Transforming Aguas Negras

Enhancing Security and Growth in Vulnerable Neighborhoods.

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Abstract

The project aims to explore strategies to transform Aguas Negras, a vulnerable neighborhood located in the City of Curicó in Chile, into an accessible, active and safe urban area. To achieve this goal, the different phases of the integrated design process were followed.

The analysis of the site showed that it faces multiple challenges in terms of accessibility and identity. Multiple public spaces within the neighborhood are underutilized and suffer from inadequate maintenance. However, the analysis and the community engagement process showed the great potential of the site. Aguas Negras has an abundance of public spaces that can be revitalized, and the presence of the Guaiquillo stream along the neighborhood's edge represents an opportunity for environmental and social enhancement. Furthermore, the existence of an active community offers a solid foundation for collaborative administration and long-term sustainability of public spaces.

After identifying its drawbacks and potential, a design proposal following four principals was made: First, Accessibility: the creation of inclusive and legible designed public spaces. Second, Low-Maintenance Solutions: the use of durable materials and resilient vegetation to ensure sustainability with minimal upkeep. Third, Safety through Lighting: the incorporation of adequate lighting to improve visibility and foster a sense of security during nighttime hours. Finally, Identity through Function: the development of spaces that reflect local culture and everyday practices, reinforcing a sense of belonging for the community.

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Preface

This report has been written as a 30 ECTS semester project at the Department of Architecture, Design, and Media Technology at Aalborg University. The focus of this semester is to apply the knowledge gained throughout the master's program by addressing challenges related to water management, urban mobility, and site morphology. The project explores practical approaches to transforming vulnerable neighborhoods by incorporating local identity, enhancing functionality and universal accessibility, and promoting environmentally friendly design. Its main goal is to foster a strong sense of belonging within communities and improve citizens' quality of life and opportunities.

This work was carried out with the guidance and support of supervisor Ida Sofie Gøtzsche Lange. Special thanks go to the Municipality of Curicó and the presidents of the Villa Santos Martínez and Los Cisnes community boards in Aguas Negras for generously sharing their valuable knowledge and experiences about the neighborhood and its surroundings.

01.

Preliminary

Ill. 01: Picture of a wasteland near the stream. *Source: Own elaboration, 2025.*

A foundation for understanding the intervention

01.1 Motivation

Following the social crisis in Chile in October 2019, the social inequalities in the country became undeniably evident, affecting various sectors, including healthcare, education, and culture; however, another form of inequality goes unnoticed and is rarely discussed: territorial disparities and segregation. This inequality manifests in the differences between neighborhoods, where opportunities, services, and access to resources are unequal. The living environment in these marginalized areas significantly impacts residents' quality of life and social integration. Urban design can be crucial in reducing these disparities by fostering inclusivity, enhancing living conditions, and strengthening connections within communities and the city.

01.2 Framework

This Project is framed within the context of vulnerable neighborhoods and their unique characteristics, highlighting problems that affect most cities in developing countries nowadays. It aims to bring this matter and address it through urban design solutions.

The Project focuses on the neighborhood scale, identifying key issues and developing solutions to implement in the selected area. At the same time, it seeks to serve as a replicable model, providing a foundation for similar interventions in other neighborhoods facing similar challenges. In addition, a strategic plan is being developed to improve the connectivity and vitality of the area.

Limitations

This Project does not seek to solve systematic issues such as poverty, crime, or housing deficiencies, as these problems extend beyond the urban context and require broader socioeconomic and political interventions. However, it does aim to improve the quality of life, social cohesion, and opportunities for the residents through strategic urban interventions.

01.3 Introduction

The uncontrolled growth of many cities in developing countries is accompanied by a lack of urban planning and territorial management. This has resulted in the creation of slums, where inequality and social fragmentation are evident, where equal opportunities exist, and where the people who live there lack a sense of belonging (CEPAL, 2017). These territorial disparities are particularly evident across numerous Latin American cities. In this context, **the present project seeks to develop an urban design proposal for Aguas Negras, a neighborhood located in Curicó, Chile. The purpose is to transform the site into an accessible, safe, and active area, characterized by multifunctional public spaces that encourage the local identity and a sense of belonging.**

This design proposal is supported with thorough analysis and theoretical framework. It draws inspiration from the Proyectos Urbanos Integrales (Integrated Urban Projects) implemented in Medellín, Colombia, an approach based on principles of urban acupuncture, which seeks to transform entire communities through targeted interventions in smaller, strategic areas.

The proposal also incorporates principles from Crime Prevention Through Environmental Design (CPTED), given that Aguas Negras is situated in one of the more unsafe areas of Curicó. The aim is to create a secure environment where residents can fully enjoy and take ownership of their public spaces. Additionally, the concept of placemaking is employed to encourage social interaction and strengthen both local identity and community ties.

The analysis serves to better comprehend and grasp the complexity of Aguas Negras. The combination of the theory and analysis will lead to the creation of the design proposal, which is not intended to be the final stage in the development of the area, but rather as a point of departure, an initial step toward inclusive urban regeneration and a potential model for similarly vulnerable communities.

01.4 Problem statement

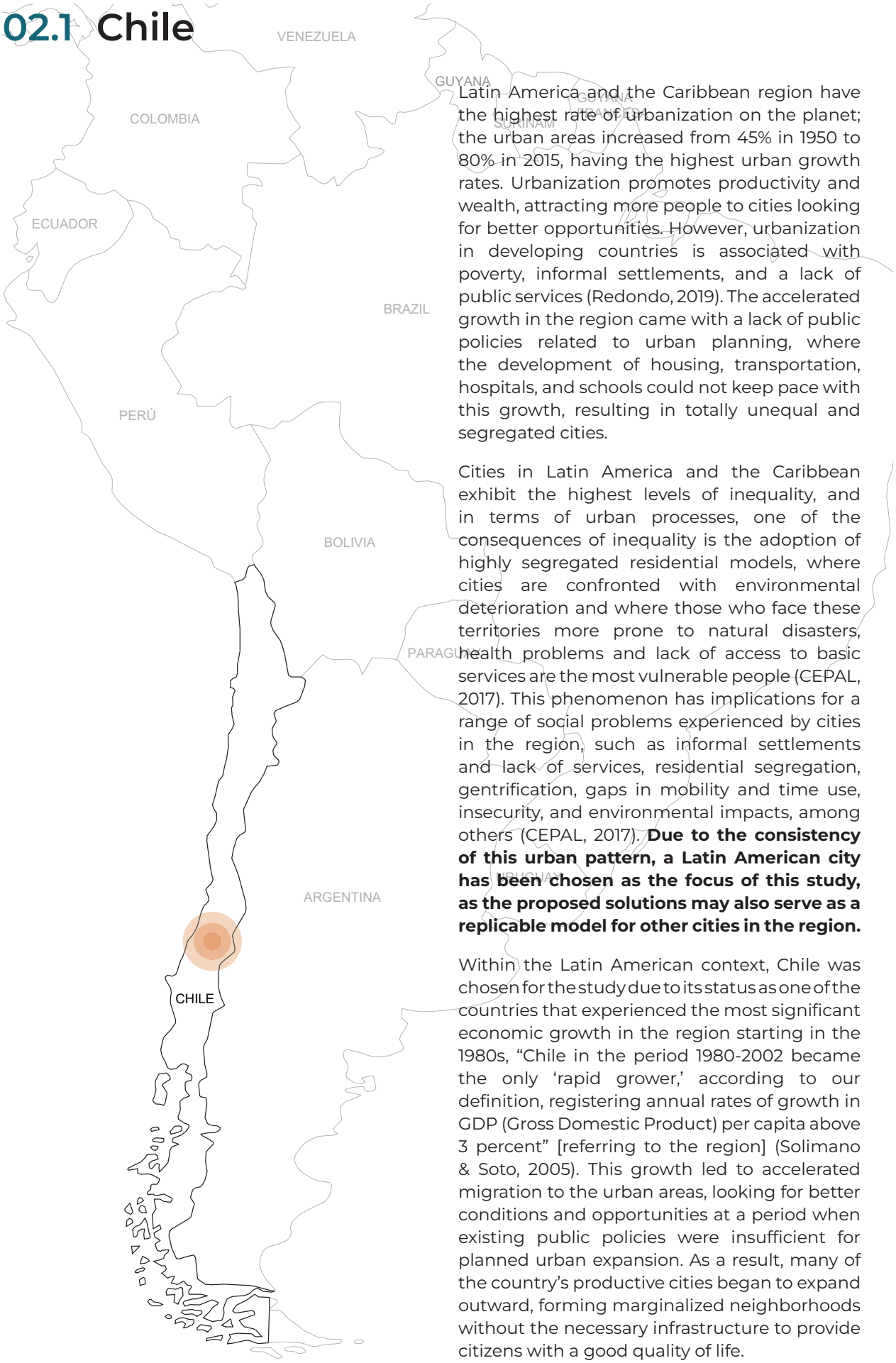
How can Aguas Negras be transformed into an accessible area with high-quality public spaces that enhance security and foster community cohesion?

02.

Getting to know Curicó

Ill. 02: Picture of a view point at Carlos Condell Hill. *Source: Own elaboration, 2025.*

02.1 Chile



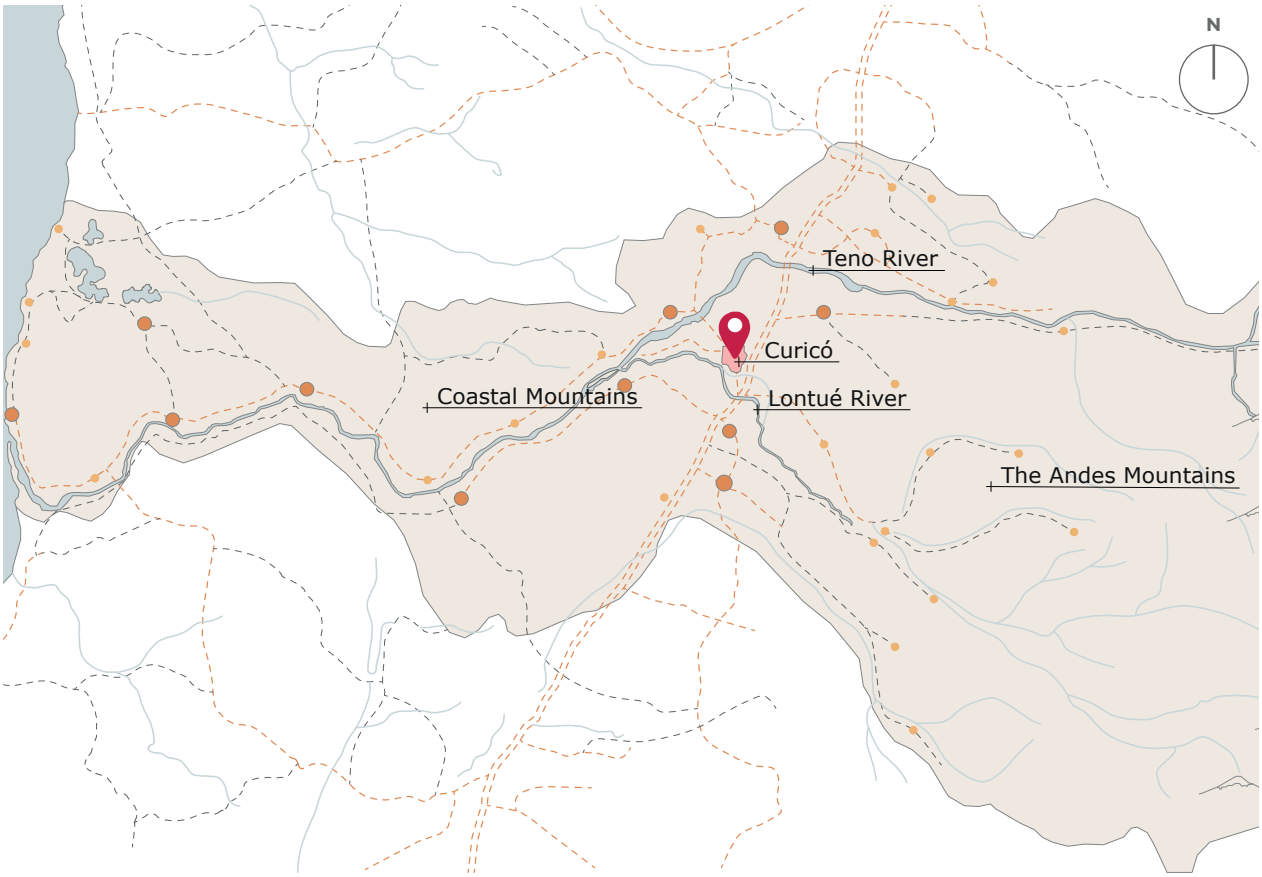
Ill. 03: Map of Southamerica. *Source: Own elaboration, 2025.*

Latin America and the Caribbean region have the highest rate of urbanization on the planet; the urban areas increased from 45% in 1950 to 80% in 2015, having the highest urban growth rates. Urbanization promotes productivity and wealth, attracting more people to cities looking for better opportunities. However, urbanization in developing countries is associated with poverty, informal settlements, and a lack of public services (Redondo, 2019). The accelerated growth in the region came with a lack of public policies related to urban planning, where the development of housing, transportation, hospitals, and schools could not keep pace with this growth, resulting in totally unequal and segregated cities.

Cities in Latin America and the Caribbean exhibit the highest levels of inequality, and in terms of urban processes, one of the consequences of inequality is the adoption of highly segregated residential models, where cities are confronted with environmental deterioration and where those who face these territories more prone to natural disasters, health problems and lack of access to basic services are the most vulnerable people (CEPAL, 2017). This phenomenon has implications for a range of social problems experienced by cities in the region, such as informal settlements and lack of services, residential segregation, gentrification, gaps in mobility and time use, insecurity, and environmental impacts, among others (CEPAL, 2017). **Due to the consistency of this urban pattern, a Latin American city has been chosen as the focus of this study, as the proposed solutions may also serve as a replicable model for other cities in the region.**

Within the Latin American context, Chile was chosen for the study due to its status as one of the countries that experienced the most significant economic growth in the region starting in the 1980s, “Chile in the period 1980-2002 became the only ‘rapid grower,’ according to our definition, registering annual rates of growth in GDP (Gross Domestic Product) per capita above 3 percent” [referring to the region] (Solimano & Soto, 2005). This growth led to accelerated migration to the urban areas, looking for better conditions and opportunities at a period when existing public policies were insufficient for planned urban expansion. As a result, many of the country’s productive cities began to expand outward, forming marginalized neighborhoods without the necessary infrastructure to provide citizens with a good quality of life.

02.2 Curicó, Chile

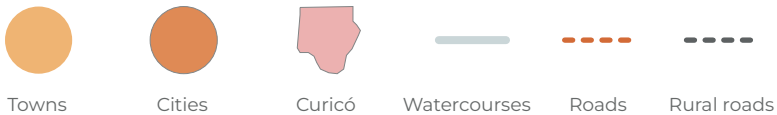


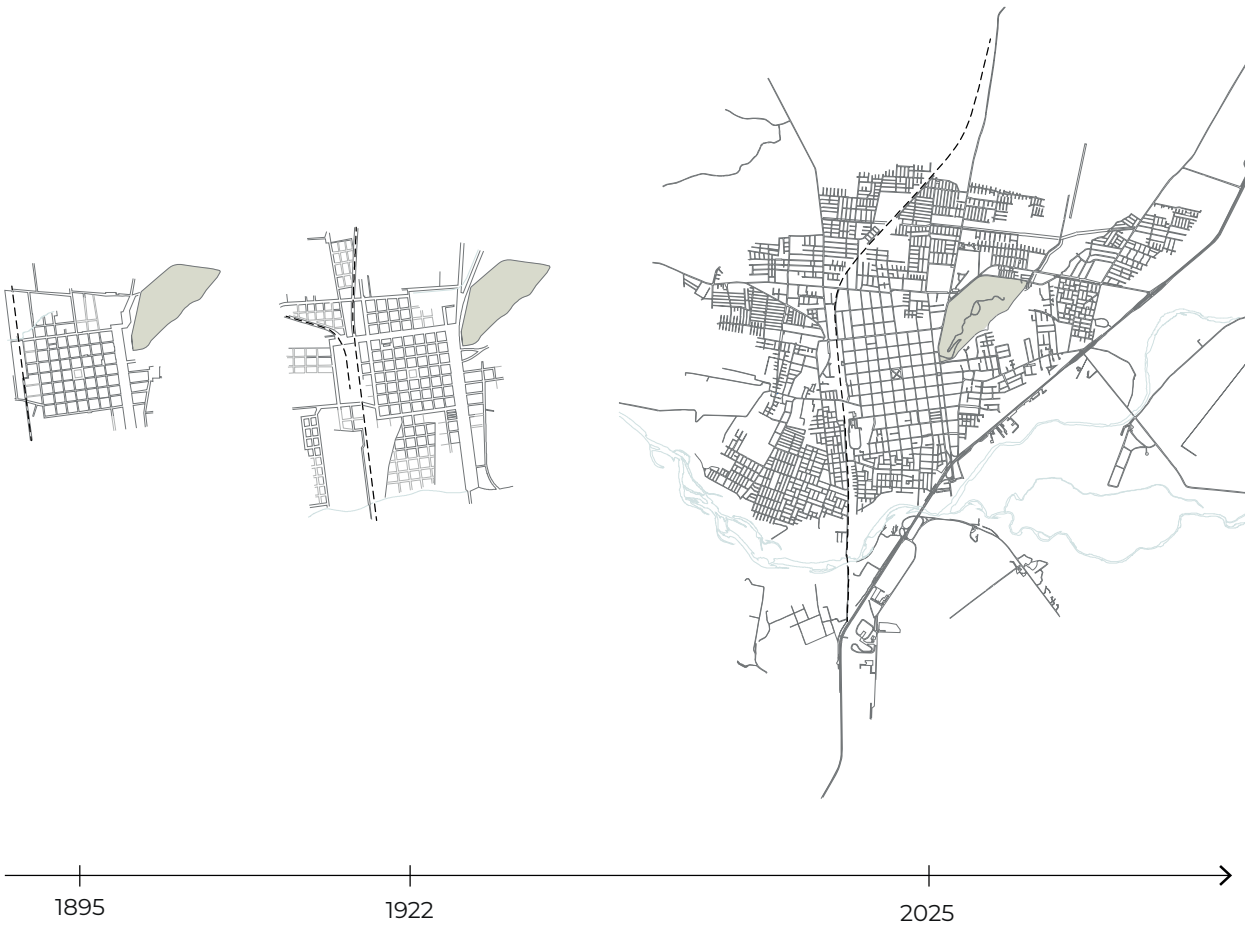
Ill. 04: Curico's region map (Maule region). *Source: Own elaboration, 2025.*

Latin America exhibits significant territorial disparities, particularly in living conditions across cities within the same country. Socioeconomic development tends to be concentrated in national capitals or major metropolitan areas (CEPAL, 2017). Therefore, working with a mid-sized city that reflects common structural and developmental patterns enables the creation of replicable urban models. Curicó was selected for this purpose, as the same type of city, in terms of size, appears repeatedly (INE, 2024), and presents typical challenges related to urban growth.

Founded on October 9, 1743, Curicó is located in the Maule Region and has an estimated population of 159,968, with over 70% residing in urban areas (INE, 2024). The city covers an area of 1,328.8 km² at an elevation of 208 meters above sea level, situated in the central valley between the Andes and the Coastal Mountains. The Teno and Lontué rivers define its northern and southern boundaries, converging into the Mataquito River, one of the region's main waterways. Additionally, the Guaiquillo stream flows south of the city before joining the Mataquito.

Curicó has a Mediterranean climate, characterized by dry summers with average temperatures of 22.1 °C and wet winters averaging 8 °C. Annual precipitation totals 327.2 mm, with rainfall concentrated in winter (Dirección Meteorológica de Chile, 2021). The local economy is primarily agricultural, focused on fruit cultivation and export, alongside a prominent wine industry serving both domestic and international markets. (Oficina de Estudios y Políticas Agrarias [ODEPA], n.d.)(ProChile, n.d.).



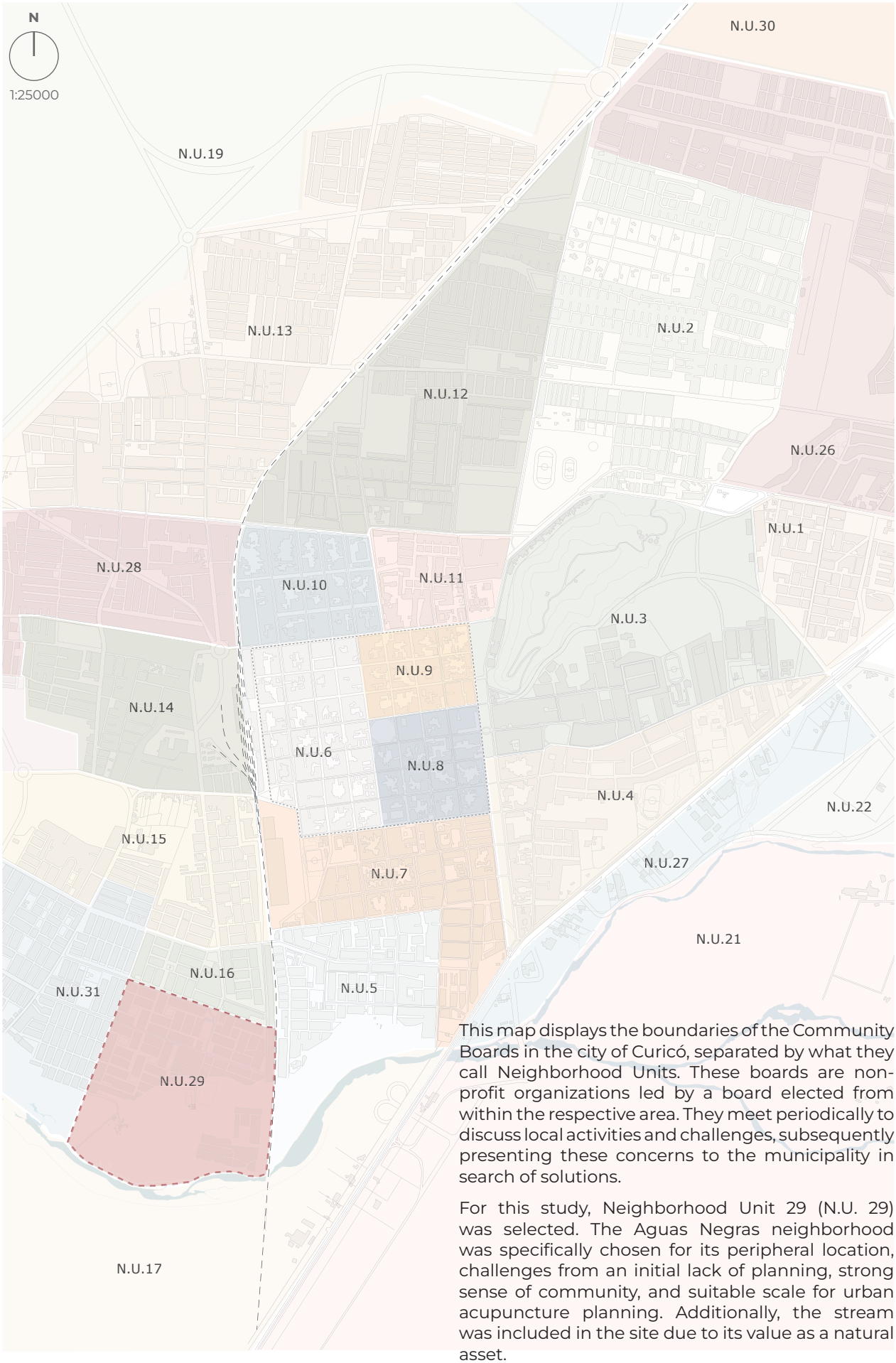


Ill. 05: Urban growth of the city. *Source: Own elaboration, 2025. Based on Biblioteca Nacional de Chile for 1895 and 1922 map.*

Urban Growth of Curicó

The maps illustrate the city's growth from 1895 to 1935 and into the present day, showing consistent growth over time. A significant phase of expansion occurred after 1980 due to the economic growth that the country experienced after the market opening implemented by the government in power (Solimano & Soto, 2005). This urban growth was accompanied by the city's geographical conditions, which helped it consolidate as an agricultural and exporting city.

The city's urban growth has historically tended to consolidate around its original site, concentrating primarily in the surrounding area of Carlos Condell Hill. To the east, development is delimited by the country's main highway called Route 5, beyond which a high-socioeconomic residential area characterized by low population density has developed. On the southern border, the Guaiquillo stream acts as a natural barrier, restricting urban expansion in that direction. Consequently, urban growth in recent years has been predominantly oriented towards the northern and western sectors of the city, where most new residential developments are located.



Ill. 06: Map of Neighborhood Units. *Own elaboration, based on a map provided by Community Transportation Department (2025)*

This map displays the boundaries of the Community Boards in the city of Curicó, separated by what they call Neighborhood Units. These boards are non-profit organizations led by a board elected from within the respective area. They meet periodically to discuss local activities and challenges, subsequently presenting these concerns to the municipality in search of solutions.

For this study, Neighborhood Unit 29 (N.U. 29) was selected. The Aguas Negras neighborhood was specifically chosen for its peripheral location, challenges from an initial lack of planning, strong sense of community, and suitable scale for urban acupuncture planning. Additionally, the stream was included in the site due to its value as a natural asset.

02.3 The site: Aguas Negras

Ill. 07. Map of the Site, Aguas Negras. *Source: Own elaboration, 2025.*

03.

Method and theory

Ill. 08: Picture of a wasteland in the area. *Source: Own elaboration, 2025.*

Approaches and conceptual tools for intervention

03.1 Methodology

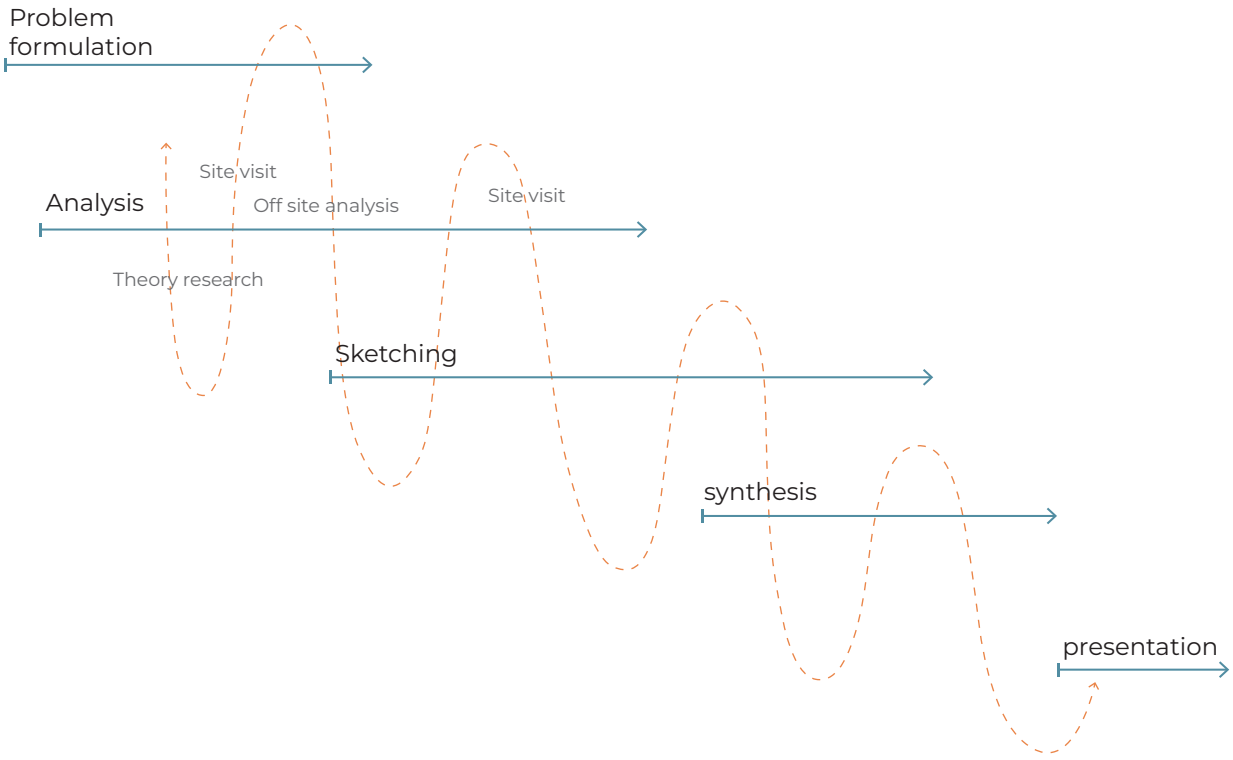
How the study was conducted

The development of the project is based on the Integrated Design Process (IDP), a methodology aimed at creating comprehensive and context sencitive design solutions. This approach has been instrumental in identifying both the potential and the challenges of Aguas Negras, guiding the formulation of an urban transformation proposal.

The methodology developed by Mary-Ann Knudstrup, is structured around five phases: problem formulation, analysis, sketching, synthesis, and presentation (Knudstrup, 2004). While it may appear to follow a linear sequence, it is a more dynamic and integrative process; certain stages require going back to earlier phases to have an overview or to reassess specific aspects of the project.

The first stage is the problem formulation, and this involves the description of the main idea or the challenge behind the project. This phase is where the purpose of the project is established and sets the foundation for what comes next. The analysis phase follows, focusing on collecting relevant information necessary for the project's development. The insights drawn from this analysis serve as the basis for the sketching phase, where creative exploration begins. Here, professional knowledge is integrated with the data gathered to generate a range of potential solutions.

In the synthesis phase, these alternatives are evaluated and refined, gradually shaping the project into its final form. This stage ensures that the objectives from the previous phases are met. The presentation phase is the end phase, and it is where the project is being presented. Here all the qualities are shown together with the way the aims have been achieved (Knudstrup, 2004).



Ill. 09: Interpretation of the Integrated Design Process. *Source: Own elaboration, 2025.*

03.2 The tools

Instruments for research and design

To build a strong theoretical and practical foundation for the project, different tools and methodologies were employed throughout the research and design phases. These are organized into three main categories: literature tools, site studies, and design development tools.

Literature and Case Study Tools

To gain knowledge on the relevant topics and theories related to crime prevention through environmental design (CPTED), placemaking, and urban acupuncture, literature studies were conducted. These involved academic books, journal articles, and digital databases. These studies provided insights into the key themes that the project will address.

In addition to the literature review, an external case study was presented and analyzed to deepen understanding of urban acupuncture and the vulnerability in some neighborhoods. The case studies serve both as examples of what to do or what not to do concerning the different topics and act as inspiration for the sketching and synthesis phases.

Site Analysis Tools

Site studies serve to understand the spatial qualities of the place, its morphology, how people move around, and the elements that define local identity. These studies are conducted by taking photographs of the site, making observations, and taking specific measurements of spaces, distances, or objects. These activities provide firsthand, often qualitative insights that are difficult to quantify but critical for design sensitivity.

Off-site studies are also conducted using tools such as Google Earth, the Municipality of Curicó's database, which offers the infrastructure of the city. Additionally, Flood Hub, a platform by Google, was used to assess flood risks in the area.

Geospatial analysis was further supported using AutoCAD for precise site measurements and base mapping, and Archicad for 3D modeling and site massing, allowing a deeper exploration of spatial relationships and built form integration. Maps generated during this stage included layers of data on infrastructure, public space distribution, vegetation cover, connectivity, and social infrastructure, enabling a multifaceted understanding of the site conditions.

Design Development Tools

At the beginning of this stage, collages or mood boards are used to inspire the initial ideas of the project. Conceptual development was carried out through hand and digital sketching, informed by insights gained from literature, case studies, and analysis.

To further develop and test design proposals, three-dimensional modeling tools were employed. Digital models were created using Archicad and SketchUp, providing a platform to examine volumes, spatial organization, and materiality. These models played a key role in simulating how proposed interventions would perform in real urban contexts

Through this combination of tools, the project ensures that interventions are grounded, responsive, and replicable, aligned with local needs and broader urban development goals.

03.3 Crime prevention

Strategies for safer communities

One of the challenges faced by the site, beyond crime, is the sense of crime its public spaces create. There is a clear difference between the fear of crime and the reality of crime between places where people feel that crime could occur and places where it actually does. As a result, areas that evoke this perception often become no-go areas (Fariña, 2020), which is the case of Aguas Negras.

There is a general consensus that if urban space and its environmental characteristics are planned, designed and managed in a proper way, certain types of crimes and the perception of fear can be reduced, thereby improving the community's overall quality of life (Ministerio de Vivienda y Urbanismo et al., 2003). For this reason, the principles of Crime Prevention Through Environmental Design (CPTED), a theory originally proposed by C. Ray Jeffery and later further developed by Oscar Newman, were analyzed. The development of this project will primarily follow Newman's interpretation and its evolution, as it offers a more practical and simplified urban design perspective.

The Defensible Space model, proposed by Oscar Newman (1973), offers a framework for designing residential environments that prevent crime by shaping the built environment to reflect and reinforce a resilient community structure. The various elements that make up a defensible space share a common goal: to create an environment where residents' latent sense of territoriality and community can be translated into a collective responsibility for maintaining a safe, productive, and well-kept living space (Newman, 1973).

A key insight in Newman's theory is that much crime is of opportunity rather than premeditated. Therefore, urban strategies such as promoting natural surveillance, controlling access, and encouraging community involvement have become essential in crime prevention (Newman, 1973).

To contextualize these ideas within the Chilean framework, the report *Espacios Urbanos Seguros* (Safe Urban Spaces), published by the Chilean Ministry of Housing and Urban Development, was reviewed. This report draws partially on CPTED principles but also proposes additional recommendations for designing safer public spaces. These recommendations will be taken into account in the development of this project, and include:

Promote natural surveillance:

High visibility increases user control and decreases the chance of opportunistic crimes.

Promote natural access control:

Support social control over who enters and moves through specific spaces.

Foster trust and collaboration among neighbors:

Mutual trust and a sense of belonging strengthen social control, helping ensure proper use and care of the area.

Reinforce identity with public space:

Public space involves the community in its restoration and design, so that it feels like it belongs to them, takes ownership of it, and cares for it.

Design and plan neighborhoods on a smaller scale:

On a smaller scale, residents feel more in control of their surroundings.

Promote community participation and responsibility:

This involves residents actively participating in the social life of a community, using a spatial and administrative structure that supports them.

Properly manage public spaces:

Good maintenance and administration are essential for the long-term safety and usability of public areas (Ministerio de Vivienda y Urbanismo et al., 2003).

These recommendations can be implemented through urban design by creating clear, legible spaces with defined functions that foster a sense of community, while also incorporating characteristics that contribute to the identity of public spaces, a goal this project seeks to achieve.

03.4 Place making

Building identity and belonging

Placemaking is all about turning 'public' spaces into 'living' places that support the wellbeing of local communities and that can be managed and maintained by that community (UN-Habitat, 2020).

One of the main challenges in Aguas Negras is the condition of its existing public spaces, which suffer from a lack of maintenance, purpose, and identity. This has led to a disconnection with the community and, ultimately, to their underuse. In response, the concept of Placemaking is introduced, an approach to planning, designing, and managing public spaces that puts people at the center of the process. The goal is to create places that encourage social interaction, strengthen local identity, and foster a sense of belonging.

The emergence of placemaking as a recognized practice dates back to 1975 with the founding of the Project for Public Spaces (PPS) by Steve Davies, Fred Kent, and Kathy Madden. This initiative was inspired by the ideas of Jane Jacobs and William H. Whyte, who criticized modern urban planning for prioritizing function over people. They emphasized the vital role of public spaces as key venues for social interaction and highlighted the importance of everyday life and local knowledge in shaping meaningful places. Their work also underscored how small-scale "lighter, quicker, cheaper" design elements can help create vibrant, engaging, and dynamic urban environments (Project for Public Spaces, n.d.).

Place making is fundamentally about people. It centers on community-based participation, recognizing it as a crucial and deeply valued process for those who feel a strong, personal connection to the places in their lives. Placemaking empowers individuals to realize the strength of their collective vision. It inspires communities to reimagine everyday spaces and rediscover the potential of parks, downtown areas, waterfronts, plazas, neighborhoods, streets, markets, campuses, and public buildings (Project for Public Spaces, n.d.).

The Project for Public Spaces began with a fundamental question: What makes a great place? After studying thousands of public spaces around the world, the organization identified key characteristics shared by the most successful ones:

"Placemaking belongs to everyone: its message and mission is bigger than any one person or organization. As a "backbone organization," Project for Public Spaces remains dedicated to supporting the movement, growing the network, and sharing our experience and resources with placemakers and allies everywhere" (Project for Public Spaces, n.d.)

They are accessible:

A successful public space is easy to reach and navigate. It should be visible both from a distance and up close. The edges and boundaries of a space play a critical role in inviting people in.

They are comfortable and project a positive image:

Comfort involves perceptions of safety, cleanliness, and the availability of places to sit and relax. A space that feels welcoming encourages people to spend time there.

They support engaging activities:

Activities are the foundation of great places. They give people a reason to visit, stay, and return. Activities also imbue a space with a sense of purpose and uniqueness.

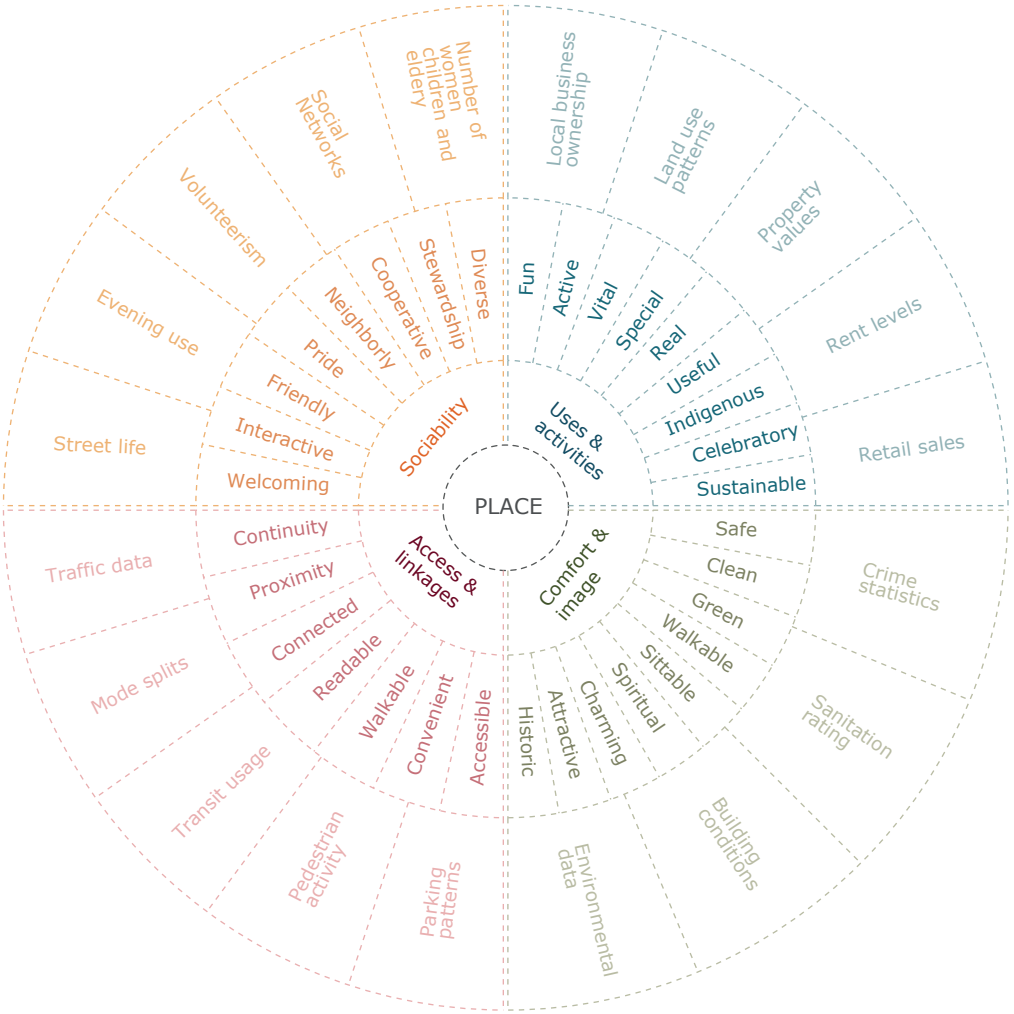
They are sociable:

When people encounter friends, interact with neighbors, or feel comfortable striking up conversations with strangers, they develop a stronger attachment to both the space and the broader community. These social interactions are essential in fostering a sense of place.

(Project for Public Spaces, n.d.)

While these principles may seem simple, they are nuanced and interconnected. To help designers and communities navigate them, Project for Public Spaces developed a diagram that outlines these core elements, along with a series of guiding questions essential for creating meaningful public spaces.

These principles will serve as the foundation for the proposed intervention in Aguas Negras. The objective is to implement these placemaking strategies in a way that transforms the area into an inclusive, and community-driven public space.



Ill. 10: What makes a great place? diagram inspire by PPS original illustration
Source: Own elaboration, based on Project for Public Spaces (2025)

03.5 Urban acupuncture

Small-scale interventions, large-scale impact

The project focuses on a neighborhood-scale intervention in Aguas Negras, an area characterized by the presence of numerous public spaces that include plazas, sports courts, and rest areas. However, despite their functions, these spaces often lack identity, maintenance, and alignment with the contextual needs of the local population. In response to this situation, it becomes essential to study and apply the principles of urban acupuncture, a strategic approach that emphasizes targeted, small-scale interventions capable of generating broader, positive transformations in the urban fabric.

The concept of urban acupuncture was introduced by Brazilian architect and urbanist Jaime Lerner, who defines it as a **methodology for city transformation through localized actions that are low-cost yet high impact. These interventions are intended to reactivate social, economic, and cultural dynamics in key urban areas** (Lerner, 2014). This term is inspired from traditional Chinese medicine, which involves inserting needles at specific points on the body to restore balance in the flow of vital energy. Urban acupuncture transfers this logic to the city: it involves inserting "projects" into strategic locations to unlock or revitalize stalled urban processes.

Lerner says that urban planning is inherently a complex and time-consuming process, involving multiple stakeholders, long-term frameworks, and diverse challenges. However, a single well-designed and precisely executed intervention can act as a catalyst, sparking energy and encouraging community engagement with the built environment. As Lerner puts it, *"a good acupuncture intervention is one that draws people out into the streets and creates meeting places; above all, it helps the city become a catalyst for human interaction."*

Within this framework, urban acupuncture interventions can be classified into two main types:

1. Physical or spatial interventions, which aim to revitalize the built environment by creating new public spaces, enhancing accessibility, and fostering social encounters.

2. Perceptual interventions, which, although not necessarily linked to traditional urban strategies, help instill a sense of local identity and enable residents to better understand and connect with their city (Ramírez & Kapstein, 2016).

To achieve a comprehensive transformation of Aguas Negras, it is essential to implement both types of interventions in a complementary manner. This dual approach ensures not only tangible improvements to the physical environment but also the cultivation of symbolic and cultural processes that reinforce the residents' relationship with their neighborhood.

"It is important to understand that a city can be transformed immediately through urban acupuncture; new energy can be created with a few focused actions... It is not necessary to spend many resources." (TEDx Talks, 2010, 15:00)

03.6 Case of study

An example of using the urban acupuncture approach

Social Urbanism – Integrated Urban Projects Medellín, Colombia

To better understand how some of the theories previously discussed have been applied in practice, the following section presents a case study focusing on an urban development project carried out in the city of Medellín, Colombia. This initiative exemplifies the application of acupuncture urbanism. Through this approach, Medellín began improving its most vulnerable and marginalized areas by carrying out specific urban projects designed to improve both the physical space and the social life of these communities. These actions helped make neighborhoods better connected, more functional, and gave residents a stronger sense of identity, contributing to a more inclusive process of urban renewal.

As in many Latin American cities, the urban development of Medellín led to the creation of marginalized neighborhoods, exacerbating the gap between the center and the periphery, between those who dominate and those who are dominated, between the rich and the poor, as well as between industrialized and non-industrialized regions. In this context, the city's periphery became the space of the excluded: the poor, the oppressed, and the dispossessed. Consequently, during the 1990s, Medellín became notorious for its alarming levels of violence, homicides, and drug trafficking (Guerrero, 2014).

At the beginning of the 21st century, Medellín underwent an urban transformation driven by the strengthening of public policies and improvements in the quality of life of its inhabitants. This transformation contributed to crime reduction, partly due to an increase in public space per citizen, the development of transportation infrastructure, and the construction of new public buildings. These strategies, conceived as tools for social change, led to the emergence of a model known as social urbanism (Guerrero, 2014).

Thus, the Integrated Urban Projects (Proyectos Urbanos Integrales – PUI in Spanish) were born. **These consist of approximately 30 public space intervention projects with a zonal impact, designed to address issues related to mobility, centrality, social interaction, the environment, and recreational and sports public spaces, ultimately benefiting a larger population** (CIDEU - Centro Iberoamericano de Desarrollo Estratégico Urbano, 2019). These projects serve as a multidimensional instrument for social prospecting, dialogue, and planning aimed at urban intervention, primarily in socially vulnerable areas (Ramírez & Kapstein, 2016). The development process consists of the following stages:

1. Planning: This stage involves the diagnosis and formulation of a preliminary project. A team of professionals conducts a physical and social analysis.

2. Management: The social team proposed a catharsis session where residents could express their fears and existing problems. Citizen participation teams were formed within each community, consisting of residents, influential organizations, professionals responsible for the physical project, and a social professional who acted as a bridge between the institution and the community.

3. Design: This stage includes physical and social recognition, project profiling, and architectural design. The community leaders and architects conducted site visits to identify environmental assets, opportunities for public space creation, and elements with historical and symbolic significance.

4. Execution: This phase includes procurement, contracting, and construction of the project.

5. Sustainability and Appropriation: Citizen participation and management. A formal inauguration was held to provide residents with all necessary information, as the level of information impacts the degree of appropriation of the interventions (Cárdenas, 2006).

These urban acupuncture projects earned Medellín the title of the world's most innovative city, an award granted on March 1, 2013, by Citigroup, the Urban Institute, and The Wall Street Journal.

Ill. 11: Northeastern Project , Licenciada. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

Ill. 12: Library spain, Licenciada. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

Ill. 13: Northeastern Project - cable car. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

Ill. 14: Interbarrier bridge, Andalucía-La Francia. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

Ill. 15: Escalators skyview. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

Ill. 16: Escalators. *Source: V. Restrepo (2024), The urban transformation of Medellín, ArchDaily.*

The case of Medellín serves as a clear example of how the proper management of public spaces, urban connectivity strategies, and the creation of projects promoting education, sports, and culture have contributed to building communities with a strong sense of belonging, ultimately improving the quality of life for residents.

For the development of the project in Aguas Negras, there is no participation of multiple professionals, and the implementation timeline is limited. Thus, working exclusively with a neighborhood unit, while incorporating citizen participation to understand the community's needs, is essential. This project serves as a reference for other neighborhoods, being also important that this project can be replicated in other neighborhoods with similar characteristics in Chile.

04.

Analysis

Ill. 17: Picture of the trash on the streets in Aguas Negras. *Source: Own elaboration, 2025.*

Studying the layers of the urban context

04.1 First impressions

Initial approach to the site and its surroundings

The Aguas Negras neighborhood and their surroundings initially gives an impression of lacking identity, accessibility, and maintenance in its public spaces. A significant amount of unclaimed land has turned into an informal dumping site, reinforcing the perception of neglect and abandonment. Additionally, the railway and the stream act as physical barriers,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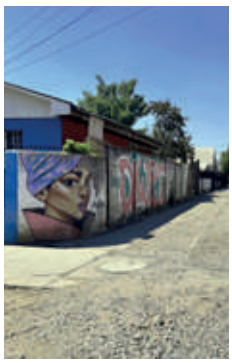
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further isolating the area. The visit begins at one of the area's busiest entrances (image 01), leading through its main street (image 02), which branches into narrow side passages. In image 06 a parking lot is shown, that transforms into a lively flea market on weekends. The route continues through similar passages with little maintenance (images 07, 10, and 14), as well as various public spaces (images 08, 09, 16, 17, and 19), some in better condition than others. The visit concludes with views of the Guaiquillo stream (images 22 to 25).


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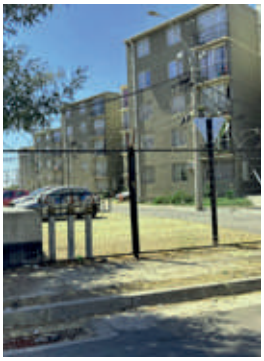
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Ill. 18: Collage of the site fist impressions. *Source: Own elaboration, 2025.*

04.2 Flood impact evaluation

Water dynamics

Ill. 19: Mapping of the flood impact evaluation. *Source: Own elaboration, based on Curicó Regulatory Plan and Flood Hub (2025).*

In accordance with the Curicó Municipal Regulatory Plan, the flood risk area is delimited in the map. This zone corresponds to a sector susceptible to overflows in flood-prone or potentially flood-prone areas, given its proximity to bodies of water. In the specific case of this study, the threat is directly related to the proximity to the Guaiquillo stream (Sur Plan, 2020).

As mentioned above, Curicó has the highest concentration of rainfall during the winter, having an average annual precipitation recorded of 327.2 mm (Moya & Reyes, 2021). However, anomalous events have been observed, such as the one that occurred in August 2023, when 150.2 mm of rainfall was recorded in a period of 24 hours. As a result of this event, the National Disaster Prevention and Response Service issued an evacuation order for various areas, due to the overflowing of the Guaiquillo stream, which caused severe damage to homes and seriously affected families living in the area (C&G, 2023).

As regards the project site, the overflow caused the destruction of a pedestrian bridge and the railway bridge. In addition, several houses located to the south of the neighborhood suffered considerable damage, especially those of an informal nature, which were completely washed away, as can be seen in the attached map.

Also, the flood history provided by Flood Hub shows that there is a sector that floods 0.5% of the time, according to data collected between 1999 and 2020. This implies that, over a 21-year period, the area has been affected by flooding for 38 days (Flood Hub, n.d.). Although this does not imply an annual recurrence, is dangerously close to the limit of the residential area located in the southwest of the sector.

Currently, the flood zone has a use on the Communal Regulatory Plan for green areas, in consideration of its risk condition. However, there is still formal and informal housing within this strip, including those located on the project site. **It should be noted that no additional mitigation measures have been implemented in the area, therefore, incorporating water flow or drainage management strategies will be essential for the successful development of the project.**

04.3 Green and recreational urban spaces

Nature and leisure in the city

Ill. 20: Mapping of Green and recrtional urban spaces. *Source: Own elaboration, 2025.*

1. Main square Curicó

2. San Francisco square

3. Viewpoint at Carlos Condell Hill

4. La Familia Park

5. Los Aromos square

6. Sports Court NN

7. Square NN

8. Sports Court NN

Ill. 21: Collage of public spaces in Curicó. *Source: Own elaboration, 2025.*

The map displays the existing public recreational spaces in the city, which are mostly green areas featuring resting spaces or zones for sports activities. In certain areas near the periphery, public spaces without any use or purpose begin to appear, which are predominantly used for waste disposal, that for the purpose of this analysis they are called wasteland.

The project site is characterized by a significant number of public spaces dedicated to recreation. Additionally, it contains a green area and the Guaiquillo Stream to the south. **These spaces are currently underutilized and fall into the category of wastelands due to poor maintenance and the accumulation of waste in the area**. The presence of these public spaces is vital for this zone, as the residential buildings have a higher construction density, limiting access to private green areas. The issue arises when these public spaces lack identity, functionality, and proper maintenance, leading to their disuse.

Moving towards the city center, it becomes evident that the commercial area has almost no green spaces or recreational areas. However, beyond its limits, two of the city's largest green spaces can be found: the **Alameda* of Curicó, a tree-lined promenade, a typology that exists in almost all cities in the country, and Carlos Condell hill, a landmark within the city that features native flora, have designated resting areas, picnic zones, and viewpoints that are utilized throughout the year for the community.

Outside the central area, residential zones are predominant, leading to the emergence of small accompanying green areas. As observed in illustration 21, the squares located in more central areas (Images 01, 02, 03, and 04) exhibit better maintenance, greater functionality, and a stronger sense of identity, resulting in greater use of these spaces. Conversely, most public urban spaces in the project site (Images 05, 06, 07, and 08) suffer from a lack of identity and maintenance. In many of these unused public spaces, exercise machines have been installed, yet there is no real demand for them. These areas do not provide an inviting environment for physical activity with a suitable degree of privacy.

The site contains several spaces with the potential to be transformed into functional, safe, and identity-rich public spaces that foster community engagement and enhance the quality of life for its inhabitants.

** Alameda: An open space, continuous in profile and level, designed for pedestrian circulation and passive recreation, with a distinctive landscape design that includes tree planting and urban furniture.*

04.4 Native flora and ecological value

Restoring balance with Indigenous Flora

The project aims to create high-quality and meaningful public spaces, where the incorporation of green areas and the strategic use of flora in specific locations is essential. To achieve this, the use of native or endemic plant species is proposed, in order to minimize maintenance requirements and associated costs. This responds to the current situation, where the existing vegetation is not native and therefore requires frequent irrigation and more maintenance.

Native species are those that occur naturally in a specific region or ecosystem, having adapted over time to the local climate, soil, and other environmental conditions. Endemic species, while also native, are unique to a particular geographic area and found nowhere else in the world. By prioritizing both native and endemic plants, the project supports local biodiversity, ecosystem resilience, and long-term sustainability.

The planting proposal is organized into three categories, based on the volume and form of the selected species. First, plants ranging from 50 to 80 centimeters in height are considered. These are intended to provide a certain level of privacy while maintaining visibility, contributing to user safety.

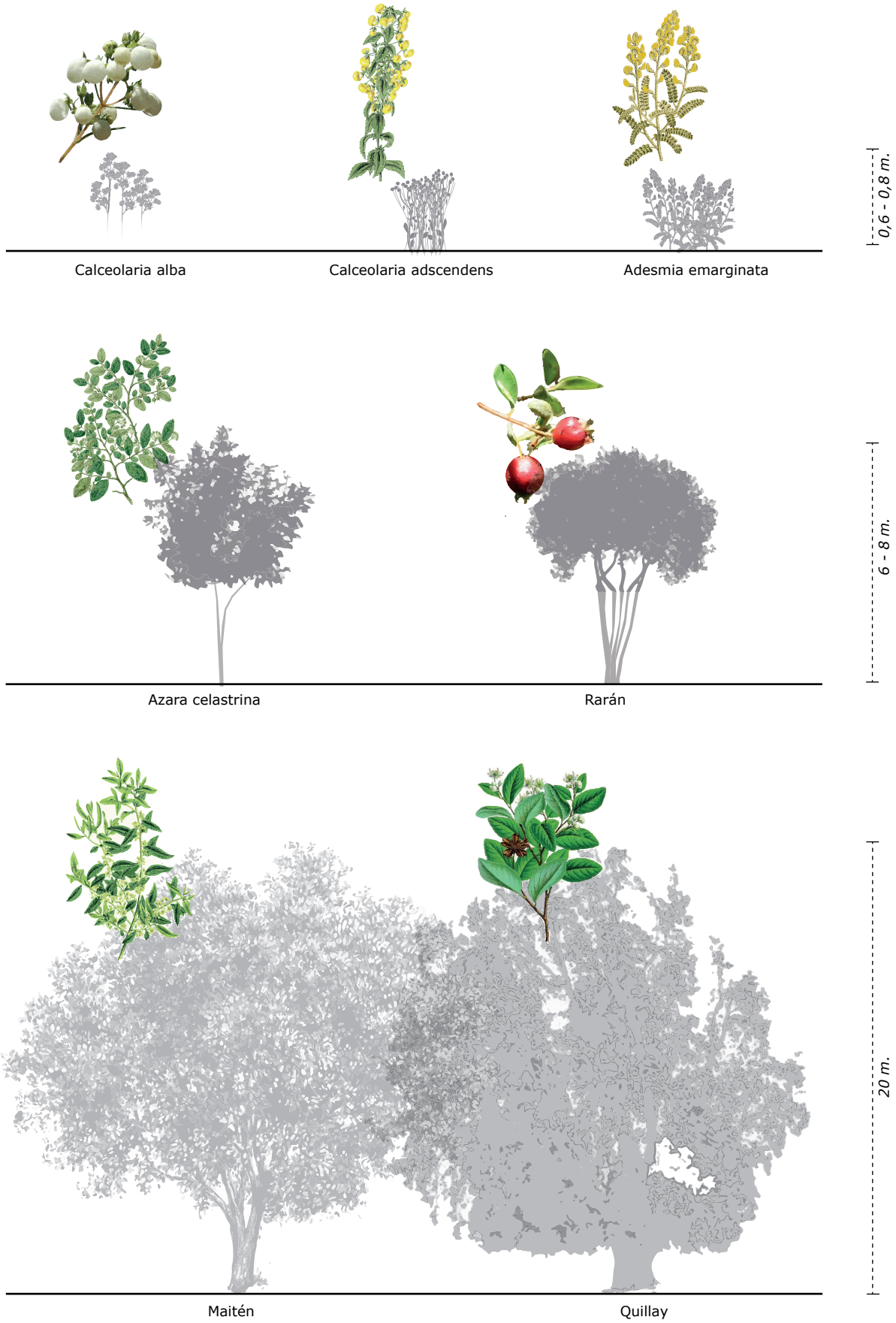
As for trees, two types have been selected based on their maximum height. On one hand, species that reach between 6 and 8 meters are ideal for areas requiring greater visual openness and connectivity between spaces. On the other hand, trees that can grow up to 20 meters are suited for larger areas where a denser vegetative presence and a more natural atmosphere are desired.

The selected species and their characteristics are as follows:

Name	Type	Height	Location
Calceolaria Alba	Endemic	0,8 M.	From VII to IX region
Calceolaria adscendens	Endemic	0,6 M.	From IV to VII region
Adesmia Emarginata	Endemic	0,6 M.	From VII to XI region
Azara celastrina	Endemic	6 M.	central-southern Chile
Rarán *(Myrceugenia obtusa)*	Endemic	8 M.	central-southern Chile
Maitén *(Maytenus boaria)*	Native	20 M.	central-southern Chile
Quillay *(Quillaja saponaria)*	Endemic	20 M.	central-southern Chile

(INaturalist Chile, n.d.)
(Riedemann, Teillier, & Aldunate, 2014)

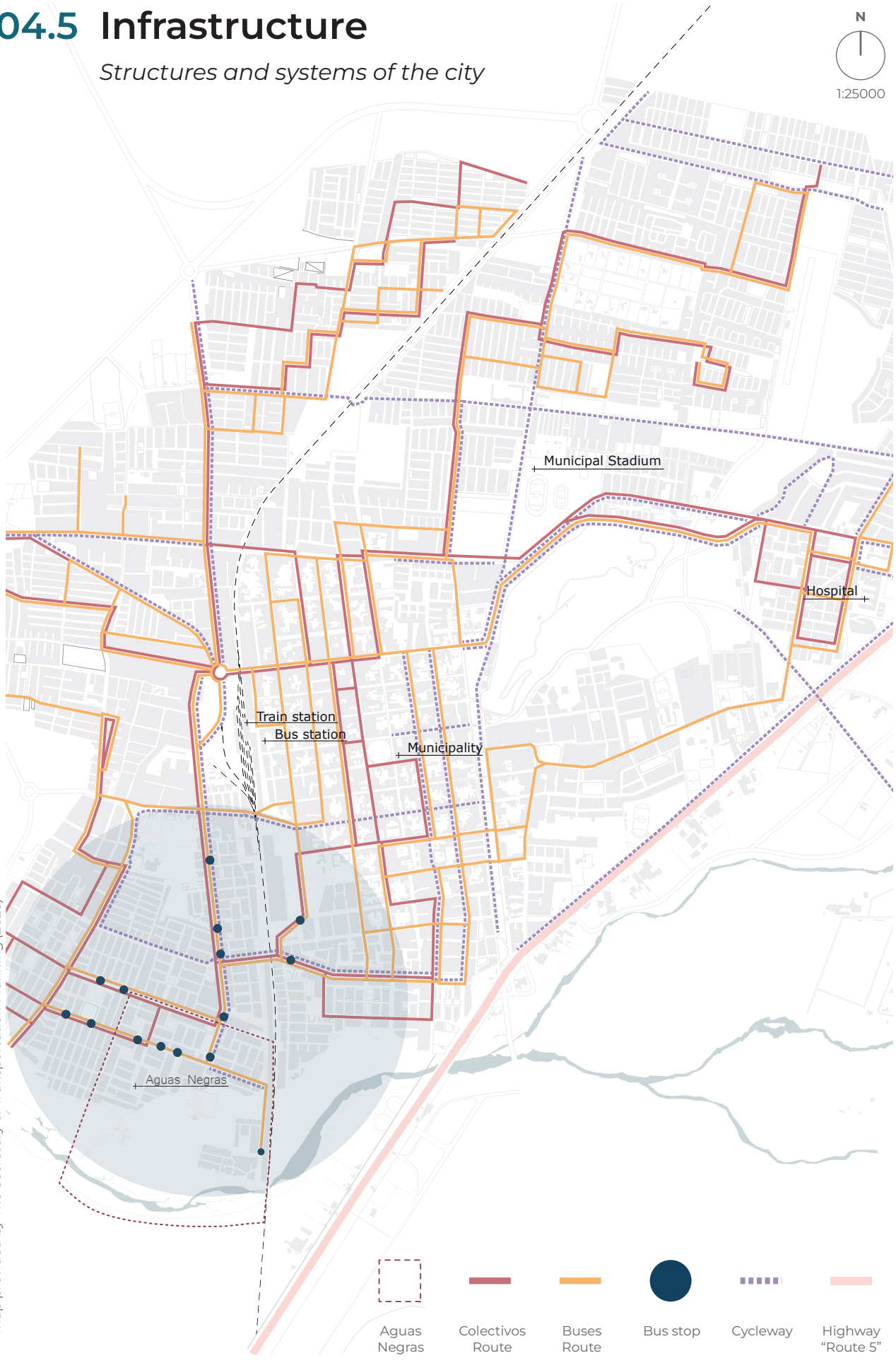
Ill. 22: Table of plant species. *Source: Own elaboration, 2025.*



Ill. 23: Illustration of plant species. *Source: Own elaboration, 2025.*

04.5 Infrastructure

Structures and systems of the city



Ill. 24: Mapping of the infrastructure. *Source: Own elaboration, based on a map provided by The Secretary of Transportation Planning (2025)*

Collective transportation in the city is privately operated, meaning it functions based on existing demand. This implies that if a group of people requires a new route within the city, they must request it from one of the local collective transportation associations. If the association determines that demand is sufficient, a new route is established. As a result, a significant number of residents remain completely disconnected from the rest of the city if they do not own a car or a bicycle, simply because they represent a minority in such requests.

The existing collective transportation system consists of buses and *"colectivos"*, a term used in Chile to refer to shared taxis. These are cars that can transport up to four passengers simultaneously, with each passenger paying a fixed fare per trip. This mode of transport is particularly useful for navigating the city's narrow streets and serving routes with lower passenger demand.

As shown on the map, the city center is the area with the highest connectivity due to the strong demand generated by the various functions and activities concentrated in this zone. In these areas, colectivos are the primary means of transport, as most streets are not wide enough for buses. However, as one moves from the city center toward the peripheral areas there are more buses routes, but at the same time the transportation network gradually decreases, making it more difficult to travel from the outskirts of the city.

Curicó is expanding northward due to geographical constraints: mountains to the west, the Guaiquillo stream to the south, and the main highway to the east. Consequently, urban expansion has been concentrated in this sector, where streets are wider, allowing for better bus circulation and the implementation of bicycle lanes. However, as this is a newly developed area, the transportation infrastructure has not yet reached an optimal level of consolidation.

In contrast, the southeastern sector has a lower population density, making access to bus stops difficult without a private car. As a result, no public transportation is available. Additionally, this area houses the city's highest-income population, who predominantly rely on private vehicles.

In the western sector of the city, despite the physical barrier imposed by the railway line, connectivity with the rest of the city remains adequate. However, deficiencies persist in the availability of collective transportation and in the infrastructure for bicycle lanes. Consequently, residents in this area largely rely on private cars, taxis, or mobility service applications for transportation.

The railway line primarily impacts the southwestern sector of the city, including the project site, by limiting crossing points and causing traffic congestion during peak hours. The map also highlights the absence of public transportation networks and dedicated bicycle lanes in this area. As a vulnerable sector, many residents cannot afford private vehicles, further complicating mobility, particularly for individuals with disabilities. Additionally, the site's distance from the city center and essential services, including the hospital, poses a significant challenge, especially at night when collective transportation is unavailable.

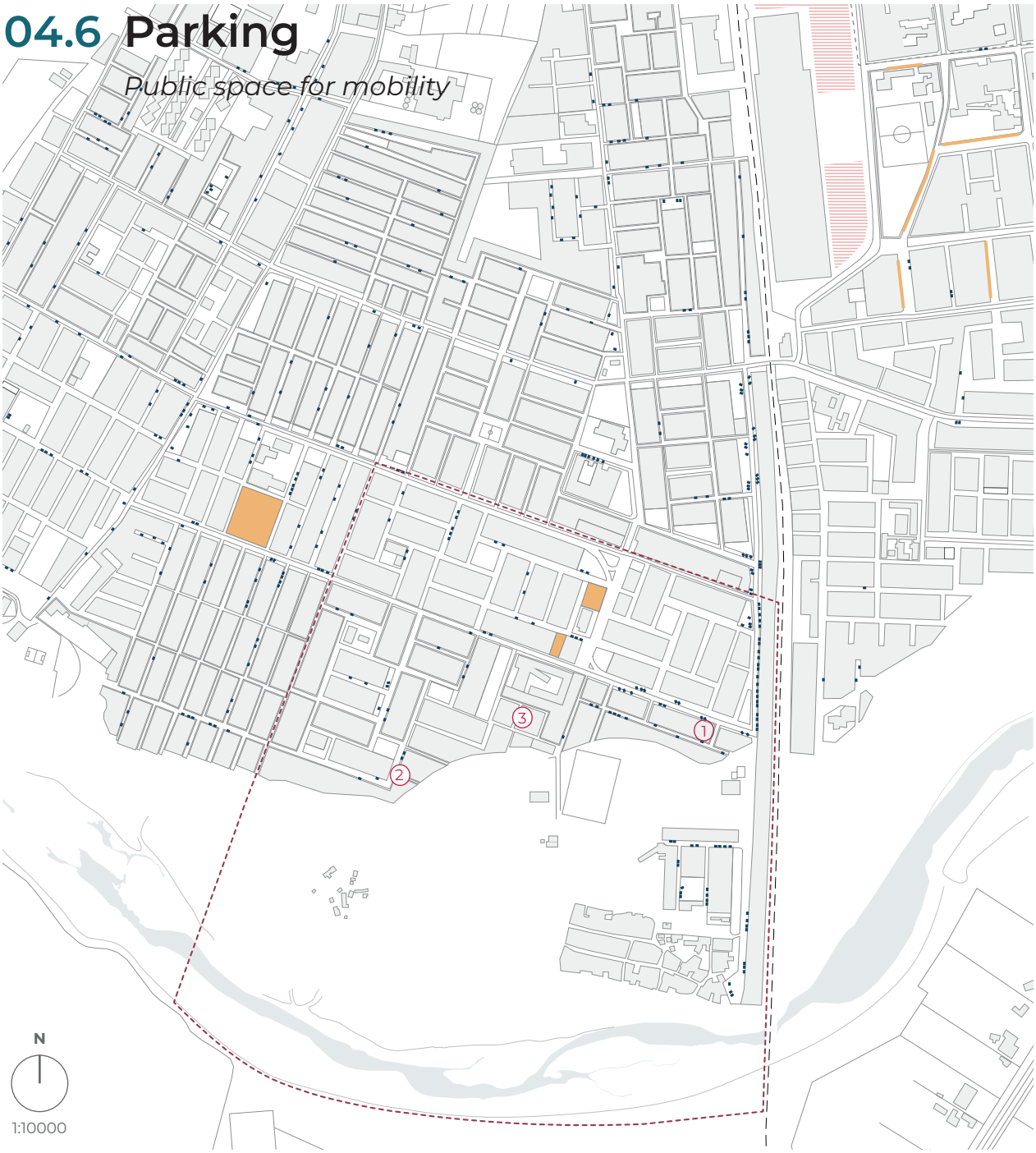
On the area of work the locations of official bus and colectivo stops are illustrated, that feature physical infrastructure, allowing passengers to wait while being sheltered from external conditions. Most of these stops are located near schools and healthcare centers, meaning they are concentrated in the busiest areas of the sector. However, there are no official stops in the rest of the residential area, leading to an informal transmission of stop locations and routes spread by word, as there are no official records available through the municipality, Google Maps, or similar applications.

As part of the necessary infrastructure for bicycle use, parking facilities are essential. However, within the site area and its surroundings, there are no designated bicycle parking spaces. Consequently, individuals are forced to secure their bicycles to narrow columns or posts in public spaces, which not only poses security concerns but also discourages the use of bicycles as a primary mode of transportation.

Since the city lacks a structured collective transportation network, one potential solution to improve connectivity would be to promote bicycle use. This could be achieved by expanding and enhancing the network of bicycle lanes and parking facilities in strategic places of the neighborhood and through the city.

04.6 Parking

Public space for mobility



Ill. 25: Mapping of the parking. *Source: Own elaboration, 2025.*

The use of parking in the area was studied due to the frequent misuse of public space for parking, which is one of the most common issues in the neighborhood. While in the city center and the commercial areas there are more spaces dedicated to parking, in the residential areas it is something that is not taken care of, primarily because every house by normative needs to have a number of parking space per resident, this provision being often inadequate to meet the actual demand in these areas.

The limited availability of formal public parking in residential zones has led to the appropriation of public spaces not originally intended for vehicular use. As a result, various forms of informal parking have emerged, three of which are outlined as follows:

Aguas Negras

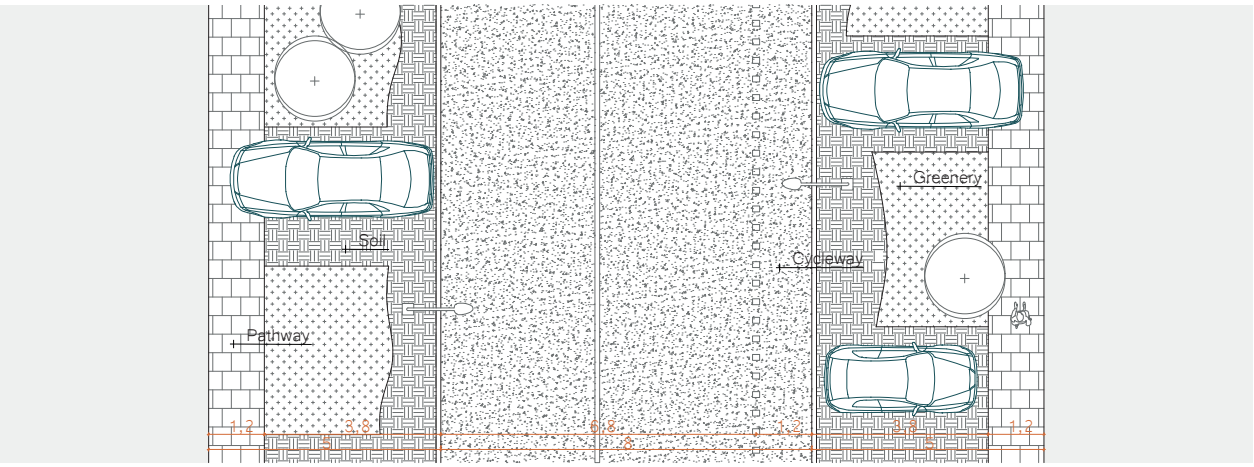
Commercial Parking

Public Parking

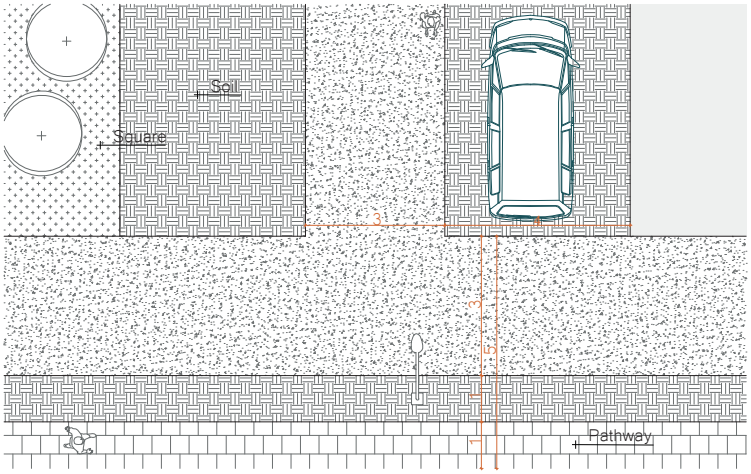
Informal Parking

Informal parking scenarios:

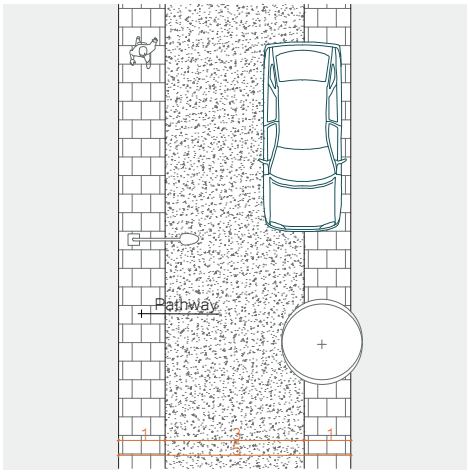
Scenario 1



Scenario 2



Scenario 3



Ill. 26: Informal parking scenarios. *Source: Own elaboration, 2025.*

The first case illustrates a two-way street with a bike lane. While on-street parking is not possible in the existent space, there is unused space along the sides, which includes pedestrian pathways followed by grass and soil strips. These areas often include driveways leading to the houses. However, they are frequently repurposed for parking, leading to the obstruction of pedestrian pathways and, in many cases, interference with the bicycle lane.

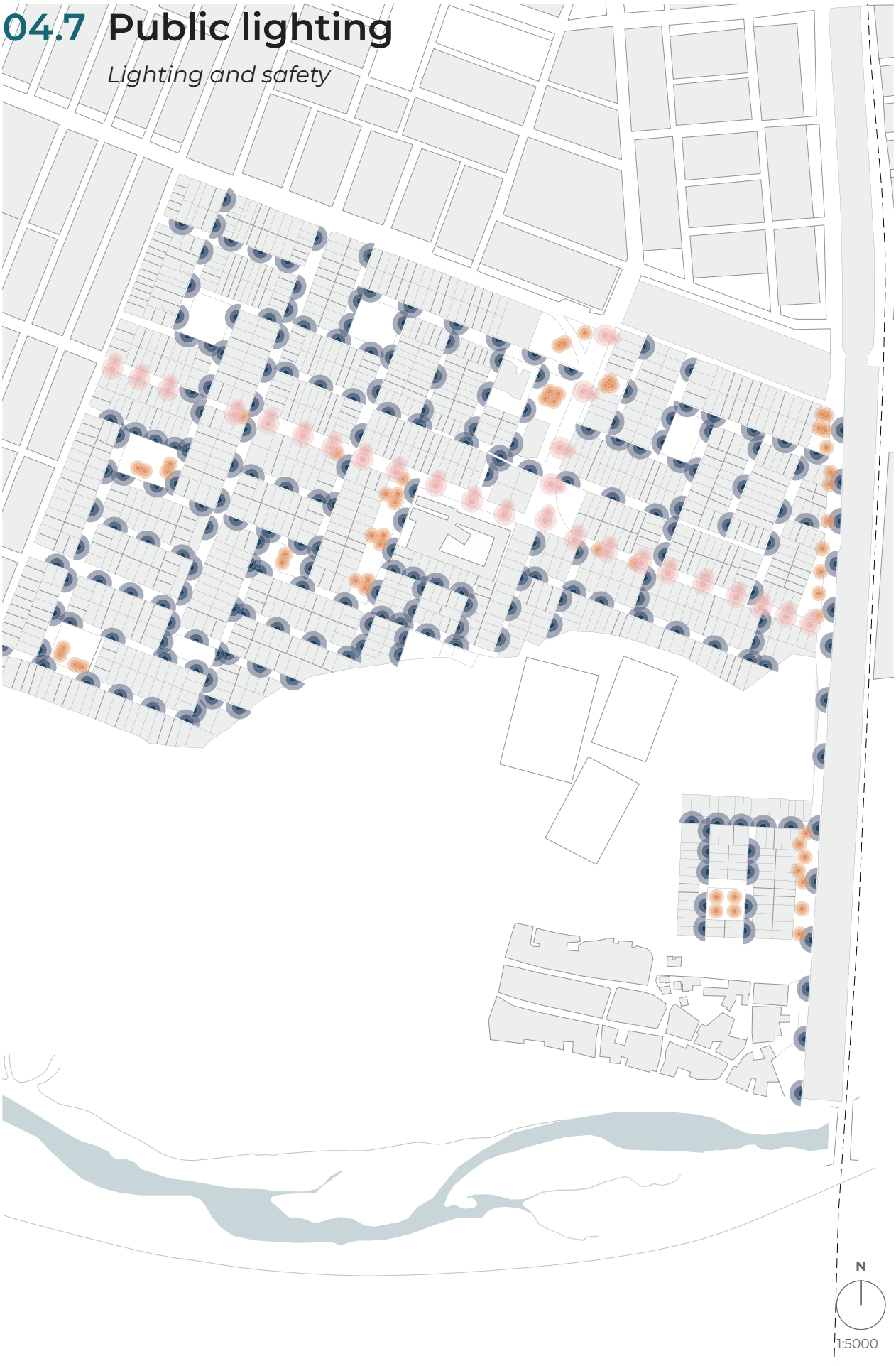
The second case presents a street constructed at the minimum allowable width, bordered by unpaved terrain that significantly interferes with pedestrian accessibility. A designated pedestrian path is present on only one side of the street, while the remaining areas consist of soil surface. These unregulated spaces are often occupied by parked vehicles, eliminating safe passage for pedestrians.

The third case occurs within narrow streets; these streets generally allow just enough room for pedestrian movement and a single-lane vehicular flow. Nonetheless, residents frequently park directly in front of their houses, obstructing pedestrian access and hindering vehicular movement. This issue is particularly critical for emergency vehicles, which may find it nearly impossible to navigate these spaces.

On wider streets, it is possible to add parking along the side of the road, always prioritizing the accessibility in the area. On narrow streets cases, it would be possible to add parking in adjacent public spaces, always ensuring that the designated area is open, visible, and well-lit, to provide safety to the user.

04.7 Public lighting

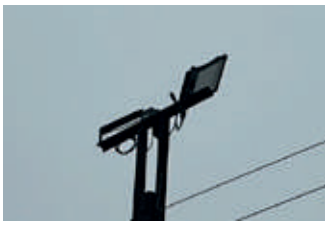
Lighting and safety



Ill. 27: Mapping of the public lighting. *Source: Own elaboration, 2025.*

Car oriented lighting

Mixed lighting



Pedestrian oriented lighting

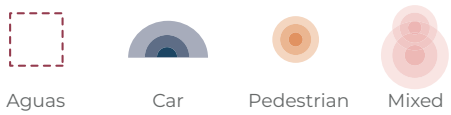
Ill. 28: Collage of public lighting. *Source: Own elaboration, 2025.*

This analysis presents the public lighting infrastructure within the site, categorized into three types: car-oriented lighting (installed along sidewalk edges and directed toward the street), pedestrian-oriented lighting (at human scale, found in plazas and bus stops), and mixed lighting (combining both, with separate lights for vehicles and pedestrians).

Car-oriented lighting is the most common one in the area, which limits pedestrian circulation at night. Although these fixtures can potentially illuminate sidewalks, their effectiveness is often blocked by trees between the street and pedestrian paths, leaving sidewalks poorly lit after dark hours, contributing to a perception of unsafety in these areas.

Only one of the area's main streets has been upgraded to mixed lighting, where it is possible to walk at night in a safe way, but this is only an exception in the area. Besides that street, the only places with public lighting for pedestrians are public squares and bus stops, but the lack of complementary lighting on surroundings makes these areas more dangerous and less accessible at night.

The inclusion of adequate lighting in public spaces is crucial to improve the users visibility and safety, ensuring that they can make use of these spaces at any time, regardless of the availability of natural light.

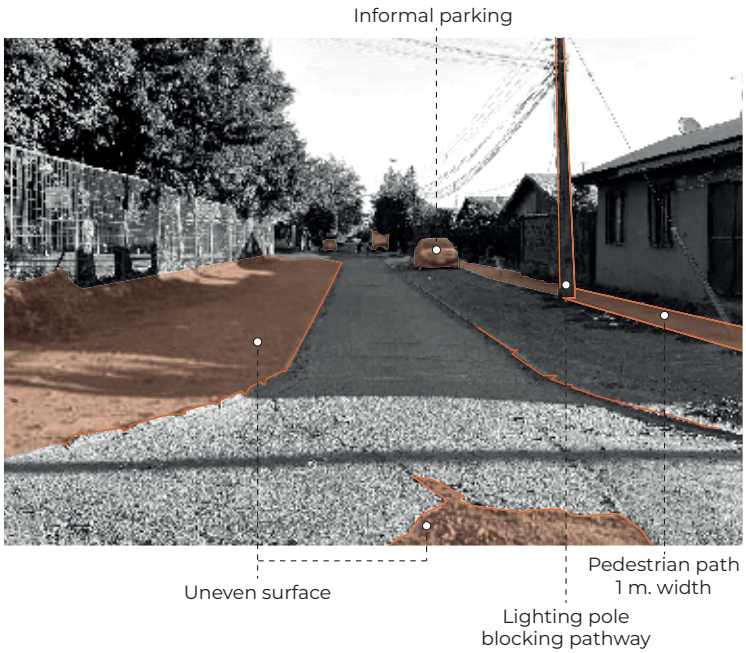


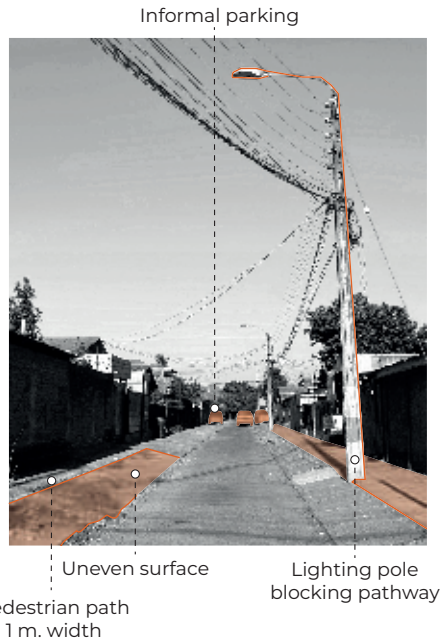
04.9 Traveling through Aguas Negras

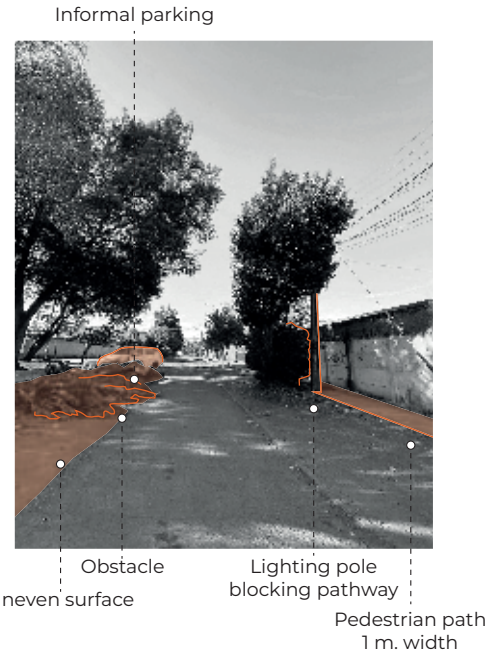
Mobility and accessibility in the area

In order to identify and highlight some of the main urban obstacles present in the neighborhood, a route was conducted, identifying the problems through images. Along the route, various difficulties regarding pedestrian accessibility were observed. Among the most significant are the insufficiently wide sidewalks, which in many cases are no more than one meter wide, and which are also encroached upon by electricity poles and streetlights that act as physical barriers. These sidewalks also have uneven surfaces or are made of dirt, which represents a serious impediment for people with reduced mobility.

Another significant problem is the lack of parking spaces. This forces drivers to park in undesignated areas, often on sidewalks, directly disrupting pedestrian traffic and further aggravating the accessibility situation.

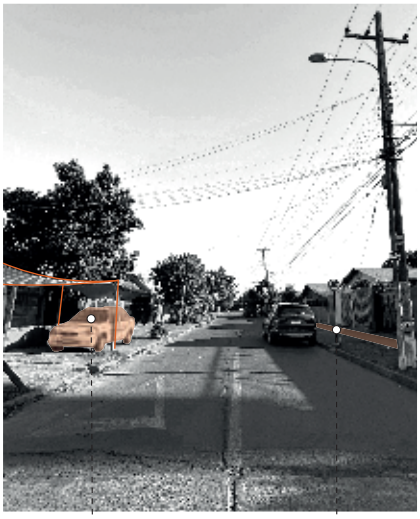






Ill. 29: Traveling through Aguas Negras. *Source: Own elaboration, 2025.*

For this reason, the proposed line of work is to develop a design focused on improving the neighborhood's pedestrian infrastructure, ensuring universal accessibility and reorganizing urban space to prevent obstruction of pedestrian access by improperly parked vehicles. **The intervention will seek to promote a more inclusive, safe, and functional environment for all residents.**



04.9 Informal settlements

Unregulated housing and urban margins

Ill. 30: Mapping of informal settlements. *Source: Own elaboration, based on a map provided by TECHO Chile (2025)*

The project site has some informal settlements in the southern sector of the neighborhood, next to the stream, which prompted a deeper analysis of this problem.

In Chile, a location is classified as an informal settlement when it meets the following criteria: it is inhabited by eight or more families forming a socio-territorial unit, characterized by contiguous housing, spatial continuity, and a collective identity; it involves irregular land tenure, such as occupation without legal title or contracts; it presents irregular access to basic services, including unauthorized or shared electricity connections, non-standard water sources like wells or water trucks, and inadequate sanitation systems such as pit latrines or chemical toilets; and it reflects a housing need, as the resident families live there permanently and have no other place to live. (TECHO Chile, 2024).

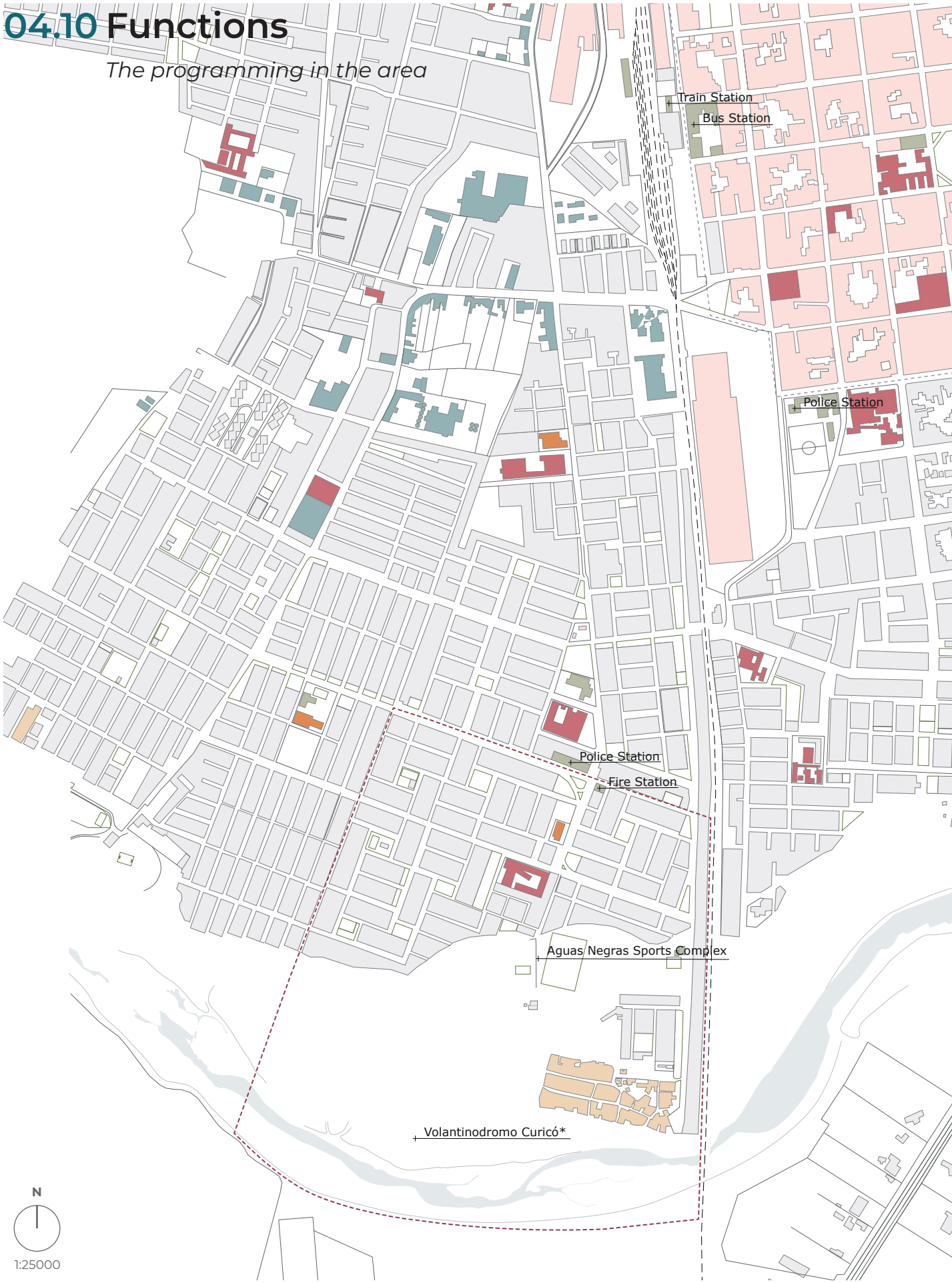
According to the registry conducted by the foundation TECHO-Chile, there are two sectors with informal settlements in the city of Curicó, both of which are located on the southern edge of the city as shown on the map. **One of them, and the largest, is located at the project site, and has a total of 223 families, for a total of 558 inhabitants** (TECHO Chile, 2025).

During an interview, the ex-parliamentarian of the region and ex-mayor of the city of Curicó, Celso Morales, pointed out that the court of appeals has already issued an eviction order to these informal settlements, requested by the Municipality of Curicó, but the removal has not been carried out due to the high number of residents. He also explained that they are mostly immigrants, and like any Chilean resident, have the possibility to apply for public assistance to obtain housing, but they simply do not do so.

These settlements besides their inhospitable environment, as mentioned before in the analysis, are located in a flood risk area, so moving them to another sector is essential. The goal is to develop and implement a program to inform residents about the available housing options. This program will offer guidance and support to ensure that families are able to transition to safer residential areas that comply with all relevant legal and regulatory standards.

04.10 Functions

The programming in the area



Ill. 31: Mapping of the functions. *Source: Own elaboration, 2025*

The site is located in a residential area, characterized by single-story and two-story houses, there is as well public educational buildings and recreational spaces, such as plazas, small soccer fields, and green areas. The Aguas Negras Sports Complex is also found here, consisting of soccer fields and public swimming pools. Adjacent to this complex is the Curicó *Volantinódromo**, a space primarily used in spring, as this season brings the strongest winds in the country, an essential condition for kite flying.

This neighborhood is situated on the urban boundary, bordered to the south by the Guaiquillo Stream and to the east by the railway. There is almost no commercial activity or services in the area, requiring residents to go to other areas of the city to access basic goods and services.

In its immediate surroundings, the area maintains its residential character. However, as one moves north, industrial buildings begin to appear, reflecting the area's productive past. Historically, this sector was Curicó's industrial zone, and remnants of that can still be seen in some warehouses and structures.

To the east lies the city center, the oldest part of Curicó, which preserves its original urban layout. This area has a strong commercial identity, concentrating most of Curicó's services. The main square is located here, surrounded by landmark buildings such as the municipal offices, the Provincial Theater of Curicó, and various financial institutions. Additionally, this sector hosts the city's oldest educational establishments, including schools, technical institutes, and universities. The train station, situated directly across from the bus terminal, further consolidates this area as a major transportation hub within the city.

To the north and east of the city, residential areas extend outward. To the north, newly developed neighborhoods are largely inhabited by middle-class populations, whereas to the east, higher-income residential sectors are concentrated.

** Curicó Volantinódromo: A public space designed for the safe practice of kite flying, a traditional Chilean pastime. Volantinódromos are generally open areas free from obstacles, and they are often located in parks, plazas, or other open spaces.*

Aguas Negras | Residential Area | Informal Settlements | Health | Education | Cultural | Commercial | Industry

04.11 Voices of the neighborhood

The feedback from the community

"Many times, it's us (referring to the neighbors) who have to repair parts of the infrastructure in plazas and sports fields."

"The kids use this court because it's the only one open in the area."

"Things can be done; there's a united community here."

After conducting an analysis of the neighborhood's functions, infrastructure, potential, and challenges, I decided to complement the information with interviews of individuals from the area. I first spoke with Sergio Escudero, president of the neighborhood association of Villa Santos Martínez, and then with Rosa González, president of the association in Villa Los Cisnes, located in Aguas Negras.

I also interviewed Priest Marco Sanhueza, from the Cristo Resucitado parish, located three blocks from the northern edge of the neighborhood. He has direct contact with many local residents and is familiar with how the community operates on a daily basis.

To also include a more everyday perspective, I spoke with two neighbors who shared their views on how public spaces function and what daily life is like in the area.

All of these interviews were conducted within the framework of the project I am developing, so I presented them with a preliminary idea in order to gather their opinions and insights on what the neighborhood might need or become.

The interviews revealed a series of recurring issues in the neighborhood, mainly related to the maintenance of public spaces, security, and a lack of urban planning. One of the most frequently mentioned concerns was the problem of trash on the streets and in plazas, which was attributed both to a lack of coordination with the municipality and to a general "lack of culture" in waste management, as one of the community leaders put it. Proposed solutions included placing larger garbage containers in strategic locations, launching awareness campaigns, and establishing designated spaces for recycling.

Security was also a central issue. Interviewers mentioned poor street lighting, the need to install surveillance cameras, and a general sense of insecurity, especially in narrow alleys and neglected public areas. Some of these places were even described as "no man's land," where fitness equipment had been installed without a clear purpose and ended up not being used.

In terms of infrastructure, there was a consensus that many streets are in poor condition, particularly in areas with unpaved roads or no sidewalks, making accessibility difficult and giving priority to cars. Suggested solutions included shared-use streets for pedestrians, cyclists, and vehicles, as well as public spaces adapted to include parking areas.

Another recurring theme was the lack of public spaces with a clear identity or purpose, which affects how much they are used. For example, many sports fields remain unused due to poor maintenance or limited access. In contrast, certain areas like the Aguas Negras Sports Complex are well utilized, thanks to greater community organization and participation.

Lastly, some interesting ideas emerged, such as reclaiming unused spaces, installing a municipal branch office within the neighborhood, and promoting community-driven projects, like urban gardens or workshops for eldery people, that have already been well received in the past but require continuity and municipal support to be sustained.

04.12 Concluding remarks

Summary of the analysis

The Aguas Negras neighborhood and its surroundings have a lot of potential, although they currently face several challenges that affect the community's quality of life. Among the main issues detected are poor accessibility and connectivity, the lack of neighborhood identity, and the generalized deterioration of its public spaces. However, beyond these negative first impressions, the area has latent opportunities that can be addressed through urban design.

The site has a considerable number of public spaces, which lack identity, functionality and adequate maintenance. This situation has generated an atmosphere of perceived insecurity that has led to the progressive abandonment of these spaces. The neighborhood is also bordered by the Guaiquillo stream, a natural environment with great landscape value that is now deteriorate by neglect and the accumulation of waste. However, all these spaces offer strong opportunities for transformation into safe, functional, and inclusive places.

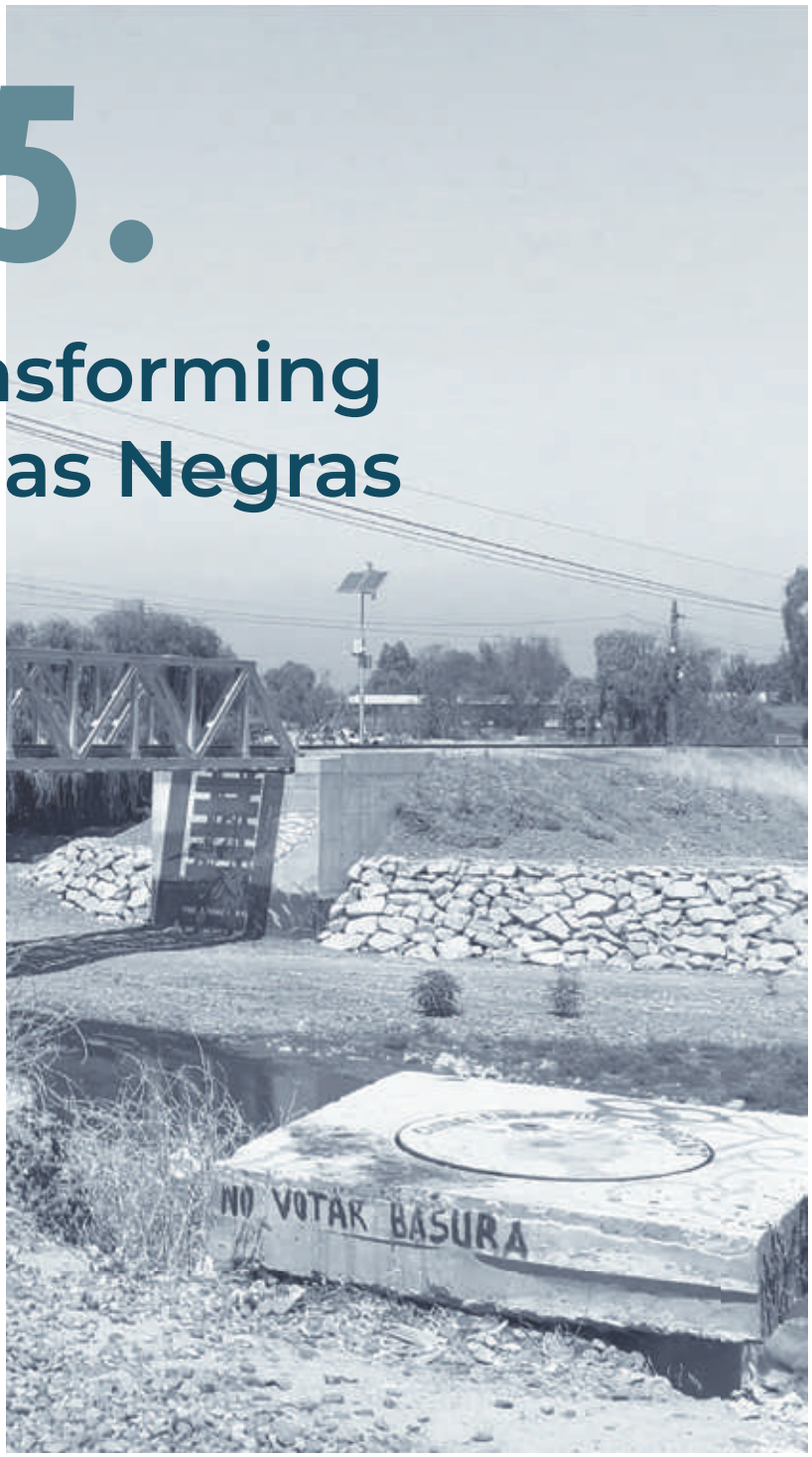
Part of the residential sector is located in a flood zone, which requires solutions to mitigate the effects of possible flooding of the stream. In terms of mobility, the transportation infrastructure is deficient and does not meet the needs of the population. Many streets are narrow and hinder the transit of vehicles, especially emergency vehicles, which aggravates the situation with the presence of informal parking lots generated by the lack of adequate spaces. In this sense, it is essential to implement solutions that promote the use of bicycles through safer and more accessible streets, as well as to establish formal and safe parking areas for both cars and bicycles.

Another critical aspect is public lighting, which currently prioritizes vehicular circulation, relegating pedestrians to dark and unsafe environments. This situation contributes to the perception of insecurity and limits community use of public spaces during nighttime hours. Therefore, it is essential to improve the quality and coverage of pedestrian lighting in public spaces in the sector.

Based on this diagnosis, the guiding principles of the vision for Aguas Negras have been defined, which guide the concept and design criteria of the proposed project, with the goal of transforming this neighborhood into a more inclusive, resilient and livable place for its community.

05.

Transforming Aguas Negras



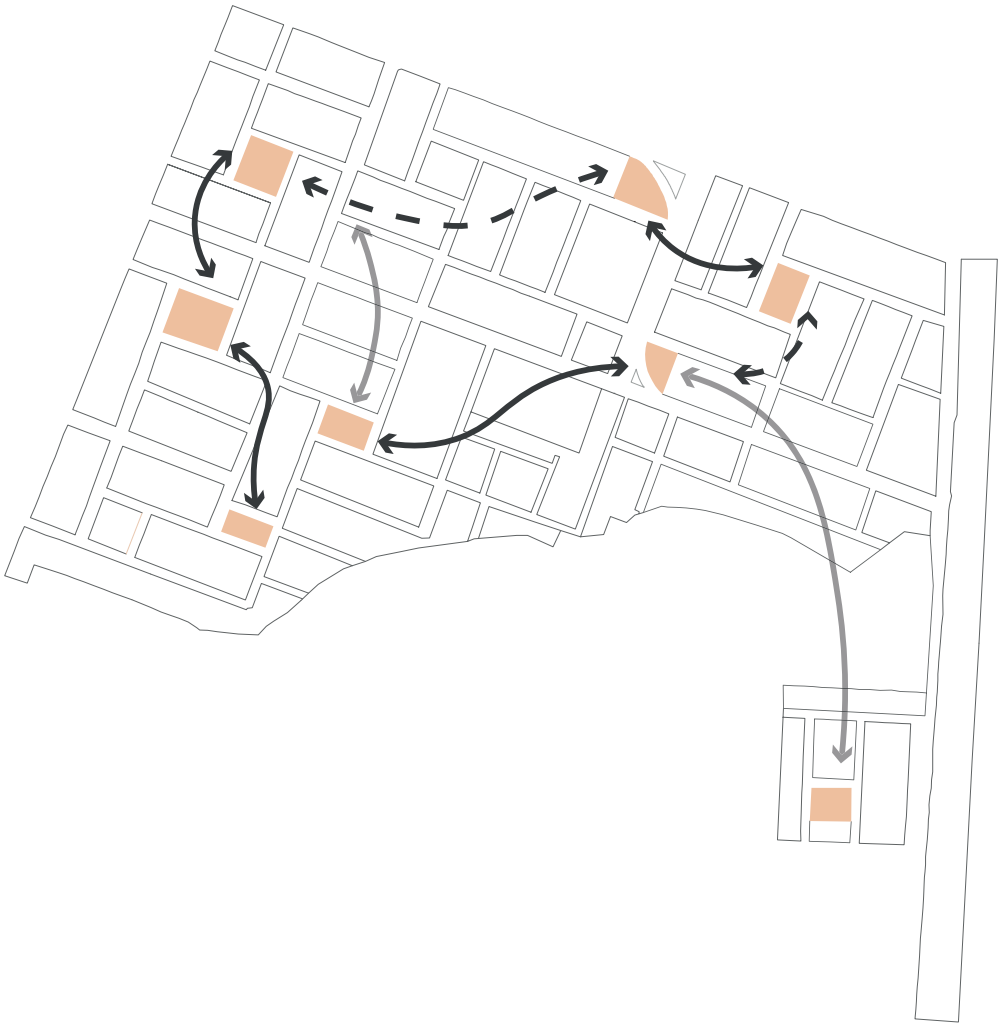
Ill. 32: Picture of the Guaiquillo stream. *Source: Own elaboration, 2025*

Shaping the area through urban design

05.1 Vision

The project's vision is to **convert the Aguas Negras neighborhood into an accessible and active area defined by functional and safe public spaces that strengthen the community's collective identity.** This transformation will improve daily mobility and access, create opportunities for social connection, and encourage a deeper sense of belonging to their territory.

This vision includes a strategic plan to reclaim and activate the Guaiquillo stream and its surrounding landscape, turning it into a shared ecological and cultural asset for the neighborhood and the city.



Ill. 33: Diagram of the vision. *Source: Own elaboration, 2025*

05.2 Concept

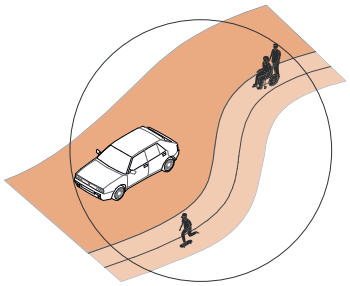
The core idea for this project is to create public spaces where access, safety, and identity come together to transform the neighborhood. **The design seeks to work with acupuncture urbanism, intervening in key points of the urban network through small-scale, meaningful, and rooted spaces that together have an overall impact on the community.**

The strategic plan supports these interventions and envisions, integrating the Guaiquillo stream and its surroundings into a broader system. This project works across scales, activating daily life while setting the basis for a larger environmental and social regeneration.

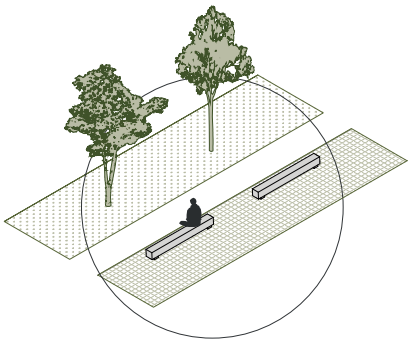
Ill. 34: Diagram of the Concept. *Source: Own elaboration, 2025*

05.3 Design criteria

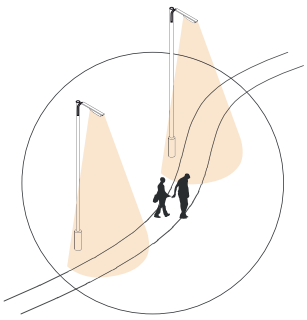
The design approach of Aguas Negras's transformation is based on urban acupuncture, a strategy focusing on small-scale interventions capable of revitalizing key public spaces. These actions are intended to work as catalysts for a more significant transformation, enhancing identity, improving connectivity, and ensuring accessibility across the territory. The following principles shape all design decisions throughout the project:



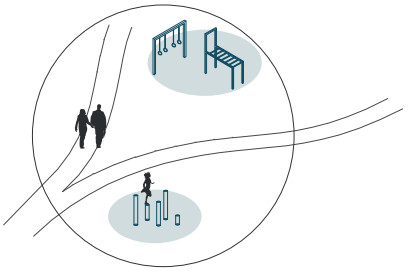
Accessibility: Design spaces and pathways that are inclusive, legible, and connected.



Low maintenance solutions: Use local, durable materials and native vegetation that require minimal maintenance.



Safety through lighting: Use public lighting to promote comfort and visibility at night.



Identity through function: Spaces are designed for use and to reflect the neighborhood's culture and routines, reinforcing a sense of belonging.

Ill. 35: Diagram of the Design Criteria. *Source: Own elaboration, 2025*

05.4 Strategic plan

Ill. 36: Map of the strategic plan. *Source: Own elaboration, 2025*

The strategic plan provides a broader territorial framework for the transformation of Aguas Negras. While the design focuses on small-scale interventions through urban acupuncture, the strategic plan links these local actions into a coherent, long-term vision of the entire area with the rest of the city, one area that recognizes the neighborhood's relationship to its natural and social landscape.

This plan identifies key moments and spaces where design can unlock broader changes: improving mobility, reclaiming neglected public spaces, and preparing for future integration with the Guaiquillo stream and the surrounding landscape.

One of the goeals of this strategic plan is to establish a green connection that extends from *Carlos Condell Hill*, crosses the *Alameda Curicó* and ends in a new park located on the southern edge of the city. The purpose of this park is to revitalize the sector, highlighting its natural attributes and offering citizens a space that favors interaction with nature. It is also intended that this new green infrastructure will serve as a catalyst to attract new functions and services to the neighborhood, thus promoting a comprehensive transformation of the urban area in question.

Given the limited timeframe, the strategic plan remains conceptual, serving as a general structure for what the project could become. Rather than detailing every element, it outlines key directions and possibilities, offering a flexible vision that can adapt and evolve through future design development.

The proposed plan includes several strategies to better connect the area with the city and the environment. One main idea is to stop seeing the stream and its surroundings as the edge of the neighborhood. Instead, the plan wants to turn it into a valuable and useful part of the community. This change will help people connect more with nature and encourage them to enjoy and take care of it.

In terms of connectivity, the plan includes the creation of two new connections across the existing railway line. To make this possible, the state would need to acquire or expropriate certain properties—following the process commonly referred to as "expropriation" in Chile—in order to improve access between the southern edge of the city and the rest of the urban area. Currently, this southern zone is almost entirely isolated.

Additionally, the plan proposes four new access points for vehicles, bicycles, and pedestrians, which will help revitalize the residential neighborhoods located in the southern part of the city. A dedicated pedestrian and bicycle access is also planned at the end of the Alameda de Curicó. This connection will link the city's two largest green spaces with the newly proposed park, enhancing neighborhood integration with the wider urban fabric and promoting sustainable mobility.

The project also proposes the creation of water management zones, in response to the information identified in the territorial analysis, which revealed the occurrence of flooding on the southwestern edge of the river. These measures seek to mitigate the risks associated with excess water events and contribute to the environmental resilience of the sector.

Finally, the plan incorporates the fundamental principles of the *Transforming Aguas Negras* project, focusing on four key points: accessibility, low-maintenance solutions, safety through lighting, and identity through function. These guidelines will serve as the basis for the design and management of the proposed public space.

05.4.1 Guaiquillo Park and green connection

Current situation

The following collage illustrates the two main green areas of the city, as well as the natural environment of the Guaiquillo stream, place that as established in the strategic plan, it will be transformed into a new park that will become part of a green corridor coming from the city center to the southern part of Curicó.

Images 01 to 03 show the Carlos Condell Hill, where there is a shared route between cars and pedestrians, accompanied by viewpoints and spaces for resting.

Images 04 to 06 are from the Alameda de Curicó, a tree-lined avenue which, as mentioned in the analysis, is usually used for walks and to rest at the sitting areas along its route.

Finally, images 07 to 09 show the Guaiquillo stream, which is currently a wasteland on the urban boundary. However, it highlights the natural environment that surrounds it, showing the great potential offered by the vegetation and the water resources for the well-being and quality of life of the citizens.

Ill. 37: Collage of current situation of the future green connection. *Source: Own elaboration, 2025*

Access to the park

Once the connectivity between the city center and its southern boundary has been established, it is essential to define strategies to ensure the proper functioning of the new park, and to revitalize both the currently abandoned area next to the stream and the Aguas Negras neighborhood.

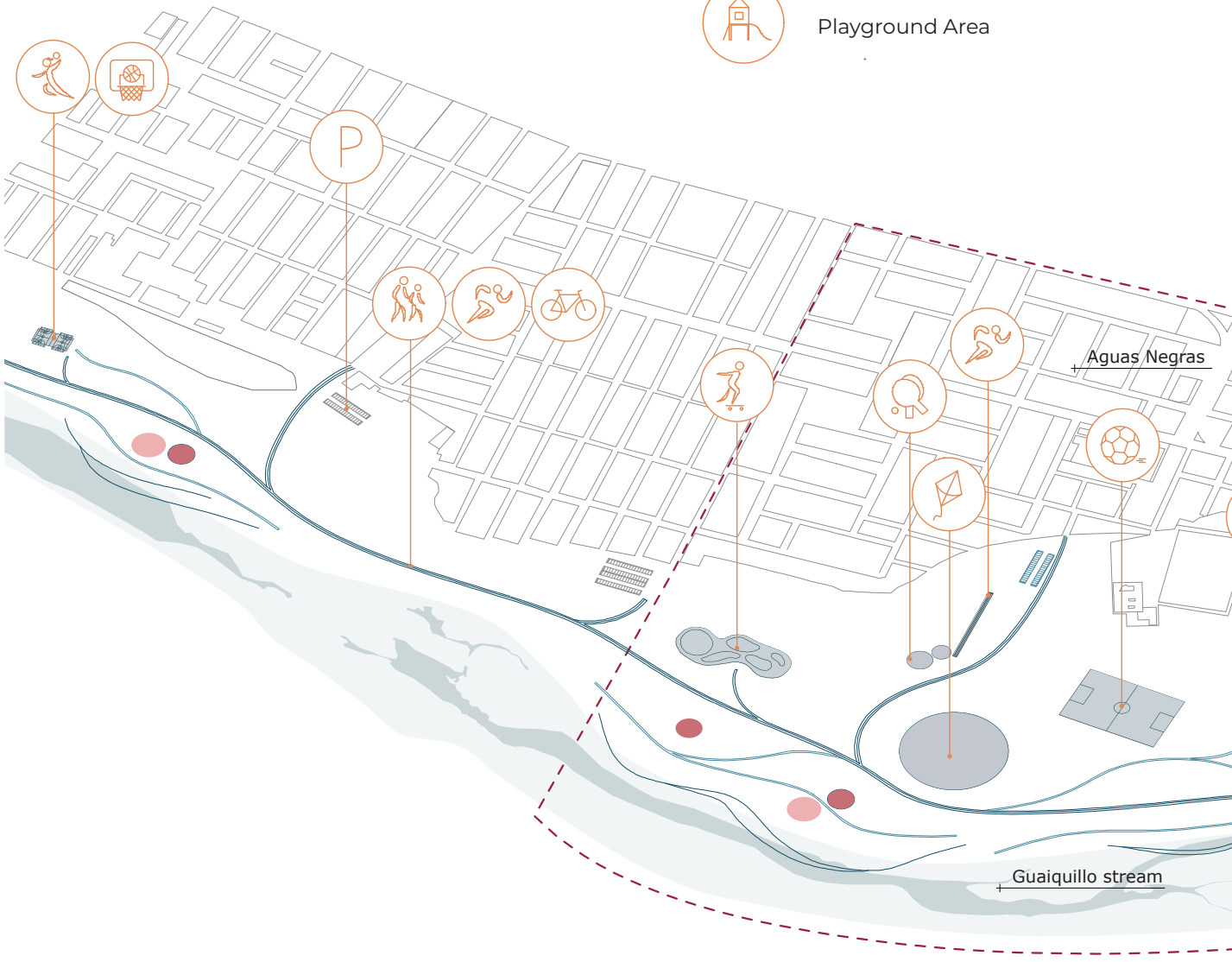
A central issue to address is how the park will be accessed, given that the safety of both nearby residents and future visitors is essential. In this context, four main accesses have been proposed, designed for pedestrians, bikes and cars. These accesses should be equipped with bicycle and car parking spaces to avoid occupying public space in the surrounding neighborhoods. In addition, they should have adequate lighting, open spaces that allow good visibility and, if possible, the installation of security cameras, in order to provide a safe and welcoming environment for the community.

In addition, there are two secondary accesses exclusively for pedestrians and cyclists. The first is located within the Aguas Negras neighborhood, on a shared-use street, while the second is the connection to the city's green corridor. These accesses must also meet safety standards such as openness, good lighting, and the installation of security cameras to ensure safe and accessible access to the park.

Ill. 38: Plan for the park's access. *Source: Own elaboration, 2025*

Program Diagram

- Handball Court
- Basketball Court
- Parking for Cars and Bikes
- Pedestrian Pathway
- Running track
- Bike Lane
- Skatepark
- Ping Pong tables
- Kite Flying Area
- Football Field
- Picnic Area
- Playground Area

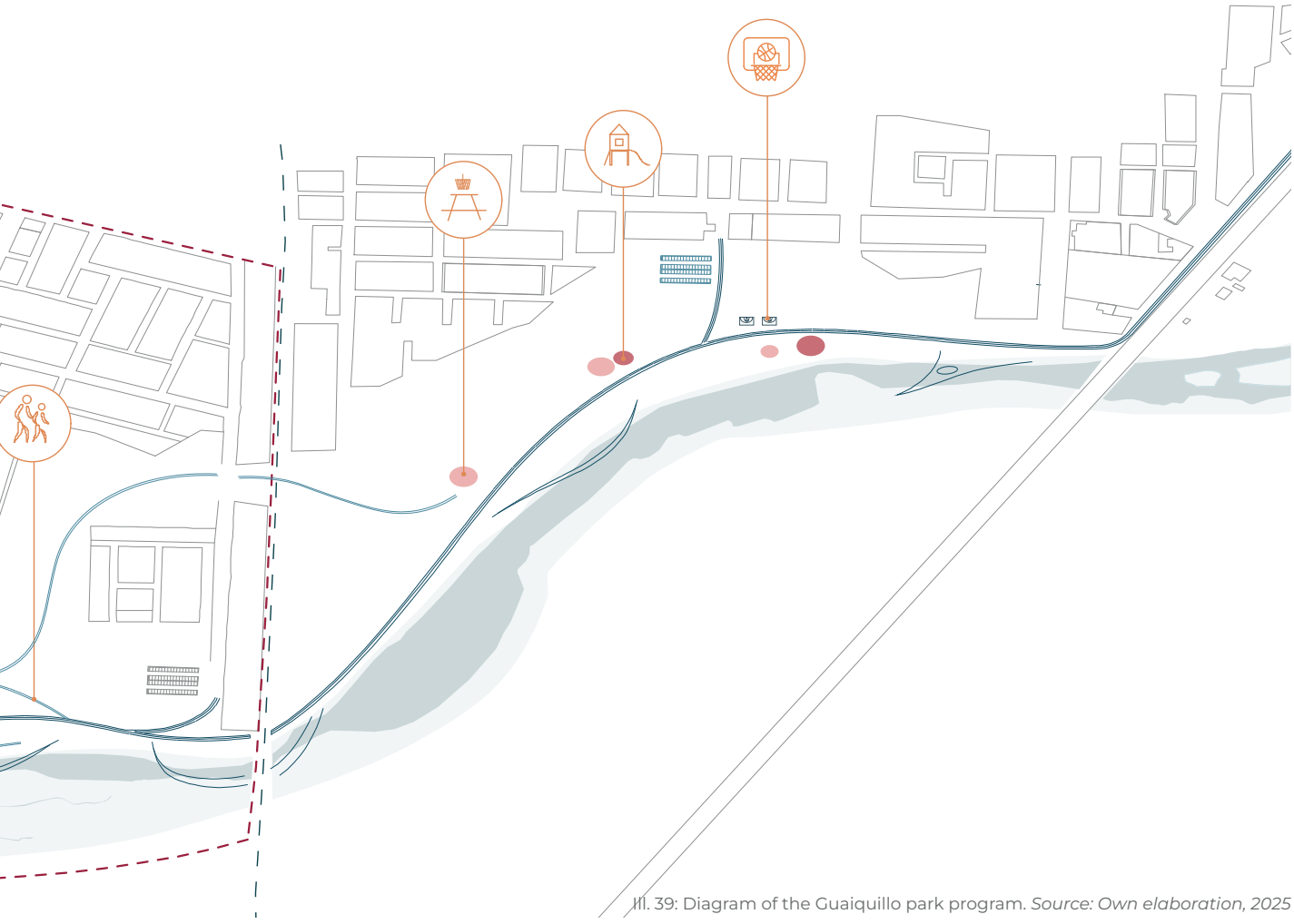


As previously stated, the strategic plan's main objective is to create one of the largest green areas in the city, promoting a significant connection to the water and revitalizing the residential neighborhoods located to the south of the city, currently referred to as "slums". In this context, **it is essential to provide the park with a diversity of functions that will attract users of different ages and genders, and encourage its use during different time slots.**

The proposed functional scheme contemplates three main categories: areas for sports practice, spaces oriented to mobility and access, and recreational and family areas. These functions are distributed strategically throughout the park. The sports areas are located on the northern boundary, where the larger vegetation acts as an acoustic and visual barrier, providing privacy to the surrounding neighborhoods. These areas include disciplines such as basketball, handball, soccer, table tennis and skateboarding, among others. In this sense, the Transforming Aguas Negras project contemplates the construction of two basketball courts, which are also used for the practice of baby soccer. Due to this functional duplicity, the basketball courts considered in the strategic plan have been located in more distant sectors within the park, in order to avoid the concentration of similar activities in a single point.

Next, a main path, designed for pedestrians, cyclists and athletes, is established, from which secondary trails are branching off to articulate the rest of the park. Along these routes, the proposal includes the incorporation of spaces for rest, integrating urban furniture that encourages the permanence and the meeting between users.

Finally, in the areas closest to the stream, recreational and family spaces are located, including picnic areas, playgrounds, as well as docks and pedestrian bridges that allow direct interaction with the natural surroundings. These interventions are intended to facilitate access to the water and strengthen the relationship between the community and their context.



Ill. 39: Diagram of the Guaiquillo park program. *Source: Own elaboration, 2025*

Guaiquillo park plan

Ill. 40: Plan of the Guaiquillo park, 1:10000. *Source: Own elaboration, 2025*


Guaiquillo stream
N
1:10000

Transforming Aguas Negras

Ill. 41: Illustration of the Sport court. *Source: Own elaboration, 2025*

05.5 Street Layout Variations

Mobility and accessibility are key challenges in the neighborhood. To address them, the initial focus will be on improving the streets, particularly the bicycle infrastructure. The plan uses street typologies based on existing widths, allowing solutions to be replicated within the area and adapted to other parts of the city.

Three street types were identified, all offering opportunities for spatial improvement:

Type A: Main Avenue

This is the widest street type (20–24 m). It currently includes one-meter sidewalks, one lane per direction, and side strips of grass or soil, these being used as informal parking.

The plan is to redistribute space to ensure universal accessibility, making the pedestrian path widen, add proper bike lanes, preserve green strips, maintain the existing car road, and add some formal parking.

Type B: Secondary Street

This type (12–14 m wide) includes one-meter sidewalks, one lane in each direction, and strips with vegetation or soil, that is often used for informal parking.

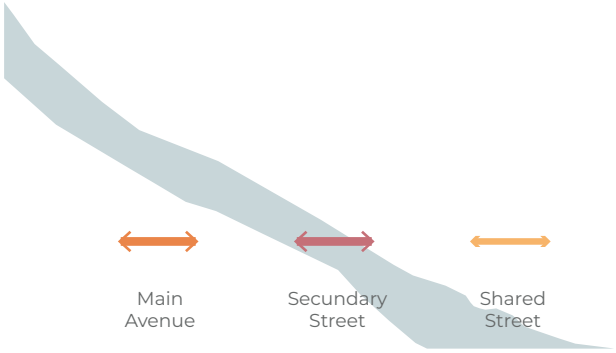
The proposal consists of expanding sidewalks, adding a two-way bike lane on one side of the street, maintain traffic lanes, and incorporate vegetation to create a balanced, accessible street.

Type C: Shared Space

These narrower streets (6–9 m) are fully residential. They usually have sidewalks on both sides, although these are often obstructed by streetlights or parked cars, which can pose a danger in case of an emergency. Despite their limited width, they allow two-way vehicle traffic.

The idea is to convert these into shared streets for pedestrians, cyclists, and vehicles. Work with surface materials and slight elevation changes will help slow traffic and promote a safe environment for all the users.

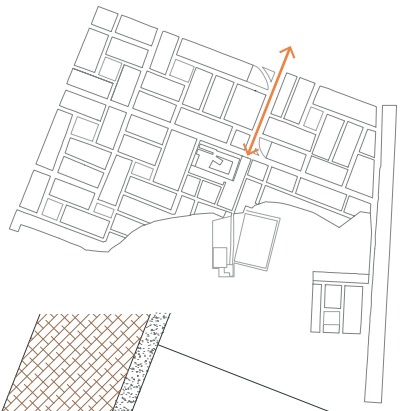
Each typology is illustrated through a real example from the neighborhood, showing its current condition and proposed design.

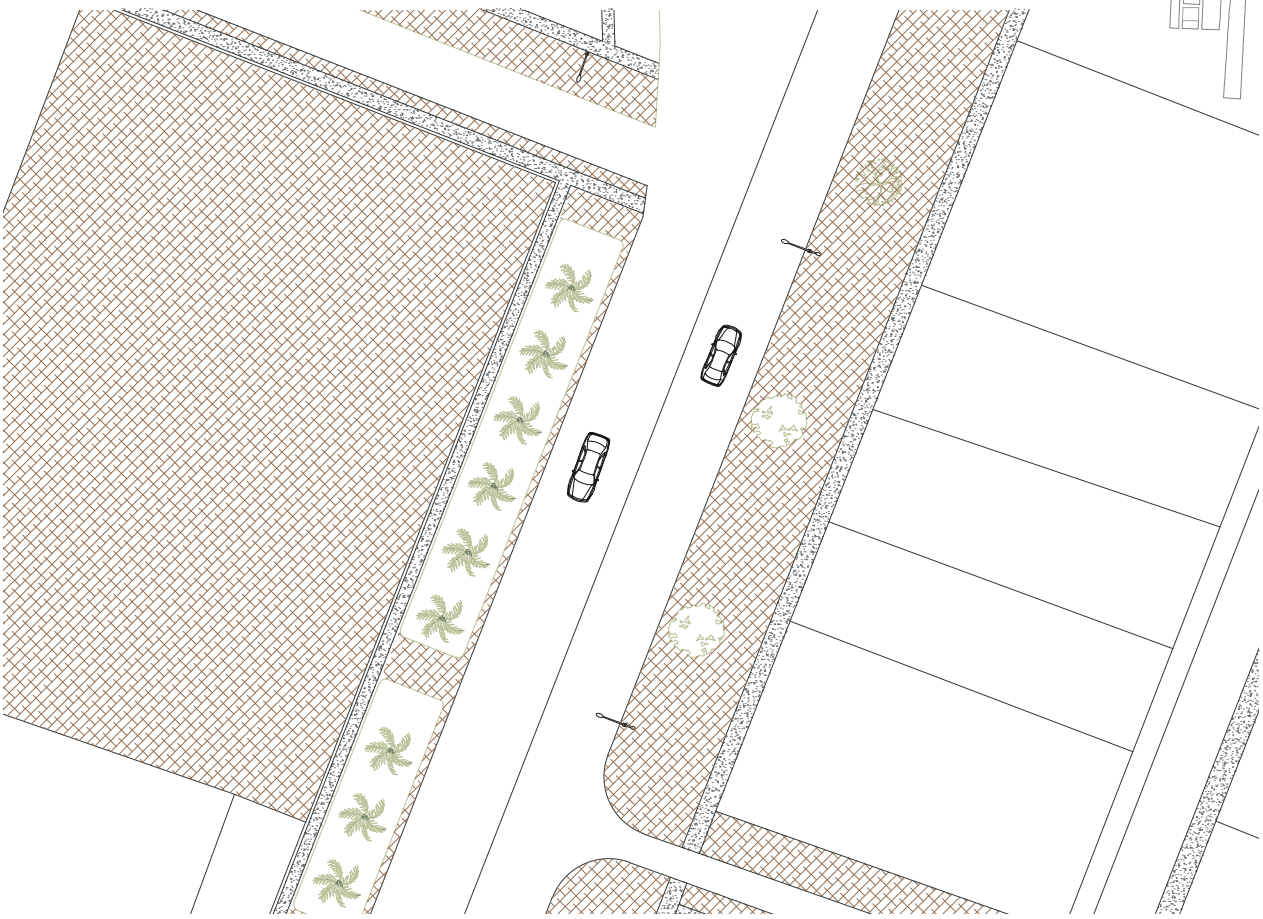


Ill. 42: Diagram of the Street layout variations. *Source: Own elaboration, 2025*

05.5.1 Type A: Main Avenue

Current situation

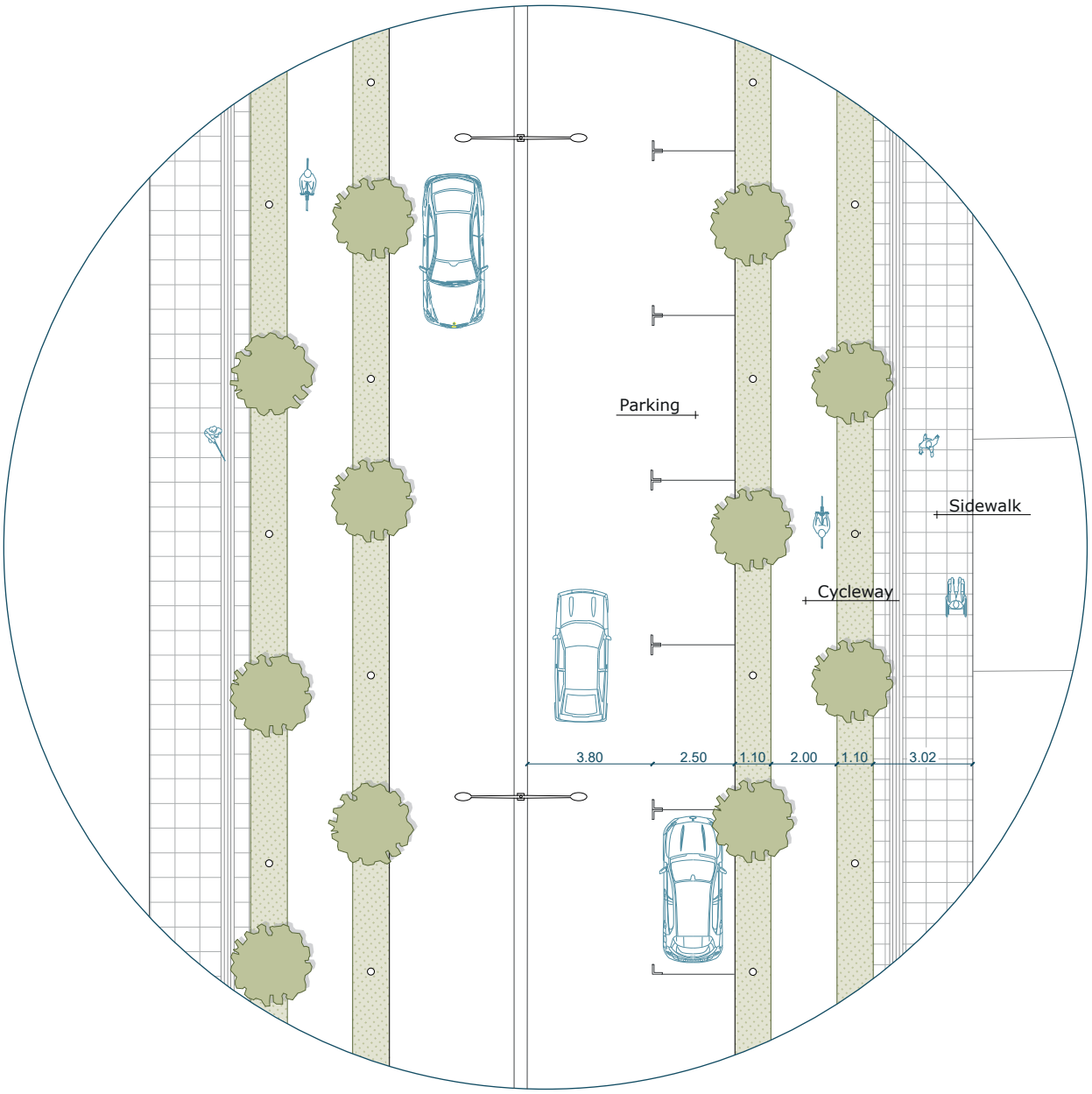




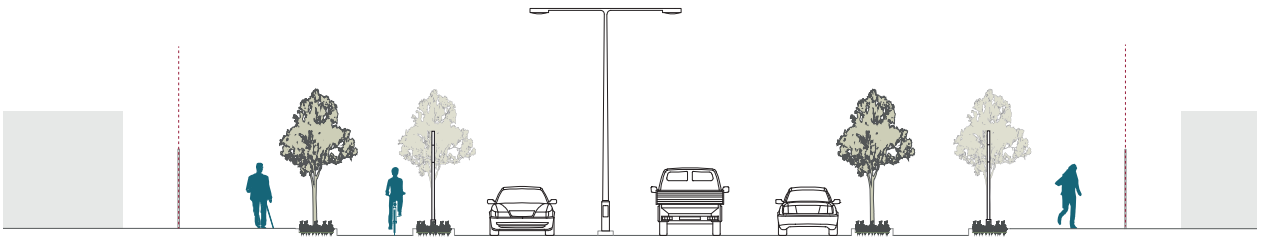
Ill. 43: Current situation Main Avenue . *Source: Own elaboration, 2025*

Ill. 44: Pictures current situation Main Avenue. *Source: Own elaboration, 2025*

Main Avenue Design



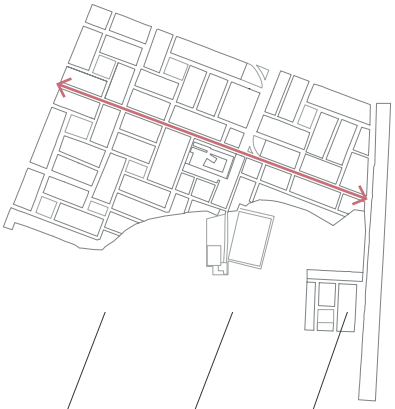
Ill. 45: Plan of the Main Avenue typology, 1:200.
Source: Own elaboration, 2025

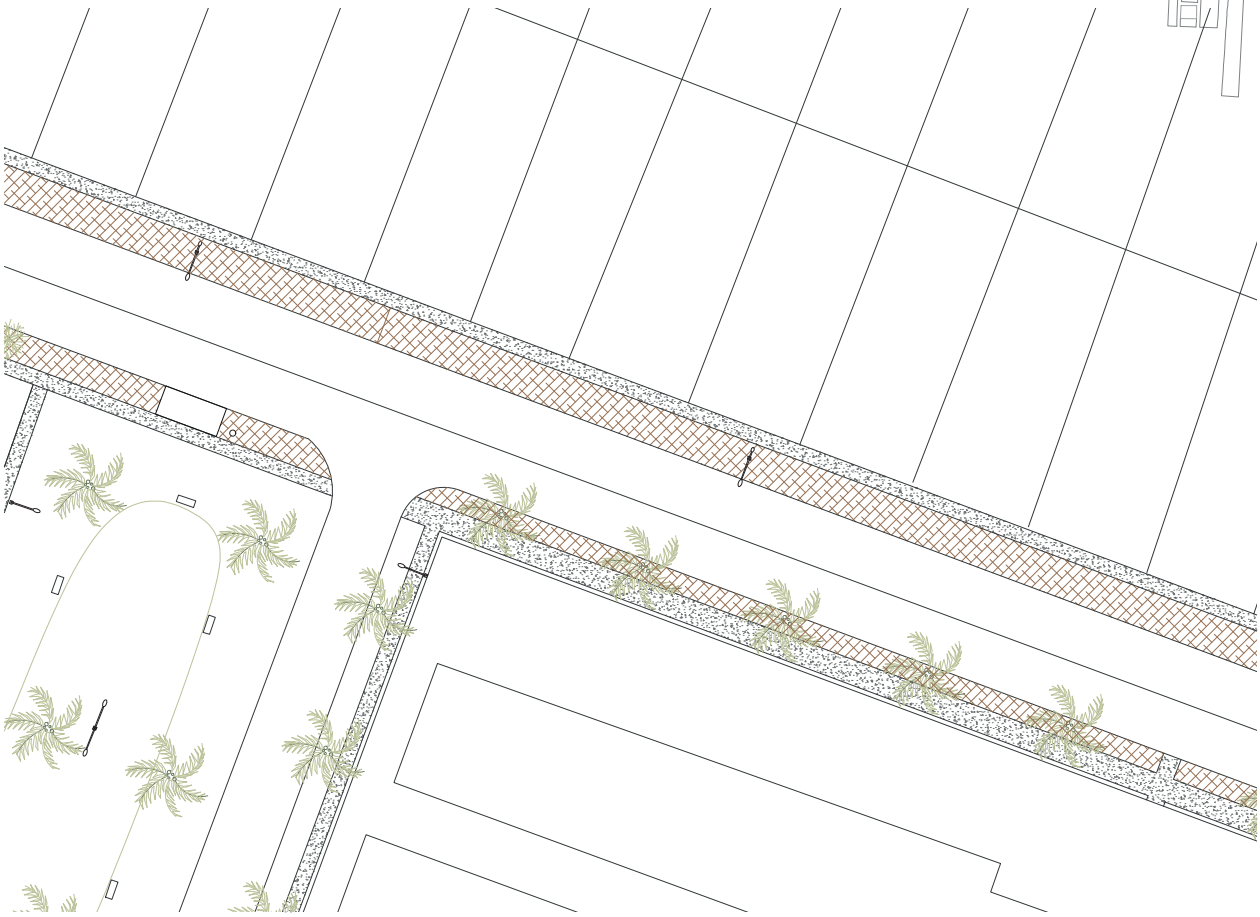


Ill. 46: Section of the Main Avenue typology, 1:200.
Source: Own elaboration, 2025

05.5.2 Type B: Secondary Street

Current situation

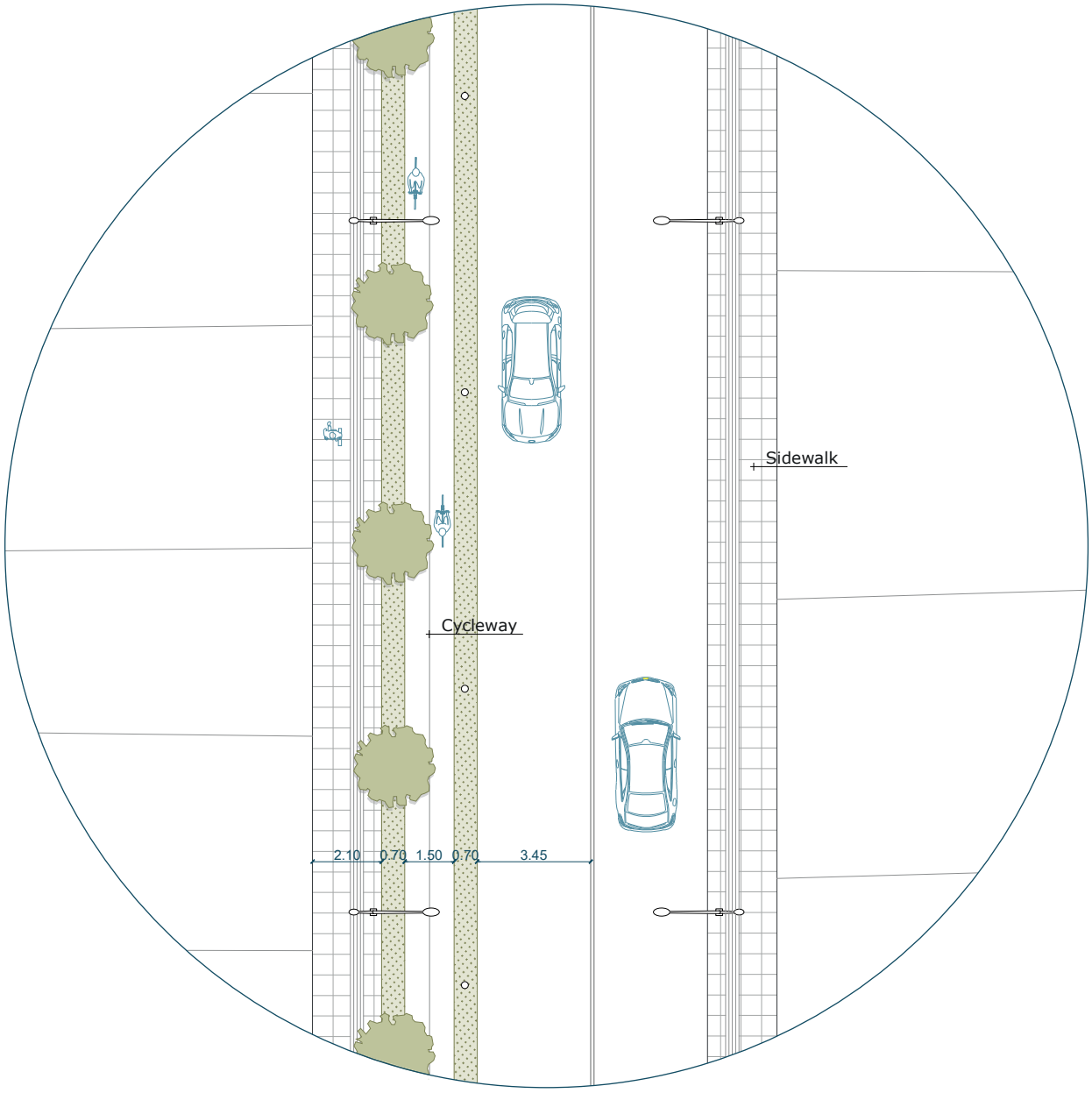




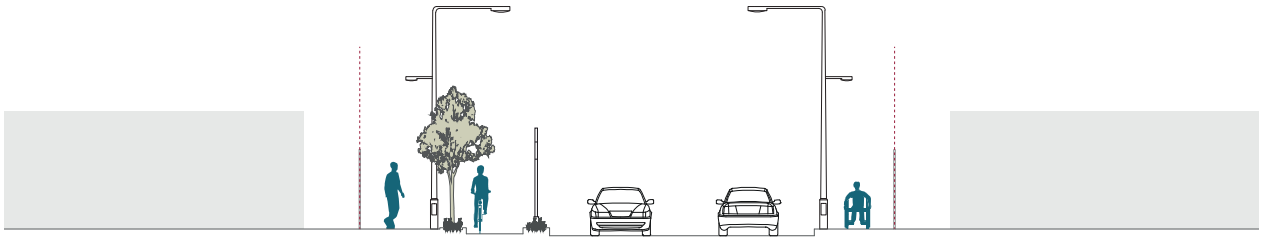
Ill. 47: Current situation secondary street. *Source: Own elaboration, 2025*

Ill. 48: Pictures current situation secondary street. *Source: Own elaboration, 2025*

Secondary Street Configuration



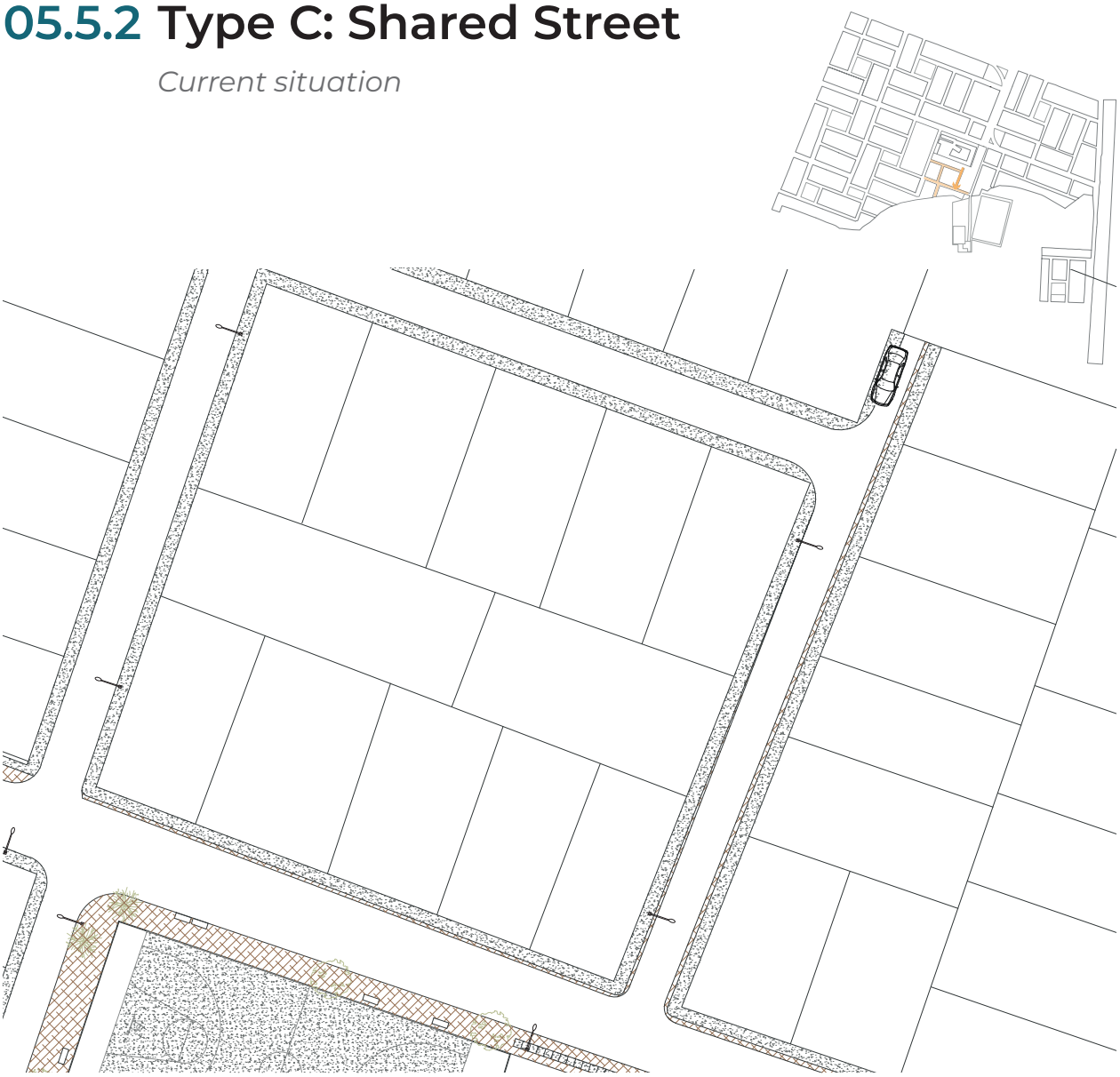
Ill. 49: Plan of the Secondary street typology, 1:200.
Source: Own elaboration, 2025



Ill. 50: Section of the Secondary street typology, 1:200.
Source: Own elaboration, 2025

05.5.2 Type C: Shared Street

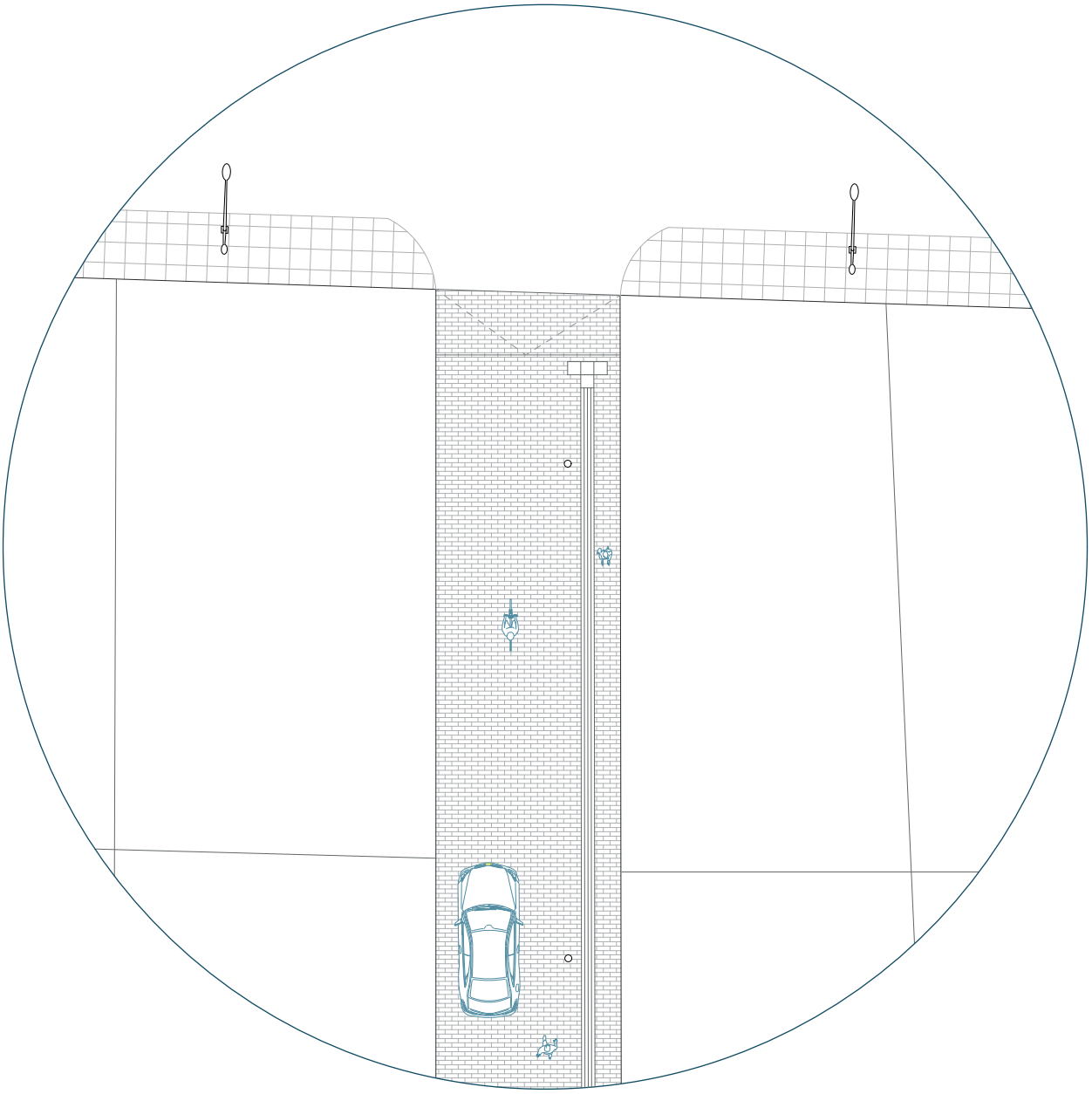
Current situation



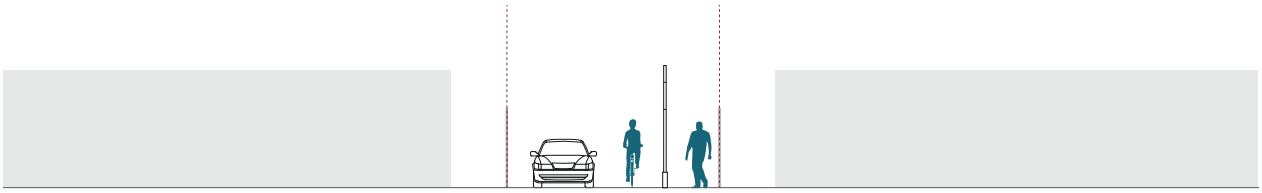
Ill. 51: Current situation shared street. *Source: Own elaboration, 2025*

Ill. 52: Current situation shared street. *Source: Own elaboration, 2025*

Shared Street Concept



Ill. 53: Plan of the Shared street typology, 1:200.
Source: Own elaboration, 2025



Ill. 54: Section of the Shared street typology, 1:200.
Source: Own elaboration, 2025

05.6 Public space strategy

For the development of the project, all existing public spaces within the neighborhood that lacked maintenance, function or identity were identified and analyzed. Each of these spaces was evaluated for its current use and potential based on its location, dimensions and morphology, in order to classify them within a specific typology of public space.

Five typologies were defined, which are repeated in different parts of the neighborhood. For each typology, a representative case study was selected, on which specific design strategies were developed that can then be replicated in other spaces with similar characteristics. The typologies defined are the following:

Community Garden

Public space for gardening activities, created for the development of community activities that promote social cohesion and collaborative work.

Sports Court

Areas for the practice of outdoor sports. Originally there were three courts in the study area; however, it was decided to intervene two of them, since the strategic plan contemplates the development of a large sports space.

Green Corridor

Long strips of public space that function as pedestrian paths with the objective of improving the transit experience and promoting the ecological connection between sectors of the neighborhood.

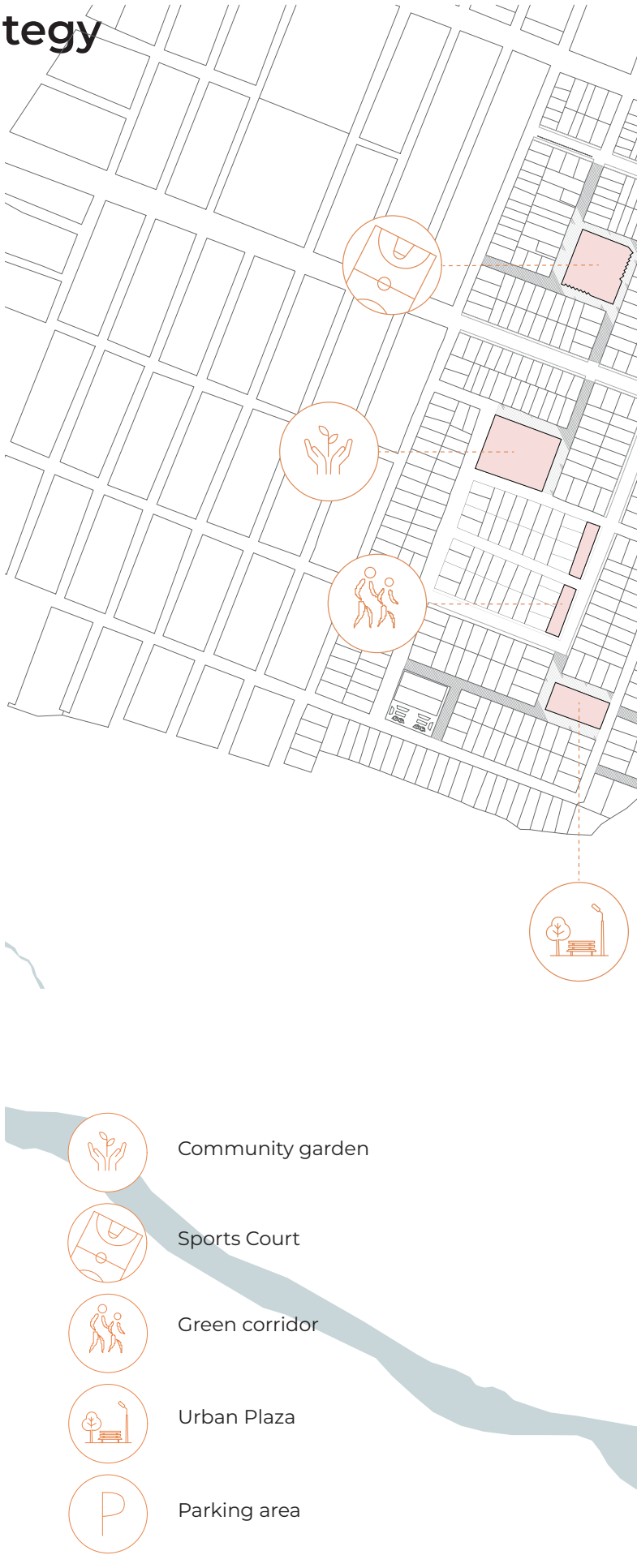
Urban Plaza

Family gathering spaces, designed for recreational activities, with picnic areas and children's playgrounds.

Parking Area

In this case, a parking lot is proposed to provide an emergency care center that currently does not have this facility. This typology can also be replicated where a similar need is detected.

The following diagram shows the different typologies selected and their location within Aguas Negras.



Ill. 55: Diagram of the Public Space Strategy. *Source: Own elaboration, 2025*

05.6.1 Community garden

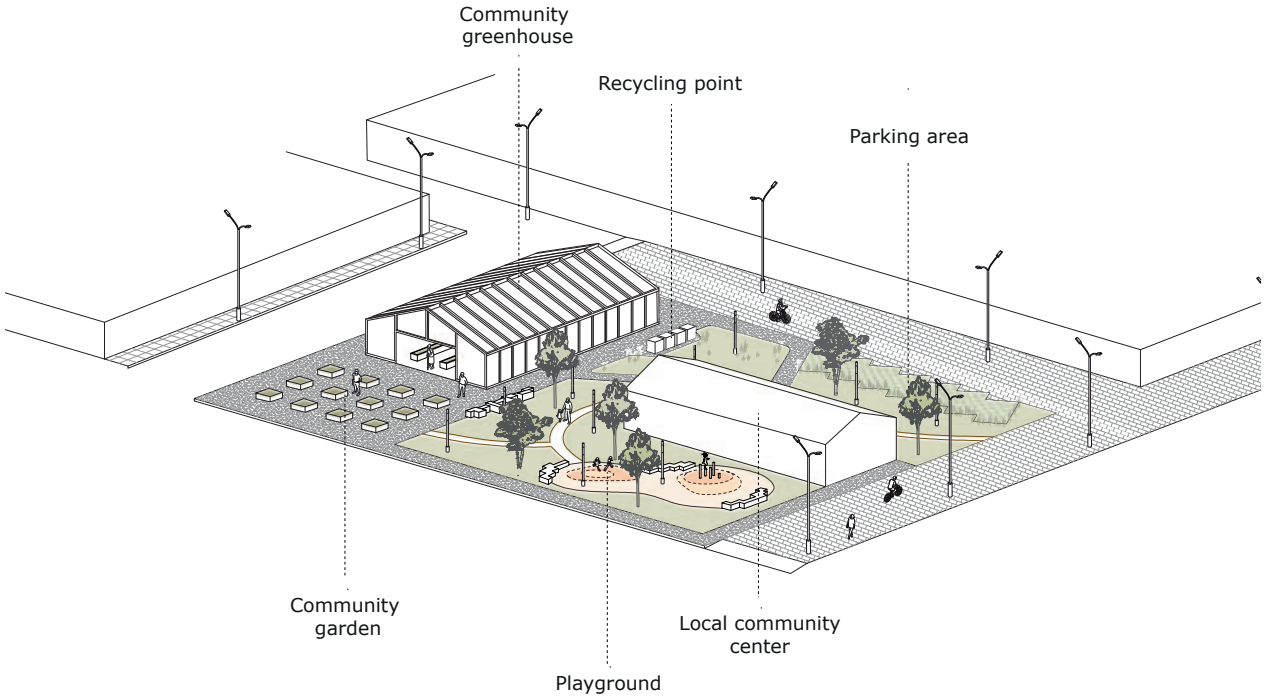
Current situation

Ill. 56: Current situation Community garden. *Source: Own elaboration, 2025*

Ill. 57: Collage Current situation community garden. *Source: Own elaboration, 2025*

Plan 1:250

Ill. 58: Plan of the Community garden, 1:250. *Source: Own elaboration, 2025*



Ill. 59: Axonometric view of the community garden. *Source: Own elaboration, 2025*

The original site consists of a sports court and a community center, both enclosed by fences and kept locked, which limits their use and results in low activity levels. This court has been excluded from the new program due to its proximity to other courts and because the strategic plan includes new sports infrastructure within the upcoming Guaiquillo Park.

In its place, the Community Garden is proposed as a space designed to strengthen community bonds through urban agriculture. **This garden, along with the Green House, aims to create a shared environment where neighbors can come together regularly to participate in a collective activity**. While this space will require ongoing maintenance and community management, it offers the benefit of encouraging social interaction and cooperation. Participants will also gain useful skills and be rewarded with fresh produce grown in the garden.

As part of the transformation, most of the existing vegetation will be removed, as it currently blocks visibility and creates a sense of insecurity in the area. In particular, the existing palm trees require specialized maintenance and are not native to the region. The new design will preserve green areas, with wild flora, but reconfigure them to open up the space to the community, improving visibility, safety, and quality of life.

The existing community center will be preserved, as it has the potential to become a support facility. Although currently is not being used, it could be used to store tools, host community events, and provide workshops on gardening and greenhouse management.

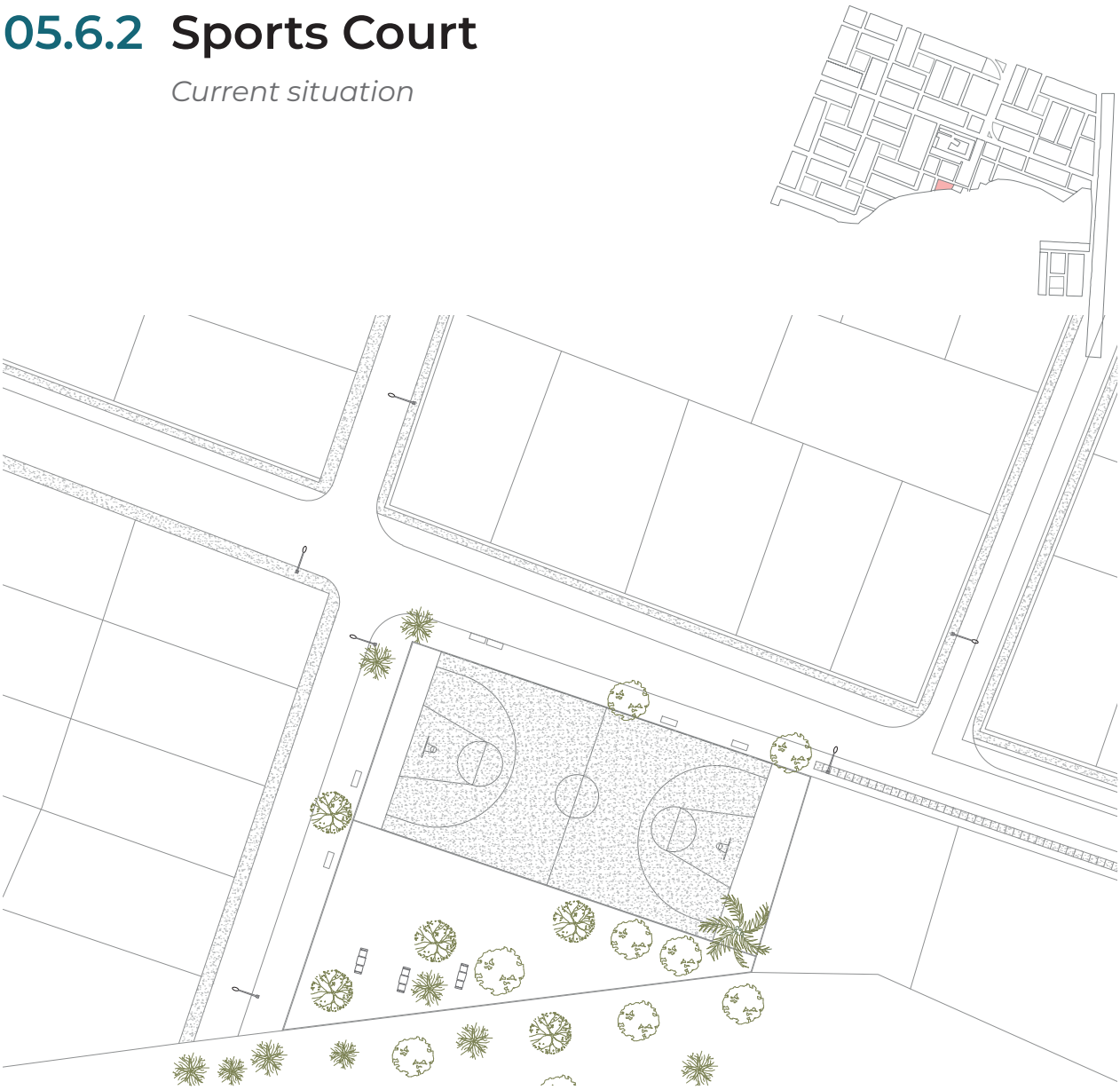
In addition to these features, the proposal includes a children's playground, green areas, and seating spaces, ensuring the area serves a wider audience and is not limited to just one type of activity. This approach seeks to attract people of all ages and genders, at different times of day.

Finally, the design incorporates car and bicycle parking, as well as a recycling point, aligning with two other nearby public spaces to promote sustainability and accessibility in the neighborhood.

Ill. 60: Illustration of the community garden. *Source: Own elaboration, 2025*

05.6.2 Sports Court

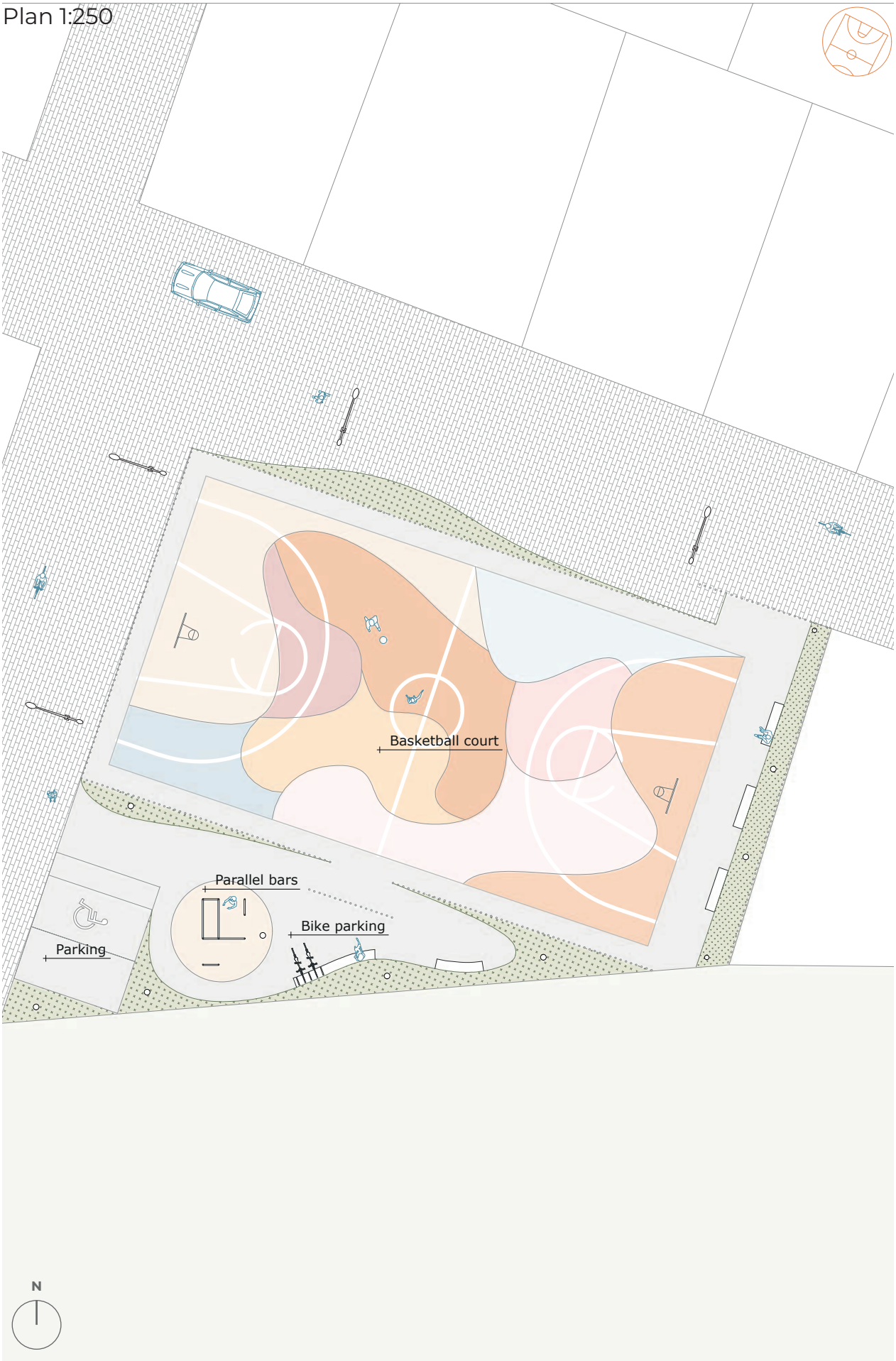
Current situation



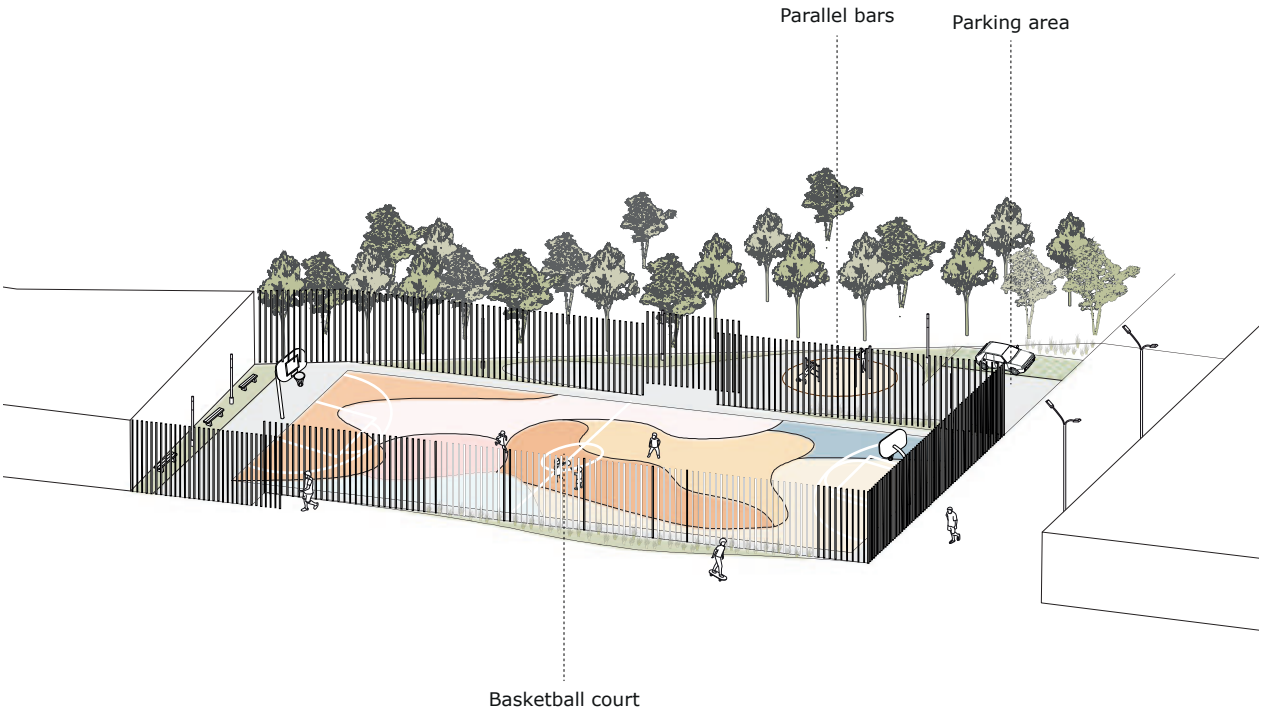
Ill. 61: Current situation sport court. *Source: Own elaboration, 2025*

Ill. 62: Collage Current situation sport court. *Source: Own elaboration, 2025*

Plan 1:250



Ill. 63: Plan of the Sport court, 1:250. *Source: Own elaboration, 2025*



Ill. 64: Axonometric view of the sport court. *Source: Own elaboration, 2025*

Currently, there are four multi-use sports courts in the area. One of them is in great condition and will remain unchanged. Of the remaining three, two have limited use because they are usually locked and require a key to access. The third court, which will serve as a reference for the intervention, is the most actively used, as a local resident holds the key and opens it daily from 8:00 a.m. to 5:00 p.m., demonstrating that the abandonment or limited use of the other courts is primarily due to their lack of accessibility, not only physically, but also visually.

It is also important to note that, like many public spaces in the area, this court has someone responsible for cleaning, but not for maintaining the infrastructure. As a result, many improvised repairs have been made by the neighbors themselves.

The project aims to renovate two courts and repurpose a third, as previously mentioned.

The location of the courts will remain unchanged, as they were originally requested by residents and reflect the community's needs. **This typology seeks to concentrate sports activities in these areas, so in addition to the sports court, adjacent spaces for physical activity will be included**.

Both courts are surrounded by streets that the project designed under a "shared space" concept, which results in lower traffic flow and reduced vehicle speeds. Nevertheless, safety enclosures are necessary to protect users. Rather than fully enclosing the courts, the proposed design will feature more open protective elements that ensure safety while still inviting the community to make use of the place.

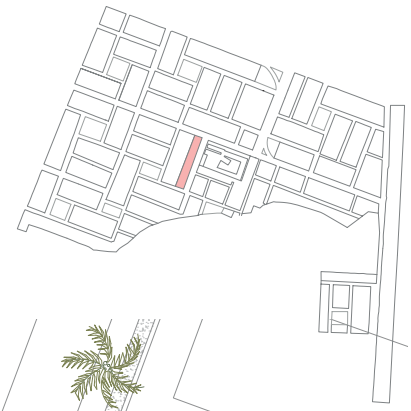
The identity of these spaces will be shaped by the public space design language and the court colors, which will be matching other public space typologies. This approach will create a connected network of easy to understand, naturally shaped, and accessible paths for everyone to use

Given the nature of the activities to be carried out, a degree of privacy is required. This will be achieved through green buffer zones, using wild plant species between 50 and 80 cm in height, which provide a sense of enclosure while preserving visibility for safety.

Ill. 65: Illustration of the sport court. *Source: Own elaboration, 2025*

05.6.3 Green corridor

Current situation

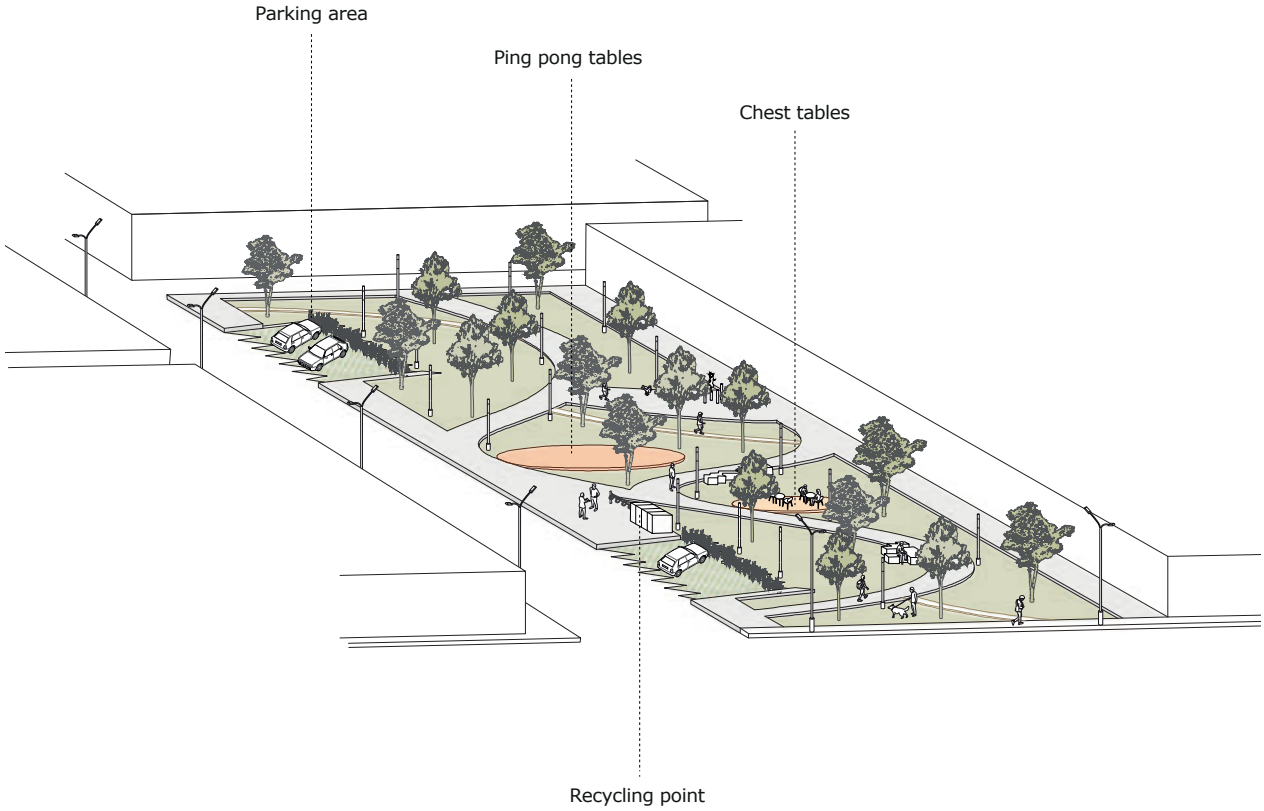


Ill. 66: Current situation green corridor. *Source: Own elaboration, 2025*

Ill. 67: Collage Current situation green corridor. *Source: Own elaboration, 2025*

Plan 1:250

Ill. 68: Plan of the Green corridor, 1:250. *Source: Own elaboration, 2025*



Ill. 69: Axonometric view of the green corridor. *Source: Own elaboration, 2025*

This typology refers to public spaces of a linear nature that connect multiple blocks, they are characterized by a narrow form within the urban fabric. These spaces are designed to offer a pleasant and peaceful experience for pedestrians, what is commonly referred to in Spanish as a *paseo*, meaning the act of walking or moving through space for enjoyment rather than necessity.

The primary goal of these corridors is to provide an inviting and accessible environment that encourages walking and recreational use. To achieve this, the design emphasizes clear, intuitive, and easy to navigate pathways that promote pedestrian flow and encourage people to linger. The corridors are lined with abundant vegetation to create a natural and refreshing atmosphere, while maintaining open visibility to ensure a sense of safety and security through natural surveillance.

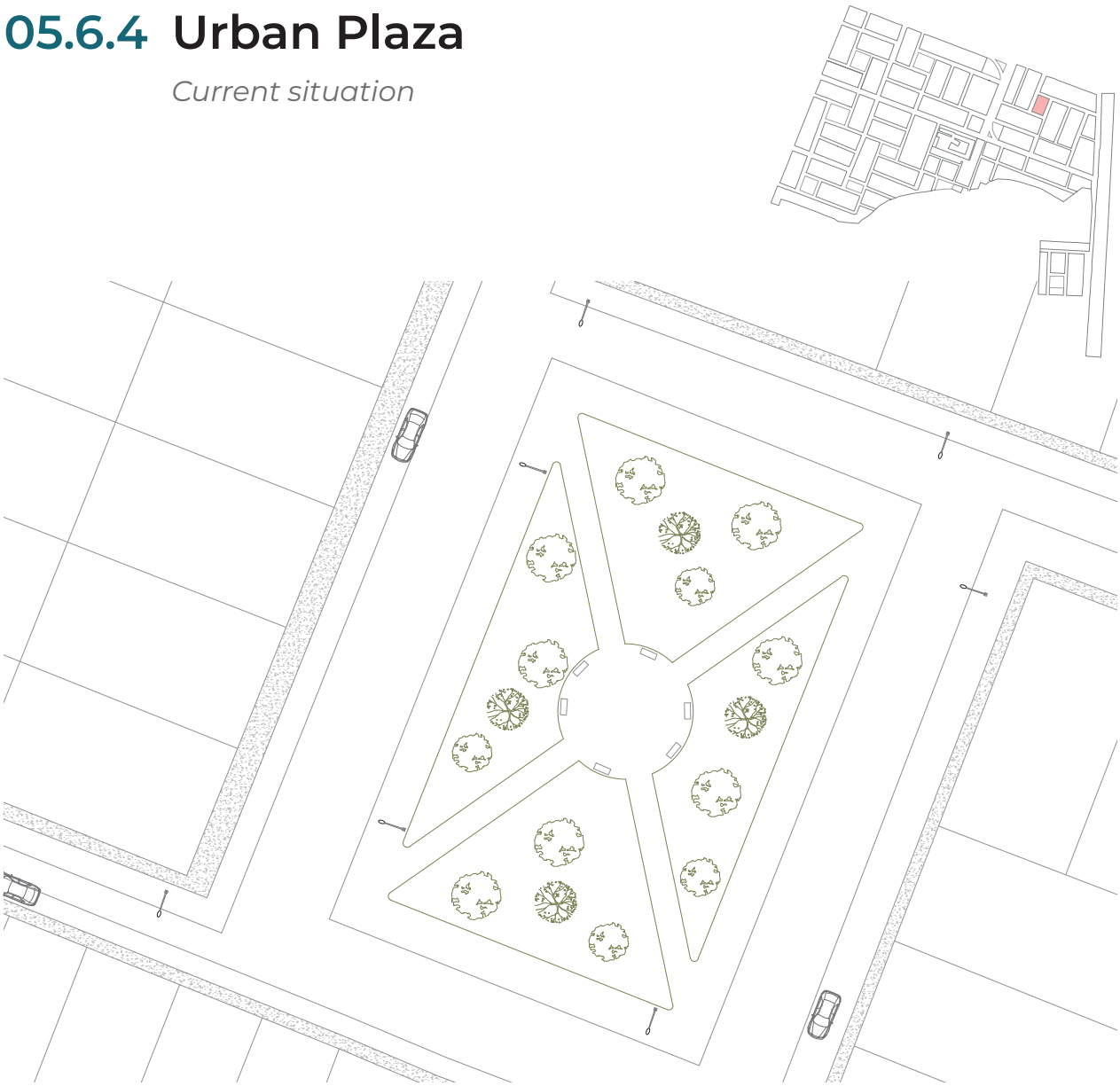
Beyond encouraging walking, these green corridors aim to be inclusive spaces that welcome people of all ages and physical abilities. Resting areas are distributed throughout the route, complemented by low-noise activities such as ping-pong and chess tables. **These sports not only activate the space but also preserve its calm character, supporting community friendly interactions**.

Within the urban layout of the neighborhood, these spaces are typically located alongside secondary streets that still experience significant vehicular traffic. As such, they also serve practical functions, incorporating parking spaces for both cars and bicycles to support access. Additionally, the corridors have been designated as one of three recycling points within the neighborhood.

Ill. 70: Illustration of the green corridor. *Source: Own elaboration, 2025*

05.6.4 Urban Plaza

Current situation

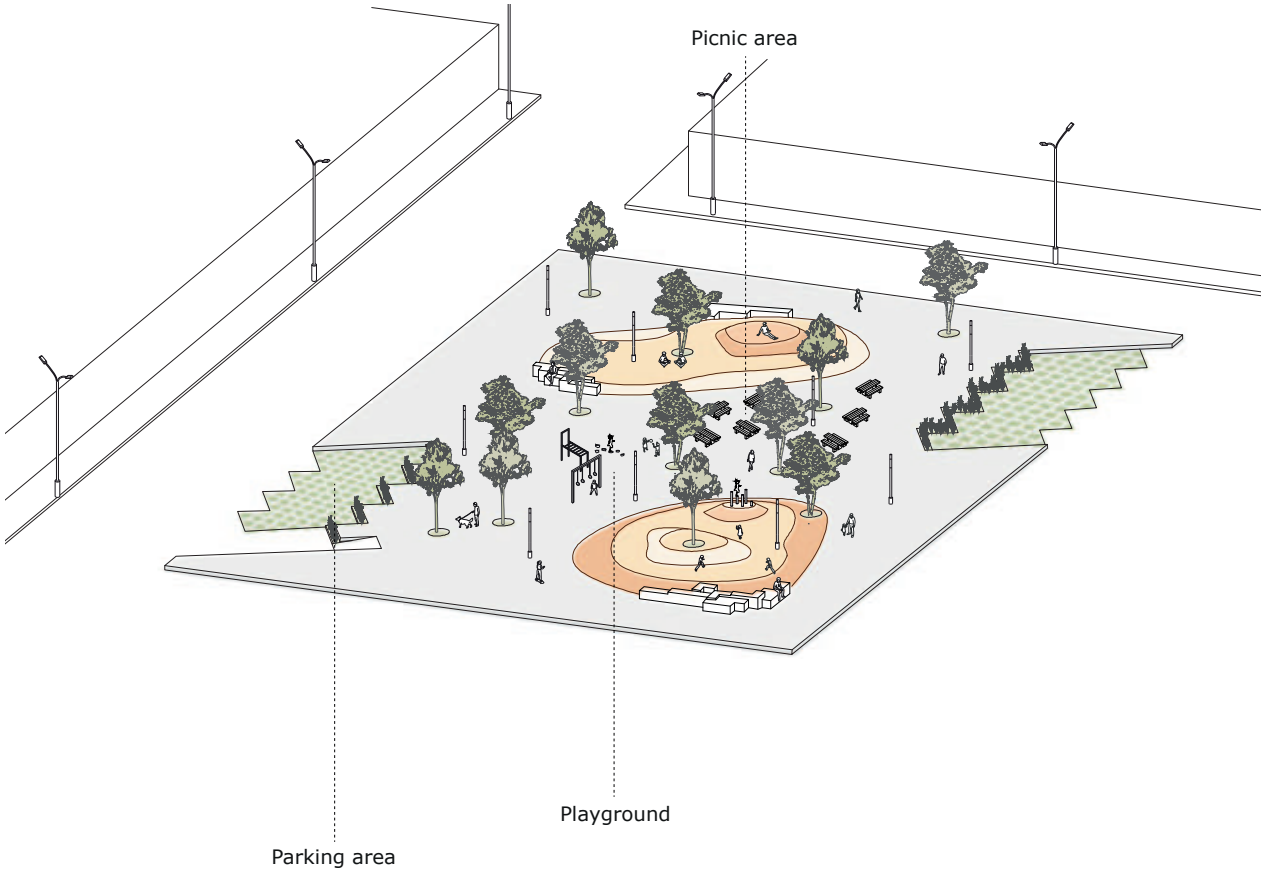


Ill. 71: Current situation urban plaza. *Source: Own elaboration, 2025*

Ill. 72: Collage Current situation urban plaza. *Source: Own elaboration, 2025*

Plan 1:250

Ill. 73: Plan of the urban plaza, 1:250. *Source: Own elaboration, 2025*



Ill. 74: Axonometric view of the urban plaza. *Source: Own elaboration, 2025*

The urban plaza typology is designed to bring together a wide variety of users, with a particular focus on creating a welcoming and inclusive environment for families. These spaces are intended to serve as social hubs where people of all ages can engage in different activities. The design includes dedicated play areas for children, comfortable zones for rest and relaxation, and picnic areas where visitors can gather, eat, and spend quality time.

Beyond providing space for recreation and relaxation, the urban plaza also plays an essential role in fostering a sense of community. By integrating a range of functions and encouraging social interaction among diverse users, **these plazas are intended to strengthen neighborhood ties and promote a shared sense of belonging**.

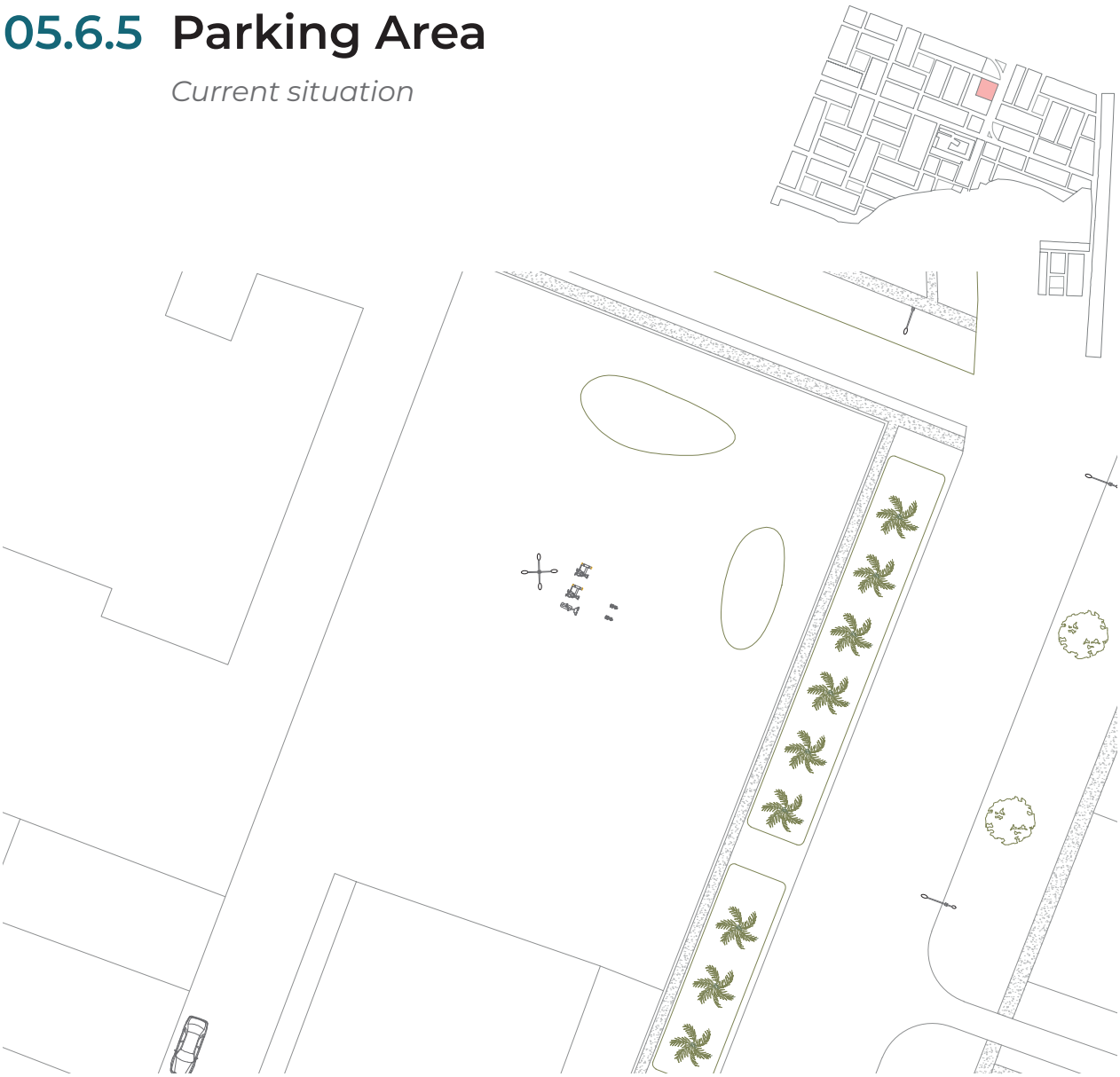
The identity of the neighborhood is reinforced through the consistent use of geometric forms and a unified color palette across surface materials. This design language creates coherence not only within the plaza itself but also across all the public space typologies developed as part of the project. Additionally, the integration of native trees and plant species contributes to a sense of place, fostering a connection with the local natural environment while enhancing ecological value and low need of maintenance.

Vegetation in this plaza typology is concentrated in specific zones; this approach contributes to a visually balanced setting while also reducing the maintenance requirements typically associated with large greenery areas. The urban plaza typology is intended to be implemented at multiple points across the neighborhood, reinforcing its identity and function as a recurring public space model that can adapt to various urban conditions while maintaining its core design principles.

Ill. 75: Illustration of the urban plaza. *Source: Own elaboration, 2025*

05.6.5 Parking Area

Current situation

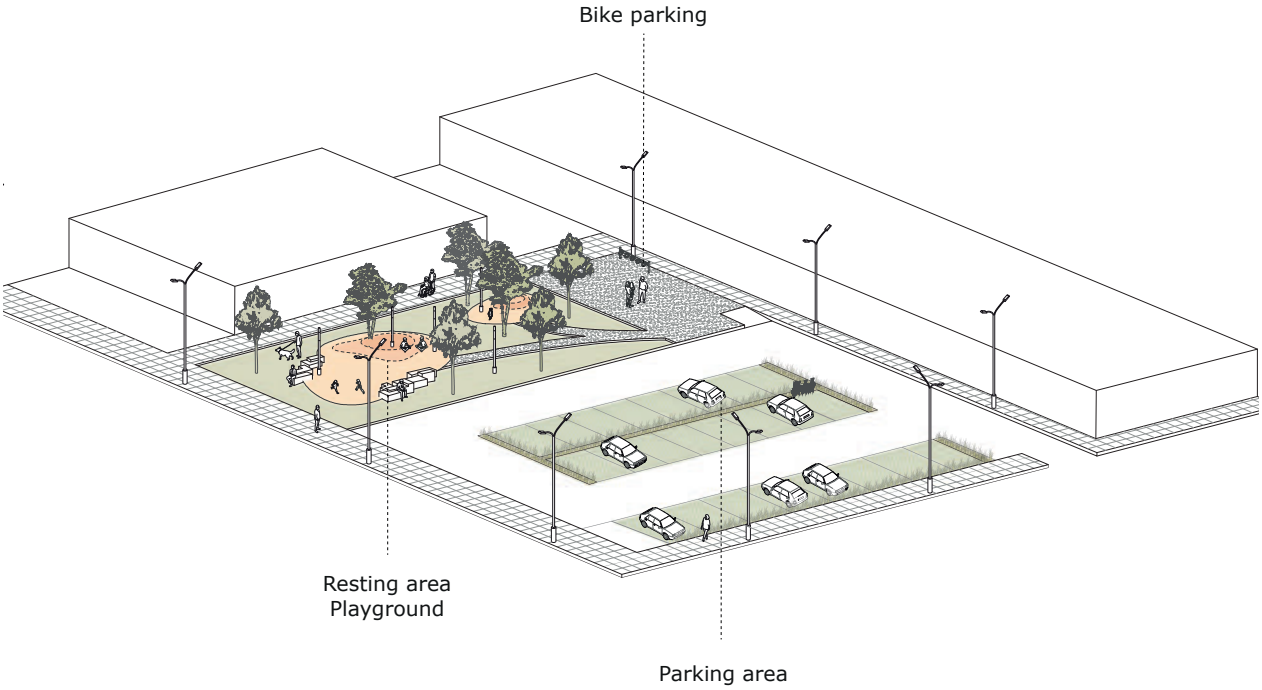


Ill. 76: Current situation parking area. *Source: Own elaboration, 2025*

Ill. 77: Collage Current situation parking area. *Source: Own elaboration, 2025*

Plan 1:250

Ill. 78: Plan of the parking area, 1:250. *Source: Own elaboration, 2025*



Ill. 79: Axonometric view of the parking area. *Source: Own elaboration, 2025*

The lack of parking spaces, and the result of informal parking throughout Aguas Negras, is one of the challenges that this project seeks to address. For this reason, all public space typologies proposed within the project aim to incorporate parking functions to some degree. This particular area serves as a more specific example, where parking is the primary use. The site currently consists of a plot with a few outdoor exercise machines that are currently unused. It is located adjacent to an emergency healthcare center that doesn't have its own parking facilities, despite having a need for them.

This typology prioritizes functionality and easy maintenance. It provides parking options for various types of users, including spaces for both cars and bicycles. All parking surfaces (except for those designated for universal accessibility) are designed to be permeable yet safe for pedestrian and vehicular movement. This permeability allows for maximum rainwater absorption, helping to mitigate urban drainage issues rather than contribute to them.

To ensure the space integrates harmoniously into the urban environment, it is bordered by native plantings between 50 and 80 cm in height. These green edges enhance the aesthetic value of the space while maintaining clear sightlines to ensure user safety.

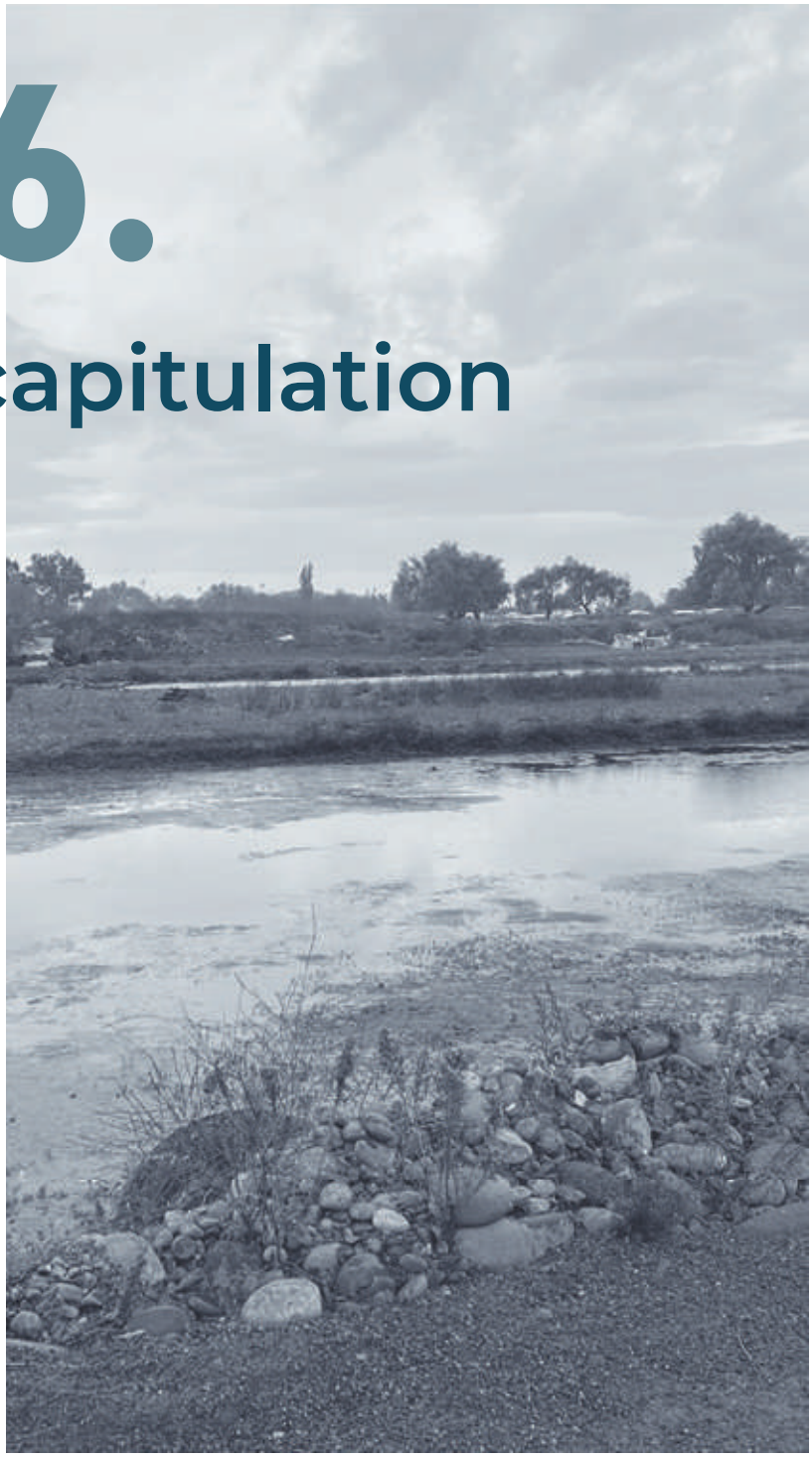
In the specific case of this site, a small plaza with a playground and seating areas has also been incorporated. Given the proximity to a healthcare facility, it is common for families with children to spend long hours waiting, so having this type of space helps make that waiting time more bearable.

Furthermore, these features have also been replicated in the parking areas integrated into the other public space typologies. This parking-focused typology is flexible and can be applied in other neighborhoods that face similar challenges related to parking shortages and underutilized urban land.

Ill. 80: Illustration of the parking area. *Source: Own elaboration, 2025*

06.

Recapitulation



Ill. 81: Picture of the Guaiquillo stream. *Source: Own elaboration, 2025*

Reflecting on outcomes and learnings

Conclusion

To answer the question of how Aguas Negras can be transformed into an accessible area with high-quality public spaces that enhance security and foster community cohesion, an analysis of the territory, functionality, infrastructure, challenges of the neighborhood, among others, was conducted. This assessment helped identify the most pressing issues and informed the development of a design proposal aimed at addressing them effectively.

The main problems identified include the poor functionality of streets, which prioritize cars over pedestrians; the inadequate maintenance of public spaces; and a general lack of features that encourage their use. Poor lighting and visibility contribute to a strong perception of insecurity, which has led to the abandonment of many public areas. Additionally, part of the site lies within a flood-prone zone, yet no mitigation measures have been implemented.

The project aims to solve these issues through various types of public spaces that were designed and strategically distributed throughout the neighborhood, based on the theory of urban acupuncture, which seeks to create significant impact through small-scale interventions. These typologies aim to provide diverse functions, foster a sense of identity, and require low maintenance. There is also the development of a strategic plan that connects the city of Curicó with Aguas Negras, and in turn links the neighborhood to the Guaiquillo Stream. A new park is proposed as a central element, incorporating a variety of functions designed to attract users from across the city and activate the area.

To address crime and the perception of insecurity, the project incorporates crime prevention theories as well as strategies provided by the Chilean government in its Safe Urban Spaces report. Additionally, the concept of placemaking was applied to give these public spaces both function and identity, turning them into meaningful places for the community.

Reflection

The design presented in this report was developed by guiding the transformation of Aguas Negras toward becoming a neighborhood with identity and purpose. The main focus was on improving existing spaces, making them accessible to all users, and addressing issues such as insecurity, abandonment of public space, and lack of a sense of belonging.

Currently, there are no future development plans for this area, so the design process was based primarily on an analysis of the existing environment and the needs expressed by the community, rather than on an institutional vision from the municipality. Nevertheless, the current urban regulations in Chile, as established by the General Ordinance on Urban Planning and Construction and its associated laws, were taken into account—though, due to time constraints, this analysis could not be included in the present report.

The area presents great potential for improvement. I acknowledge that a more extensive and in-depth design process would have allowed for further exploration of alternatives and solutions. It would have been especially valuable to reach a higher level of detail in the public space typologies, including specifications for materials, urban furniture, and infrastructure. However, the project manages to convey a clear vision of what these spaces could become and the goals they aim to achieve.

A similar situation applies to the strategic plan for the Guaiquillo Park. While the project seeks to provide a conceptual idea of its future development, conducting public surveys would have enriched the planning of its program. It also would have been helpful to delve deeper into specific water management solutions, especially considering that, although flooding is currently rare, climate change could intensify this issue—affecting not only the intervention area but also the surrounding homes.

Likewise, greater community engagement throughout the different stages of the project would have been key to receiving direct feedback from those who will be the primary users. This approach aligns with the principles of placemaking and urban acupuncture, which advocate for the creation of successful urban spaces through community involvement.

While I recognize that there are still areas for improvement, the design presented here represents a concrete response to the lack of meaningful and high-quality public spaces. It promotes safer environments with identity, offering solutions that address both neighborhood and urban scales, responding to current needs while envisioning possible futures.

07.

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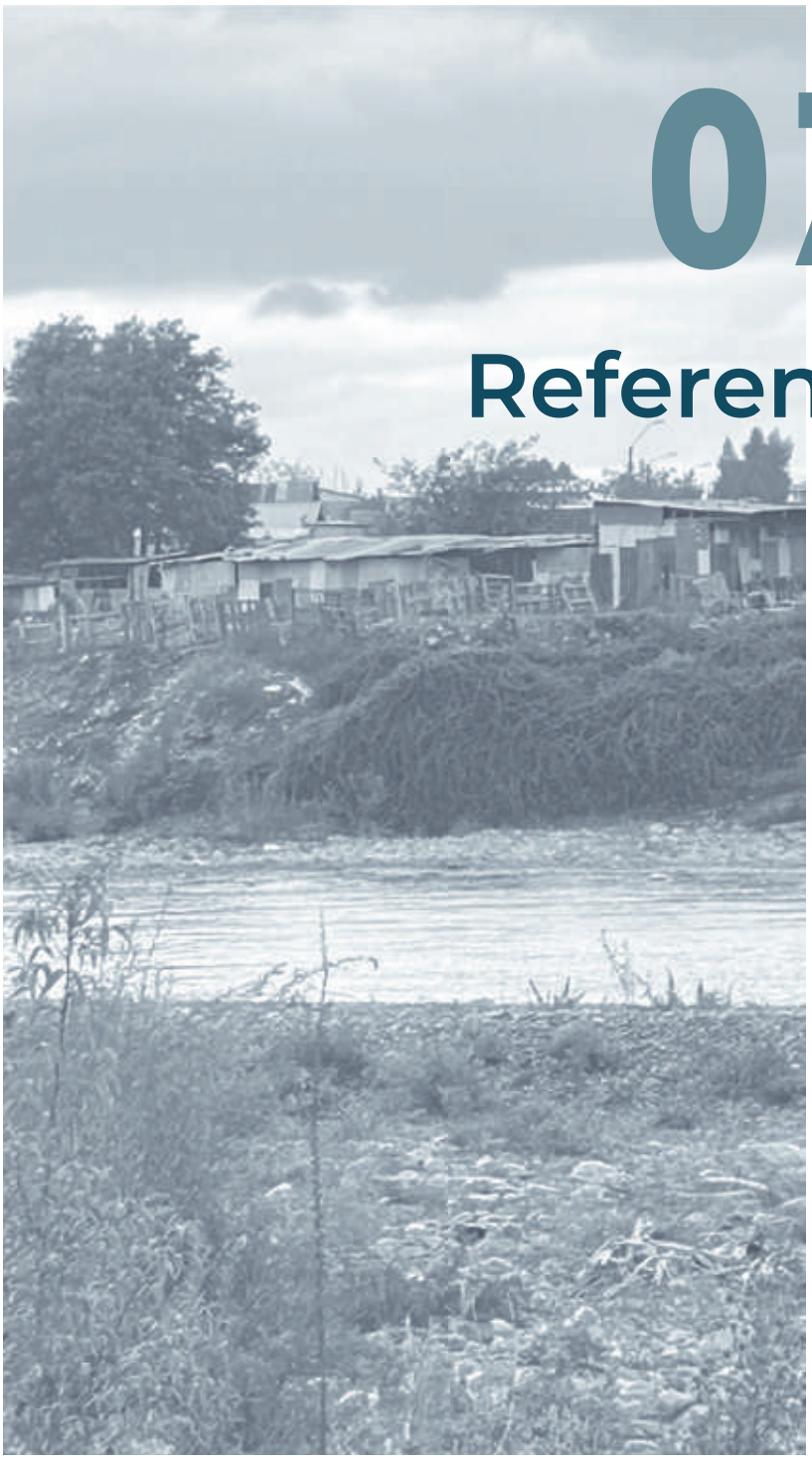

Ill. 82: Picture of the Guaiquillo stream. *Source: Own elaboration, 2025*

Intellectual and visual resources

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Illustrations

All the illustrations and photos not mentioned below are made and taken by the author.

The base map of the city was provided by the Municipality of Curicó.

Ill. 05: Biblioteca Nacional de Chile. (n.d.). Plano de la ciudad de Curicó: Año 1895 [Map]. Memoria Chilena. From https://www.memoriachilena.gob.cl/602/w3-article-68089.html

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Ill. 06: Community Transportation Department, Curicó (2025). Plan of the neighborhood's units, Curicó.

Ill. 10: Project for Public Spaces. (n.d.). What is placemaking? https://www.pps.org/article/what-is-placemaking

Ill. 11: Restrepo, V. (2024, april 03). The urban transformation of Medellín: A case study. *ArchDaily*. https://www.archdaily.com/1015216/the-urban-transformation-of-medellin-a-case-studyIll. *With permission from the author.*

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08.

Appendix

Ill. 83: Picture of the Guaiquillo stream. *Source: Own elaboration, 2025*

AALBORG UNIVERSITET

THESIS TITLE PAGE

This form must be submitted for all theses written in programs under the Study Board of Architecture and Design, and it should be placed at the beginning of the appendix section of the assignment.

A printed copy of the form must be submitted along with the printed copy of the thesis.

The information given in this form must also be available in PURE.

(All fields must be filled out)

Program: **Architecture** ☐ **Industrial Design** ☐ **Urban Design** ☒
This thesis was written by (full name):
María Jesús Martínez Pérez
Title of the thesis: Transforming Aguas Negras
Supervisor´s name: Ida Sofie Gøtzsche Lange
Submission date/year: 28/05/2025
Is the project confidential? **Yes** ☐ **No** ☒
External collaboration* **Yes** ☐ **No** ☒
External collaboration partner (name of company/organization):
Contact at external collaboration partner (title, name og email):

What is an external collaboration? Read more here.

A: Site Photographs






Ill. 84: Collage of pictures of the site. *Source: Own elaboration, 2025*

B: Interview Transcripts

Interview: Priest Marco Sanhueza, from the Cristo Resucitado parish

- Main roads are well-maintained and include sidewalks and bike lanes, but many smaller alleys are dirt or semi-paved streets without dedicated pedestrian areas or universal accessibility.
- These streets often prioritize vehicles. Residents Park outside their homes—even without proper space—due to a lack of perceived neighborhood safety.
- Garbage accumulation is common in streets and public squares, caused by poor municipal coordination and a lack of designated waste areas per sector.
- Some recreational spaces (usually near police presence) are well-maintained and used regularly, staying free from problematic individuals like alcoholics or drug users.
- Many other public areas consist only of exercise machines installed in neglected, unused spaces (wastelands).
- The Guaiquillo stream is currently a dumping ground. Authorities show no intent to intervene, they don´t want to make the place nicer for the informal settlements nearby, so they will want to stay for longer.
- Public buses don't run on Sundays, but shared taxi (colectivos) services are widely used.
- It's difficult to reach the city center from the neighborhood, and essential services are limited (e.g., there is only one pharmacy, creating a monopoly).
- Programs for seniors (e.g., knitting, embroidery, cooking, healthy eating, pottery) are held at the local community center but cannot continue without municipal support.
- A local municipal branch office would be ideal, as many neighborhoods in the city already have one.

Interview: Sergio Escudero – President of the neighborhood association Villa Santos Martínez

- Garbage trucks operate three times a week at varying times, but public awareness and respect for shared spaces are still lacking.
- There is a significant lack of street lighting and surveillance. More security cameras are needed, ideally monitored by local security or national police.
- Streets and sidewalks are in poor condition, and there's a shortage of parking. In narrow streets, cars block emergency access routes, including those near health centers.
- An informal settlement in the area was recently relocated to permanent housing.

Interview: Rosa González Celis – President of the neighborhood association, Villa Los Cisnes (Aguas Negras)

- Some sports fields charge for use, so residents mostly use the same accessible ones. The Aguas Negras Sports Complex is frequently used and includes a football field, recreational areas, and summer pools.
- Public lighting is old and insufficient, contributing to feelings of insecurity.
- The community is strong and organized. She noted high civic engagement and showed enthusiasm for ideas like urban gardens.

Interview: Resident – at court 1

- Sports facilities lack regular maintenance. One field was full of dangerous stones, and after multiple ignored requests, the resident had to remove them personally.
- The field used to be popular but is now unsafe due to a damaged fence meant to stop balls from reaching the street. The broken wires are hazardous for children.

Interview: Resident – at court 2

- This is the most used field in the area. A designated person handles cleaning, and the resident herself holds the key and opens it daily.
- Other fields require borrowing keys from different neighbors, making access harder for children.
- Nearby houses were built after the 1985 earthquake as temporary shelters. Over time, residents upgraded them into permanent homes.
- Occasionally, potentially unsafe individuals appear in the area, mostly during late afternoon or evening hours.

Interview: Celso Morales – ex-Deputy and ex-Mayor of Curicó

- The informal settlement next to the Guaiquillo stream has an official eviction order, but authorities have not carried it out due to the large number of residents and limited police presence.
- Most inhabitants are foreign nationals and may struggle to access housing assistance. He mentioned that, in some cases, foreign residents receive better support than Chilean citizens, but they are not aware of it.

C: Wild Flora

Calceolaria alba

This plant is endemic to Chile and can be found from the Maule Region (where the city of Curicó is located) to the Araucanía Region. It grows in open areas and well-drained soils, sometimes along roadsides.

It is an evergreen shrub, reaching up to 80 cm in height with a variable width. It branches from the base with upright, nearly unbranched stems that are leafy from base to tip and covered in fine hairs. Leaf axils bear short, leafy shoots. It blooms from late spring to early summer. The fruit is a capsule containing small seeds that mature in late summer.

Calceolaria adscendens

This species is endemic to Chile, ranging from the Coquimbo Region to the Bío Bío Region, making Curicó part of its natural habitat. It grows in open, sunny, and dry locations, thriving in well-drained soils under full sun.

It is an evergreen shrub, reaching up to 60 cm in height and about 40 cm in diameter. Its stems grow upright or sprawling. The inflorescences form cymes with up to 22 golden-yellow flowers, clearly separated from the foliage. The upper lip of the flower is small, forward-facing, and slightly compressed laterally, while the lower lip is much larger, globose, and somewhat wrinkled at the front. It blooms in summer. The fruit is a bristly capsule containing numerous small seeds, maturing in autumn.

Adesmia emarginata

Belonging to the Fabaceae (legume) family, this plant is endemic to Chile and Argentina, found from the Maule Region to the Aysén Region. It grows in montane or Andean shrublands, preferring sunny hillsides with well-drained soils.

It is an evergreen, aromatic, and resinous shrub or subshrub, about 60 cm tall and similarly wide, with many ascending or upright branches. Leaves are alternate, petiolate, and compound, with 10 to 14 pairs of oval leaflets, some with small teeth near the tip and a pronounced central vein. Petals are yellow with reddish-brown lines. The fruit is a legume composed of 3 or 4 segments. It flowers in summer, and the fruit matures in autumn.

Azara celastrina

Native to Chile and Argentina, this plant is valued for its ornamental use and its ability to adapt to diverse climatic conditions. It is found in central-southern Chile and in the foothills of the Argentine Andes. It grows on forest edges and ravines, preferring well-drained soils and semi-shaded locations, although it can tolerate full sun in temperate climates.

It is a small tree reaching up to 6 meters in height. It has simple, alternate green leaves that are 2 to 4 cm long. It produces very small, yellowish-green flowers that bloom from late winter to early spring. This is a low-maintenance plant that is frost-tolerant.

Rarán (Myrceugenia obtusa)

This tree is endemic to central-southern Chile.

It is a small evergreen tree that can grow up to 8 meters tall. It has grayish bark, reddish and hairy young shoots, and opposite, leathery leaves with smooth margins, ranging from elliptical to ovate in shape, with blunt or rounded tips. The fruit is a round berry that turns black when ripe. It is edible and has a gelatinous pulp. Each berry typically contains 3–4 seeds, about 4–5 mm long.

Maitén (Maytenus boaria)

Native to Chile and Argentina, this species is highly valued for its resilience, low water requirements, and ornamental appeal. It is found from central to southern Chile and in temperate regions

of Argentina. It thrives in various soil types, preferably well-drained, and tolerates both partial shade and full sun.

It is an evergreen tree that can grow up to 20 meters tall, with flexible, drooping branches that give it a graceful appearance. The leaves are simple, alternate, elongated, and light green. Small, greenish flowers appear in spring. This low-maintenance species is drought- and frost-tolerant and is widely used in gardens and public spaces due to its adaptability.

Quillay (Quillaja saponaria)

Native to Chile, this tree is found from the central to the southern regions of the country, especially in dry climates or nutrient-poor soils. It is highly valued for both its climate resilience and the traditional and industrial uses of its bark, which is rich in saponins. It grows on hillsides, slopes, and open areas with full sun exposure and adapts well to drought conditions.

It can reach between 15 and 20 meters in height. It has simple, alternate, leathery leaves with toothed edges and a deep green color. It blooms in spring, producing small, white flowers in clusters. The fruit is a star-shaped capsule. This is a hardy, low-maintenance plant ideal for reforestation, erosion control, and drought-tolerant landscaping.