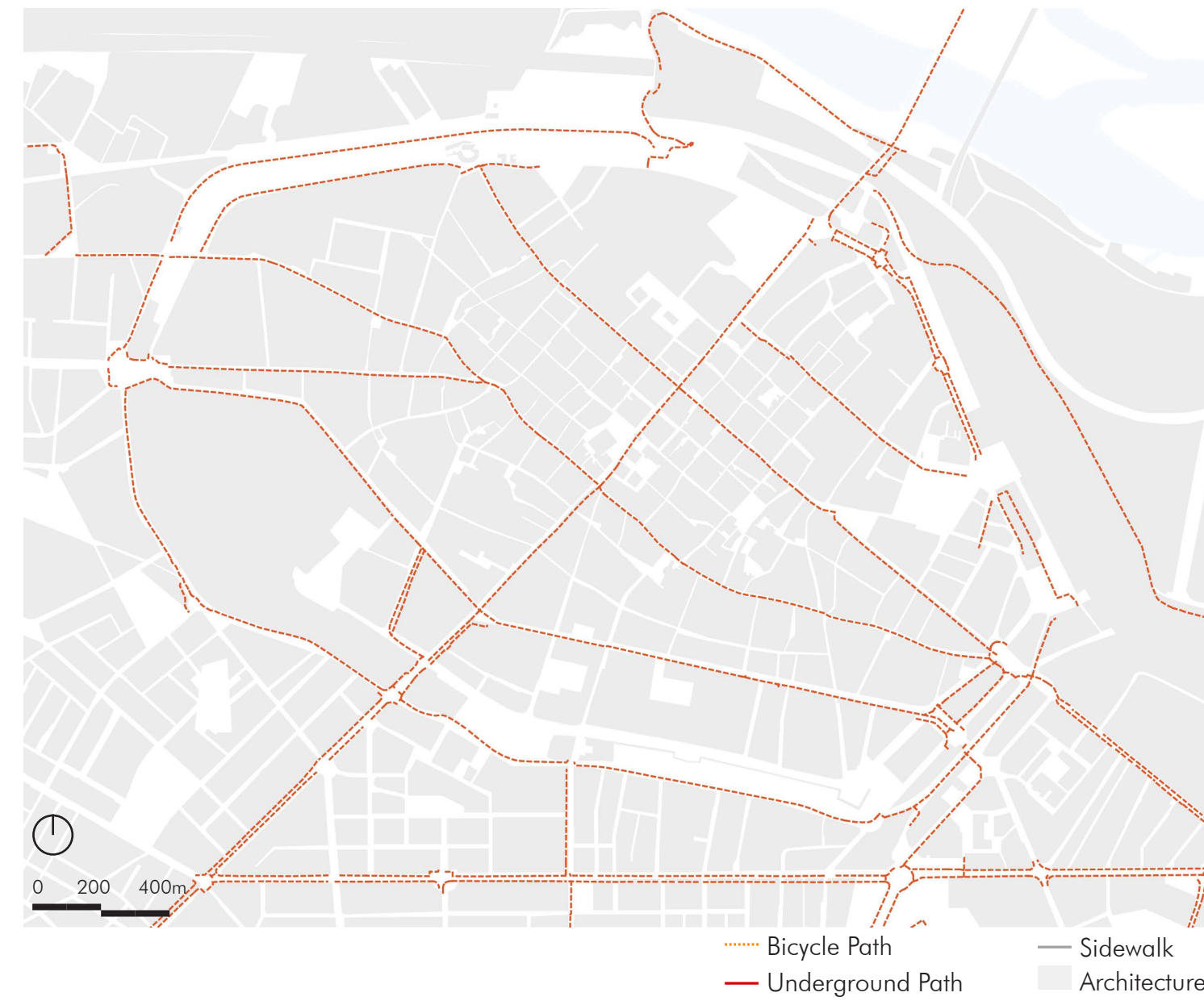
From a macro perspective, Piacenza has a clear center in urban planning. The main living facilities are concentrated in the main urban area within the ancient city wall, and the industrial area is concentrated in the east. But it can also be seen in the government's future plans, which intend to increase continuity inside and outside the city walls.

2.1 Urban Analysis of Piacenza

Soft Mobility Network (PUMs)

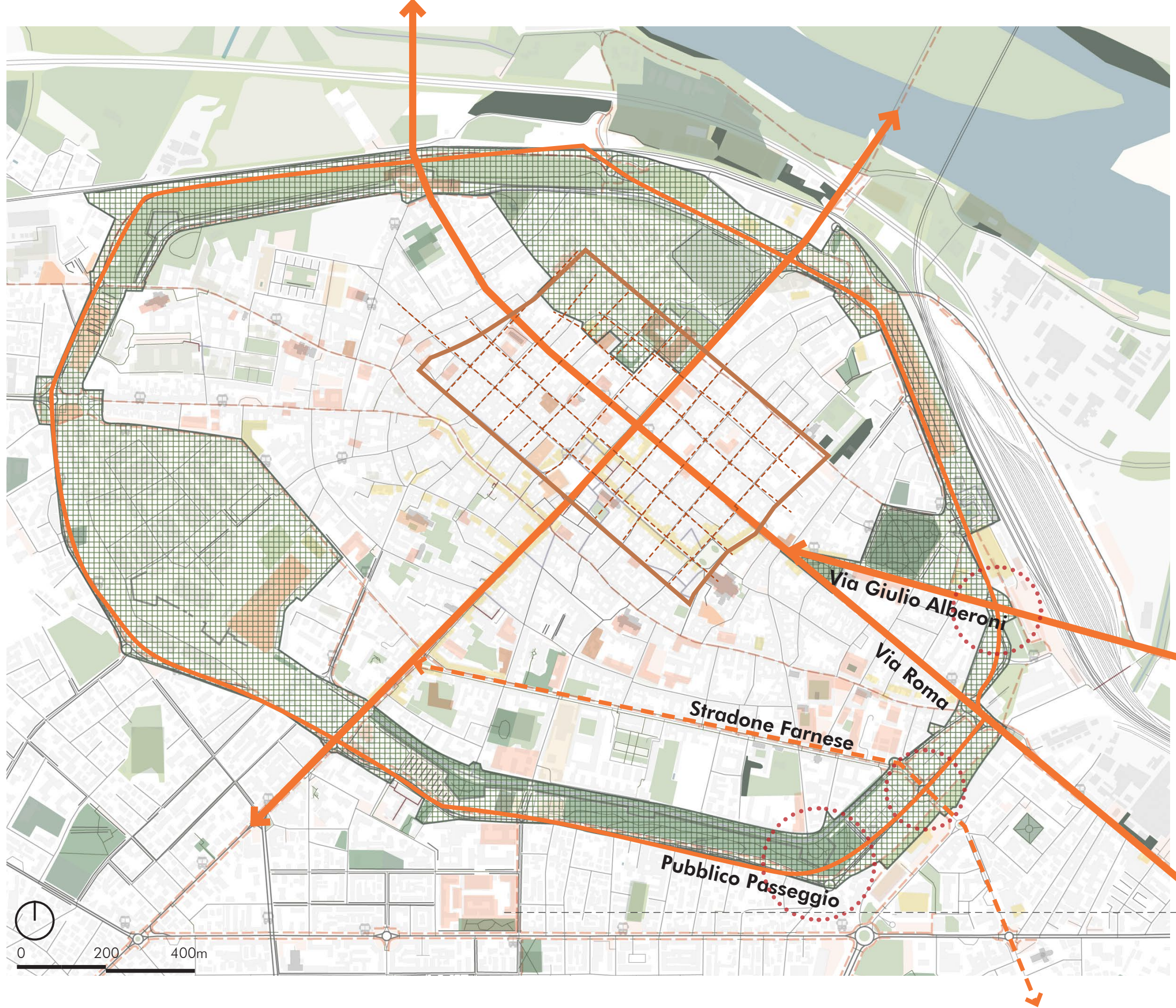


Bicycle System



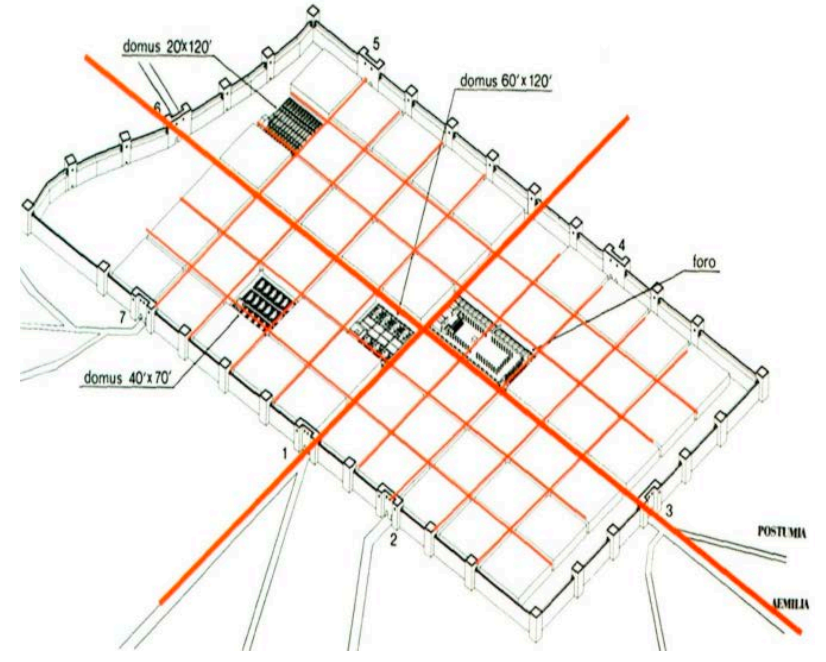
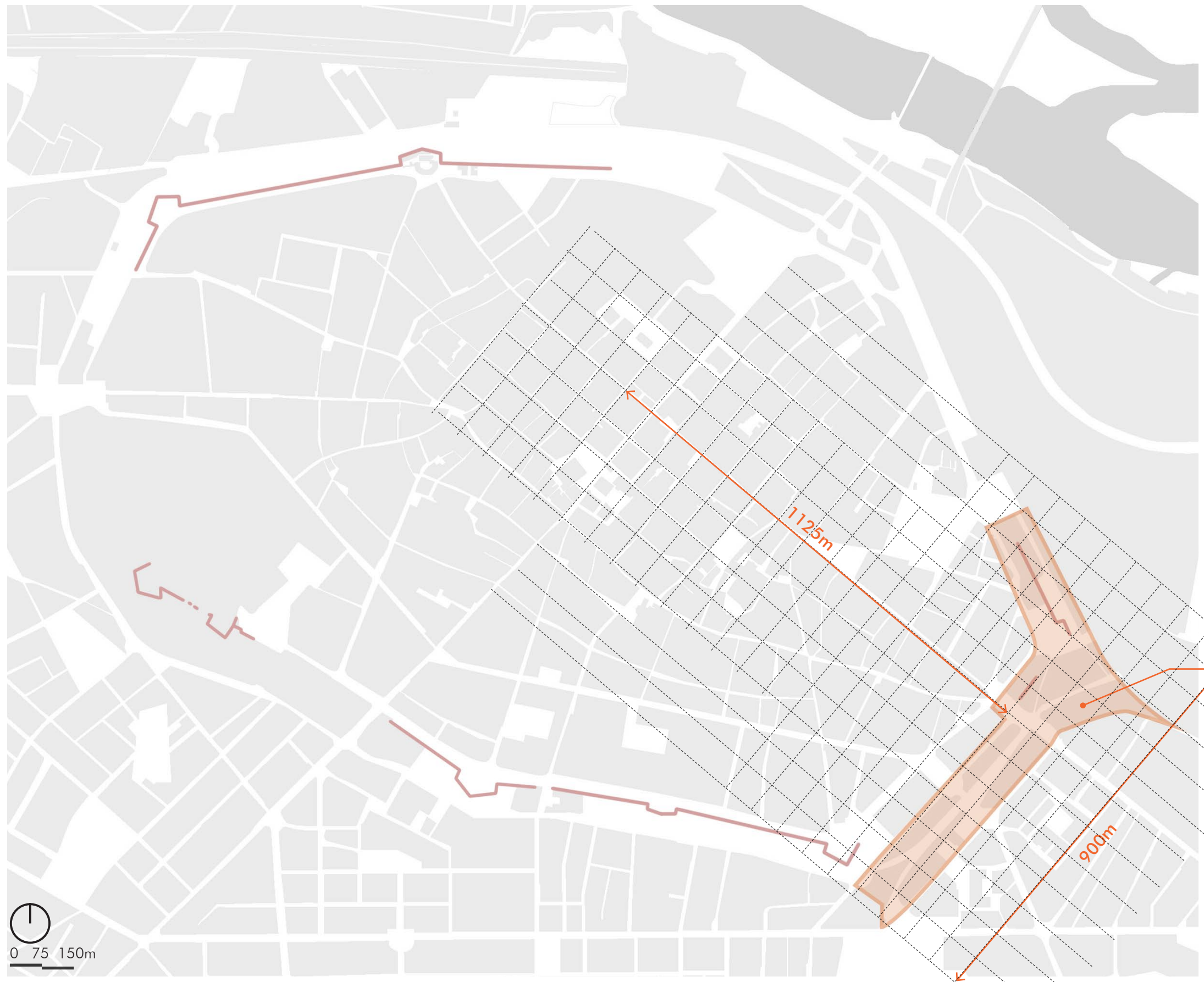
From the analysis of Piacenza's existing bicycle system, we can find two problems. One is that the bicycle lanes are not connected and cyclists cannot reach their destinations smoothly. The other is that there are no clear bicycle lanes and there are many safety hazards. And we found that there were a large number of cars parked on the road, which affected the movement of bicycles.

2.2 Conclusion of the Analysis



Piacenza is a city with a long history, where the footprint from the Roman era can still be seen in the city center. The eastern part of Piacenza is home to the city's most important transportation hub, serving as a vital gateway for both residents and tourists. Roads such as Via Roma, Via Emilia, Via Giulio Alberoni, and Via Caorsana, all of which boast a rich history, are particularly significant. These roads intersect with key landmarks in the area, offering great potential for new landmarks to emerge. Meanwhile, the eastern part of Piacenza is a crucial node for the completion of the government's green ring plan, which will improve connectivity with Pubblico Passeggio and enhance the area's overall appeal.

2.3 Location and Dimension



Roman Footprint
 The original Roman city plan, composition of "Cardo" and "Decumano" is still visible in the city centre as well the strategical nature of the city, through the presence at the actual time of some street still used; for example the Via Emilia. The size of a Roman city block was around 71 meters, but we are using the actual city block of Piacenza that is around 75 meters.

About 132000m² (13.2ha)

The proposed site is located southeast of Piacenza. It is about 1.1km from the city center and close to Piacenza train station and bus station. It is the development facade of Piacenza tourist city. And it is located in the green ring planned by the municipal government, with potential for future planning.

2.4 Policy Documents Analysis

<Piano Strutturale Comunale del Comune di Piacenza(PSC)>



Sustainability of Urban Mobility City of Sport

According to PSC document:

The Piacenza municipal structure planning hopes to improve the **sustainability of urban mobility**, and it hopes to have a new local public transport. For local public service, its expectation is to make Piacenza **a city of sport**.

DEPOSITO DE LOCOMOTORI "BERZOLLA" was sold free of charge to the municipal government of Piacenza from state-owned property. The **reconstruction** and **functional adjustment** of the building have become the focus of municipal attention.



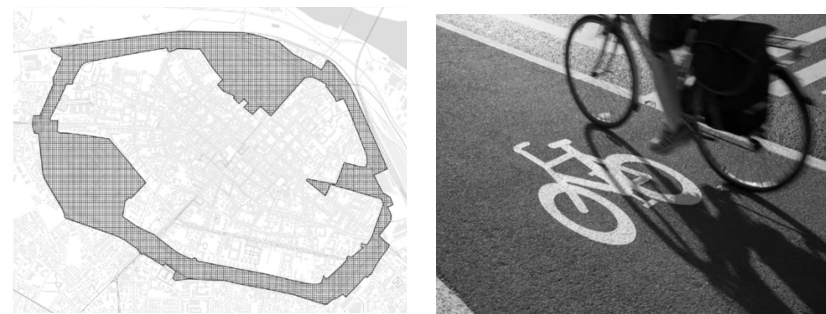
DEPOSITO DE LOCOMOTORI "BERZOLLA"

<La Città Che Vogliamo Linee Programmatiche di Mandato 2022-2027

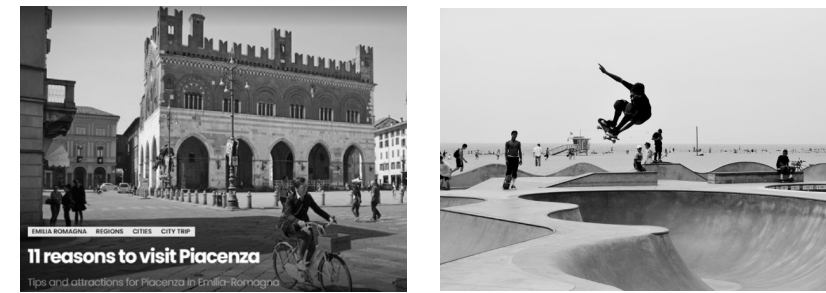


The Piacenza Municipality's vision for the future development of the city of Piacenza in 2022-2027 is described. It mentions:

1. Construct **green belts** around cities and establish **new green spaces** within cities;
2. Build more **bike lanes**, expand bike lanes and enhance sustainable transport opportunities for citizens to meet, walk and play.
3. Focus on improving the historical center of Piacenza and developing **tourist cities** and cultural heritage
4. At the same time, keeping young and old alike in the heart of the city by connecting history with ongoing profound innovation through sports and cultural activities. In particular, it is mentioned in the sports activity strategy that Piacenza needs a **skate park** to encourage outdoor activities



Green Belt and Spaces Bike Lanes



Tourist Cities Skate Park

2.5 Sustainable Development Goals



The real challenge for Piacenza is to become an ecologically sustainable city, redesigning the territory with the participation of the community, through an ecological and social lens, wanting to achieve results in terms of health and well-being, and to promote economic growth and employment.

A smart and circular city that prefers regenerative urban planning over land consumption, protects and increases urban biodiversity and urban forests, designs sustainable public transport, green bikes and sustainable transport, values reuse and segregated waste collection quality. A clean city that wants to be respected.

We want to create a green belt (so-called "air factory") around the city to improve air quality. Focusing on heat, landscaping and interconnecting the old and future parks. Green system with new large areas for forests and parks. Permanent urban forests will feature plantations of predominantly native species, absorb key air pollutants more efficiently and be highly resilient to climate change and environmental stresses.



2.5 Sustainable Development Goals

Selected SDGS and Sub Targets

3 GOOD HEALTH AND WELL-BEING
 Ensure healthy lives and promote well-being for all at all ages

10 REDUCED INEQUALITIES
 Access to resources and the opportunity to participate and influence developments in society are fair, both within countries and among countries.

5 GENDER EQUALITY
 Gender equality is a goal in itself and a prerequisite for sustainable and peaceful development.

11 SUSTAINABLE CITIES AND COMMUNITIES
 Make cities and human settlements inclusive, safe, resilient and sustainable

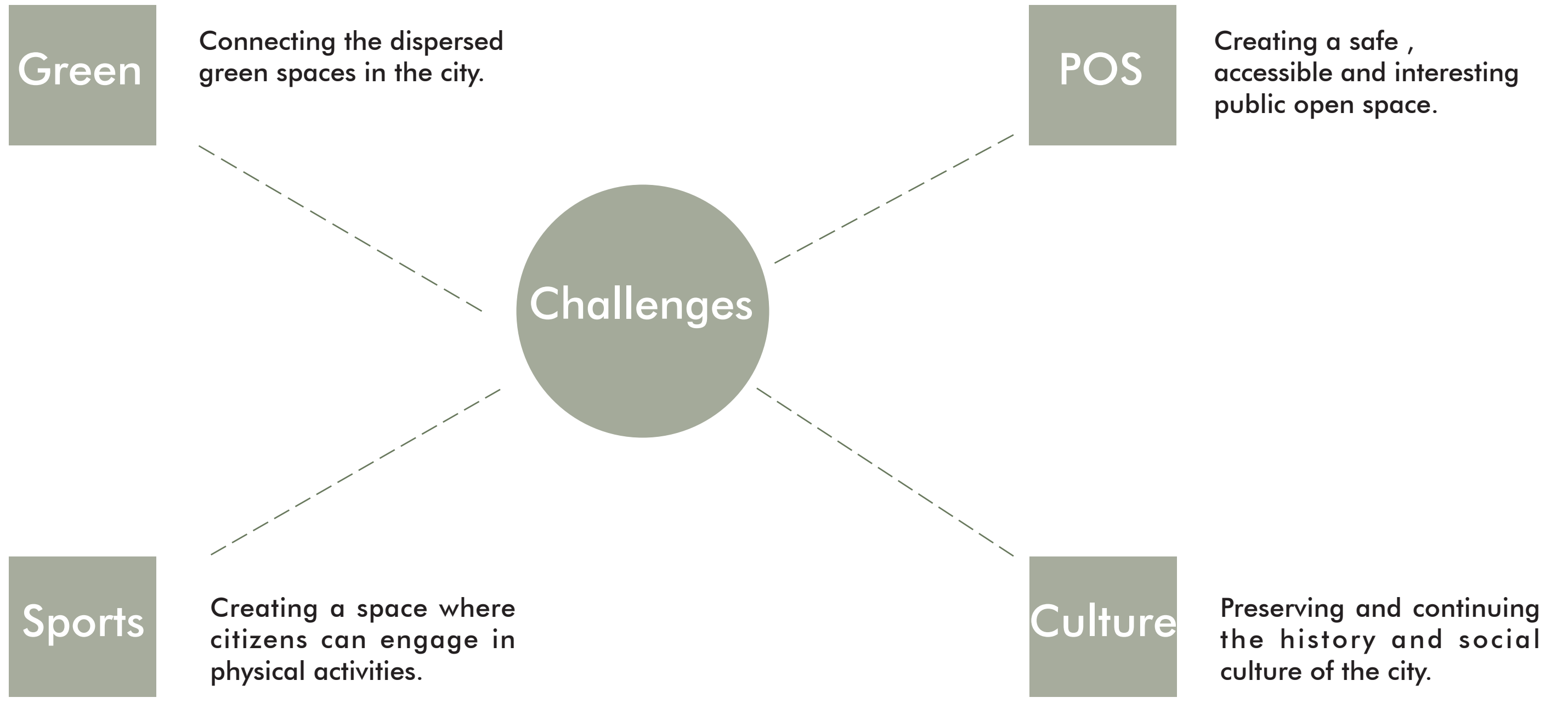
6 CLEAN WATER AND SANITATION
 Ensure availability and sustainable management of water and sanitation for all

13 CLIMATE ACTION
 Take urgent action to combat climate change and its impacts

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

15 LIFE ON LAND
 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

2.6 Urban Challenges



03

Site Analysis_Meso

3.1 Landuse Analysis

3.2 Landmark Analysis

3.3 Transportation Analysis

3.4 Terrain Analysis

3.5 Sunlight Analysis

3.6 History and Culture Analysis

- Potential Connection of Roads
- Potential Connection of Ancient Walls
- The Origin of Sunken Lane of Site

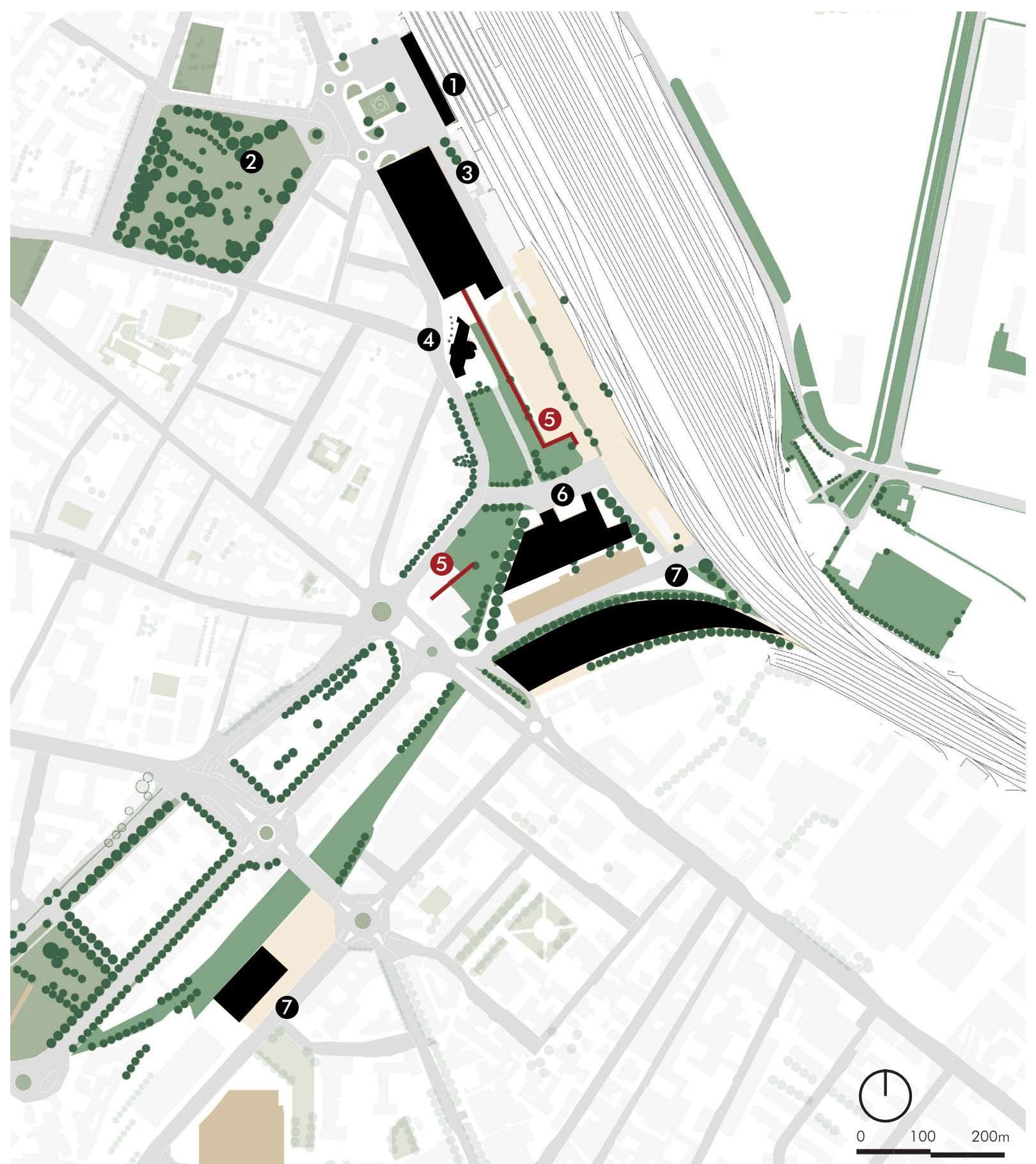
3.7 SWOT Analysis


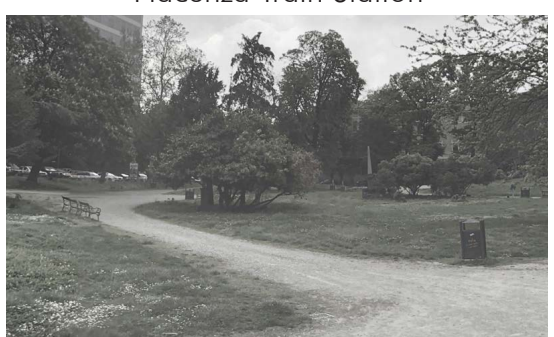
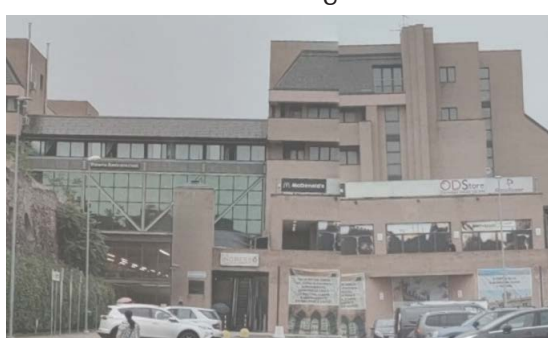


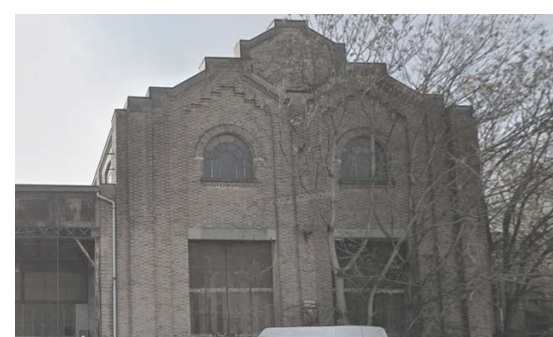


3.1 Landuse Analysis



The land use around the site is relatively complex, and the west side is mostly residential area with more residents. A small part of the east side is a commercial area and most of the industrial area. And it is located on the west side of piacenza's largest transportation - railway transportation, so there is a large amount of parking area on the site. Therefore, the site has a large flow of people and will have many types of future users.

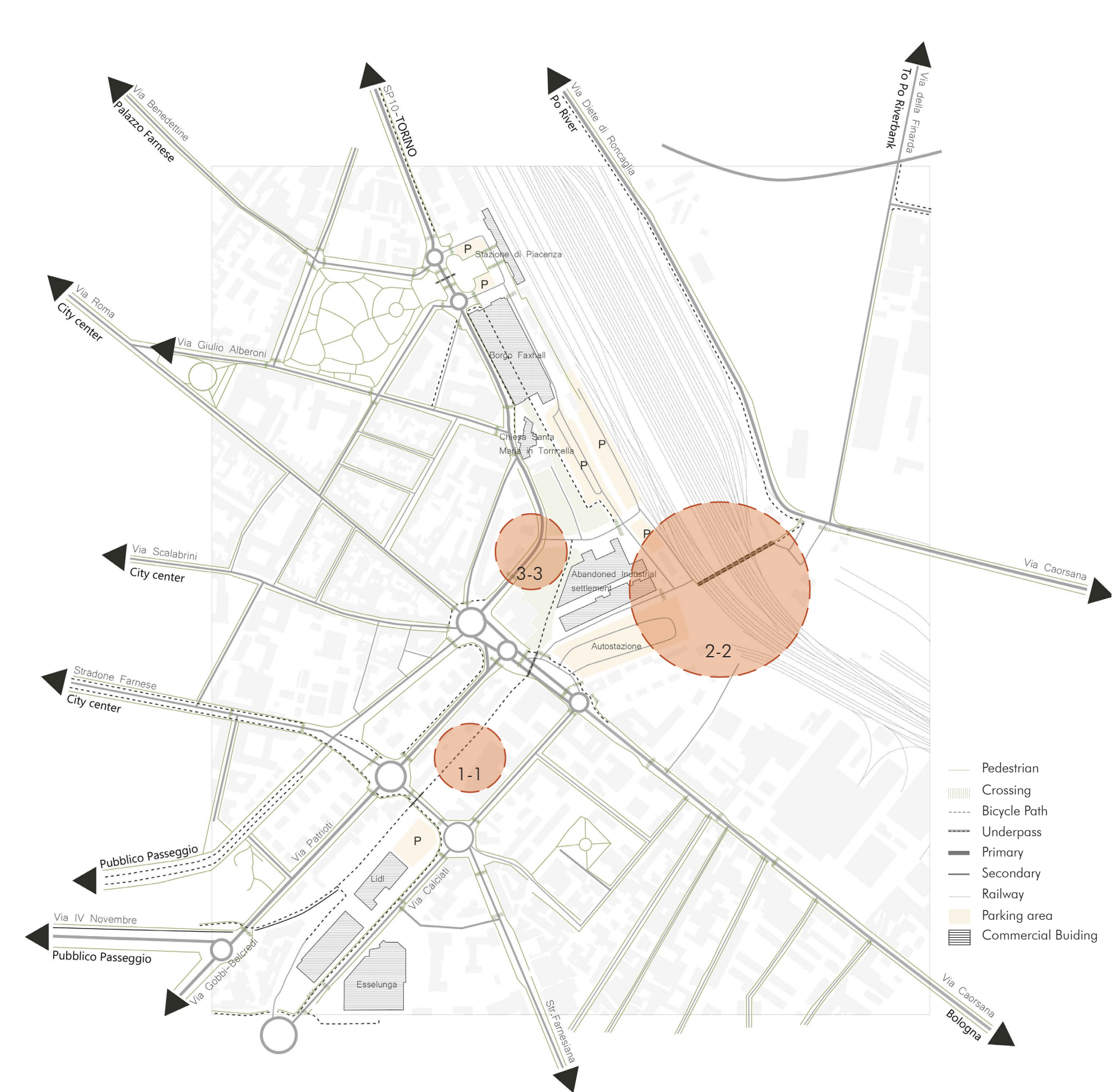
3.2 Landmark Analysis



- 1  Piacenza Train Station
- 2  Giardini Margherita
- 3  Borgo Faxhall Shopping Center
- 4  Assoc. Vol. Porta Sul Mondo
- 5  Ancient Wall
- 6  Deposito De Locomotori "Berzolla"
- 7  Bus Terminal
- 8  Lidl

There are many scenic spots and historic sites here but lack protection and promotion. At the same time, there are many green spaces that are neglected. This type of green space can be called informal green space. These abandoned or semi-abandoned places can be redesigned with community participation through regenerative urban planning to enhance resident participation.

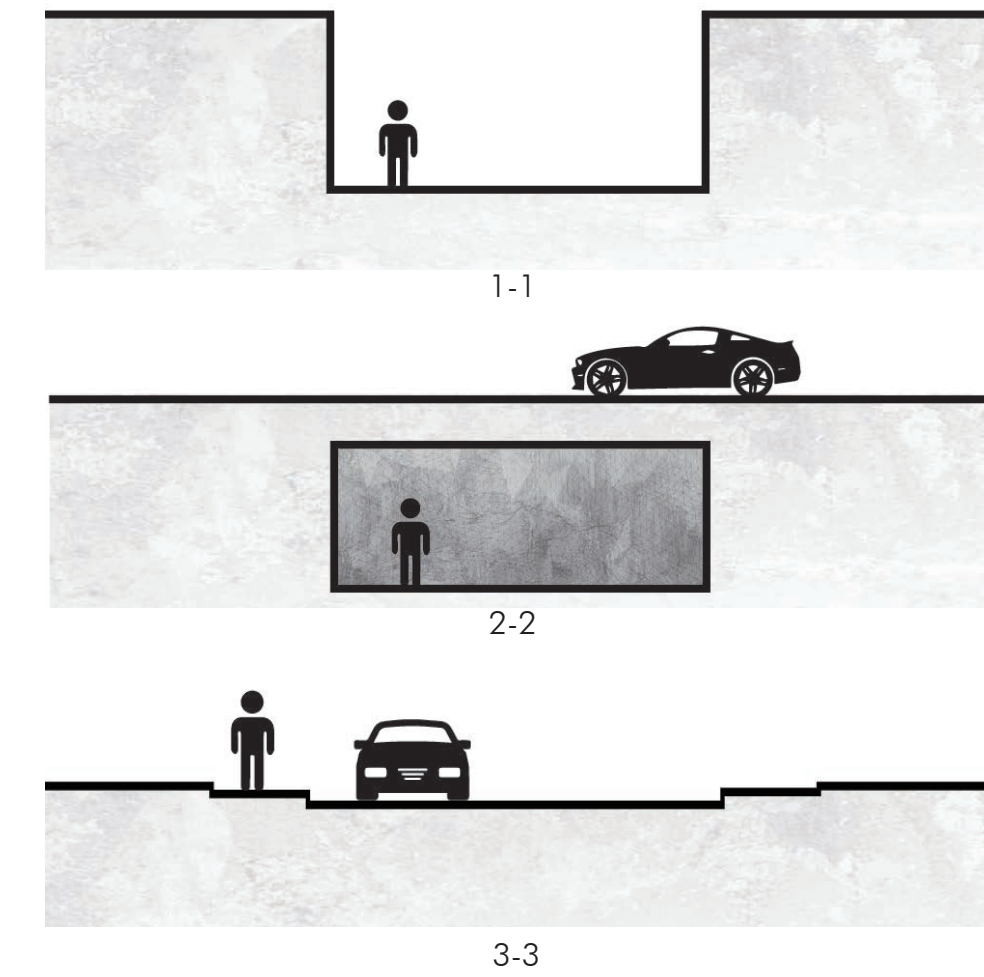
3.3 Transportation Analysis



Three Types of Road Conditions

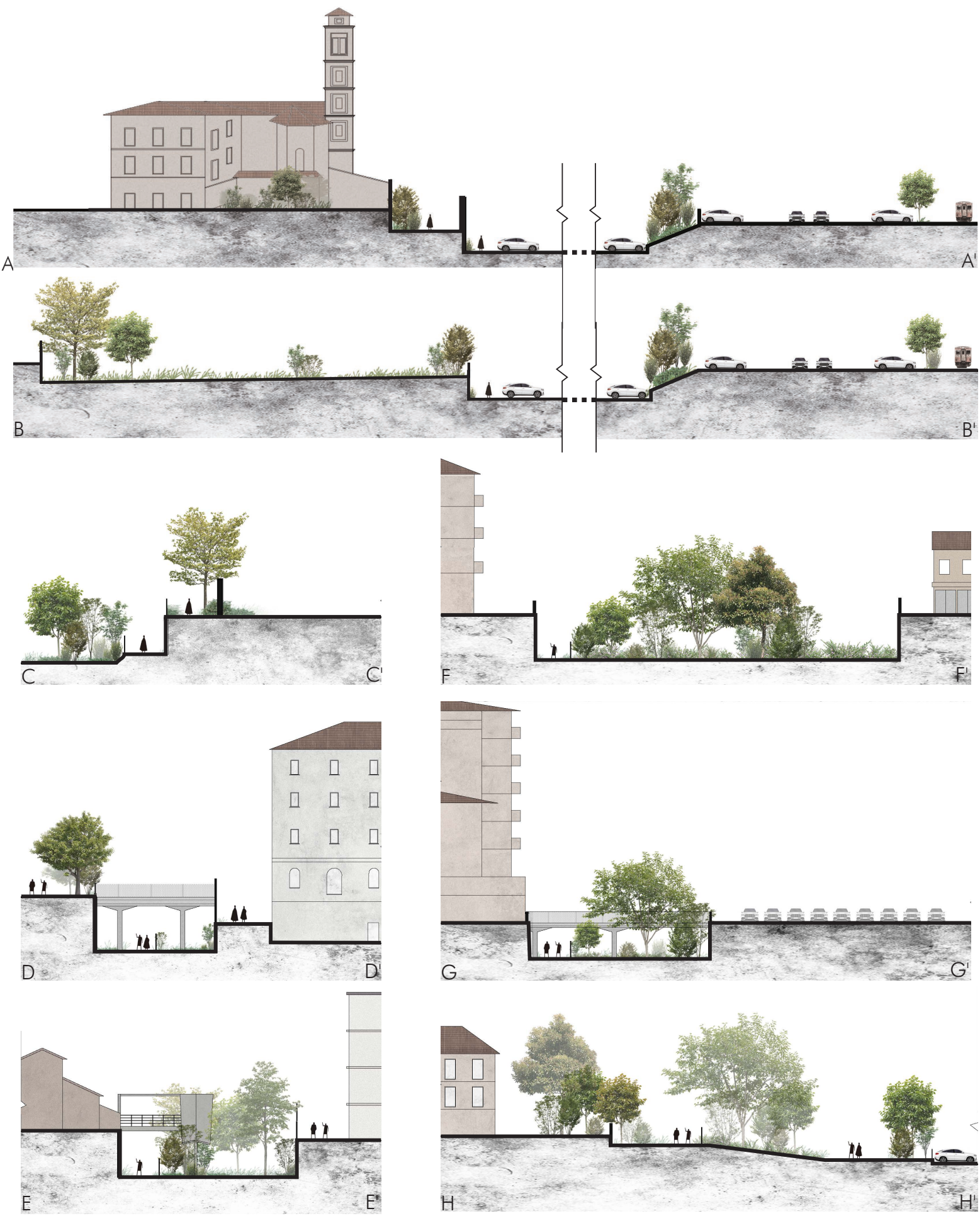
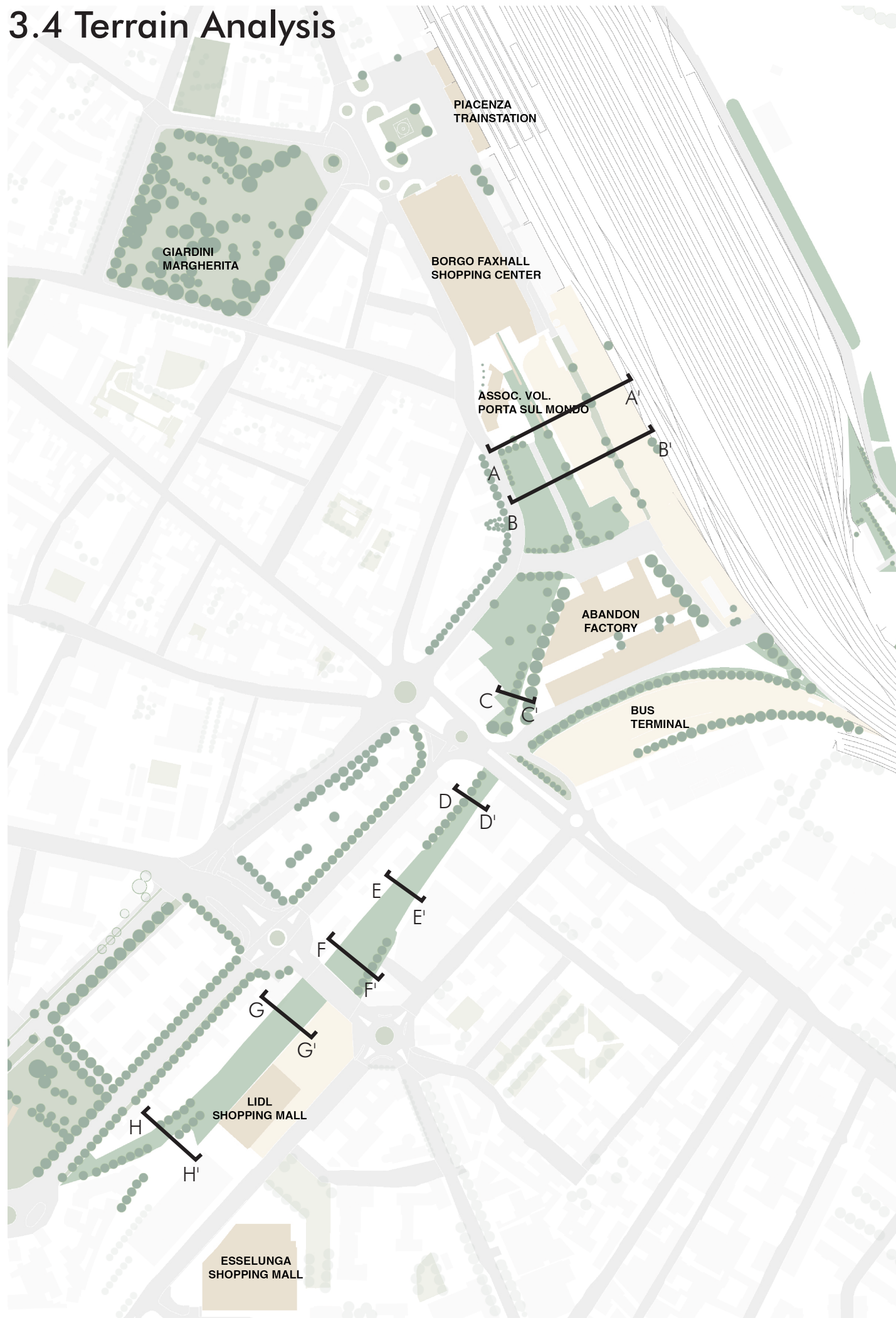


Section Analysis



The road system here is relatively complex, with confusing routes for motor vehicles, non-motor vehicles and pedestrians, and fragmented bicycle lanes, which are very unfriendly to cyclists. At the same time, there are many underground passages with low permeability and lack of management in the area. Bringing a very unsafe experience to residents.

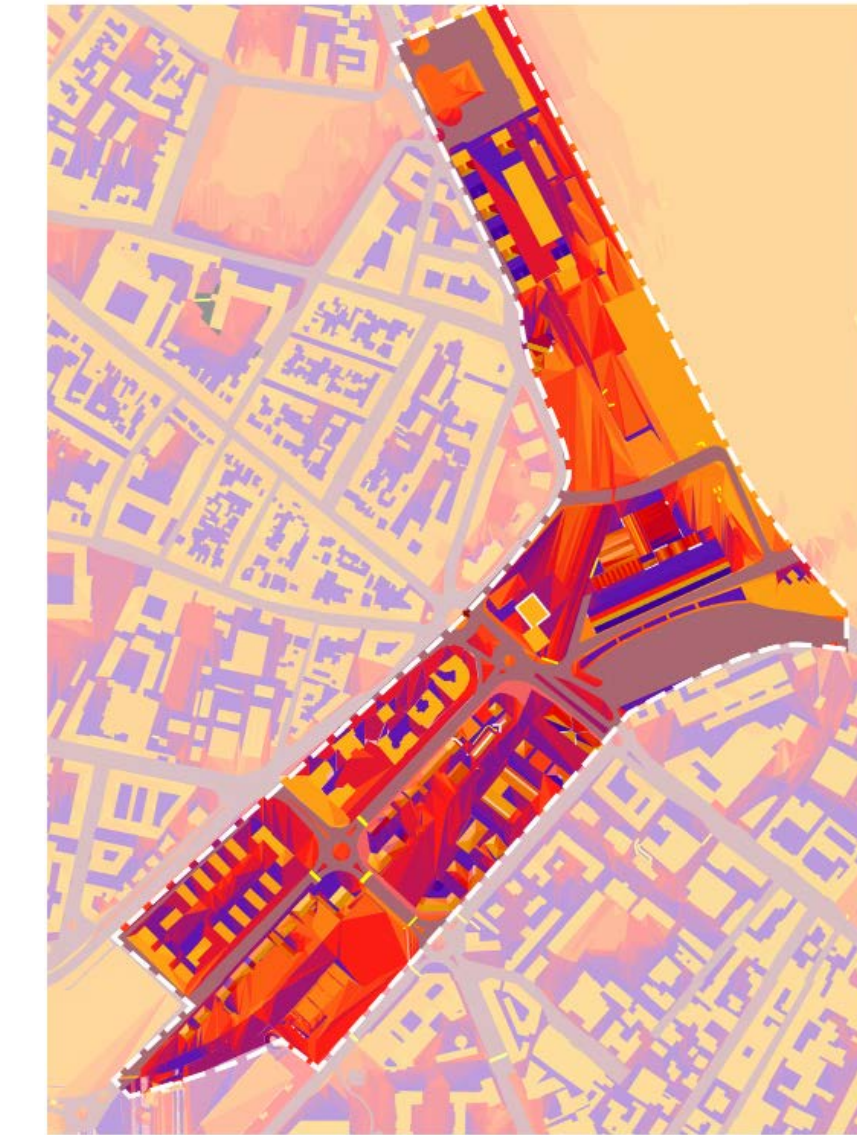
3.4 Terrain Analysis



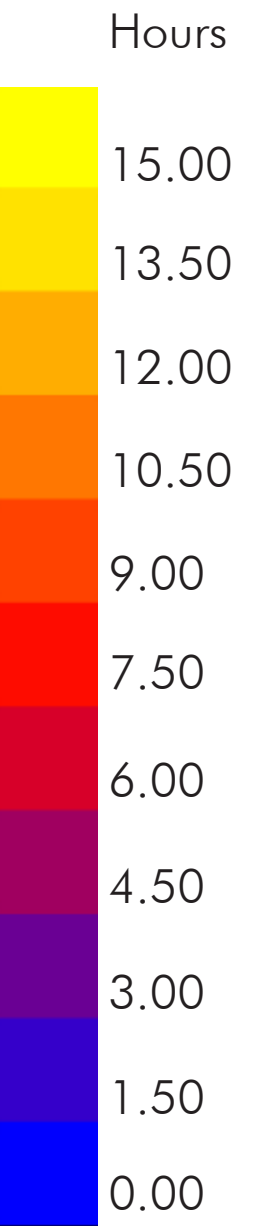
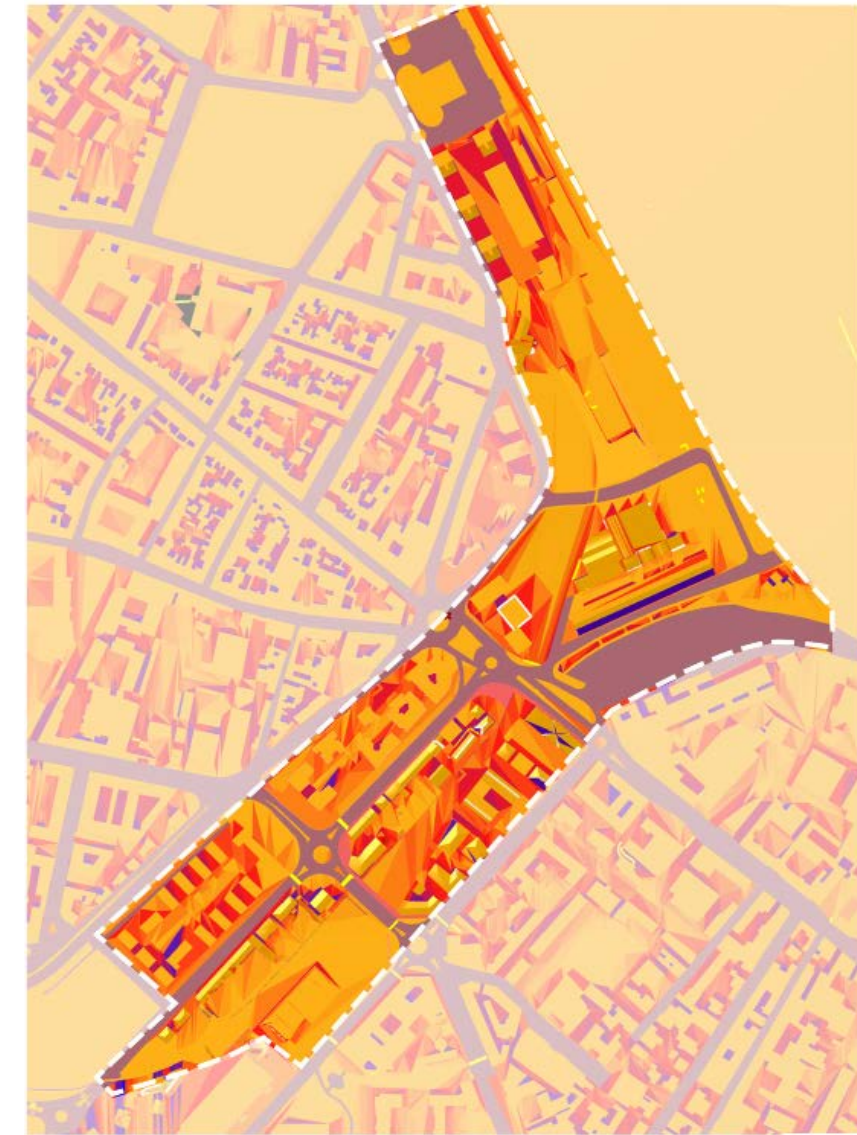
The site has a complex height difference and lacks stairs and ramps connecting different levels. These low-permeability roads put pedestrian safety at great risk.

3.5 Sunlight Analysis

Time: Winter Solstice 12.21



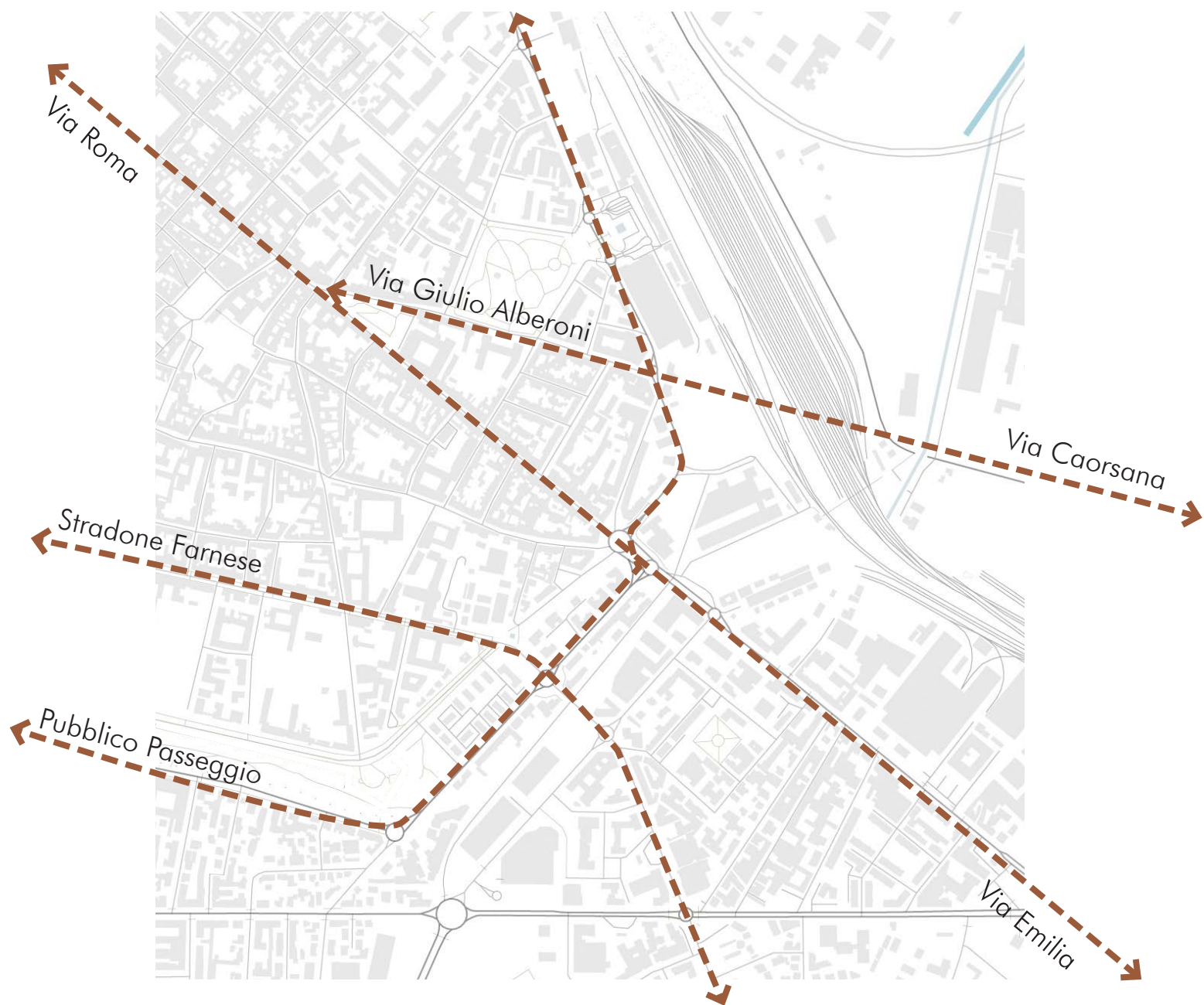
Time: Summer Solstice 6.21



Within the project site, there is a sunken lane, which is approximately 5 meters below the surrounding ground level. Through an analysis of sunlight exposure during the winter and summer solstices, it is evident that the site enjoys ample sunlight, making it suitable for plant growth.

3.6 History and Culture Analysis

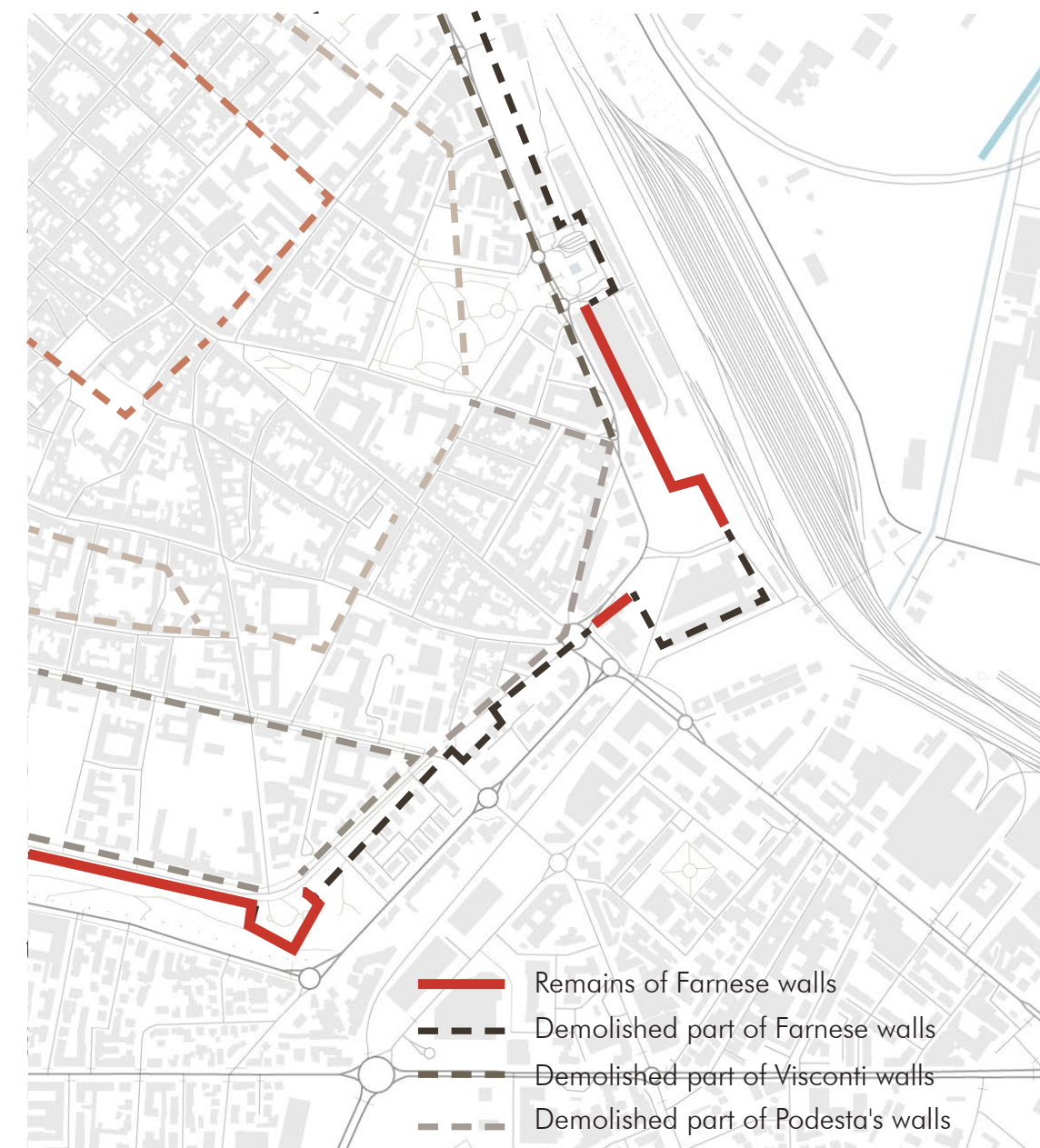
Potential Connection of Roads



The government expects to reduce the number of tracks, so we have the opportunity to create a link below or above the railway as a key link between the center of Piacenza and the north-east.

Emphasis this potential reconnection is not suggested merely for the sake of historical resonance, reverting to an earlier axial structure in the abstract; but is a practical opportunity to benefit the citizens of the city, especially in promoting accessibility between the city centre and the eastern part of the city (the Caorsana area including the municipal cemetery, along Via Caorsana).

Potential Connection of Ancient Walls

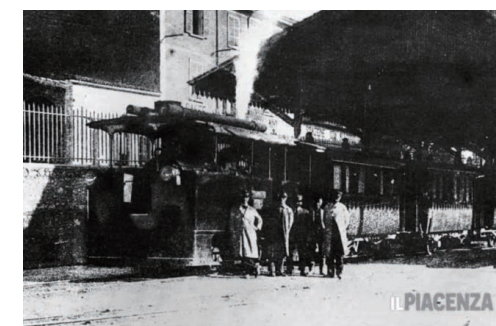


3.6 History and Culture Analysis

The Origin of Sunken Lane of Site

Steam Tramway

- 1880** April 15
 "The Piacenza-Bettola and Cremona Tramway Company Ltd" was created
- 1881** May 16
 The line was opened to the public. It was 22km long, from Piacenza to Grazzano Visconti, to Ponte dell'Olio
- 1886** June 14
 The line was finalized on June 14, 1886, with the opening of the Grazzano Visconti-Rivergaro ramification.



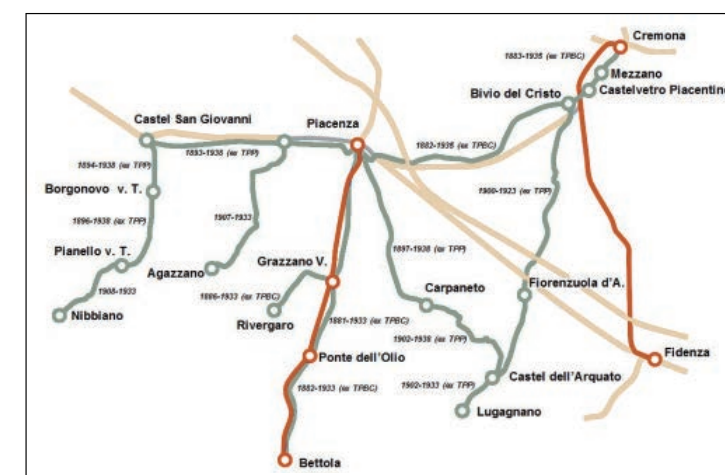
Bettola Tram Station



Bettola Tram Station



Grazzano Tram Station

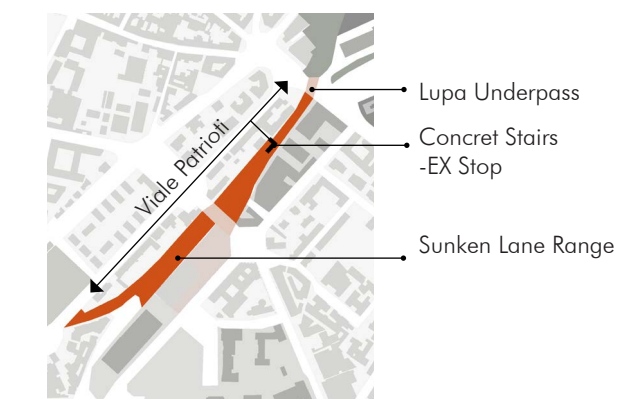


The tram line ran on a mixed route, i.e. also using normal carriage roads.

- Tram Lines
- Railway Lines

Electric Railway

- 1927**
 The project for an electric rail way was presented from Politecnico di Milanoing. Marco Semenza and Arturo Danussoto the Ministry of Public Works
- 1930** July 7
 The construction of the electric railway starts, destroying the old tramways.
- 1930** July 7
 The Piacenza tram station had been transformed for the electric railway, the **railway exited as a subway**, a trench had been dug, and it reached the surface near the military junctions called "San Giuseppe". An **underpass** called "**della Lupa**" had been built where there was also a stop with a **concrete staircase** that allowed passengers to enter and exit in **Viale Patrioti**. During the Second World War this stop also functioned as a station to relieve the influx of passengers in Piazzale Marconi and another **underpass** called "**di Via Farnesiana**" was built.
- 1967** April 30
 The Piacenza-Bettola railway ceased to exist, to leave the place to the new **bus services** that departed from Piazza Cittadella



Lupa Underpass(past)



Sunken Lane(now)



Concrete Staircase(now)

3.7 SWOT Analysis



- STRENGTHS**
-  There are many buildings here with rich history
 -  There are many supermarkets and residential areas around
 -  There are parking lots, bus stations, and train stations nearby, and the transportation is very convenient.
- WEAKNESSES**
-  Low-permeability roads pose many dangers to pedestrians
 -  The space under the bridge is very unsafe., with many homeless people live there
 -  Many height differences within the site interrupt the connections between roads
- OPPORTUNITIES**
-  Many abandoned green spaces have the potential to be regenerate
 -  The space northeast of piacenza can be activated by creating connections
 -  There is a lot of rail track that could be removed to provide space create connections
 -  Can create bridge connections between underground level and surface level
 -  The paid parking lot next to Sigma is not effectively used, which caused a waste of space. It can be regenerated by transforming its functions.
- THREATS**
-  There is a lot of noise pollution next to the railway tracks
 -  Too many parking lots create urban heat island effect

04 Design Strategy_Meso

- 4.1 Case Study**
- The High Line Park, New York
 - Sport-Promenade Binyamina, Israel
- 4.2 Design Proposal**
- 4.3 Design Process**
- Strategic Framework
 - Site Programming
 - Integrated Site Connection
- 4.4 Masterplan**

4.1 Case Study

The High Line Park, New York

Introduction

The New York High Line Park was once a railway freight line built to avoid street-level traffic accidents. However, with the changing times and an increase in truck transport, the railway's usage decreased, leading to its abandonment around 1980. Due to its unique form and location, repurposing the High Line presented numerous challenges. Its linear layout, elevation variances, and connections with buildings required innovative and unconventional design solutions.

Rather than dismantling the disused tracks, the design team chose to preserve them and incorporate them into the park's design, imparting a distinctive character to the park while preserving a tangible industrial heritage of New York City.

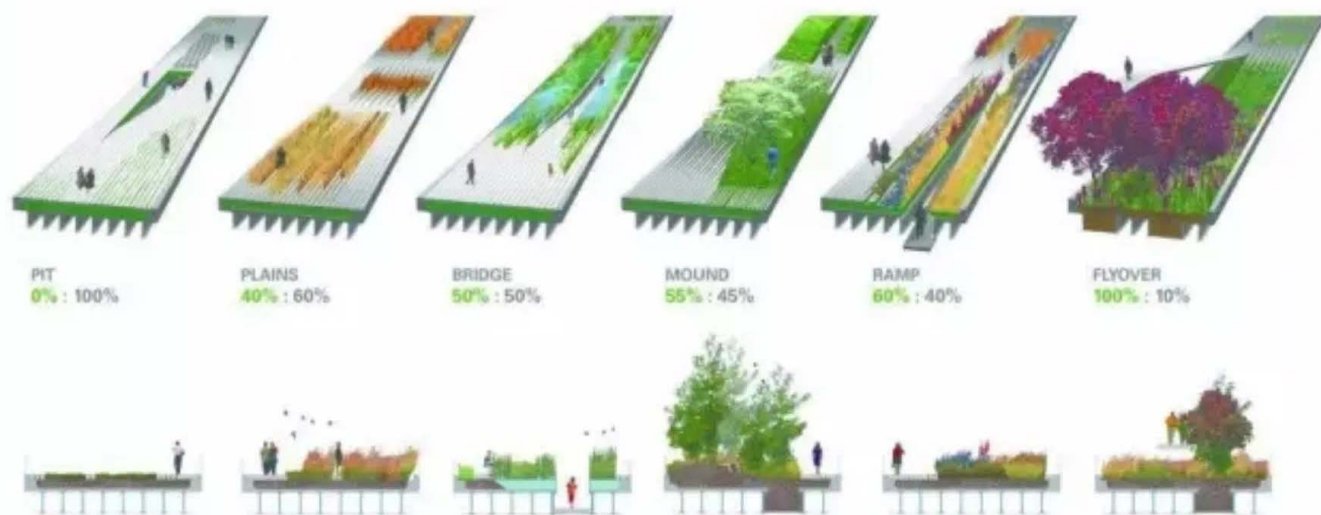
Design Strategies

Adaptive Reuse: Preserving and repurposing the disused elevated railway tracks into the park design to retain historical significance.

Vegetation Integration: Creating a natural environment within the city through diverse vegetation and landscape design, providing leisure spaces.

Community Engagement: Offering cultural activities and public art to engage the local community, serving as a social hub.

Accessibility and Connectivity: Designing well-planned pathways and seating areas to promote connections between different communities and enhance pedestrian mobility.



4.1 Case Study

Sport-Promenade Binyamina, Israel

Introduction

Sport-Promenade Binyamina is an open public space that constitutes part of the network of current and planned bike paths in Binyamina, on the Israeli Coastal Plain. The area is designed as a city square, allowing for activity for many ages. This public space provides room for neighborhood residents, children, pedestrians, bikers and skaters to meet. The area is designed as a city square, allowing for activity for many ages. This public space provides room for neighborhood residents, children, pedestrians, bikers and skaters to meet.

Design Strategies

The promenade allows visitors to participate in a variety of sporting activity free of charge in an open and shaded environment: an extreme asphalt path winds around six hills, providing room for a humorous three-dimensional space. Near the playground and fitness facility are two linear spaces: one for walking and traveling and the other, an extreme path for skating and riding along the hills. Although the areas of activities are placed side by side, each activity has its own defined and unique area.

Alongside the path is an area that contains fitness equipment: horizontal bars, parallel bars, pole, ladder, etc. Wide benches are scattered in paved areas, allowing visitors to sit and meet as well as providing an option to participate in other sporting activity.

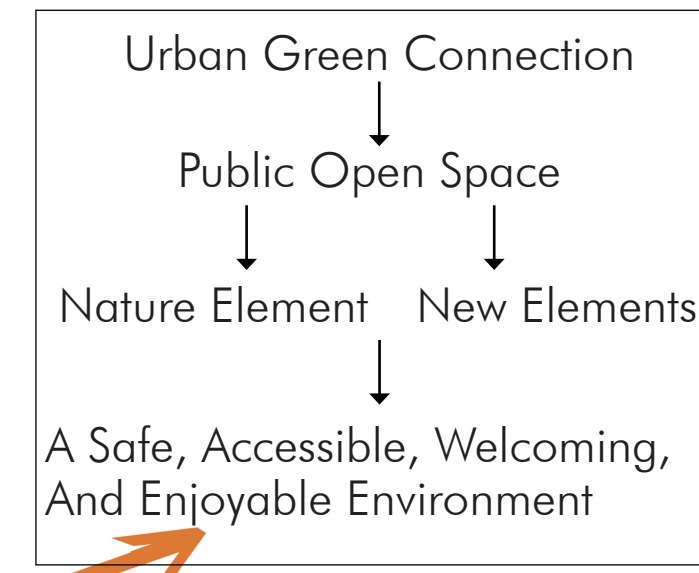
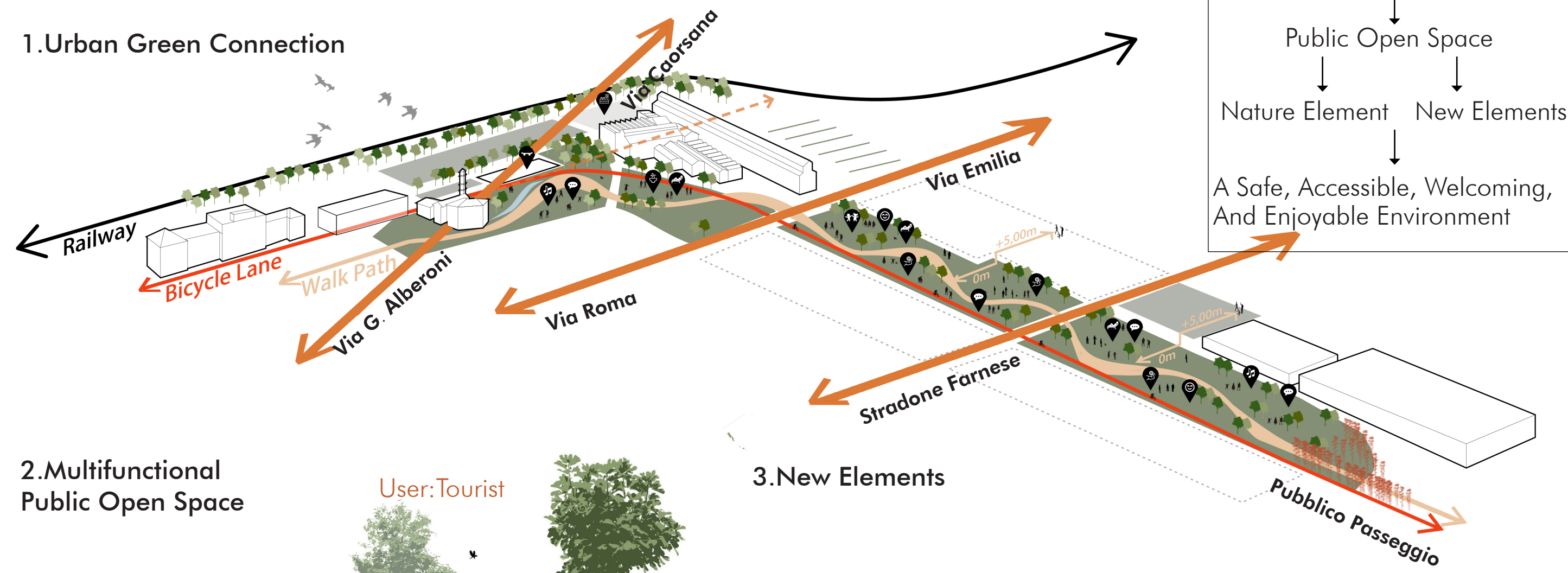
Project Contribution

This planning creates a significant community environment that encourages meeting as well as an array of sporting activity. Sport-Promenade Binyamina is a focal point for local residents in general. The promenade serves as another important anchor in the walking and bike path network in Binyamina, which serves as an active and vibrant gateway to the town.



4.2 Design Proposal

1. Urban Green Connection



2. Multifunctional Public Open Space

User: Tourist



Nature

3.1 Pedestrian Bridge



3.4 Market



3.5 Recreation Area



User: Citizens

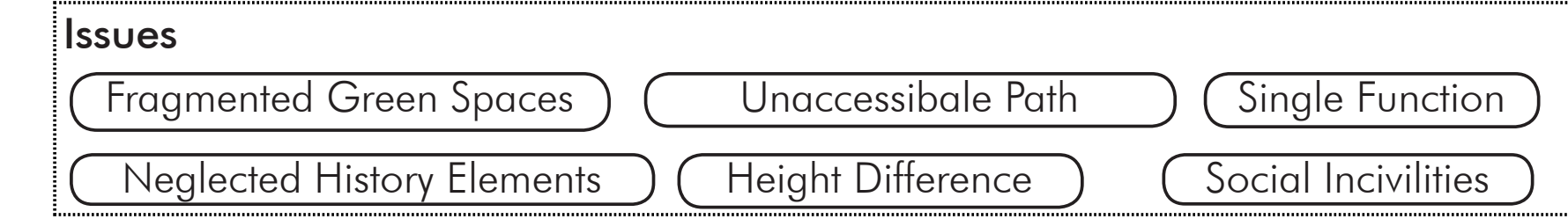
3.6 Fitness Trail



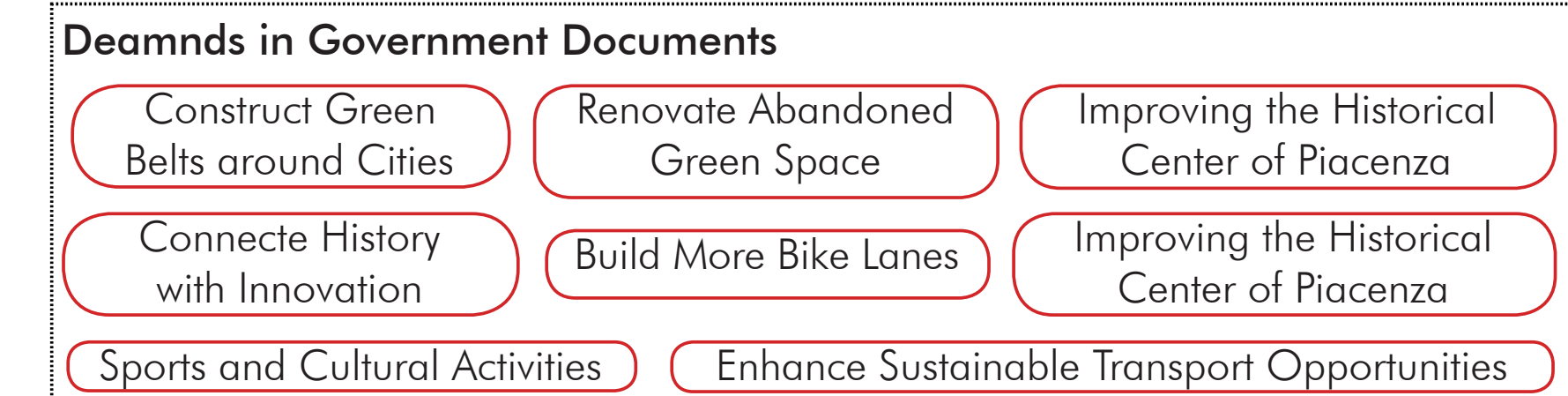
Our design proposal aims to create an engaging urban public open space in Piacenza, Italy, using natural means. This space serves not only as a convenient green corridor but also connects various functional open areas through thoughtfully designed walkways, introducing new elements to attract people to linger. Our goal is to create a safe, enjoyable, and vibrant environment to inspire community vitality and provide a pleasant experience for both residents and visitors.

4.3 Design Process

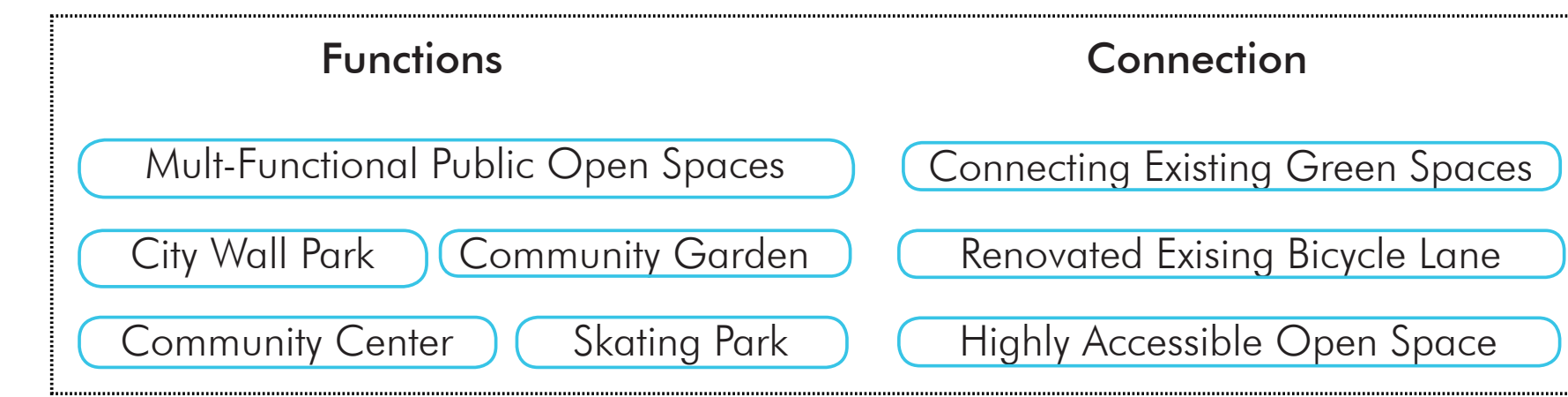
Strategic Framework



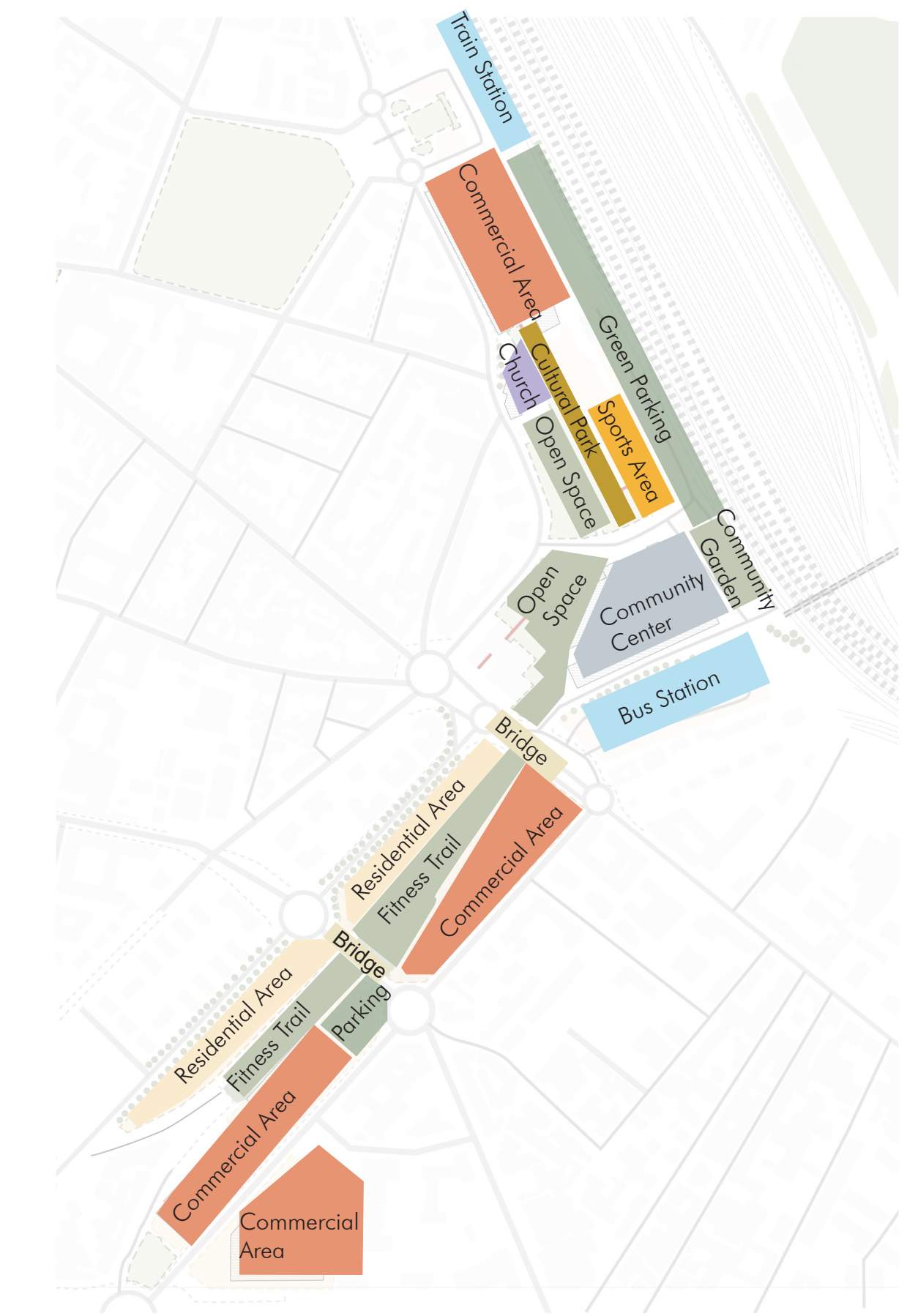
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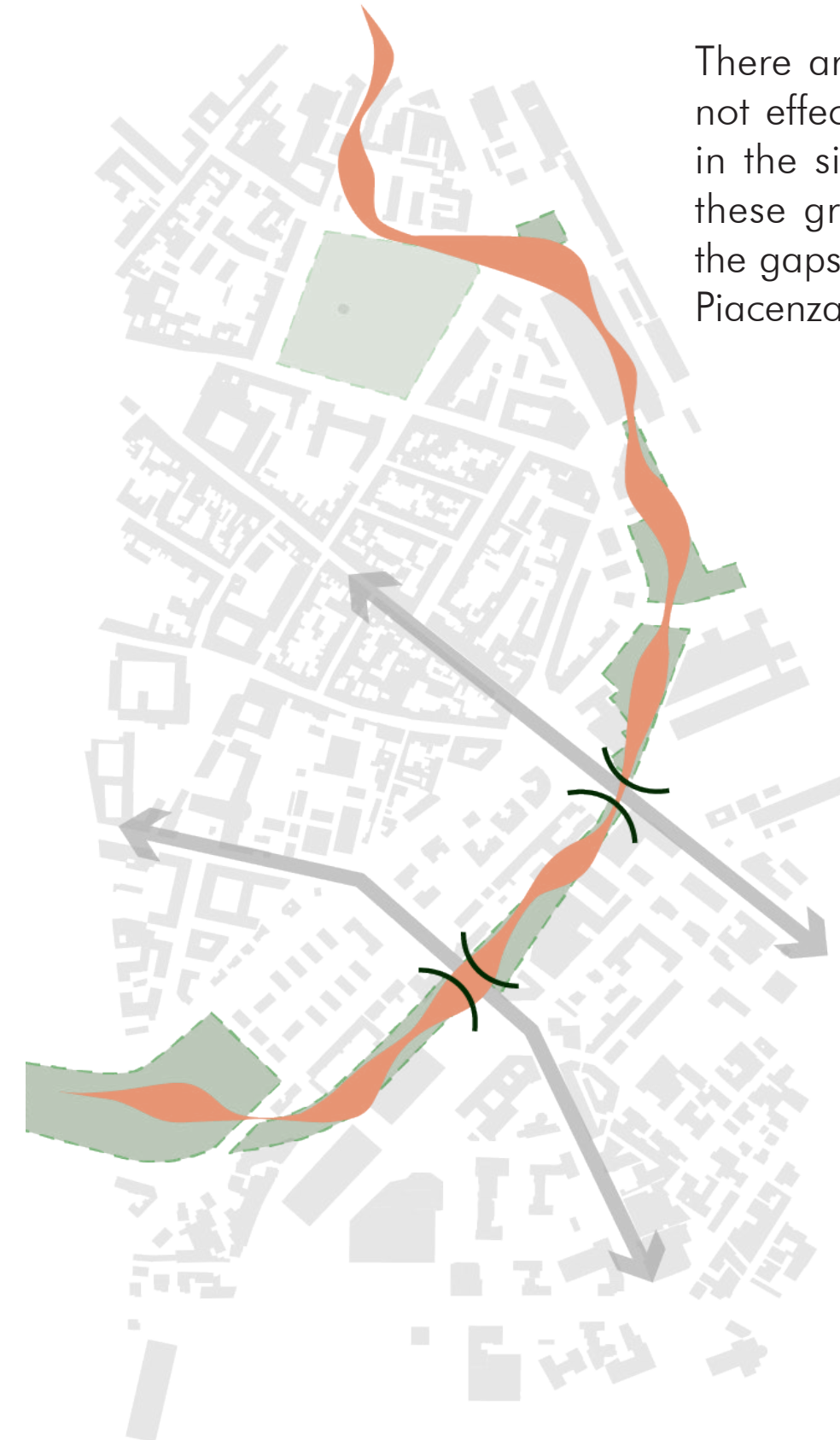


Site Programming



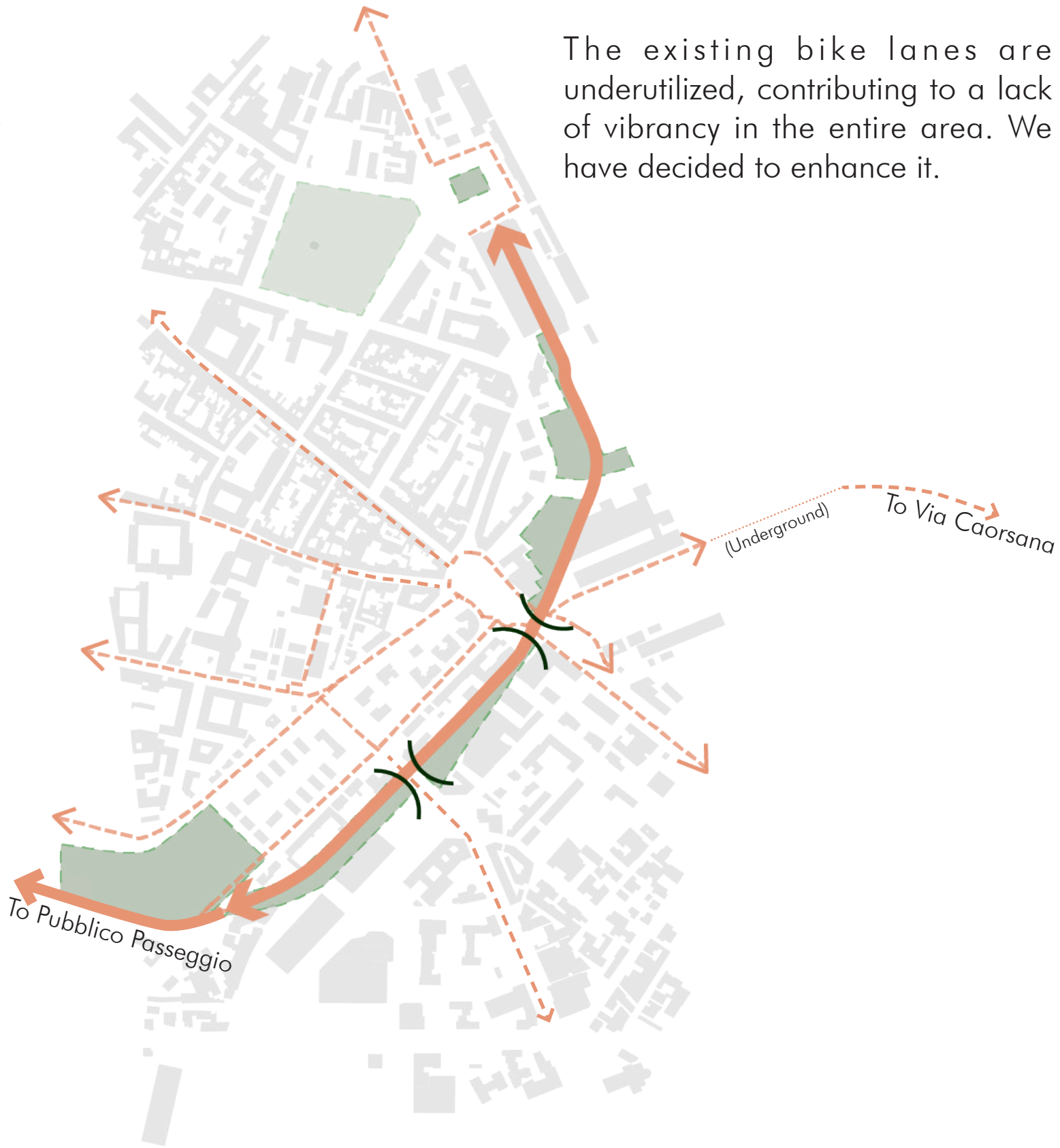
4.3 Design Process Integrated Site Connection

Step1
Connect fragmented green spaces



There are many fragmented and not effectively used green spaces in the site. We hope to connect these green spaces to complete the gaps in the green ring outside Piacenza.

Step2
Regenerate bicycle path



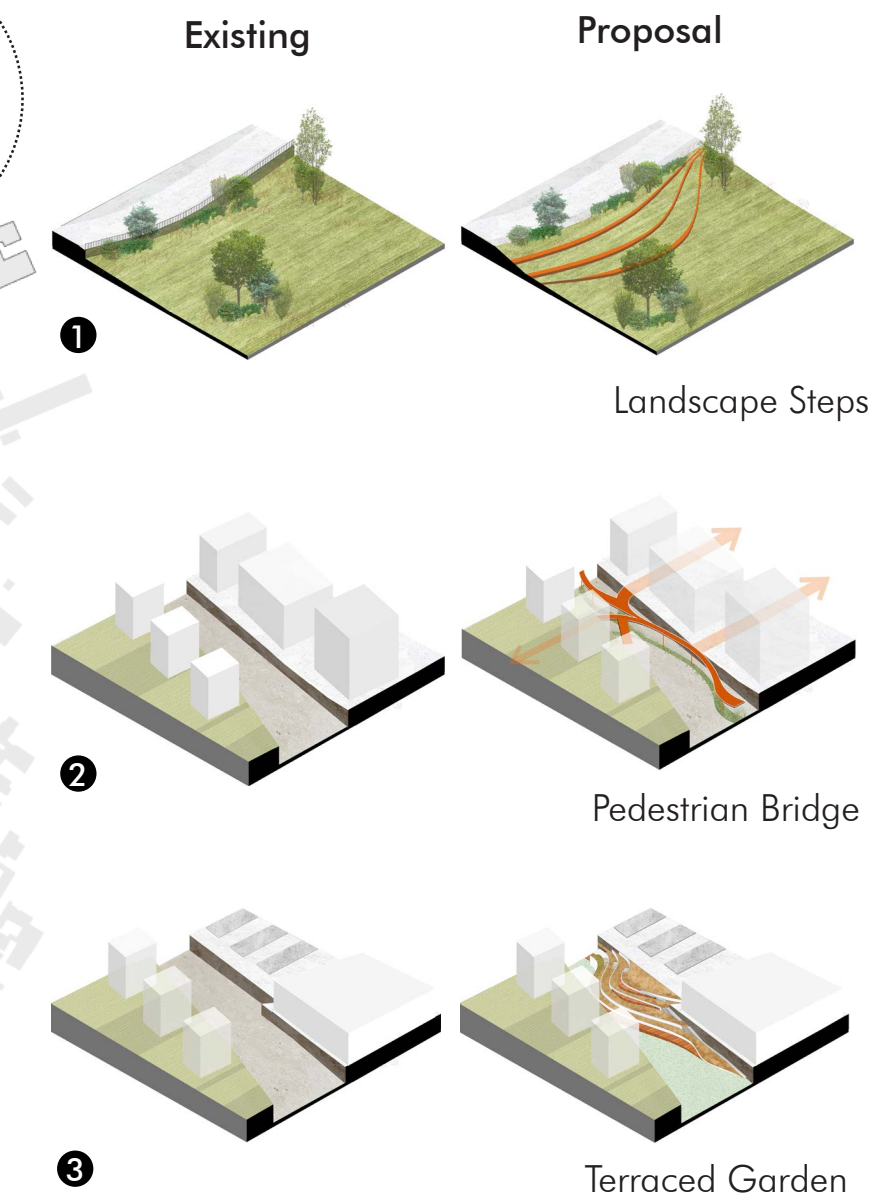
The existing bike lanes are underutilized, contributing to a lack of vibrancy in the entire area. We have decided to enhance it.

4.3 Design Process Integrated Site Connection

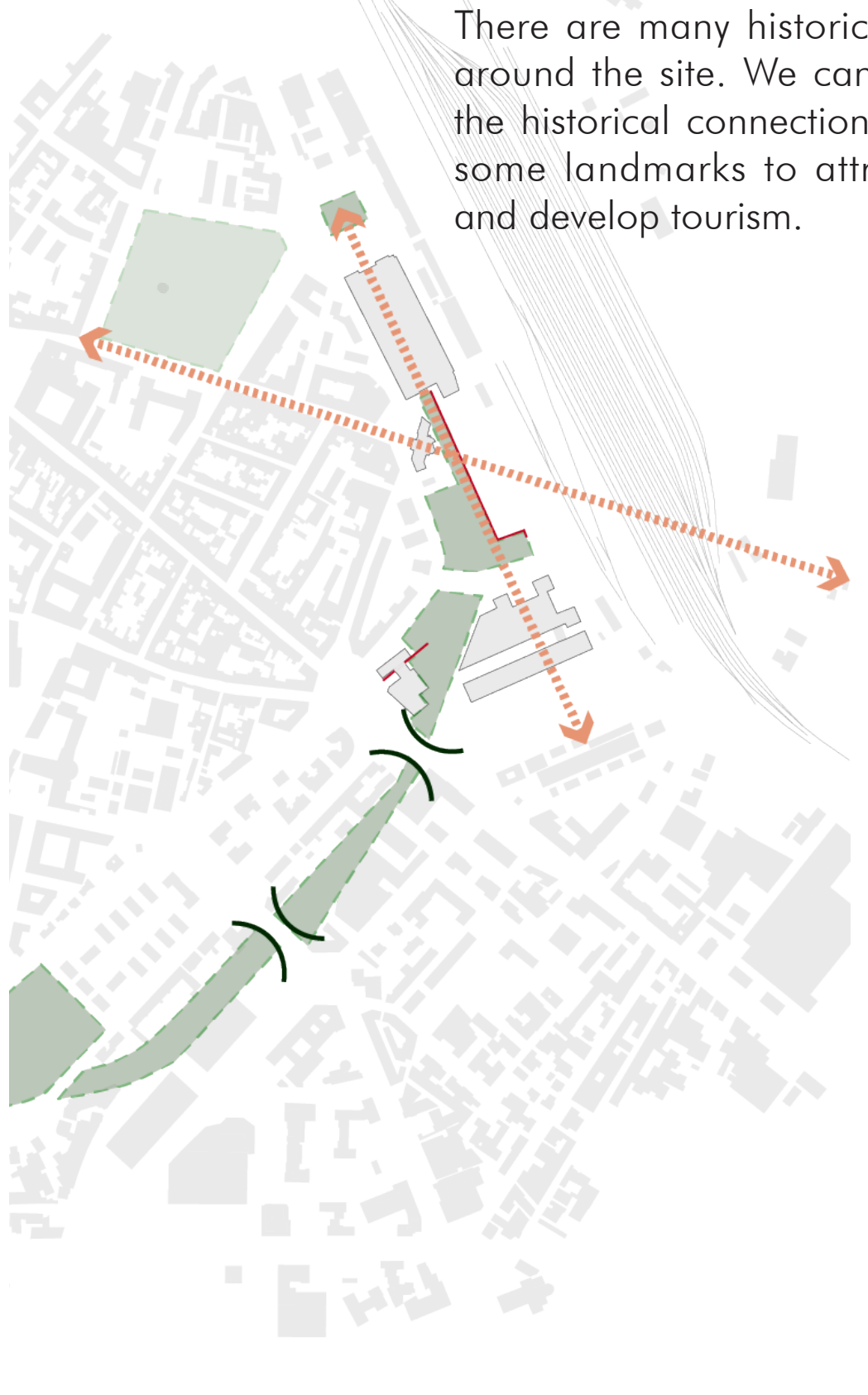
Step3
Connect different levels



There are many sunken spaces on the site with a height difference of 3-5m from the main roads. We create connections between different height differences by building steps, lightweight bridge structures, or using earthwork balancing.



Step4
Emphasize historical connections



There are many historical elements around the site. We can emphasize the historical connection and create some landmarks to attract tourists and develop tourism.

4.3 Masterplan



The project serves as a vital urban public space, not only connecting Piacenza's scattered green areas but also providing a welcoming environment for tourists and citizens alike—encouraging stay, interaction, safety, and high accessibility. Comprising three main components, it seamlessly blends into the urban fabric as a captivating and natural public open space.

The first segment, the City Wall Park, immerses visitors in Piacenza's cultural ambiance against the backdrop of historical city walls, creating a setting for leisure activities.

The second part, the Community Center, enriches indoor and outdoor civic activities, including study rooms and exhibition spaces. It introduces community gardens for engaging volunteer activities, adding a touch of interest and community involvement.

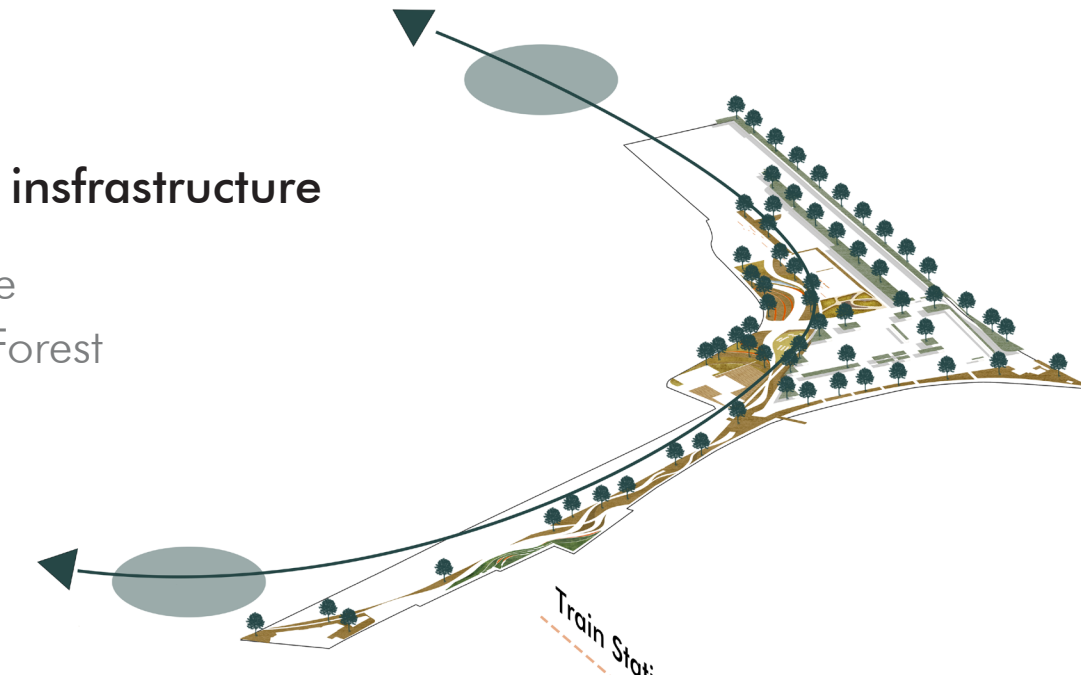
The third section focuses on the spatial design of Sunkun Lane. Through a thoughtful selection of natural elements and materials, we enhance accessibility and safety, breaking the area's previous enclosed feel and infusing it with renewed vitality.

Legend

- | | | |
|--------------------|---------------------|----------------------|
| 1 City Wall Park | 7 Community Garden | 13 Pedestrian Bridge |
| 2 Viewing Platform | 8 Market Square | 14 Walk Path |
| 3 Parking | 9 Studio | 15 Terraced Garden |
| 4 Skating Rink | 10 Community Center | 16 Sports Facilities |
| 5 Urban Park | 11 Fountain Park | 17 Recreational Park |
| 6 Urban Forest | 12 Bicycle Lane | 18 Red Bamboo Area |

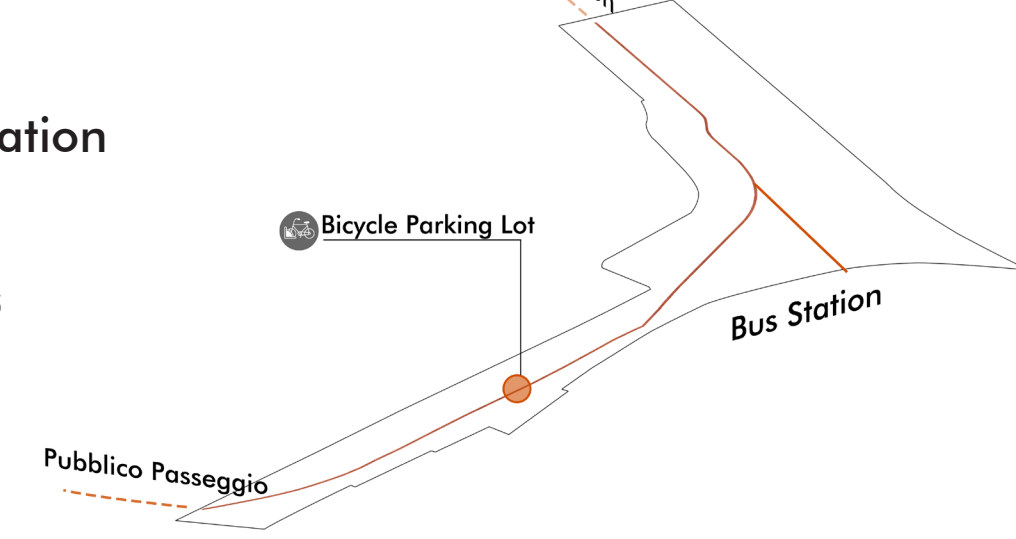
Link 1_Green infrastructure

- Tree Line
- Urban Forest
- Hill



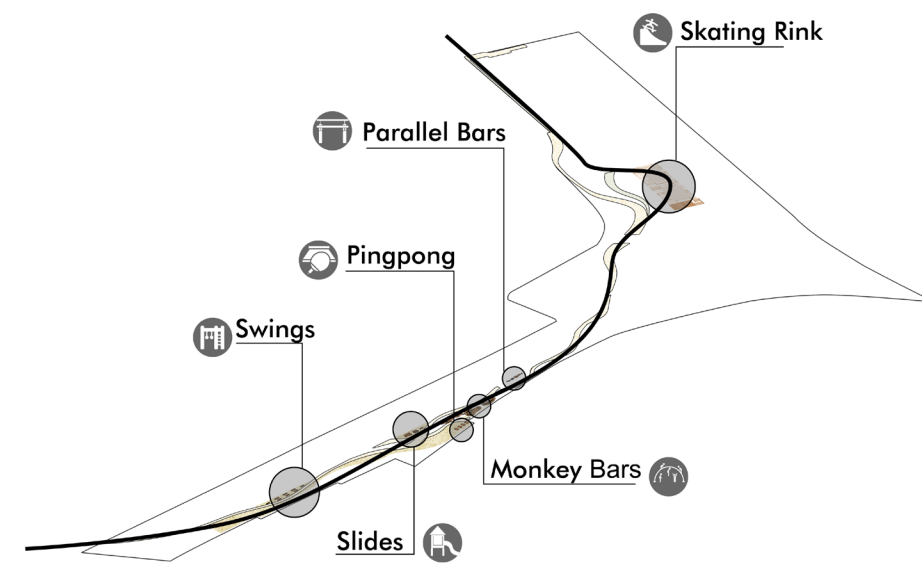
Link 2_Transportation

- Bicycle
- Train to Bus



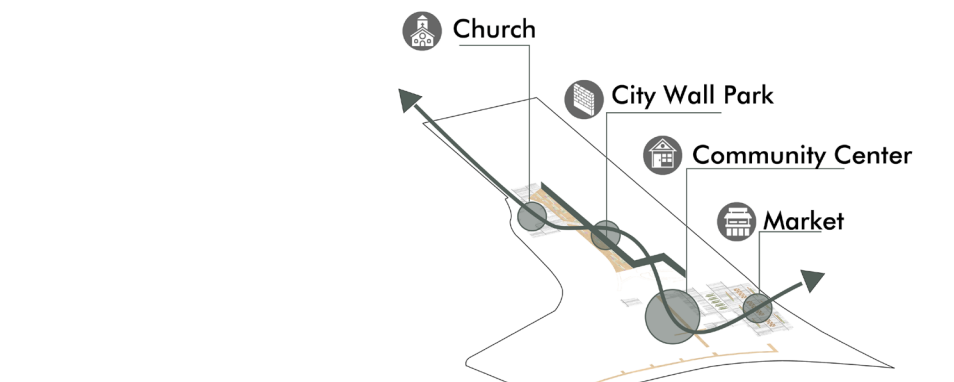
Link 4_Sports

- Skating Rink
- Recreation Area
- Physical Activity



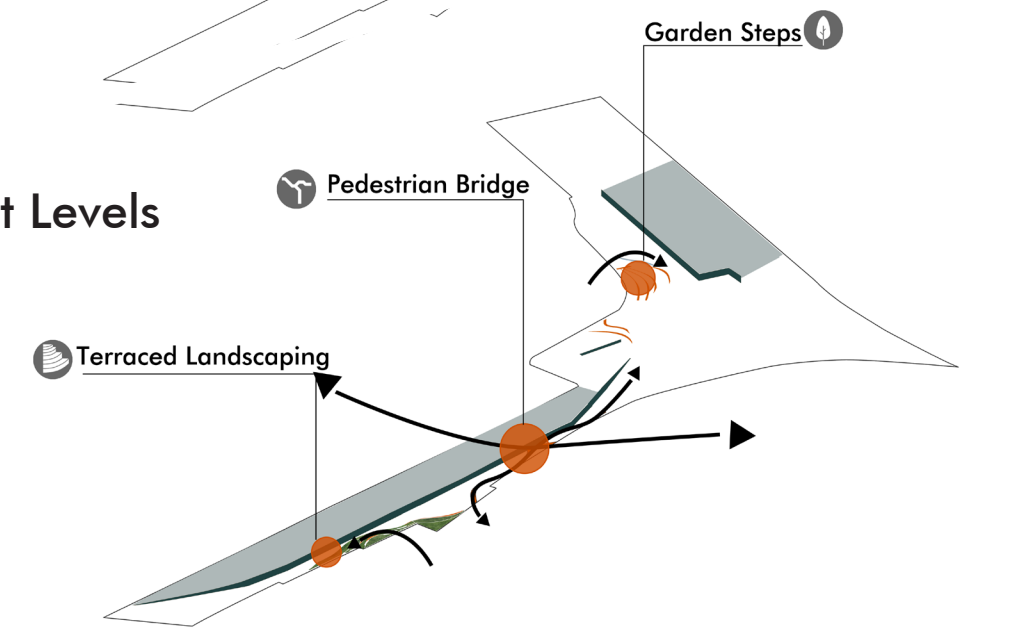
Link 3_Culture

- History
- Education
- Leisure



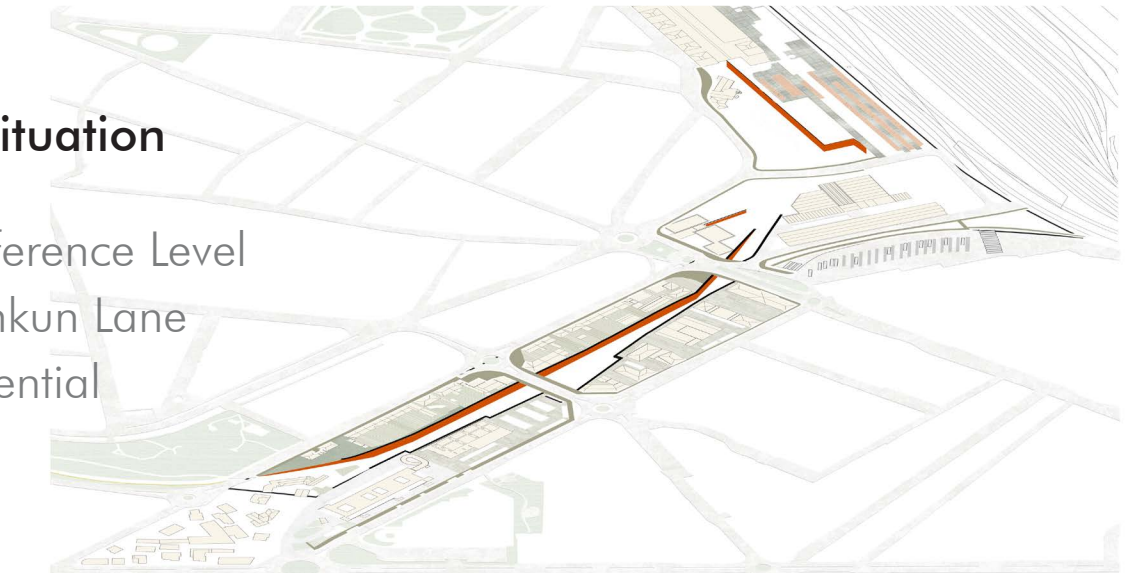
Link 5_Different Levels

- Steps
- Bridge



Existing Situation

- Difference Level
- Sunkun Lane
- Potential



05 Zonal Design_Micro

5.1 City Wall Park

- Detail Plan
- Comparison of Section
- Detail section and Materials
- Renderings

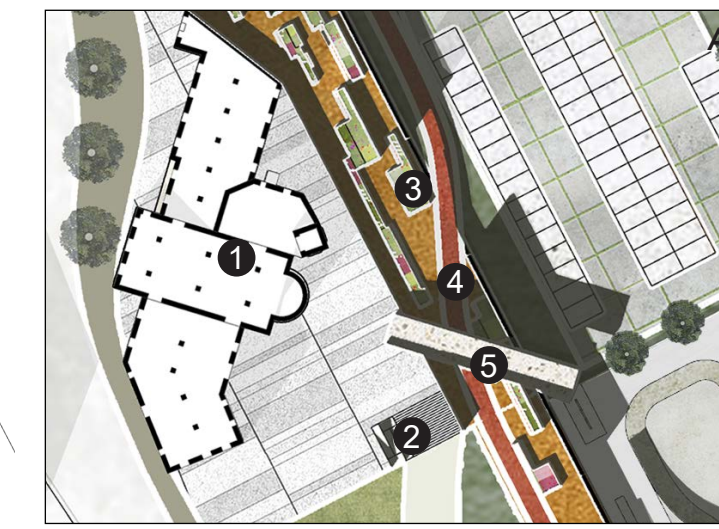
5.2 Community Center Square

- Detail Plan
- Plan for Community Garden
- Users and Managers
- Case Study

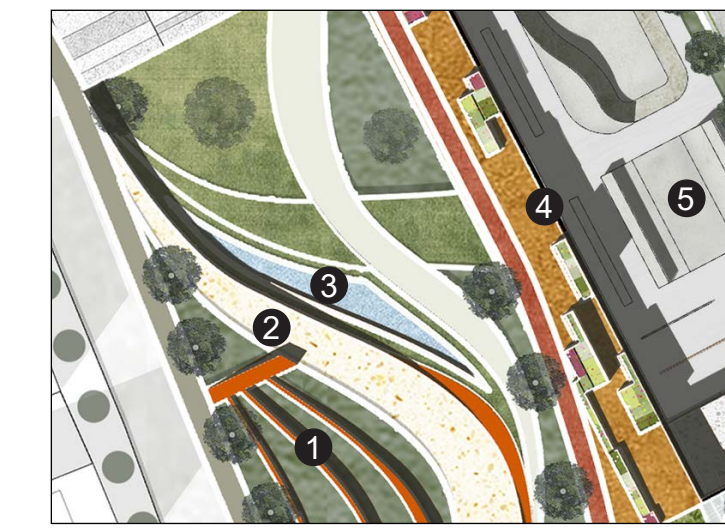
5.3 Sunken Lane Park

5.4 Plant Analysis

5.1 City Wall Park Detail Plan



- 1 Church
- 2 Steps
- 3 Mirror & Planting Box
- 4 Bicycle Lane From Sigma
- 5 Viewing Platform



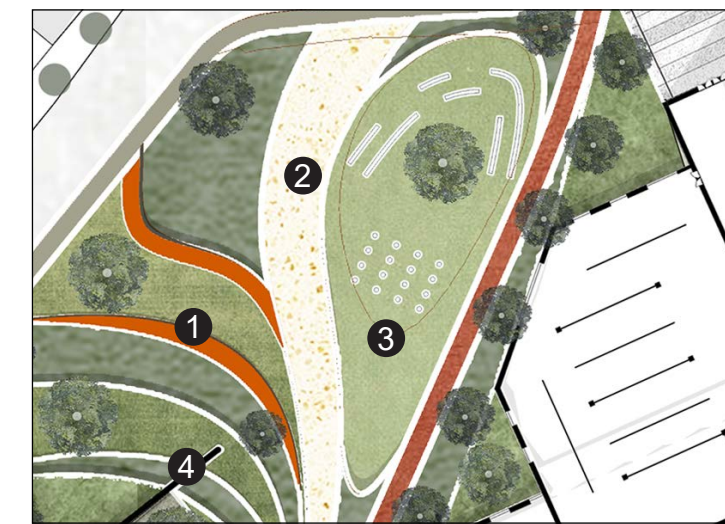
- 1 Seats
- 2 Walk Path
- 3 Pool
- 4 City Wall
- 5 Skating Rink

The City Wall Park is located to the south of Piacenza Train Station, at the intersection of the renowned Emilia Street, a busy area with heavy traffic and many pedestrians. The park is built around the existing Farnese walls, which are two years old and hold significant historical importance. We've placed seating near the city wall for residents and tourists to relax, and added mirrors to enhance interaction with the wall.



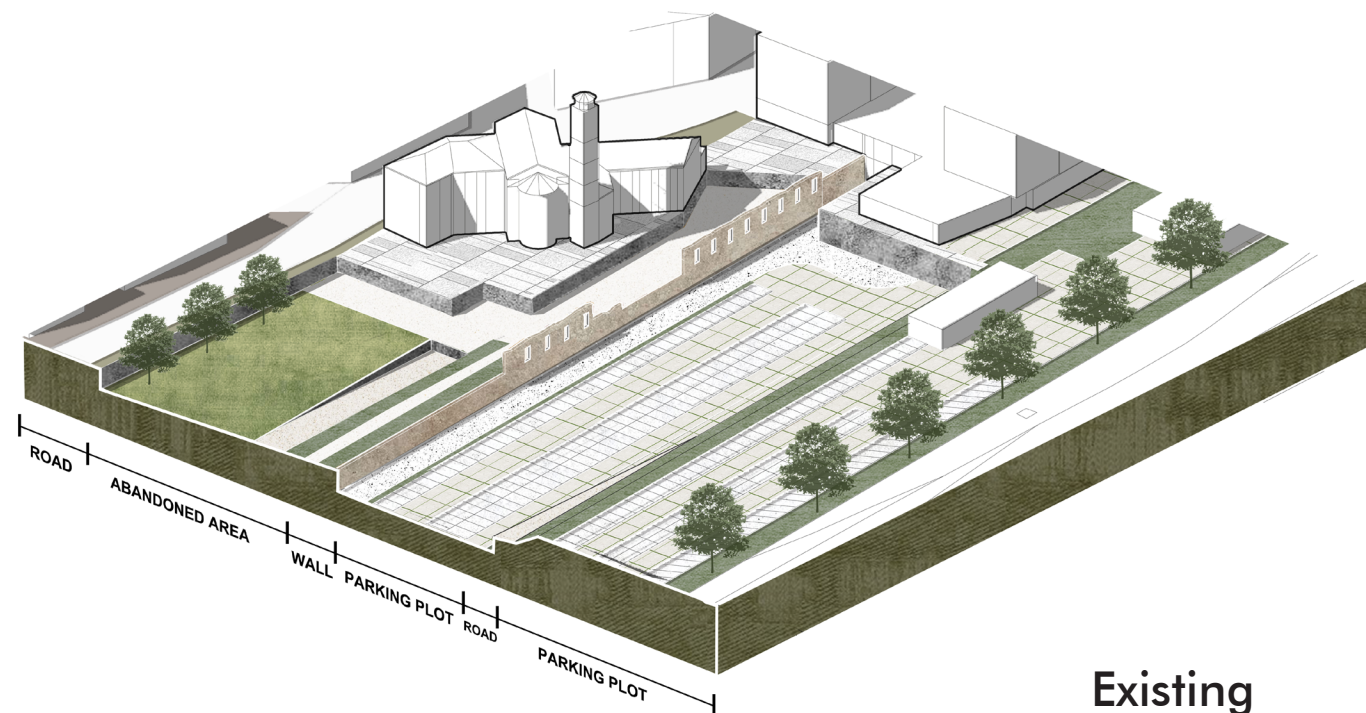
- 1 Urban Forest
- 2 Seating Area
- 3 Toilets & Shower Rooms
- 4 Storage Room

To address the site's elevation differences, we've incorporated landscape slopes and seating, breaking down barriers caused by the varying heights. We've extended Sigma's bicycle lanes and urban sidewalks all the way to the end of our site, creating a smooth and convenient pathway for cyclists and pedestrians.

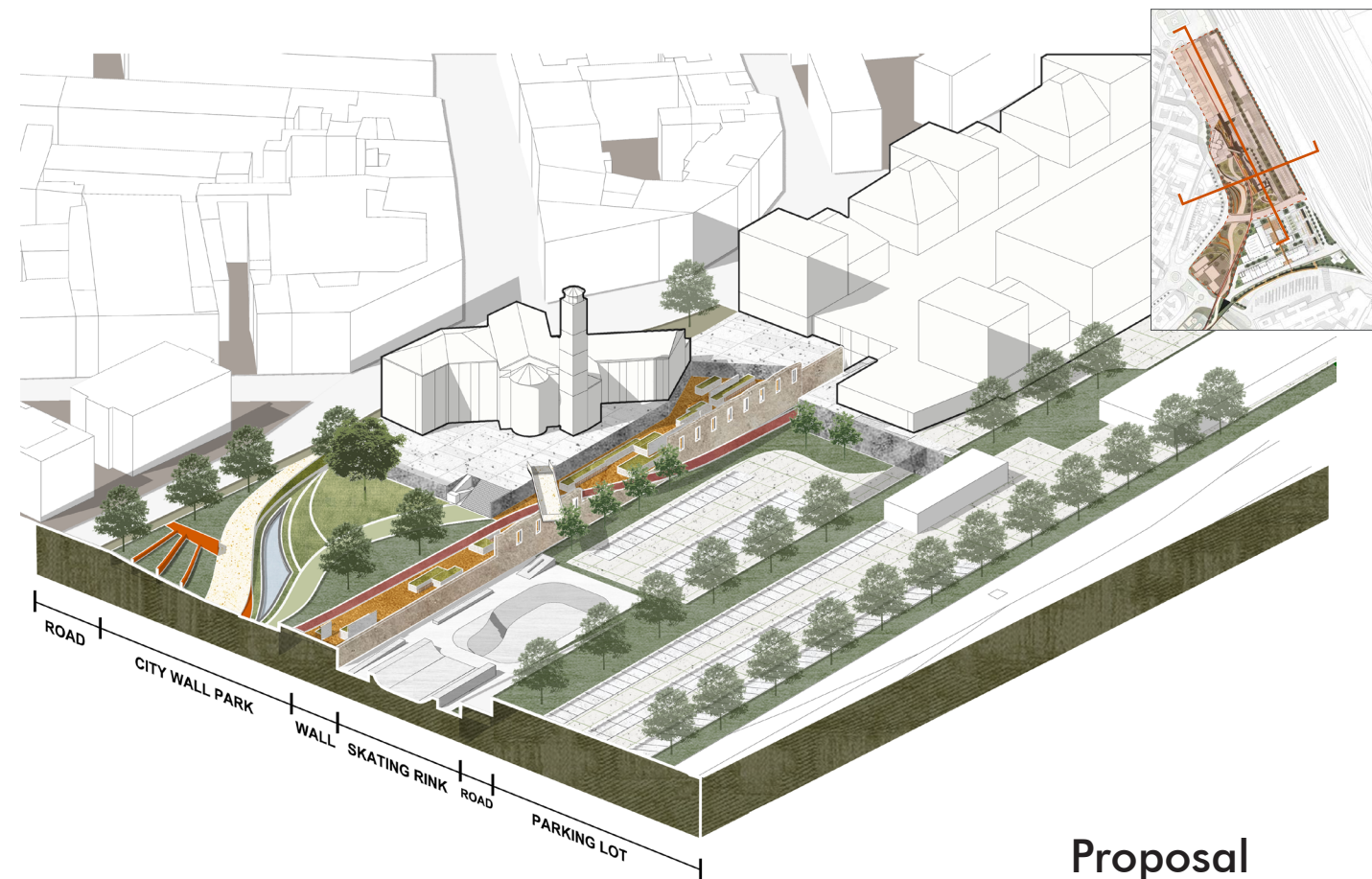


- 1 Public Park
- 2 Walk Path
- 3 Fountain Park
- 4 City wall

5.1 City Wall Park Comparison of Section



Existing

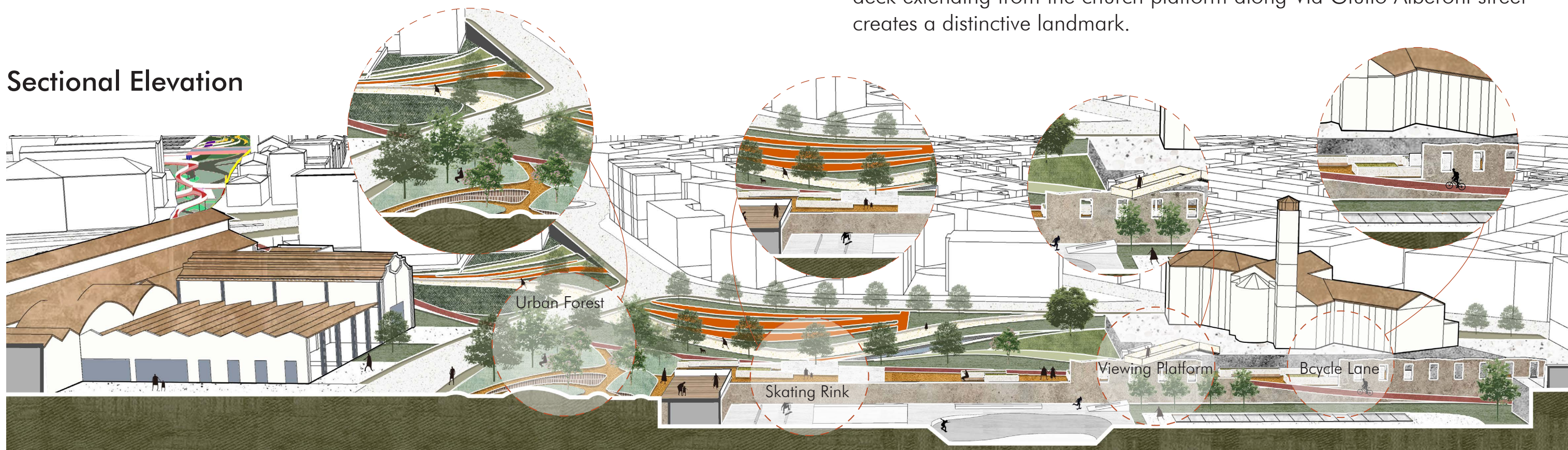


Proposal

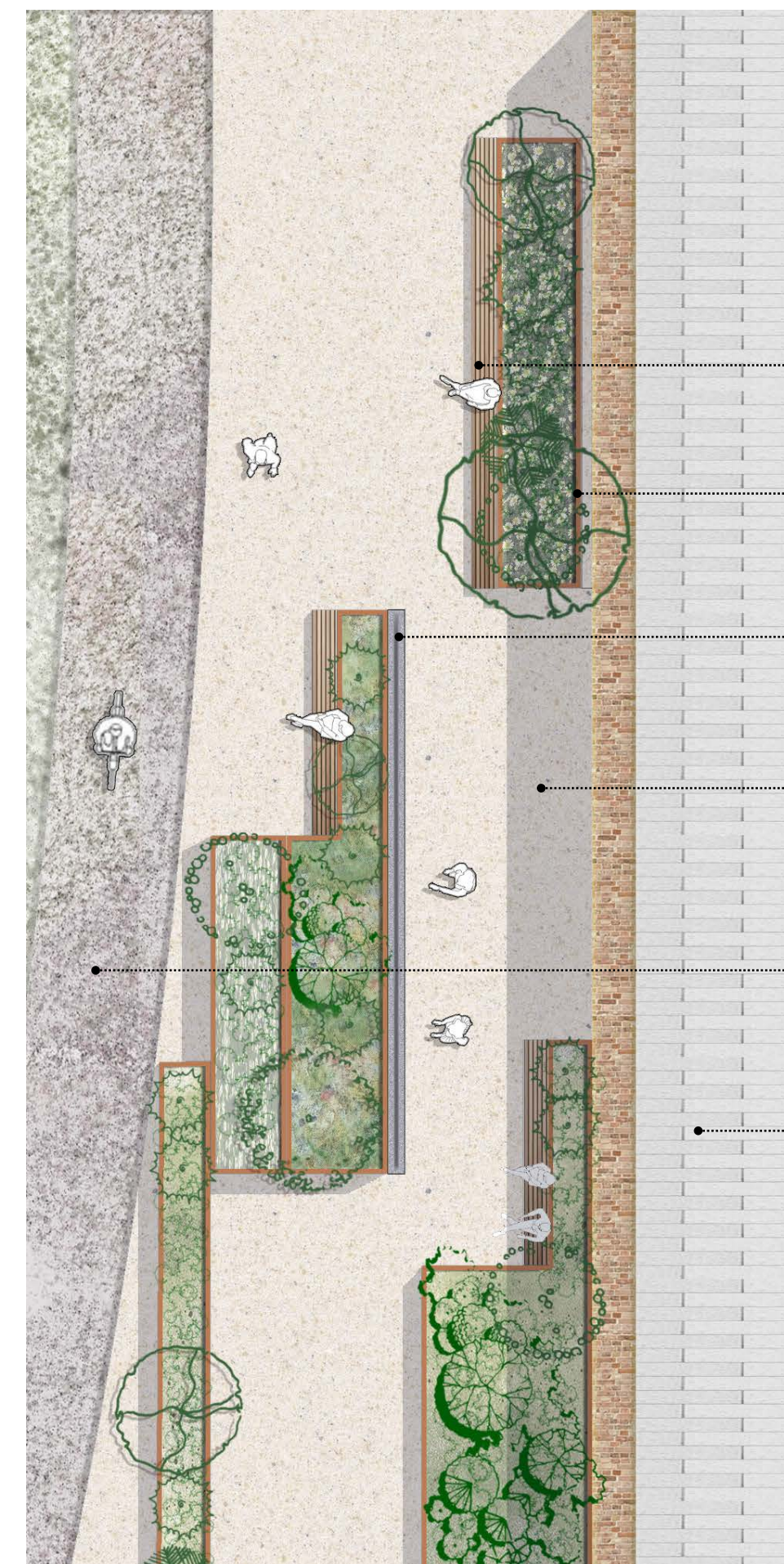
The current city wall on the site is not effectively utilized, the green space to the west is neglected, and the parking lot in front of Foxhall Shopping Center is not optimally used. Additionally, there are two elevation changes from the road to the lowest parking area.

Our main focus was revitalizing the site for locals and visitors. We brought back the abandoned green area, connected different levels with landscape steps, and added eco-friendly elements. We're converting part of the unused parking space into a tennis court, aligning with the government's goal of creating a sports city. Additionally, an observation deck extending from the church platform along Via Giulio Alberoni street creates a distinctive landmark.

Sectional Elevation



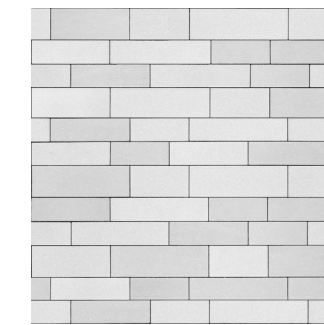
5.1 City Wall Park Detail Section and Materials



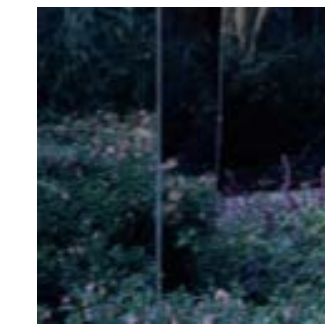
Materials



Material: Antiseptic Wood
Use: Seats Surface



Material: Granite Plank Paving
Use: Paving



Material: Mirror-finish Stainless Steel
Use: Interactive Installation



Material: Washed Aggregate
Use: Paving



Material: Weathering Steel
Use: Planter Box



Material: Rubber
Use: Bicycle Lane

Case study of material

Garden/Gallery – Xinhua Road Pocket Park, Shanghai

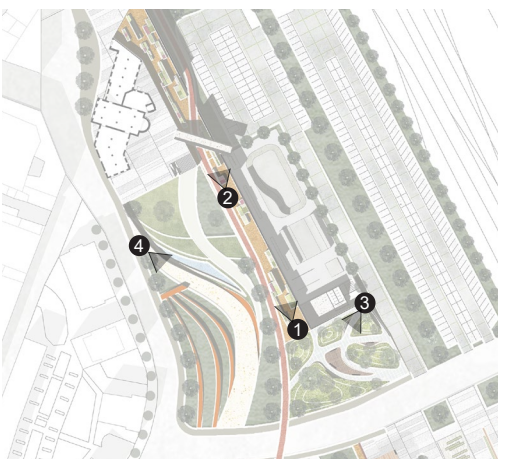


The mirror-finished stainless-steel system was equipped on the side walls of the alleyway, which was the core move of the design. The garden would be reflected by the side mirrors infinitely. When pedestrians pass the alleyway, the space turns into an infinite natural garden. It is a rare experience in such a metropolitan city.

5.1 City Wall Park

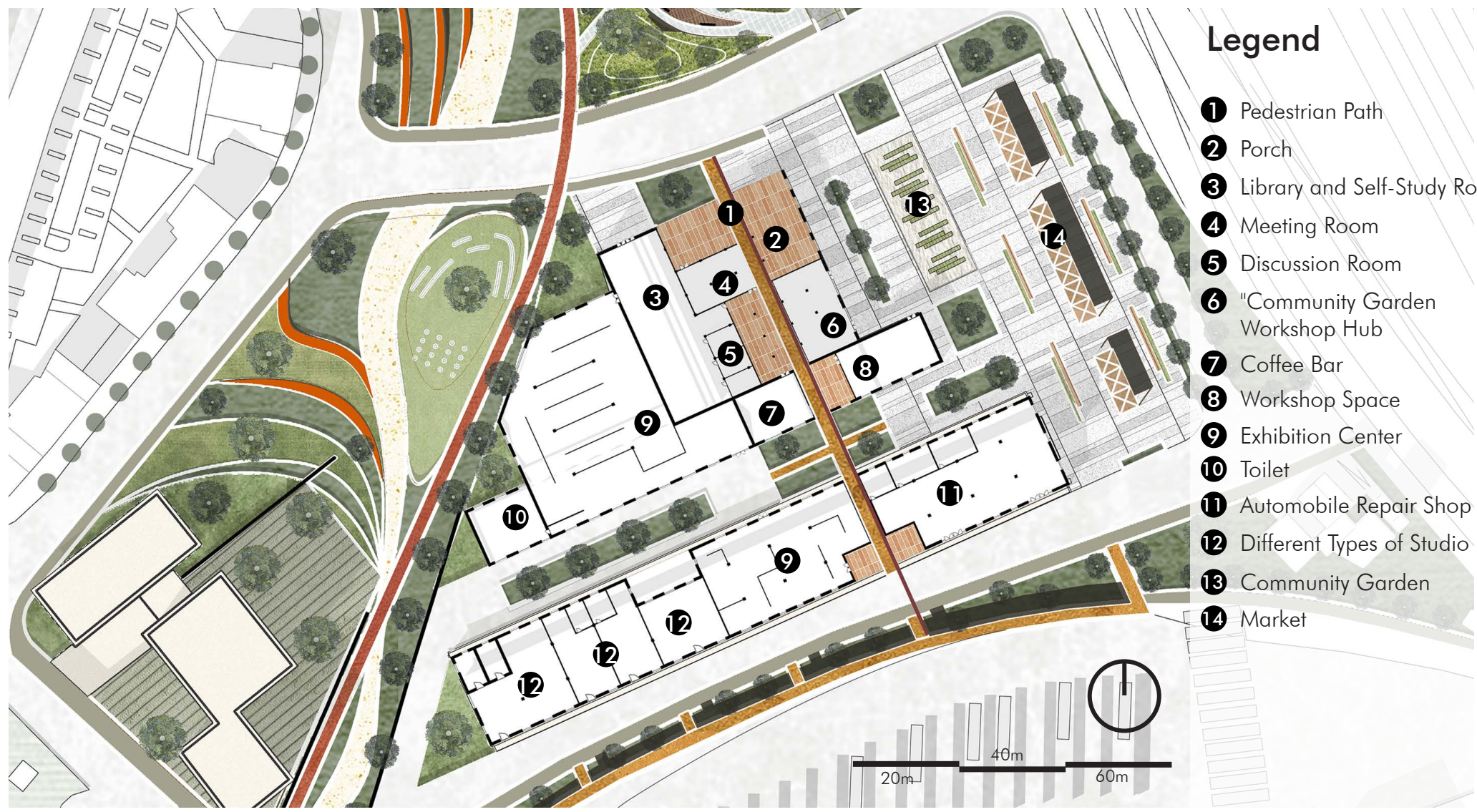
Renderings

The concept design incorporates mirrors that reflect the city wall and citizens, fostering a strong sense of interaction for the residents. Urban forests offer space for leisure activities, further enhancing community engagement. The "viewing platform" integrates with the city wall, creating an immersive experience. Additionally, blue-green facilities enliven urban parks, making them more vibrant and inviting.



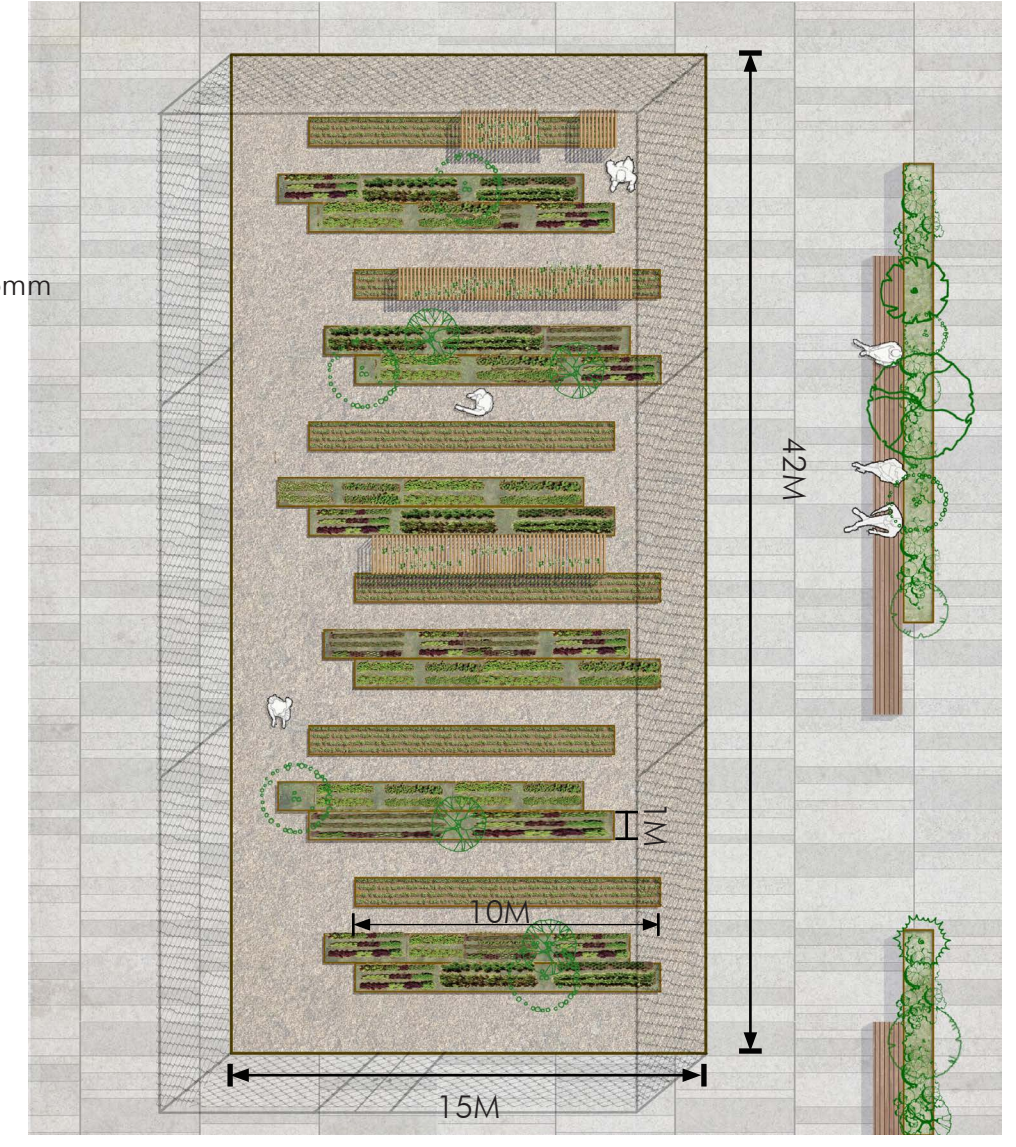
5.2 Community Center Square

Detail Plan



- Legend**
- 1 Pedestrian Path
 - 2 Porch
 - 3 Library and Self-Study Romm
 - 4 Meeting Room
 - 5 Discussion Room
 - 6 "Community Garden Workshop Hub
 - 7 Coffee Bar
 - 8 Workshop Space
 - 9 Exhibition Center
 - 10 Toilet
 - 11 Automobile Repair Shop
 - 12 Different Types of Studio
 - 13 Community Garden
 - 14 Market

Plan for Community Garden



Users and Managers

	Community Center	Community Garden
Users	Local Residents, Tourists	Community Residents Gardening Enthusiasts
Managers	Community Volunteer Organizations, Government Agencies	Retirees
Notes	The community center is a space for citizens to engage in various activities, fostering cultural and social exchanges indoors	The community garden enables citizens to plant, nurture, and harvest produce. Managers are typically retirees, as they have flexible schedules and sufficient time for overseeing the garden

Case Study



Community Garden "Orti di Via Degani" - Piacenza



Community Garden "Orti di via Padova"- Milan

05

Zonal Design_Micro

5.1 City Wall Park

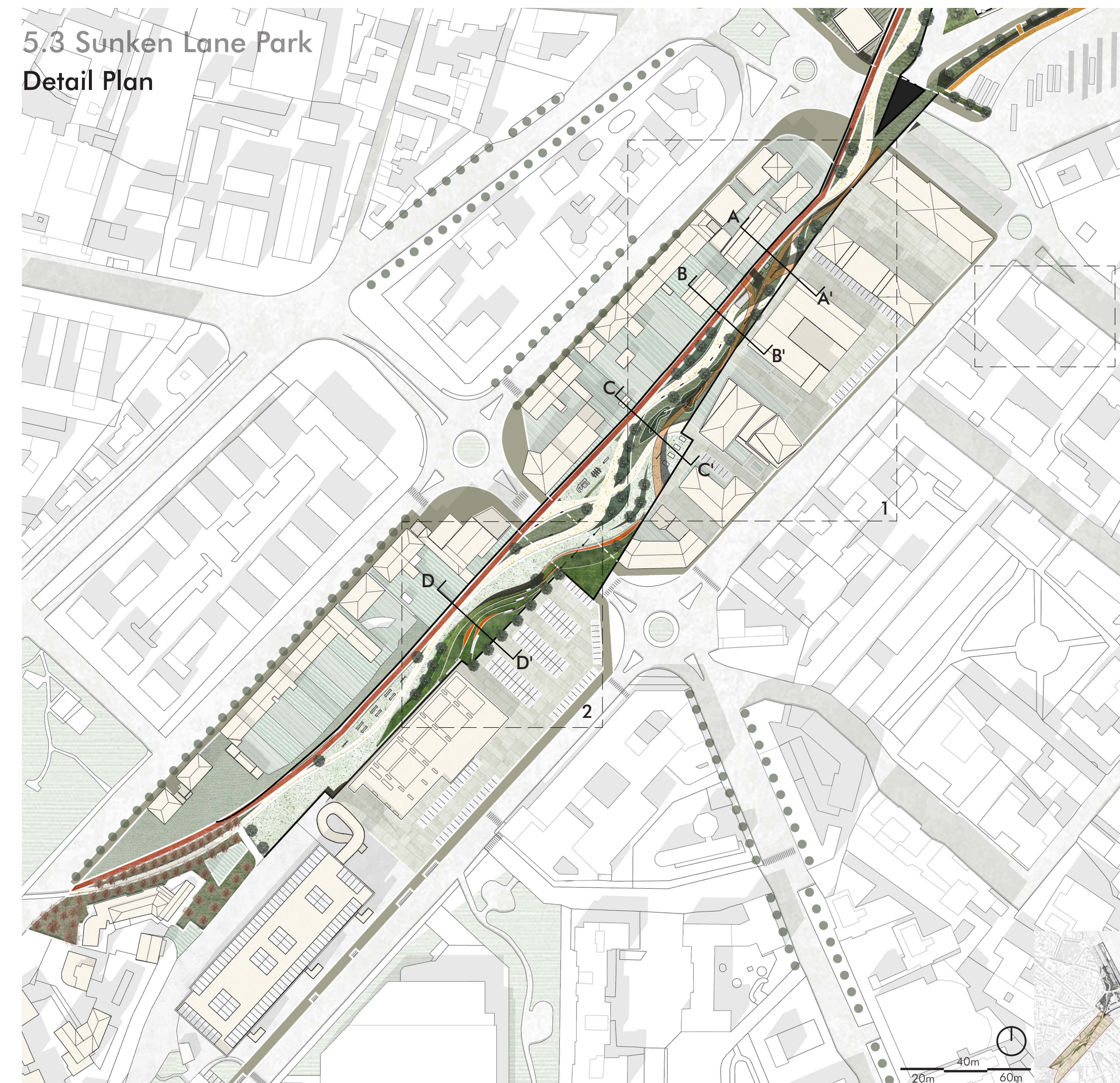
5.2 Community Center Square

5.3 Sunken Lane Park

- Detail Plan
- Comparison of Section
- Detail of Pedestrian Bridge
- Case Study of Material
- Detail of Terraced Landscaping
- Renderings
- Bird-Eye View

5.4 Plant Analysis

5.3 Sunken Lane Park
Detail Plan

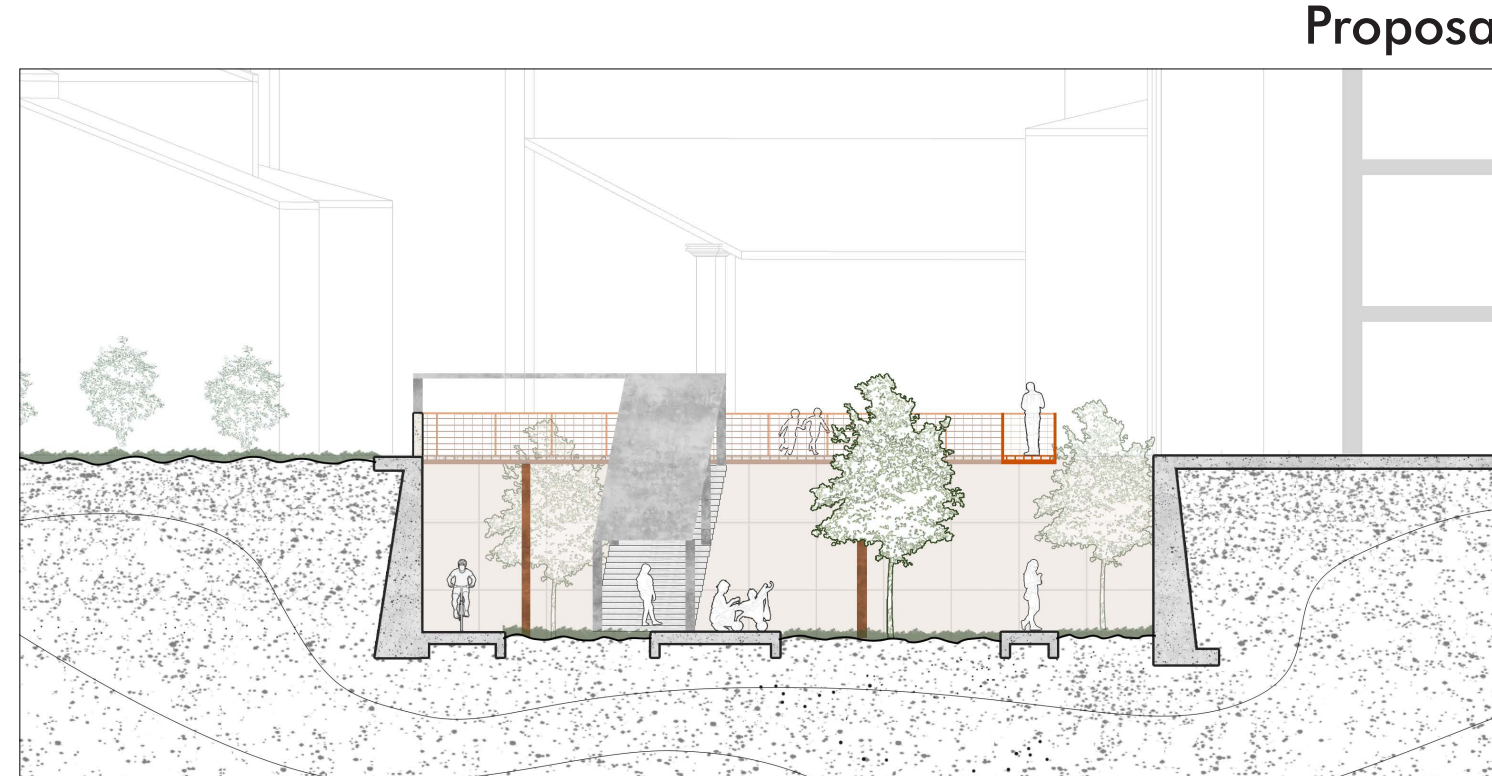
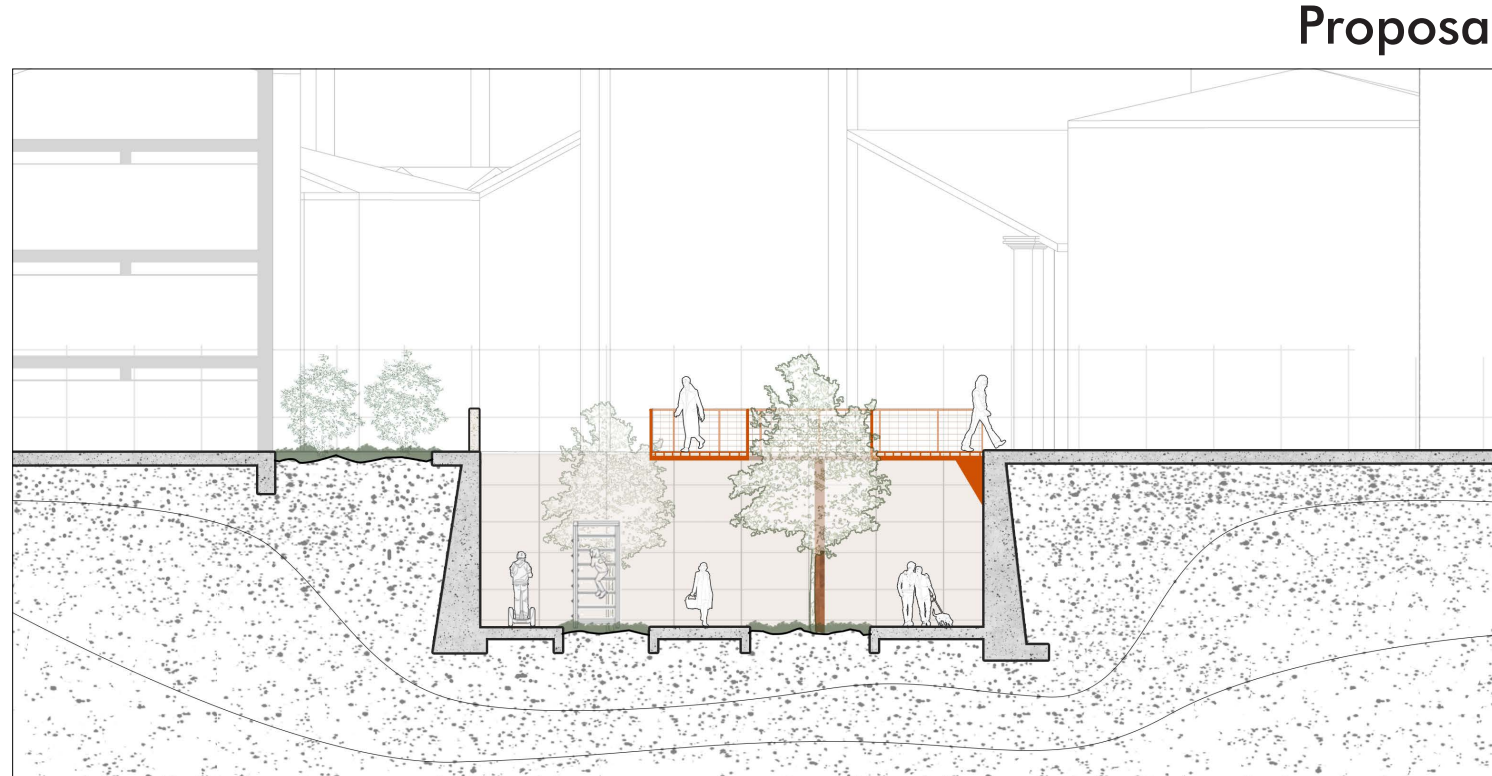
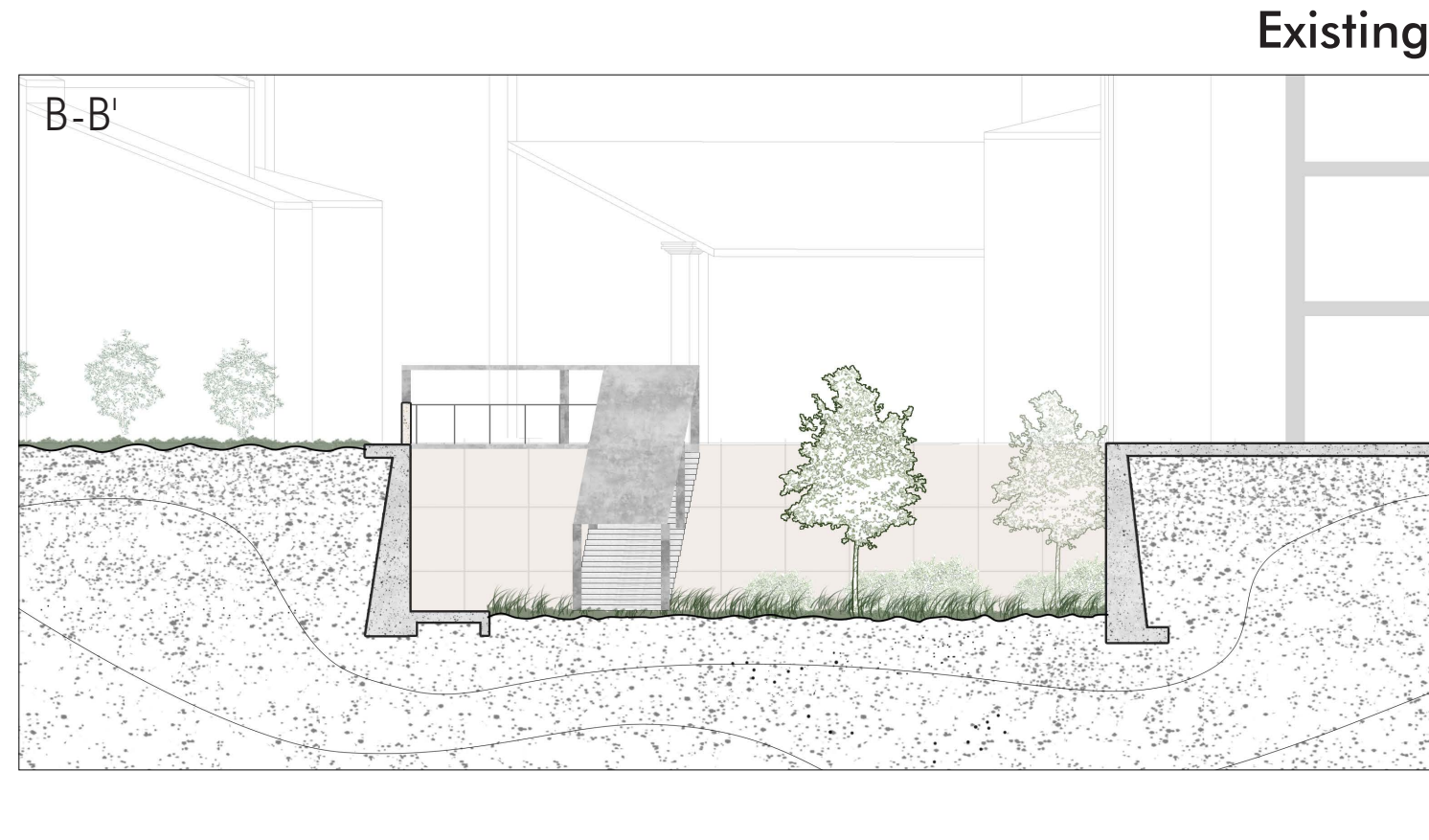
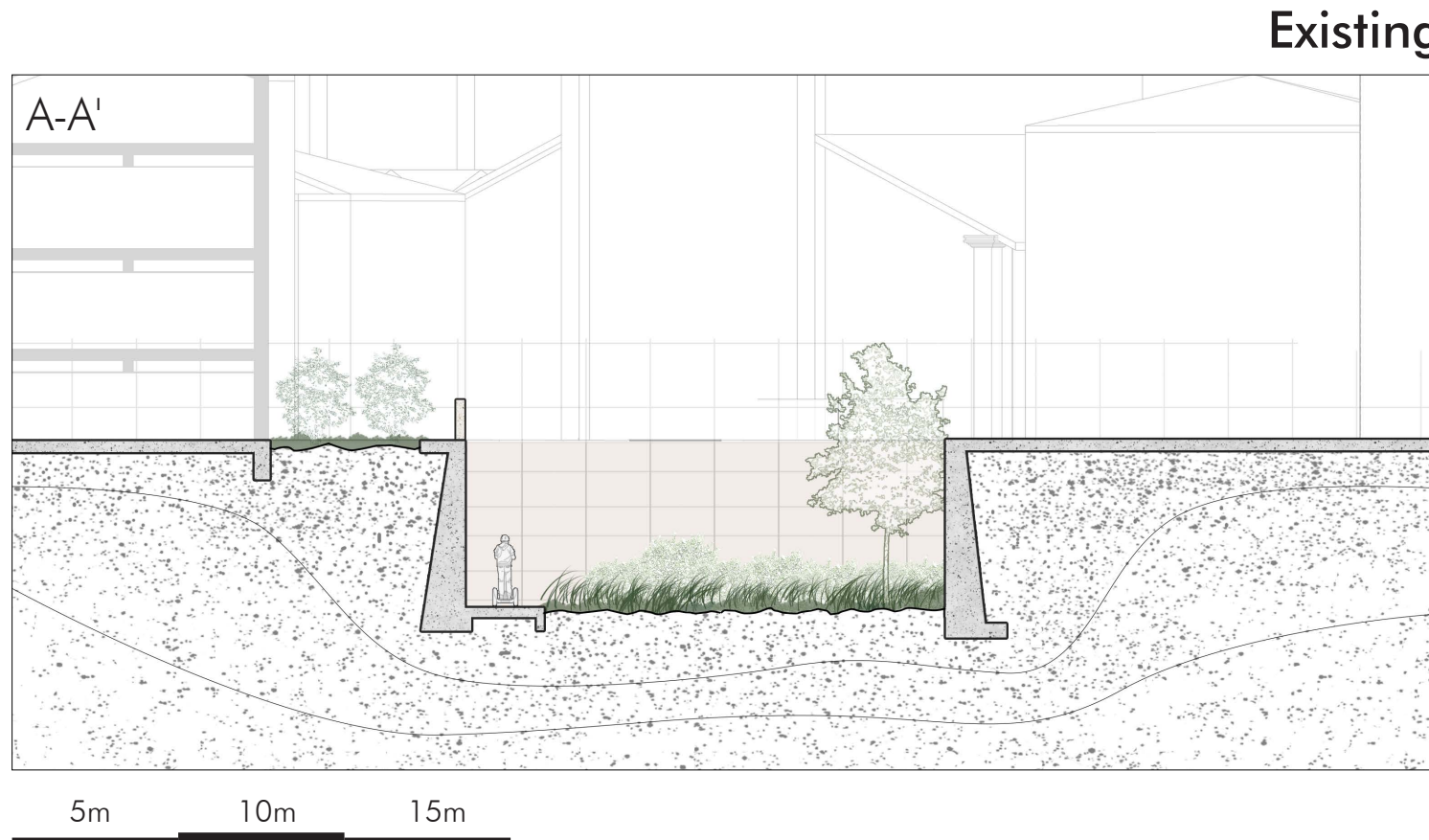


- 1 Outdoor Fitness Area
- 2 Concrete Staircase
- 3 Hill
- 4 Walk Path
- 5 Pingpong Table
- 6 Pedestrian Bridge



- 1 Under-Bridge Space
- 2 Steps
- 3 Seats
- 4 Slope
- 5 Parking Lot

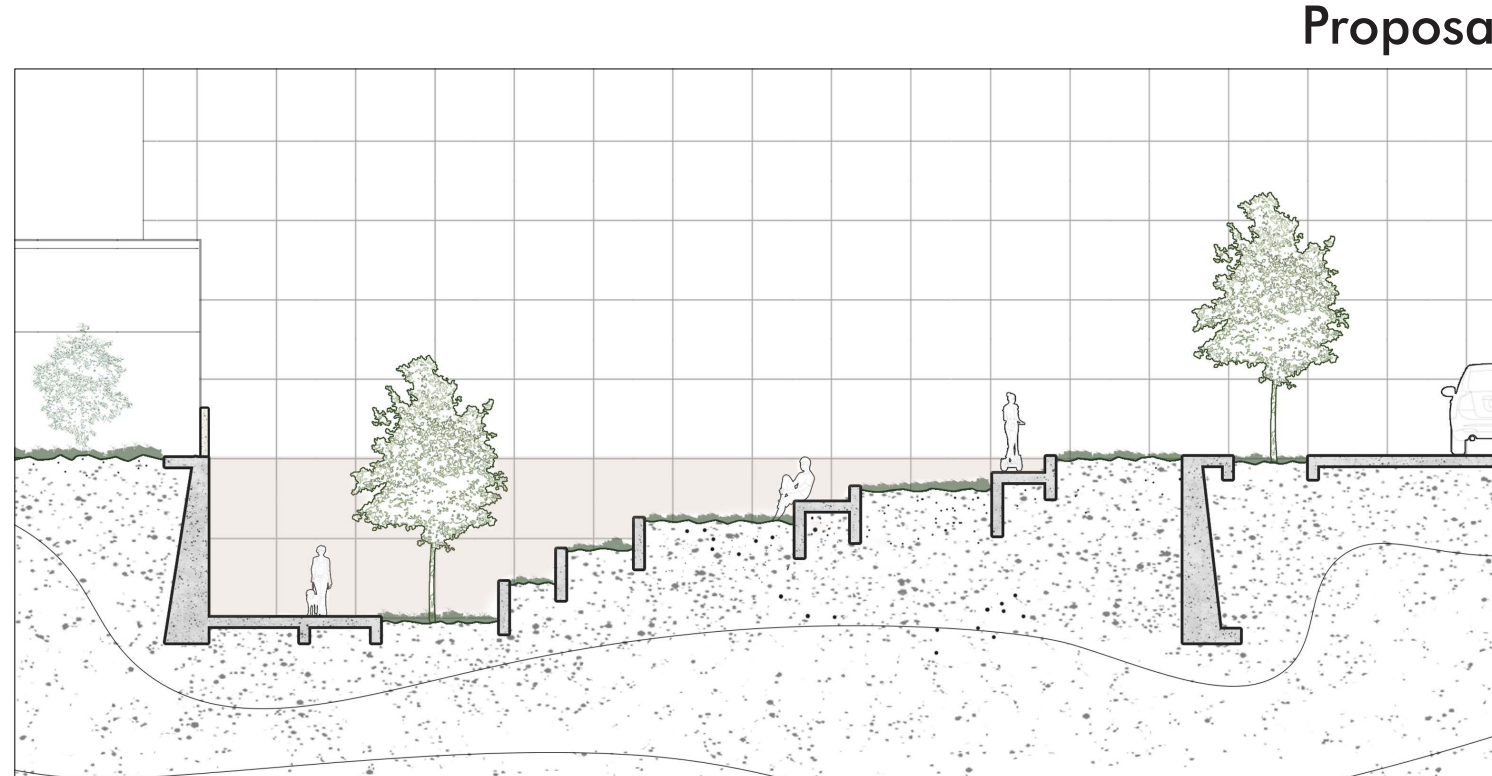
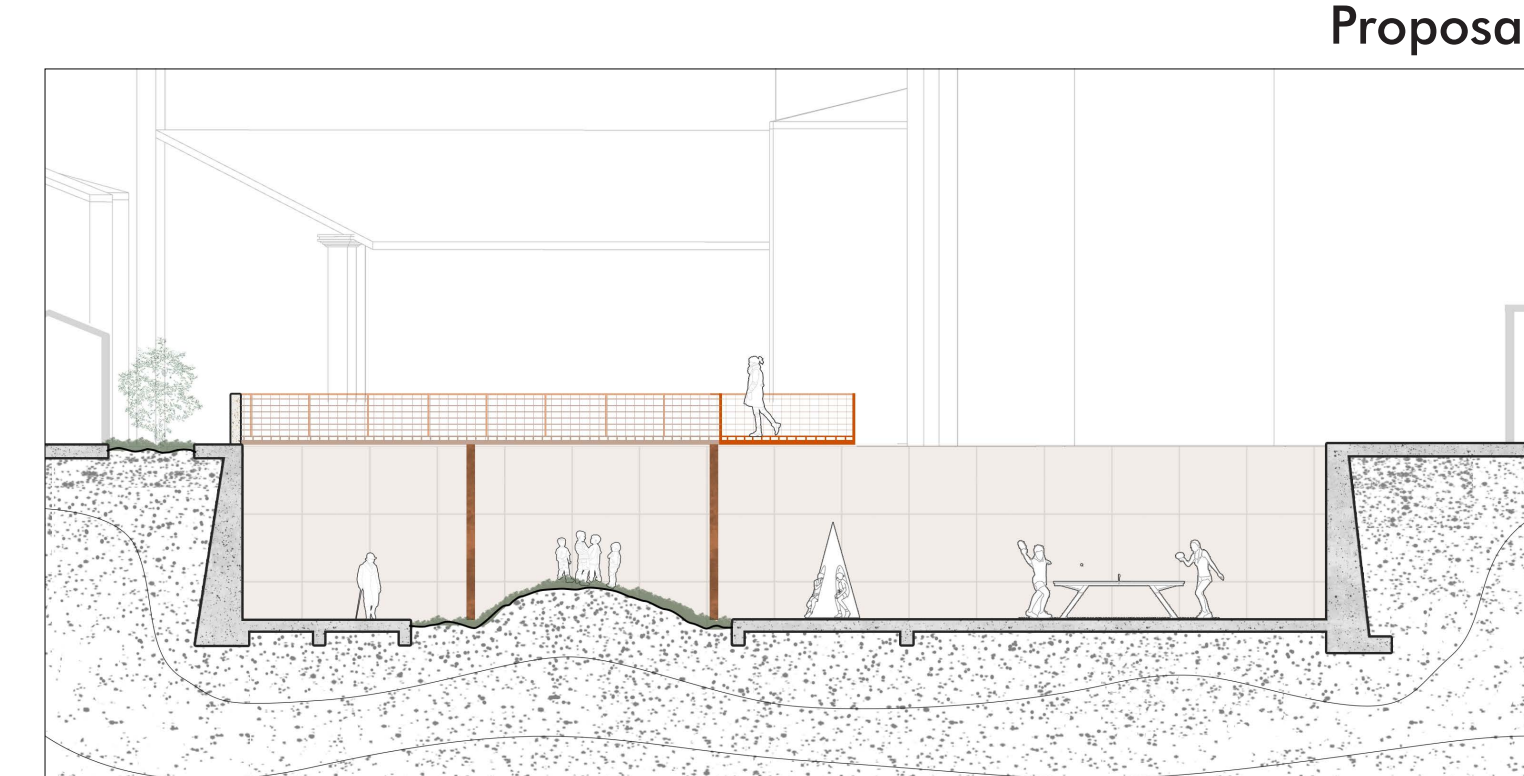
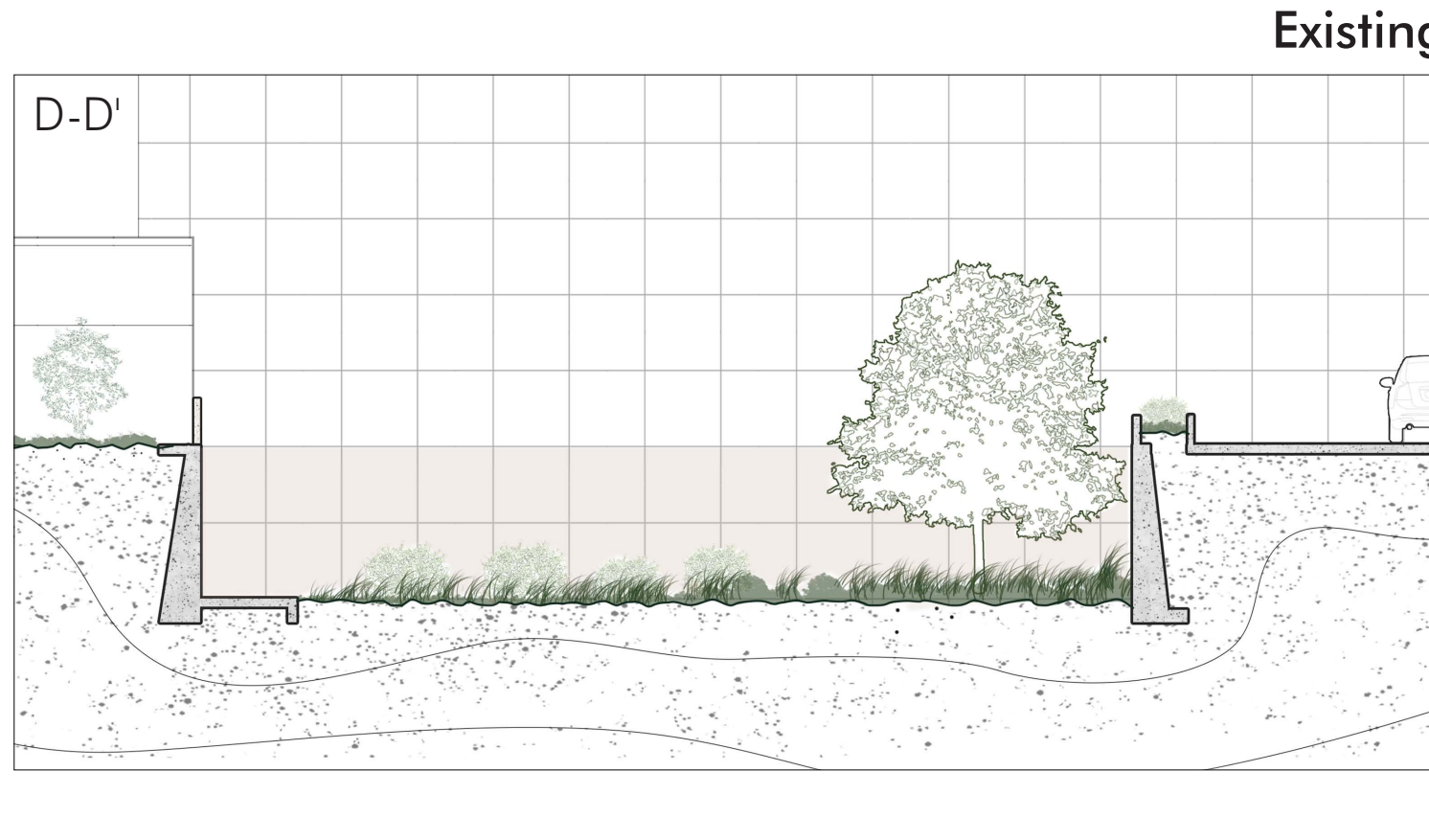
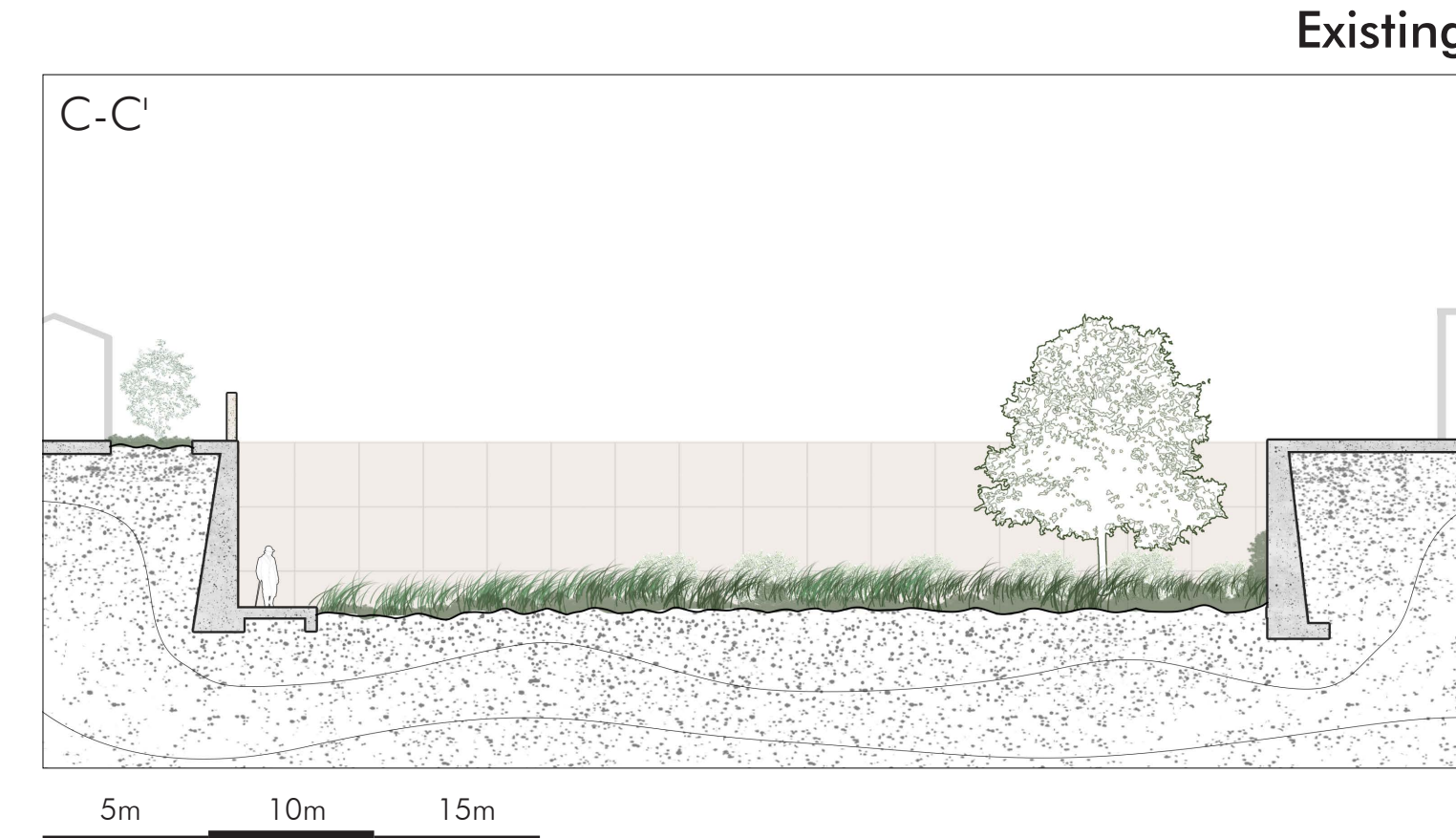
5.3 Sunken Lane Park
Comparison of Section



On the right side of Sunken Lane in this section is a publicly accessible commercial street, serving as one of the entrances to the pedestrian footbridge. This enhances accessibility within the area, and sports facilities have been added within Sunken Lane to promote physical activities for residents.

The existing concrete staircase was abandoned, so we connected the pedestrian bridge to it. The bridge is surrounded by trees, providing a forest-like atmosphere as visitors walk across.

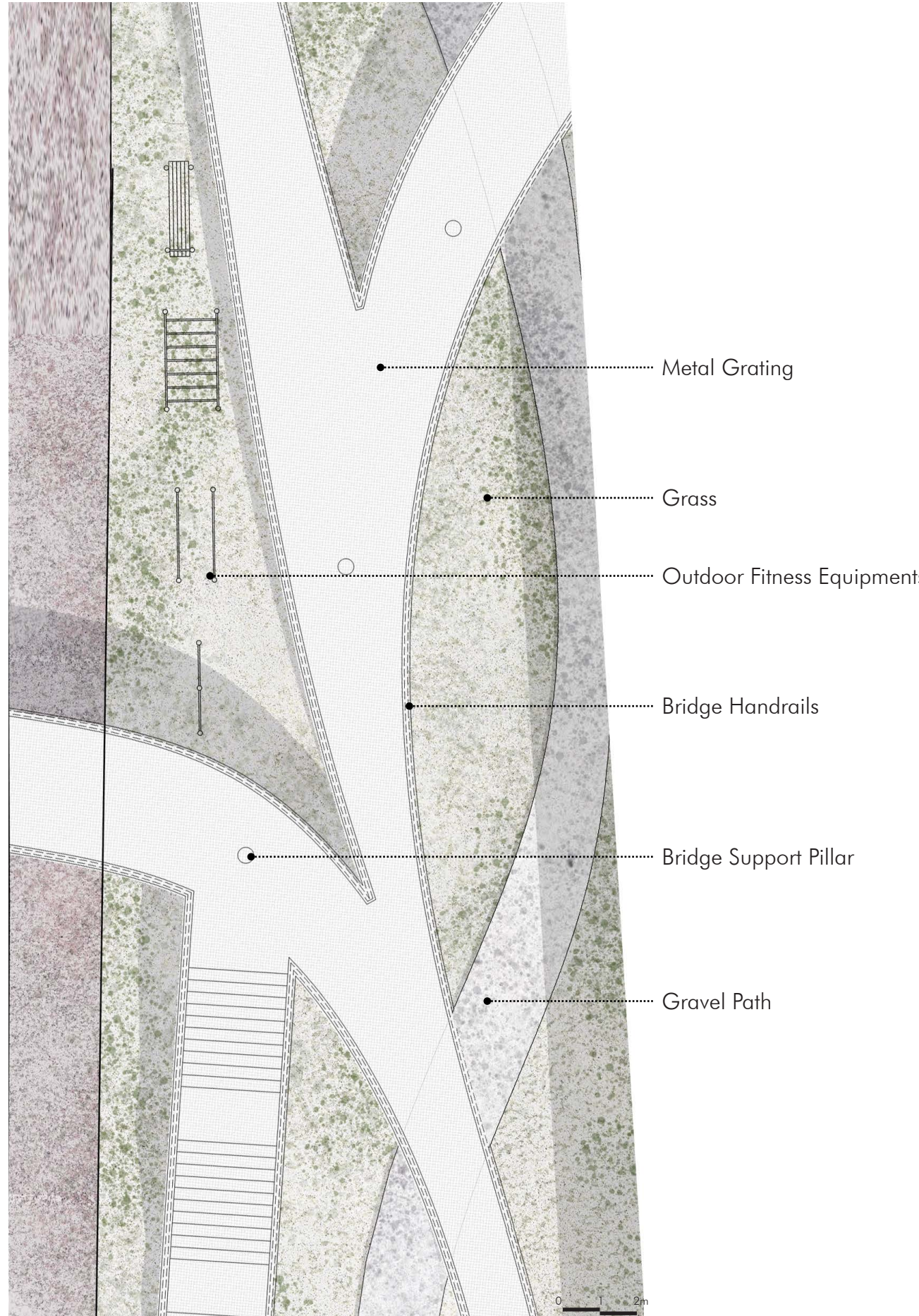
5.3 Sunken Lane Park
Comparison of Section



The sunken lane in this section is quite wide, approximately 30 meters. Therefore, we've added small hills for visitors to play and some installations. Additionally, we've incorporated residents' beloved table tennis activities, significantly enhancing the site's overall enjoyment.

On the right side of this section of Sunken Lane is a public parking lot. We've used natural terracing to guide residents into the area, breaking the enclosed feel of Sunken Lane. The terraced landscape includes seating for leisure and a bicycle lane, catering to citizens' needs.

5.3 Sunken Lane Park Detail of Pedestrian Bridge



- Metal Grating
- Grass
- Outdoor Fitness Equipments
- Bridge Handrails
- Bridge Support Pillar
- Gravel Path

Case Study of Material

"Out on a Limb" Tree Canopy Walk
Morris Arboretum Philadelphia, Pennsylvania



Unique Path Experience
United States



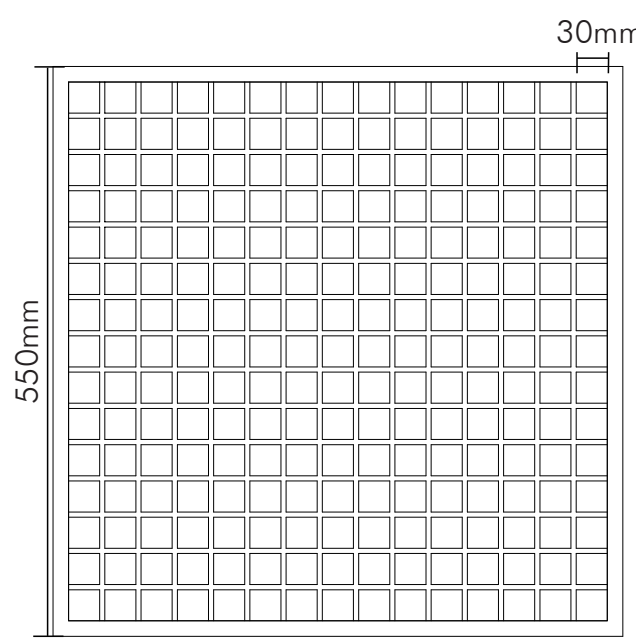
Zig Zag Garden
Antwerp, Belgium



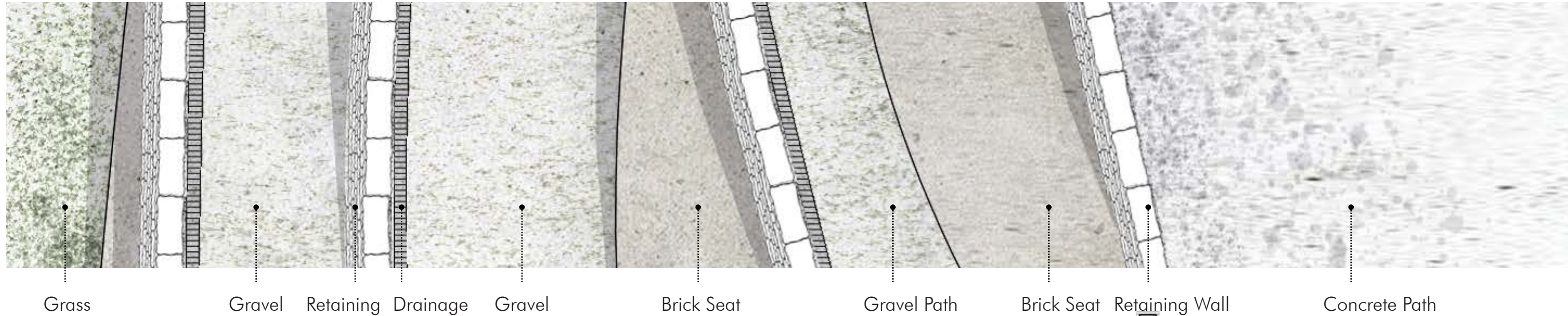
Metal grating, as a common pathway material, has lots of advantages:

- Permeability:** facilitating ground ventilation and drainage, thus avoiding water accumulation and slipping.
- Durability:** capable of withstanding frequent pedestrian traffic and heavy loads, maintaining long-term stability.
- Anti-slip properties:** Metal grating surfaces are often designed to be slip-resistant, enhancing the friction during walking
- Easy to clean and maintain:** The smooth surface of metal grating is easy to clean, resistant to dust and dirt accumulation, and requires simple maintenance
- Malleability:** Metal grating can be cut, bent, and processed according to different design requirements

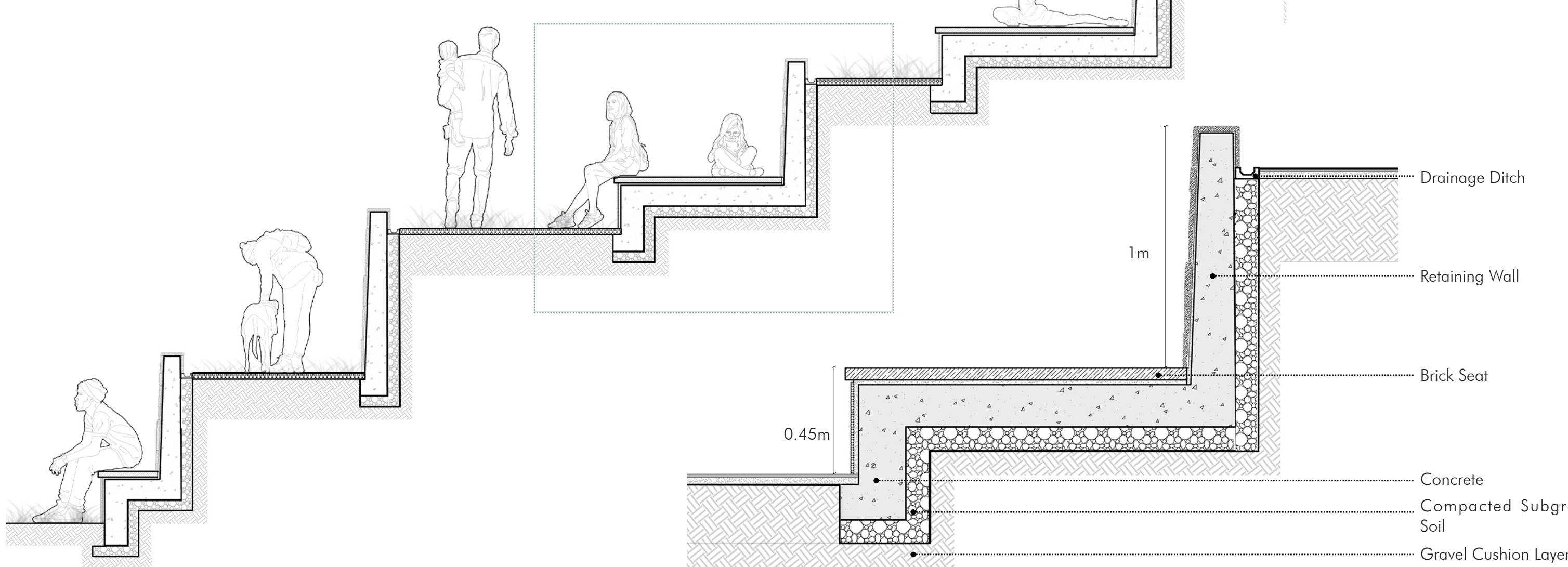
Size of One Metal Grating Unit



5.3 Sunken Lane Park Detail of Terraced Landscaping Plan



Section

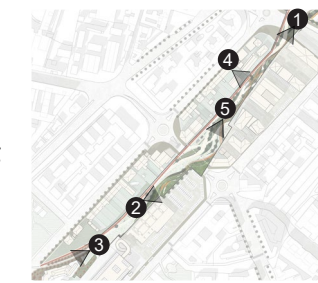


- Drainage Ditch
- Retaining Wall
- Brick Seat
- Concrete
- Compacted Subgrade Soil
- Gravel Cushion Layer

5.3 Sunken Lane Space Renderings



We extended the pedestrian bridge to the existing road, enhancing accessibility and connectivity within the area. By walking on the bridge, residents can observe the activities below and visually engage with others in the vicinity, creating a delightful experience. Additionally, at the end of the road, we designed a space composed of red bamboo, offering a unique experience for citizens and attracting more people to our sunken park.



5.3 Sunken Lane Park Bird-Eye View



06

Zonal Design_Micro

5.1 City Wall Park

5.2 Community Center Square

5.3 Sunken Lane Park

5.4 Plant Analysis

- Basic Information
- Types of Vegetations
- Plant Atmosphere Creation
- Plant Elevation

5.4 Plant Analysis Basic Information

Most of the existing soft materials will be kept, and most of the adding plants will be taken from indigenous species with local provenance to the landscape character of the area. The species chosen should seek to fulfil the following:

1. To be appropriate to the context of the existing vegetation structure.
2. Suitable for the design proposal
3. To be relatively maintenance free once established.













 Existing Species

Tpes	Name	Common Name	Height
Trees	<i>Fraxinus ornus</i>	Manna ash	15-25m
	<i>Lagerstroemia indica</i>	Crape myrtle	3-7m
	<i>Pistacia chinensis</i>	Chinese pistache	10-15m
	<i>Juglans nigra</i>	black walnut	20-30
	<i>Ulmus pumila</i>	Siberian elm	25m
	<i>Populus nigra</i>	Black poplar	30m
	<i>Acer negundo</i>	Manitoba maple	20m
	<i>Robinia pseudoacacia</i>	Black locust	20-25m
	<i>Euonymus europaeus</i>	European spindle	3-6m
	<i>Acer truncatum</i>	Shandong maple	6-8m
	<i>Quercus robur</i>	English oak	10-25m
	<i>Ficus carica</i>	Common fig	3-6m
Shrubs	<i>Euonymus japonicus</i>	Japanese euonymus	2-4m
	<i>Duranta erecta</i>	Pigeon berry	1.5-3m
	<i>Juniperus communis</i>	Common juniper	3-5m
	<i>Corylus avellana</i>	Common hazel	3-8m
	<i>Laurus nobilis</i>	Bay tree	3-8m
Ground Cover Plants	<i>Cirsium arvense</i>	Canada thistle	
	<i>Portulaca oleracea</i>	Purslane	
	<i>Petunia hybrida</i>	Petunia	
	<i>Thymus mongolicus</i>	Mongolian thyme	
	<i>Setaria viridis</i>	Green foxtail	
	<i>Pelargonium hortorum Bailey</i>	Geranium	
	<i>Salvia rosmarinus</i>	Rosemary	
	<i>Leucanthemum vulgare</i>	Oxeye daisy	
	<i>Rosa chinensis</i>	Chinese rose	
	<i>Ophiopogon jaburan Argenteivittatus</i>	Silver Mondo Grass	
Bamboo	<i>Fargesia nitida 'Red Panda'</i>	Red Panda Bamboo	3-6m






5.4 Plant Analysis

Types of Vegetations











Trees

 <i>Fraxinus omus</i>	 <i>Lagerstroemia indica</i>	 <i>Pistacia terebintus</i>	 <i>Juglans nigra</i>
 <i>Ulmus pumila</i>	 <i>Populus nigra</i>	 <i>Acer negundo</i>	 <i>Robinia pseudoacacia</i>
 <i>Euonymus europaeus</i>	 <i>Acer truncatum</i>	 <i>Quercus robur</i>	 <i>Ficus carica</i>

Shurbs

 <i>Euonymus japonicus</i>	 <i>Duranta erecta</i>	 <i>Corylus avellana</i>	 <i>Juniperus communis</i>	 <i>Osmanthus fragrans</i>
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Ground Cover Plants

 <i>Cirsium arvense</i>	 <i>Portulaca oleracea</i>	 <i>Petunia hybrida</i>	 <i>Thymus mongolicus</i>	 <i>Setaria viridis</i>
 <i>Pelargonium hortorum Bailey</i>	 <i>Salvia rosmarinus</i>	 <i>Leucanthemum vulgare</i>	 <i>Rosa chinensis</i>	 <i>Ophiopogon jaburan Argenteivittatus</i>

Bamboo



We have chosen native Italian tree species and emphasized selecting drought-resistant and easy-to-prune varieties to reduce irrigation and maintenance costs. Additionally, we prioritize plants that exhibit color variations, aiming to showcase diverse landscapes throughout the seasons.

5.4 Plant Analysis

Plant Atmosphere Creation

Natural Atmosphere



Low maintenance costs
Such a space can simulate the natural environment and provide conditions suitable for a variety of organisms to inhabit and thrive, thus increasing biodiversity. It can provide habitat and food sources for birds, insects, small mammals, etc., and promote ecological balance.

Semi-natural Atmosphere



Provide air purification, reduce urban heat island effect, and improve microclimate
Such a space can provide people with an environment close to nature, allowing people to feel the beauty and tranquility of nature. It can be a recreational area, walking path or courtyard that allows people to relax, reduce stress and improve mental health.

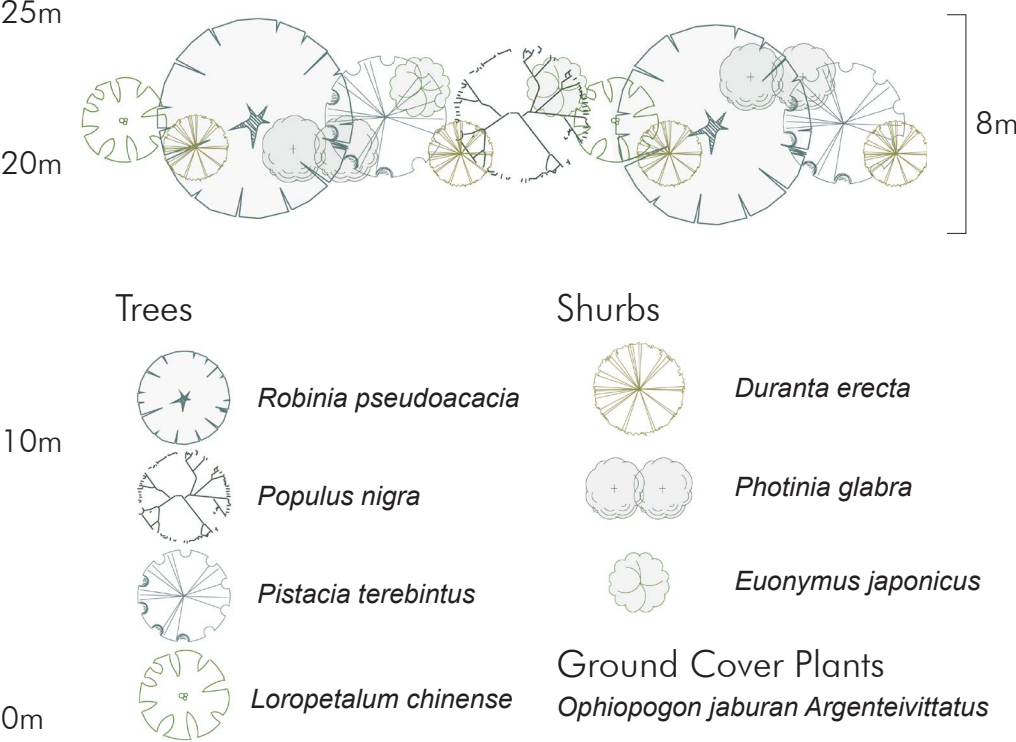
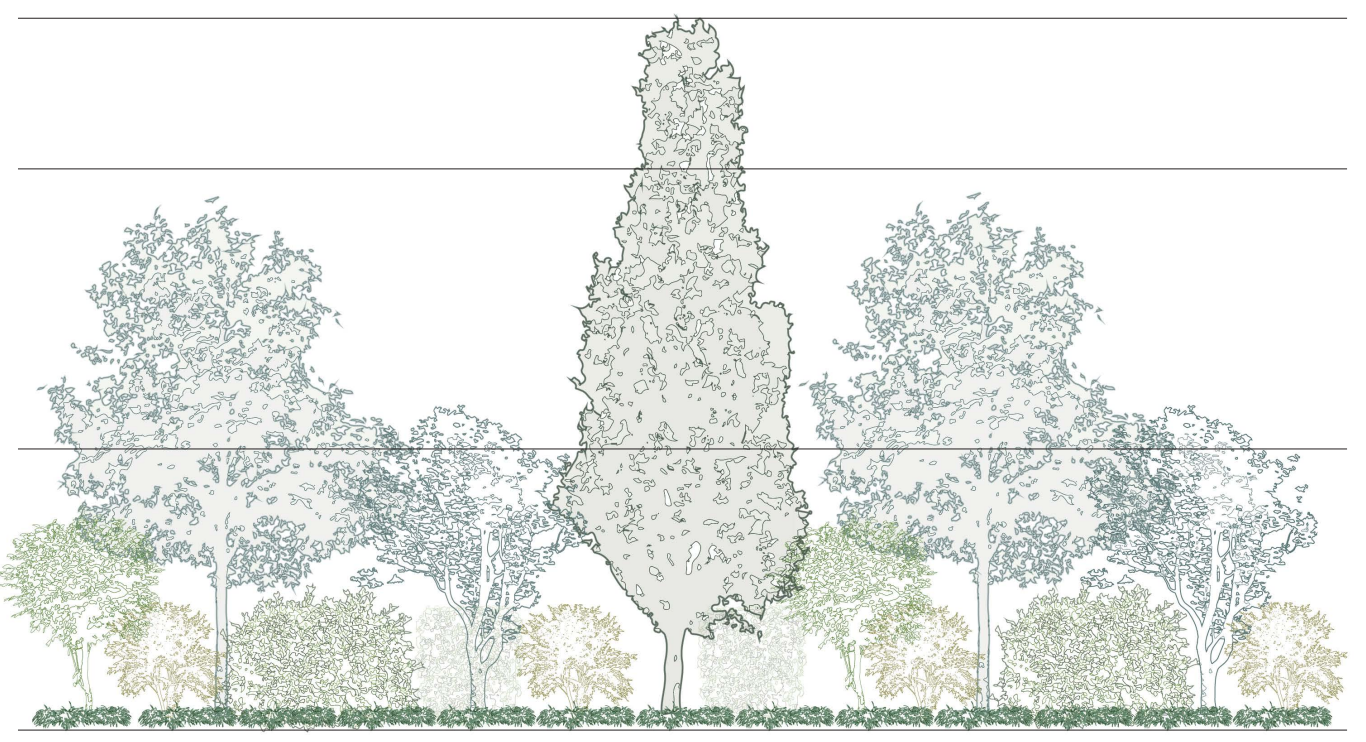
Social Atmosphere



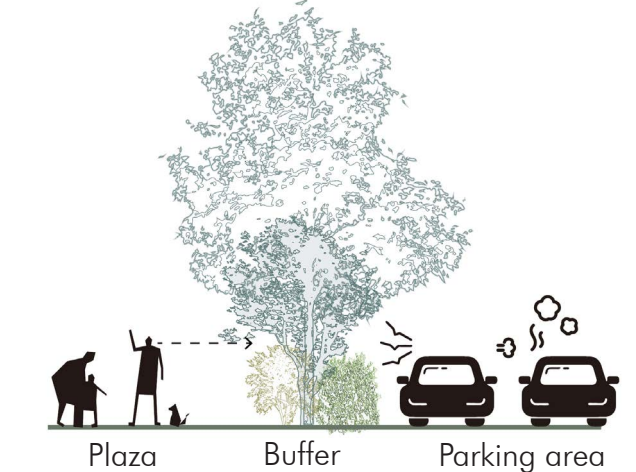
Improve air quality, absorb noise, provide visual barrier
Such a space can provide an open area for people to engage in a variety of diverse activities, such as leisure and entertainment, social gatherings, outdoor sports, etc. The presence of trees can provide shade and green background to the square, increasing comfort and aesthetics

5.4 Plant Analysis Plant Elevation

Model Unit for Tree Lines Composition(Parking Area)

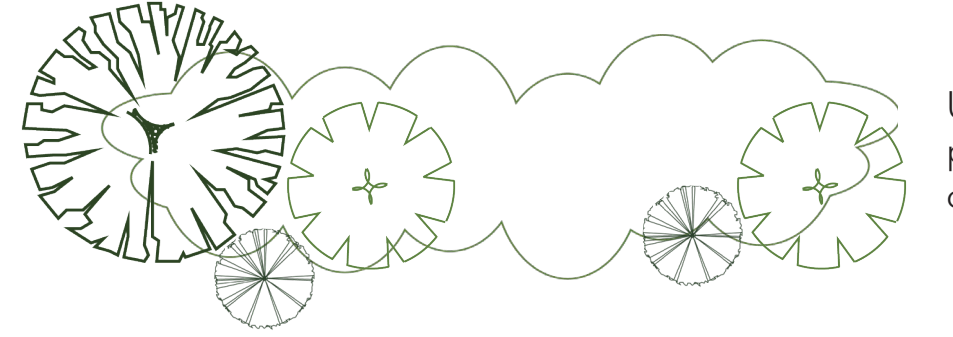
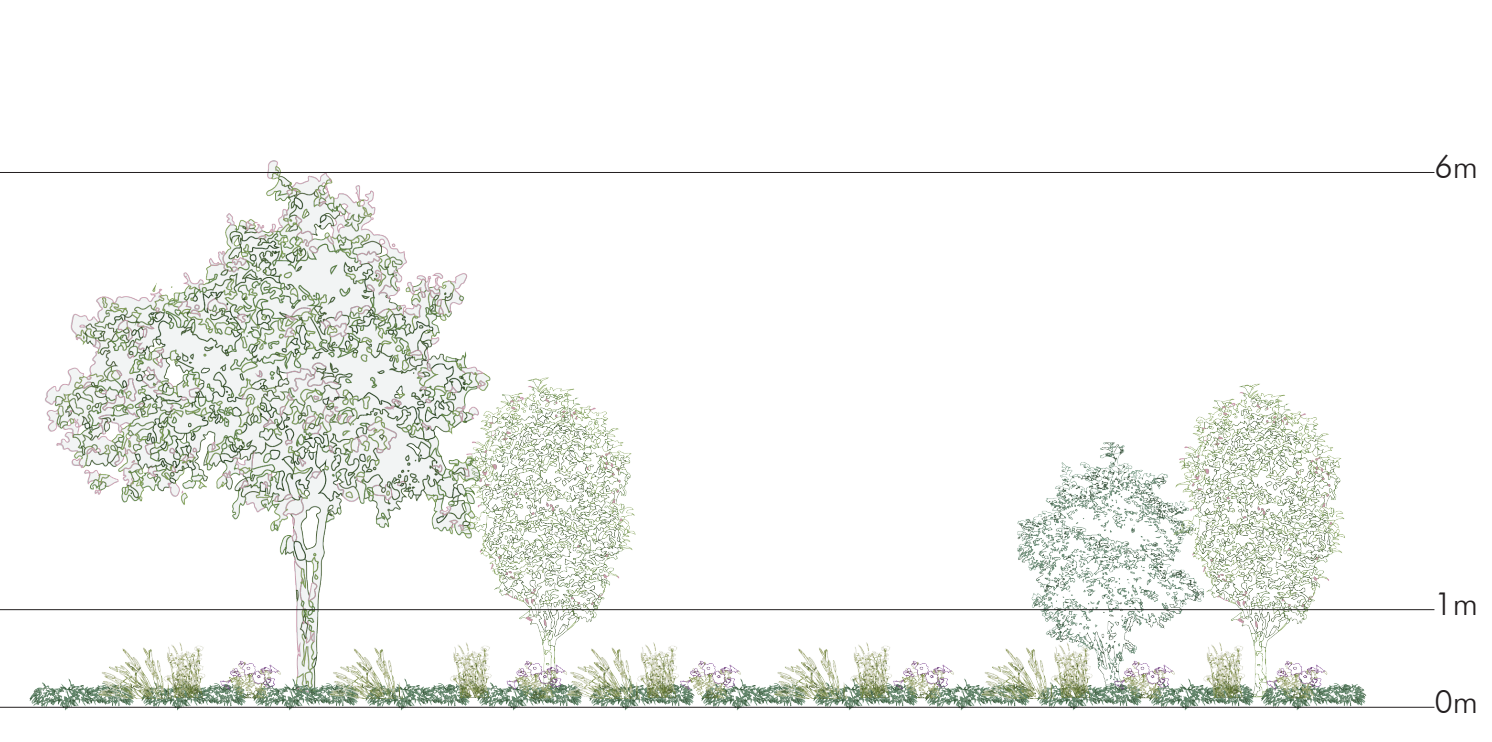


Use trees, shrubs and ground cover to form a buffer between the plaza and the parking area to reduce air pollution and noise generated by cars.



5.4 Plant Analysis Plant Elevation

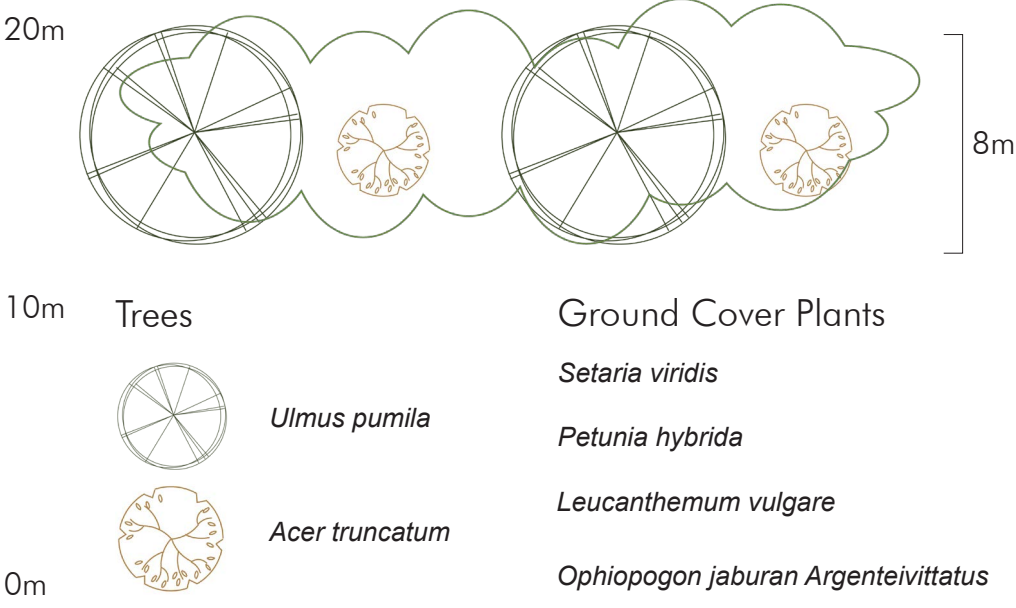
Model Unit for Tree Lines Composition(Fitness Trail)



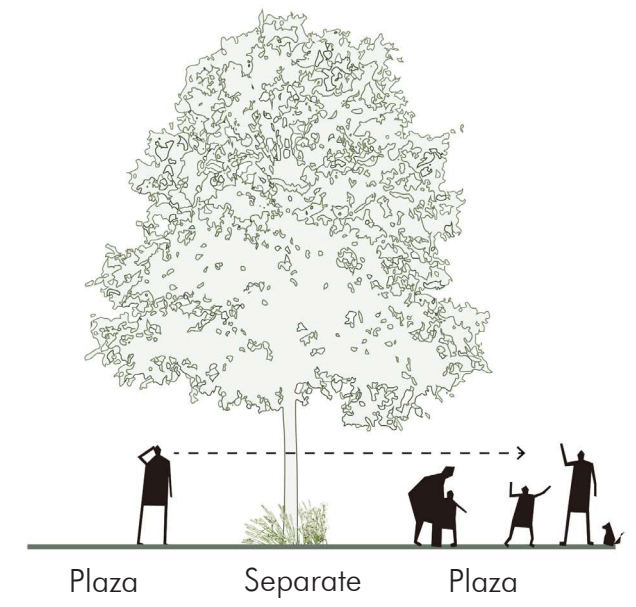
Use aromatic plants and ornamental plants around fitness trails to give citizens a better experience.



Model Unit for Tree Lines Composition(Plaza)



Use tall trees to provide shade for the crowds in the plaza without blocking the views on both sides.



Model Unit for Tree Lines Composition(Bicycle Path)



Use small shrubs as intervals between bike lanes and sidewalks to protect pedestrians.



Conclusion

Before officially launching the site design, we delved into the policy documents of the Piacenza municipal government to gain a profound understanding of Piacenza's overall planning goals and the needs of its citizens. This process was not just a rational analysis but also an emotional commitment to the city, as we knew that designing a space that truly meets the needs of citizens requires care and emotional connection.

Next, we conducted a comprehensive analysis of the site at macro, meso, and micro scales, uncovering a series of issues and challenges. This was not merely a task but a deep experience of urban life, a resonance with every corner and every inch of land. We endeavored to address these issues through design, knowing well the interconnectedness of a thriving city and the joy of its residents.

In the end, through in-depth study of various exemplary cases, we drew inspiration and continuously sought design elements that could satisfy citizen needs and create a sense of delight. Simultaneously, through repeated discussions with professors, our ideas underwent constant refinement and deepening. This has been a time of challenges yet fulfilling and passionate, forming a resonance between us and a shared pursuit of the city's future.

Acknowledgments

In these six months of learning, we express gratitude to our teammates who poured boundless enthusiasm and creativity into this project. We encouraged each other, worked together not only to complete academic tasks but also to create a city space with warmth, emotion, and soul.

Lastly, heartfelt thanks to Prof. Emanuela Dentis, Arch. Mauro Mazzali, and Prof. Giammarco Paris for their careful guidance and encouragement. They were not just supervisors but guiding lights, enabling us to move forward with determination. This process was filled with collisions of thoughts and bursts of inspiration, allowing us to grow continually through exploration.

In the end, we present this grateful response to Piacenza, hoping that our design will inject new vitality into this city. Additionally, we thank Politecnico di Milano for providing us with this platform full of creativity and developmental opportunities, allowing us to journey joyfully in the academic realm. These six months are not just about academic achievements but also the crystallization of friendship, embodying our aspirations and pursuits for the future.

Reference

- Badawi S. Sustainable approach for developing local mixed-use streets Case study Beit Al Maqdis Street in Jeddah[J]. *Procedia Environmental Sciences*, 2017, 37: 374-385.

- Zhu M, Sze N N, Newnam S, et al. Do footbridge and underpass improve pedestrian safety? A Hong Kong case study using three-dimensional digital map of pedestrian network[J]. *Accident Analysis & Prevention*, 2023, 186: 107064.

-Aljoufie M. Examining the challenges of bicycle use in Jeddah city[J]. *Procedia Environmental Sciences*, 2017, 37: 269-281.

- Anastasiadou K, Gavanas N. Enhancing urban public space through appropriate sustainable mobility policies. A multi-criteria analysis approach[J]. *Land Use Policy*, 2023, 132: 106765.

- Hartig T, Mang M, Evans G W. Restorative effects of natural environment experiences[J]. *Environment and behavior*, 1991, 23(1): 3-26.

- Giles-Corti B, Broomhall M H, Knuiaman M, et al. Increasing walking: how important is distance to, attractiveness, and size of public open space?[J]. *American journal of preventive medicine*, 2005, 28(2): 169-176.

- Holman C D, Donovan R J, Corti B. Factors influencing the use of physical activity facilities: results from qualitative research[J]. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals*, 1996, 6(1): 16-21. 24

-Tinsley H E A, Tinsley D J, Croskeys C E. Park usage, social milieu, and psychosocial benefits of park use reported by older urban park users from four ethnic groups[J]. *Leisure sciences*, 2002, 24(2): 199-218. 17

- Pérez-Tejera F, Anguera M T, Guàrdia-Olmos J, et al. Examining perceived safety and park use in public open spaces: The case of Barcelona[J]. *Journal of Environmental Psychology*, 2022, 81: 101823.

- Zgłobicki W, Poesen J, De Geeter S, et al. Sunken lanes-Development and functions in landscapes[J]. *Earth-Science Reviews*, 2021, 221: 103757.

- <http://www.piacenzantica.it/page.php?300>

Junyan Chen :junyan.chen @mail.polimi.it

Shengxia Huang: huangshengxia@126.com