URBAN GREENERY

Can urban green infrastructure become the backbone of the city of the future?

An experiment in two cities: **Turin & Medellín**

ABSTRACT

The development of the cities is a phenomenon nowadays reflected in several cases of growth or decline that respond to different social, political, economic, and landscape contexts.

In the case of growing cities, we can analyze the cities of Bogotá, Medellín, Lima, and New York, which began as small cities and suffered precipitous growth that continues to increase in density and surface area. In the shrinking cities, there is evidence of the fracturing of spaces due to the abandonment of areas called non-places, as in the case of Paris, Rome, or Turin, where a growth peak has already begun to decrease or, in some cases, remains above average.

In both cases, a loss of identity happened: The modification of urban space can generate a loss of collective memory around the cultural and environmental/ natural heritage. Therefore, the research aims to understand the different causes and reactions of these urban phenomena to propose urban strategic lines for each scenario where green becomes the axis of urban restructuring. To understand the above, we will develop a comparative analysis between Turin and Medellín: Turin (Italy) is a city in decline, rigidly planned and with a punctual destination of uses. Thus, today presents a fracture caused by abandoned spaces that generate environmental, social, cultural, and urban fractures. Medellín (Colombia), on the other hand, is a city that has grown in an emergent and accelerated manner, involving the emergence of particular environmental, social, cultural, and urban conditions.

However, the two cities present a similar population, the presence of the river as a generator and structuring axis, and they are both surrounded by greenery vastly diminished by the creation of urban spaces, as well as deficient spaces along the rivers generating a disconnection between the population and the natural structure. For the above reason, and under a contemporary city context, we want to highlight the importance of green as an element of restoration at an environmental level and as a physical-spatial unifier.

We will work on greenery as a crucial issue to understand natural and cultural heritage. We will consider the demands brought along by the problems related to drastic changes in heat due to climate change, the loss of the natural structure within cities and heat islands, and the increase of CO2. From the historical, environmental, social, and cultural analysis, conclusions focused on how cities have behaved concerning greenery and their growth.

We propose two strategic plans for each city (Turin and Medellin) where strategies of controlled growth are presented more harmoniously with the green and its cultural implications and a strategic plan using the green for the abandoned spaces, creating cohesive and communitarian spaces. Therefore, we decided to carry out two types of intervention, which follow the same strategies of reinsertion on the green but with different methodologies considering the character and context.

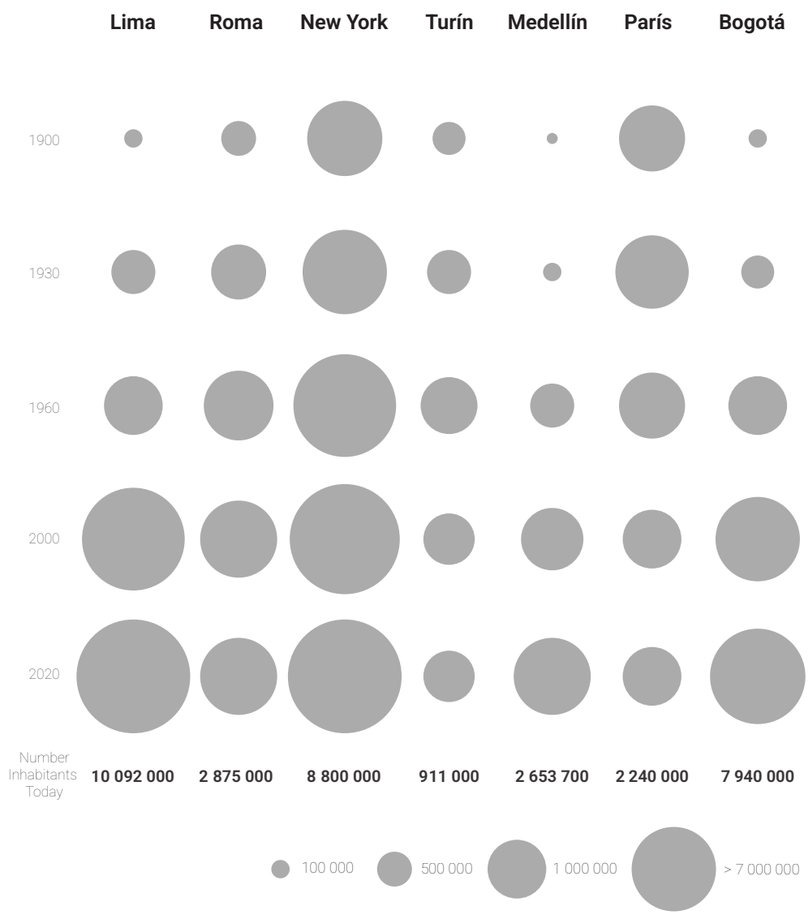

Fig. 1: Comparaison between differnt cities in the world along the 20th century to understand the demographic growing

POLITECNICO DI TORINO

Department of Architecure and Design

Master Thesis in Architecture for the Architecture Heritage

AY 2022-2023

Urban greenery: Can urban green infrastructure become the backbone of the city of the future? An experiment on two cities: Turin and Medellin

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CHAPTER 1

INTRODUCTION

Cities are complex and dynamic systems composed of various factors that, over time, change according to the needs and development of human activities. One of the factors that can be used to measure the dynamism and evolution of cities is their systematic growth or decline, both demographically and spatially, and the impacts and reactions generated by this phenomenon at the environmental, social, cultural and urban levels. Linked to this, it is important to take into account how the city has interacted with natural structures, in many cases eating everything in its path, creating a cement scar and carrying with it traditions and natural memory, in turn modifying them according to the needs that arise in the ecosystem, generating a critical environmental situation, considering the tendency to build new infrastructures instead of using the existing ones[1].

If we analyze contemporary cities, we can observe two trends. On the one hand, some cities are in a phase of expansion. We can identify this trend in Bogotà, Nairobi, Lima, Mexico City and Medellín, where demographic analysis shows rapid and emerging growth due to various political and economic factors, which bring with them environmental, social, cultural and urban implications. According to the OECD Urban Studies[2], this trend is much more present among cities in Latin America, Southeast Asia and Sub-Saharan Africa, contexts where they have gone from small settlements to huge cities, due to the large displacements from rural areas to cities due to violence and socio-economic problems suffered during the last 50 years. Therefore, an analysis of the conformation of cities is made by analyzing the urban proportion of the total population. The analysis of this growth is relevant from a social and environmental point of view where it is analyzed how this growth is related to the integration of green areas.

In addition, cities that are in a phase of decline are analyzed at the same time. These are cities such as Turin, Rome or Paris, which had a demographic, economic, social and political boom, but today this growth has slowed down or stagnated in some cases; these cases are more notorious in cities in Europe and East Asia, where the population has been decreasing since 2000[3]. This analysis is based on the assumption that cities were born and planned for a specific purpose and that, due to human dynamics and their development, today there are many spaces that no longer fulfill the functions for which they were originally assigned. These spaces are in disuse, which generates a social, cultural and physical-spatial rupture.

Contemporary cities play a very important role in the fight against climate change and sustainable development, but the loss of green structure in most of them is a clear problem. In the case of growing cities there is a problem of lack of quality of public space, inclusion and access to the green structure, and lack of attention to people in states of vulnerability, while in the case of declining cities, the amount of disused spaces and the lack of resilience in the urban environment is even more noticeable. This is why strategic plans are proposed where the main axis is based on greening cities in a resilient and integrative way and how to control the growth or abandonment of cities through greening. This will bring about a positive environmental impact and will work through the restoration and reinforcement of cultural and natural heritage in many cases.

[1] In the case of declining cities, Ungers discusses the lack of strategies for controlling density decline in the city of Berlin, highlighting the preference for building new infrastructure rather than using existing areas of the city with a strong identity to restore and preserve them through new strategies to create what he calls “a green archipelago”. (Ungers, 1977).

[2] It is shown how in Latin America, Southeast Asia and Sub-Saharan Africa, which are countries that they call upper middle-income and low middle-income, there has been a greater population growth since 1990 with more than 5 million inhabitants living in metropolitan areas, which has brought with it greater problems in terms of density, quality of life and education. (OECD Urban Studies, 2020).

[3] The population of one-fifth of the world’s metropolitan areas has declined since 2000, mostly in Europe and East Asia, while projections for 2050 show that 30% of metropolitan areas will continue to shrink. (OECD Urban Studies, 2020).

METHODOLOGY

The thesis is divided into three main chapters where the study conducted in Berlin by Rem Koolhas, Oswald Ungers and the OMU is analyzed in order to understand how the contemporary city works, taking into account the phenomena that can affect the development and dynamics that surround the city, in this case the premise that Berlin was a city in decline and for the same reason, specific strategies should be proposed, In turn, we study how to interact with various spaces within the city, finding certain key points where a rupture and a loss of identity and the relationship between the context and human activities is generated, all seen from the possibility of connecting and revitalizing these spaces through the green structure and public space.

In this way, two cities with very specific phenomena are chosen, on the one hand we analyze Turin, Italy, as a city that is shrinking and Medellin, Colombia, as a city that is growing, both generate various impacts from the phenomenon they present, taking into account their context and social, economic, political and historical situation, also considering that they are two cities that have some similar characteristics, as well as the presence of a river and a disconnection between the natural structure and the social context around it. The comparison is made from different scales, in order to understand how the interaction of the green and the river works with the whole urban system that surrounds the cities. With the diagnoses of each one, two typologies of urban areas are worked on, one residential and the other industrial, in order to propose two urban strategic plans where general guidelines are proposed for each of the cities, taking into account that the green is the main axis of the intervention and how solutions can be generated at different levels.

These solutions are approached taking into account the objectives of sustainable development for contemporary cities, recognizing the importance they have with climate change, proposing new green spaces that manage to connect the natural structure with the population, creating inclusive and free spaces for all. At the same time, these strategies highlight the need to plan for each individual city. Each city brings with it a cultural, historical and geographical context, which must be respected and taken into account to generate plans that work, that generate community, help the environment and enhance the value of the environmental and cultural heritage that is being lost a little more every day.

CHAPTER 2

WHAT IS HAPPENING TO THE CONTEMPORARY CITY?

THE THEORETICAL FRAMEWORK

THE CITY IN THE CITY

BERLIN: THE GREEN ARCHIPELAGO

GENERAL INFORMATION

In 1977, the architect O.M. Ungers with Rem Koolhaas, and other colleagues like Peter Riemann, Hans Kollhoffand and Arthur Ovaska, made a manifesto in which the city of Berlin is proposed as a case study to understand certain urban phenomena from a new perspective, understanding various systems intertwined with each other and understanding the green system as the main and unifying one. This manifesto was the outcome of an atelier in which professors and students studied the contemporary city making different scenarios. Also, the manifesto is a part of the production of the site-specific manifestos in which the following are included “Delirious New York” by Rem Koolhaas and “Learning from Las Vegas” by Scott Brown and Venturi.

The theory realized in the Manifesto is based on the idea of understanding and analyzing the contemporary city of the 20th century. Here, the post-war situation of Berlin is explained as a case study of the post-war development of European cities. The idea of voids created between the built-up areas and the areas destroyed by the bombs of the Second World War is discussed. Here, a polycentric urban system is proposed where the areas are intended to be preserved as fractures creating isolated islands.

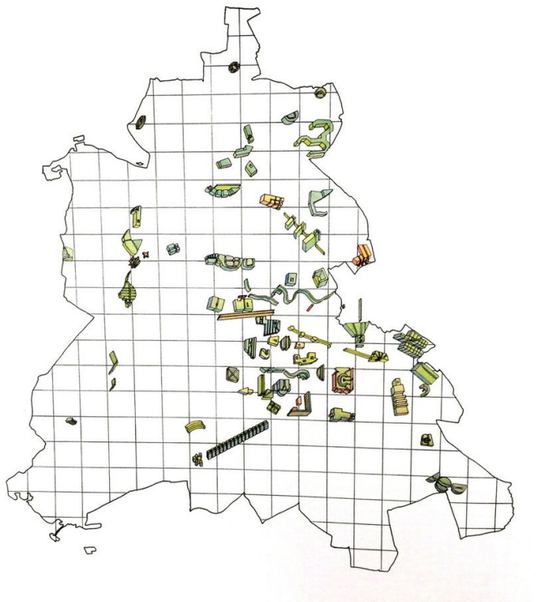

Fig. 2: Cities within the cities (Ungers, O. M., & Koolhaas, R. 1977)

This is based on the idea of generating a controlled decrease in order not to lose its total urbanity. Thus, it is decided that as a main strategy, to promote these islands of the city, the green public space is used where impacts can be generated from different levels, which will improve the urban quality of the city but at the same time the environmental, social and cultural impact of the city. Added to this is the theory of the architect Rem Koolhaas’s “Junkspace” where he describes Berlin in the post-war period and refers to this idea of a fragmented city. He speaks of the juxtaposition of historic buildings and monuments with contemporary architecture and chaotic urban development. Post-war Berlin is the epitome of what the architect would define as “Junkspace”, that is, a chaotic and expansive space that has emerged through rapid development, globalization, and consumerism marked by a lack of coherence, disorder, fragmentation, and, above all, identity.

Thus, the Berlin analysis is studied as a case study of a contemporary city that is being affected by demographic, physical-spatial, and other changes due to its practical strategies of intervention through the public green and how it is controlled, in this case, the decrease, starting from the urban and social fractures that the city presents. To understand how, through the very fragmentation of spaces, the city and the community can be rewoven. Always taking into account the context, the reasons for urban and social development, and how to find urban solutions that improve the quality of life and environmental quality of cities.
It should be noted that the Manifesto by O.M. Ungers and his colleagues at Cornell University was not realized, but it has been a reference for many urban studies to work on the contemporary city, understanding it as a space full of overlapping, contradictions and situations that could affect the city and its inhabitants.

THESIS

Thesis 1: Berlin's population drop
Assuming that the population growth figures for Berlin are accurate, and taking for granted that the city is decreasing in population density, this thesis proposes strategies to control this phenomenon in order to understand the limited territory in which the city is developing and how to take over these spaces in order not to lose the quality of the urban environment.

Thesis 2: Criticism of current design theories
In the case of the design and planning of the city of Berlin, taking into account the "repair" of the historic city, it generates a series of problems around the idea that the city should be densified and grow, without taking into account the consequences of this theory, which only camouflages the decrease of the city without thinking about the future development of the same.

Thesis 3: The problem of the population drop
In this thesis, the author presents the decrease of cities as a global phenomenon, which evidences the tendency of the population in suburban spaces to be related to a better quality of life and a higher residential value, as well as the need to generate better future planning strategies for cities, in this instance, Berlin is a case study that can be used as a reference due to the specific characteristics it presents.

Thesis 4: The differentiated urban structure
According to this thesis, the authors propose new uses for the city in areas where technical, functional, and social problems can be identified, that no longer meet the needs of the population and do not contribute to the development of the city, proposing the requalification of these areas to create "green archipelagos" within the city.

Thesis 5: The idea of the city in the city
The antithesis of the theory that the city is and functions as a whole is raised so that the project includes the individualization of the city from the idea according to which the contemporary social structure is developed as an individualistic society with diverse demands, desires, and conceptions, leaving aside the idea of typifying and standardizing the city.

Thesis 6: Establishment of the área of city-islands
Ungers and Koolhaas compare Berlin to an archipelago, a set of islands separated by voids. Each "island" represents a specific building or urban form, and the voids signify the open spaces of the city.

Thesis 7: The green archipelago
The authors emphasize the importance of Berlin's natural landscapes and green areas in shaping the character and urban experience of the city, to generate new services between blocks and new usable spaces, low-density areas, temporary living areas, sports facilities, and industrial parks.

Thesis 8: The urban villa as a form of residential building
This thesis explores the notion of the domestic environment and how housing typologies have evolved and influenced the urban fabric of Berlin.

Thesis 9: Transformation of the city in the course of history
The authors suggest that Berlin's history can be understood as a series of layers and fragments, each representing different periods and influences, resulting in a city that is not cohesive, but rather a conglomeration of architectural forms and styles.

Thesis 10: Standard and definitions of objectives for the future
The idea is not to design new Utopian cities for the future but to be able to work with the existing ones to create cities that adapt to the new problems and needs of the cities, by means of the archipelago as a response to a series of needs from the planning of the city.

Thesis 11: Schedule project times
The final thesis proposes the idea of the architect as a creator of projects and strategies and not simply of individual buildings, with the aim of finding solutions for the ever-changing and complex urban environment of Berlin. All by means of 5 phases planned to develop over the course of 5 years.

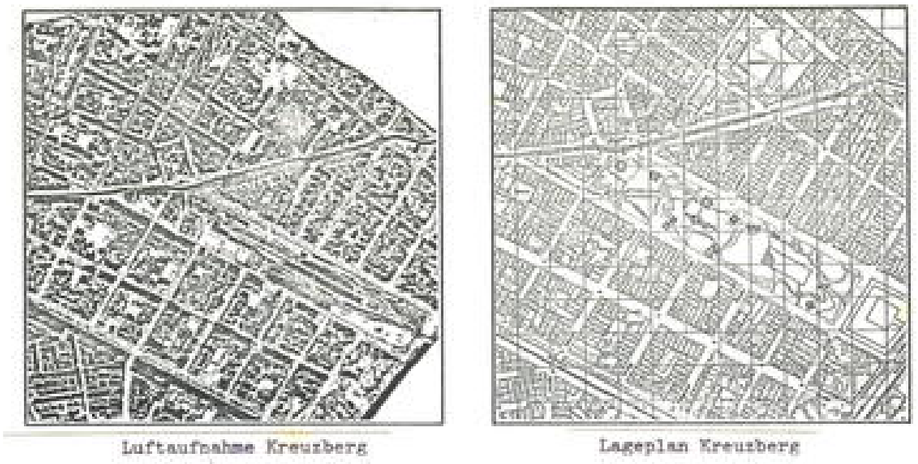

Fig. 3: Aerial view of Kreuzberg & site plan of Kreuzberg
(Ungers, O. M., & Koolhaas, R. 1977)

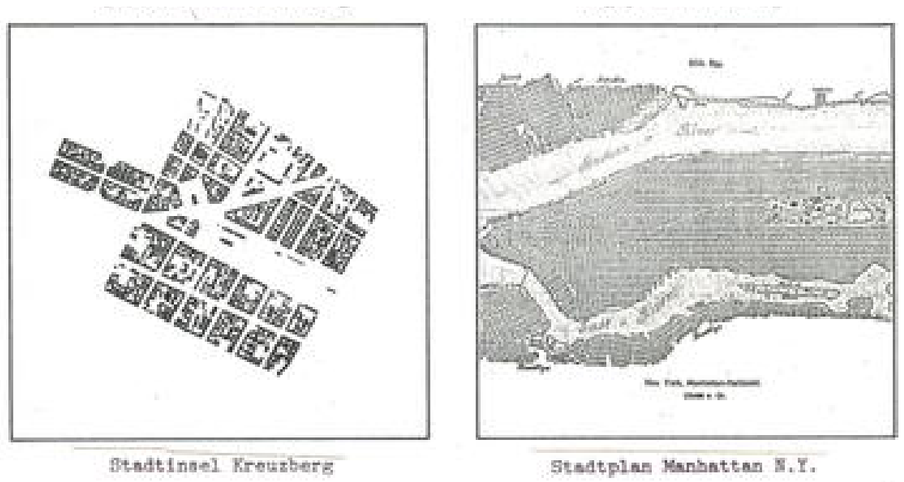

Fig. 4: Kreuzberg´s urban island & city map of Manhattan, N. Y.
(Ungers, O. M., & Koolhaas, R. 1977)

ANALYSIS

The premise of this master plan was the requalification of existing abandoned spaces, spaces that were generating urban fractures. This approach refers to how, through adaptive reuse and understanding of the existing, spaces could be generated that could be adapted to the current dynamics, taking into account that they would function as independent polycentric that are part of a larger urban network. However, the master plan realized in this workshop was not applied to the city of Berlin due to the decision to rebuild the free areas, and the destroyed areas, homogenizing the city. Thus, an opposite decision was taken to the one proposed in the Manifesto made by the architects.

The master plan is interesting from different points of view and it is clear to say that it is key to understand how the contemporary city works and what can be these general lines that can be adapted to contemporary cities in different contexts such as European cities or Latin American cities or, in turn, in growing or shrinking cities.

First of all, it is important to understand the fact that contemporary cities are composed of diverse architectural and urban typologies that overlap creating particular dynamics. It is important to understand the fact that there are spaces or zones which have different characteristics, with diverse approaches but which correlate with other areas of the city creating interconnections between them, and giving life to the city.

On the other hand, it is important to understand from the analysis how the city is to be understood. The fact of understanding the city as a sum of interconnected centers is key because it is a way to enhance the identity and autonomy of these areas without losing the union and connection with the rest of the areas that make up a single identity. It is key to understand why the character of each area, what it has contributed to society and the city, and how to enhance this type of dynamics. It is interesting to understand how to maintain the identity of these centers in isolation and how to enhance this individual character within the collective that is the city.

In addition, it is key to how the public space is used as a conductor or unifying axis of the islands or archipelagos that make up the city. It is interesting to understand how the public space becomes this instrument of union between individual spaces with their characteristics. Likewise, we talk about this greening through public space as a way and main strategy of the city. How the green space is fundamental within the city. This public space is characterized by how it is reintegrated into green in the city. This, besides giving cohesion to

the city at an urban level, is important at a social, cultural level and above all at a climate impact level since nowadays the climate impact conditions are abruptly affecting the different ecosystems and a great focus of this impact is the big cities that have been affected by the management and construction of urban spaces.

Finally, it is important to understand how to work on the issue of demographic growth and decrease in cities. The master plan starts from the premise that in this case, Berlin was in a process of decline. Taking into account these demographic movements, it is key to take a position that is directly proportional to the urban fabric and the dynamics of the city. The city is considered a political, economic, cultural, and social entity, among others, which cannot disappear, and which has specific physical and spatial limits and characteristics. This means that it cannot disappear and must adapt to demographic changes. Thus, the main part of the master plan is focused on how to achieve a controlled degrowth that works and adapts to the dynamics of the city. This can be applied to both growing and shrinking cities, taking into account the constant change of cities.

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What is happening to de contemporary city today?

Today's cities are facing two major changes, both of which have major implications. Firstly, many cities are being affected by demographic decline, and secondly, by violent growth. Thus, many spaces are being abandoned, creating fractures and others are being occupied informally.
On the other hand, climate change is a reality where cities are being deeply affected.

Strategy

Rethink green public space as a new infrastructure to redesign cities to generate positive momentum in cities.

An expeiment: two cities, two trajectories of growth, the same climate change.

Turin, Italy

Medellín, Colombia

Why:

1. Cities that are engaged in urban and other projects and research to combat climate change.

2. 2. Cities with a similar scale

3. As the main axis, the generating axis has a river which fulfills a vital function for the system of the city and the potential urban transformation.

GENERAL CONCEPT

Can the same strategies be applied to both cities?

Even though they have similar characteristics and problems, it is important to make it clear that there are no particularities and therefore the same action strategies cannot be applied. First of all, Turin is referred to as a shrinking city and Medellin as a growing city. This means that the spatial reactions are different from the outset. It is also important to point out that they are two cities with different contexts, different populations with different needs.

These two cities are two case studies where a European city in decline and a Latin American city in growth will be taken as an example that can be applied in different cities with similar characteristics.

CHAPTER 3

SHRINKING CITIES

TORINO

GROWING CITIES

MEDELLÍN

ARE **URBAN SCARS** A POTENTIAL **ENVIRONMENTAL** AXES OF **SOCIAL RECONNECTION**?

IS IT POSSIBLE TO CREATE, CONSOLIDATE AND CONNECT **URBAN GREEN SPACES** IN A CITY THAT WILL CONTINUE TO **GROW AND EXPAND** DESPITE ITS **TERRITORIAL LIMITATIONS?**

GENERAL INFORMATION

Torino, an Italian city, is today the capital of the Piedmont region. It is surrounded by important natural elements such as the Alps, the Po River, and the Dora River and is located 239 meters above sea level. In addition, it has a surface area of approximately 130.2 Km2 and a population of 848,748.

Throughout history, it has been a city with specific uses, a city that has been a focal point for certain activities at different times. This has had repercussions at the urban and physical-spatial levels. From a defense city to the capital of Italy to an industrial city, the urban fabric leaves traces of what it was and how it has mutated over time. Thus, we find different fabrics, from different epochs with very specific characteristics. However, today many of these spaces have been abandoned and, without having been rethought, have become non-places that fracture the city and the community.

Fig. 5: Total land area of Turin

Fig. 6: Total inhabitants

GENERAL INFORMATION

The great cities in Latin America were founded as part of a strategy to conquer indigenous territory, exchange and exploit resources, and part of the campaign to evangelize and dominate the aboriginal peoples of the region during the period of the Spanish conquest. These cities began as small population centers that served as a reference and as a welcome for traders traveling through the territory and for economic exchanges between regions. However, Latin American cities, despite being all different in terms of culture, context, climate, and others, share a common trait, the inequality and segregation of the population that has been evident since the time of the conquest and that even today continues to be a problem that from a socio-spatial vision is palpable in the cities, and that since the late twentieth century began to generate a major problem due to the migration of rural population to the cities.

In the case study of Medellín, a city with 2,612,958 inhabitants, and which represents at least 15% of Colombia's economy, we can also find certain important natural elements such as the Aburrá or Medellín river and the Volador, Nutibara, and La Asomadera hills, which contain great biodiversity of fauna and flora and provide the city with several environmental services. In fact, its location in the Aburrá Valley contains the city and limits its expansion, a problem that has been studied since the late twentieth century, due to the accelerated growth of Medellín as a result of mostly rural migration, and because of the armed conflict throughout the country, has generated similar problems in other metropolitan cities.

Fig. 7: Total land area of Medellín

Fig. 8: Total inhabitants

URBAN GREEN

On the other hand, urban greenery in Turin plays a very important role in terms of improving the quality of life and connection with the community, and appropriation of the place. Considering that 37% of the communal area is urban green, it could be said that the ratio of green to the city's inhabitants is adequate. However, considering the ratio of accessible green space is precarious. In addition to this, actions are being generated to improve environmental conservation taking into account climate change as the "Piano di resilience climatic" and the "Piano strategico delle infrastructure".

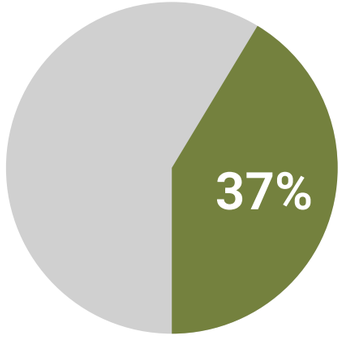

Fig. 9: Green area percentage

Fig. 10: Total number of trees in urban and forest contexts

Fig. 11: Total square meters of public space per inhabitant

URBAN GREEN

Population inequality is visible in the structure of the city of Medellin, spatially it has generated a fracture between the areas of the city with greater privileges, usable public space, and infrastructure; while in the communes with socioeconomic problems, a series of non-places have been generated, which do not bring benefits to the community, but, on the contrary, generate insecurity and environmental issues. According to censuses carried out in the urban area, in Medellin, there are 4 square meters of usable green public space per inhabitant, with a deficit in the 10 square meters that the city has projected, without taking into account that these 4 meters, most of them are parking spaces or vacant areas that cannot be used by the population.

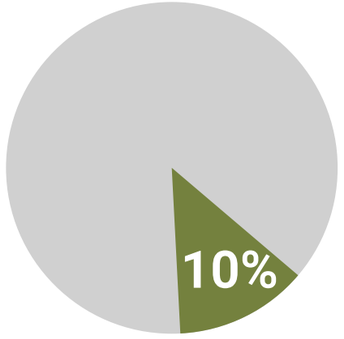

Fig. 12: Green area percentage

Fig. 13: Total number of trees in urban contexts

Fig. 14: Total square meters of public space per inhabitant

DEMOGRAPHY

During the last few years, the city of Turin has shown a decrease in population. This can be analyzed from different points of view. At first, there is a decrease in the number of births while, on the other hand, the death rates are rising. In other words, there is a notable decrease in the range of young adults between 25 and 44 years of age. Thus, it can be affirmed that in twenty years, approximately, the rate of young adults decreased by 17% in the city and 19% in the provinces. The number of elderly increased by 6% in the city and 14% in the provinces. In addition, the number of foreign residents has remained constant since 2012. It can be said that today there is an aging population with 213.5 elderly people for every 100 young people in 2019.

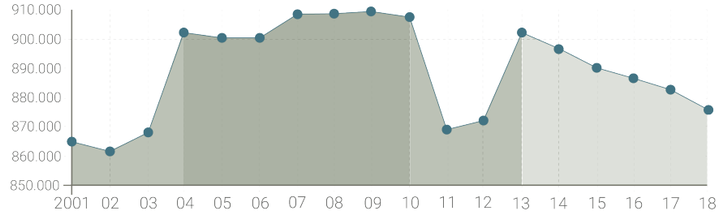

Fig. 15: Turin population 2001-2018

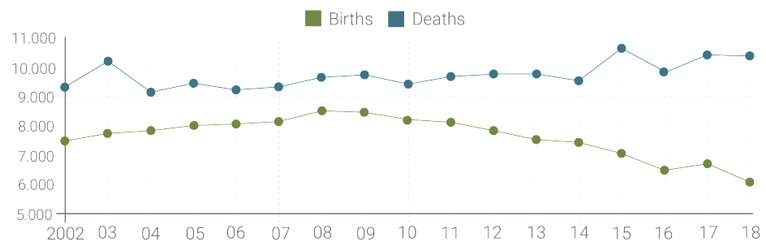

Fig. 16: Natural population movement

DEMOGRAPHY

The population of Medellín grew precipitously due to the violence and armed conflict in Colombia. This generated a great number of problems by the end of the 20th century since the city was not prepared to receive so many people, especially considering the geographical limitations of the Aburrá Valley. Today, despite the fact that the birth rate is not the highest in Medellin and that the population over 60 years of age is beginning to increase, the city projects continued growth in the coming years, as the rural population continues to migrate to the cities and Medellin continues to be one of the main destinations for migrants, especially with the conflict in Venezuela, not only receiving migrants from the rural interior of the country but also from abroad.

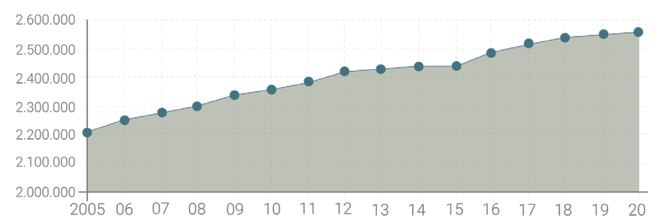

Fig. 17: Medellín population 2005-2020

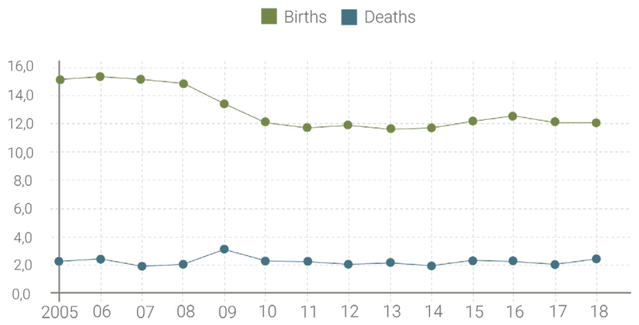

Fig. 18: Natural population movement

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HISTORICAL BACKGROUNG

SHRINKING CITIES: TORINO

Torino has its roots in Roman times[1], but in the 16th century, the city gained importance as the capital of the Duchy of Savoy. During this period, Turin experienced significant growth in terms of infrastructure and architecture. The city plan was redesigned to reflect the grandeur of the royal court and majestic palaces and avenues were built[2]. However, in this initial growth, the emphasis on urban greenery and river protection was not a priority, as development focused on showcasing the wealth and power of the nobility.

With the Industrial Revolution coming to Italy, Torino became an important industrial center. The city experienced rapid growth and accelerated urbanization due to the arrival of factories and the increase in population due to rural migration[3]. This growth brought with it several environmental problems, as air and water pollution became a common problem due to expanding industries and a lack of environmental regulations. The lack of green areas in the urban fabric contributed to environmental degradation and affected the inhabitants' quality of life.

As the Turin economy entered the 20th century, people began to worry about the city's sustainability and quality of life. Efforts were made to improve urban planning and solve environmental problems. One of the most important milestones was the 1911 World's Fair, which led to the creation of the Parco del Valentino, a large park on both sides of the Po River. This green space became the lung of the town and the recreation area for Turin's inhabitants.

In the second half of the 20th century, Turin's urban landscape experienced a green renaissance[4]. Extensive projects were undertaken to restore and revitalize the banks of rivers that flow through the city, such as the Po and the Dora Riparia. These projects aimed to revitalize the rivers, improve water quality, and create public spaces on their banks. They also promoted the creation of parks and gardens throughout the city, providing respite for residents and improving the general well-being of the population.

In recent years, Turin has continued its commitment to sustainable solutions and green architecture. New urban projects have incorporated environmentally friendly design elements, such as the construction of green buildings, the promotion of public transport, and the creation of green roofs. The city has also implemented urban greening programs and community gardens that promote a closer connection with nature in the urban landscape.

The integration of green spaces and rivers in the city has proven to have a positive impact on the quality of life for the citizens of Turin. Green spaces offer recreational areas and leisure activities that encourage an active and healthy lifestyle. In addition, these natural elements help to reduce air pollution, improve the quality of the urban environment, and reduce the effects of climate change.

Although Turin has made significant steps towards becoming a greener and more sustainable city, it continues to face challenges in its urban growth. Increasing population density and urban sprawl can put green spaces and rivers at risk, highlighting the need for careful and sustainable urban planning. Moreover, the preservation of Turin's cultural and architectural identity is crucial in this development process.

In closing, the urban growth of Turin (Italy) has gone through several phases throughout its history. From the city's foundation to the industrial era and its green renaissance, the relationship between urban development and the city's green spaces and rivers has been an important factor in shaping the city. The integration of the city's green zones and rivers has proven to be crucial in improving citizens' quality of life and overcoming the environmental challenges faced by an ever-evolving city. As Turin moves into the future, the preservation of its natural and cultural heritage must continue to be[5].

[1] Roman Torino (44 B.C-476) the city had a square area, surrounded by walls lotizada, in total were 53 hectares and had about 70 blocks with houses of one or two floors and managed to have 7,000 inhabitants. Comoli Mandracci, Vera. La capitale per uno stato: Torino, studi di storia urbanistica. Torino: Celid, 1983. Print. pg. 16

[2] Description of the three major expansions carried out during the Sabauda era, "Piano di ingrandimiento della capitale" 1848. Comoli Mandracci, Vera. La capitale per uno stato: Torino, studi di storia urbanistica. Torino: Celid, 1983. Print. pg. 19-25

[3] It was a time of demographic growth throughout Europe, where large cities became the focus of many people as many job opportunities began to arise. Thus the European population, at the beginning of the 19th century, increased to 473 million inhabitants, more than doubling in less than a hundred years. Zucconi, Guido. La città dell'Ottocento. Nuova ed. Roma Bari: Laterza, 2022. Print. pg. 3-7

[4] Initiated major projects that aimed to improve the quality of the ambient and the reintegration of greenery. In 1994 "Water Turin" and a few years later the "Green Crown" was carried out for Piedmont Region Turin.(2020). Piano Strategico dell'Infrastruttura Verde Torino 2030: Sostenibile | Resiliente. Dicembre 2020. pg. 14

[5] "Future prospects" Piano Strategico dell'Infrastruttura Verde Torino 2030: Sostenibile | Resiliente. Dicembre 2020. pg. 168

HISTORICAL BACKGROUNG

GROWING CITIES: MEDELLÍN

Medellín's urban history dates back to pre-Columbian times, when the region was inhabited by different indigenous groups, mainly the Aburráes. These communities established settlements near the Medellín River, which played a central role in their daily lives. The river provided water, food and transportation, and its flow was considered sacred. In addition, the Medellín River served as a spatial and cultural reference in the organization of indigenous territories[1].

The urban history of Medellín as we know it today began on November 22, 1675, when the Spaniard Francisco de Herrera Campuzano founded the village of San Lorenzo de Aburrá, which would later become Medellín[2]. The founding of the city was influenced by the presence of the Medellín River as a strategic point, since the first constructions were located near its banks. The river became an axis of economic and social development, providing water for human consumption and crop irrigation, as well as a transportation route for commerce.

During the 19th century, Medellin experienced significant growth thanks to the expansion of the coffee industry in the region. The coffee boom spurred urban development from the functional planning of the city, and the Medellin River played a key role in this process. Bridges were built over the river, which facilitated the connection between the different zones of the city and the transportation of merchandise and people. In addition, the river was used for hydroelectric power generation, which boosted Medellín[3]'s industrial development. At this time, the relationship between the city and the river was largely functional and utilitarian, without special attention to the conservation of the natural environment. However, the river remained a vital resource for the population, both in terms of water supply and economic connection, as well as having a much closer relationship with the city's inhabitants, being an attraction for public recreation, for public bathing and being visited on both holidays and ordinary days[4].

In the twentieth century, at the beginning of the century, work began on the Medellín Futuro pilot plan, which proposed a zoning plan for the expansion of the city, taking into account that at that time the urban area was already experiencing significant growth; this plan was divided into three areas: commercial, urban and ring road. Medellín's urban growth had a significant impact on the relationship between the city and the Medellín River. With the increase in population and the expansion of urban infrastructure, works were carried out to channel and rectify the river to prevent flooding and make better use of the available space. These interventions, although they sought to improve the functionality of the city, also had negative consequences for the ecosystem of the river and its surroundings, due to the construction of the road infrastructure proposed at the river's edge, which totally fragmented the relationship between the natural structure and the population[5].

At this time, the relationship between the city and the river became more distant and fragmented. The Medellín River became a physical element that divided the city into different sectors, and its role as a social and recreational space was reduced. Despite this, the river continued to be a geographic and cultural reference for the city, and its presence remained in the collective memory of Medellín's inhabitants.

In the second half of the twentieth century, the city of Medellin suffered a precipitous growth, violence and socio-political problems in the country produced the mass migration of thousands of families from rural areas throughout Colombia to the main cities of the country, including Medellin; population growth went from 270,000 inhabitants in 1950 to almost 1.3 million inhabitants at the end of the sixties. This wave of migration from the countryside generated an enormous problem in Colombian cities, since the development plans that were proposed for the cities did not contemplate this phenomenon on the scale in which it occurred. As a result, the new self-built settlements generated a change in the urban landscape and brought with them problems of quality of life and public services. The city suffered a major problem of segregation and violence due to drug trafficking, which caused a major problem at many levels; at the urban level, the streets were no longer safe and all social activities migrated to the private sector, leaving aside public spaces and focusing on public policies to combat crime, this phenomenon led to the privatization of the public[6].

At the beginning of the 21st century, Medellín began to work on a comprehensive plan for sustainable development, with the intention of leaving behind the crisis suffered in recent years and developing new infrastructure and development proposals against segregation and bringing new services and facilities to underprivileged neighborhoods, and aiming at the reconstruction of the public sector.

Revitalization and recovery projects: From the second half of the 20th century to the present, various projects and strategies have been implemented to revitalize and recover the relationship between the city and the Medellin River. These projects have been driven by a greater awareness of the importance

of river ecosystems, as well as by the need to improve the quality of life of the inhabitants and strengthen the city's identity. One of the most outstanding projects is the Parque Lineal del Río Medellín, which aims to transform the riverbanks into public and recreational spaces. Along its more than 60-kilometer length, the park offers green areas, pedestrian paths, and bicycle lanes, connecting different neighborhoods and facilitating social integration. These public spaces have fostered citizen appropriation of the river, becoming places for meeting and coexistence[7].

The revitalization of the Medellín River has been a joint effort between municipal authorities, the community, nongovernmental organizations, and other local stakeholders. It has sought to promote a more comprehensive and sustainable vision of the city, recognizing the importance of the river as a vital element for the quality of life of its inhabitants.

The recovery and revitalization of the Medellín River have had a significant impact on the city's social and urban fabric. The creation of public spaces along the river has fostered social cohesion and citizen appropriation of urban space. These places have become scenarios for meeting and cultural expression, promoting coexistence and strengthening the sense of belonging of the inhabitants of Medellín.

[1] Melo, Jorge Orlando. (1996). Historia de Medellín: Tomo I. Bogotá: Compañía Suramericana de Seguros, p. 69.

[2] Melo, Jorge Orlando. (1996). Historia de Medellín: Tomo I. Bogotá: Compañía Suramericana de Seguros, p. 73.

[3] González Escobar, L. (2007). Medellín, los orígenes y la transición a la modernidad: crecimiento y modelos urbanos 1775-1932. Universidad Nacional de Colombia, Sede Medellín, Escuela del Hábitat - CEHAP, p. 97.

[4] Betancur Hernández, Jasón. (2012). Intervención del río Medellín: la Sociedad de Mejoras Públicas y la administración municipal de Medellín, 1940-1956. HiSTOReLo. Revista de Historia Regional y Local, 4(8), p. 239-274. Retrieved August 24, 2023, from http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S2145-132X2012000200009&lng=en&tlng=es.

[5] González Escobar, L. (2007). Medellín, los orígenes y la transición a la modernidad: crecimiento y modelos urbanos 1775-1932. Universidad Nacional de Colombia, Sede Medellín, Escuela del Hábitat - CEHAP, p. 102.

[6] Melo, Jorge Orlando. (1996). Historia de Medellín: Tomo II. Bogotá: Compañía Suramericana de Seguros, p. 192.

[7] Medellín. (2020). Plan de Desarrollo de Medellín Futuro 2020-2023. Medellín. Alcaldía de Medellín.

URBAN TIME LINE

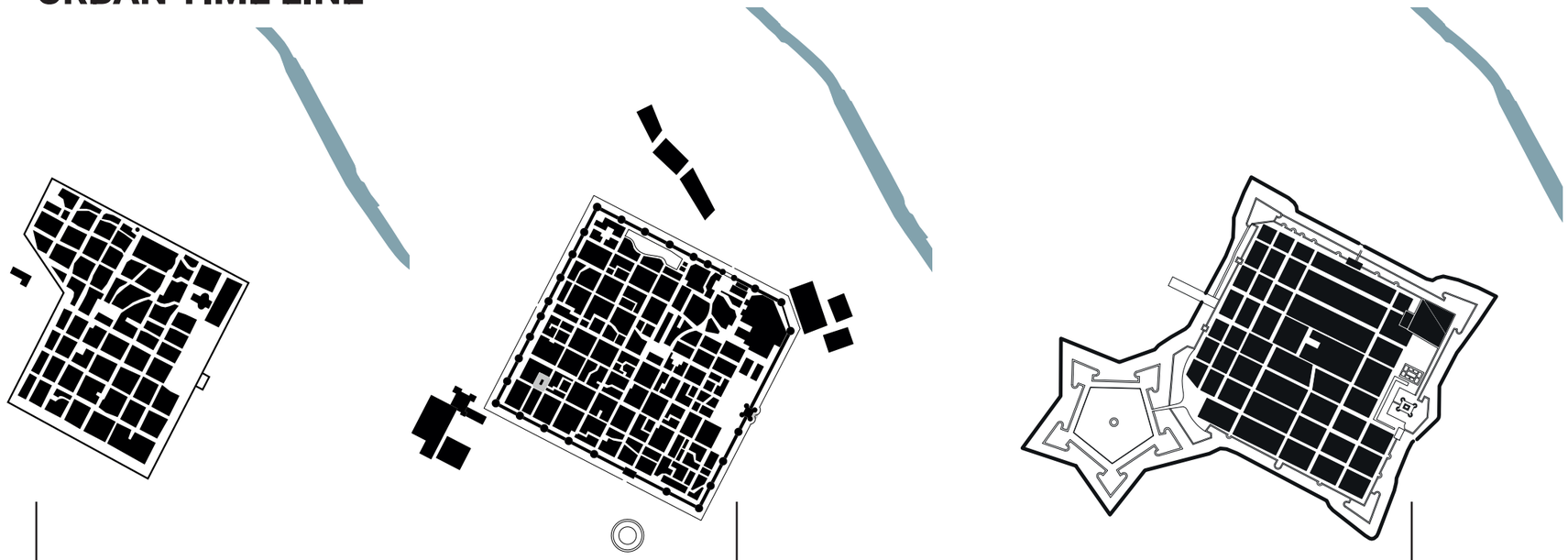
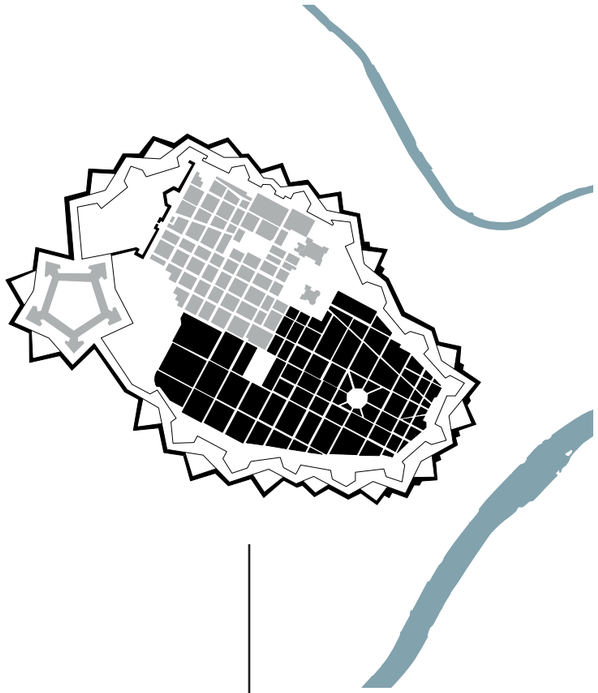


Fig. 19: Comparative timeline of urban growth between Turin and Medellín



TORINO
MEDELLIN

1690

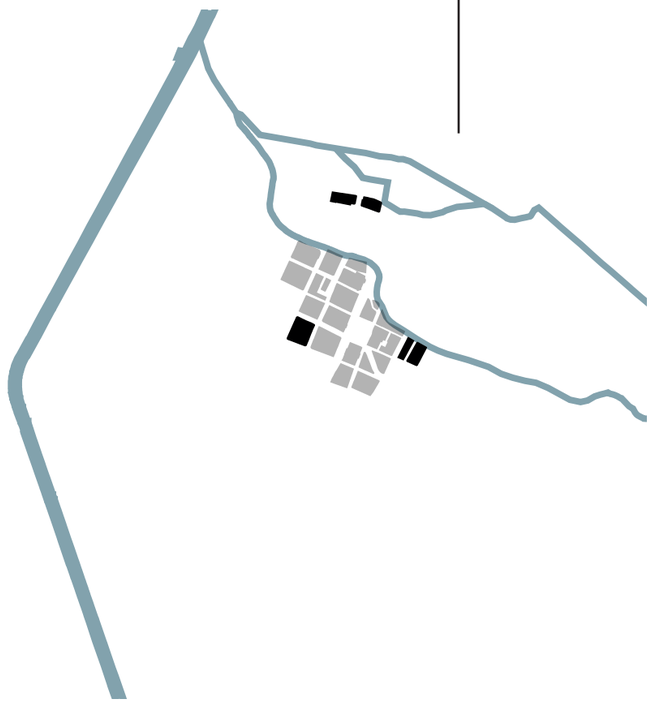
1770
1789
French
Revolution

1800

1810
Colombian
Declaration
of Independence

1819
Republic of
Gran Colombia

1852



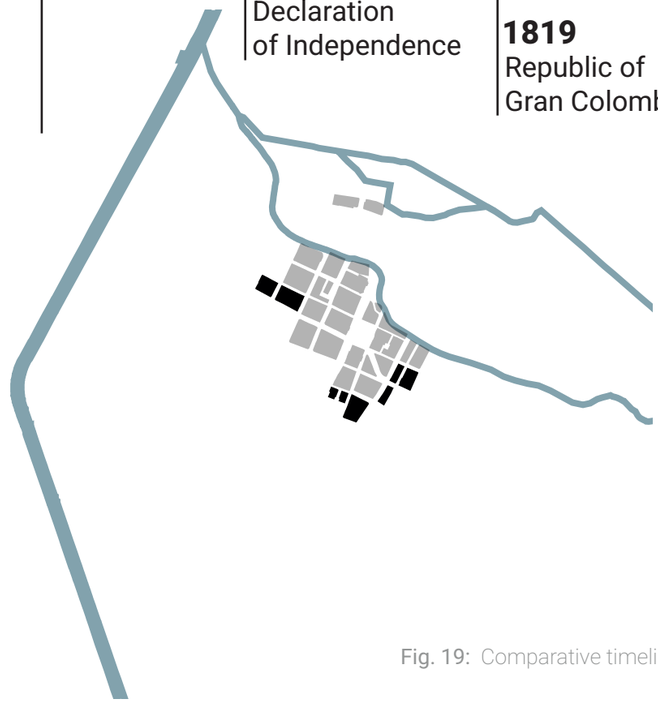


Fig. 19: Comparative timeline of urban growth between Turin and Medellín

TORINO
MEDELLIN

1889

1899 - 1902
"The War of
the Thousand Days"

1906

1908

1914

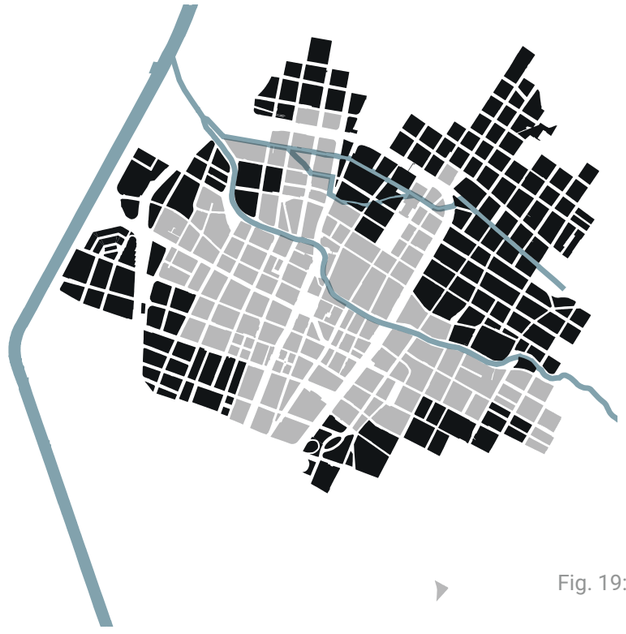


Fig. 19: Comparative timeline of urban growth between Turin and Medellín

TORINO
MEDELLIN

1925

1931

Second
1939-45 World War

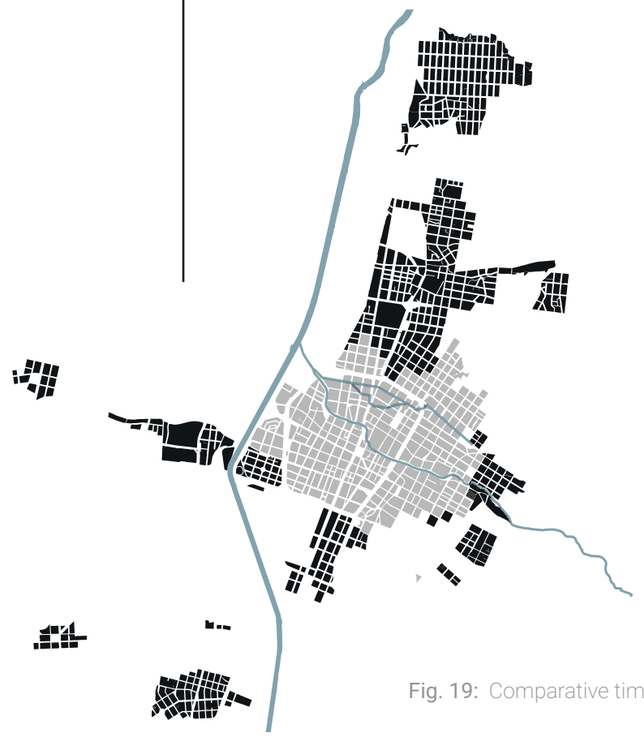
1948
“El Bogotazo”

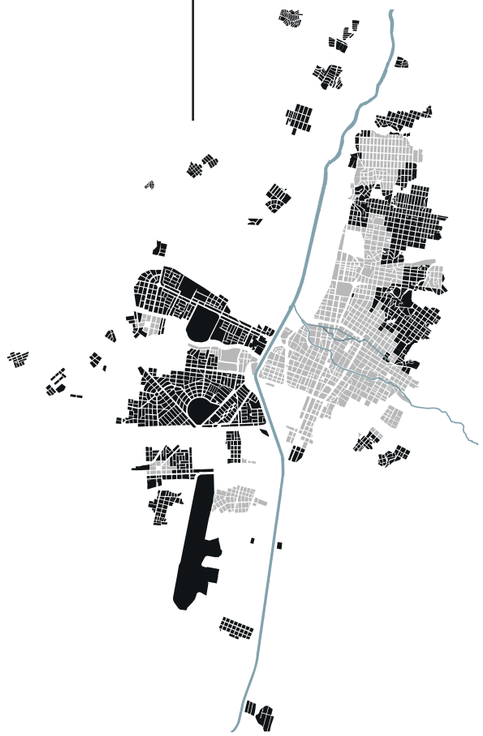
1957

1964

1980
Increase in
drug trafficking
violence

2000





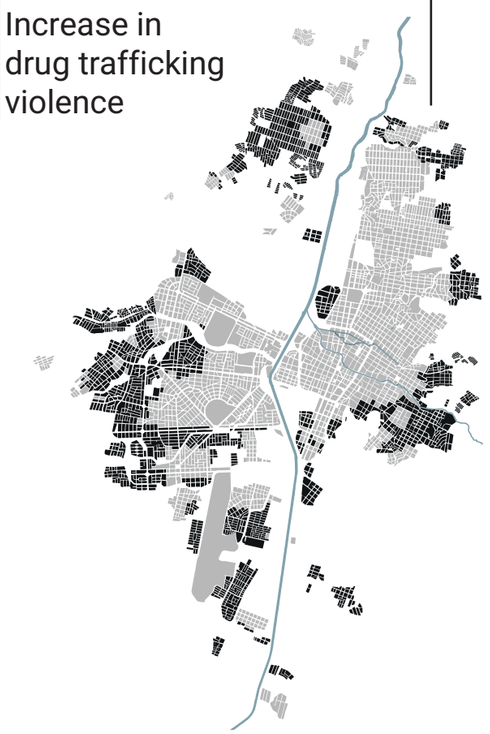


Fig. 19: Comparative timeline of urban growth between Turin and Medellín

SHRINKING CITIES

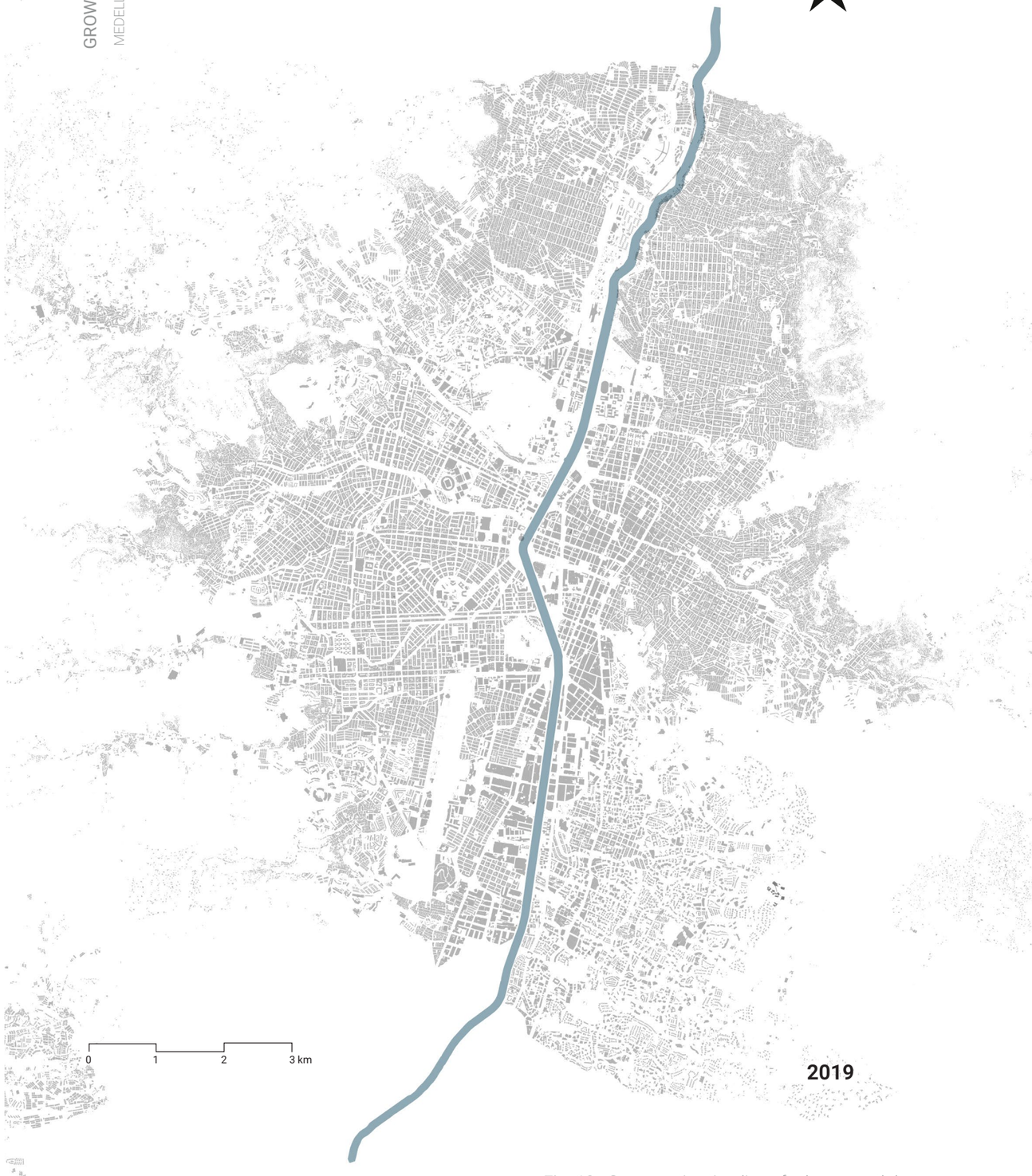
TORINO

URBAN TIME LINE

2019

GROWING CITIES

MEDELLÍN



2019

Fig. 19: Comparative timeline of urban growth between Turin and Medellín

URBAN DEVELOPMENT

SHRINKING CITIES: TORINO

Turin, one of Italy's main cities, has played an important role throughout history. It has been a political and economic pole that has marked in many ways the history of the country until today. On the other hand, Turin is a city that has a very favorable geographical position since it is very close to the Alps and has green areas and a water network that has been fundamental for its growth and development.

Thus, the city can be divided into three morphological units: the hilly and pre-hilly sectors, the plain area between the Po River, the Sangone and Stura di Lanzo, and the hillside streams. The hilly sector is located in the north/northwest to the right of the Po and covers 23 km2. This territory, morphologically, has a high slope, small water networks, and a rocky structure composed of clay[1]. In the pre-slope sector, there are all these points of birth of these hillside streams and their slope is varied. The plain area is affluent in water, receiving four river courses: the Po River from Monviso (12,770 m), Studio di Lanzo (7,100m), Dora Ripariaa (11,560m), and Sangone (8,700m)[1]. Finally, the area of the hillside streams has an altitude jump of about 500 m. In this case, the geological formation has a prevalent composition of limestone marble.

This differentiation makes evident the natural and morphological diversity of the city. This has been of great importance for its growth and urban consolidation, character as a city, and social and cultural impact. In addition, accompanied by diverse factors, it will direct the development and approach to public space and how the city has been related to green.

Understanding the historical process of urban development, five fundamental stages were analyzed, which were determinants for the consolidation and development of the city from different levels. The foundation and its early growth, dating from around the first century to the seventeenth century, was key to the regularization and initiation of the urban design and thinking that will be replicated throughout the history and ages of the city. On the other hand, the location in which they decide to position themselves as a city is key, highlighting the importance and the need to be located between the rivers, those bodies of water that give life and generate a very particular social, cultural, and environmental impact. The baroque period between the XVII and XVIII centuries is important for the fact of establishing the main streets and squares that would be the axis for the following stages of the city, and in the XIX century, several transformations are evidenced taking into account the industrialization process and all that this entails. From this and other phenomena, urban planning is generated where industry begins to play an important role, where new spaces are required for both industries and for all those who work for them. Thus, urban plans arise to determine how and how much the city should grow following guidelines. During the 20th century, it is necessary to identify how the two world wars affected and generated changes in the city of Trino. In addition to this, the growth of the city becomes evident, and how the infrastructure and transportation systems are strengthened and grow, where the growth in the suburbs becomes evident. Linked to this, it is important to highlight that urban regeneration projects and public space revitalization were initiated during this period. This is key in the history of the city because this will give it a fundamental character for the analysis.

Thus, from this historical analysis, we arrive at various conclusions about how and why the city has been formed in a certain way, which leads us to understand how the various layers are composed and what relationship it has with the public green, natural systems, and the appropriation of space as a community.

Taking into account the population decrease, it is necessary to analyze the fiscal-spatial and/or urban consequences of how the territory can change depending on the demographic, social, and cultural situation. Understanding indicators such as the decrease in births, the increase in the number of elderly, and a stable flow of immigrants, it can be said that dynamics that had not been present before are being established.

In addition, taking into account the very defined character that the city has had for years has made it difficult for it to be flexible or adaptable to respond to the new social and cultural dynamics.

For this reason, we analyze how the space is understood today by the inhabitants and how it has adapted according to its natural environment, and how it has been inserted into the city. It is necessary to affirm that public green space has been a subject that has been worked on since 1800 where it has emerged and has been planned with different objectives. This begins as a point of hygiene, which is the result of theories where how the city is planned takes into account the healthiness of the inhabitants since in the beginning there were no hydraulic networks which are key to the hygiene of the city. This goes hand in hand with the idea of open spaces where the air could circulate preventing diseases. Linked to this, the green space is projected along the same lines as how the different gardens had been worked throughout the history of Torino.

The green space was understood as a private space reserved for a few. This space became a projected space, where every decision was taken to create a scenic environment where the visitor is immersed in a natural path, but which in reality is planned. This is why there are public green spaces in the city that fulfill the function of health and recreation but are projected in a certain way and take into account the routes made. A clear example of this is the Parco del Valentino, which is the result of a public competition to create a green spot of great importance. It also plays a fundamental role since it is located next to the Po River, which is one of the most important natural elements of the city and the region. The Parco del Valentino is taken as an example because it is a project of public space where the green is the protagonist and has been able to adapt to the changing needs of each generation. In the beginning, it was born at the height of the urban growth of the city, where research and technological innovations in many fields were all the rage. From this and other factors, the neighborhood of San Salvario began to develop, which created a close link with the park. Throughout history, Valentino Park has played an important role in the city and today it can be said that Valentino Park is a key point for the inhabitants of the city. It is a space where a strong sense of belonging has been created, which is the focus of millions of activities and events, but at the same time is part of the daily life of many of the city's inhabitants.

However, it is evident the lack of a sense of belonging and a lack of common green space in several areas. This is why an analysis of the areas near the rivers is carried out, since being fundamental elements of the city and environmental structure, they are a potential point of generation of points of attraction for the community and environmental regeneration. Analyzing the territory, it is concluded that there are spaces, endowments, and certain green spaces, but that the biggest problem is the lack of cohesion between these elements and the lack of belonging. For this reason, it is believed that the solution to this is the creation and regeneration of green public spaces, which could be a point of social, community, and environmental development for these areas.

[1] "Piano Strategico dell'Infrastruttura Verde Torino 2030: Sostenibile | Resiliente. Dicembre 2020. pg. 9-24

SHRINKING CITIES
TORINO

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URBAN DEVELOPMENT

GROWING CITIES: MEDELLÍN

Medellin's urban development has gone through very diverse stages, from colonial times as a productive village, purely designed for economic exchange, to the 20th century, passing through several migratory waves, the outbreak of violence and drug trafficking; all these social dynamics have been forging the city, changing it and adapting it to different contexts and situations in which urban and social spaces are developed. Medellin has been consolidating as one of the most important cities in Colombia and Latin America and today it is a reference as a city that advances in sustainable development and in the agenda against climate change worldwide.

The social, cultural, economic and political transformations that Medellín has undergone have had an impact on the urban environment. The intense growth and the constant migratory waves that have affected the city since the last century have led more than 25% of the city to be formed from the "informal" and marginality, through illegal processes, subdivision and land rental, the so-called "pirate urbanization" and the progressive self-construction of housing[1], creating an urban landscape with its own identity and that at the time could not be foreseen or attended by the State, but which in turn can be found in most Latin American cities.

This problem of social and economic segregation is physically palpable, it is evident how Medellin is divided into two totally different realities, with the middle and upper classes in the consolidated neighborhoods planned by the Land Use Plan (POT) in the central and southern part of the valley, while the self-construction and self-management neighborhoods are considered unconsolidated, in the northern part of the valley. During this period of growth and extension of the informal urban fabric, the unconsolidated neighborhoods continued to spread along the valley slopes, even adapting to the strong geological restrictions of the area, ravines and rivers, and even occupying areas such as the "morro de basuras" (garbage hill) of Moravia. This brought with it problems of supply of public services, deficit of public space, high densities and problems of overcrowding, contamination, housing with structural problems and sanitation problems.

As a result of the transformation process that Medellín has undergone, and through strategies and public policies, since 2004 the city has been making changes to its urban structure under the premise of working with the community and supporting the "marginal city". Social Urbanism was taken as a starting point, with which a program was proposed in which, through architecture and urbanism, participatory planning was implemented with the communities that

GROWING CITIES
MEDELLÍN

inhabited and knew the territory[2].

Thus, the city began to adapt and modify to the problems it presented, and the State's development plans focused on neighborhood rehabilitation and improvement through the provision of basic services to these neighborhoods, such as water, sewage and energy. In the case of Moravia, this was a complex process of comprehensive rehabilitation, which was worked on together with the community to create an appropriate environment for the people who lived there[3].

The urban evolution of Medellín has been a story of resilience and transformation. From an industrialized and chaotic city, it has become a metropolis with a proposal for rehabilitation and improvement from a social perspective, with community participation projects that include the integration of the natural system, aiming at the development of inclusive public spaces and using the river as the central axis and structuring element of urban planning. Through revitalization projects and sustainable approaches, Medellín has become a model for other cities, demonstrating how intelligent, people-centered urban planning can improve the quality of life and identity of a community.

Even today, Medellin still faces great challenges to meet the sustainable development goals; at least 30% of the urban area of Medellin presents some type of physical or social precariousness, and with the constant growth of the city, this number will continue to increase if diversified strategies for the improvement of public space and sustainable infrastructure are not generated. There is still a long way to go in terms of comprehensive rehabilitation with neighborhood communities, just as many areas still present environmental problems along the river, which remains a structuring element that in turn remains disconnected from communities in some areas of the city. As Medellín moves into the future, innovation and technology will play a key role in its development as a city as long as it continues to work with an environmental perspective to connect and rehabilitate the river with communities.

[1] Echeverri, Alejandro; Orsini, Francesco M. (2011). Informalidad y urbanismo social en Medellín. "Sostenible?", Desembre 2011, núm. 12, p. 11-24.

[2] Toro, N. Q. (2012). Memoria y territorio en los procesos de desarrollo urbano en la ciudad de Medellín. Nuevas Antropologías Colombianas, 220.

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GROWING CITIES
MEDELLÍN

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SHRINKING CITIES

TORINO

LAYERS

NOLLI

Built

Built

0 1 2 3 km

Fig. 20: Authors elavoration based on GeoPortale, Comune di Torino

GROWING CITIES

MEDELLÍN

Base

Built

0 1 2 3 km

Fig. 21: Authors elavoration based on MEData, Alcaldía de Medellín

SHRINKING CITIES

TORINO

LAYERS

ROAD SYSTEM

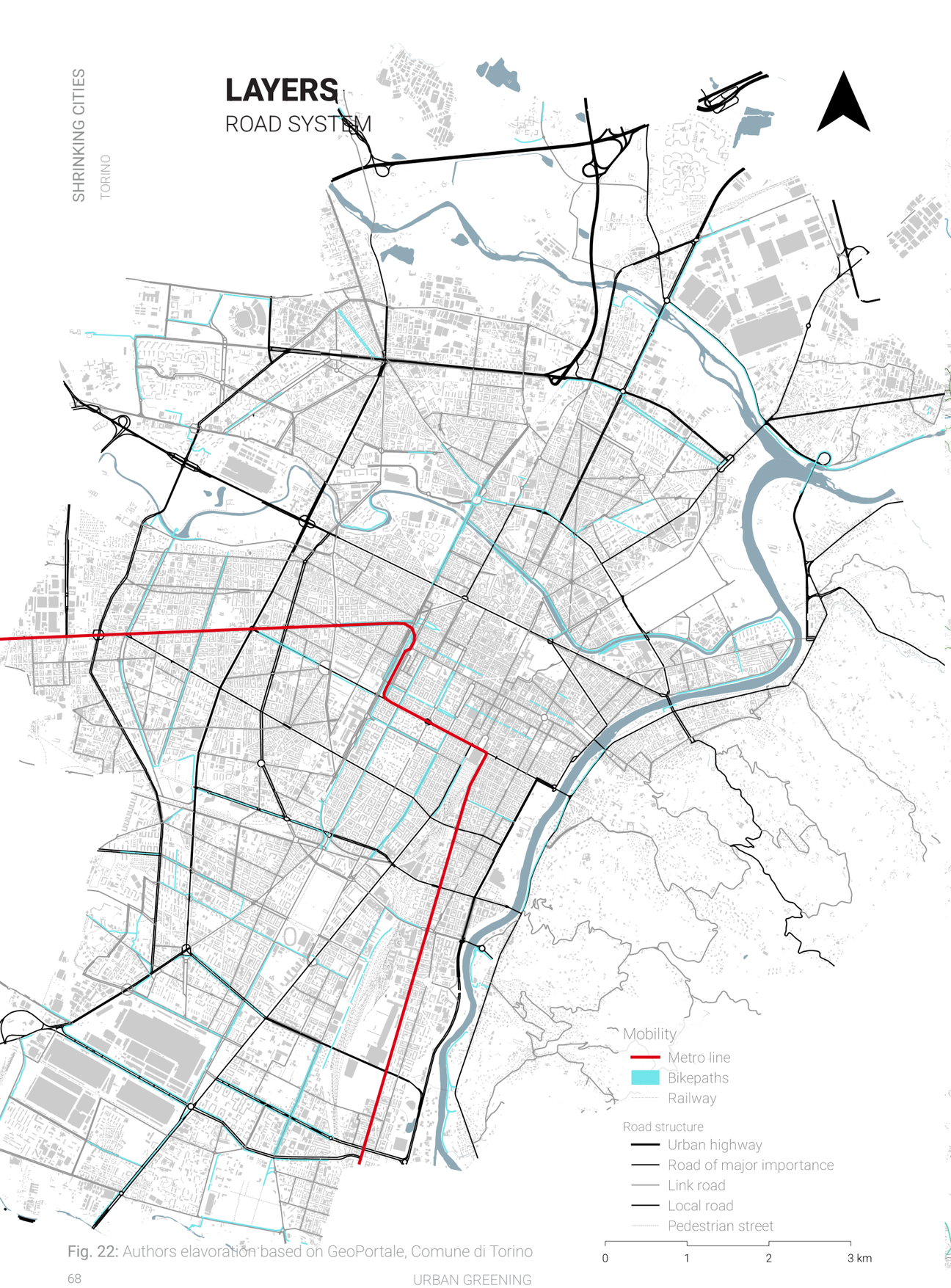


Fig. 22: Authors elavoration based on GeoPortale, Comune di Torino

GROWING CITIES

MEDELLÍN

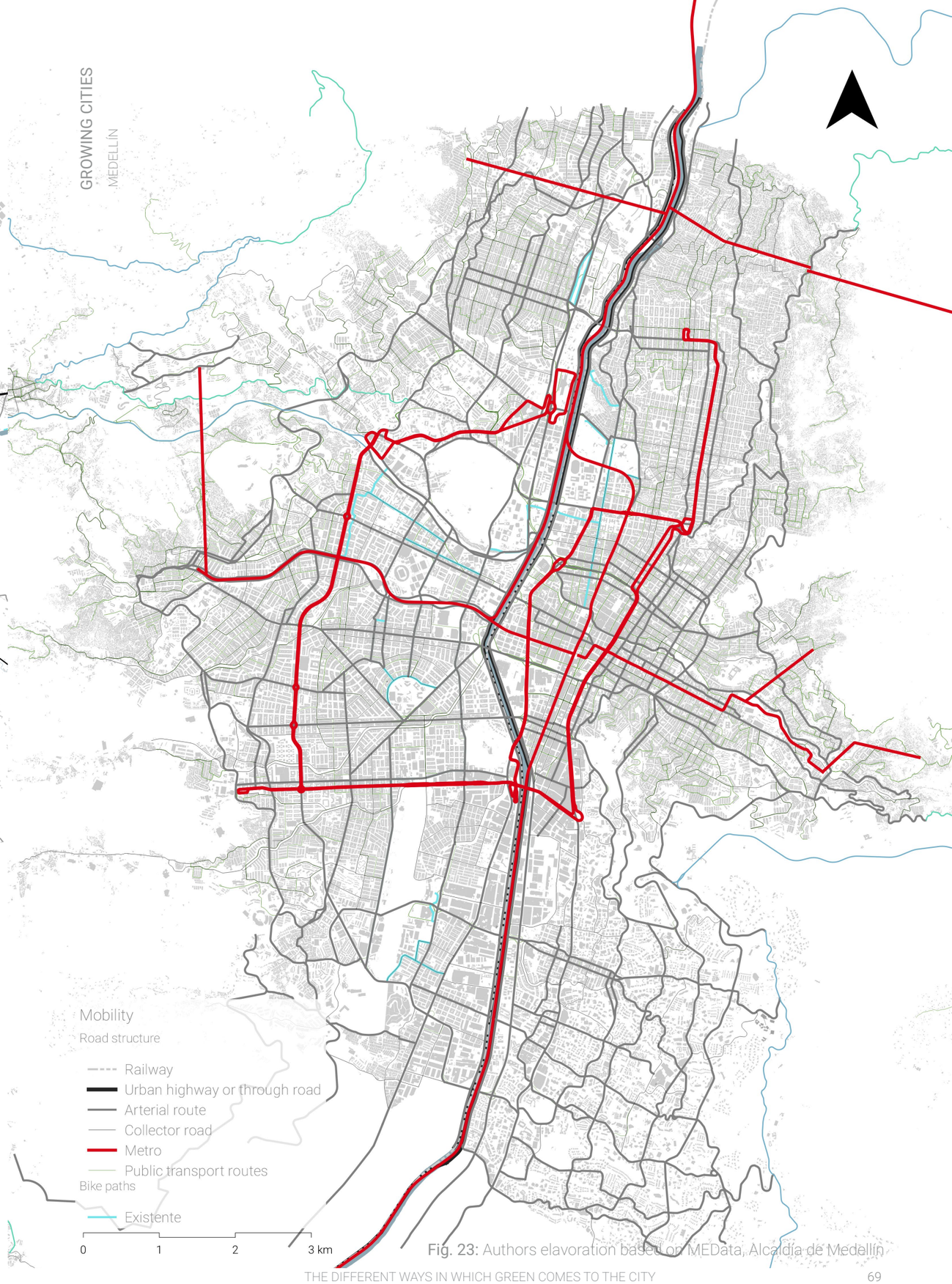


Fig. 23: Authors elavoration based on MEData, Alcaldía de Medellín

SHRINKING CITIES

TORINO

LAYERS

USES

Built

General land uses

- High-mixed uses
- Residential
- Low-mixed uses
- Services
- Industrial
- Agricultural

0 1 2 3 km

Fig. 24: Authors elavoration based on GeoPortale, Comune di Torino

GROWING CITIES

MEDELLÍN

General land uses

- Low-mixed areas
- Medium-mixed areas and corridors
- Highly mixed areas and corridors
- Existing Public Space
- Dotacional Use

0 1 2 3 km

Fig. 25: Authors elavoration based on MEData, Alcaldía de Medellín

20 m²
public space
per inhabitant

37 %
green surface
of the municipal area
(including private and public area)

110.000
trees
in urban contexts

230.000
in hillside forests

Fig. 26: Authors elavoration based on GeoPortale, Comune di Torino

MEDELLÍN

LAYERS
GREEN

4 m²
public spacé
per inhabitant

10 %
green surface
of the municipal area
(including private and public area)

522.000
trees
in urban contexts

Fig. 27: Authors elavoration based on Maps - Alcaldía de Medellín

SHRINKING CITIES

TORINO

DIAGNOSTIC

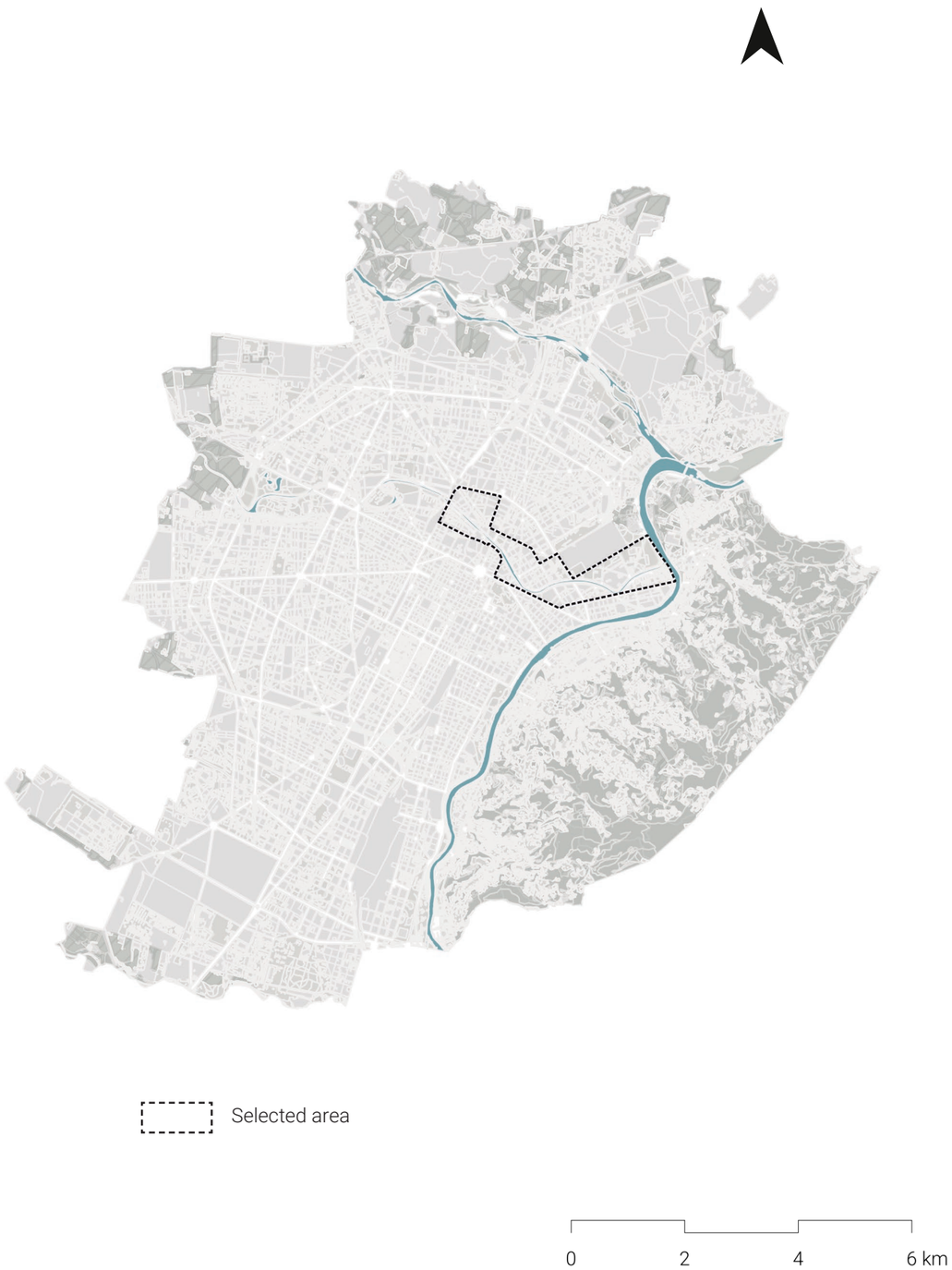
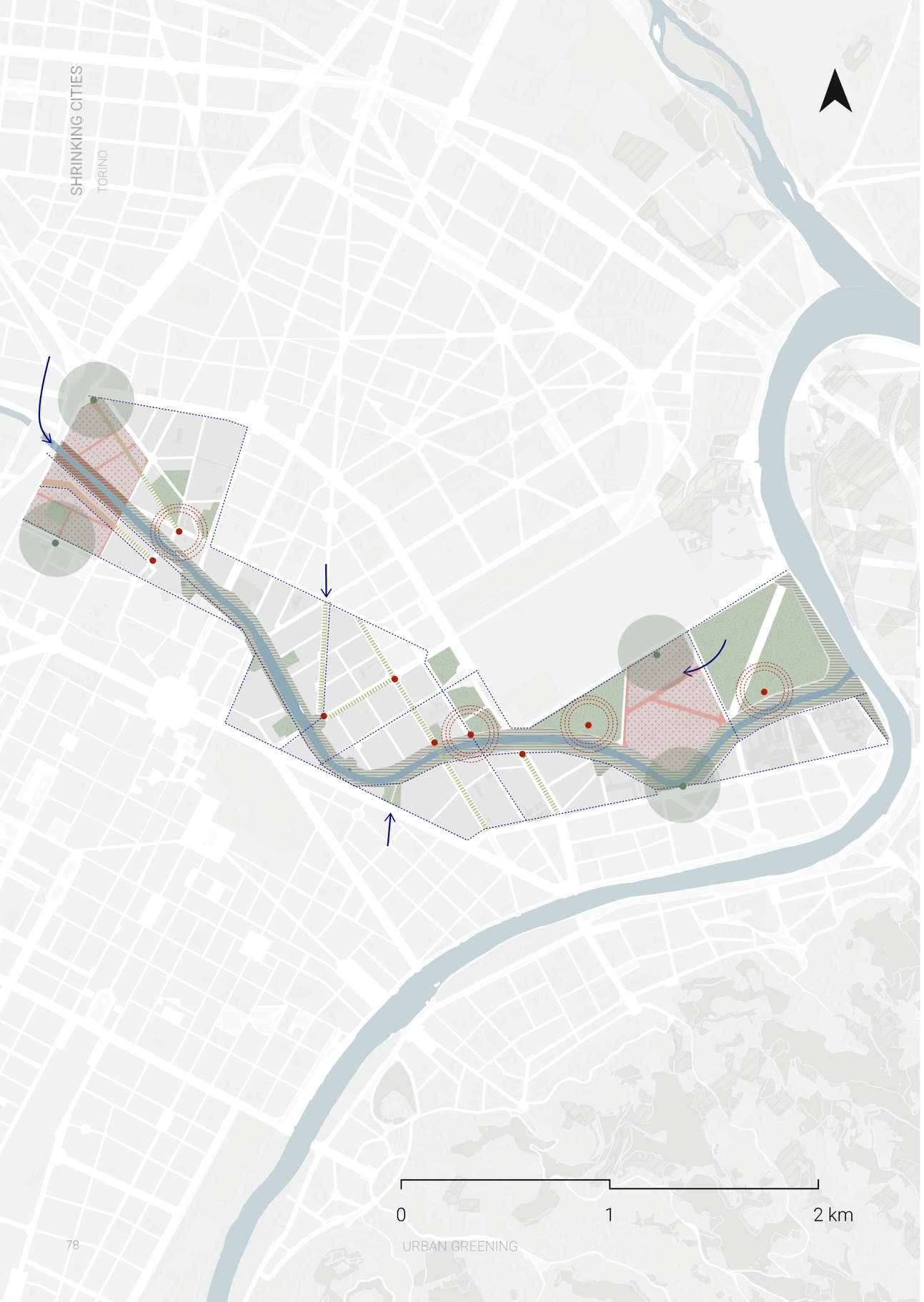


Fig. 28: Authors elavoration based on GeoPortale, Comune di Torino

GROWING CITIES

MEDELLÍN

Fig. 29: Authors elavoration based on MEData, Alcaldía de Medellín



DIAGNOSTIC

The area in which it was decided to carry out the analysis and the future project based on strategies is positioned on the Dora River. Being part of this main green structure was very important for its industrial character. This damaged the city and the river in terms of a great environmental impact which we are trying to remedy with the greening of the city. In addition, at a spatial level, the industries generated a fracture in the territory. This is because over the years the industries moved to other locations and the existing structures became obsolete and abandoned, generating a rupture in the city and society. The area chosen for analysis has diverse urban fabrics that react in different ways to the proximity to the river. On the one hand, an industrial and service zone is identified, and on the other, a residential zone. Thus, the possible function of two industrial and one residential zone as unifying elements of the city through interaction with the river is analyzed. In this zone, a potential union between the existing green areas is analyzed, since they are disconnected and a green network could be established that interacts with the river, enhancing the green public space on the edges of the river, since this green space is being wasted and is fulfilling a segmentation function. Also, road axes could be greened, creating a green network throughout the area integrating the existing green spaces and the river as the main element, structuring the axis.

LEGEND

- Key green areas
- Free space along the river
- Potential green axes
- Potential urban accesses
- Potential mobility network
- Green space connector nodes
- Reaction points of major influence
- Possible unifying urban zones
- Green trigger point

GROWING CITIES
MEDELLÍN

DIAGNOSTIC

According to the analysis we carried out at the city level, we were able to identify an area along the Medellín River where several elements and phenomena converge and present certain potentialities as well as several problems; this area is located between comunas 1 and 4, in the northern part of the city. Several important dynamics for the city are located here, such as the North Terminal, the Moravia neighborhood, the North Park and several subway stations, including the Acevedo metrocable station, which connects the marginalized neighborhoods located in the hills, where it is very difficult to reach by other means of transportation. One of the most evident problems is the rupture between the relationship between the river and the population, since several important roads converge parallel to the river, separating it from all the activities and dynamics of the inhabitants. Although there is a belt of green area that protects the river corridor, it is not accessible to the inhabitants, and in some parts, illegal settlements have been created for garbage recycling and car repair shops, which continue to affect the river environmentally. Also, we identified two zones that have different typologies, one of which is residential and the other more industrial, which we will use to propose strategies that adapt to the context and show the potential for the revitalization of the river.

LEGEND

- Key green areas
- Free space along the river
- Potential green axes
- Potential urban accesses
- Potential mobility network
- Green space connector nodes
- Reaction points of major influence
- Possible unifying urban zones
- Green trigger point

Fig. 30: Aerial view of Moravia, Medellín/ Photo by Camilo Suárez

Fig. 31 - 32: Paths and urban gardens / Photos by Luis Eduardo Noriega A. - Óscar Flecha

Fig. 33: El Morro landfill operated until 1984, then displaced families began to build on top.

MORAVIA DISTRICT (MEDELLÍN, COLOMBIA)

REFERENCES

The Moravia neighborhood of Medellin is a quarter that emerged around the 80s in the city due to forced displacements by violence, which led citizens to settle in this part of the city near the Medellin River. This is a land that had particular characteristics since it was a garbage dump and so the citizens settled on this mountain of garbage which was generating great structural, urban, environmental, and social problems. With Medellin's 1999 plan, the city wanted to follow a model of inward growth that would improve and generate better use of the structures. Thus, an improvement plan was initiated in which an interdisciplinary project was established to improve the quality of life of the citizens of the Moravia neighborhood. These transversal programs were based on generating, recovering, improving, and consolidating public space. In other words, the general objectives were environmental restoration and social participation.

To carry out this project, certain methodologies were followed with which we arrived at an integral project which functions from the various areas proposed today. First, at the social level, the objective was to improve the quality of life and neighborhood cohesion. At the landscape level, improvement of flora and recycling, taking it into account as a cultural and landscape reference. At the environmental level, it was about restoring from a great environmental impact using environmentally friendly actions. Finally, an educational level where basic values and principles of collectivity, participation, and respect for nature were instilled.

It can be said that this is an urban intervention project through greenery that was very successful due to its great concern for understanding the context and what the citizens needed and wanted, starting from the appropriation of the place. In addition, enhancing and improving the environmental quality, taking into account that it connects with two major natural infrastructures in the city such as the North Park and the Medellin River. It is a clear example where the environmental improvement is seen cohesively through the public space converted into a meeting point and appropriation for the citizens and inhabitants of the place, creating a synergy between the place and the inhabitants, enhancing it through basic services at different levels such as basic services, cultural, sports and environmental centers that generate focal points for the area and the city.

Fig. 34: Electric stairs in Comuna 13

Fig. 35: Close to San Javier Metro Station

Fig. 36: View from top / Photo by Néstor Serrano

Fig. 37: Comuna 13 escalators / Photo by Tristan Quevilly

COMUNA 13 (MEDELLÍN, COLOMBIA)

REFERENCES

Medellín is a city that is administratively divided into rural and urban areas. The urban area is divided into 249 neighborhoods which are united into administrative units called communes. The comunas were a focal point in Colombia's violent era. Around 1970 there was a large migration of peasants to these areas. In the 1990s there was a greater migration due to forced displacement by armed groups. Even so, these illegal groups arrived in these communes generating critical conditions for the city and its inhabitants. One of these is commune 13 (San Javier) which is located in the western part of the city, with 19 neighborhoods and an area of 7km2.

Thus, urban regeneration is being considered, which will entail a set of integrated actions to curb these situations of decline. It is important to note that the construction of this commune took place through popular urbanism, which is based on the collective construction of the space or the urban fabric from a part of the less favored population on the other hand, it is important to highlight the illegality and lack of regulation taking into account the lack of support from the government authorities.

Thus, in 2004, the urban regeneration of the comuna began with the Zonal Integral Development Plan, which is based on certain key principles. Inhabiting public space, productivity and employment, integral education, organization and participation, civic culture, and social security. All this is through social urbanism, which starts from the idea of social and spatial inclusion through the construction of equity which is based on a public policy. Commune 13, today, is a crucial point in Medellin's tourism, thanks to these renovations that are based on the participation of the inhabitants, through cultural management and urban tactics. Commune 13 is a great example of urban regeneration through a public space where the community has been part of its construction. This represents this social integration and the sense of belonging and identity of the place. On the other hand, it refers to that collective memory that had been lost, how a historical fabric full of scars and pain can be created, empowering it towards an improvement of the quality of life of the local inhabitants through collective participation.

Fig. 38: Aerial view of Dora Park, in the northern part of Turin / by FLoL

Fig. 39: Covered urban skatepark

Fig. 40: Ex-factory skatepark

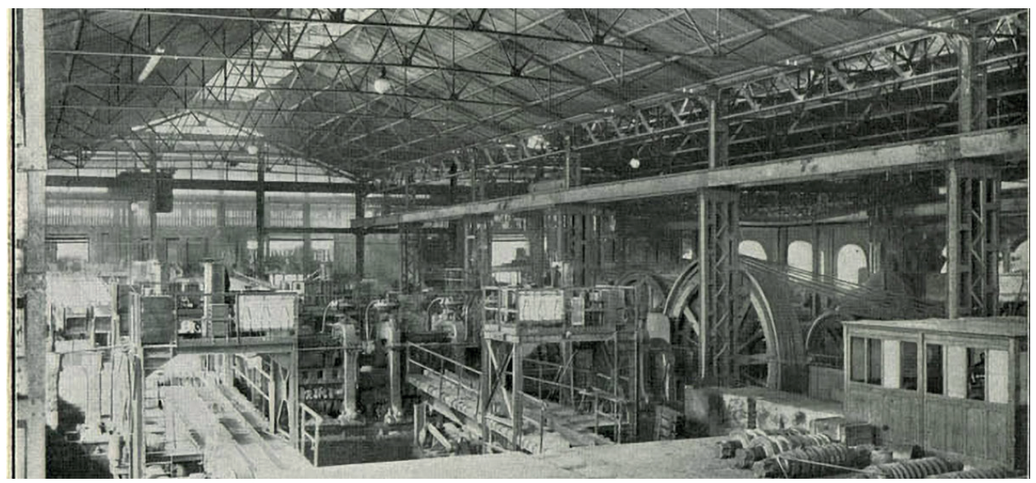


Fig. 41: Historical photo of the factory

PARCO DORA (TURIN, ITALY)

REFERENCES

Parco Dora is one of the largest urban requalification projects in Turin in recent decades. First, it is important to note that it is part of the Spina 3 project, which is based on the Piano Regolatore of 1995 where a new urban organization was established with the park at its heart. The park is located across the Dora River, which has 358,000 square meters of surface, which was occupied by large product establishments that at the beginning of 200 were abandoned, fragmenting the territory and generating an environmental impact. The establishments were 5, which were key to the project: Vitali, Ingest, Valdocco, Michelin, and Morata.

The project was carried out in 2003, being a state intervention that had certain main guidelines. Integration of the Dora River, the metamorphosis of what already existed, the connection of the park with the city, preserving the characteristics of the place concerning its vegetation, creating diverse areas taking into account its historical process, type of use, and urban function and, finally, it should guarantee the usability of the soil. Moreover, it is part of a comprehensive project at the city scale “Torino città d’Acque” in which the green system is to be interconnected through the 4 main rivers of the city of Torino. On the other hand, reference is made to the “Brownfield” which refers to these abandoned industrial structures, which are not contributing much to their context, to functionalize them.

Thus, we can conclude that Parco Dora is a highly relevant intervention for the improvement of the city at the urban, social, cultural, historical, and environmental levels. It is the representation of how to understand the decrease in the city and generate new green public spaces to create spaces for social integration and environmental improvement. It is, in turn, relevant to highlight the fact that it is based on one of the most important natural infrastructures of the city, in this case, the Dora River.

Fig. 42: As many as 10,000 people come to Tempelhof everyday

Fig. 43 - 44: Community urban gardens and the Tempelhof Park

Fig. 45: When Tempelhof airport was still in operation. / Photo: © -wn-

TEMPELHOFER FELD (BERLIN, GERMANY)

REFERENCES

Tempelhofer Feld is one of the largest parks in the city of Berlin, located in West Berlin and covering 300 hectares, where an infinity of integrated activities are developed in the green space, in favor of social and collective participation. In the park, there are several artistic projects, gardening, social projects, and various integration activities. In addition to this, the park acts as a refuge for a large number of flora and fauna. Thus, many organizations are in charge of achieving all these activities and projects that make the park become a living, dynamic, and changing park. Some of these activities are roller skate, community gardens, and DIY culture, it is necessary to affirm that none of these can be exercised in fixed structures, which gives the place a very particular dynamism understanding of the constant change of society, and its needs.

This space was an airport built in the 30s of 1900, which was considered the largest airport in the world at that time. This is why it was decided to preserve the oldest building since, in addition to this, it has a great symbolic value. This is because, during the Cold War, the air bridge was started, which generated a break of the blockade imposed by the USSR to be able to enter West Berlin with food and other essential goods. In addition, in 2015 it became a home for refugees where approximately 2,300 people from Afghanistan, Pakistan, and Syria settled. Thus, this is a structure that represents a symbol of freedom and solidarity. This, from the outset, creates a sense of belonging and identity for the German population. In addition, the formal characteristics of the airport are preserved, taking advantage of the fact that it was in a state of abandonment. For this, several general guidelines are proposed: to be a great urban garden and to create a fusion between the historical spaces and a reinvention and recovery for new uses.

Thus, it can be concluded that this is a fundamental project for the development of the thesis since it is not only about preserving the green and understanding the importance of the natural heritage but at the same time talking about historical, social, and cultural conservation which generates a high sense of belonging in the inhabitants. It is also important to analyze the fact that it becomes a fundamental natural infrastructure for the city system since most of the objectives of the research and project are based on the idea of creating and enhancing the natural systems of the city to reduce the impacts of pollution present in medium and large scale cities.

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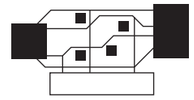
CHAPTER 4

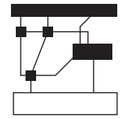
URBAN PLANS TO GREENING THE CITIES

CONCEPT

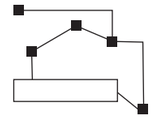
ADDITIVE + PERMEATE
(TORINO) (INDUSTRAL)



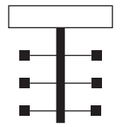
ADAPTIVE + PERMEATE
(MEDELLÍN) (INDUSTRAL)



ADDITIVE + CONNECT
(TORINO) (RESIDENTIAL)



ADAPTIVE + CONNECT
(MEDELLÍN) (RESIDENTIAL)



SHRINKING CITIES

TORINO

STATE OF ART

RESIDENTIAL AREA

The area chosen for study is located in the north of Turin, as part of the urbanization between the river Dora. This is a predominantly residential area, which has several points of great influence in its surroundings. Initially, the Parco Dora was seen as a potential, Porta Palazzo and several important commercial and service points for the city and the sector, being a prevalently residential area. In terms of greenery, the area has sufficient areas of green space, yet many of these do not have a specific use or some are not accessible. For example, the greenery on the banks of the river. In terms of accessibility, the area has a good road system, but there are some breaks in access for bicycles and pedestrians. The area is endowed with various services, but educational and cultural institutions are great potential for the improvement of the sector.

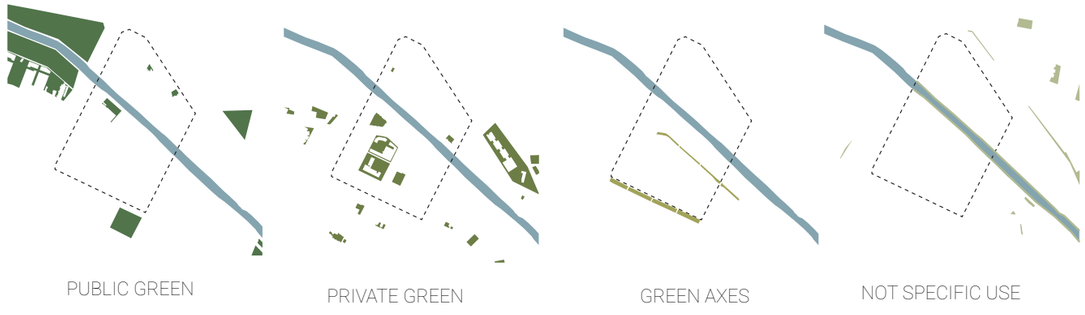
LEGEND

- Water system
- Bikeway
- Vehicular zone
- Peathonal zone
- Public green spaces:

1. Giardino Marino Ferraro
2. Giardino di Via Saint Bon
3. Parco pubblico parcheggio
4. Giardinetti Via Stradella
5. Giardini Via Giachino
6. Parco Dora

TYPES OF GREEN

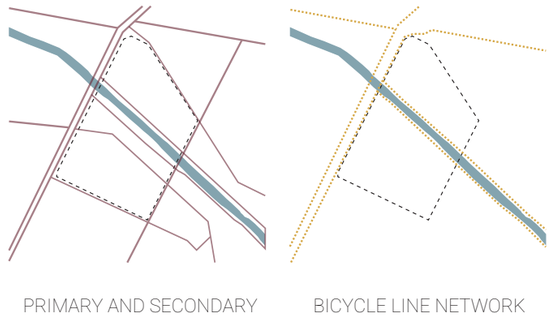
Fig. 46: Authors elavoration based on GeoPortale, Comune di Torino



PUBLIC GREEN | PRIVATE GREEN | GREEN AXES | NOT SPECIFIC USE

ACCESIBILITY

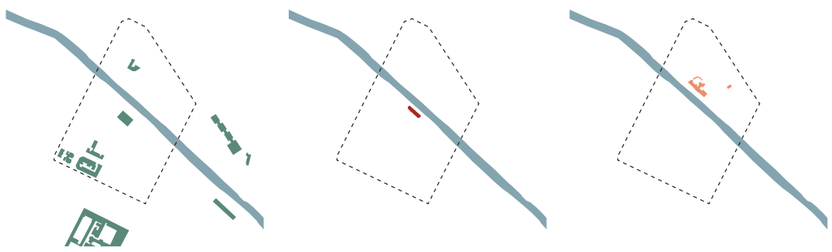
Fig. 47: Authors elavoration based on GeoPortale, Comune di Torino



PRIMARY AND SECONDARY VEHICULAR NETWORK | BICYCLE LINE NETWORK

SERVICES

Fig. 48: Authors elavoration based on GeoPortale, Comune di Torino



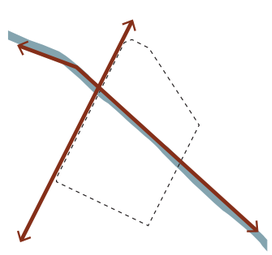
EDUCATIONAL INSTITUTIONS

CULTRUAL INSTITUTIONS

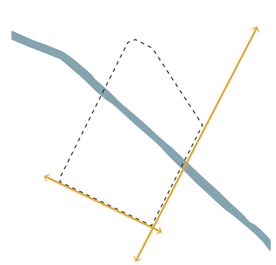
RELIGIOUS INSTITUTIONS

MAIN AXES

Fig. 49: Authors elavoration based on GeoPortale, Comune di Torino



PRIMARY AXES



SECONDARY AXES

Fig. 50: Vehicular street on Via Beinasco

Fig. 53: View of the river from the pedestrian pathway

Fig. 51: River Dora view from Ponte Duca degli Abruzzi

Fig. 54: Pedestrian pathway along the river

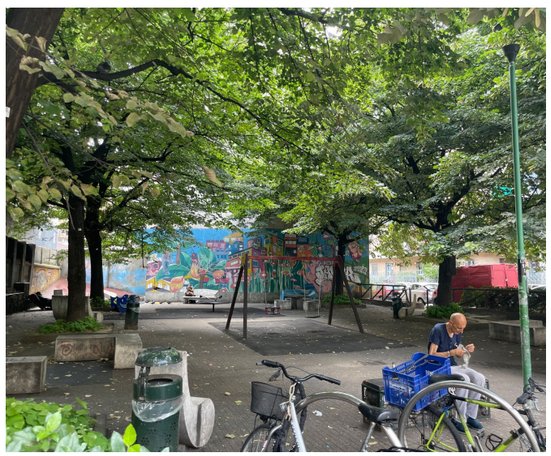


Fig. 52: Playground

Fig. 55: Intersection of vehicular street

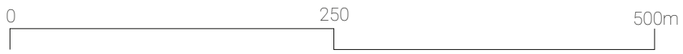
PHOTOGRAPHIC REGISTER

RESIDENTIAL AREA

In the case of the residential area in Torino, certain characteristics are evident that will be fundamental for the application of strategies based on research and the idea of greening the city. At first, the territory is analyzed as a consolidated sector where there is a high percentage of residential buildings but at the same time a high number of services for the community. At the same time, there are few public meeting places or they are in conditions that do not become points of stay but become places of passage. On the other hand, the edge of the river has a high percentage of green, however, this is a green that is not affordable, it is a limit and does not invite the citizen to approach it. In any case, it is clear the lack of green and public space throughout the sector.

Fig. 56: Entrance to a closed block street on Via Cecchi

DENSITY



DIAGNOSTIC

The area chosen for study is located in the north of Turin, as part of the urbanization between the river Dora. This is a predominantly residential area, which has several points of great influence in its surroundings. Initially, the Parco Dora was seen as a potential, Porta Palazzo and several important commercial and service points for the city and the sector, being a prevalently residential area. In terms of greenery, the area has sufficient areas of green space, yet many of these do not have a specific use or some are not accessible. For example, the greenery on the banks of the river. In terms of accessibility, the area has a good road system, but there are some breaks in access for bicycles and pedestrians. The area is endowed with various services, but educational and cultural institutions are great potential for the improvement of the sector.

LEGEND

Limitations

- Fracture
- Isolation
- Limit
- Disuse
- Rupture

Potentialities

- Possibles links
- Generatin points
- Main entrances
- Zones f influence
- Social activation

STATE OF ART

INDUSTRAL AREA

The area selected as a case study for the industrial or productive zone is located in the area north of Turin where the Po and Dora rivers meet. This is a very particular area as it is surrounded by very important infrastructures, yet it is isolated from them. First of all, there is the river Dora as the main green infrastructure, then the Parco Pietro Colletta and the Monumental Cemetery of Torino. The area is a predominantly productive zone that is isolated from the surrounding elements. Within it, there is little green space and little connection with the city. In terms of accessibility, the area has a sufficient vehicular system but a deficient pedestrian and bicycle network. It is important to point out the high number of business centers, which are divided between offices and industries, which have a high environmental impact.

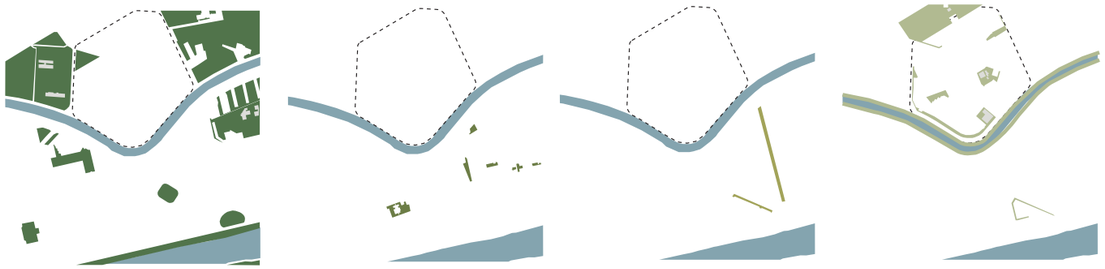
LEGEND

- Water system
- Bikeway
- Vehicular zone
- Peathonal zone
- Public green spaces:

1. Parco Pietro Colletta
2. Parco Crescenzio
3. Giardino Terenzio Magliano
4. Piazza Enrico Toti

TYPES OF GREEN

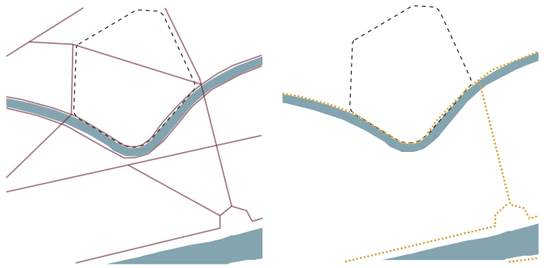
Fig. 57: Authors elavoration based on GeoPortale, Comune di Torino



PUBLIC GREEN | PRIVATE GREEN | GREEN AXES | NOT SPECIFIC USE

ACCESIBILITY

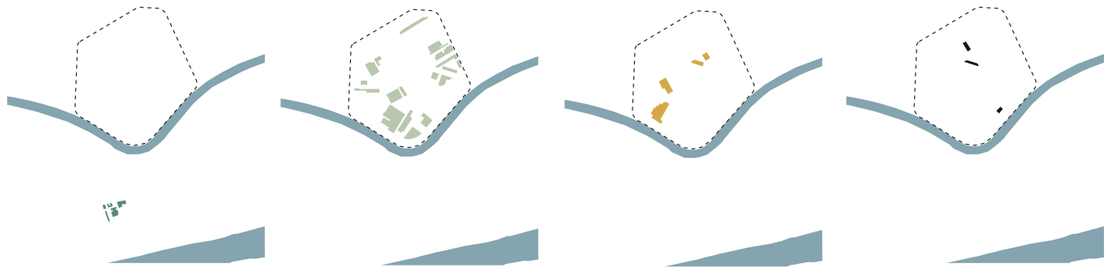
Fig. 58: Authors elavoration based on GeoPortale, Comune di Torino



PRIMARY AND SECONDARY VEHICULAR NETWORK | BICYCLE LINE NETWORK

SERVICES

Fig. 59: Authors elavoration based on GeoPortale, Comune di Torino



EDUCATIONAL INSTITUTIONS | PRODUCTIVE | OFFICES | SPORTS

MAIN AXES

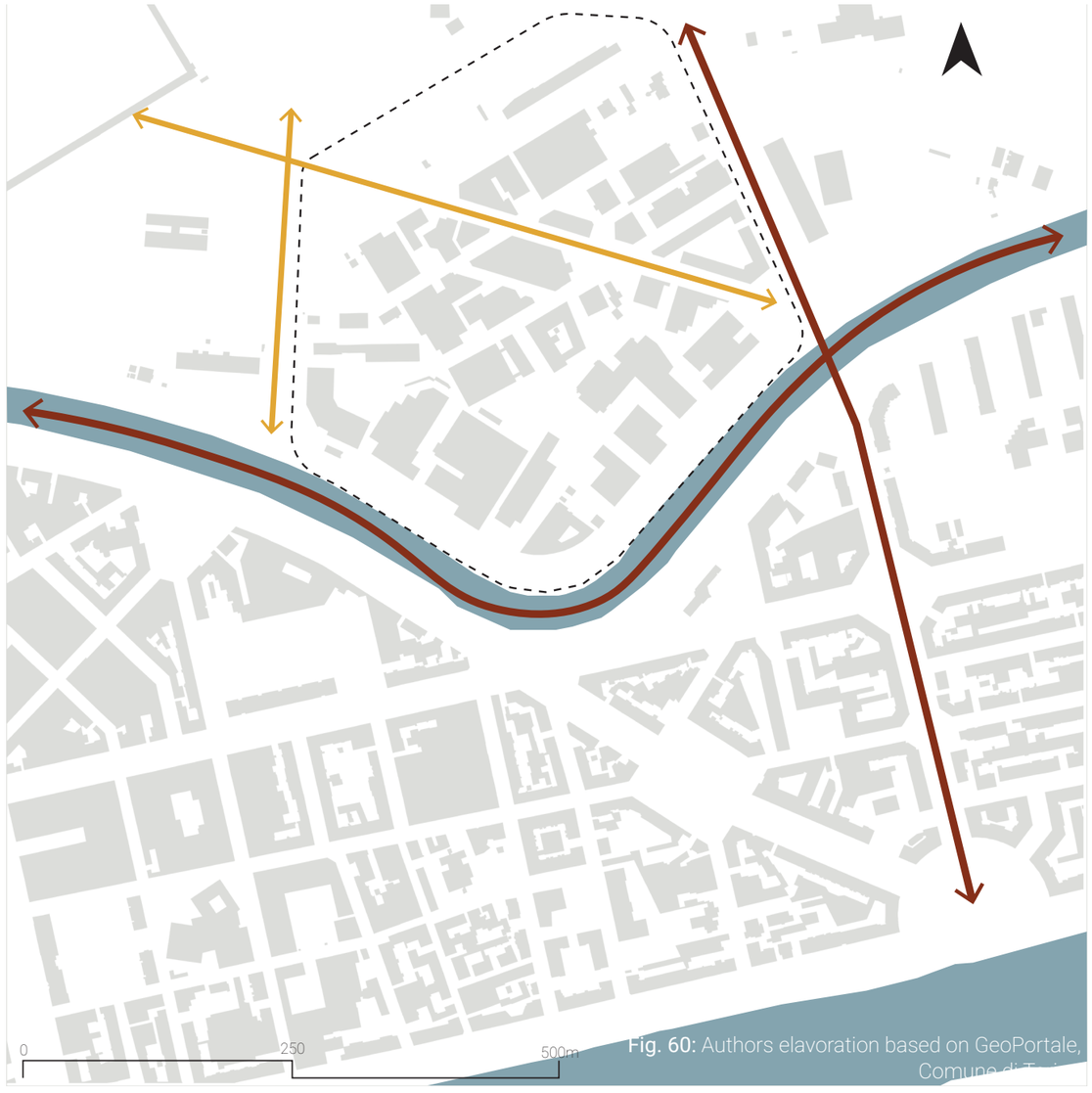
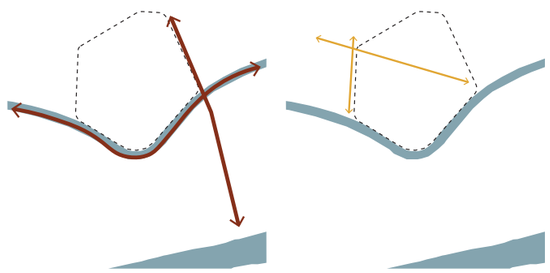


Fig. 60: Authors elavoration based on GeoPortale, Comune di Torino



PRIMARY AXES | SECONDARY AXES

Fig. 61: Street view parallel to the Dora river

Fig. 64: Dora River view

Fig. 62: Street view parallel to the Dora river

Fig. 65: Dora river view from Lungo Dora Pietro Colletta

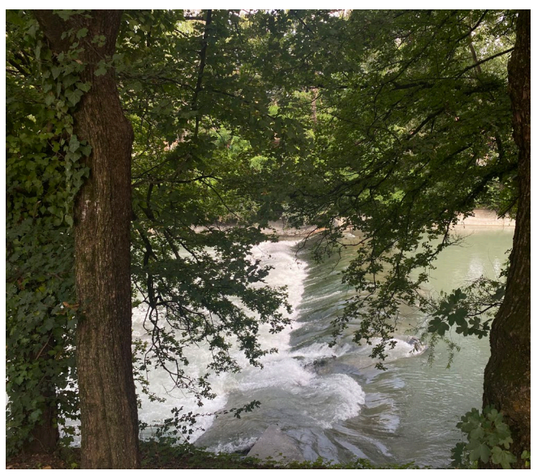


Fig. 63: View of the Dora river

Fig. 66: Lungo Dora Pietro Colletta intersection

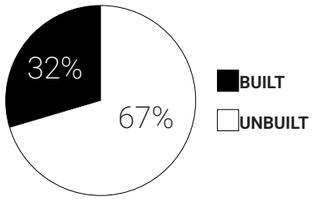
PHOTOGRAPHIC REGISTER

INDUSTRAL AREA

The industrial zone of Torino has different characteristics from the residential zone, which are generating situations in terms of community and environmental impact. In this zone, there is a clear issue of the floating population, where there are purely industrial or service uses, which causes the territory to fragment due to the lack of public spaces. In this case, there is a lack of cohesion in the territory and a total separation from the river. There are certain points of public green spaces, but they are few and disconnected from each other. The edge of the river becomes an isolated area, and the character of the zone is lost. In addition, it should be noted that this area is in the middle of large important spaces for the city such as the Pietro Colletta Park and the central cemetery. Finally, many free spaces are evidenced, which become non-places, places with the possibility of resignifying, greening, and becoming meeting points and areas of low environmental impact through the reinsertion of the green in the city connecting with the river as the main structure.

Fig. 67: Lungo Dora Pietro Colletta street view

DENSITY



DIAGNOSTIC

Taking into account the analysis of the industrial area, it is possible to identify different characteristics determined both as limitations and potentialities. First of all, the limitations are analyzed, which will be part of how they decide the ways of acting at the time of projecting. Firstly, the river is analyzed as a fundamental element, which is a point of fragmentation, when it could be an integrating element of the whole complex, as well as connecting different parts of the city. Furthermore, it is connected with the fact that industries isolate and generate clusters that isolate and separate areas of the city causing critical situations. Also, the vehicular road system generates isolated areas and abruptly separates the territory. These limitations generate isolation of the area, in addition to not having green areas that generate meeting spaces and low environmental impact. In addition, the different potentialities are analyzed. Firstly, we analyze the space that is abandoned or without a specific use that could be used in a way that integrates and permeates the territory. In the first step, these axes are analyzed in which a linear public space could be designed to connect the different internal and external zones, opening up the area and permeating these edges that have radically fragmented the territory. In the second stage, the areas around the industrial zones are studied, which can be used from a public point of view where environmental barriers are generated to reduce the environmental impact.

LEGEND

Limitations

- Fracture
- Isolation
- Limit
- Disuse
- Rupture

Potentialities

- Possibles links
- Generatin points
- Main entrances
- Zones f influence
- Social activation

STRATEGIES

To improve the studied areas, a structure of three strategies is proposed, which will be replicated in each of the cases. However, it is necessary to clarify that in each of the cases, a different methodology will be applied, which will allow reinserting the green in a way that adapts to each case according to its needs, creating a synergy between the various elements and systems that make up the city. Thus, three different strategies are analyzed in each of the sectors.

STRATEGY 1

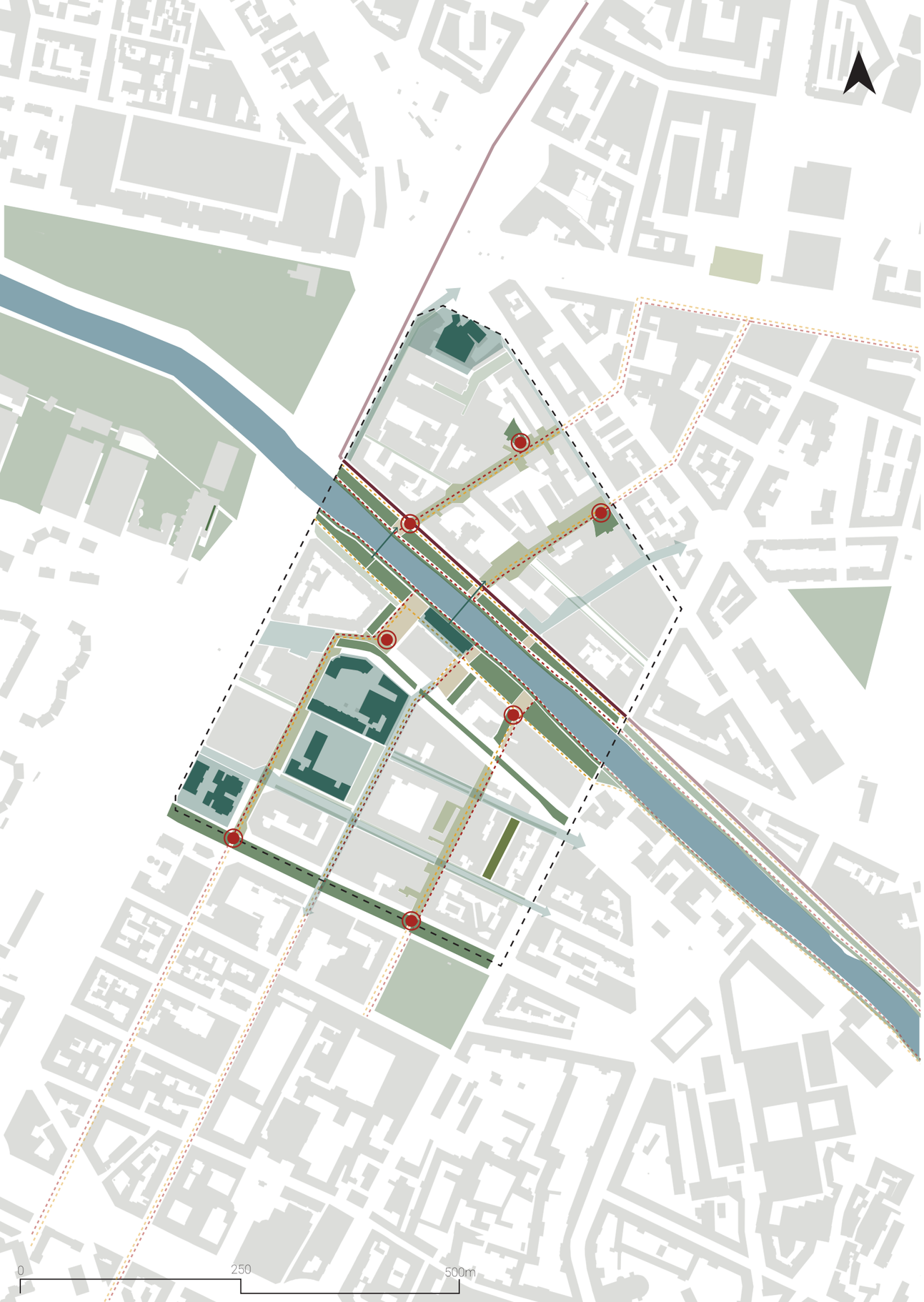
The idea is to revitalize and regenerate the public space on the edges of the river, creating a central point, a generator point from one of the most important natural infrastructures of the cities, permeating and connecting various points and systems.

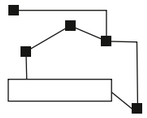
STRATEGY 2

Through green axes to achieve connections and weaving between various existing green points and the revitalization and reuse of spaces that are currently critical.

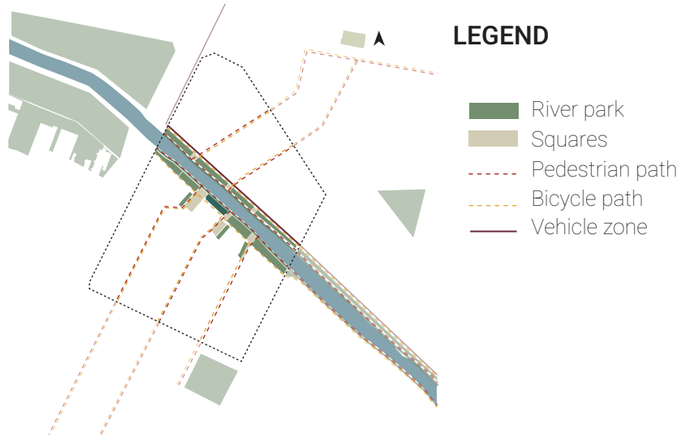
STRATEGY 3

Enhance services or points of influence through public space and improved accessibility to cohere both the public space with the activities already carried out to generate social activation.





STRATEGY 1



Generate a public space on the edge of the river in order to integrate adjacent public space and reinsert the green as an element of cohesion.

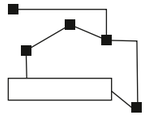
Methdology

1. Connecting existing spaces with new spaces through green public space

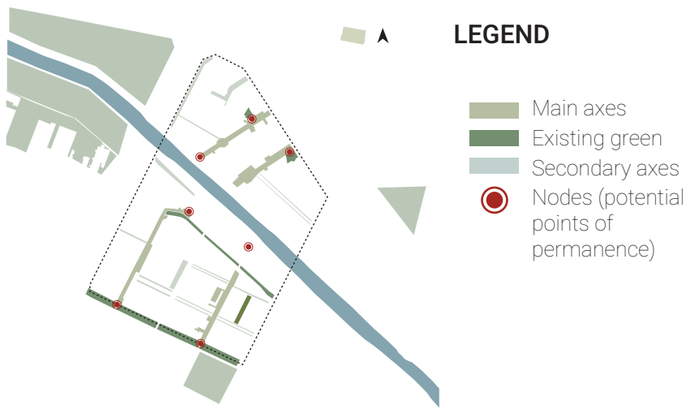
2. Create bicycle and pedestrian accessibility (connection on both sides of the river).

3. Enhancing the river through the insertion of greenery

4. Environmental protection barrier



STRATEGY 2



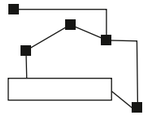
Weave a green infrastructure that cohesively links existing, disconnected spaces.

Methdology

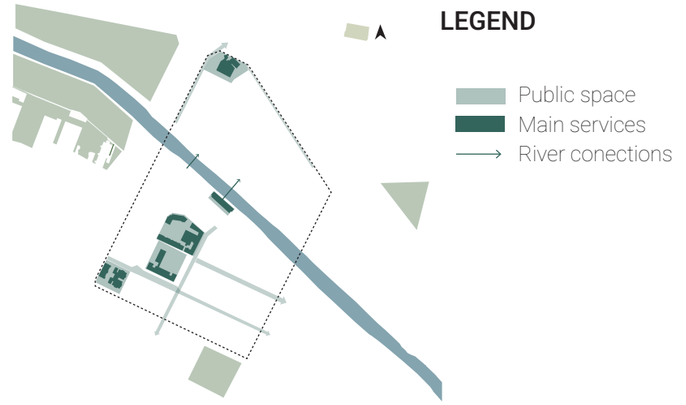
1. Create two main axes of public space where vehicular traffic is reduced and greenery is introduced.

2. Promote existing green spaces

3. Improve both pedestrian and bicycle mobility.



STRATEGY 3



Enhancing and integrating core services into the green network

Methdology

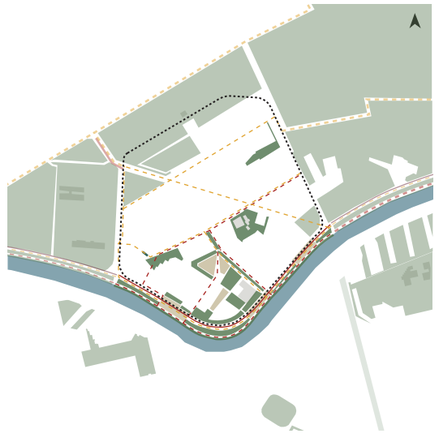
1. Integrate the library with the river project, making it a focal point for the community.

2. Create bicycle and pedestrian accessibility (connection on both sides of the river).

3. Connecting schools through the extension of public space to improve accessibility.

4. Promote small-scale uses in order to create points of attraction connected by the same route.

STRATEGY 1



LEGEND

- River park
- Squares
- Pedestrian path
- Bicycle path
- Vehicle zone

Project on the river in order to improve the existing green space and integrate new green space to eliminate the road and industrial barrier.

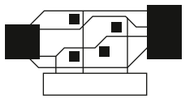
Methdology

1. Improvement of green space and existing bicycle and pedestrian routes

2. To generate a space for the welcome and environmental protection of the industries present in the area.

3. Permeate the area towards the interior of the zone by means of public space and road paths.

4. Environmental protection barrier



STRATEGY 2

LEGEND

- Main axes
- Existing green
- Secondary axes
- Nodes (potential points of permanence)

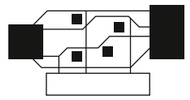
Creating green corridors that generate meeting points between the new and the existing.

Methdology

1. greening of areas without specific use in order to connect spaces

2. Creation of circuits encompassing industries in order to reduce pollution by creating a natural barrier.

3. Connections with other natural elements such as parks and nature reserves.



STRATEGY 3

LEGEND

- Public space
- Main services
- River conections

Improvement of public space around services such as offices and other services in order to improve mobility, environmental quality and reduce pollution.

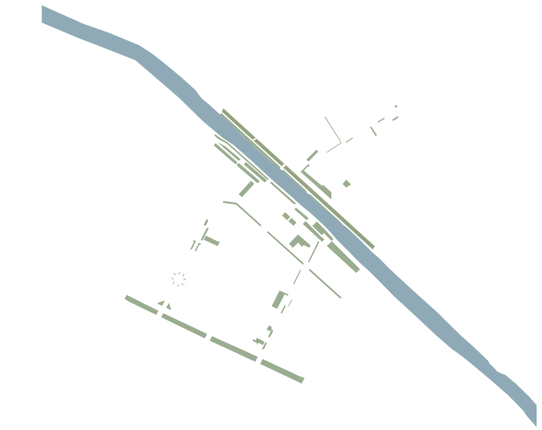
Methdology

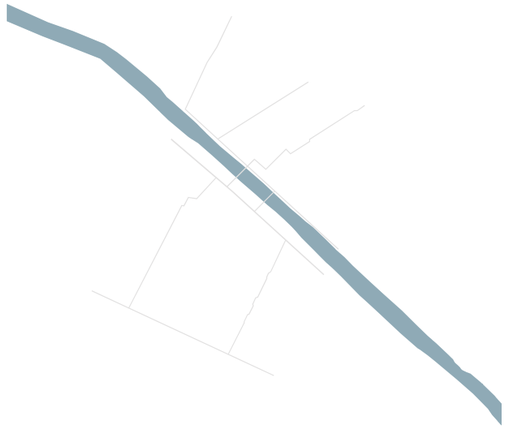
1. Elimination of barriers and generation of permeable public spaces.

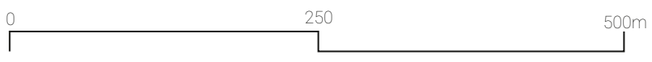
2. Improvement of boundaries inside and outside the zone.

3. Enhancement of these services in order to create more movement and attraction.

PROPOSAL







MASTER PLAN
RESIDENTIAL AREA

LAYERS

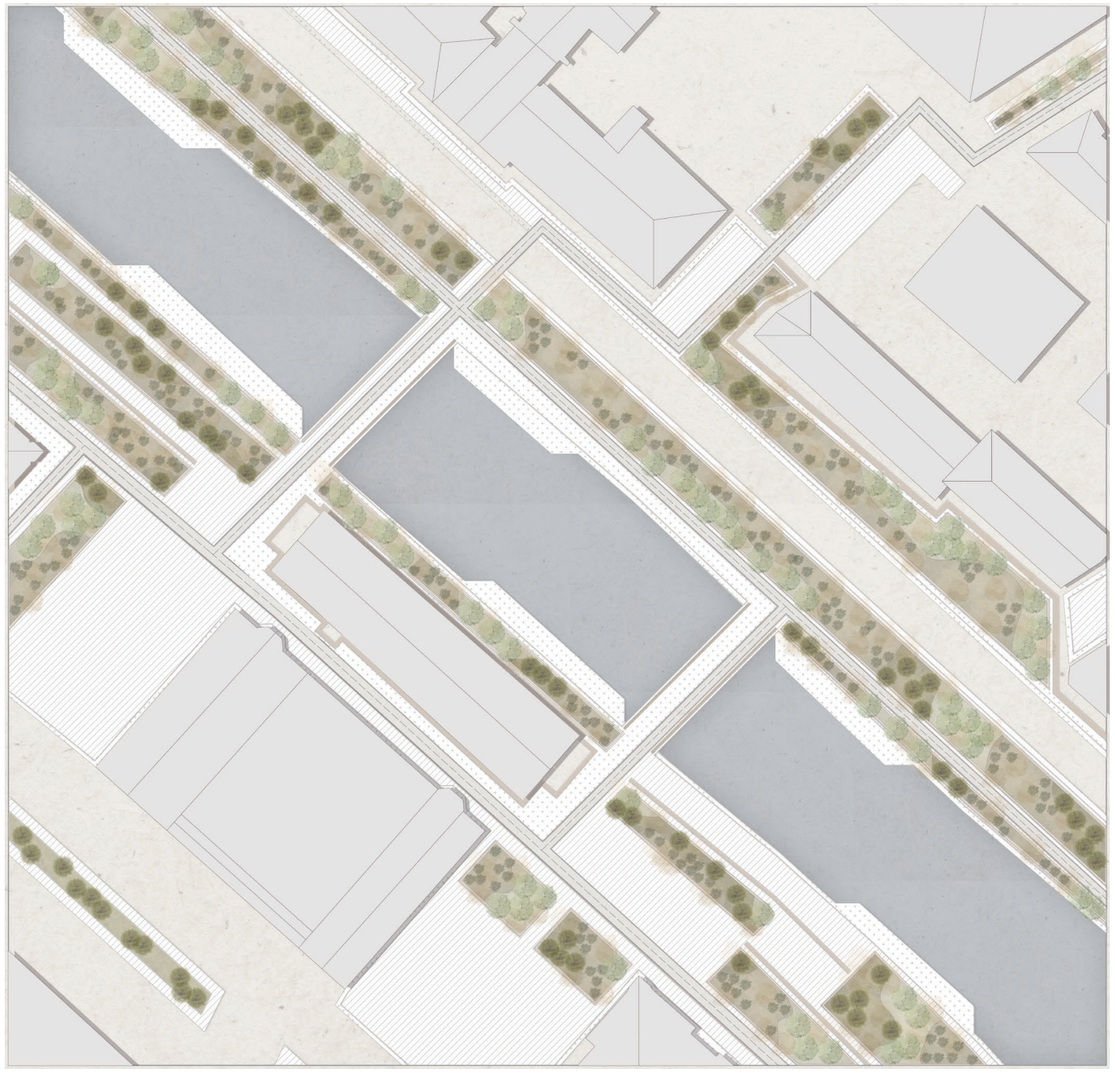
1 Green path

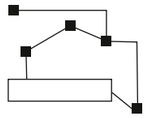
2 Bicycle path Green path

3 Pedestrians path

SECTIONS

RESIDENTIAL AREA





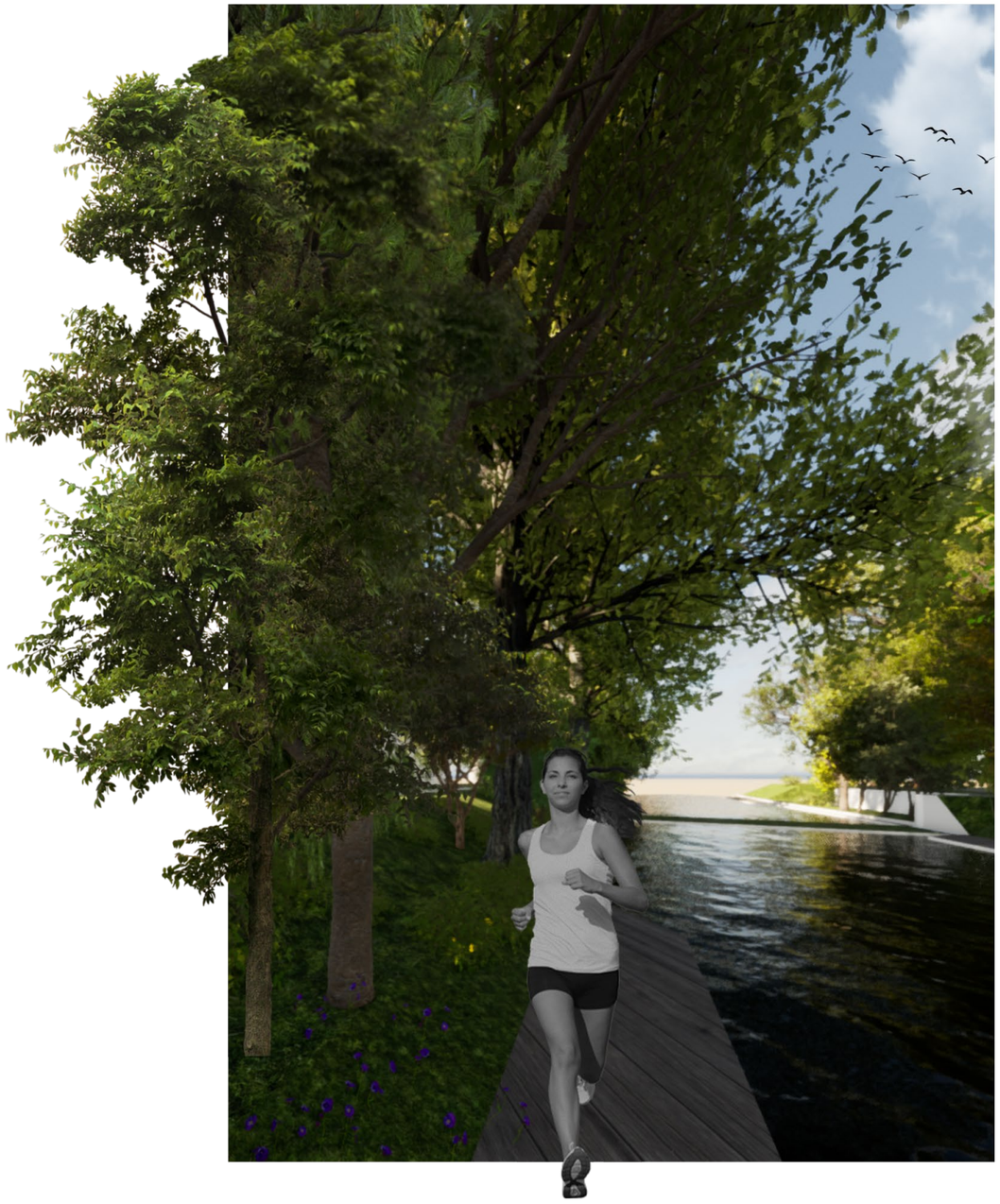
ZOOM

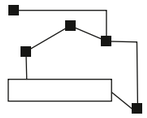
RESIDENTIAL AREA

In this case, it is important to make evident the strategies proposed through the specific projects that are carried out in this portion of the residential area. First, the pedestrian and bicycle connectivity system is reinforced to reduce the environmental impact of vehicles through the use of sustainable means of transportation. Thus, two connections are proposed between the two parts of the river since it was a dividing element and the objective is to turn the river into a unifying element and try to reduce all barriers. On the other hand, an edge work was done where a green public space was projected on the edges of the river which function as multifunctional squares, where the community can perform different activities taking into account that the green occupies a large percentage of the public space and plays the main role. In addition to this, we are working on the issue of green axes, such as rethinking these streets, where they are pedestrianized or vehicular flow is reduced, reinserting green areas and meeting space for the whole community. In addition, the library will be integrated as a cultural and social meeting point for the community, creating a sense of belonging or better an identity of the territory.

LEGEND

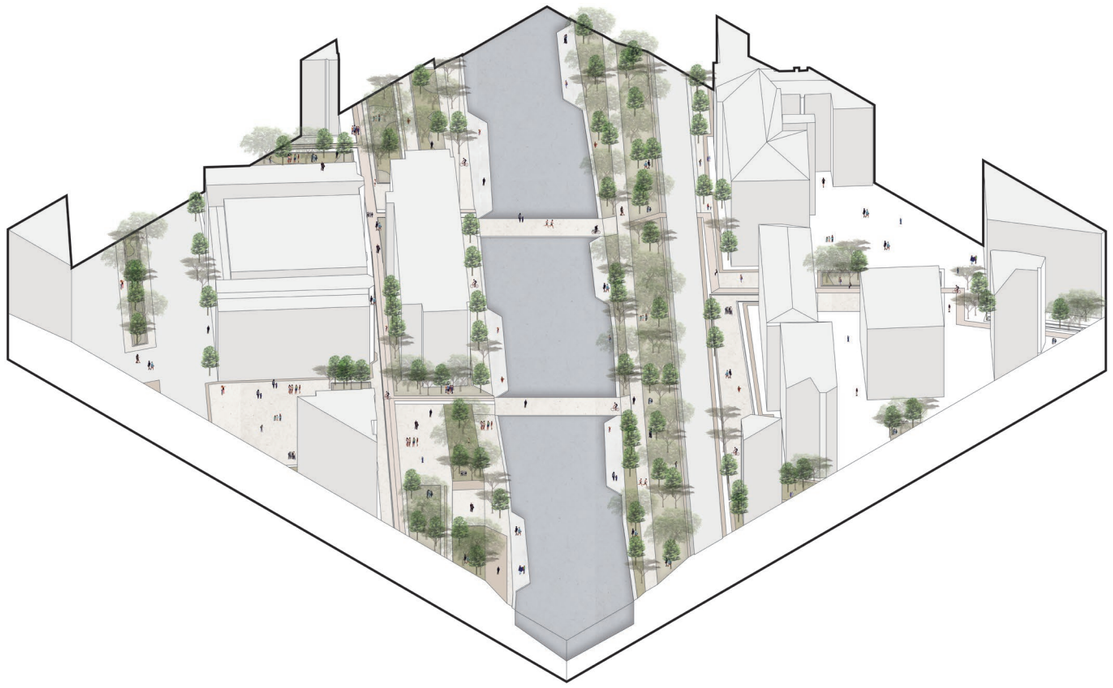
- Dora river
- High green
- Medium green
- Low green
- Squares
- Borders
- Bikeway





AXONOMETRY

RESIDENTIAL AREA



VIEW
RESIDENTIAL AREA

MASTER PLAN
INDUSTRIAL AREA

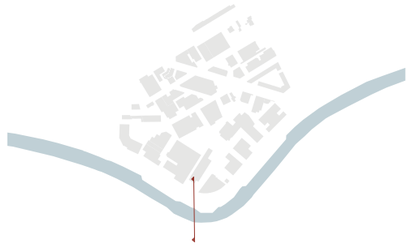
LAYERS

1 Green path

2 Bicycle path Green path

3 Pedestrians path

SECTIONS
INDUSTRIAL AREA



ZOOM
INDUSTRIAL AREA

In the industrial zone, design strategies are materialized through punctual interventions both in the river and around the existing elements. At first, these areas that were not fulfilling any important function and were fragmenting the territory were greened and given a specific use. That is to say, around these factories, a public space is designed with a high percentage of green space, which mitigates the environmental impact, but at the same time cohesively integrates the territory with the rest of the city. On the other hand, the edge of the river is worked by opening functional spaces, a kind of docks/plazas which will be a focal point of meeting for people who usually pass through the area in a friendly way and generating a direct relationship with the river, the city and the inhabitants of the area.

LEGEND

- Dora river
- High green
- Medium green
- Low green
- Squares
- Borders
- Bikeway

AXONOMETRY
INDUSTRIAL AREA

VIEW
INDUSTRIAL AREA

GROWING CITIES

MEDELLÍN

STATE OF ART

RESIDENTIAL AREA

The area selected as a case study is an area of Comuna 2 in Medellin, an area of the Villa Niza neighborhood. This is a sector that was consolidated on a steep slope and was too a process of self-construction, yet today this is a consolidated neighborhood. These aspects make it possess particular characteristics that make it a suitable case study for high-density cities. In the absence of an urban growth plan, the inhabitants took advantage of every space on the land for the construction of their homes. This is why today there is a lack of public space, which generates environmental, social, and accessibility problems. In terms of services, the area is well endowed since, on the one hand, there is a metro cable station that connects the city of Medellin. It also has educational and recreational institutions. In terms of accessibility, the construction of the metro cable was fundamental to improving access to the neighborhood because of its steep slope and difficult access.

LEGEND

- Water system
- Vehicular zone
- Peathonal zone
- Public green spaces:

1. Soccer field El Botadero
2. Field Villa del Socorro
3. Recreational park Andalucia
4. Pablo VI park
5. Environmental park Finca La Mesa

TYPES OF GREEN

Fig. 68: Authors elavoration based on MEData, Alcaldía de Medellín

PUBLIC GREEN | PRIVATE GREEN | GREEN AXES | NOT SPECIFIC USE

ACCESIBILITY

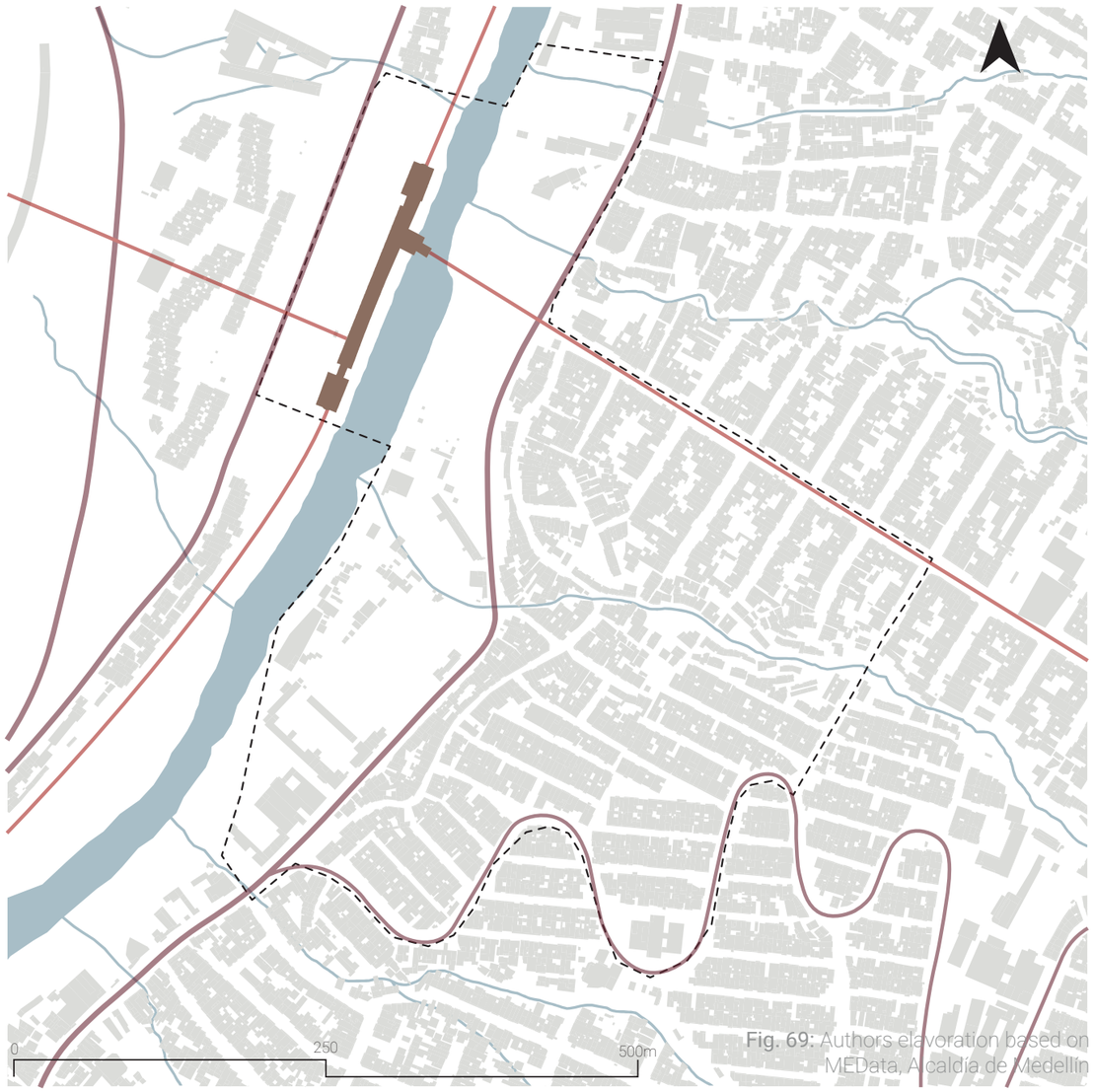
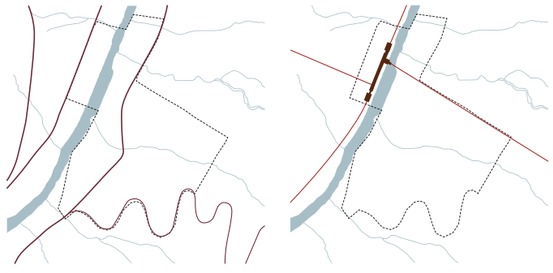


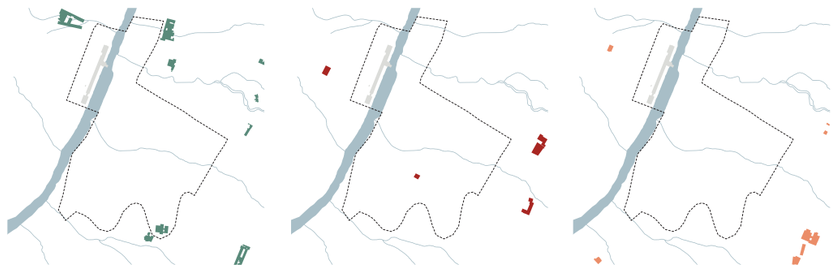
Fig. 69: Authors elavoration based on MEData, Alcaldía de Medellín



PRIMARY AND SECONDARY VEHICULAR NETWORK | METRO AND METROCABLE LINE NETWORK

SERVICES

Fig. 70: Authors elavoration based on MEData, Alcaldía de Medellín



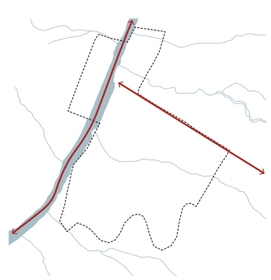
EDUCATIONAL INSTITUTIONS

CULTRUAL INSTITUTIONS

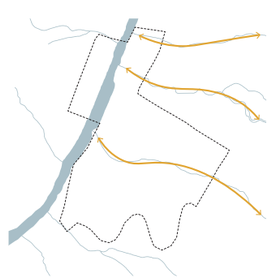
RELIGIOUS INSTITUTIONS

MAIN AXES

Fig. 71: Authors elavoration based on MEData, Alcaldía de Medellín



PRIMARY AXES



SECONDARY AXES

Fig. 72: View of houses along the creek

Fig. 75: 103b street view

Fig. 73: Vehicular local street next to the creek

Fig. 76: Street view Avenida Carabobo

Fig. 74: Pedestrian path along the creek

Fig. 77: Pedestrian path through the creek

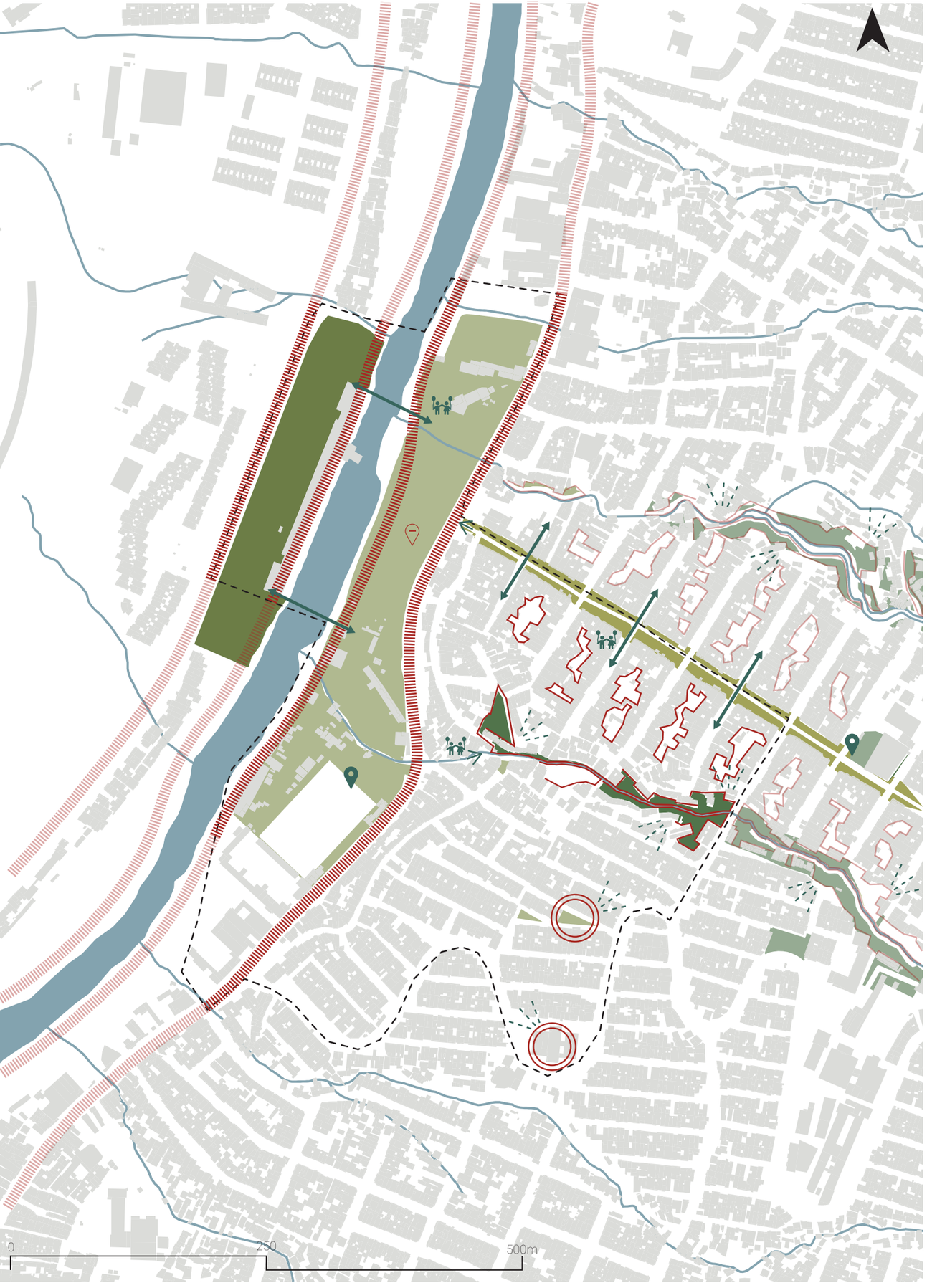
PHOTOGRAPHIC REGISTER

RESIDENTIAL AREA

In the residential area of Medellín several elements can be identified as part of the urban landscape and are key to identify and differentiate the Latin American city; one of them is the high density of its blocks, where the houses are very close, with almost no space between them, so there are not many free spaces for green areas, or for public space, such as sidewalks or parks; In the photographs it can be seen that the sidewalks are reduced and the only spaces that remain free are those that, due to topographic or external issues, are maintained, such as the roads for vehicles or, in the case of the Villa Niza neighborhood, the creeks that could not be intervened by the inhabitants and therefore conserve a few green areas near the houses. Undoubtedly, self-construction is another determining component since it is implemented throughout Latin America and defines the urban identity of the city; self-construction can be defined as a response to the impossibility of obtaining shelter or refuge in a “formal” manner, it is a progressive housing solution that began in rural areas and that since the sixties has been presented as an urban phenomenon in Latin America[1].

[1] Salas, J., Salazar, G., & Peña, M. (1988). Una propuesta esquemática para el análisis de la autoconstrucción en Latinoamérica como fenómeno masivo y plural. Informes De La Construcción, 40(398), 155–168. https://doi.org/10.3989/ic.1988.v40.i398.1584

Fig. 78: View of 107th Street and the Metrocable



DIAGNOSTIC

Based on the analysis of the sector, a diagnosis based on limitations and potentialities is proposed. The first step is to analyze the barrier that the edges of the river currently serve as a barrier. In this case, the area along the river is high, and being land without a specific use, it blocks and segregates the area from the river and the rest of the city. In addition, this brings with it social problems, such as insecurity, segregation, among others. Even so, this space is seen as having great potential as it can be reused as a connecting space and green public space. On the other hand, the area has a system of ravines, where, on its edges, there is green public space, but this is fragmented and inaccessible, generating a barrier and other green public spaces that are isolated. In addition, unused spaces within certain blocks that are currently delimited and impermeable are analyzed. These are potentially seen as nodes of this green network that would improve accessibility from the point of view of the pedestrian and the green and public network.

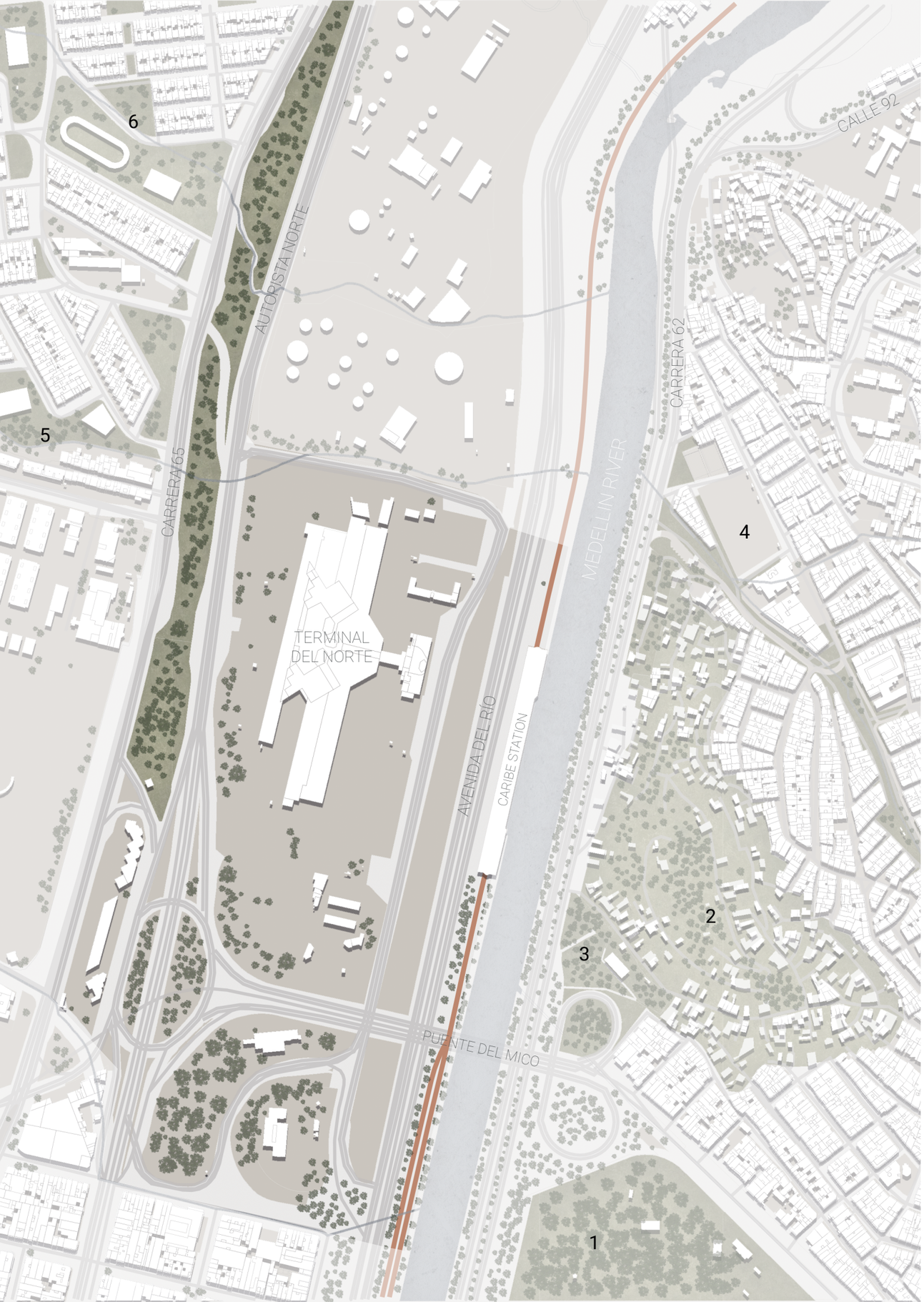
LEGEND

Limitations

- Fracture
- Isolation
- Limit
- Disuse
- Rupture

Potentialities

- Possibles links
- Generatin points
- Main entrances
- Zones f influence
- Social activation



STATE OF ART

INDUSTRAL AREA

The area selected as a case study in the industrial zone is located in the north of the city. The area to be worked on is the area of the northern transport terminal. This has great implications since it is an area of great influence on the city and the region, which leads to being equipped with large-scale roads understanding the high vehicular flow that is required. Thus, there are main roads such as the Autopista Norte and Avenida del Río. In addition, it is positioned close to several points of great importance. First of all, the Medellín River is the main structure of the city, the Parque del Norte, the Cemetery and the industrial plants of Ecopetrol, a large-scale Colombian industry, and the Metro Caribe station. In addition, it borders a residential area, which is directly affected by all the flow in the area. Thus, vehicular accessibility is covered, but pedestrian and bicycle accessibility is deficient since these large-scale roads block and fragment the territory. In addition, there are different points of green space, but they do not have a specific use and are enclosed in these road systems. The same happens with the river, separating it from the city and its services.

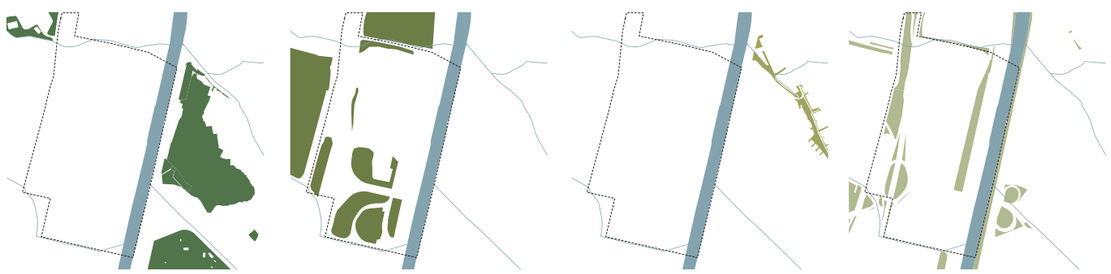
LEGEND

- Water system
- Vehicular zone
- Peathonal zone
- Public green spaces:

1. Parque Norte
2. Moravia
3. Moravia Garden
4. Moravia field
5. Castilla Park
6. Skate Park

TYPES OF GREEN

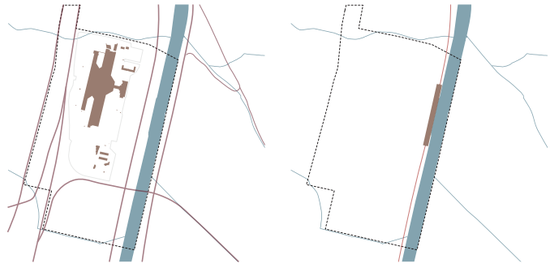
Fig. 79: Authors elaboration based on MEData, Alcaldía de Medellín



PUBLIC GREEN | PRIVATE GREEN | GREEN AXES | NOT SPECIFIC USE

ACCESIBILITY

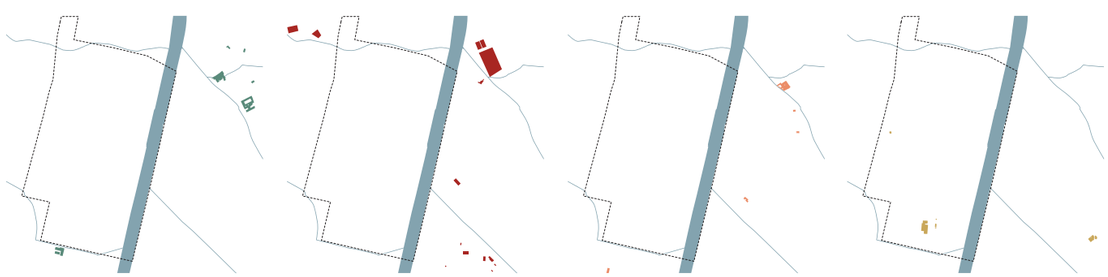
Fig. 80: Authors elaboration based on MEData, Alcaldía de Medellín



PRIMARY AND SECONDARY VEHICULAR NETWORK | METRO LINE NETWORK

SERVICES

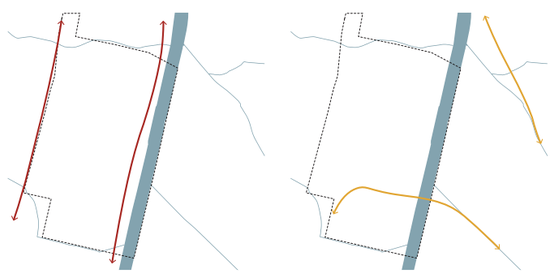
Fig. 81: Authors elaboration based on MEData, Alcaldía de Medellín



EDUCATIONAL INSTITUTIONS | CULTURAL INSTITUTIONS | RELIGIOUS INSTITUTIONS | DOTATIONAL SERVICES

MAIN AXES

Fig. 82: Authors elaboration based on MEData, Alcaldía de Medellín



PRIMARY AXES | SECONDARY AXES

Fig. 83: View from pedestrian bridge on 65th street

Fig. 84: View of 65th street

Fig. 85: Pedestrian bridge and Terminal del Norte

Fig. 86: View of 65th street

Fig. 87: Street view 65th street

Fig. 88: Street view 65th street from pedestrian bridge

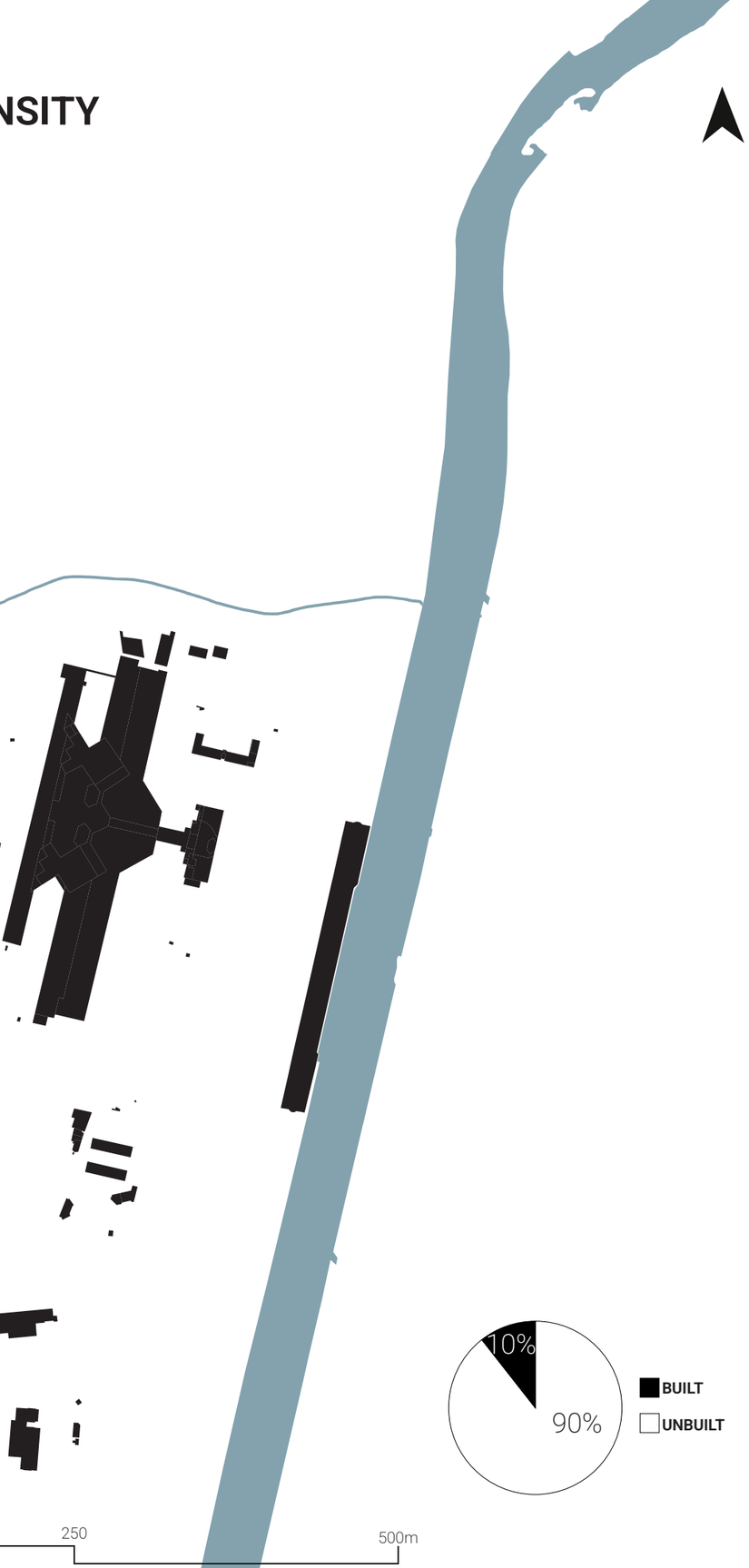
PHOTOGRAPHOC REGISTER

INDUSTRAL AREA

In the industrial area, is located the Terminal del Norte, where for obvious reasons, always receives a high vehicular flow, in the area converge at least 4 main roads which are generating a total disconnection of the notion of the pedestrian and the inhabitants with the river, which is totally isolated by the Regional Avenue and the subway rails; it is an area designed exclusively for the arrival of cars and buses, so there are few walkable spaces and little accessible public space, despite having a very low building density. From the photographic record it is only possible to identify a pedestrian bridge that crosses the Autopista Norte and many parking spaces and bus stops, as well as the previously mentioned roads.

Fig. 89: Terminal del Norte bus stop

DENSITY



DIAGNOSTIC

In this case, the diagnosis of the industrial zone of Medellin makes evident certain problems that make evident the intervention through the reinsertion of the green. First of all, the road structure is analyzed as a limitation, which is of great scale; on the other hand, there is a barrier with the river, where it is isolated and generates certain problems. On the other hand, these green spaces without a specific use are increasingly dividing the sector. On the other hand, the area of the North Terminal is a zone with little permeability, which generates rupture and lack of cohesion with the nearby elements and with the city in general. Thus, these limitations are potentialities where the public green, as the main strategy, will permeate and cohere these spaces. A potential connection between the two parts of the river is analyzed, an opening of the unused green spaces, generating connections between them and generating new green spaces in the terminal area to generate an environmental barrier for the city, the river, and the inhabitants of the area.

LEGEND

Limitations

- Fracture
- Isolation
- Limit
- Disuse
- Rupture

Potentialities

- Possibles links
- Generatin points
- Main entrances
- Zones f influence
- Social activation

STRATEGIES

To improve the studied areas, a structure of three strategies is proposed, which will be replicated in each of the cases. However, it is necessary to clarify that in each of the cases, a different methodology will be applied, which will allow reinserting the green in a way that adapts to each case according to its needs, creating a synergy between the various elements and systems that make up the city. Thus, three different strategies are analyzed in each of the sectors.

STRATEGY 1

The idea is to revitalize and regenerate the public space on the edges of the river, creating a central point, a generator point from one of the most important natural infrastructures of the cities, permeating and connecting various points and systems.

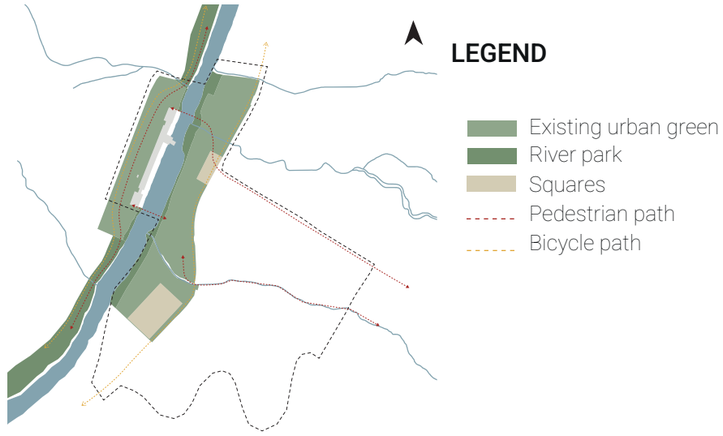
STRATEGY 2

Through green axes to achieve connections and weaving between various existing green points and the revitalization and reuse of spaces that are currently critical.

STRATEGY 1

Enhance services or points of influence through public space and improved accessibility to cohere both the public space with the activities already carried out to generate social activation.

STRATEGY 1



Reactivate and open the riverbank for the insertion of new activities in the public space adjacent to the river, enhancing existing services and spaces while adapting them to new dynamics.

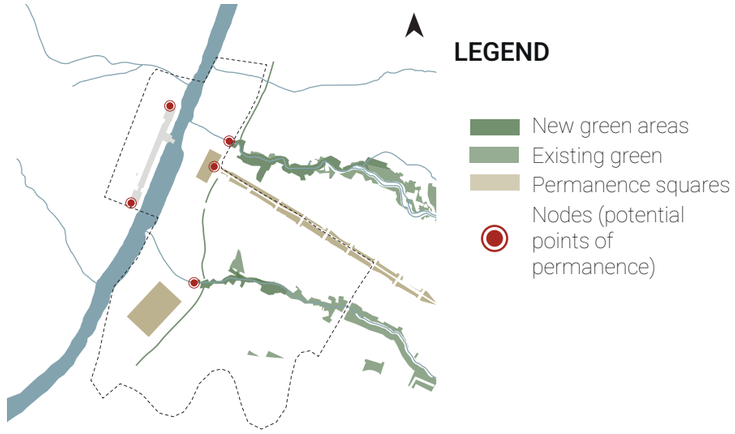
Methodology:

1. Take advantage of the unused lands on the edge of the river to create new spaces of entertainment and enjoyment for the population of the neighborhood.

2. Connect the sides of the river by means of bridges and paths, taking advantage of the existing services (metrocable station, sports fields, green areas).

3. Generate continuity of the green spaces through services such as bicycle routes and trails.

STRATEGY 2



To take advantage of the existing trails, generating axes that connect the population with the river and creating new activity nodes.

Methodology:

1. Enhance the creeks and the spaces previously created at the edge of them to create new usable green spaces.

2. Connect the creeks and the main roads with the public space along the river.

3. Adapt the existing urban grid by means of new nodes that allow the creation of new tensions so that the population can interact much more with the urban green.

STRATEGY 3

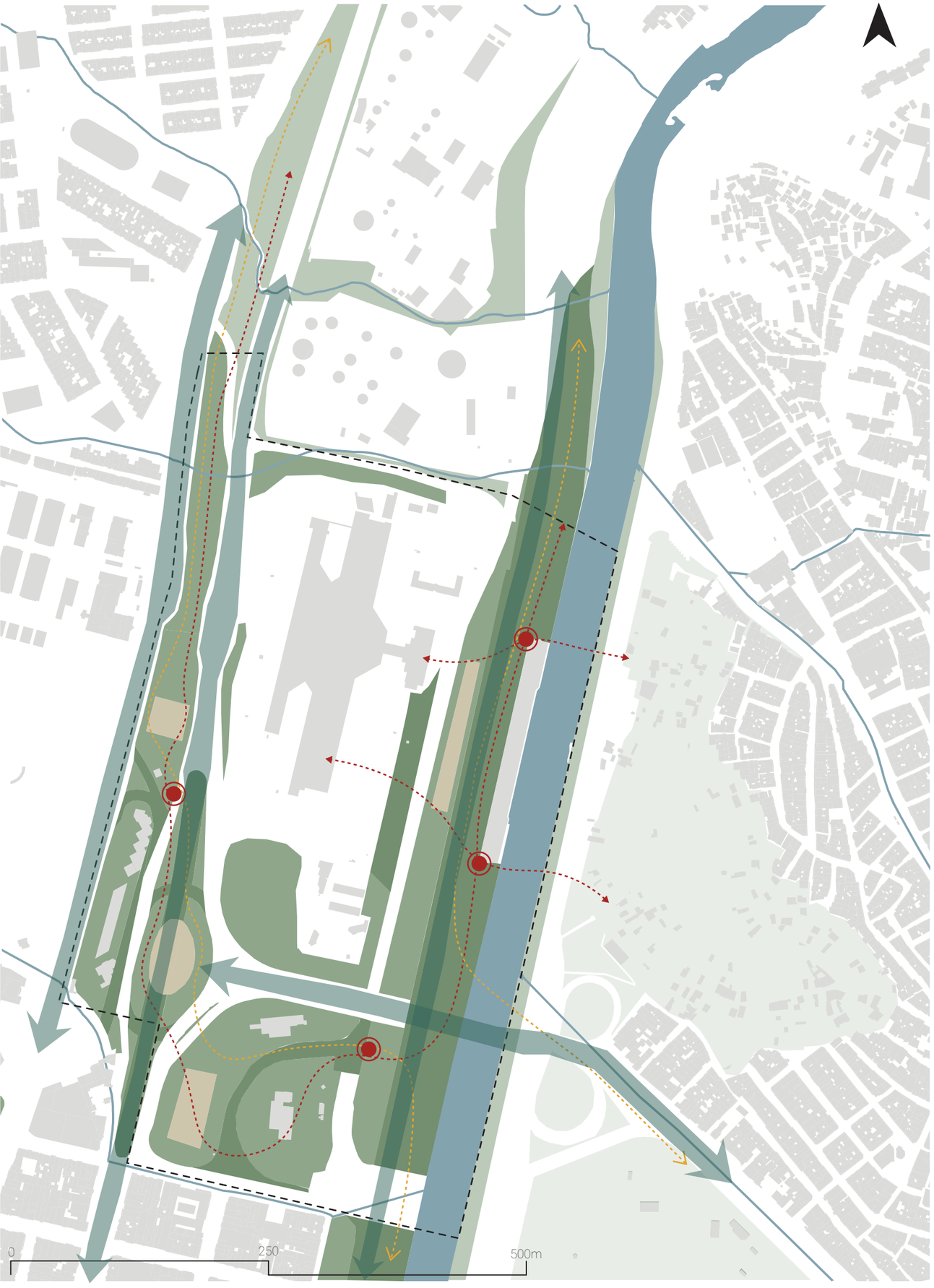
Regenerate the neighborhood through new local productive activities that are articulated with the existing services and help the appropriation of the place through urban gardens.

Methodology:

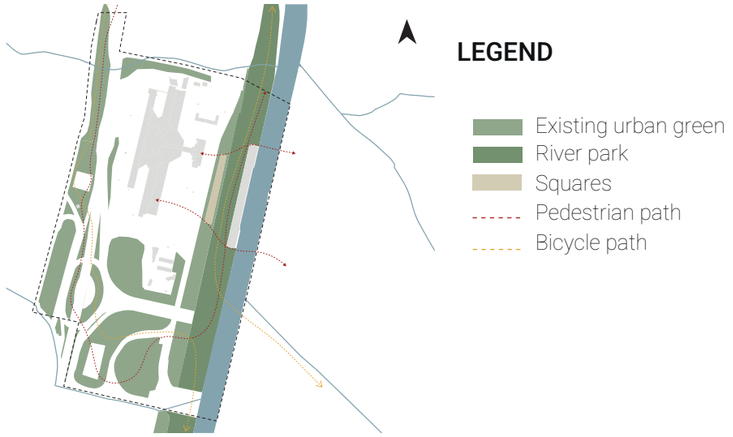
1. Take advantage of block centers that are still empty today to create urban orchards and multifunctional spaces that adapt to local life in the neighborhood.

2. Create new axes of activity that connect with the existing axes and generate an enriched urban fabric for the community.

3. Create new spaces for permanence



STRATEGY 1



Reorganize the area around a low-density zone, mainly industrial and service areas, in order to adapt new usable green spaces and open them to the community.

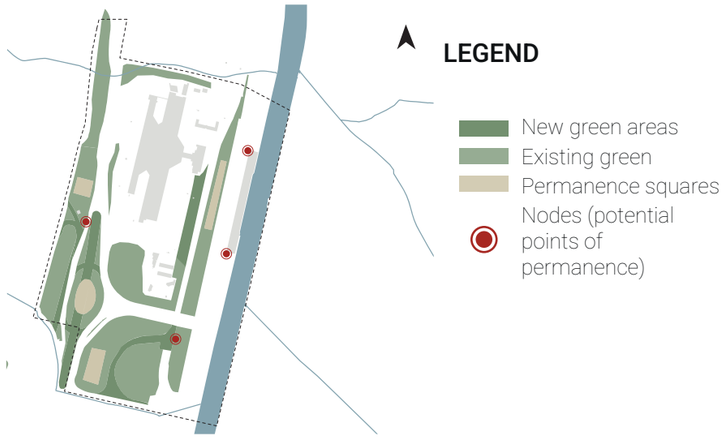
Methodology:

1. Free up the edge of the river to connect the river and the public green space on both sides of the river.

2. Design paths that connect unused green areas and services.

3. Create a network of bicycle paths that will help connect other means of transportation and thus lower the level of pollution in the area due to industry and high vehicular flow.

STRATEGY 2



Regenerate an area of high vehicular flow that now does not have its own identity due to lack of community ownership, in order to create new activities that activate the public green that remains unused.

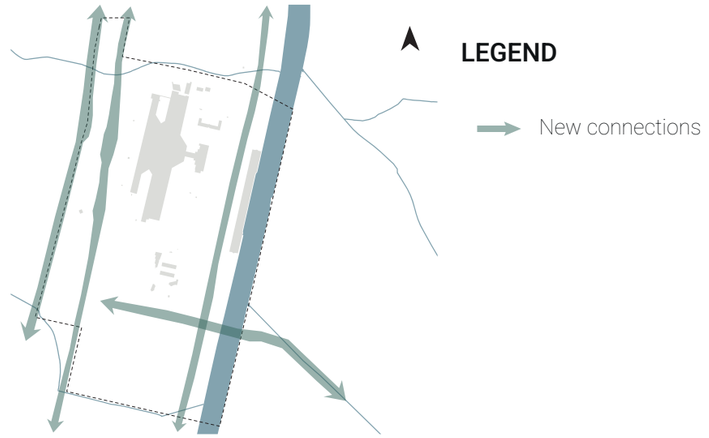
Methodology:

1. Give an identity to the public green that today has no use by means of new activity nodes.

2. Connect the public space and unused green spaces through squares and new spaces of permanence.

3. generate permeability through the reorganization and planning of some main roads, burying them and freeing up useful space.

STRATEGY 3



Redynamize an area that is watered by heavy activities, breaking the barriers that have been created by main roads and industry.

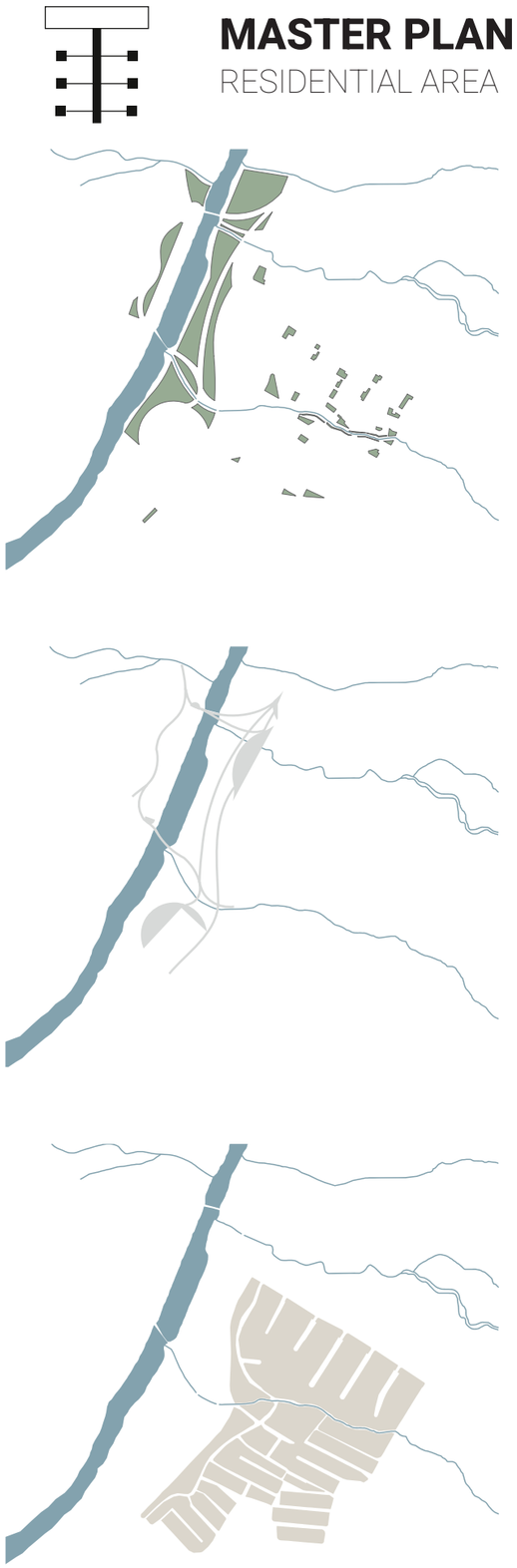
Methodology:

1. Connect the two sides of the river by means of new tensions and axes.

2. To lighten the zone by intervening on the roads that today create pollution problems.

3. To create a plan of protection and potentiation of the green zones to improve the environmental problems of the zone.

PROPOSAL



MASTER PLAN
RESIDENTIAL AREA

LAYERS

1 Green public and productive space

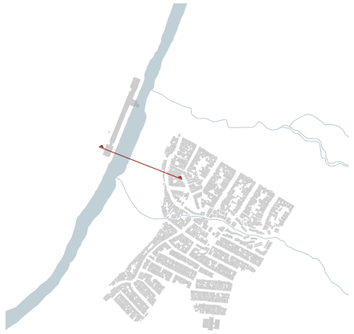
2 Bicycle and pedestrian paths

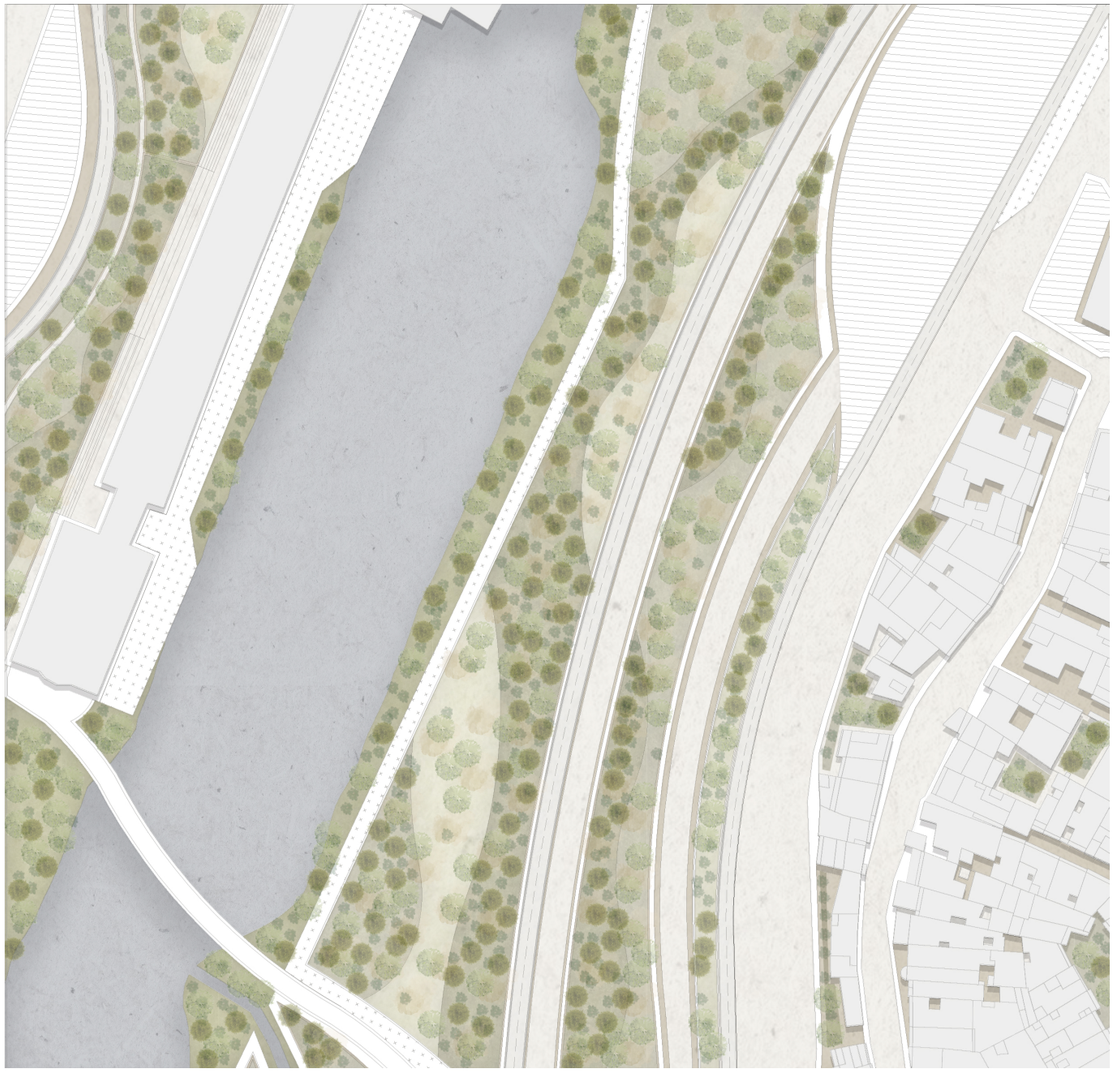
3 Blocks system

0 250 500m

SECTIONS

RESIDENTIAL AREA





ZOOM

RESIDENTIAL AREA

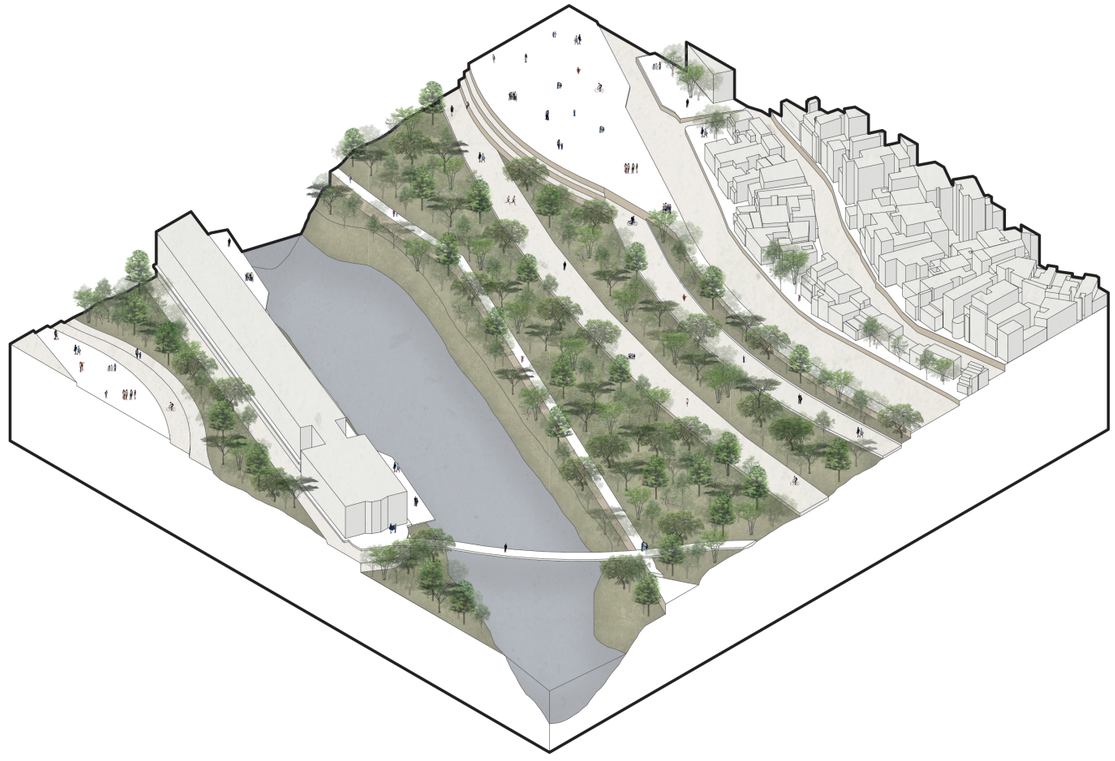
On a more detailed scale we found the proposal for public space and revitalization of the river through three typologies of greenery, with which we aim to maintain a high density of green area along the river, and a medium and low typology for the areas of the park that are closer to the roads, in order to generate an environmental buffer against noise and pollution from the highway, while maintaining the safety and accessibility of the inhabitants in the park. We also designed some areas of permanence at the edge of the river next to the metrocable station, with the idea of creating a visual connection between the users, the park and the river. While in the park you can find trails, bike paths, squares and the pre-existing soccer field, which we worked on to make it a much more complete and integral space for the community.

LEGEND

- Dora river
- High green
- Medium green
- Low green
- Squares
- Borders
- Bikeway

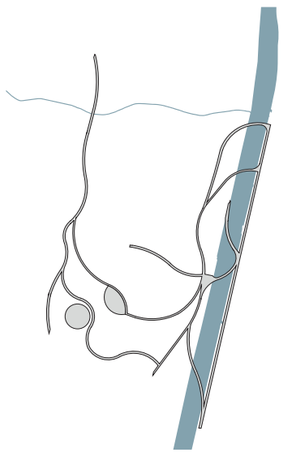
AXONOMETRY

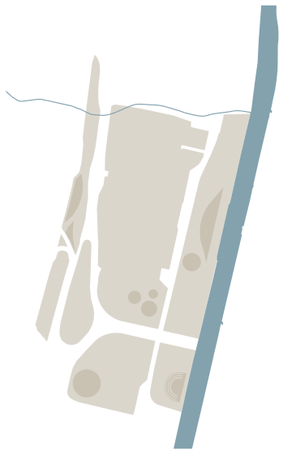
RESIDENTIAL AREA



VIEW
RESIDENTIAL AREA

MASTER PLAN
INDUSTRAL AREA





LAYERS

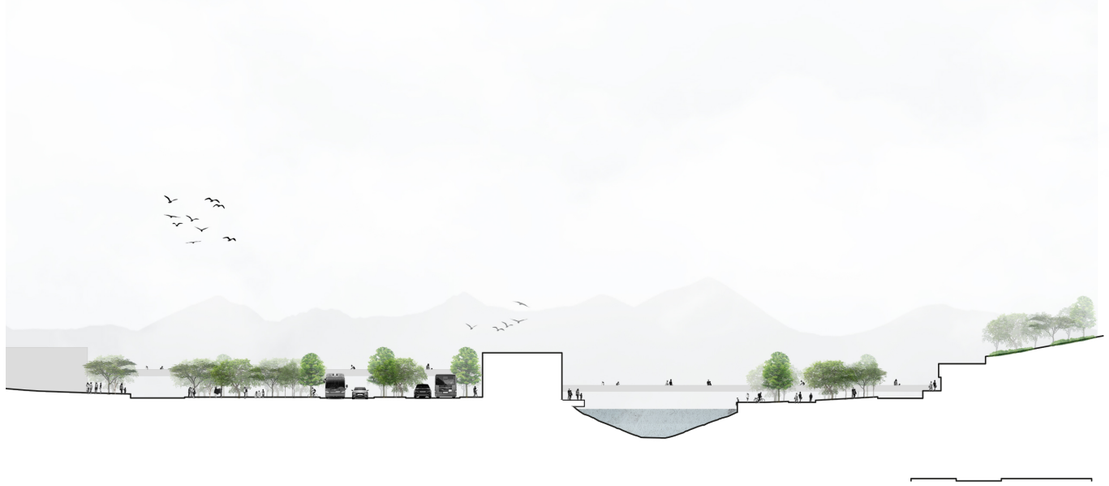
1 Green public space

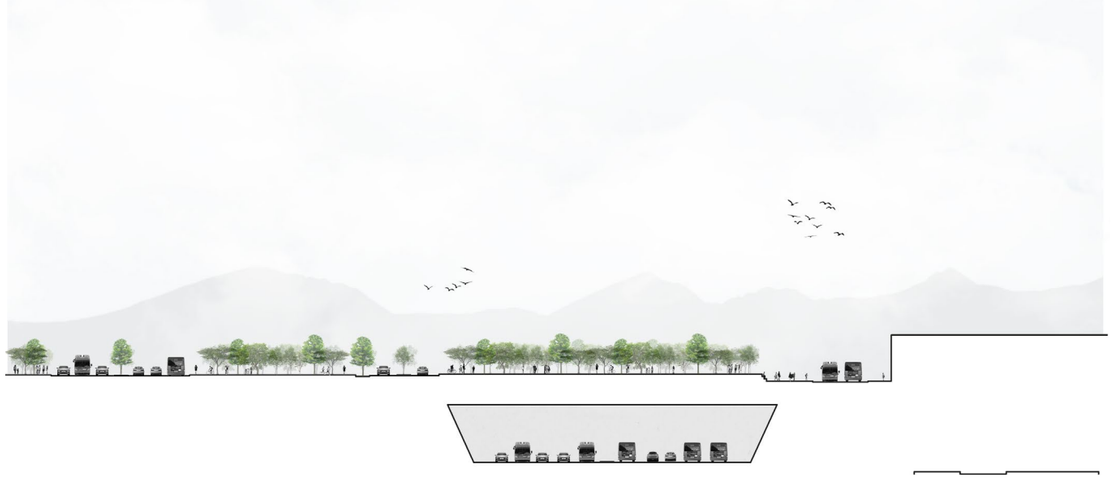
2 Bicycle and pedestrian paths

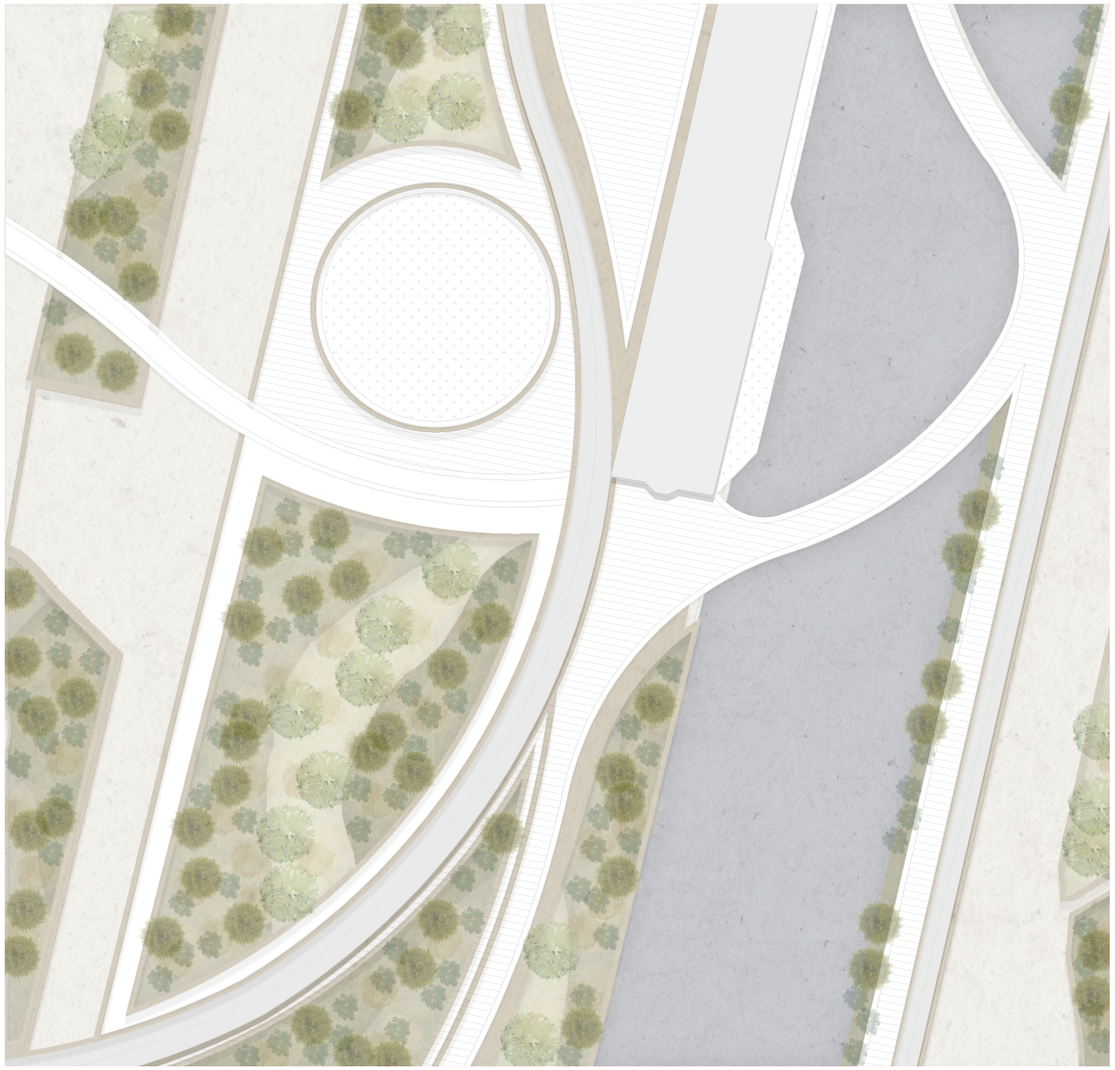
3 Recreative and park squares

SECTIONS

INDUSTRAL AREA







ZOOM
INDUSTRAL AREA

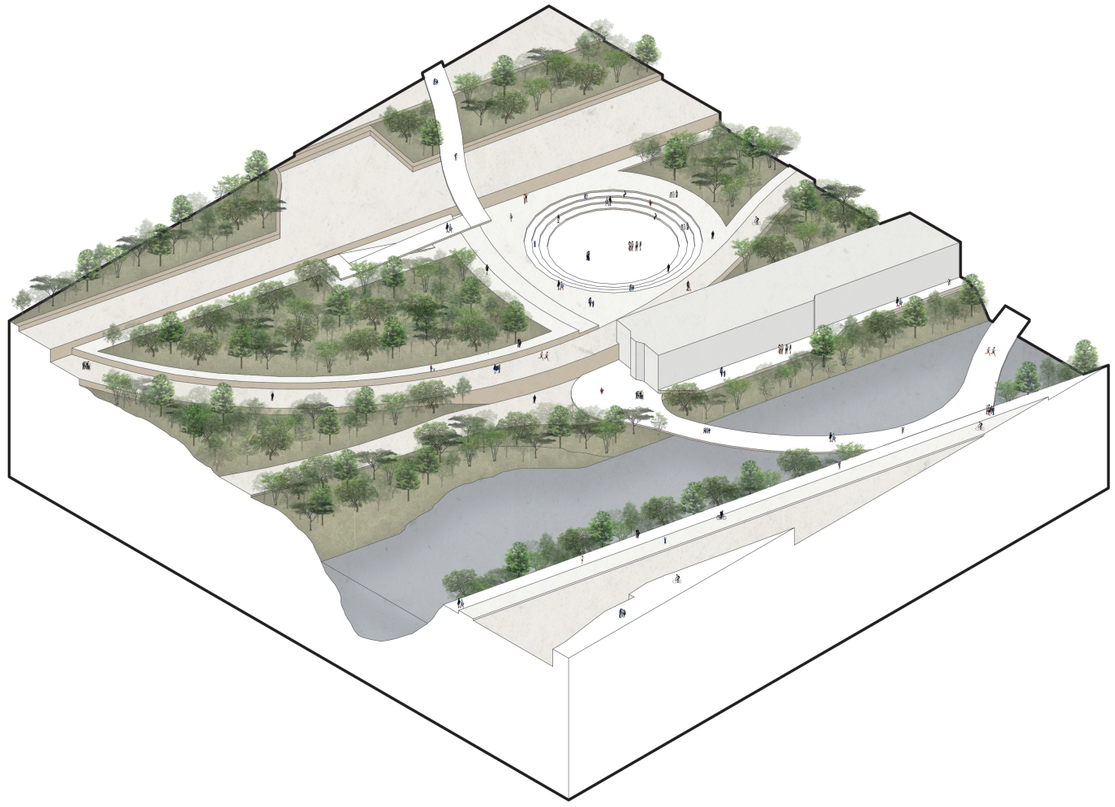
In this case, we also implemented different densities of green, high, medium and low, as a revitalization treatment of the river and the park, taking into account that this area has larger scale roads, and a more continuous flow of vehicles; so that the new public spaces proposed will take into account the noise pollution and emissions from cars, so that the inhabitants who are around the terminal, can take advantage of this space. We also propose the strategy of connecting this area with Parque Norte, which is very close, and connect the two edges of the river, while generating other spaces of permanence and activities for the community.

LEGEND

- Dora river
- High green
- Medium green
- Low green
- Squares
- Borders
- Bikeway

AXONOMETRY

INDUSTRAL AREA



VIEW
INDUSTRAL AREA

CONCLUSION

CONCLUSION

The objective of the thesis consisted of the analysis of two case studies, Torino, Italy, and Medellin, Colombia, to understand how they were being affected by climate change and urban changes. Thus, the study and project consisted of understanding how to revitalize the green public space through the main natural structures, in this case, the rivers. This is to improve environmental quality, the sense of belonging of the community, and cohesion in the urban territory.

Thus, several case studies are analyzed on how to achieve an improvement in green space. For example, with the critical analysis of “The City in the City” by O.M. Ungers, we can analyze how the green becomes this unifying entity, that adapts to what exists, enhancing the spaces and the community in a conscious way with the context. In addition, the study of different references gave us a critical look at how to intervene in already consolidated and abandoned spaces, how to generate improvements in areas with high density for the improvement of the quality of life of the inhabitants, and, above all, the environmental improvement, through the reinsertion of the green.

It is concluded that greenery as a point of public space is key from different levels. First of all, cities are governed by main natural axes which have been key to their development. Even so, they have been degraded in many cases due to industry and other aspects that have led to an increasing degradation of these elements. In addition, the green is a meeting point, a point of social integration where various dynamics can be generated and encourage a sense of identity and belonging to the place to continue building the city. At the urban level, greenery is understood as this network that unites and unifies the various urban fabrics, fabrics with diverse characteristics and particular functions. With similar characteristics, it can be concluded that the river should be treated as the main axis, which will become the green lung that will enhance and alleviate, in a way, the great environmental impact. This green space along the river creates a network that cohesively links the territory at the urban and social levels.

Even so, these cities present different characteristics which make these general strategies to be treated in a particular way. In the first instance, it is worth mentioning the fact that Torino is a city in a phase of demographic decline, which makes the city present fractures of abandoned spaces that fragment the territory. This was understood as a potential for generating green spaces, resignifying these spaces so that citizens could live in a more permeable and connected environment. On the other hand, Medellin is a city in a phase of demographic growth, which makes these strategies mutate so that it is necessary to reorganize and accommodate spaces to generate these green spaces.

Thus, it is concluded that by using, green spaces, it is possible to cohere the territory, enhance and improve the environmental quality, and encourage a sense of identity in the community. The analysis and project are proposed as a case study for cities with similar characteristics. This study is based on the idea that greening projects apply to different cities, both growing and shrinking, to improve the quality of life and environmental quality.

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A ustedes, que nos acompañaron, nos ayudaron, nos consintieron, nos cocinaron… a ustedes que estuvieron.

Sin ustedes no hubiera sido posible.