CRITERIA AND PROJECT FOR THE URBAN OPEN PUBLIC SPACE

"LIVELY NODE CONNECTION"

IN

BOGOTA, COLOMBIA

POLITECNICO DI TORINO
Laurea Magistrale in Architecture and Construction City

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A.A 2025

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I would like to express my deepest gratitude to my tutors, whose patience, knowledge, and guidance were a fundamental source of support throughout the development of this thesis. Their contributions and advice greatly enriched this work.

To my parents and siblings, for their unconditional love, support, and understanding throughout my academic journey. Even though distance sometimes separated us, their constant presence, words of encouragement, and the trust they placed in me were the driving force that pushed me to complete this path.

To Juan Diego and Vanessa, for accompanying me every step of the way, celebrating my achievements, and giving me strength in moments of difficulty. Their unwavering support always reminded me that this dream was not built alone, but with the help of those who have believed in me from the very beginning.

INTRODUCTION

Urban public space constitutes the fundamental stage for collective interactions and the point of convergence of environmental, social, and cultural systems. Its quality is not defined solely by physical design, but also by the intensity of use, the diversity of activities it enables, and the perception of safety and leisure it provides to its users. Aspects such as sustainability, health, mobility, comfort, and resilience, tactical interventions are key drivers of urban transformation that determine its habitability.

From this perspective, the research identifies urban-spatial conflicts in the commercial node of Bogotá's historic center, such as discontinuity, the uncontrolled growth of informal commerce, insecurity, deficiencies in mobility integration, and the weakened social appropriation of space.

In response to these conditions, the proposal presents an urban remediation strategy, understood not as substitution but as adaptation: a process that seeks to recover functionality through the incorporation of green corridors, the reorganization of public space, the integration of sustainable and universal mobility systems, and the strengthening of cultural, social, and economic dynamics through temporary structures face the informal commerce, ordering and regulating its presence without fully displacing it, but rather channeling it into more organized and safer dynamics.

Diversify the uses of the sector and extend its vitality beyond working hours, by promoting cultural and gastronomic activities during the evening will revitalize the historic center through lively, inclusive, and resilient scenarios, where memory and collective well-being are projected toward a more sustainable future.

THEORETICAL FRAMEWORK

I

This chapter will contextualize the concepts and theories related to the criteria that define an adequate urban open public space, exploring aspects such as sustainability, public space, comfort, and mobility. International case studies are analyzed, representing significant examples of policies adopted in diverse urban contexts, which enable the identification of best practices, successful design strategies, and lessons applicable to future interventions. This approach not only provides a theoretical foundation for the research but also establishes concrete references for the development of high-quality public spaces.

1. URBAN SUSTAINABILITY

The accelerated and unplanned urban growth of cities, along with the prioritization of economic interests over social and ecological well-being, has led to an urban model characterized by high carbon emissions, social inequality, inefficient land use, and environmental degradation. In fact, scientists[1] estimate that the global average temperature will increase by two degrees above pre-industrial levels by the year 2100. Therefore, if these emissions are not properly addressed in time, cities will become increasingly vulnerable to the adverse impacts of climate change.

1.1 GREEN AND THRIVING PUBLIC SPACES.

To combat climate change and drive the transformation of cities through a series of design approaches designed to promote a shift toward more sustainable, equitable, resilient, and low-carbon urbanism. It is also essential to design in an integrated way these two[2] imperatives:

•**'Green'**: Means supporting low-carbon mobility, reducing energy demand, using low-carbon construction materials, and increasing green spaces. It must also be resilient, an adaptable space that enables individuals, communities, and cities to respond efficiently to climate-related impacts and stresses[2].
•**'Thriving'**: Should promote quality of life and enable communities to move easily throughout the city. Designs must be safe and accessible for people of all backgrounds, genders, ages, and abilities, while promoting active mobility such as walking and cycling. It also provides a dynamic and welcoming environment that fosters connectivity, social cohesion, and healthy, sustainable lifestyles[2].

To achieve this, it is important to consider the following design approaches[2].

• Promote active mobility, such as walking and cycling, discourage the use of individual fossil fuel vehicles, and encourage green transport options and public transportation.
• Strengthen identity and a sense of collective belonging with active spaces that allow people to easily access services, amenities, and meet their daily needs within a short walk or bike ride from their homes, thus supporting the creation of a "complete neighborhood".
• Design to anticipate the changing needs of future users. Incorporate adaptability by flexible spaces, which helps reduce the need for future construction and eliminate single-use facilities.
• Reducing energy demand and leveraging green technologies and renewable energy through smart, well-connected, and energy-efficient spaces can help reduce carbon emissions.
• Make the most of existing resources by optimizing, repurposing, and reusing existing infrastructure before building new. When new construction is necessary, it should be planned and designed for the long term. Additionally, to minimize embodied carbon emissions, materials should be carefully selected, prioritizing low-emission construction materials.
• Implement urban nature to promote climate resilience by acting as an effective carbon sink, providing carbon storage and capture, as well as improving air quality. Additionally, green infrastructure allows the creation of spaces for social activities and enhances mental and physical well-being.
• Planning the long-term use of resources is essential to incorporate the principles of the circular economy through the conservation, management, and creation of a long-term value chain for all materials and resources used.
• Assess local climate risks and conditions and integrate adapted climate resilience measures into the design to address current and future climate hazards specific to each city and location.
• Encourage people to make conscious decisions about how they live, consume goods and services, and move around the city by providing sustainable services. This will help foster long-term behavioral change through effective and sustained awareness, education, and appropriate incentives.

Together, these design approaches propose a new urban model that prioritizes environmental sustainability and social equity over economic interests, aiming to enhance the quality of life in the cities of the future.

1.1.1 Case Study

Project Name: Tanner Springs Park [3].
Location: Portland, United States.
Year: 2010.
Architect: Herbert Dreiseitl.

To address the impacts of climate change and respond to the demands of a growing population, the architect proposed the concept of an oasis in the city, a project with active and passive spaces layered over functional wetlands designed for the infiltration and detention of rainwater with elevated walkways that cross the pond and lead to cobblestone paths located in the green recreational areas that also mitigate the effects of flooding and support the irrigation of green spaces.

A wavy wall was designed to strengthen the community's emotional connection to the space while also protecting it from urban noise. This architectural element is made from reused railway rails of varying lengths and angles, combined with glass panels sourced from a local company and painted by a local artist. This approach avoids new emissions associated with the production of new materials, promotes the circular economy, and reduces the carbon footprint.

Source: Dreiseitl consulting official page

Fig. 1 Tanner Springs park pedestrian corner view.

Source: Dreiseitl consulting official page

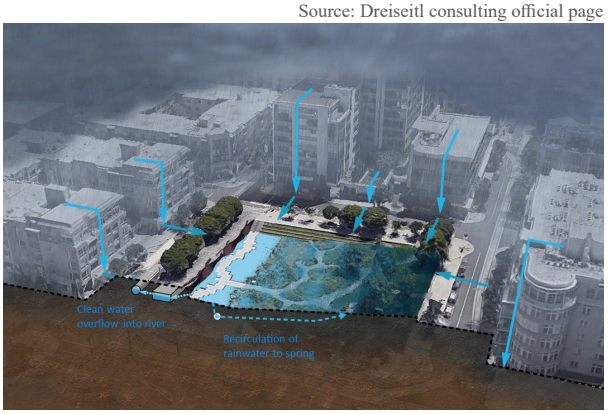


Fig. 2 Tanner Springs park water managment diagram.

Source: Dreiseitl consulting official page

Fig. 3 Tanner Springs park wave wall pedestrian view.

1 Warren, R., Hope, C., & Gernaat, D. E. H. J. (2021). *Global and regional aggregate damages associated with global warming of 1.5 to 4 °C above pre-industrial levels. Climatic Change.*
2 C40 Cities. (2024). *Guidance to design green and thriving public spaces: Reinventing Cities São Paulo.*
3 Dreiseitl Consulting. (2010). *Tanner Springs Park*. Retrieved from https://www.dreiseitlconsulting.com/tanner-springs-park

1.2 EFFICIENT AND LOW IMPACT PUBLIC SPACES

In a world increasingly aware of the climate emergency, sustainable architecture has ceased to be an alternative and has become a necessity. In this context, it is not enough to design cities thinking only of the permanent. It is necessary to consider temporary uses[4] in public spaces as sustainable strategies that activate the territory without generating negative impacts on the environment. These termporary interventions not only respond to specific social, economic, or environmental needs of the moment but also offer the opportunity to rethink the life cycle of materials, optimize energy efficiency, and reduce the ecological footprint.

Furthermore, the affirmation[5] of the value of temporary architecture as a generator of innovative ideas and a promoter of the Sustainable Development Goals (SDGs) underscores the importance of this discipline in the current context. By addressing issues such as sustainability, social inclusion, and urban resilience, temporary architecture can contribute significantly to achieving the SDGs[6] established by the United Nations, promoting more equitable and sustainable urban development.

On the one hand, it is related to SDG 9: Industry, innovation, and infrastructure, as it fosters architectural experimentation and the application of new technologies. Likewise, it contributes to SDG 11: Sustainable cities and communities, by generating inclusive, resilient urban spaces capable of adapting to society's changing needs. In relation to SDG 12: Responsible consumption and production, it promotes conscious use of materials, reuse, and waste reduction through detachable and circular construction systems. Finally, it aligns with SDG 13: Climate action, by driving low-impact environmental solutions that reduce the ecological footprint and improve energy efficiency.

And according to the specific application[6] given in public space, temporary architecture can contribute to other Sustainable Development Goals. For example, when used as an urban garden, it connects with SDG 2: Zero hunger. If allocated for sports facilities, it relates to SDG 3: Good health and well-being. In the case of its use as an educational or cultural space, it contributes to SDG 4: Quality education. Finally, when oriented toward commercial or entrepreneurial activities, it aligns with SDG 8: Decent work and economic growth.

This represents a valuable opportunity to advance toward urban sustainability by proposing flexible and low-impact solutions that activate public space without compromising natural resources or generating irreversible transformations in the city. Its adaptable nature makes it possible to respond to social, economic, and environmental needs immediately, while at the same time fostering responsible practices in the use of materials, energy, and waste management.

4 NASR, E. H. *Toward Sustainability of Temporary Uses in Public Spaces*.

5 Cuentas, J. A. A., & Moreira, D. H. B. (2023). *Ephemeral Architecture as a Solution in the Evolution of Public Spaces*. Land and Architecture, (2), 2

1.2.1 Case Study

Project Name: The SDG Pavilions [7].
Location: Copenhagen, Denmark.
Year: 2023.
Architect: UIA World Congress of Architects

The UIA World Congress of Architects has presented a series of architecture pavilions in Copenhagen, Denmark, oriented toward the United Nations' Sustainable Development Goals (SDGs), in response to the congress's central question: "How can architects and the construction industry contribute to achieving the United Nations' Sustainable Development Goals?"

All the pavilions, conceived as 1:1 experimental projects, function as exploratory constructions that invite visitors to explore various selected locations throughout the city. These proposals showcase the most innovative ideas from Danish architecture studios, addressing ways to live and build with lower CO2 emissions and greater respect for people and the shared environment. They also include reflections on the design of community spaces, the selection of sustainable materials, health, food and sanitation infrastructure, and climate change mitigation.

Source: Terroir

Fig. 4 SDG 12/ Plastic Pavilion – Building Sustainable Societies by Terroir

Source: EFFEKT Architects

Fig. 5 SDG 11/ Living Places Copenhagen by EFFEKT Architects

Source: Architects without Borders

Fig. 6 SDG 6/ Bio-Center by Architects Without Borders

6 Hendawy, M., Junaid, M., & Amin, A. (2024). *Integrating sustainable development goals into the architecture curriculum: Experiences and perspectives*. City and Environment Interactions, 21, 100138.
7 World Architecture Community. (2023). *UIA World Congress reveals architecture pavilions addressing UN's Sustainable Development Goals*. World Architecture Community. Retrieved from https://worldarchitecture.org/architecture-news/fzzmc/uia-world-congress-reveals-architecture-pavilions-addressing-to-un-s-sustainable-development-goals.html

2. PUBLIC URBAN SPACE

Cities often face costly, bureaucratic, and frequently non-participatory urban transformations, which result in inefficient, unsafe, or underutilized public spaces. This has increased the need for collective spaces that respond to a new design of open urban space focused on quality and urban identity. The concept of "open space" has evolved beyond traditional squares and parks to include interstitial spaces that connect the built and unbuilt environments. This revaluation of space calls for more flexible, multifunctional, and integrated with clearly defined roles and functions, thus turning urban space into a true "narrative in motion"[9].

2.1 TACTICAL URBANISM

This urbanism model focuses on short-term, low-cost urban construction, revitalizing underutilized public spaces such as vacant lots or wide streets[8]. It prioritizes flexibility and social interaction through the implementation of creative and practical solutions using temporary materials, allowing the impact to be evaluated before making major investments. This demonstrates that significant urban transformations can be achieved through small actions.

In contrast to rigid and centralized urban planning, this model aims to foster collaborative work between governmental systems and citizens to create smarter urban environments that focus on improving the quality of life. Some ideas[9] for temporary or mobile activities to activate and bring life to urban spaces include:

• **Play streets:** Temporary event based on closing streets to cars in order to offer recreational and cultural activities for the community.
•**Opening streets**: Temporary initiative that involves closing streets to vehicles so they can be used for recreational activities such as walking, running, cycling, and dancing.
• **Parklets**: Challenging the traditional use of public space into lively urban spaces.

In addition to these temporary interventions to transform cities. It is important to highlight the most influential tools[9] for reclaiming public space, which are:

• **Intersection Repair**: A community initiative to develop street intersections as community space for increased safety and health. Consist of painting the pavement, installing street libraries and food trucks. Although initially illegal, the intervention has gradually been formalized within the legal framework.
• **Guerrilla Wayfinding**: Encourage walking over other transportation modes. Consists of installing unofficial pedestrian signs with estimated walking times to relevant sites.
• **Build a Better Block**: Demonstrate all the possibilities for neighborhood transformation in one city block. A revitalization of underused urban blocks with pop-up cafés, potted trees, urban art, and painted bike lanes.
• **Parkmaking**: repurpose underused and auto-oriented places into usable public space. Temporarily transform a street into a recreational space that over time can become a permanent urban intervention.
• **Pavement to Plazas**: Repurpose underused asphalt space into vibrant, social public spaces. Temporary interventions with modular furniture and paint that can lead to permanent implementation.

The above shows us that small interventions can lead to significant transformations without the need for large budgets, but rather vision, community participation, and a willingness to experiment. In a few words, I defend Tactical Urbanism as a bridge between citizen action and formal planning for the creation of more vibrant, inclusive, and sustainable cities.

8 Silva, P. (2016). *Tactical urbanism: Towards an evolutionary cities' approach? Environment and Planning* B: Planning and Design, 43(6), 1040-1051.
9 Mike Lydon, Antony Garcia, Tactical Urbanism. Short-term actions for long-term change,Island Press, 2015
10 BIG – Bjarke Ingels Group. (2012). Superkilen. Retrived from https://big.dk/projects/superkilen-1621

2.1.1 Case Study

Project Name: Superkilen Park [10].
Location: Copenhagen, Denmark .
Year: 2012.
Architect: Bjarke Ingels Group, Superflex and Topotek1

Located in the heart of the Nørrebro district, in the northern part of Copenhagen, the park reflects a cultural area through a contemporary language with the citizen participation. Instead of installing designer benches, streetlights, and trash bins, the space was conceived with sculptural forms and public art interventions that celebrate the heritage of more than sixty nationalities. The result is a kind of surreal garden built with more than a hundred objects from around the world.

The park is structured into three areas differentiated by colors: the red zone, the black zone, and the green zone, each with a distinct spatial and functional condition. The red area, featuring mosaics made of various materials in reddish tones, is conceived as an extension of the sports and cultural activities of the Nørrebrohall sports center. On weekends, it functions as a local market that attracts visitors.

The second space, the Black Square, is the heart of the Project, a large open-air living room where neighbors can gather. White wavy lines on the dark pavement indicate the directionality of the square, adapting to the contours of the elements that appear along its path.

The third area is a green park with open fields and hills designed for the recreation of children and families, thus meeting the residents' need for more green spaces in the neighborhood. The result is an urban project conceived by and for the local community.

Source: Bjarke Ingels Group (BIG)

Fig. 7 Cultural designed elements implemented.

Source: Bjarke Ingels Group (BIG)

Fig. 8 Perspective view red square.

Source: Bjarke Ingels Group (BIG)

Fig. 9 Top view black square.

2.2 RESILIENT URBANISM

In the current urbanism model, the terms "resilience" and "sustainability" are often seen as synonyms, when in fact, sustainability refers to permanence or durability, while resilience relates to the capacity to recover from adverse situations[11]. This distinction is crucial in the urban context, where cities constantly require repairs due to rushed decisions, poorly calculated savings, or a lack of timely maintenance. Therefore, the key to repairing a city and facing the challenges of climate change depends on learning from the three different strategies[11] of artisanal work.

• **Restoring:** the craftsman seeks to make the object look just like new. the labours of the craftsman are meant to appear invisible, and time suspended.
• **Remediation** : the object does what it was originally meant to do, but the hand of the craftsman is evident in the remediated object.
• **Reconfiguration** : Make the object different from before, in both form and function. the craftsman becomes an inventor of form, rather than the servant of forms conceived by others.

These strategies seek to foster ambiguity, flexibility, and interaction. An urban ethic that acknowledges the complexity of urban life without imposing a rigid or homogeneous order, but rather deeply reflecting on the relationship between the building and dwelling, rethinking how cities are designed and lived in by integrating coexistence and urban complexity.

In this context, transforming public spaces becomes an essential component for creating livable and vibrant cities[12]. These spaces should not only be designed to be navigable, but also conceived to foster interaction, social encounters, and a sense of belonging among those who inhabit them. A well-designed public space that strengthens the urban fabric promotes [13]:
•**Streets as Public Spaces:** Attractive, accessible, and safe streets designed for people rather than cars, encouraging social interaction, safety, and urban vitality.
•**Squares and Parks as Multi-Use Destinations:** Spaces that generate civic pride, economic activity, and connections between different social groups, adaptable to the needs of their users, combining functions to become inclusive and appealing places for all.
•**Local Economies Through Markets:** Fundamental urban spaces, not only as centers of commerce but also as places that strengthen social ties and the local economy, providing opportunities for small entrepreneurs and revitalizing neighborhoods.
•**Design Buildings to Support Places:** Buildings should integrate with their surroundings at a human scale and contribute to neighborhood vitality, avoiding isolation from the urban fabric and becoming accessible, active spaces that foster interaction and community life.
•**Link a Public Health Agenda to a Public Space Agenda:** Facilitates access to basic infrastructure, healthy food, and safe environments, promotes physical activity, and reduces stress, crime, and social exclusion, encouraging citizens to care for both their environment and themselves.

Knowing this, the habitability and resilience of public spaces do not depend only on the type of intervention whether restoration, remediation, or reconfiguration but also on how the space is designed. Accessibility, diversity of uses, integration with the urban context, and the ability to foster social interaction are essential elements that determine its success. Only by combining thoughtful repair strategies with design that prioritizes people, safety, inclusion, and urban vitality can public spaces become resilient, flexible, and truly meaningful places for the community.

11 Sennett, R. (2018). *Building and Dwelling: Ethics for the City*. New York: Farrar, Straus and Giroux.
12 Project for Public Spaces. *About placemaking*. Retrieved from https://www.pps.org
13 Project for Public Spaces. (2012). *Placemaking and the future of cities*. Retrieved from https://www.pps.org/article/placemaking-and-the-future-of-citiesProject for Public Spaces

2.2.1 Case Study Restoration in Resilent Urbanism Approach

Project Name: Old Town Market Square [14].
Location: Warsaw, Poland.
Year: 1953.
Architect: Jan Zachwatowicz.

This project is an outstanding example of urban restoration and cultural heritage preservation. Originally established in the 13th century, the square was devastated during World War II but was meticulously reconstructed between 1948 and 1953 using historical plans, photographs, and oral testimonies.

Its restoration brought urban-level benefits such as the historical revaluation of the space. By recovering heritage elements, it fostered a sense of belonging and collective memory in the area. Pedestrian circulation improved through the expansion of vehicle-free zones, which in turn encouraged tourism.

The project revitalized the local economy through commercial activities on the ground floor, leading to increased employment and enhanced security in the sector. These strategies successfully consolidated a well-preserved and accessible heritage space that supports cultural tourism and contributes to the city's long-term development.

Source: Yad Vashem Photo Archive.

Fig. 10 Before Old Town Market Square.

Source: Urban Networks

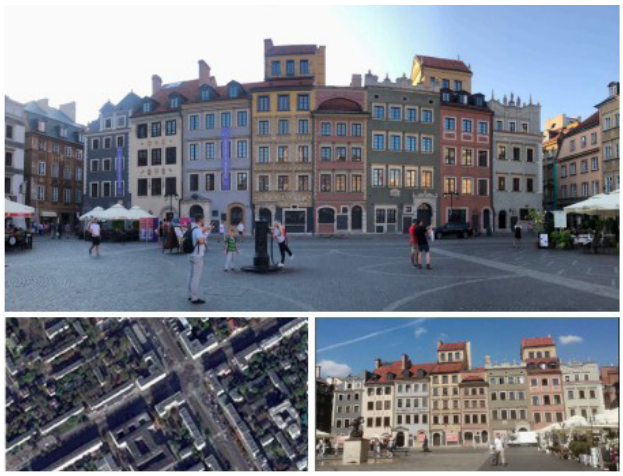


Fig. 11 After Town Market Square.

14 Kırbaş Akyürek, B. (2017). *Replacement of memories via reconstruction of historical buildings. En Proceedings of ICONARCH III International Congress of Architecture: Memory of Place in Architecture and Planning* (Vol. 2, pp. 710–718). Selçuk University.

2.2.2 Case Study Remediation and Regeneration Approach

Project Name: The High line [15].
Location: New york, United states.
Year: 2019.
Architecture Studio: Diller Scofidio + Renfro.

It is a public park built on a disused railway line that extends from the Meatpacking District to the Hudson Rail Yards in Manhattan. After the structure, which had been in operation from 1930 to 1980, fell into disuse, it faced the possibility of demolition. In response, a group of citizens led by Joshua David and Robert Hammond founded the organization Friends of the High Line in 1999 to reclaim the structure as a public space.

Their activism led to the reinterpretation of the unused structure, which had acted as a visual and physical barrier. The original railway infrastructure was preserved but transformed into a public green corridor designed to activate the urban environment and connect previously disconnected areas through a pedestrian link.

The project aims to re-signify the old railway structure, transforming it into public spaces that promote memory, social interaction, and environmental care. In doing so, the High Line enhances the city's image and encourages tourism in an area undergoing significant post-industrial transformation and gentrification.

Source: Diller Scofidio + Renfro

Fig. 12 High line master plan.

Source: Diller Scofidio + Renfro

Fig. 13 Contrast between intervention and existing.

15 Diller Scofidio + Renfro. (n.d.). *The High Line*. Diller Scofidio + Renfro. Retrieved from https://dsrny.com/project/the-high-line

2.2.3 Case Study Reconfiguration Approach

Project Name: Federation Square [16].
Location: Melbourne, Australia.
Year: 2002.
Architecture Studio: Lab Architecture.

A project that completely transformed a deteriorated site once occupied by obsolete infrastructure from an old railway system, which had hindered public interaction and urban connectivity despite its privileged location next to the Yarra River and across from Melbourne's central business district.

At the end of the 1990s, the Government of the State of Victoria promoted a radical transformation of the site, completely demolishing the railway and technical infrastructure. This made it possible to develop an open and fluid public space that creates multiple plazas and pedestrian connections, encouraging social interaction among both residents and tourists, and fully revitalizing the heart of the city.

Source: Jim Payens/Museums Victoria

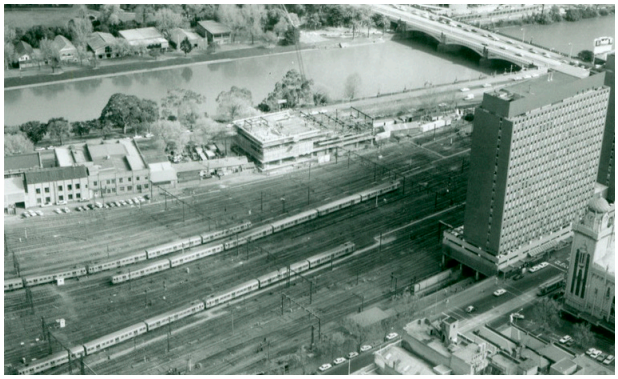


Fig. 14 Before Federation Square.

Source: Dezeen

Fig. 15 After Federation Square.

Source: LAB Architecture Studio

Fig. 16 Architectural Contrast.

16 Bates, D. L., & Davidson, P. (1999). *Federation Square, Melbourne, Australia Lab Architecture Studio*. Assemblage, 40, 57–67.

2.3 HEALTY URBANISM

The term urban health seeks to promote health through territorial planning by encouraging interaction between healthcare professionals and technical disciplines, such as architecture or environmental engineering[17]. Its main goal is to positively impact human health and quality of life, highlighting the relationship between physical and social well-being and the urban environment in which people live.In this sense, the way we design our cities significantly contributes to building healthier lives. An example is the implementation of urban parks, provide to the children a place to play, to the older adults a space to socialize, and to the families who cannot afford to travel a place to spend their holidays, but also the researchers found that living near green spaces can have positive effects on health, such as reducing blood pressure, decreasing depression, increasing levels of physical activity, and helping to improve air quality[18].

To ensure that all population groups (children, adults, older adults, people with chronic illnesses or disabilities, and pregnant women) can enjoy better health, the WHO has established guidelines on physical activity and sedentary behavior. These global and adaptable recommendations[19] for public health, education, sports, and social well-being support the implementation of the Global Action Plan on Physical Activity 2018–2030 to reduce physical inactivity by 15% by 2030.

• **Children and adolescents**: to improve physical fitness, bone health, and mental health, they should engage in an average of at least 60 minutes of moderate-intensity physical activity per day.
• **Adults**: with physical activity reduce cardiovascular diseases and the onset of hypertension, and it improves mental, cognitive, and sleep health. Therefore, it is recommended that they engage in at least 150 to 300 minutes of moderate-intensity aerobic activity throughout the week, along with muscle-strengthening activities at least two days per week.
• **Older Adults**: with physical activity prevent falls, deterioration of bone health, and loss of functional capacity. It is recommended that they engage in at least 150 to 300 minutes or more of moderate-intensity aerobic activity throughout the week, muscle-strengthening activities at least two days per week, and multicomponent physical activities that emphasize functional balance and strength at least three days per week.
• **Pregnant and postpartum women**: with physical activity benefit the maternal and fetal mental health, and is associated with a lower risk of preeclampsia, gestational hypertension, gestational diabetes, childbirth complications, and postpartum depression, as well as fewer complications in the newborn. Therefore, it is recommended that they engage in at least 150 minutes of moderate-intensity aerobic and muscle-strengthening physical activity per week, along with gentle stretching exercises.
• **Children and adolescents with disabilities**: it is recommended that they engage in an average of at least 60 minutes of moderate physical activity daily throughout the week, as well as muscle- and bone-strengthening activities at least three days per week.
• **Adults with disabilities**: it is recommended that they engage in at least 150 to 300 minutes of moderate-intensity aerobic physical activity per week, combined with 75 to 150 minutes of vigorous-intensity aerobic physical activity during the week.

The previous recommendations help reduce inequalities and support all people to become more physically active every day. This is an initiative that invites governments, urban planners, NGOs, and developers to create more equitable, healthy, safe, and vibrant cities by focusing on walkability.

17 R. Fehr, S. Capolongo (2016) Promozione della salute nei contesti urbani: l'approccio all'Urban Health, Dipartimento di salute pubblica, Università di Bielefeld.
18 Office of the Mayor, City Hall, New York City (2016)Healthie neighbourhoods throughs healthier parks.

2.3.1 Case Study

Project Name: Bloomingdale Trail [20].
Location: Chicago , united states.
Year: 2015.
Architecture Studio: Michael Van Valkenburgh Associates.

Urban project developed along the former Bloomingdale rail line, with an approximate length of 4.3 kilometers, reusing 39 railway bridges and incorporating 17 access ramps to provide accessibility for pedestrians and cyclists.

The project improved connectivity between neighborhoods through infrastructure that not only offers safe and continuous routes for walking, jogging, or cycling, but is also accessible to all types of users. In addition, the project incorporates green spaces, which enhance air quality and have direct benefits for respiratory and cardiovascular health. Currently, due to the positive impact observed among residents, an extension of the trail into new areas of Chicago is being considered.

Source: The 606

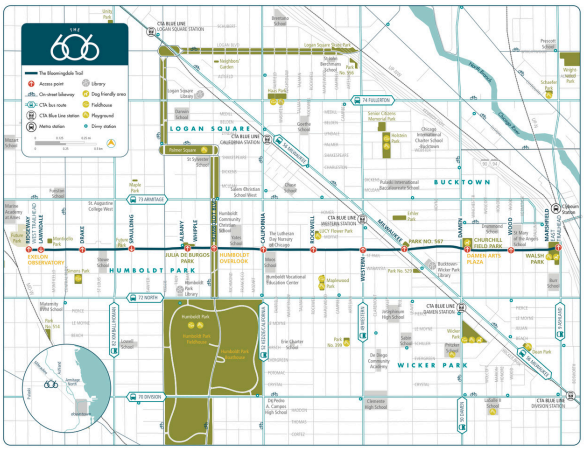


Fig. 17 Masterplan Bloomingdale Trail.

Source: The 606

Fig. 18 Clear delimitation of the lanes.

Source: The 606

Fig. 19 Universal accesibility to the corridor.

19 World Health Organization. (2018). Global action plan on physical activity 2018–2030: More active people for a healthier world.

20 The 606. (2025). *The 606: Home*. The Trust for Public Land. Retrieved from https://www.the606.org/

3. URBAN COMFORT

Comfort in urban public space is determined by a series of interrelated factors, such as the local climatic data, the materials used in the public space, the width of the street section, the height of buildings, the occupation of public space, the urban landscape, lighting, noise levels, air quality, ergonomics, and the adaptability of urban design. Poor implementation of any one of these elements will affect the others; therefore, it is important to approach urban comfort in an integrated manner, analyzing each of these factors[21] and developing specific improvement strategies to ensure truly comfortable and sustainable public spaces.

Since the quality of open urban spaces can contribute to the quality of life within cities or, on the contrary, increase isolation and social exclusion. Therefore, it is essential to analyze and combine physical aspects with social and environmental factors, in order to achieve the maximum use and enjoyment of public space by its users.

3.1 THERMAL COMFORT

The sensations of thermal comfort in outdoor spaces evolve according to modifications in urban form and the climatic changes to which the city is exposed. Over the years, various parameters[22] that can influence the microclimate of outdoor spaces at a small scale have been studied. These include:

3.1.1 Solar Radiation

The incidence of solar radiation in an urban space depends on solar visibility or trajectory, thus producing two types[23] of radiation: direct and diffuse. In direct radiation, the atmosphere acts as a filter, allowing the entry of rays ranging from ultraviolet to infrared, which influences the design of both buildings and urban open spaces. On the other hand, diffuse radiation, which is more evident on cloudy days, refers to the refraction and scattering of sunlight. It is also important to consider heat transfers and radiation exchanges, which depend on both the temperature of the human body and the temperatures of adjacent surfaces.

3.1.2 Wind

One of the most important factors influencing pedestrian comfort conditions in open outdoor spaces. The wind is the moving air generated by the difference between the atmospheric pressure and temperature, it means that is difficult to predict and control since the environment is at the same time exposed to a various factors[24] such as urban morphology, vegetation, air temperature and building heigh, therefore is only possible controled the ventilation conditions or the air currents.

3.1.3 Temperature

Air temperature can be positively or negatively affected by different physical and natural patterns such as vegetation, wind, shade, and others. Also should be consider the nighttime temperature , as studies[25] have shown that the highest heat intensity often occurs at night, due to the fact that surfaces release the heat absorbed during the day very slowly at night.

3.1.4 Vegetation

One of the key characteristics of tropical cities, and it effectiveness depends on the density of the foliage and the shape of the leaves. Urban trees provide[26] shade on streets, modify air temperature through evapotranspiration, act as a filter for solar radiation, and reduce wind speed.

3.1.5 Urban Block

It refers to the three-dimensional form of a group of buildings and the spaces they create. This aspect significantly contributes to the evaluation of temperature, solar radiation and wind. Help to define design decisions that achieve optimal environmental quality. One of the most important parameters to consider in this category is the

21 RUROS - *Rediscovering the Urban Realm and Open Spaces, Progettare gli spazi aperti nell'ambiente urbano: un approccio bioclimatico* Retrieved from https://www.yumpu.com/it/document/view/14924011/progettare-gli-spazi-aperti-nellambiente-urbano-un-approccio-

22 Andreou, E. (2013). *Thermal comfort in outdoor spaces and urban canyon microclimate*. Renewable Energy 55 (2013) 182-188.

Sky View Factor (SVF)[21], which is the three-dimensional measurement of the solid angle of sky visible from an urban space that determines the radiant heat exchange between the city and the sky. In other words, in very narrow streets, the SVF tends to be low, while in a wider urban environment, the SVF is higher. In design terms, this is related to variations in temperature as well as in solar exposure and shading.

3.1.6 Building Height

This factor impact on the increase or decrease of air temperature, the modification of wind currents, the accumulation of heat on façades, and its influence on the type of vegetation. Likewise, it is important to consider the proportional relationship between building height and street width, where it has been found that the more proportional this relationship[21] is, the greater the user experience in the space, leading to increased use.

3.1.7 Materials

In this factor is important consider the albedo parameter[27], which measures how much solar radiation a surface reflects compared to how much it absorbs. A low albedo means the material absorbs most of the radiation, increasing surrounding temperatures, while a high albedo reflects most of the radiation, reducing surface temperature. From this perspective, studies[28] have shown that the materials most commonly used in urban spaces, such as asphalt, bricks, and stone pavements (with low albedo values of 0.05, 0.20, and 0.40 respectively) intensify the urban heat island effect. However, studies[28] also demonstrated that albedo is mainly influenced by the color of the examined element, the surface texture (roughness), and the type of material.

23 Higueras, E. (1998). *Urbanismo bioclimático. Criterios medioambientales para la ordenación del territorio*.
24 Givoni, B. (1998). *Climate Considerations in Building and Urban Design.*
25 Oke, T. (1987). *Boundary Layer Climates*.
26 Streiling, S., & Matzarakis, A. (2003). I*nfluence of single and small clusters of trees on the bioclimate of a city: A case study. Journal of Arboriculture.*

3.1.8 Case Study

Project Name: Science Park – Phase 3 [29].
Location: Pak Shek Kok, Hong kong.
Year: 2015.
Architecture Studio: Simon Kwan & Associates Ltd.

The architectural approach of this phase was based on both passive and active sustainability strategies, with a strong emphasis on energy efficiency, emissions reduction, and creating a healthy environment for workers and visitors alike. Thanks to the local climatic conditions, such as prevailing winds, sea breezes, and lush vegetation, the design achieved an energy savings of 44% compared to government standards. This was accomplished by incorporating natural ventilation, façades with active shading, solar-powered cooling systems, and rainwater harvesting. Additionally, this phase received the Grand Award at the 2016 Quality Building Awards, establishing itself as one of the most sustainable and technologically advanced projects in Southeast Asia.

The master plan for the complex's design was conceived to make the most of the site and its natural resources. The buildings were positioned and oriented to promote natural ventilation throughout the area. The extensive green coverage, which spans approximately 40% of the site, helps minimize solar heat absorption and reduce the urban heat island (UHI) effect.

Source: World Green Organisation

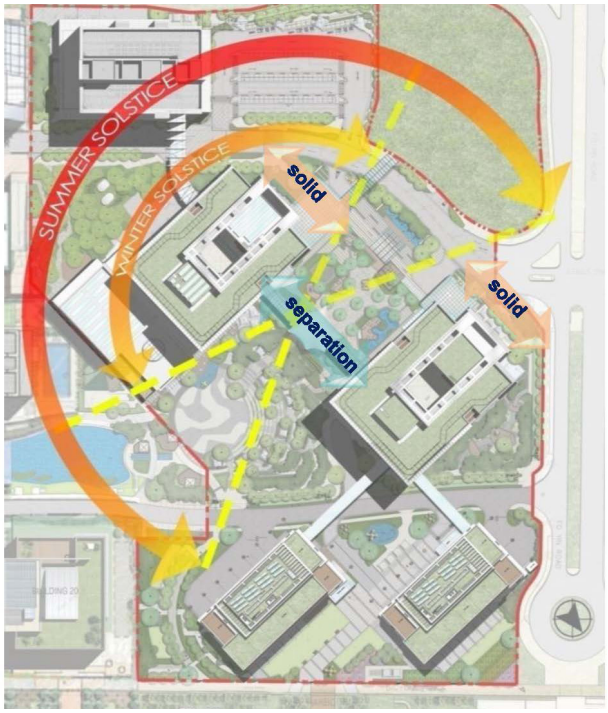


Fig. 20 Microclimate factors plan analysis.

Source: World Green Organisation

Fig. 21 Wind managment diagram.

27 Coakley, J. A. (2003). *Reflectance and albedo, surface*. Encyclopedia of atmospheric sciences.
28 Ferdinando Salata, Iacopo Golasi, Andrea de Lieto Vollaro, Roberto de Lieto Vollaro. (2015) *How high albedo and traditional buildings' materials and vegetation affect the quality of urban microclimate.* A case study, Energy and Buildings, Volume 99.

3.2 ACUSTIC COMFORT

For many years, it has been argued that the sound environment strongly influences health and well-being. Therefore, it is essential to consider this factor from the early stages of city planning. If the sound environment is not consistent with the functionality of the space, its usability will be significantly reduced. Thus, it is important to consider the following tools to develop a sound environment suitable from the end user's perspective.

3.2.1 Controlling the Sound Environment

For modeling and exchanging the dominant sounds of an area should be applicable different scales [30]:

• **Quiet areas:** These areas are identified as those not exposed to sound pressure levels above a certain limit, as they are considered restorative places. The recommendation is to keep this level below 50 dB.

•**Transport management:** Traffic congestion currently exposes us to noise levels above those established by the World Health Organization (Ln < 55 dB, Ld < 65 dB). To improve the sound environment, strategies such as removing a road and diverting its traffic to adjacent ones, reducing the maximum allowed speed, prohibiting medium-heavy and heavy vehicles, among others, can be implemented.

• **Green spaces patterns:** Studies have shown that vegetation coverage alone is not sufficient to reduce noise levels. Even the configuration of grouped green spaces within the same area tends to concentrate their benefits only on a part of that area. In contrast, small dispersed green zones can lead to lower average noise levels because they act as acoustic microbarriers, interrupting the propagation of noise.

3.2.2 Urban Soundscape

The concept of "soundscape" promotes a holistic approach to how we perceive the sounds around us. It studies the human experience of the acoustic environment and the relationship between the physical world and human response. This approach considers environmental sounds as a resource, not as disadvantage. It identifies desirable sounds (natural and cultural) and undesirable sounds (mechanical or technological) in public spaces, and promotes strategies for managing the urban soundscape[30], such as controlling the noise source and creating masking techniques. Masking techniques are used when noise control is insufficient, introducing natural or artificial sounds to hide unwanted noises or to attract attention to positive sounds. However, these techniques[30] are limited in environments with high background noise levels (>65 dB).

29 Hong Kong Green Building Council. (2018). *HKGBC Guidebook on Urban Microclimate Study.*

30 Wolfgang Kropp,Jens Forssen, Laura Estevez Mauriz (2016), *"Urban Sound Planning-The Sonorus Project"*, Chalmers University of Technology, Division of Applied Acoustics.

3.2.3 Case Study

Project Name: Sheaf Square [31].
Location: Sheffield, UK.
Year: 2010.
Architects: EDAW.

A square that forms part of a heavily used route crossing the city through the station, from the city center to the inner suburbs of Park Hill/ Norfolk Park, while also serving as a connection to the tram network and the projected Sheaf Valley Park. The new square is one of the eight key projects identified in the 2000 City Centre Masterplan and is linked to the refurbishment of the main railway station.

Its design is clearly inspired by the history and culture of Sheffield, the birthplace of the steel industry and, in particular, stainless steel. Through a large steel sculpture, The Cutting Edge (a symbol of the progress of a steel billet through the foundries and mills until it becomes a sharpened blade), it manages to reduce the noise of the nearby heavily trafficked street in the public space. At the same time, with a clever display of metaphors and memories of Sheffield's industrial past with references to weirs, steel manufacturing, anvil-shaped furniture, rolling topography, and water features on the other side of the sculpture it succeeds in masking noise and creating positive sounds.

Thus, Sheaf Square is considered a fundamental example of how a traffic chaos can be transformed into a highly pleasant place.

Source: Skyscaper city

Fig. 22 Master plan square.

Source: Creating a sense of place page

Fig. 23 Masking technique using fountains.

31 2nd lecture of PAADtalks! by Professor Jian Kang, FREng. UCL Institute for Environmental Design and Engineering, The Barlett. University College London (UCL), UK.

3.3 VISUAL COMFORT

This term is associated with a positive visual experience of a well-designed open space. It takes into account various factors that generate "visual pleasure" to create this sense of satisfaction, such as unobstructed views of the landscape, surrounding buildings, vegetation, façades, and urban furniture. However, studies[32] consider that lighting could be the most relevant factor, as it has the ability to create vibrant, prosperous, safe, and inclusive spaces for those who live, work, and enjoy leisure in cities at any time of day. Beyond being a functional complement to safety, it can also enrich cultural experiences and promote social and economic interactions.

3.3.1 Urban Lighting

The impression of a city is created not only by what is illuminated but also through the sensory experiences of the environment, the sense of safety and the user's emotions toward the environment. Lighting is an element that manages to balance both factors and transform spaces, allowing designers to play with shadows, color, and intensity. Likewise, it is important to plan lighting using different layers[33] of light sources such as:

• **Traditional forms of street lighting**: Classic lampposts, functional fixtures that promote pedestrian safety.
• **Ambient lighting**: The glow of advertising has become a defining element of the nocturnal urban landscape. This type of light, while it can energize spaces and draw attention, can also disrupt visual comfort and cause glare when excessive or poorly positioned.
• **Building interiors**: It has a significant impact on the perception of the urban environment at night. Through windows, shopfronts, or translucent façades, interior light is projected into the public space, adding warmth, depth, and visual dynamism. This interaction between interior and exterior can enrich the pedestrian experience and enhance the sense of safety.
• **Light for Social interaction:** Implementation of lighting points to emphasize or mark key pedestrian routes, illuminated streams that invite interactive use, and fountains with changing colored lights to offer a soft and discreet background to the environment.
• **Light the history and identity of a space**: Enhancing the appreciation of architectural heritage by creating an atmosphere conducive to communicating history and urban identity through types of light that highlight the most significant elements and soften the less relevant ones.
•**Temporary lighting**: Enhances visual comfort while elevating light to a form of artistic expression, creating memorable and inclusive nightscapes with temporary events such as light festivals or light exhibitions.

3.3.2 Urban Night Time Design

The approach to urban and lighting design goes beyond functionality, prioritizing human experience and people's needs. The aim is to move away from the idea that "more light is better" and instead adopt a more focused understanding of the quality and characteristics of light, supported by intelligent and adaptable technologies that enable solutions more sensitive to environmental, social, and human contexts[32].

Likewise, context and place are essential. Spatial qualities, users, history, functions, and environmental factors are fundamental elements for developing lighting design strategies. This process should also involve the collaboration of different stakeholders in decision-making to ensure that designs are centered on the urban nighttime experience[32].

32 Florence Lam, Chris Luebkeman, Leni Schwendinger, Josef Hargrave (2015), "Cities Alive-Rethinking the Shades of Night.
33 Calvillo, Berenice & Falcon, Luis. (2016) Emotions and the Urban Lighting Environment: A Cross-Cultural Comparison. SAGE Open. 6. 10.1177/2158244016629708Shades of Night.

3.3.3 Case Study

Project Name: Boulevard Yuzhny [34].
Location: Dnipro, Ukraine.
Year: 2020.
Architect Studio: Filimonov & Kashirina

The implemented boulevard is a continuation of the previously constructed Ekaterinoslavsky pedestrian boulevard. The newly designed boulevard is longitudinally divided into three zones: transit areas along the building line, with some façades featuring warm, subtle lighting, and a functionally diverse central zone that includes illuminated fountains throughout recreational areas, resting spots, and a children's playground.

The main landscape feature of this new pedestrian space is the longest artificial stream in Ukraine, highlighted with blue lighting, which runs along the entire length of the boulevard. It symbolizes the underground river Zhabokryach, which flows directly under the street.

The paving is arranged in the form of a grid, taken from the existing Ekaterinoslavsky Boulevard, to achieve the greatest possible visual continuity between the existing and the newly designed boulevards. At the intersection of the two boulevards stands a 7-meter-tall sculpture: Atlas, representing the triumph of freedom and the release from the weight of iron chains. It is softly illuminated to reinforce its historical significance. This urban design not only encourages public appropriation of the space but also enhances safety and the sensory experience through the integration of functional lighting that is attractive both day and night.

Source: Alef Estate

Fig. 24 Building lighting.

Source: Alef Estate

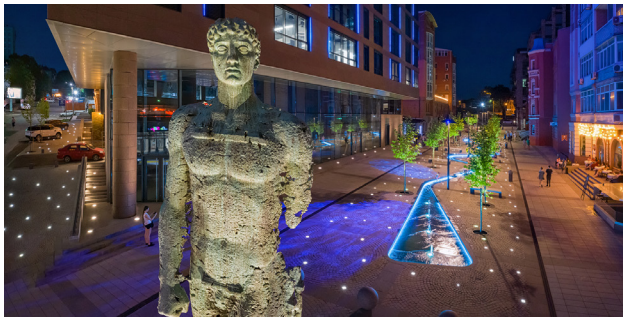


Fig. 25 Historical and identity lighting.

Source: Alef Estate

Fig. 26 Social interaction lighting and building lighting.

34 Alef Estate. (2020). *Boulevard Yuzhny.* Retrieved from https://alef-estate.com/en/public-spaces/yuzhnayaAlef Estate+2Alef Estate+2

4. URBAN MOBILITY

Due to the exponential growth of cities, it is necessary for cities to build transportation networks that are safer and more resilient. For many years, streets[35] have been designed around automobiles, which divides cities, stifles economic growth, and creates dangerous congestion. Therefore, it is necessary to redesign spaces, structures, and surfaces to function more efficiently and to encourage a healthy, livable, and sustainable future for upcoming generations.

By recognizing that cities are places for people, streets should be redesigned[35] as public spaces that integrate diverse functions and uses with the goal of maximizing their potential and balancing the various needs of people who walk, bike, drive, or use public transportation.

This approach aims to minimize car dependency and promote sustainable alternatives that help address various challenges such as road violence, physical inactivity, poor air quality, economic inefficiency, high energy consumption, noise pollution, poor quality of life, and inequity.

4.1 STREET DESIGN FOR PEOPLE

People of all ages and abilities experience streets in different ways and have varying needs. The diverse activities that take place and are encouraged on the streets shape how the city is lived[35], whether sitting, walking, cycling, using public or private transportation, moving goods, providing urban services, or conducting business.

Additionally, the types[35] and volume of people on a street depend on variables such as the time of day, the size of the street, the urban context, and the local climate. Therefore, in order to shape an appealing environment that ensures access, safety, and comfort, the street must strike a balance among all these needs.

4.1.1 Designing For Pedestrians

The most intensely and vulnerable users on the streets are the pedestrians. Therefore, it is important to consider safety and comfort in street design, but also equity and inclusion of the diverse needs and functions of various users[35], with particular attention to:

• **People with disabilities**: Taking into account visual, auditory, or physical needs, sidewalks should be wide enough to allow two people in wheelchairs to pass each other. Additionally, accessible ramps with low slopes should be included at all crossings, as well as pedestrian refuge islands both in medians and at corners.
• **Children**: Safety is the main priority. Safe intersections, highly visible pedestrian crossings, and reduced vehicle speed limits should be provided.
• **Adults and older adults**: It is important to provide ramps, refuge islands for every two or three vehicle lanes, and sidewalk extensions to reduce crossing distances and improve visibility at pedestrian crossings.

People should use streets not only for walking, but also for resting, sitting, playing, and waiting. However, how people use streets primarily depends on the available spaces and infrastructure that allow for those moments of pause. Therefore, to ensure a comprehensive approach that addresses the needs of diverse pedestrians and accessibility, it is necessary to consider a set of elements[35] that encourage and facilitate movement throughout the city.

• **Sidewalks**: must be continuous and provide a pedestrian circulation zone with wide enough to allow two people in wheelchairs to pass each other comfortably and buffers between the pedestrian zone and moving traffic with spaces for commercial activity or street furniture.
• **Crossings**: should be safe and frequent to promote walkability in all the intersections

35 Global Designing Cities Initiative. (2016). Global street design guide. Island Press. https://globaldesigningcities.org/publication/global-street-design-guide/

and supported with design elements such as pavement markings, stop lines, narrow curb radii, and speed-reduction signage.

• **Pedestrian Refuges**: to reduce crossing distance and provide waiting areas for people who cannot cross the full width of the street in the pedestrian interval.

• **Ramps**: fundamental elements for people pushing strollers or carts, or using wheelchairs.

• **Guidance for the Visually Impaired**: Strategies such as tactile paving strips on sidewalks, station edges, and pedestrian ramps for blind and visually impaired individuals to navigate the city.

• **Seating**: Encourage people to pause and rest with benches placed in both sun and shade. In larger pedestrian areas, to invite conversation and social activity.

• **Weather Protection**: awnings and canopies into building facades add character to the street and provide protection from rain or extreme heat.

• **Waste Receptacles**: Place them near corners, vendors, crossings, and parklets, adjacent to pedestrian zones.

• **Active Building Edges**: The design of the ground floor influences the character of the street and the level of pedestrian engagement. Frequent entrances, appropriate transparency levels, visual variation, and textures all contribute to shaping an enticing street environment.

• **Trees and Landscaping**: create a pleasant environment for walking, help give character to the neighborhood, and promote active transportation.

4.1.2 Designing For Cyclist

Cycle lanes and bike paths must be suitable for both daily use and long-distance travel. To achieve this, it is necessary to design safe and continuous infrastructure, which will help reduce congestion levels and increase the impact on local economies by improving cyclists' access to commercial areas. Although cyclists can share the road with motor vehicles on calm streets with low speeds, it is essential to implement dedicated infrastructure on larger streets and intersections, along with design elements[35] that ensure a comfortable and safe experience, such as:

• **Marked Buffers**: painted marks parallel to the cycle lanes with one meter wide, that separate them from motor vehicle lanes.

• **Constructed Buffers**: physical barriers on the roadway that separate the cycle lane and prevent the intrusion of vehicles and trucks.

• **Cycle Boxes**: They allow cyclists to position ahead of vehicles stopped at a red light. They help cyclists make turns across traffic and avoid being hit by vehicles crossing or turning through the cycle lane. Advanced stop lines should be at least 3 meters deep.

• **Cycle Signals**: They are traffic signals specifically designed for cyclists on streets to improve their safety and confidence in areas with high traffic volumes.

• **Cycle Parking Structures**: They are high-quality facilities that allow a large number of bicycles to be parked, protected from other street elements. They are installed at public transportation stations or main destinations such as shopping centers

4.1.3 Designing For Street Comercial

Cycle lanes and bike paths must be suitable for both daily use and long-distance travel. To achieve this, it is necessary to design safe and continuous infrastructure, which will help reduce congestion levels and increase the impact on local economies by improving cyclists' access to commercial areas. Although cyclists can share the road with motor vehicles on calm streets with low speeds, it is essential to implement dedicated infrastructure on larger streets and intersections, along with design elements[35] that ensure a comfortable and safe experience, such as:

Commerce is an integral part of every city, and streets should be designed to accommodate both formal and informal commercial activities. Street vendors play a key role in creating vibrant streets; kiosk owners, fruit stands, food carts, and extensions of commercial establishments provide convenient services to commuters, pedestrians, and residents. Additionally, they

activate street frontages, which is why it is essential to incorporate them into street design, taking into account key elements to create functional and efficient spaces that support their proper operation.

• **Guidance**: Street vendors should be accommodated where there is a potential demand for their goods and services, such as near major intersections, transit hubs, parks, and plazas.

• **Dedicated Spaces**: Designated spaces located on sidewalks, parking lanes, or improvement zones to avoid disrupting pedestrian flows on crowded or narrow sidewalks, ensuring a pedestrian circulation zone free of congestion.

• **Seating**: In areas with high concentrations of vendors, the use of movable chairs, tables, and benches can be very efficient and cost-effective.

• **Storage**: Allowing vendors to store unsold products in a secure location adjacent to their work area improves comfort conditions. Fixed installations for informal vendors in specific areas, such as plazas and open spaces, can also enhance the character of the space.

• **Lighting**: Encourages people to spend time and animates spaces that might otherwise be uninviting, increasing eyes on the street.

4.2 TRAFFIC CALMING

Traffic calming are strategies[35] used to prioritize pedestrians and cyclists by reducing the cars dominance in the urban spaces, promoting more livable streets. It also helps to decrease air and noise pollution as it reduces the car use, which at the same time creates healthier and resilient cities committed to long-term environmental sustainability.

• **Corner Radii**: Reducing corner radii helps lower vehicle turning speeds and shortens pedestrian crossing distances. It creates safer and more compact intersections.

• **Gateway Treatments**: They help signal to drivers that they are entering a lower-speed area through signage, gateway treatments, speed humps, raised crosswalks, and curb extensions.

• **Medians and Refuge Islands**: can be used to reduce lane width for vehicles. They can also be used to organize traffic at intersections or to block access at strategic points.

• **Speed Tables**: They have a flat top, typically 6–9 meters long, and also function as pedestrian crossings, either at intersections or mid-block.

• **Pavement Materials**: Add visual interest and encourage drivers to slow down, using materials such as colored or patterned asphalt, concrete, or pavers.

• **Diverters**: These are volume management strategies used to create restricted access, which help reduce the speeds of private vehicles.

• **Shared Streets**: Remove the physical distinctions between pedestrian, cycle, and vehicular spaces, forcing all users to share the street, increasing awareness, and reducing motor vehicle speeds.

4.3 Case Study

Project Name: GLDN+ Parklets [36].
Location: Washington, United states.
Year: 2023.
Architect Studio: Livable City Group

The new GLDN+ Parklets are part of the Streets for the People grant program, through which the District aims to expand the use of sidewalks, alleys, curbside spaces, parking areas, and travel lanes to create vibrant public spaces that support economic recovery, reimagine public space activation, and attract more residents, workers, and visitors to downtown Washington.

To achieve this vision, it was necessary to address two fundamental challenges: on one hand, the congested sidewalks that hindered social gatherings, and on the other, the need to introduce greenery into an urban environment dominated by pavement. The transformation began by reclaiming and reconfiguring the streets, extending the sidewalks through the implementation of parklets made from sustainable materials, such as low-carbon steel and wood. These parklets are adaptable, easy to install, and designed with the appropriate width to avoid encroaching on vital traffic lanes.

The parklets transformed the urban landscape and provided social spaces with new seating areas, greenery, and colorful art where people can gather outdoors throughout the Golden Triangle. This helped foster a sense of community amidst the urban environment of downtown Washington, D.C.

Source: Golden Triangle Business Improvement District

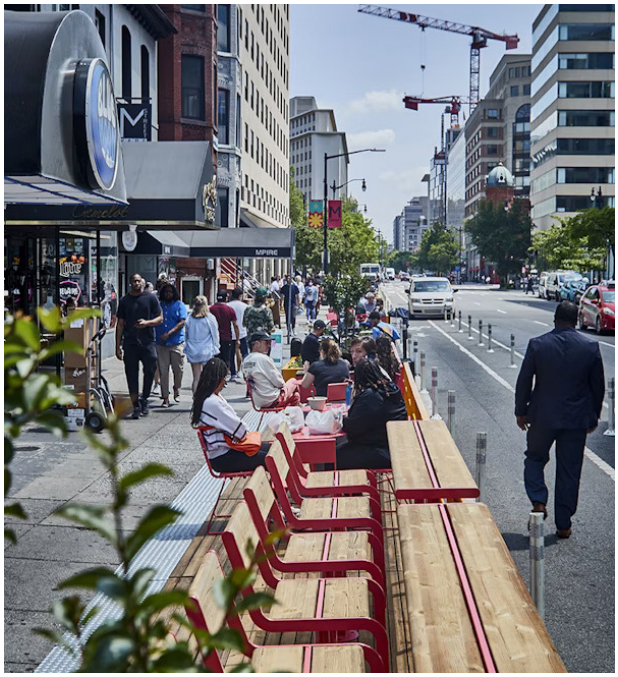


Fig. 27 Proper distribution for each user on the street.

Source: Vestre

Fig. 28 Urban furniture thinking universal accesibility.

36 Vestre. (2023). *Placemaking: Enhancing dowtown Washington, D.C with greenery and community spaces.* Retrieved from https://vestre.com/case-studies/placemaking-enhancing-downtown-washington-d-c-with-greenery-and-community-spaces

CITY PROJET FRAMEWORK

II

This chapter will present a general description of the city where the project will be developed, addressing its urban dynamics related to public space, mobility, sustainability, and urban comfort. This analysis will allow for an examination of how the city has implemented the principles outlined in the theoretical framework, identifying the strategies, policies, and interventions that have guided the construction of the city's public spaces. The purpose is to recognize both the achievements reached and the existing limitations in urban practice.

1. INTRODUCING THE CITY- BOGOTÁ, COLOMBIA

Fig. 29 Colombia location.

Fig. 30 Cundinamarca location.

Colombia is located in the northwestern corner of South America and is the only country on the continent with coastlines on both the Atlantic and Pacific Oceans. It shares borders with Panama, Venezuela, Brazil, Peru, and Ecuador, and maritime boundaries with Costa Rica, Nicaragua, Honduras, Jamaica, the Dominican Republic, and Haiti.

Also is important to highlight Colombia's topographic conditions[37], as the country features a mountainous system composed of three major mountain ranges that run from north to south, known as the Eastern, Central, and Western Cordilleras.

Bogotá, a city founded in 1538. is located at an altitude of 2,640 meters on an Andean plateau in the central-eastern part of the country, on the western side of the Eastern Cordillera in the department of Cundinamarca.

The capital of the country since 1819, has long been a center of economic growth and urban consolidation. During the 1970s and 1980s, the city experienced quantitative changes driven by urban and population growth. However, today Bogotá is undergoing transformations within the existing urban fabric to address the structural problems[38] that have accumulated throughout its development, including a lack of planning,

37 Rueda García, N y Rueda Sinisterra, D. (2005). *I. Introducción: La ciudad de Bogota D.C.* Universidad de los Andes. https://hdl.handle.net/1992/68317

38 Duque Franco, I. (2008). *Planeamiento urbano en Bogotá 1994-2007: La construcción de un modelo*. Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales, XII(270 [57]).

Source: Draw by the author.

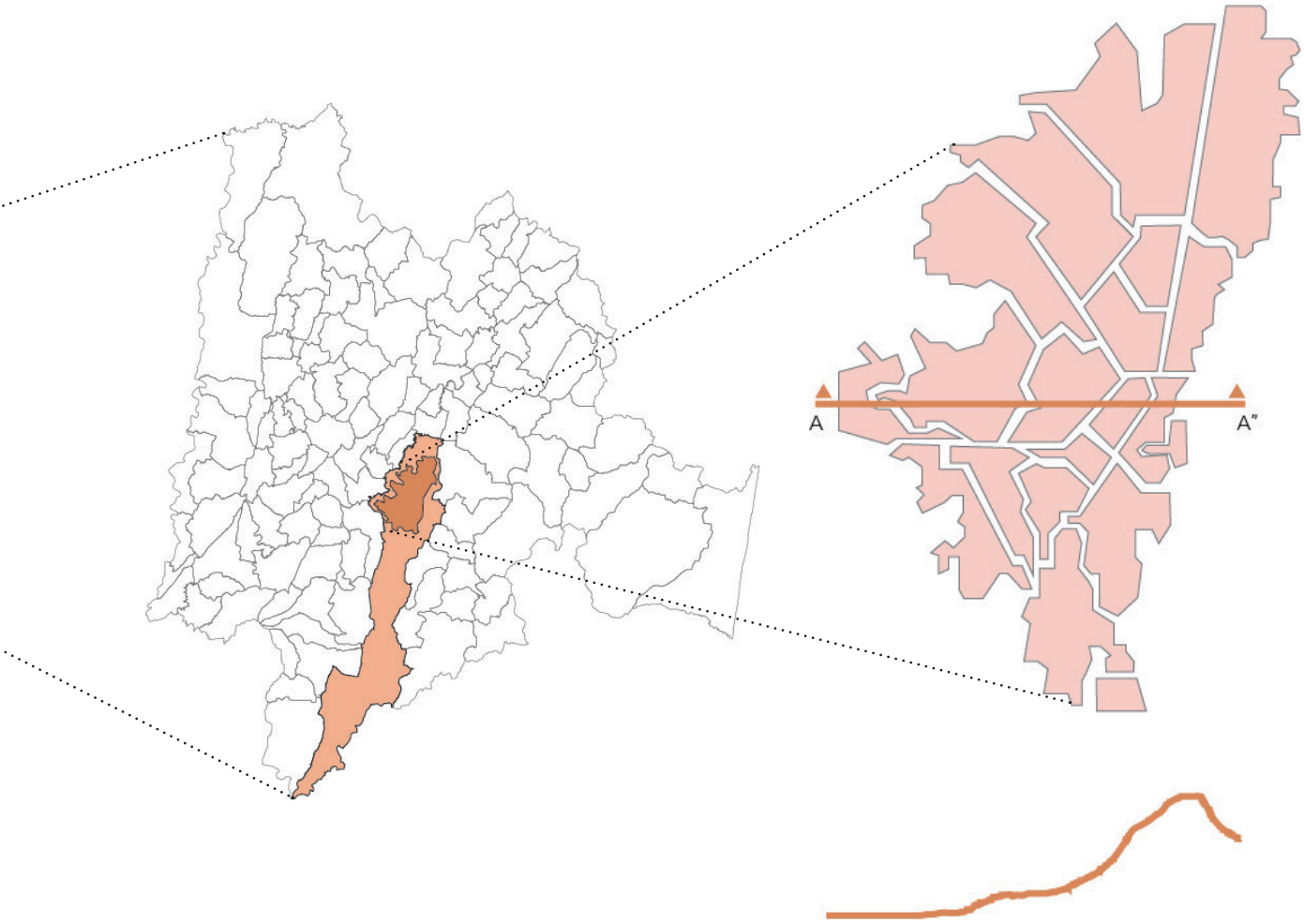


Fig. 31 Bogotá location.

Fig. 32 Bogotá section A-A´/ Map Bogotá localities.

uncontrolled expansion, urban chaos, the uninhabitable, unsafe, and disconnected image from its history and heritage.

However, in the international context[39], It is one of the most important cities in Latin America. since it Airport "El dorado" is the second busiest in the region after São Paulo-Guarulhos playing a key role in international connections for the surrounding countries, gaining visibility not only as an economic epicenter but also as a multicultural city. This is evidenced by the awards and recognitions it has received over the years, such as the designation of Ibero-American Capital of Culture in 2007, the Golden Lion at the 10th Venice Biennale in 2006. Bogotá appears to have joined the select group of cities regarded as 'models' thanks to its urban planning strategies and approaches to managing urban issues. As a result, a wide variety of national and international events held throughout the year, encompassing artistic, sports, and gastronomic expressions in the city.

39 United Nations Development Programme (UNDP) (2008)

2. BOGOTÁ AND THEORETICAL FRAMEWORK RELATIONSHIP

This section examines various urban projects developed in Bogotá and analyzes how their design strategies reflect, adapt, or challenge the previously mentioned theoretical criteria. By comparing the case studies with the conceptual framework, it is possible to identify patterns, strengths, and limitations in the way the city has addressed urban issues such as public space integration, connectivity, sustainability, and social interaction within its urban fabric.

The study of these projects not only allows for the recognition of recurring strategies that have proven effective in the Bogotá context, but also helps identify those that need to be reconsidered or reinterpreted in order to respond more accurately to local needs. Likewise, the contrast between theory and practice opens the possibility of generating innovative solutions that go beyond mere theoretical application.

In this way, it becomes possible to understand how urban design principles can be adapted or refined during their implementation under the specific physical, cultural, and social conditions of Bogotá, thereby strengthening residents' quality of life, fostering social cohesion, and enhancing urban identity. This critical exercise also allows for the projection of urban guidelines informed both by conceptual references and by local specificities.

2.1 GREEN AND THRIVING PUBLIC SPACES

Project Name: Connecta 26 [40].
Year: 2015.
Architect Studio: Terranum.

Located in Fontibon locality on Avenue 26, one of Bogotá's main roads that connects the international airport with the country's historic center, the Connecta project was developed as a mixed-use complex that incorporates various sustainability strategies from multiple perspectives: reducing the carbon footprint by encouraging the use of public transportation, providing easy access to services not only by foot but also through bike racks and free bicycle rentals.

The urban heat island effect was controlled through the implementation of green roofs, water features, the use of permeable materials, and reflective water surfaces. Likewise, the green roofs that have a rainwater harvesting system, and the gardens feature a TechGarden self-watering system, achieving significant water savings.

Since the beginning, a construction waste management plan has been developed to reduce greenhouse gas emissions. As a result, 80% of the waste did not end up in landfills or incinerated. Instead, a reuse process was designed for the waste, allowing it to be transformed into new products. Additionally, construction materials with recycled content and locally sourced materials were used, which reduced the environmental impact of transportation and supported the national market.

Source: Connecta 26.

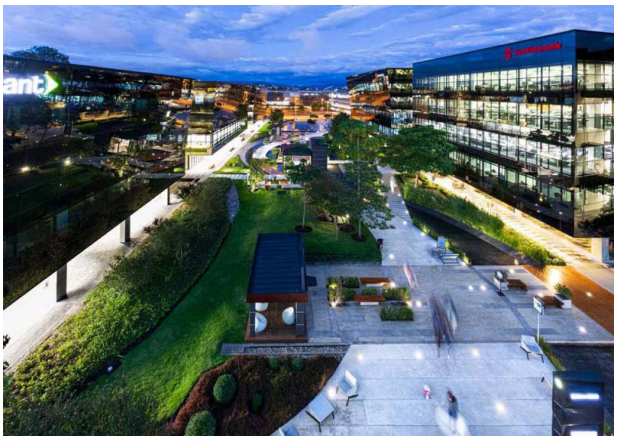


Fig. 33 Greenery design.

Source: Connecta 26.

Fig. 34 Bicycle friendly urban elements.

Source: Connecta 26.

Fig. 35 Permeable surfaces to reduce urban heat island.

40 Connecta 26. *Connecta 26: Ecosistema empresarial*. Retrieved from https://connecta26.com/

2.2 EFFICIENT AND LOW IMPACT PUBLIC SPACES

Project Name: Vertical activation La Perseverancia Market square [41].
Year: 2020.
Architects: Taller Arquitectos + SCA Presidencia Nacional + Colab-19.

Within the framework of the Cielos Abiertos program of the Bogotá Mayor's Office, a large working group was consolidated with the aim of generating ideas for the reactivation of restaurants in the city. The design had to be developed and built without public funds, relying exclusively on donations from private companies committed to economic recovery. After reviewing several areas of the city, they chose the Plaza de la Perseverancia for the first prototype, as it is one of the most recognized markets in Bogotá and a showcase of gastronomy from across Colombia.

The design of these structural exoskeletons redefined the traditional notion of architecture. The flexibility of these structures allowed the placement of 18 tables, tripling the initial capacity thanks to the vertical approach to space. This steel structure, composed of more than 1,500 pieces of recycled or donated material from various suppliers, made it possible to offer users a public space outside the market hall but still within its own environment, a simple spatial system that successfully reactivated the economy of the marketplace.

Source: Archdaily

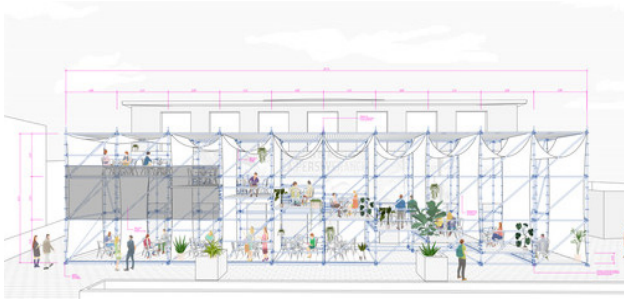


Fig. 36 Elevation of the intervention.

Source: Archdaily

Fig. 37 Low impact construction.

41 ArchDaily. (2020). *Instalación Activación Vertical / Taller Architects + SCA + Alsar Atelier + GB Urban Studio*. ArchDaily. Retrieved from https://www.archdaily.cl/cl/949956/instalacion-activacion-vertical-taller-architects-plus-co-lab-19-plus-sca ArchDaily en Español

2.3 TACTICAL URBANISM

Project Name: San Felipe Creative District [42].
Year: 2012.
Architect: District Administration

The San Felipe neighborhood is situated in the Barrios Unidos locality. It was planned and designed as a residential development with two and three story houses. The city's growth forced the expansion of Avenue Caracas, which had a strong negative impact, deteriorating and increasing the insecurity of the neighborhood, especially due to the homeless population. This led families to move to other areas of the city and caused an increase in the number of vacant properties despite its good location.

The District Administration, recognizing the potential of the area, supported an urban planning intervention in which the physical infrastructure was preserved, but with renovations to its streets, such as playstreets, more colorful roads, and temporary urban furniture. The aim was mainly to benefit pedestrians and small commerce with spaces that would promote active mobility, safety, the revitalization of the commercial and cultural sector, sustainable transportation, and social encounters between visitors and neighbors.

This revitalization transforms the deteriorated urban spaces through temporary, accessible, and participatory interventions that reactivate the urban fabric without relying on costly or centralized processes, promoting a city where citizens play an active role in shaping more livable and human-centered environments.

Source: District Secretariat of Mobility

Fig. 38 Intervention´s masterplan.

Source: Google maps

Fig. 39 Before tactical urbanism strategies.

Source: Magazzine diners

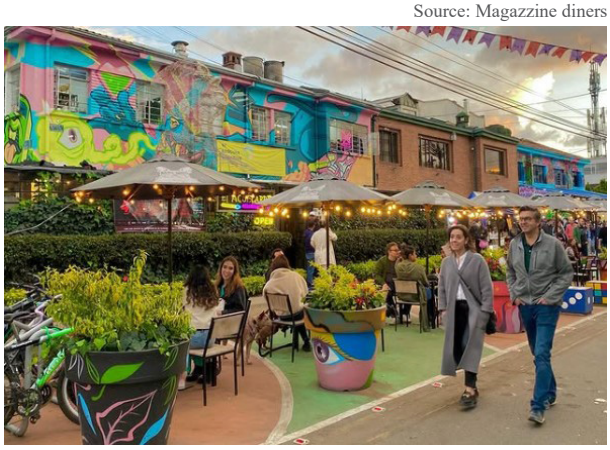


Fig. 40 After tactical urbanism strategies.

42 Mayor's Office of Bogotá. (2022). A*dministración Distrital hizo entrega de primer Barrio Vital de Bogotá*. Bogotá.gov.co. Retrieved from https://bogota.gov.co/mi-ciudad/movilidad/administracion-distrital-hizo-entrega-de-primer-barrio-vital-de-bogota

2.4 PUBLIC SPACE RESTORATION

Project Name: “El Patrimonio Se Luce” [43].
Year: 2021.
Architect: Secretariat of Culture, Recreation and Sports.

A program by the Mayor’s Office of Bogotá, led by the Secretariat of Culture, Recreation and Sports, in collaboration with the District Institute of Cultural Heritage (IDPC). Its main goal is to highlight, recover, and activate the city’s cultural heritage in bogota, but mainly in the historical city center, through physical interventions, cultural activities, and participatory processes with local communities.

The interventions include facade restorations, improved lighting, signage, and urban furniture, which help consolidate and promote the appropriation of cultural heritage as a collective asset, as well as its conservation and sustainability. Prioritizing the restoration of facades, which are a fundamental part of the built cultural heritage and of the historic landscapes that define the streets of Bogotá. For this reason, they deserve to be preserved and cared for so they can continue to be, for many years to come, a part of the city’s history.

Source: District Institute of Cultural Heritage

Fig. 41 Intervention´s plan.

Source: District Institute of Cultural Heritage

Fig. 42 Before and after restoration facades in the historical city center.

43 Mayor’s Office of Bogotá. (2018). *Programa ‘Patrimonio se luce’ ha recuperado 1.400 fachadas patrimoniales*. Bogotá.gov.co. Retrieved from https://bogota.gov.co/mi-ciudad/cultura-recreacion-y-deporte/patrimonio-se-luce-en-bogota

2.5 PUBLIC SPACE REMENDATION

Project Name: Avene "La septima" [44].
Year: 2019.
Architect: Consorcio PV Avenida Jiménez.

This avenue is a vital artery, a symbolic and historical road. However, due to rapid population growth, it has led to problems such as the intensification and unorganized placement of street vendors, insecurity, limitations in pedestrian circulation, and congestion of both vehicular traffic and public transportation.

Therefore, in response to urban mobility issues, the Bogotá city government decided to pedestrianize "La Séptima". which will create better conditions for pedestrians and greater opportunities for formal and informal vendors. This will strengthen and highlight the historical significance of the street, while also promoting environments free from high levels of noise, pollution, stress, disorder, or insecurity for pedestrians.

This pedestrianization is an intervention that does not erase the original value of the space but rather reinterprets and redefines it through actions that preserve its role as a connector and meeting point, while adapting it to current needs for mobility, safety, and citizen well-being.

Source: District Secretariat of Mobility

Fig. 43 Intervention plan.

Source: Google maps

Fig. 44 Before with vehicular congestion.

Source: Google maps

Fig. 45 After with strategie to promote sustainable mobility.

44 Mayor's Office of Bogotá. (2019). *Peatonalización de la carrera Séptima*. Bogotá.gov.co. Retrieved from https://bogota.gov.co/asi-vamos/peatonalizacion-de-la-carrera-septima

2.6 PUBLIC SPACE RECONFIGURATION

Project Name: Bronx Creative District [45].
Year: 2025.
Architect: District Planning Secretariat.

Located in the Bronx neighborhood, formerly known as a hub of crime. It was home to drug trafficking gangs, criminal activity, and sexual exploitation just a few meters from Bogotá's City Hall and the Presidential Palace.

The city administration demolished the existing buildings in 2016. this intervention makes possible reconfigurate the neighborhood. As a proposal for the sector's rebirth, a creative district is envisioned, one that will boost the cultural economy, inclusion, creativity, and the construction of social fabric through a project with a series of facilities and public spaces designed to revitalize the area and turn it into a new attraction node within the city.

This urban intervention embodies the principles of reconfiguration by transforming a space once marked by conflict into a creative district, not only altering its physical form, but also reinventing its function and meaning. This fosters new forms of coexistence, turning the urban space into an active tool for building social fabric.

Source: District Planning Secretariat

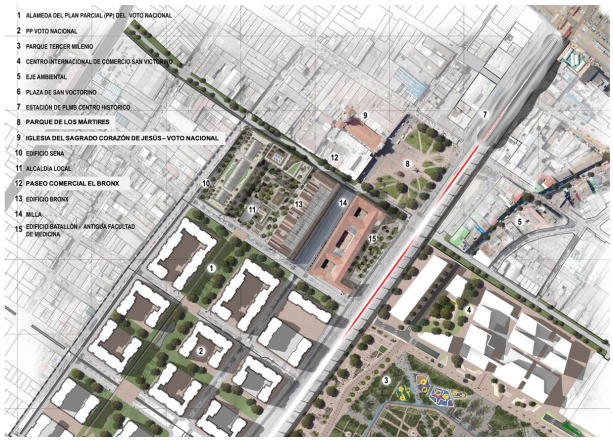


Fig. 46 Masterplan Bronx intervention.

Source: Magazzine La semana

Fig. 47 Before bronx with unsafety public streets.

Source: District Planning Secretariat

Fig. 48 After with the revitalization of the public space.

45 Mayor's Office of Bogotá. (2019). *El sector del Bronx se transforma en el primer Distrito Creativo de Colombia*. Bogotá.gov.co. Retrieved from https://bogota.gov.co/asi-vamos/obras/bronx-distrito-creativo

2.7 HEALTY URBANISM

Project Name: Bio-healty parks [46].
Year: 2016.
Architect: District Institute of Recreation and Sport.

The district government presented to the community "More Active Bogotá" a Public Policy on Sports, Recreation, and Physical Activity, which focuses its efforts on improving and increasing the levels of sports, recreation, and physical activity among the residents of Bogotá. At the same time, it aims to contribute to the city's development and to the improvement of its inhabitants' quality of life, based on five main objectives: Increase participation, Strengthen institutional capacity, Expand education and training, Optimize information and communication, and Improve parks, venues, and public spaces.

The initiative that gave rise to the Bio-Healthy Parks project aimed to allow all people to permanently and freely use specialized equipment that promotes the use of free time and the practice of sports. This strategy has been implemented in various parks throughout the city and includes equipment suitable for warm-ups, cardiovascular exercise, and stretching, all designed to strengthen the physical and mental health, as well as the overall well-being, of Bogotá's residents.

The Bio-Healthy Parks initiative recognizes that equitable access to quality public spaces, such as parks and walkable environments, significantly improves the physical and mental health of all population groups. By integrating urban planning with public health, it becomes possible to reduce diseases associated with sedentary lifestyles, improve air quality, strengthen social bonds, and promote a more just, active, and healthy city.

Source: Google maps

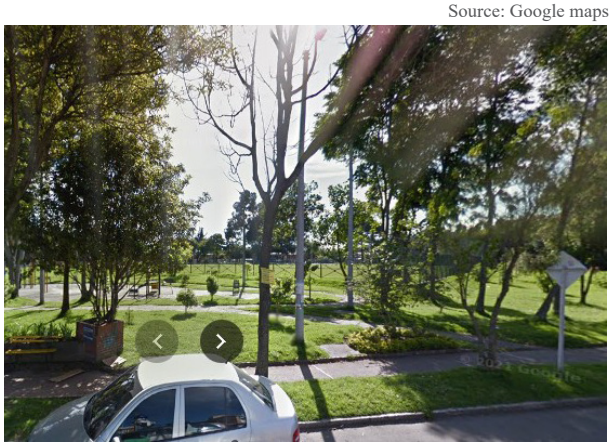


Fig. 49 Before the intervention park "La esmeralda"

Source: Google maps

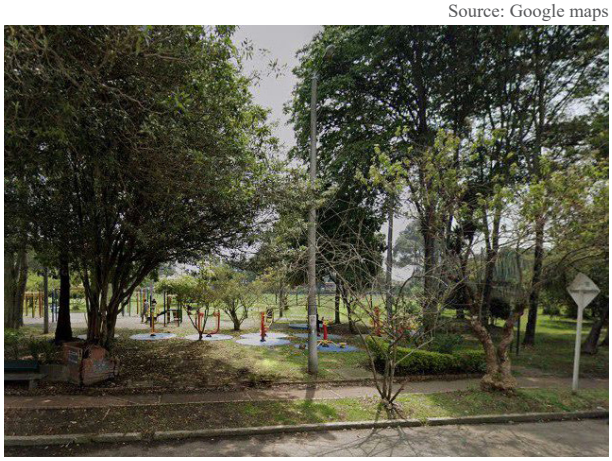


Fig. 50 After intervention park "La esmeralda"

46 Ministry of Culture, Recreation and Sport. (2009). *Política pública de deporte, recreación y actividad física para Bogotá 2009-2019* ("Bogotá más activa")

2.8 ACUSTIC AND THERMAL COMFORT

Project Name: Library Virgilio Barco [47].
Year: 2001.
Architect: Rogelio Salmona.

In the locality of Teusaquillo, on a triangular lot bordered by Calle 63, Carrera 60, and Transversal 59, the Virgilio Barco Library was established. It has been declared a National Cultural Heritage site and was the winner of the II Bogotá Public Space Biennial in 2021.

A project in which the architect decided to create a place that evokes nature within the dense city, generating the illusion of being far from the asphalt, the noise of the surrounding avenues, and pollution, while it is still surrounded by them. To achieve this, the architect designed slopes of various sizes and shapes, which helped shape the organic form of the cobblestone paths, plazas, and covered spaces.

It is important to highlight the crucial role that the slopes played as design elements not only did they hide the urban profile and frame the Eastern Hills, but they also served as natural acoustic micro-barriers, interrupting the spread of urban noise from the main sources: the roads.

Moreover, the creation of the level differences formed by the slopes allowed the architect to incorporate reflecting pools, which serve the functions of cooling, absorbing urban pollution and help to reflect natural light into the interior areas of the project and some vegetation and cover zones to provide shadow in the sunny days.

Source: Fundación Rogelio Salmona

Fig. 51 Trees as acustic barrier.

Source: Ministry of Culture, Recreation and Sport

Fig. 52 Slopes as acustic barriers.

Source: Ministry of Culture, Recreation and Sport

Fig. 53 Reflecting pools and permeable surfaces for thermal comfort.

47 Departamento Administrativo de la Defensoría del Espacio Público (DADEP). (2021). *II Bienal de Espacio Público de Bogotá 2021: Espacios de vida, sitios de encuentro*

2.9 VISUAL AND THERMAL COMFORT

Project Name: Atrio Cultural Center [48].
Year: 2025.
Architect: Rogers Stirk Harbour + Partners and Mazzanti team.

Strategic urban revitalization project located in the center of Bogotá, at the intersection of Caracas and El Dorado avenues, the point where the headquarters of many of the country's most prominent companies converge. A project of two skyscrapers connected through a large public space that occupies two-thirds of the project site (10,000 m²).

A large open spaces for public use with the aim of creating inclusive, vibrant, connected, accessible, and functional environments for the community. To achieve a sensory and immersive experience of the surroundings, natural elements were incorporated to enhance the environment, surface materials were selected to ensure accessibility and functionality, and urban furniture was installed to promote vitality and active use of the public space.

Another key design strategy of the project focuses on lighting, a dynamic component of the urban landscape. It aims to merge functionality, urbanism, safety, and a sense of belonging through the efficient distribution of light at the building entrances and along the main street, which enhances the accessibility and functionality of the spaces. Ambient lighting is prioritized to create safe environments for pedestrians, while strategic lighting highlights key areas such as landmarks or structures are providing to promote a visual identity and a sense of place, enriching the nighttime experience.

Source: Grupo Verde SAS

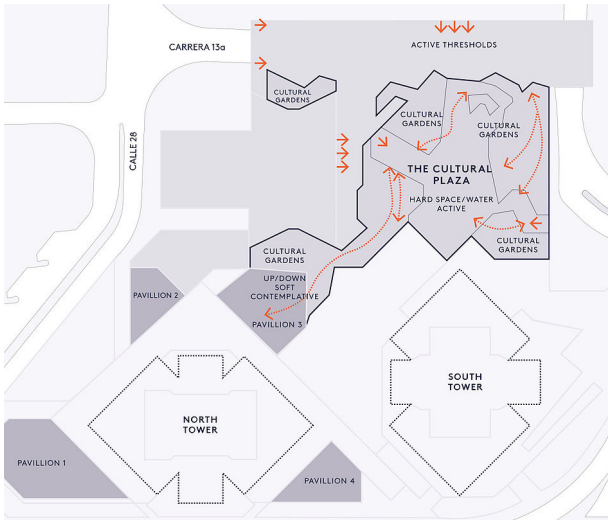


Fig. 54 Ground floor circulation plan.

Source: Grupo Verde SAS

Fig. 55 Lighting strategies.

Source: Grupo Verde SAS

Fig. 56 Social and ambient lighting.

48 Grupo Verde SAS. (2025). *Plazoleta Cultural ATRIO*, Bogotá. Grupo Verde SAS. Retrieved from https://grupoverdeltda.com/portfolio/plazoleta-cultural-atrio/

2.10 URBAN MOBILITY

Project Name: La Gaitana – Un Grito de Libertad, un Camino de Comunidad [49].
Year: 2022.
Architect: District Secretariat of Government.

In the locality of Suba, in the neighborhood of La Gaitana, an agreement was made between informal vendors in the area and the District to revitalize public space and improve conditions for residents, visitors, and merchants. At the same time, the aim was to address the main issues affecting the sector in terms of mobility and security, without compromising the commercial essence of the area, thereby enhancing the use of public space.

Among the revitalization strategies, one of the measures implemented was the replacement of informal vendors who were previously located on the narrowest streets of the area to a main square that was previously unused in the area. This square features designated zones and uniform street furniture to enhance identity and organization, ensuring that the proper use of public space by citizens is not affected.

Likewise, the streets were redesigned with appropriate lanes for cars, public transportation, and cyclists, prioritizing the safety and comfort of pedestrians. Each area was provided with clear paths, helping to promote walkability in the neighborhood, especially for people with disabilities, the elderly, and even children. As a result, a social fabric was created that fosters coexistence among the different users of the street.

Source: District Planning Secretariat

Fig. 57 Designed zones for informal commerce.

Source: Google maps

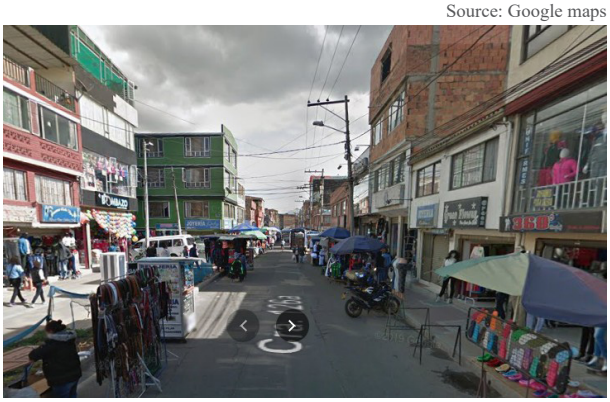


Fig. 58 Congested and desorganizated streets. .

Source: Google maps

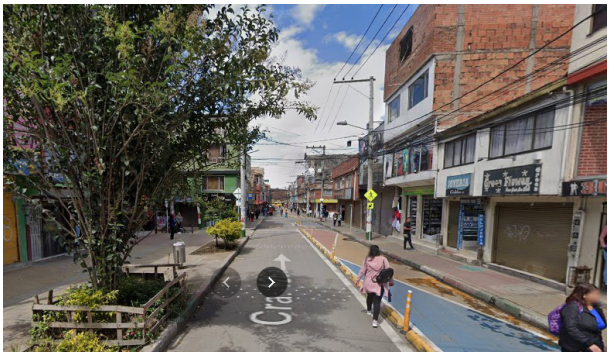


Fig. 59 After with proper street lines designed.

49 Departamento Administrativo de la Defensoría del Espacio Público (DADEP). (2021). *II Bienal de Espacio Público de Bogotá 2021: Espacios de vida, sitios de encuentro*

3. GUIDELINES DERIVED FROM THEORETICAL AND CASE STUDY ANALYSIS

This presents the process of formulating urban design criteria, based on the key concepts established in the theoretical framework. This process was developed through a methodological comparison exercise that involved reviewing and analyzing international case studies and comparing them with local cases of similar characteristics. The aim of this comparison was twofold: on the one hand, to identify how theoretical principles are materialized in diverse contexts, and on the other, to extract lessons applicable to the specific context of the project.

The strategy consisted of breaking down each concept from the theoretical framework and examining how it is manifested in concrete reference experiences. In the international cases, the focus was on identifying innovative approaches, spatial solutions, and urban integration strategies that could be adapted to different realities. In contrast, the analysis of local cases focused on understanding the responses to specific issues and conditions of the socio-cultural, regulatory, and physical environment, evaluating their strengths and limitations.

This contrasting exercise made it possible to identify similarities, differences, and gaps between theory and practice, as well as between the solutions applied in global contexts and those implemented in the local sphere. Based on these observations, urban design criteria were defined that are not only supported by solid theoretical foundations but have also been filtered and adjusted according to the particularities of the intervention site.

3.1 URBAN SUSTAINABILITY

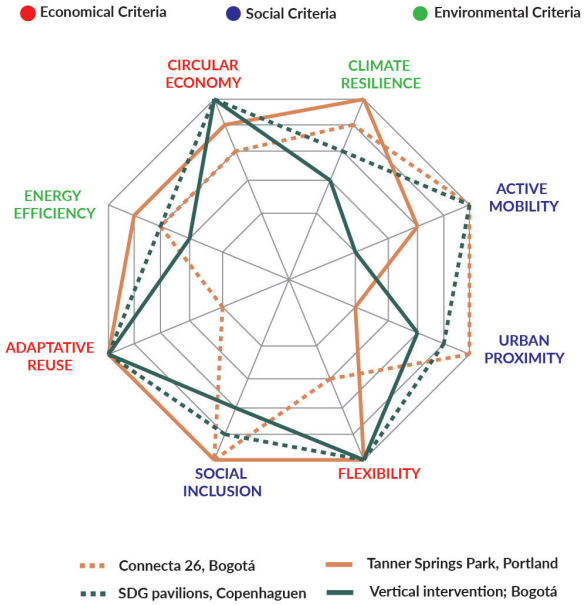


Fig. 60 Comparison of the case studies based on sustainable urban design criteria, using a qualitative scale from 1 to 5, where: 1 indicates that the criterion is not implemented, 2 that the implementation is minimal, 3 that the implementation is partial, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive

The theory proposes urban design criteria to address climate change and promote sustainable, resilient, equitable, and low-carbon cities such as active mobility, urban proximity, flexibility, social inclusion, adaptative reuse, energy efficiency, circular economy and climate resilience.

The case study of Tanner Springs Park in Portland promotes active mobility using elevated walkways. However, it could be improved by implementing strategies for other low-carbon modes of transportation beyond just pedestrian mobility. While it does not fully promote the concept of a complete neighborhood, it provides a green space to a neighborhood lacking such areas, offering wide and flexible open spaces that allow users to engage in recreational, social, or cultural activities according to their needs, which inherently also fosters social inclusion. The adaptive reuse and circular economy principles are reflected in the use of old train tracks for the wavy wall and the incorporation of local materials. Finally, regarding energy efficiency and climate resilience, the project integrates a rainwater retention system designed to prevent flooding and to irrigate the plants, helping to mitigate one of Portland's climate challenges: heavy rainfall.

In the same way, there is the Connecta 26 project in Bogotá, which promotes active mobility through pathways designed for both pedestrians and cyclists, while limiting vehicle access to the complex and implementing free bicycle rental initiatives. The complete neighborhood concept is fully integrated, with a variety of activities and uses on the ground floors of the complex, creating outdoor community spaces that foster social inclusion. To address energy demand, self-irrigating gardens and water-saving systems have been implemented. Additionally, construction materials are reused, and permeable local materials are employed to promote the circular economy and help mitigate climate risks such as the urban heat island effect.

On the other hand, The SDG Pavilions in Copenhagen promote urban proximity and active mobility, spreading throughout the city the pavilions which encourage exploration on foot,

flexibility, cicular economy, energy efficiency and adaptive reuse is visible in the modular structures that are highly adaptive and helps to reduce de co2 footprint since use recycle materials and are designed for disassembly and promote social inclusion placing the pavilions in accessible areas.

In the case of the Vertical activation La Perseverancia Market square in bogota, promotes flexibility and urban adaptability through its modular structures, which triple the seating capacity by using vertical space. Adaptive reuse and circular economy are evident in the use of the recycled or donated materials, while social inclusion is fostered by creating an accessible public space that benefits both visitors and vendors. Urban proximity and active mobility are enhanced by the market's central location, encouraging pedestrian access.

The analysis of the case studies shows that, although all projects incorporate principles of urban sustainability, each applies them with different emphasis depending on its context and objectives. Overall, these projects demonstrate that urban sustainability is achieved through a combination of social, economic, and environmental criteria, although each has a different focus according to the specific needs of its urban context. In the case of Tanner Springs Park in Portland, the focus is environmental, as it stands out for its climate resilience against heavy rainfall. Connecta 26 in Bogotá achieves a more comprehensive approach; however, its environmental focus is particularly notable, combining active mobility with bike lanes and shared bicycles, along with strategies for energy efficiency and climate risk mitigation. Meanwhile, the SDG Pavilions in Copenhagen and the Vertical Activation La Perseverancia Market Square in Bogotá showcase innovative solutions with a stronger economic focus, based on modularity, adaptability, and the use of recycled materials.

3.2 TACTICAL URBANISM

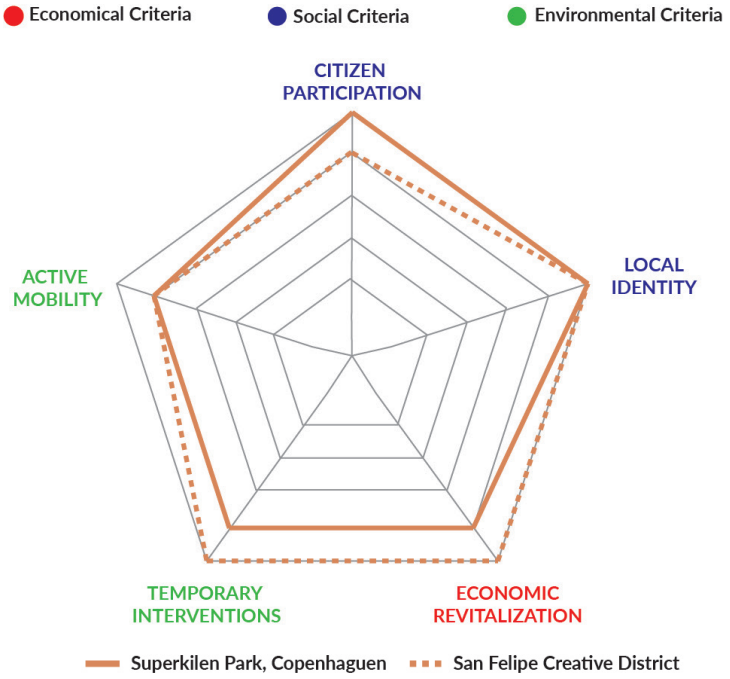


Fig. 61 Comparison of the case studies based on tactical urban design criteria, using a qualitative scale from 1 to 5, where: 1 indicates that it is not implemented, 2 that the implementation is minimal, 3 that it is partially implemented, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive.

This low-cost urbanism model quickly and participatively transforms public space to improve people's quality of life by applying urban design principles such as citizen participation, temporary interventions, active mobility, economic revitalization, and local identity.

In the case of the project in Copenhagen, Superkilen Park promoted citizen participation and local identity from the early design stages by incorporating abstract urban art with cultural elements from each of the residents into the public space, thus giving the area a unique and multicultural character in which they are also represented. The project included temporary interventions through pop-up events that activate the space with ephemeral markets or fairs, contributing to the economic revitalization of the neighborhood. Likewise, active mobility is encouraged with bike lanes running along the different plazas, along with the creation of safe squares for children and pedestrians by restricting access to private vehicles.

In the case of the San Felipe Creative District in Bogotá, citizen participation was not present in the early stages of urban design but was gradually incorporated and strengthened as the intervention process advanced through fairs, exhibitions, and artistic and cultural performances, which helped reinforce the essence and identity of the neighborhood. Active mobility was promoted through the implementation of bike lanes, safe intersections, pedestrian zones, and, additionally, temporary interventions with urban furniture and colorful markings on streets and facades, all of which contributed to the economic revitalization of the area.

The analysis of the cases of Superkilen Park in Copenhagen and the San Felipe Creative District in Bogotá shows that both projects incorporate social, economic, and mobility-related criteria. However, in the case of Superkilen Park, citizen participation and the integration of local identity from the early design stages highlight its social focus, whereas in San Felipe, the gradual economic revitalization through fairs, exhibitions, and cultural activities emphasizes its economic focus.

3.3 RESILIEN URBANISM

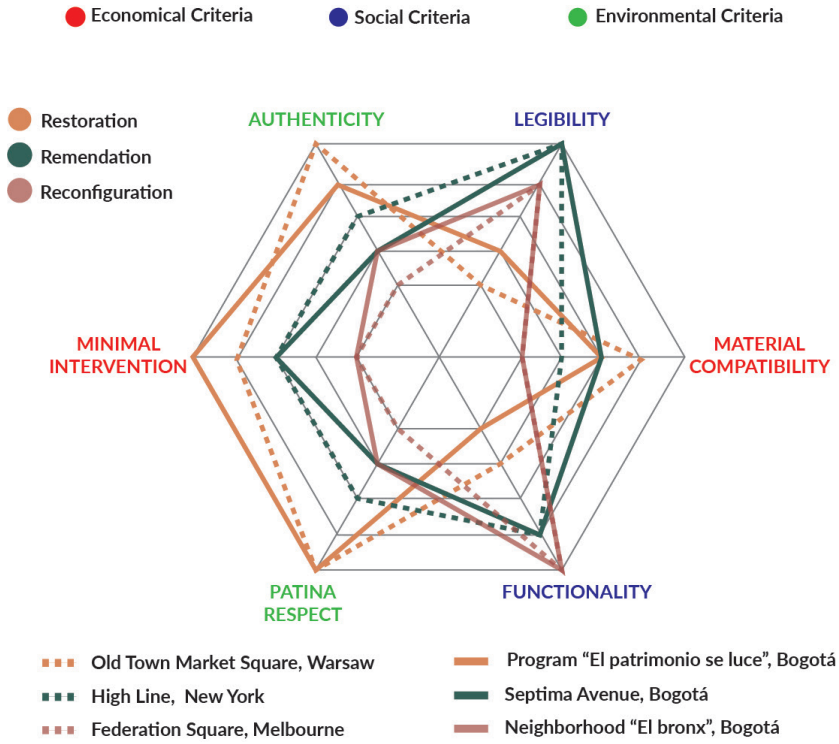


Fig. 62 Comparison of the case studies based on the criteria for resilient urban design, using a qualitative scale from 1 to 5, where: 1 indicates that it is not implemented, 2 that the implementation is minimal, 3 that it is partially implemented, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive.

This ethical-urban model acknowledges the complexity of urban life and the relationship between building and dwelling. It rethinks urban complexity by addressing how cities are designed and lived through restoration, remendation, or reconfiguration. Each of these approaches applies shared design criteria such as authenticity, minimal intervention, legibility, material compatibility, functionality, and respect for patina. However, the priority of these criteria varies depending on the specific approach.

In the restoration, the Old Town Market Square project in Warsaw, from the early stages, the authenticity and respect were applied in general rebuild, using historical plans, photographs, and testimonies to ensure an accurate restoration of colors, shapes, and materials, preserving the site's historical essence. The reconstruction intervention was rilevant, as the main objective was to recreate the image and functionality of the original project faithfully. This resulted in a blurred legibility, where it is difficult to distinguish between the new and the old, due to the use of traditional materials applied with contemporary techniques. Differently, in Bogotá, the façade restoration program "El Patrimonio se Luce" implements material compatibility and respect for the patina through minimal interventions to ensure the conservation and historical value of the place. Although the project seeks authenticity, changing the color of the façades to bring more vibrancy and security to the area, where legibility does not distinguish between what is original and what is new. Both case studies prioritize the design criteria of minimum intervention, authenticity, and respect of the patina, trying to make the intervention invisible.

In remediation, the intervention aims to be visible without losing the essence of the place. This is the case of the High Line in New York, where material compatibility was not fully applied in order to highlight the contrast between the old and the new, thus enhancing legibility. The intervention was partially minimal, as elements like the old railway tracks were preserved, but gardens, furniture, stairs, ramps, and resting

areas were added to optimize the use of space. This altered the authenticity of the project, since the functionality of the arterial route was transformed from public transportation to pedestrian use. It should be considered that for the High Land not only has the character of the railway been altered but the architectural and environmental context has completely changed.

Another example is the project on Séptima Avenue in Bogotá, where there was no element compatibility in order to highlight the legibility between the new and the old. Authenticity and respect for the patina were not considered, since the character of the avenue was altered. As a result, the intervention was partially minimal, since the functionality of the space remained but focused on the pedestrian circulation. In both case studies is prioritized the criteria of legibility.

In reconfiguration, the goal is to transform both the form and the function of the space. This is evident in the case of Federation Square in Melbourne, where the demolition of previous railway structures completely redefined the space's functionality, turning it into an area for socialization and recreation. As it was not a minimal intervention, there is no material compatibility, respect for patina, or authenticity. A similar situation occurred with the Bronx project in Bogotá, which also lacks authenticity, minimal intervention, material compatibility, and respect for patina, as the entire original block was demolished to revitalize the sector with a new function that brings life to the area. In both case studies, functionality is clearly the prevailing design criterion.

The analysis of restoration, remediation, and reconfiguration projects shows how the focus of design criteria varies depending on the type of intervention and the urban context. In the cases of Old Town Market Square in Warsaw and the "El Patrimonio se Luce" program in Bogotá, the environmental focus predominates, as both prioritize respect for patina and minimal intervention to preserve the historical and material value of the site. On the other hand, in remediation interventions such as the High Line in New York, Federation Square in Melbourne, and the Bronx project in Bogotá, the social focus is more prominent, highlighting legibility, functionality, and the transformation of spaces to encourage interaction and community recreation. Finally, in Séptima Avenue, although functionality is maintained, the economic focus predominates, prioritizing the reorganization of space and the optimization of urban use.

3.4 HEALTY URBANISM

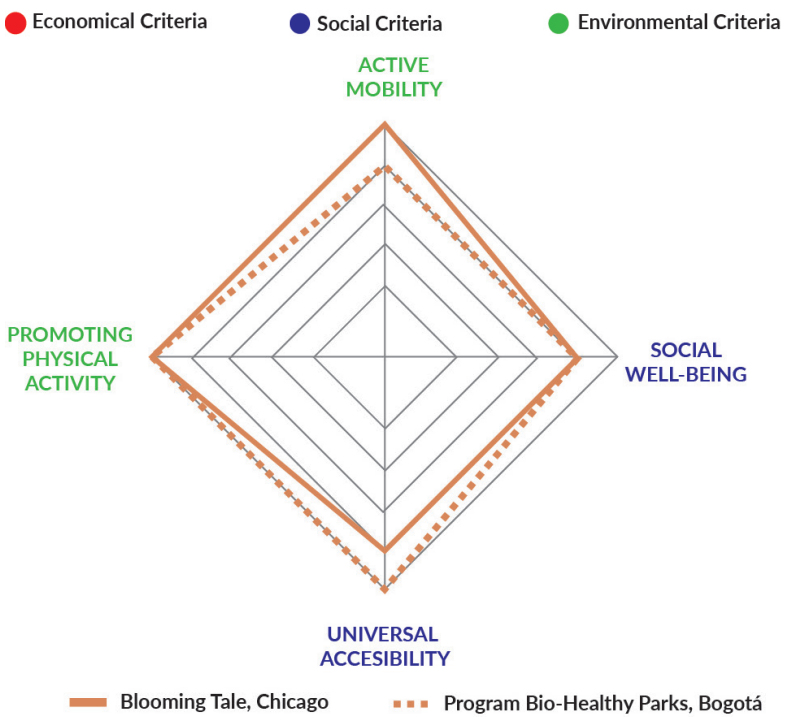


Fig. 63 Comparison of the case studies based on healthy urban design criteria, using a qualitative scale from 1 to 5, where: 1 indicates that it is not implemented, 2 that the implementation is minimal, 3 that it is partially implemented, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive.

The main goal of healthy urbanism is to highlight the relationship between physical and social well-being and the urban environment in which people live, aiming to positively impact their quality of life. This is achieved by applying urban design criteria such as promoting physical activity, social well-being, universal accessibility, and active mobility, all of which would contribute significantly to building healthier lives.

The Blooming Tale project in Chicago promotes physical activity through the design of a 4.3 km pedestrian corridor. It encourages social well-being by incorporating green rest areas for social recreation. Universal accessibility is addressed through the provision of access ramps; however, it lacks inclusive elements for people with visual impairments. For active mobility, the project includes clearly marked and safe lanes for both cyclists and pedestrians. Similarly, the Bio-Healthy Parks project in Bogotá promotes physical activity and social well-being through the implementation of public sports spaces. Universal accessibility is reflected in the selection of exercise machines suitable for different age groups and physical conditions. Active mobility is partially addressed by the strategic placement of sports areas in each neighborhood to encourage walking.

The analysis of the projects shows that both intervene in urban space to improve users' quality of life through the promotion of physical activity, active mobility, and universal accessibility. In these cases, the social focus predominates, as the interventions primarily aim to foster well-being, community interaction, and the inclusion of different population groups. Although active mobility has indirect environmental benefits and accessibility can generate certain economic impacts, the central axis of these projects is clearly social, focused on creating spaces that contribute to the health and cohesion of the community.

3.5 URBAN COMFORT

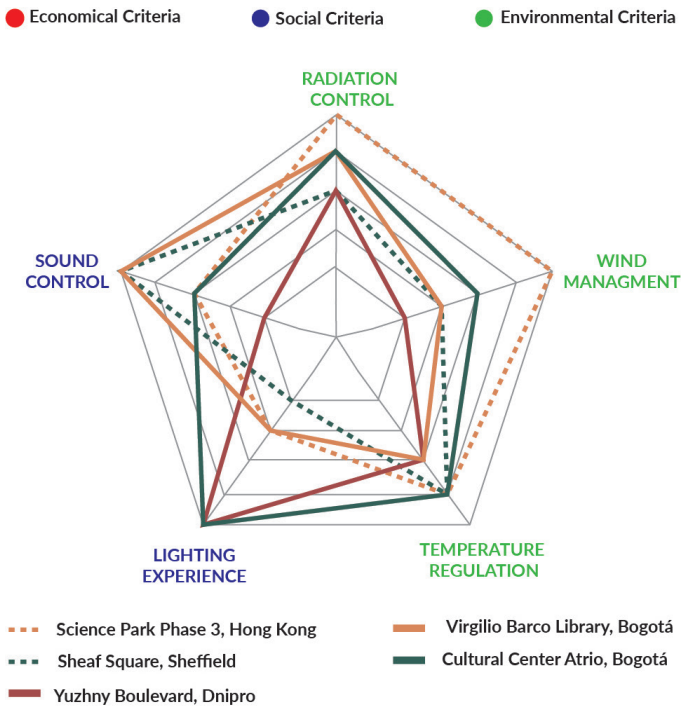


Fig. 64 Comparison of the case studies based on comfortable urban design criteria, using a qualitative scale from 1 to 5, where: 1 indicates that it is not implemented, 2 that the implementation is minimal, 3 that it is partially implemented, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive.

Analyzing and combining physical-climatic aspects with social and environmental factors in an integrated manner is essential to ensure comfortable and sustainable public spaces. In order to maximize their use, it is crucial to implement design criteria such as radiation control, wind management, temperature regulation, sound control, and lighting experience.

The Science Park project in Hong Kong controls solar radiation by using reflective colors like white and incorporating green areas on surfaces, which also help regulate temperature. Wind is managed by arranging the buildings in a U-shape, facilitating natural cross-ventilation. The sound environment is controlled by incorporating tree barriers and distancing public spaces from noise sources. However, regarding daytime lighting experience, no specific design strategies are proposed to create welcoming atmospheres.

On the other hand, there is Sheaf square controls the sound environment exceptionally well through the use of the large steel sculpture “The Cutting Edge,” which acts as a noise barrier, as well as water features are used to mask traffic noise and create positive sounds. It controls solar radiation, regulates wind and temperature through the implementation blue infrastructure. However, its weakness lies in visual comfort, as it does not incorporate any lighting design criteria beyond the merely functional and minimal requirements of a public space.

the Virgilio Barco Library in Bogotá controls solar radiation and regulates temperature through the use of vegetation, water features, and high-albedo materials. It manages the sound environment by using embankments as acoustic barriers and fountains to mask noise. In terms of lighting experience, the project proposes warm lighting for the nearby heritage building, decorative cool lighting on some of the water features, and spotlights placed along certain

Unlike the previous cases, the Yuzhny Boulevard in Dnipro incorporates lighting experience from the early design stages, featuring water elements illuminated decoratively, sculptures highlighted with warm lighting to emphasize historical significance, and façades and urban furniture lit in a decorative manner to create a welcoming social atmosphere. Solar radiation is controlled, and temperature is regulated through the use of permeable materials and vegetation. Sound control is not necessary due to the project's location.

The Atrio project in Bogotá addresses all aspects of public space comfort comprehensively. It controls radiation and regulates temperature using trees, pergolas, eaves, and overhangs. Wind is managed by channeling the strong mountain winds through the urban morphology. The sound environment is controlled by promoting bicycle use and incorporating vegetation as a sound barrier. Regarding lighting experience, the project features decorative lighting on urban furniture, accent lighting along the building's pathways, heritage lighting for the historic stream, and illumination of the innovative structures of the nearby contemporary building.

The analysis of urban comfort projects shows that all aim to implement strategies to control solar radiation, temperature, wind, sound, and lighting, although with different emphasis depending on the context and objectives. In projects such as Science Park in Hong Kong and Sheaf Square, the environmental focus predominates, prioritizing climate and sound regulation through vegetation, blue infrastructure, and physical barriers. In contrast, projects like Yuzhny Boulevard in Dnipro and Atrio in Bogotá stand out for their social focus, as lighting and spatial organization create pleasant, safe, and welcoming experiences for users, fostering interaction and community well-being. The economic dimension is not the main focus in these cases, although some

3.6 URBAN MOBILITY

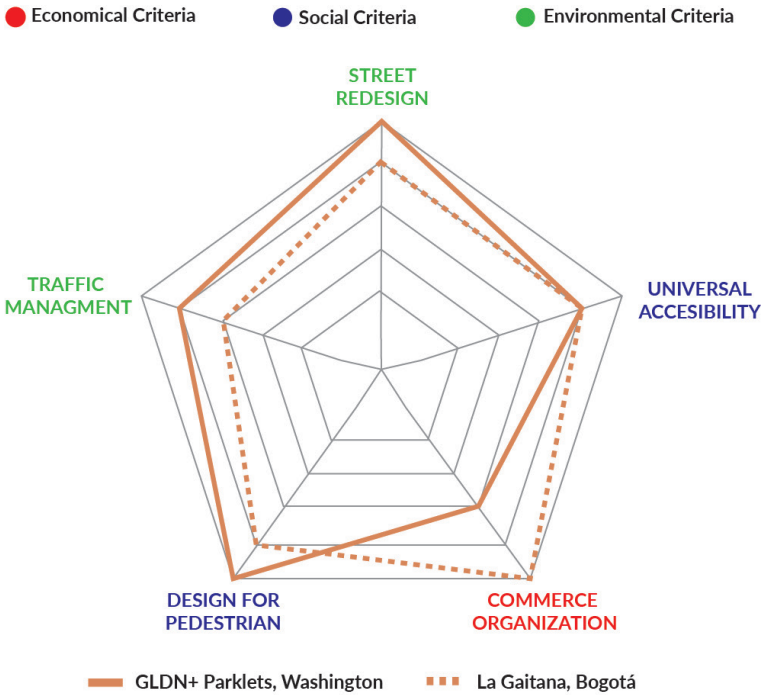


Fig. 65 Comparison of the case studies based on mobility urban design criteria, using a qualitative scale from 1 to 5, where: 1 indicates that it is not implemented, 2 that the implementation is minimal, 3 that it is partially implemented, 4 that the implementation is clear but could be improved, and 5 that the implementation is comprehensive.

Streets should be conceived as public spaces that integrate diverse functions and uses to maximize their potential. For this, design criteria such as street redesign, universal accessibility, organized commerce, design for pedestrians and traffic calming help balance the different needs of those who walk, cycle, drive, or use public transportation.

In the case of the GLDN+ Parklets Project in Washington, the streets were redesigned by reconfiguring lanes, parking areas, and extending sidewalks with platforms. Accessibility is evident through the implementation of ramps and the design of seamless platforms and sidewalks. The project promotes commerce by incorporating furniture and rest areas along the extended side-walks, and it calms traffic by implementing speed bumps.

Similarly, the Gaitana project in Bogotá redesigns the streets by creating a plaza exclusively for informal commerce that previously occupied vehicle and pedestrian lanes, which in turn helps organize informal trade. Accessibility is addressed through clear pedestrian pathways with ramps and safe areas for children. Traffic is calmed by designing clearly defined lanes for both vehicles and cyclists, along with speed bumps near pedestrian zones.

(The analysis of the GLDN+ Parklets project in Washington and the Gaitana project in Bogotá shows that both intervene in streets to improve functionality and the urban experience. In these cases, the social focus predominates, as the interventions primarily aim to ensure accessibility, traffic safety, and the comfort of pedestrians, cyclists, and children. Although strategies for or-ganizing commerce provide economic benefits and street redesign can have indirect environmen-tal impacts by promoting sustainable modes of transportation, the central axis of these projects is oriented toward enhancing interaction, well-being, and the inclusion of users in public space.

PROJECT AREA

III

This chapter will present the selected area for the development of the project, along with its spatial, urban and environmental characteristics. The comprehensive diagnosis will make possible identify the existing dynamics and challenges, as well as the potentials within the context. in order to synthesize, the SWOT tool is applied, which will faciliate the strategic visualization of the factors that influence the site.

1. LOCATION

After providing in the previous chapter a general overview of the city and country where the project will take place, this section will focus more specifically on the location of the intervention area. A diagnosis of the current situation of the area will be carried out to identify both the challenges and the potential it presents, in order to understand the urban dynamics and opportunities of the area to be developed.

1.1 Delimitations

The traditional city center of Bogotá is located in the center-east of the city, within the locality of La Candelaria, very close to the Eastern Hills.

This area constitutes the foundational core of the Colombian capital, where in 1538 Gonzalo Jiménez de Quesada established the first Spanish settlement[50]. Its approximate boundaries are Calle 13 (Avenida Jiménez) to the north, Avenida Caracas to the west, Calle 1 to the south, and the Avenida circunvalar to the east.

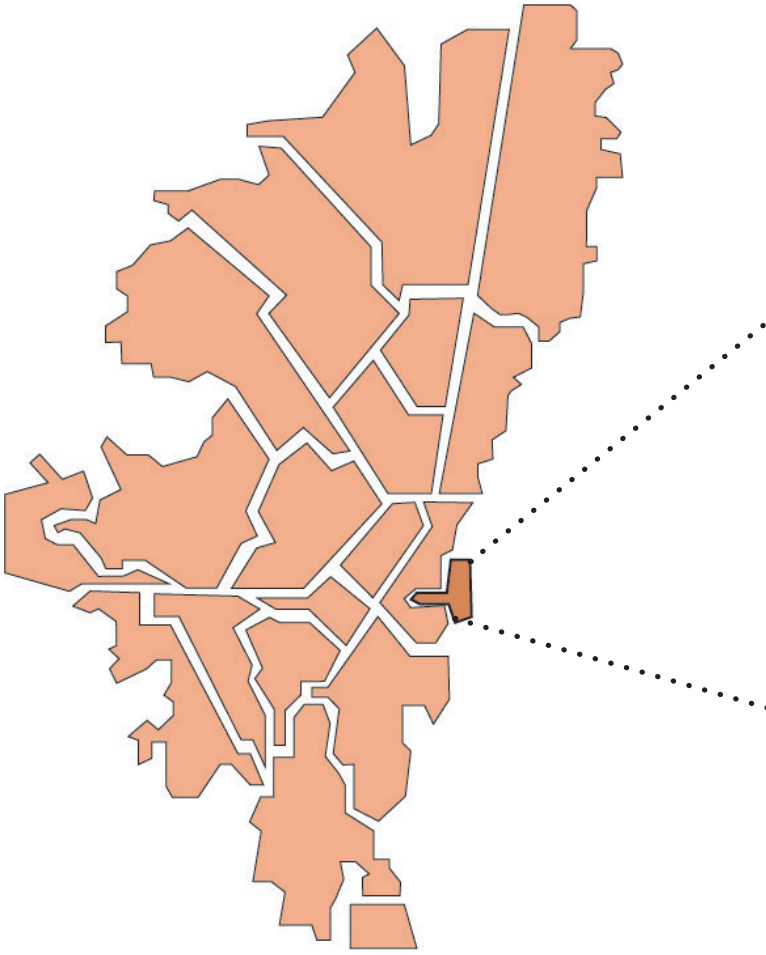


Fig. 66 Location locality “La candelaria” in Bogotá.

50 Instituto Distrital de Patrimonio Cultural. (2015). *PRCT. Revitalization Plan for the Traditional Center of Bogotá* [Digital version]. ISSUU. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc

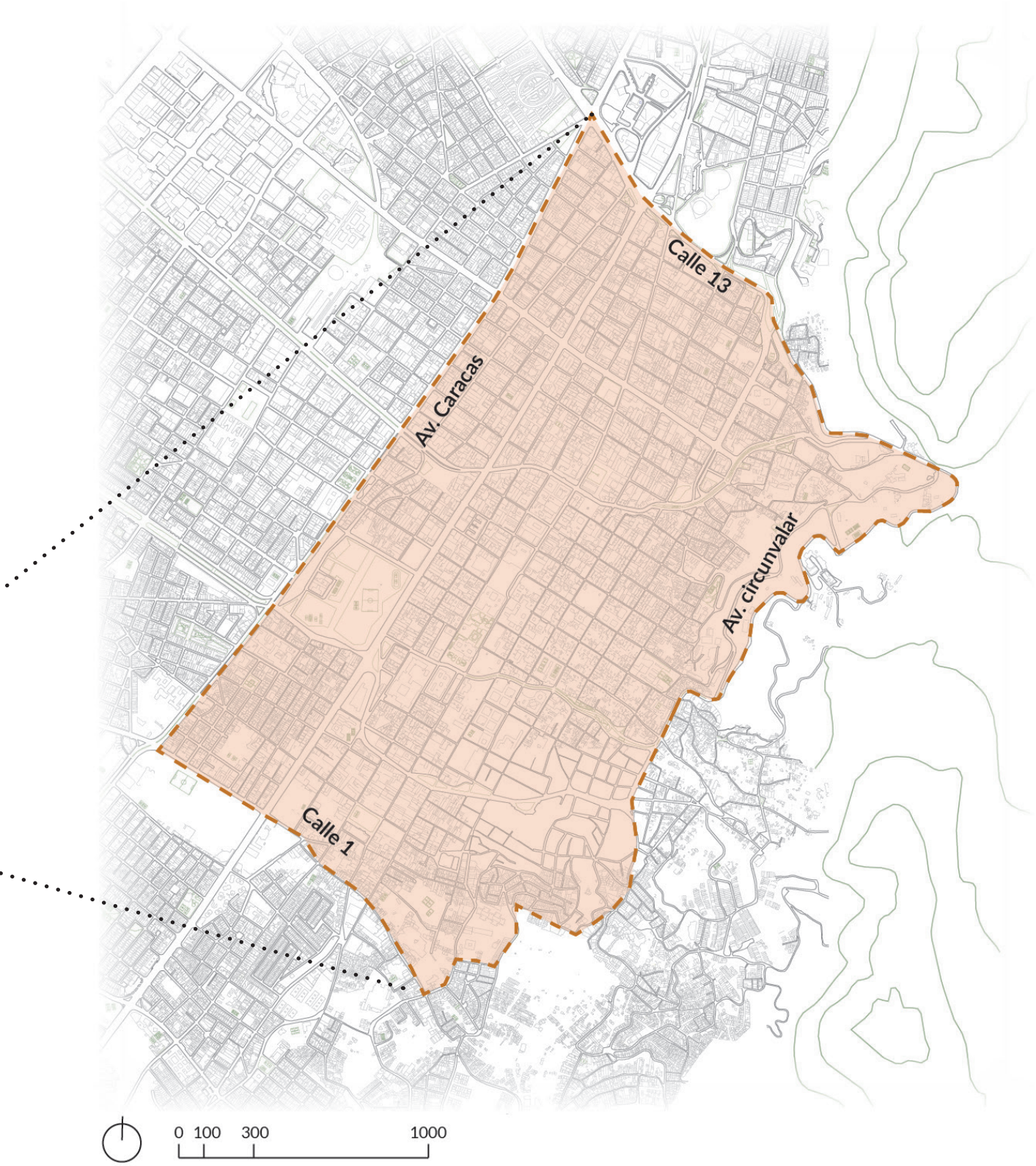


Fig. 67 La candelaria delimitations.

Source: Drawn by the author based on mapas de Bogotá.

1.2 Urban Role of the Traditional City Center in Bogotá

The Traditional Center of Bogotá, as established by the Land Use Plan (Decree 190 of 2004), is considered the main urban centrality of the capital, with an influx of nearly one million daily visitors. Thanks to its articulated urban development, four of the city's most relevant nodes converge here: the cultural, the touristic, the historical, and the commercial.

On the northern edge of the city center is located **the cultural node**, which includes facilities such as La Santamaría, square declared a National Cultural Heritage site[50], the La plaza de Toros, Las Torres del Parque, the District Planetarium, the National Museum, the Colombian Society of Architects, the Museum of Modern Art, and the National Library. These attract both national and international visitors interested in Bogotá's cultural offerings, generating not only economic opportunities but also a strong sense of cultural identity.

This node connects through the pedestrianized Seventh Avenue to the east of the historic center with **the touristic node**, home to the most ancient and significant square in Bogotá's history: "El Chorro de Quevedo." This was the site of the military settlement of the city's founder, Gonzalo Jiménez de Quesada[51], and is thus one of the main tourist attractions, carefully preserved by the District Planning Department, which seeks to maintain the sensory and cultural richness of its streets. This node enhances its national and international appeal through the sale of traditional food and crafts, its proximity to hotels, traditional markets, churches, and museums, and its privileged views of the hills thanks to the street grid.

At the same time, the Seventh Avenue connects the two aforementioned nodes with the node located in the southern part of the city center: **the historical node**. This area is home to some of the oldest and most significant urban, architectural, and cultural landmarks in the capital, such as the Primatial Cathedral, the Palace of Justice, the National Capitol, the Presidential Palace, the Liévano Palace, the Museum of Independence, and most importantly, Simon Bolívar Square. This is the city's main square, historically used for proclamations and celebrations of new Spanish monarchs or viceroys, as well as markets and state funerals. Today, it continues to serve as a site for political, cultural, social, and religious gatherings and has become a node of high symbolic value for both residents and visitors over time.

Lastly, **the commercial node**, located on the western edge of the city center, connects to the other three nodes by the Jiménez Avenue, which crosses Seventh Avenue perpendicularly. This node is one of the most economically and socially dynamic areas in the city, with a high concentration of both formal and informal commercial activities, ranging from La Mariposa Square, through the San Victorino shopping center, to España Square, offering all kinds of goods, from textiles and household items to toys and sweets. It contributes significantly to the local economy[52] due to the high volume of daily transactions.

The combination of its touristic, cultural, historical, and commercial value consolidates the Traditional Center as a vibrant and essential space where the past and present of Bogotá converge.

51 Bogotá Mayor's Office (2019). El Chorro de Quevedo: la maqueta de un mito, un pedestal, un lienzo. Retrieved from https://archivobogota.secretariageneral.gov.co/node/1819

52 Bogotá Mayor's Office. (2025). 'San Victorino is transforming: Bogotá with more organization and public space'. Retrieved from https://bogota.gov.co/mi-ciudad/gobierno/se-transforma-san-victorino-bogota-mas-organizacion-y-espacio-publico

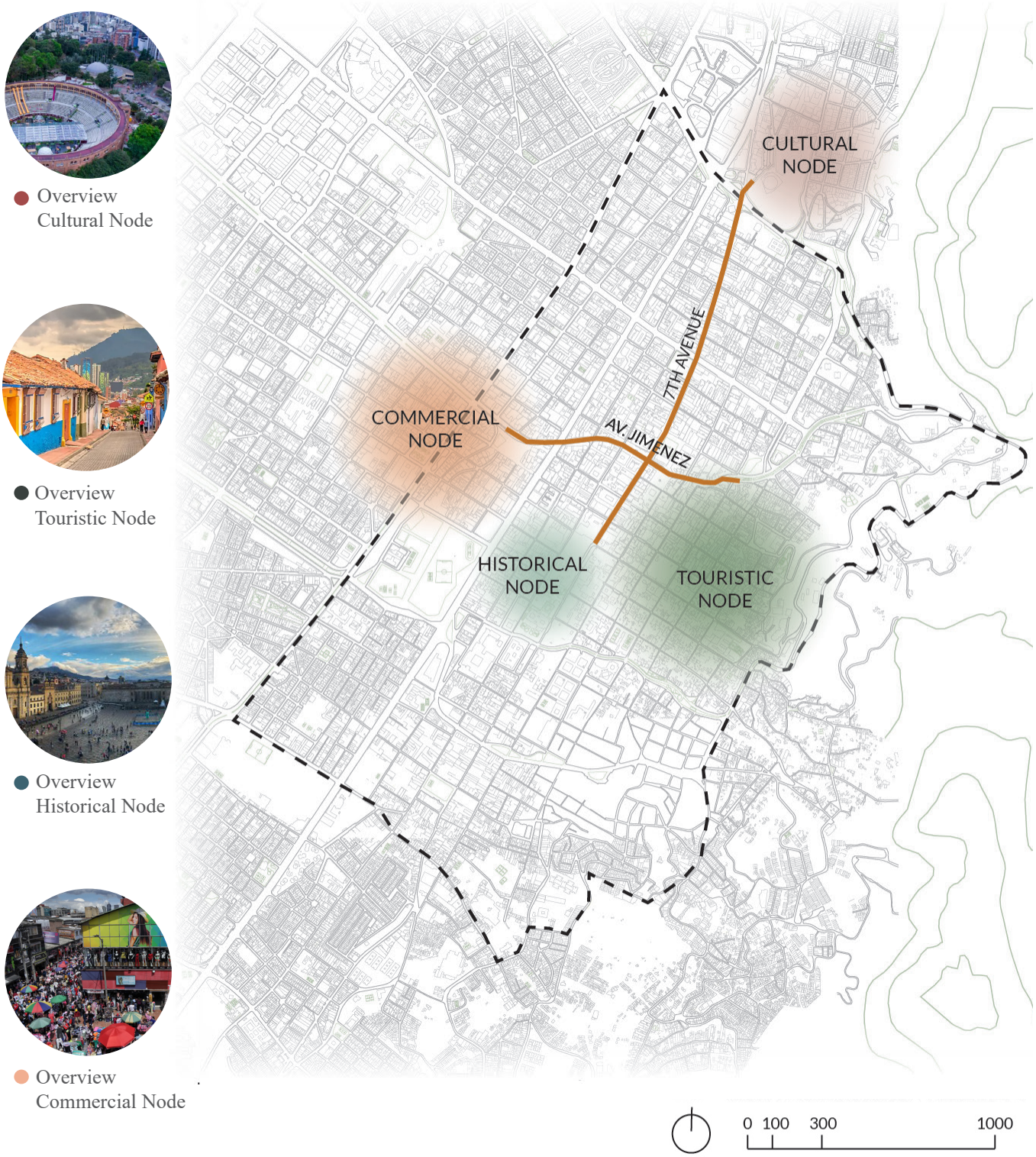


Fig. 68 City center nodes and axis.

Source: Drawn by the author based on Instituto Distrital de Patrimonio Cultural. (2015). *PRCT. Revitalization Plan for the Traditional Center of Bogotá* [Digital version]. ISSUU. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc

2. INTERVENTION SITE

After addressing the configuration and identity of the main nodes that structure the center of Bogotá and contextualizing their value within the city's urban, social, and symbolic dynamics, it becomes necessary to focus attention on one of the sectors with the greatest vitality, intensity of use, and diversity of everyday practices, yet one that simultaneously faces the most complex challenges in terms of public space, mobility, security, and sustainability: **the commercial node**.

This area is bounded by Avenida Jiménez to the north, Carrera 19 to the west, Calle 10 to the south, and Carrera 10 to the east, forming a polygon that hosts a wide range of formal and informal economic activities. It is a space where a large number of urban actors converge: merchants, buyers, street vendors, workers, students, unhoused individuals, national visitors, and tourists. Its centrality is not only geographic but also functional, as it stands as one of the city's main zones for the exchange and transaction of goods and services.

Understanding this commercial node requires more than documenting its physical structure or economic functioning; it demands a critical and integrative perspective to identify its strategic urban role as a living space, full of diverse meanings and forms of civic appropriation.

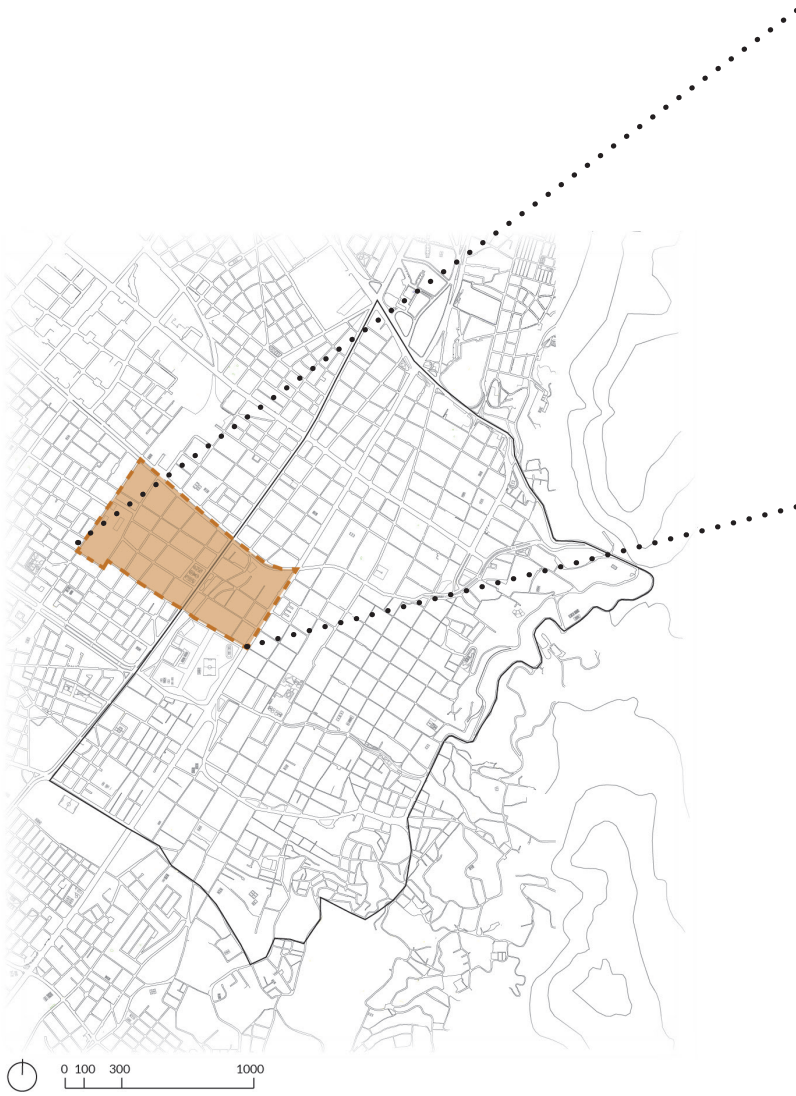


Fig. 69 Location intervention area.

Source: Drawn by the author based on mapas de Bogotá.

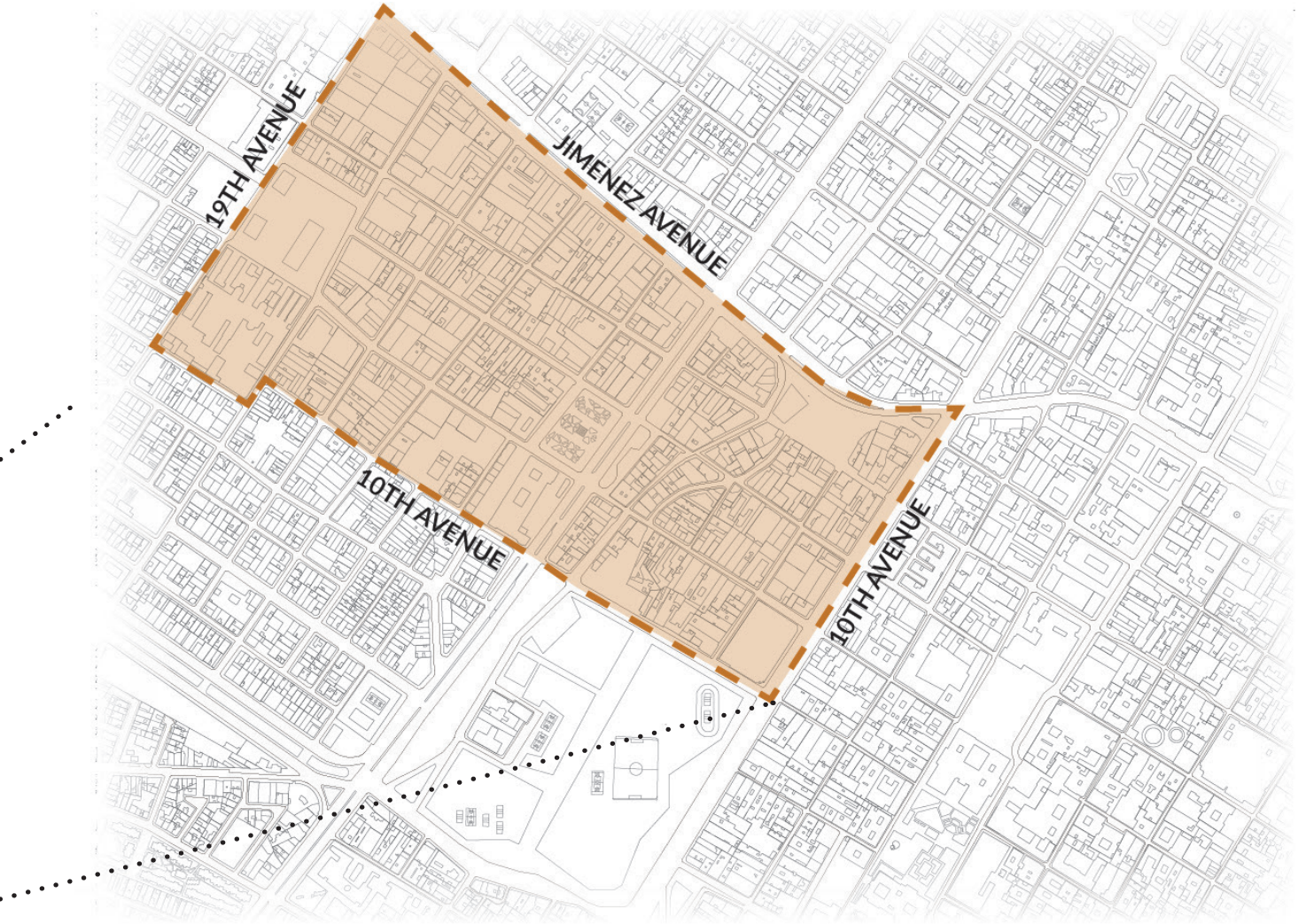


Fig. 70 Delimitations intervention area.

Pedestrian view
Cl. 12 # 10-10

Pedestrian view
Cra. 11 # 10-70

Top view Square
La mariposa

Source: Drawn by the author based on mapas de Bogotá.
Source pictures: Google maps.

2.1 SITE KNOWLEDGE AND DIAGNOSIS

A detailed diagnosis of the study area will be carried out with the purpose of identifying and understanding both the internal and external factors that influence its development, functioning, and potential. This comprehensive analysis will enable the establishment of a solid diagnosis of the Strengths, Opportunities, Weaknesses, and Threats of the commercial node, which is key to formulating the appropriate strategies to strengthen the sector's capabilities and address its challenges.

2.1.1 Architectural Landmarks

The landmarks located within the intervention area primarily respond to a commercial and social logic. Spaces such as La Mariposa Square, the GranSan shopping center, and Plaza de Los Mártires serve as everyday activity nodes that articulate popular commerce, informal, and neighborhood interaction dynamics.

Additionally, within a relatively short radius, there are other landmarks of great symbolic, historical, educational, and cultural value, such as Plaza de Bolívar, the Primatial Cathedral, the Gold Museum, Universidad del Rosario, Chorro de Quevedo, the Bronx Creative District, and the Gabriel García Márquez Cultural Center, among many others. These significantly boost user flows, broadening the spectrum of people who transit and visit the area—from local merchants and shoppers to national and international tourists, students, residents of the historic center, public officials, and cultural users.

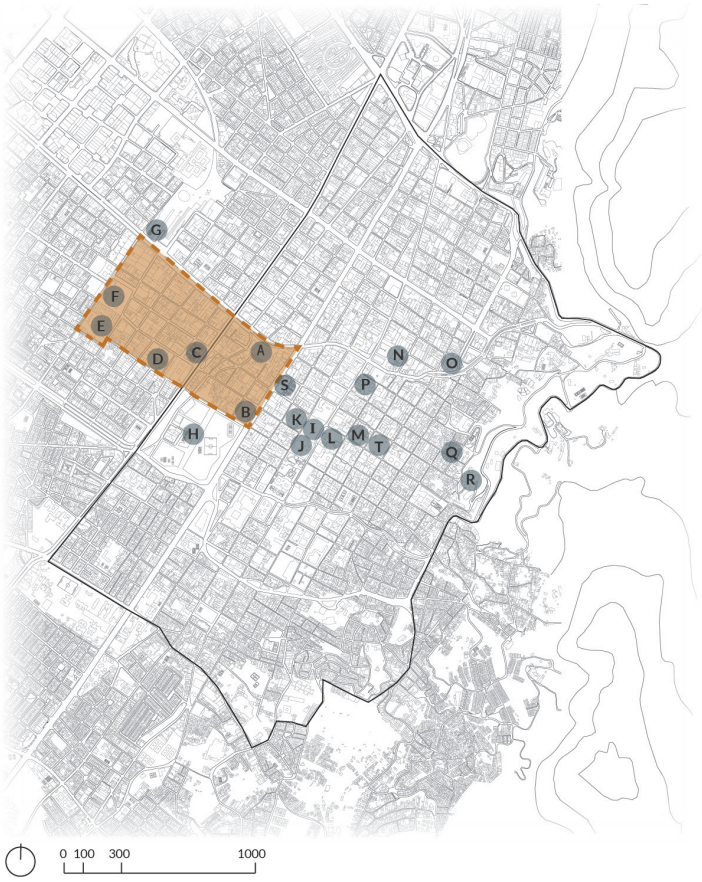


Fig. 71 Landmarks city center

A La mariposa square
B GranSan mall
C Los martires square
D El Bronx creative district
E San jose hospital
F España square
G La sabana train station
H Tercer milenio park
I Simon Bolivar square
J Official residence of the President of Colombia
K Liévano palace
L Primatial Cathedral
M Gabriel Garcia Marquez cultural center
N Del oro museum
O Los periodistas park
P El rosario University
Q El chorro de quevedo
R El externado university
S El pasaje rivas
T Luis Angel Arango library

Source: Drawn by Author based on Instituto Distrital de Patrimonio Cultural. (2016). PRCT. Plan for the revitalization of the Traditional Center of Bogotá [Digital version]. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc

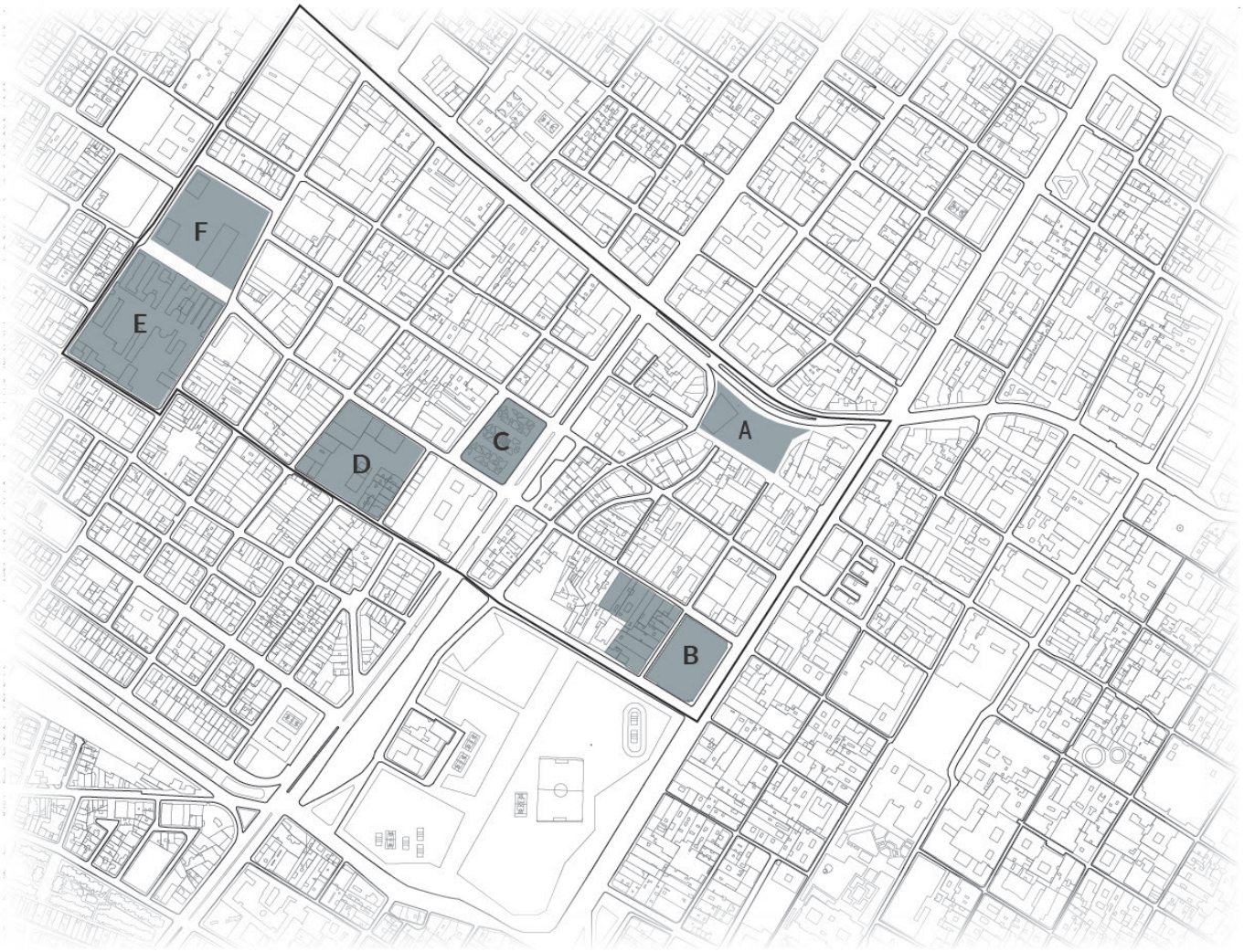
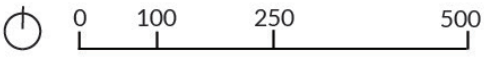


Fig. 72 Landmarks in the intervention area.



B

GranSan Mall

D

El bronx Creative Dicstrict

C

Los Martires Square

A

La mariposa Square

E

San Jose Hospital

F

España Square

Source: Drawn by Author based on Instituto Distrital de Patrimonio Cultural. (2016). PRCT. Plan for the revitalization of the Traditional Center of Bogotá [Digital version]. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc
Source pictures: District Planning Secretariat.

2.1.2 Landuse

The sector is predominantly occupied by commercial uses of a zonal and metropolitan nature, with a clear presence of establishments that attract customers beyond the immediate neighborhood, consolidating itself as a supply and shopping hub for other districts and businesses.

This translates into a constant flow of both wholesale and retail buyers, as well as intense commercial activity throughout the day. some of the specialized businesses on the site include textiles, costume jewelry, personal accessories, hardware stores, liquor stores, and candy shops.

This concentration of commerce boosts economic dynamism but also reduces the diversity of land uses, resulting in a shortage of public facilities and causing urban inactivity outside business hours.

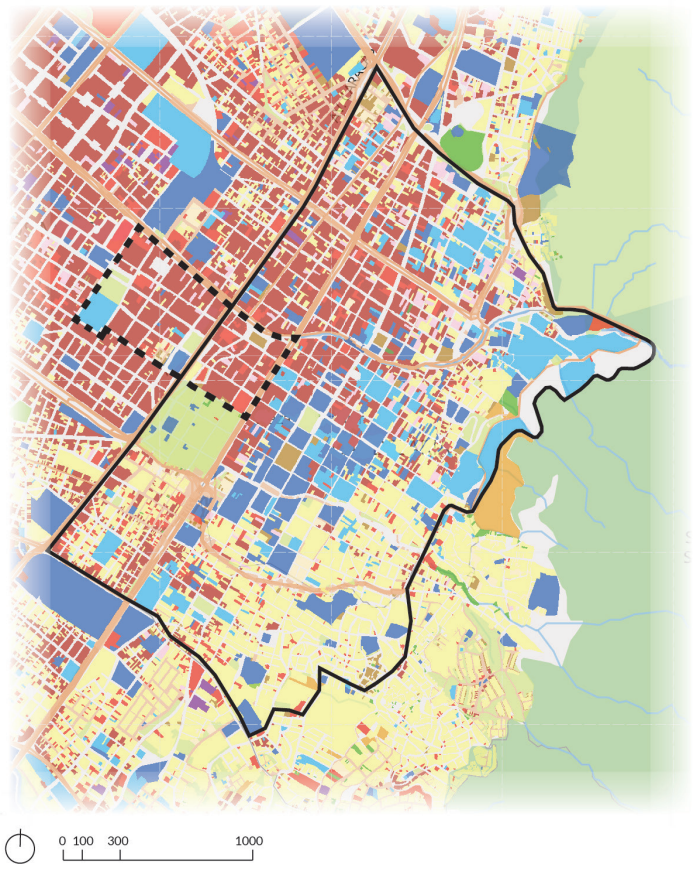


Fig. 73 Landuse city center

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre. (2025, May 24). Predominant Economic Destination [Digital map] Retrieved from https://www.ideca.gov.co/recursos/mapas/destino-economico-predominante

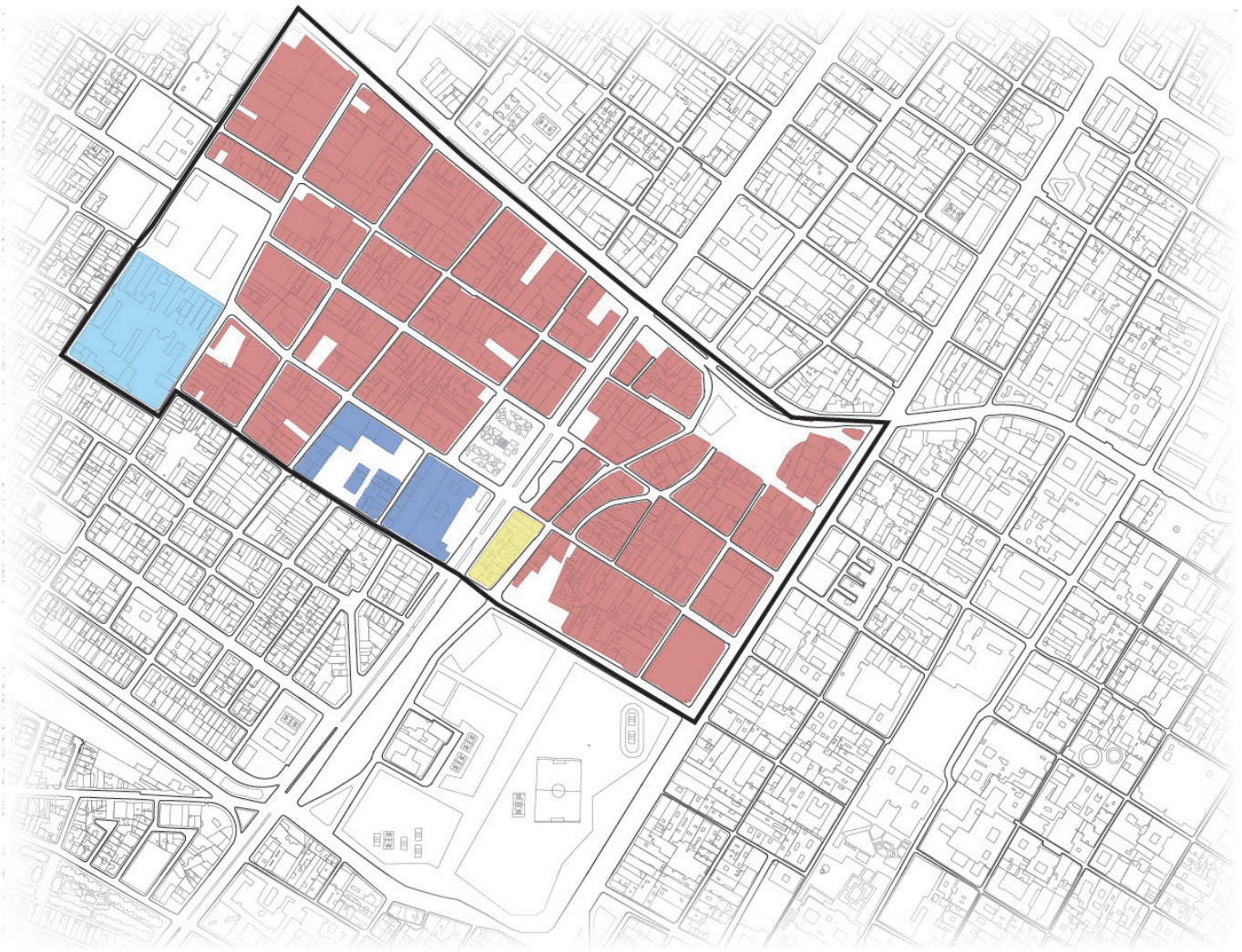
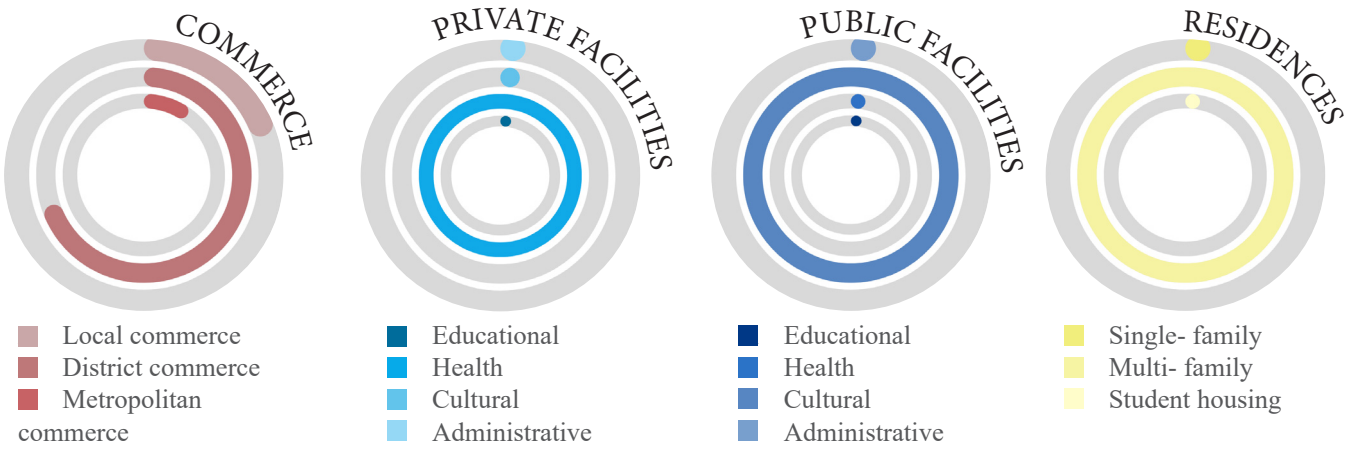


Fig. 74 Landuse in the intervention area.



Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre. (2025, May 24). Predominant Economic Destination [Digital map] Retrieved from https://www.ideca.gov.co/recursos/mapas/destino-economico-predominante

2.1.3 Accesibility

The center of Bogotá has strategic connectivity at both the metropolitan and local levels. Its direct link to El Dorado International Airport via Calle 26 ensures quick access for both national and international visitors. The proximity to one of the city's most important bike lanes, located along Carrera 7, which connects the downtown area with the northern part of the city, strengthens sustainable mobility and non-motorized access.

In addition to these access points, the intervention area includes Station No. 12 of the first metro line and multiple TransMilenio stations, which facilitate access to the intervention site from different parts of the city. Altogether, these conditions reinforce the area's potential as a highly accessible node.

The mobility patterns and the predominant type of user in the intervention area are pedestrians and public transport users in the morning. In the afternoon, there is an increase in pedestrians, cyclists, and drivers, while at night the overall flow decreases, with drivers being predominant. Overall, the data suggest potential to strengthen sustainable mobility strategies, especially during peak hours.

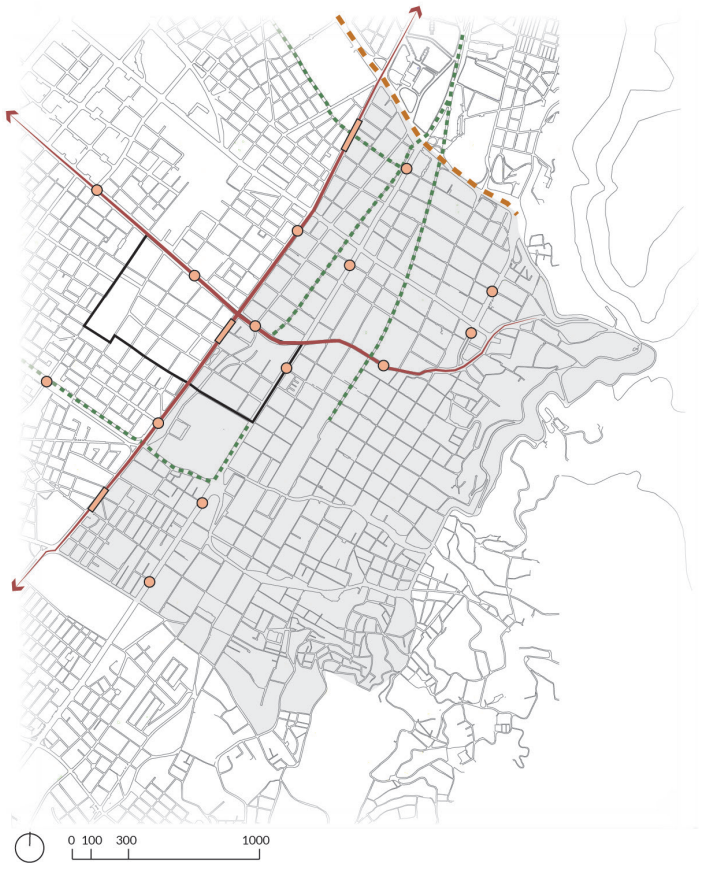
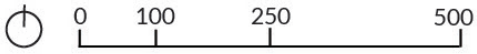
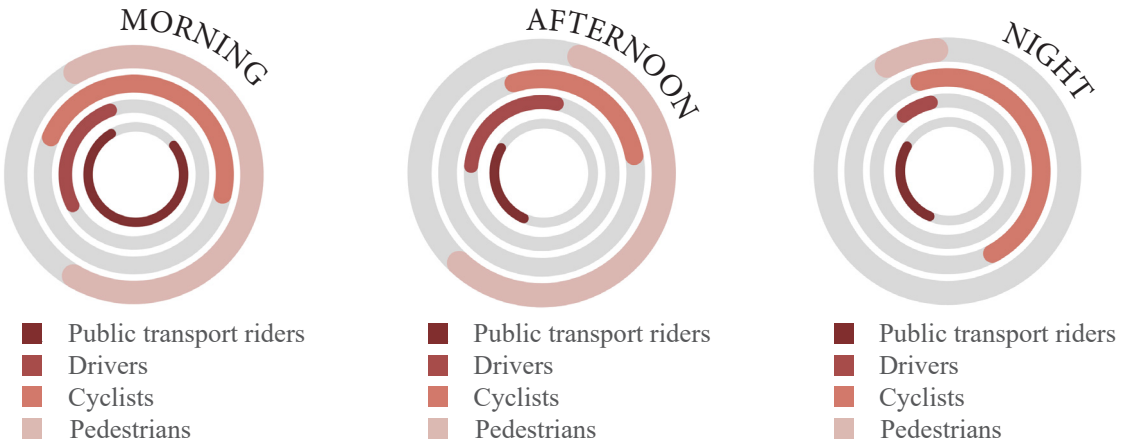


Fig. 75 Accesibility to the city center

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA); District Secretariat of Mobility. (2017). Integral Road Network. Bogotá D.C. [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/malla-vial-integral-bogota-dc

Fig. 76 Main accesibility points and roads to the intervention area.





Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA); District Secretariat of Mobility. (2017). Integral Road Network. Bogotá D.C. [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/malla-vial-integral-bogota-dc

2.1.4 Street morphology

The area to be intervened contains streets and plazas designated exclusively for pedestrian use; however, commercial shared streets and neighborhood main streets predominate, where vehicular traffic and commercial activity take precedence over pedestrians. This configuration favors economic dynamism but limits opportunities for social interaction.

The dispotition of the Pedestrian-Only Streets is positive, although it could be improved by establishing a clear separation between circulation areas and spaces intended for street vendors. Similarly, the Pedestrian Plazas have large empty areas without defined organization, which facilitates their misuse and can even foster insecurity.

Both the Commercial Shared Streets and the Neighborhood Main Streets present a common issue: the occupation of sidewalks and lanes by street vendors and the expansion of businesses into public space, which hinders both pedestrian and vehicular circulation. The difference lies in the fact that the Neighborhood Main Streets have wider sidewalks and roadways, although this advantage is equally affected by the lack of clear boundaries and effective control over the use of space.

Fig. 77 Typologies of streets in the intervention area.

1. Pedestrian-Only Streets
2. Pedestrian Plazas
3. Commercial Shared Streets
4. Neighborhood Main Streets

Source: Drawn by Author based on site visit.

Current situation of pedestrian-Only Streets

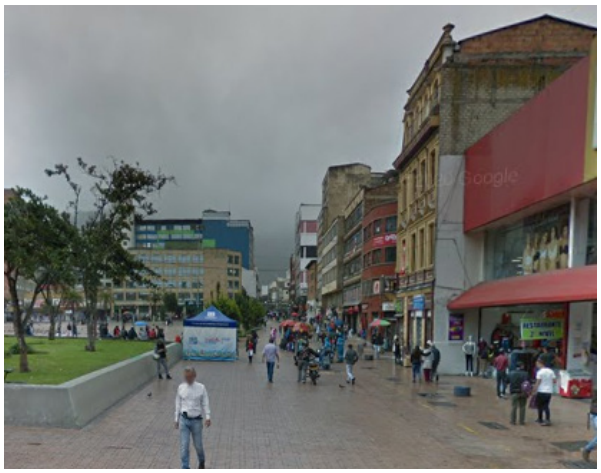
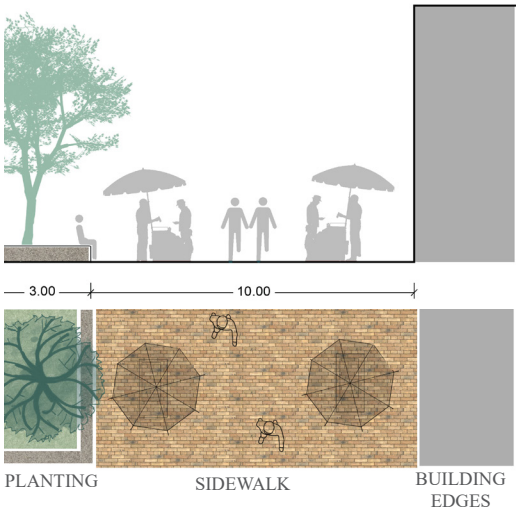
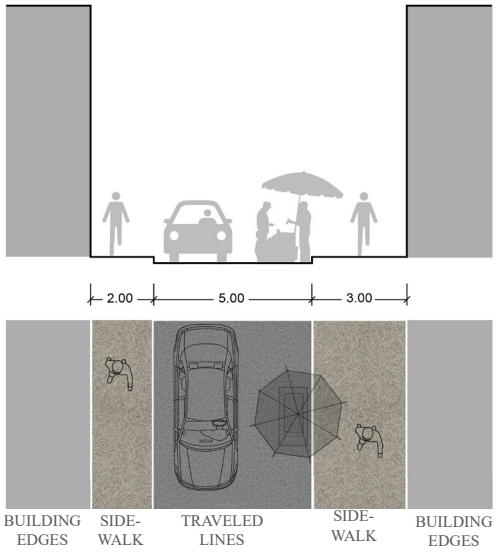


Fig. 78 Calle 12 pedestrian view.



Current situation Commercial Shared Streets

Fig. 79 Calle 11 pedestrian view.



Current situation Neighborhood Main Streets

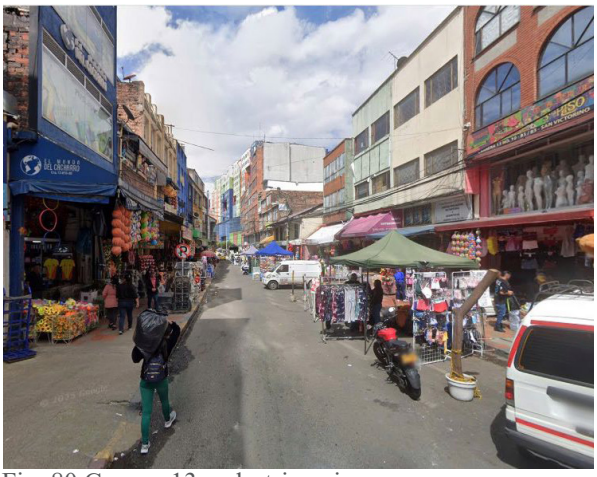
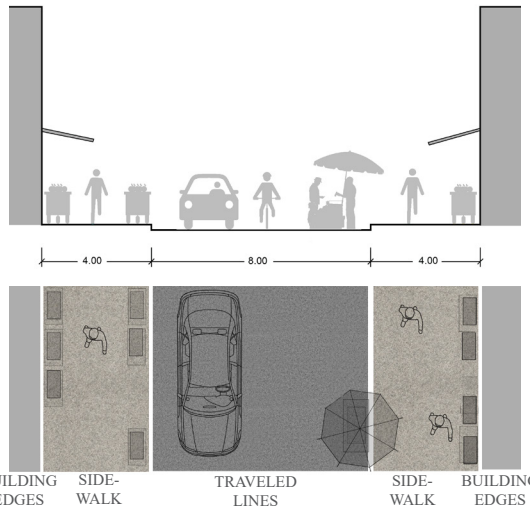


Fig. 80 Carrera 13 pedestrian view.



Source: Pictures from google maps and sections drawn by Author.

2.1.5 Informal vending hotspots

The informal vending hotspots in the center of Bogotá are primarily concentrated along major road corridors and high pedestrian and vehicular traffic routes, forming predominantly linear patterns. This location coincides with the proximity to transportation hubs, areas of high urban attraction, and sectors of intense economic activity, making informal vending a structural rather than a sporadic phenomenon.

In the study area, informal vending occupies approximately 70% of the available street space, leaving only 30% for the circulation of pedestrians and vehicles. This high level of occupation severely limits mobility, causes congestion, and increases the risk of insecurity on high-traffic roads. The concentration of stalls across multiple streets suggests a widespread pattern associated with the proximity to urban attractors and the lack of formal spaces for popular commerce, a situation that negatively affects accessibility, safety, and the overall quality of public space.

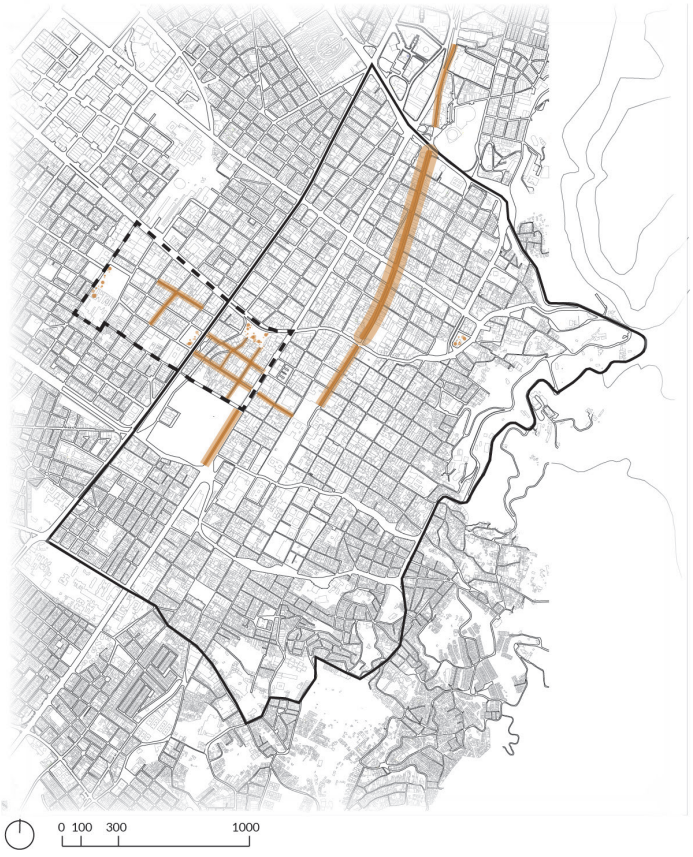


Fig. 81 Vending Hotspots in the city center

Source: Drawn by Author based on Instituto Distrital de Patrimonio Cultural. (2016). PRCT. Plan for the revitalization of the Traditional Center of Bogotá [Digital version]. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc

Fig. 82 Vending Hotspots in the intervention area.

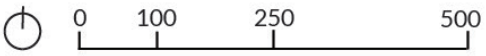
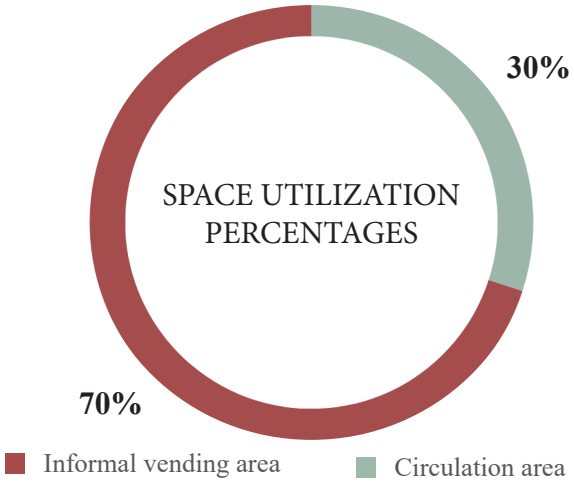


Fig. 83 Circulation and informal vending areas.



Source: Drawn by Author based on Instituto Distrital de Patrimonio Cultural. (2016). PRCT. Plan for the revitalization of the Traditional Center of Bogotá [Digital version]. Retrieved from https://issuu.com/patrimoniobogota/docs/prct_idpc

2.1.6 Solid and void

The map reveals a highly built-up urban fabric in the center of Bogotá, where the morphology shows significant contrasts depending on the location. Towards the eastern side, close to the hills, the layout takes on an irregular character as a result of adaptation to the topography and unplanned historical growth. In contrast, in the intervention area, a predominantly orthogonal structure is evident, characteristic of formal planning processes and orderly urban expansion. Within this layout, there are specific voids, mainly plazas, which serve as meeting nodes and breathing spaces amid the high building density. The built areas in this zone are arranged in regular blocks, defined by straight streets of consistent width, creating a clearly defined morphological pattern.

Fig. 84 Solid and void in the city center

2.1.7 Green infrastructure

Green areas are mainly concentrated in the peripheral zones, while in the urban center, especially in the intervention area, green space is reduced, fragmented, and limited to small parks or gardens.

From this distribution, it can be inferred that the population living in central areas has more restricted access to green spaces, which may affect the environmental and social quality of the surroundings. This situation highlights the need for strategies to integrate micro-green spaces or ecological corridors within the urban fabric.

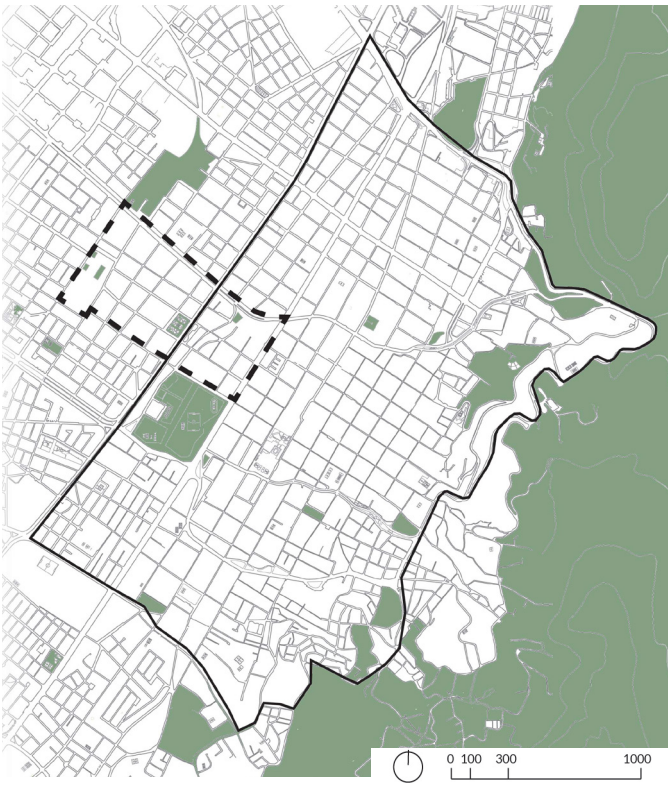


Fig. 85 Green infrastructure in the city center

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA). (2025). Construction [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/construccion

Fig. 86 Solid and void in the intervention area.

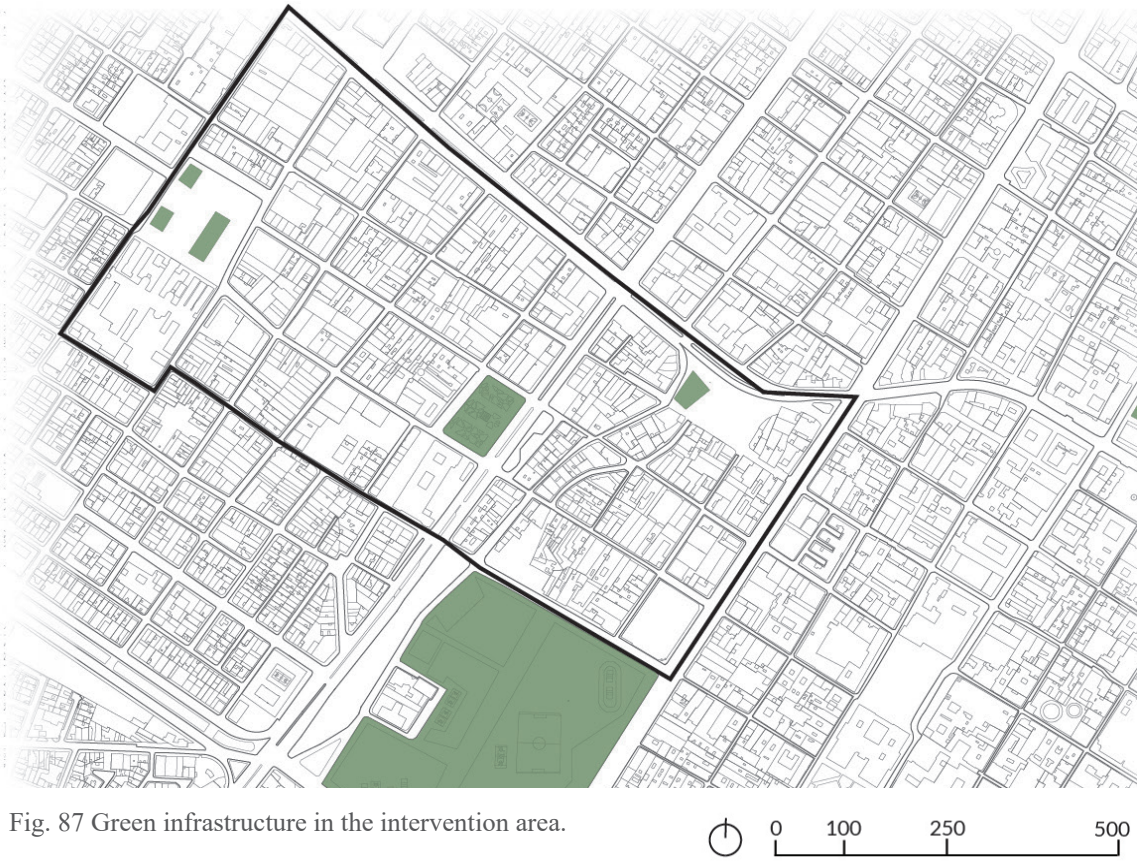


Fig. 87 Green infrastructure in the intervention area.

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA) & District Institute of Recreation and Sport (IDRD). (2025). District System of Parks and Public Sports Venues. Bogotá D.C. [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/sistema-distrital-de-parques-y-escenarios-publicos-deportivos

2.1.8 Urban heat island

The main climatic phenomenon currently affecting Bogotá, driven by the concentration of impermeable surfaces and materials with high heat absorption capacity, high building density, and the reduction of green areas, factors characteristic of Bogotá's urban morphology, as evidenced in previous analyses.

The maps show that this phenomenon leads to higher temperatures in urban areas compared to rural ones. As seen in the intervention area map, the UHI effect reaches moderate-to-high levels due to the high building density, the presence of materials such as asphalt and concrete that retain heat, and the limited vegetation cover.

The graph, in turn, allows for the analysis and comparison of the intensity of the surface urban heat island (SUHI) during the day and night, showing that daytime values are consistently higher than nighttime ones. The daytime SUHI reaches its highest peaks in May and August (approximately 1.8 °C), coinciding with periods of higher solar radiation and likely lower cloud cover. In contrast, the nighttime SUHI reaches its maximum in September (around 1.1 °C). During colder months or periods with lower radiation, such as June and October, the daytime intensity decreases and approaches nighttime values. These patterns reflect the influence of solar radiation and urban materials on the city's thermal dynamics.

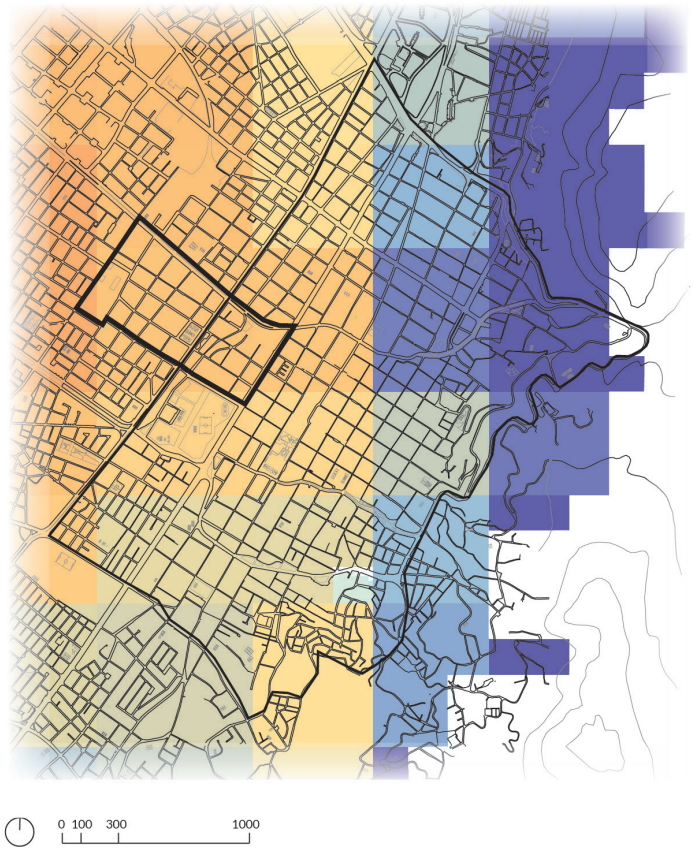


Fig. 88 Surface urban heat island annual day in the city center

Source: Drawn by Author based on Yale Center for Earth Observation. (2020). Global Surface UHI Explorer [Web application]. Retrieved from https://yceo.users.earthengine.app/view/uhimap

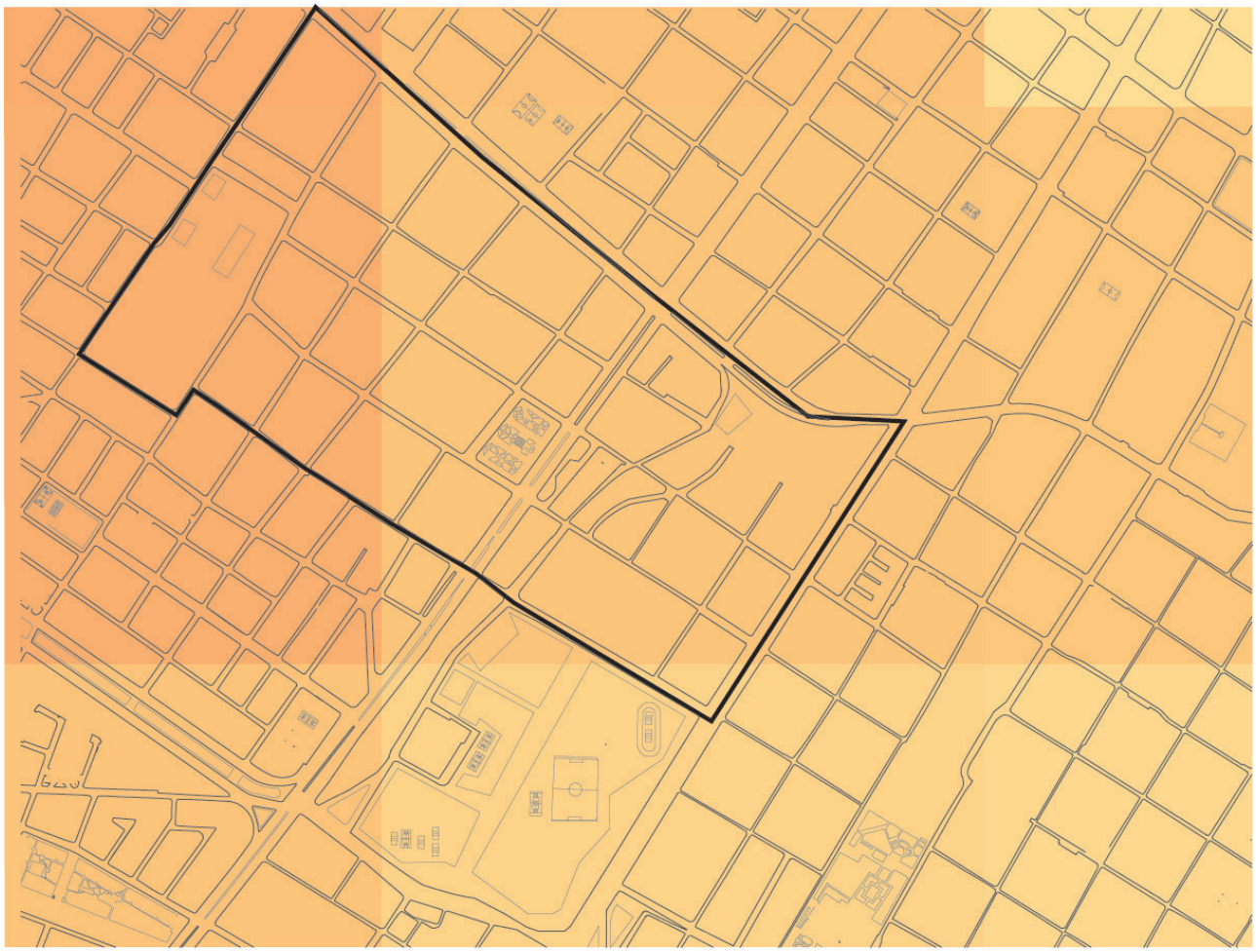


Fig. 89 Surface urban heat island annual day in the intervention area.

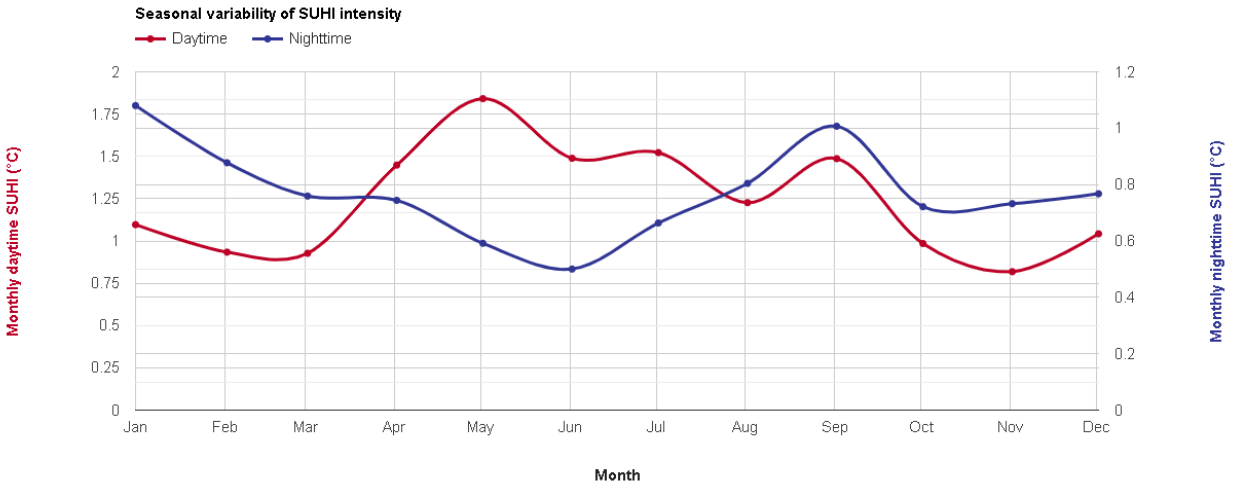


Fig. 90 Monthly urban surface heat island graph in the intervention area during the day and night.

Source: Drawn by Author based on Yale Center for Earth Observation. (2020). Global Surface UHI Explorer [Web application]. Retrieved from https://yceo.users.earthengine.app/view/uhimap

2.1.9 Building heights

It is evident that most of the intervention area consists of medium-height buildings (2–4 stories), while the tallest constructions are mainly concentrated at the edges, possibly due to their connection with the main road axes. Overall, the urban fabric is predominantly low to medium height, with occasional focal points of densification.

2.1.10 Wind

The wind enters mainly from the southwest, moving through the streets and open spaces. Due to the low height of the buildings, the air currents encounter no significant barriers, allowing for smooth flow and natural ventilation throughout the area.

2.1.11 Sun path

The sun travels across the sky from east to west, primarily illuminating the south-facing façades for most of the day and the north-facing ones for shorter periods. The low height of the buildings allows sunlight to reach streets more directly and for longer periods, reducing prolonged shadows and improving thermal comfort and the environmental quality of the urban space.

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA). (2025). Weighted Number of Floors per Block [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/numero-de-pisos-ponderado-por-manzana

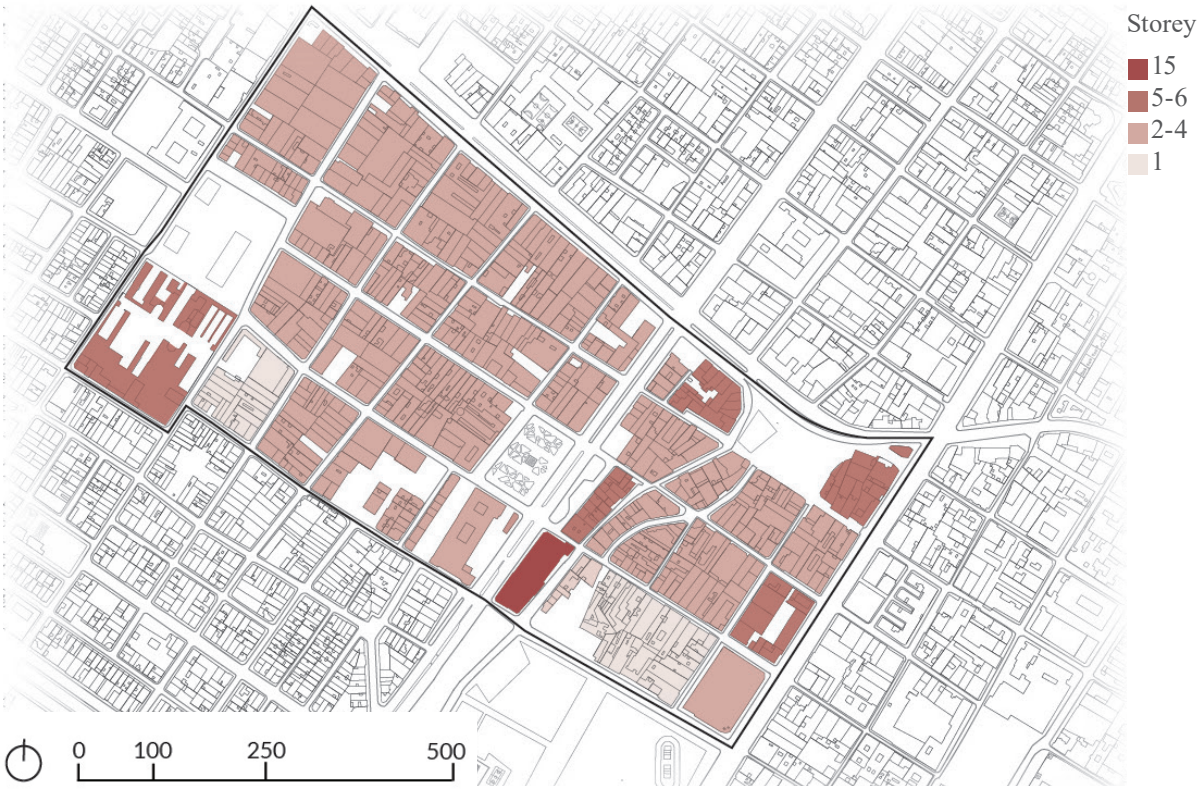


Fig. 91 Weighted number of floors per block.

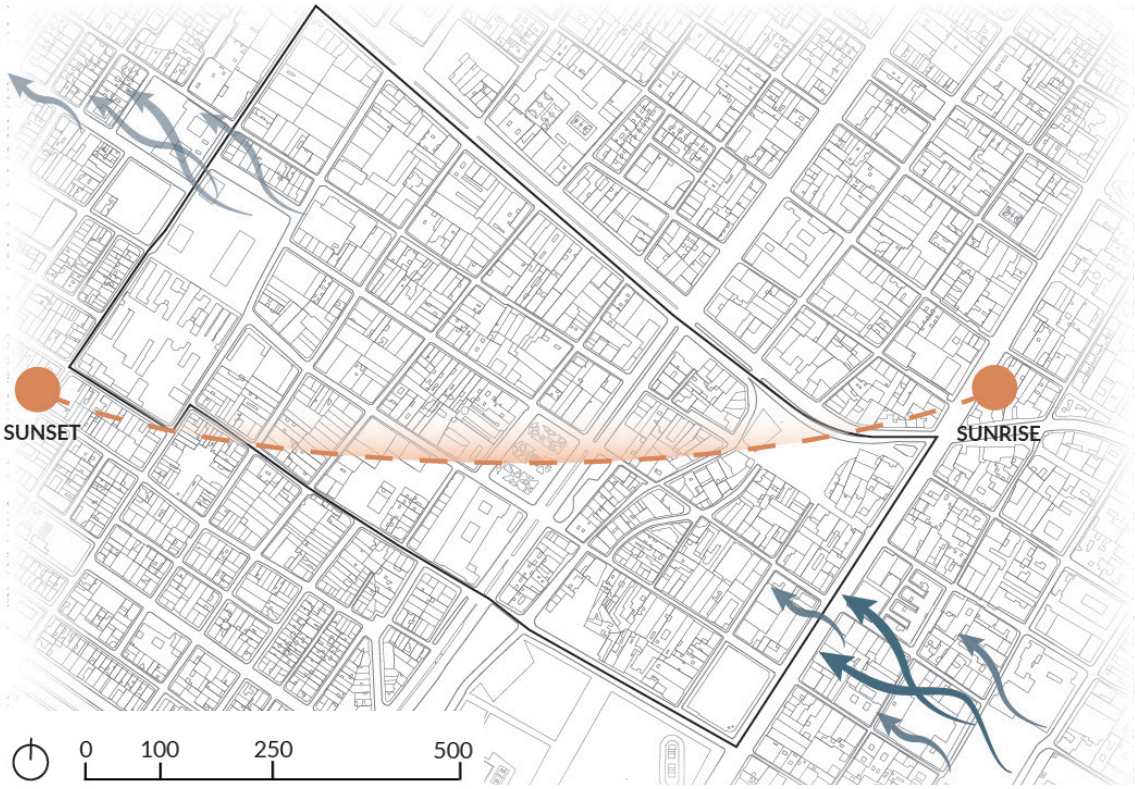


Fig. 92 Wind and sunpath analysis in the intervention area.

Source: Drawn by Author based on SunEarthTools.com. Sun Position [Web tool]. Retrieved from https://www.sunearth-tools.com/dp/tools/pos_sun.php?lang=en

Source: Drawn by Author based on Windfinder. Wind map, wind forecasts & weather reports [Web tool]. Retrieved from https://www.windfinder.com/#3/39.5000/-98.3500/spot

2.1.12 Noise pollution

The area, due to factors such as commercial activity and the high flow of both vehicles and pedestrians, experiences significantly higher and more widespread noise pollution during the day than at night, reaching levels between 55 and 75 dB and even exceeding 80 dB along main roads. In contrast, at night noise levels decrease notably, with values predominantly between 35 and 55 dB, and the highest intensity points concentrated only on main roads. This reflects a typical pattern of urban areas, where daytime activity considerably increases sound pressure levels in the environment.

The predominant sources of noise come from vehicular traffic, including cars, public transportation, and motorcycles, which generate a constant flow of sound reinforced by the urban interactions typical of an active commercial setting.

Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA). (2024). Strategic Map of Daytime Noise – Ordinary Hours (dB A) [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/mapa-estrategico-de-ruido-diurno-jornada-ordinario-db

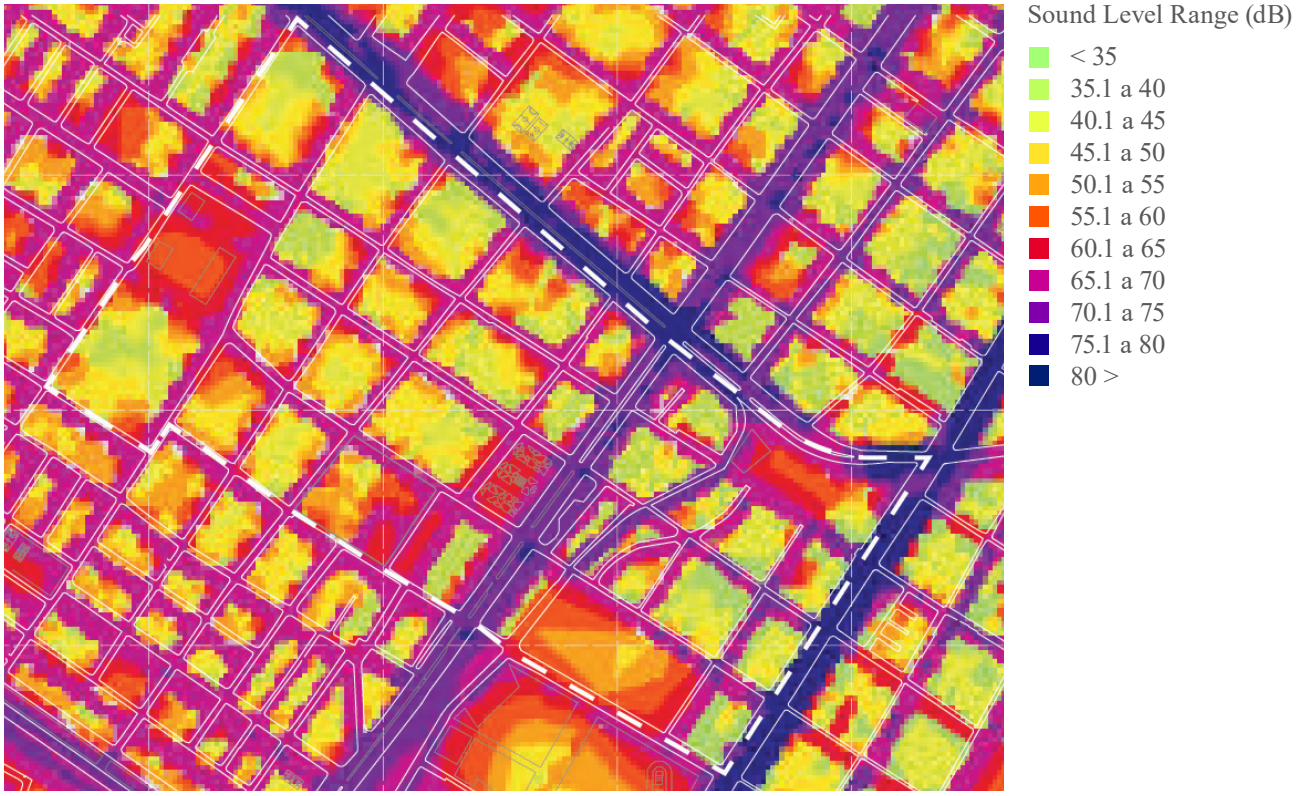


Fig. 93 Night-time Noise Map – Typical Day.

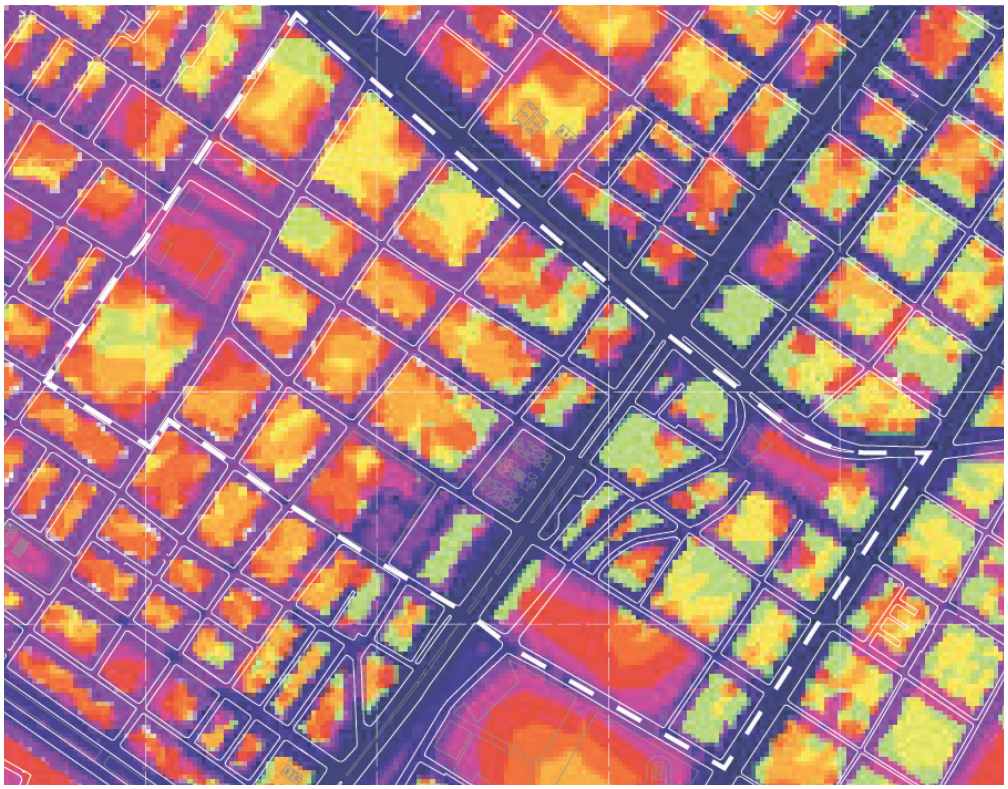
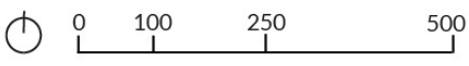


Fig. 94 Daytime Noise Map – Typical Day.



Source: Drawn by Author based on Bogotá Mayor's Office – Special Administrative Unit of District Cadastre (IDECA). (2025). Strategic Map of Night-time Noise – Ordinary Hours (dB A) [Digital map]. Retrieved from https://www.ideca.gov.co/recursos/mapas/mapa-estrategico-de-ruido-diurno-jornada-ordinario-db

2.1.13 Lighting analysis

The distribution of lighting in the intervention area is heterogeneous: while the squares present sectors with optimal conditions, most of the route shows deficient levels. This condition generates discontinuities in the spatial experience, as sections with low lighting affect the perception of safety and reduce urban vitality during nighttime hours.

Through photographic analysis, it is possible to identify the different lighting sources present in the public space. It is evident that there is the use of traditional lighting through street lamps and light posts, complemented by ambient lighting from traffic lights and vehicle headlights. However, these sources are insufficient to ensure adequate spatial perception, as they do not allow facial recognition, which increases the sense of insecurity. In addition, the presence of trees blocking the light, dark facades, and the limited contribution of indoor lighting from some buildings reinforce the unwelcoming environments for pedestrians at night.

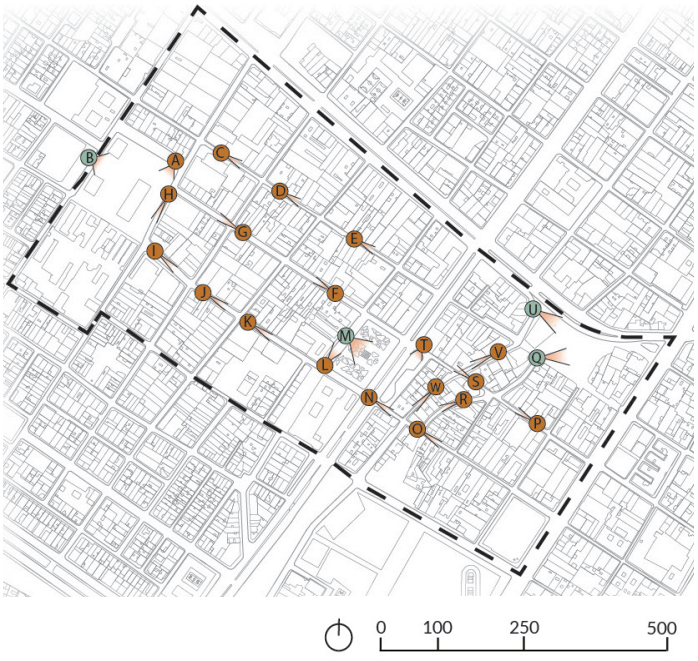


Fig. 95 Lighting analysis and location map.

Optimal lighting

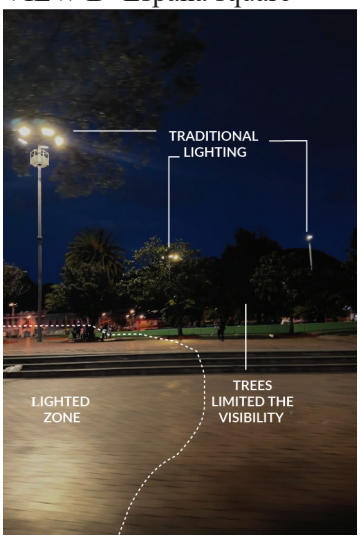
Deficient lighting

Source: Analysis based on Florence Lam, Chris Luebkeman, Leni Schwendinger, Josef Hargrave (2015), “Cities Alive-Rethinking the Shades of Night

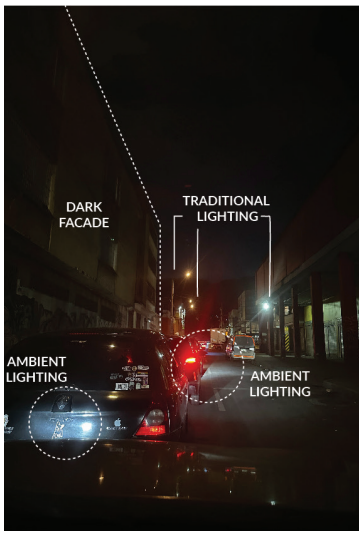
Spatial lighting analysis

VIEW A - España Square

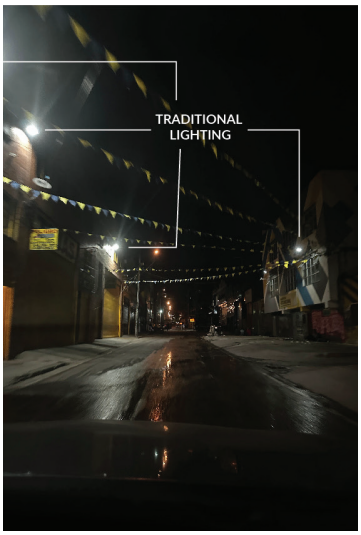
VIEW B- España square



VIEW C- Calle 12



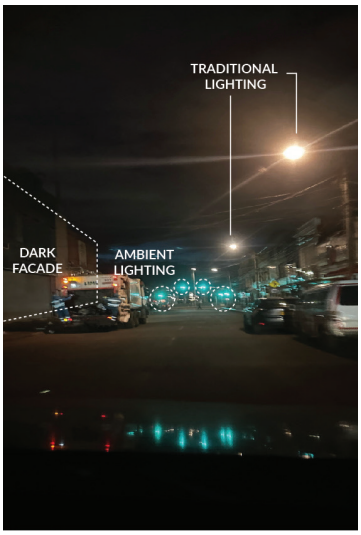
VIEW D - Calle 12



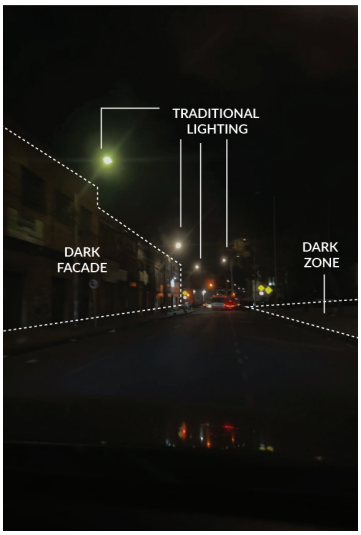
VIEW E- Calle 12

VIEW F- Calle 11

VIEW G- Calle 11



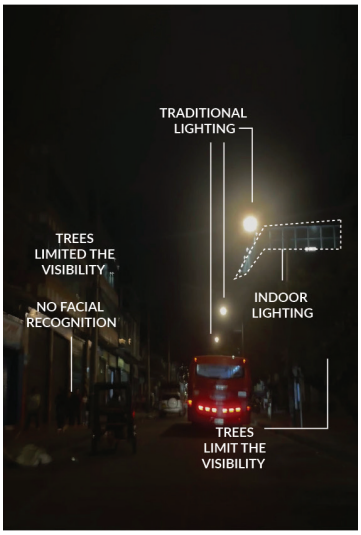
VIEW H- Carrera 18



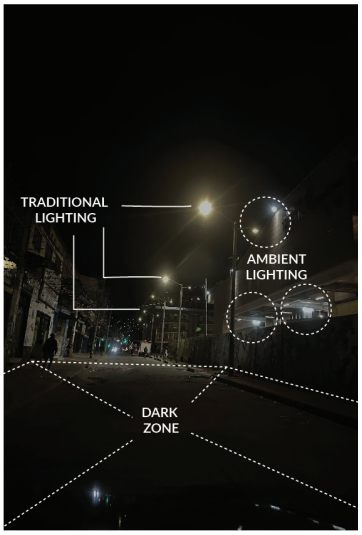
VIEW I- Calle 10

Source: Drawn by Author based on site visit.

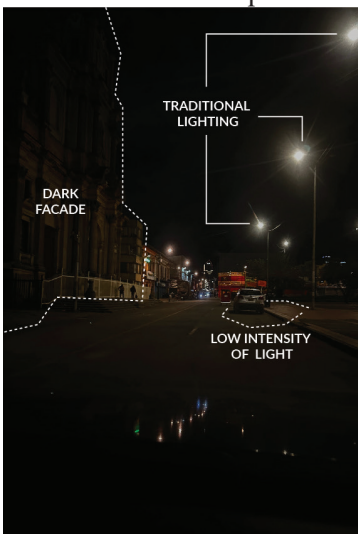
VIEW J- Calle 10



VIEW K- Calle10



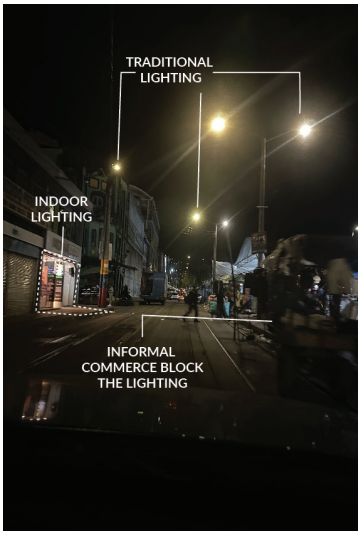
VIEW L- Martires square



VIEW M- Martires square

VIEW N- Calle 10

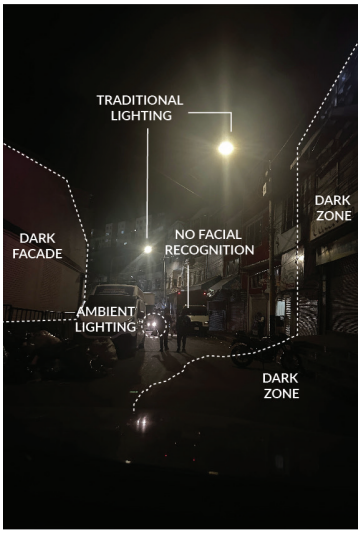
VIEW O- Calle 10



VIEW P- Calle 11

VIEW Q- Mariposa square

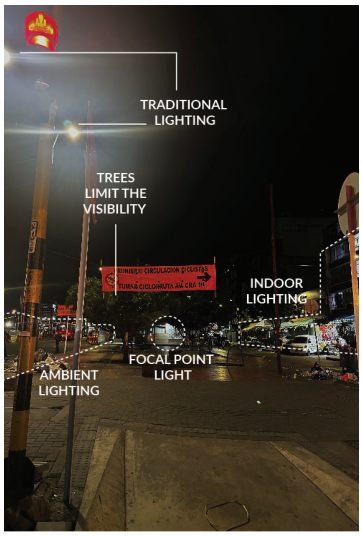
VIEW R- Carrera 12a



Source: Drawn by Author based on site visit.

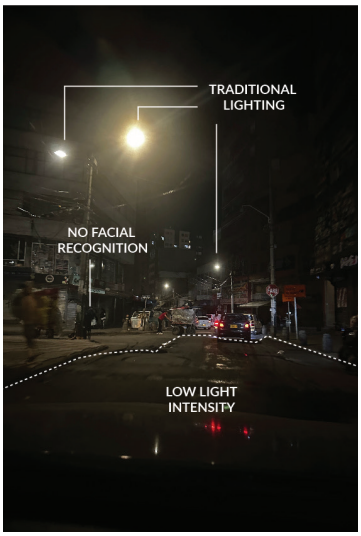
VIEW S- Calle 11

VIEW T- Calle 11

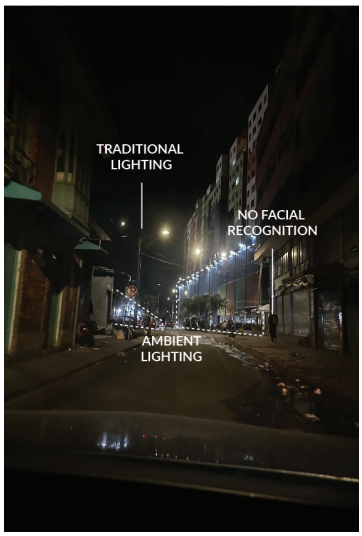


VIEW U- Mariposa square

VIEW V- Carrera 13



VIEW W- Carrera 13



Source: Drawn by Author based on site visit.

2.2 SWOT ANALYSIS

A SWOT matrix is carried out to analyze the area through five strategic dimensions: mobility, which evaluates accessibility, connectivity, and safety in movement; society, which examines social dynamics, the perception of safety, and meeting spaces; economy, focused on commercial diversity and the capacity to attract users; environment, which assesses conditions of comfort, sustainability, and resilience; and politics, which considers the role of regulations, governance, and urban revitalization projects. This approach makes it possible to identify strengths such as urban connectivity and user diversity, as well as weaknesses related to commercial saturation, deficient lighting, and the lack of green areas. At the same time, opportunities are recognized in the integration of sustainability, mobility, and safety strategies, while threats are linked to environmental degradation, nighttime insecurity, and the loss of competitiveness. The systematization of these criteria provides a solid foundation for developing intervention strategies that strengthen urban vitality and foster the balanced development of the sector.

	Strenghts	Weakness	Oportunities	Threats
Mobility	• Easy access to public transportation from different points in the city • Connectivity with the airport and the city's main roads	• Low bicycle infrastructure • Pedestrian and vehicular circulation obstructed by the informal vendors • Poor lighting limits the safety of nighttime mobility	• Integrate bike lane infrastructure • Reorganize streets and squares, separating circulation and commercial areas • Implementation of smart lighting that enhances safety	• Increasing urban congestion and mobility conflicts. • Reduction of nighttime pedestrian circulation due to perceived insecurity
Society	• Diversity of users: merchants, students, tourists, residents, and workers • Historical and cultural commercial value	• Insecurity in pedestrian squares with large empty areas and overcrowded streets • Lack of gathering spaces • Unpleasant environments due to deficient lighting	• Reorganize public space to enhance safety and comfort • Create gathering spaces that integrate different social groups • Implementation of urban lighting to foster social vitality at night.	• Socioeconomic conflicts between formal and informal merchants • Nighttime insecurity due to empty streets and deficient lighting
Economy	• Proximity to several strategic nodes that promote the economy • Diverse commerce that attracts shoppers beyond the neighborhood	• Commercial saturation affect the shopping experience • Dependence on commerce as main income of economy • Low lighting discourages night-time economic activity	• Regulate informal commerce to improve flow and safety • Events and heritage routes that diversify the economy • Nighttime activities and commerce	• Degradation of public space due to increased visitor influx
Environmental	• Low building height favors natural ventilation and good sunlight • Pedestrian squares works as breathing spaces within the urban fabric	• Lack of green areas. • Impermeable materials that increase the UHI effect • High noise pollution during the day	• Integration of green spaces or ecological corridors • Design of strategies for UHI mitigation and noise reduction • Use of efficient and sustainable ambient lighting	• Increase in temperatures and environmental degradation if no action is taken.
Political	• Recognition of the node as a strategic sector for the city	• Lack of clear regulation on informal commerce and the use of public space.	• Revitalization projects that strengthen security, mobility, and sustainability	• Possible loss of competitiveness compared to other commercial nodes

INTERVENTION PROPOSAL

IV

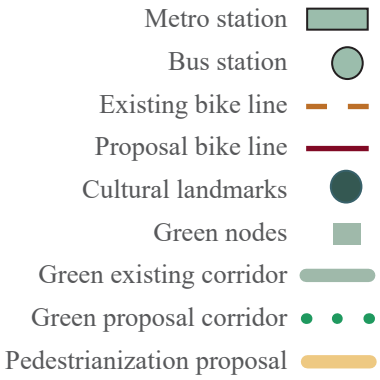
This chapter will present strategies and urban intervention actions aimed at revitalizing the public space of the commercial node in Bogotá´s city center, improving mobility, safety, sustainability and social cohesion. The objective is to transform the area into a more inclusive, efficient and attractive environment that enhances its economic and cultural vitality while preserving its historical identity.

1. URBAN REGENERATION

The previously developed SWOT analysis serves as the basis for proposing an urban remediation project, understood as an approach that does not seek to erase or completely replace what already exists, but rather to recover its functionality by adapting it to new social and environmental dynamics[50]. In this sense, the proposal aims to restore the functionality of the commercial node through a comprehensive vision that operates on two complementary scales. At the urban level, the project seeks to strengthen the connection of the commercial node with the rest of the strategic nodes in the historic center by extending the existing green corridor along Avenida Jiménez to the commercial node and prolonging the 7th Street bike path, which will connect it to the historical and cultural nodes.

At the same time, on a more local scale, the proposal focuses on articulating the most representative plazas within the commercial node, with the aim of creating a network of interconnected public spaces that enhances habitability and promotes new social and cultural dynamics.

The combination of both scales will not only reinforce the role of the commercial node as an economic hub but also diversify the flows and types of users who traverse and inhabit the area, attracting visitors, tourists, and pedestrians in general, thereby strengthening its role as an articulating point within the city.



50 Sennett, R. (2018). *Building and Dwelling: Ethics for the City*. New York: Farrar, Straus and Giroux.

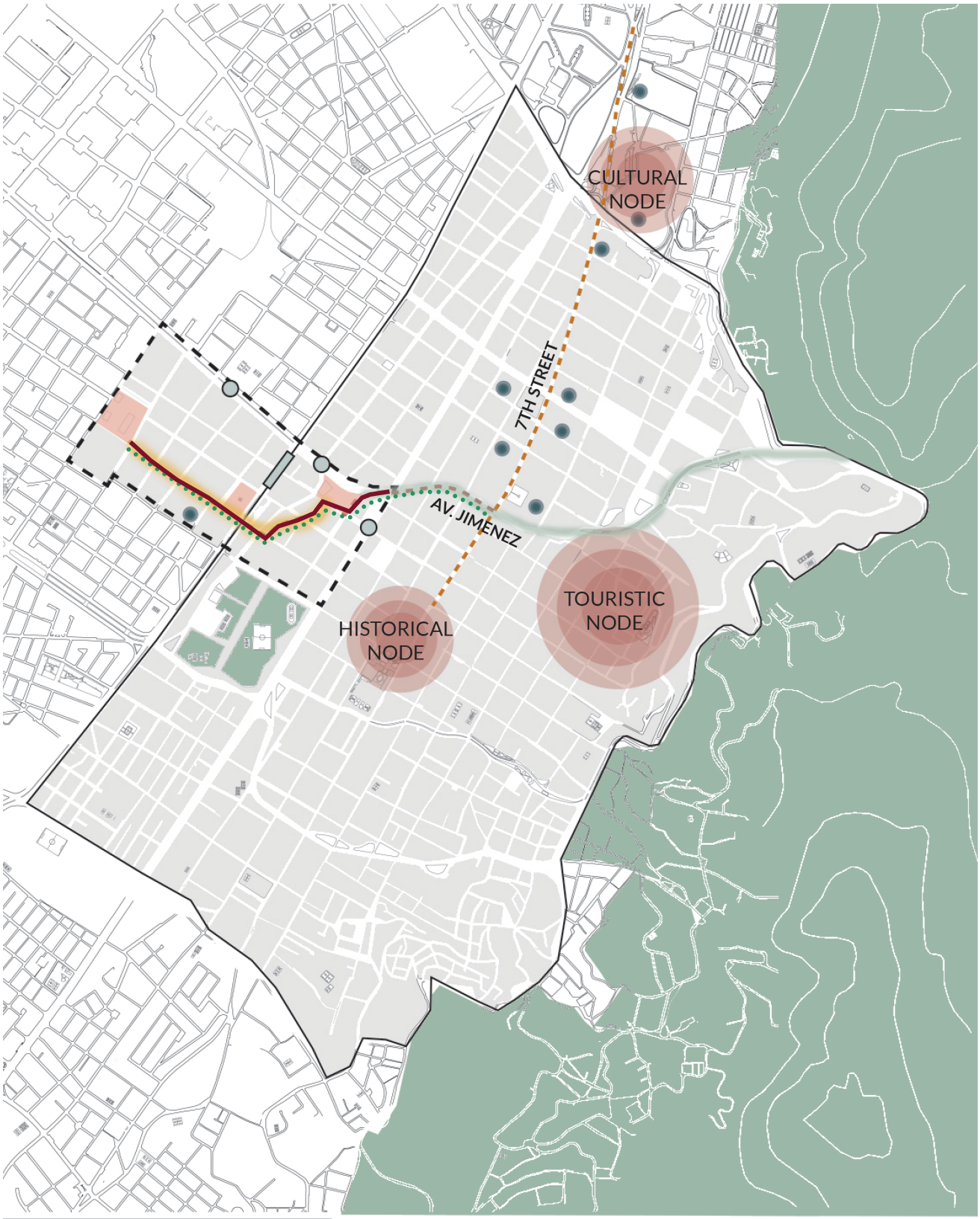


Fig. 96 Master plan city center scale proposal.

Based on the theoretical framework presented in the first chapters, the proposal incorporated the most relevant design criteria for the intervention of the commercial node, taking into account both the functional needs of users and the specific characteristics of the urban environment. These criteria focused on optimizing the spatial quality of the place, promoting more comfortable, attractive, and safe environments that encourage permanence and social interaction. Likewise, the aim was to improve the functionality of the space by facilitating pedestrian circulation and ensuring a smooth and coherent experience for different types of users. Similarly, the proposal addressed habitability by integrating elements that enhance urban comfort, lighting, acoustic and thermal comfort, as well as the inclusion of green spaces and resting areas, creating a balanced environment between the urban and the human scale. This approach ensures that the intervention is not only aesthetic but also functional, sustainable, and capable of strengthening the identity of the commercial node within the existing urban fabric.

- Funtionality
- Promote physical activity
- Economic revitalization
- Lighting for security
- Design for pedestrians and cyclist
- Climate resilience
- Circular economy
- Sound design and control

Fig. 97 Master plan commercial node scale proposal.


0
100
250
500

1.1 CIRCULAR ECONOMY

As was mentioned in the sustainable urbanism section, it is not enough to design cities thinking only of the permanent. It is necessary to consider temporary uses[4] in public spaces as sustainable strategies that activate the territory without generating negative impacts on the environment, fostering responsible practices in the use of materials, energy, and waste management.

To achieve this, the strategy involved the use of flexible scaffolding systems, primarily designed to accommodate informal commerce, which can be easily assembled, disassembled, and reconfigured to meet the evolving needs of public spaces. Thanks to their modular and reusable design, these structures enable countless transformations over time, adapting to diverse social, cultural, and economic demands while minimizing construction waste and avoiding permanent alterations to the urban fabric.

And at the same time, establishes a direct connection with several Sustainable Development Goals (SDGs) fosters innovation in infrastructure (SDG 9) and enables the creation of inclusive and adaptable urban spaces that strengthen the resilience and livability of cities (SDG 11). Moreover, the reusability and extended life cycle of the scaffolding components support responsible consumption and production (SDG 12) by minimizing construction waste and reducing the demand for new raw materials. Simultaneously, the temporary and low-impact nature of these interventions aligns with climate action (SDG 13) by lowering the environmental footprint and encouraging energy-efficient practices and given them a main use for the informal commerce contribute to decent work and economic growth (SDG 8)[6].

In this way, the strategy links the circular economy criterion with the creation of urban spaces that contribute to the Sustainable Development Goals by promoting conscious material use, reducing the ecological footprint, and enabling cities to respond dynamically to contemporary challenges.

4 NASR, E. H. *Toward Sustainability of Temporary Uses in Public Spaces*.

6 Hendawy, M., Junaid, M., & Amin, A. (2024). *Integrating sustainable development goals into the architecture curriculum: Experiences and perspectives*. City and Environment Interactions, 21, 100138.

This will provide a practical solution to the issue of informal vendors occupying public streets. Offering proper designated areas that can accommodate commercial activities in an organized and regulated manner. Reducing the street congestion and improving the overall functionality and safety of public spaces, ensuring a more harmonious coexistence between commerce, pedestrians, and urban dynamics. Thanks to their lightness, strength, and ease of assembly, these modules allow for a wide variety of configurations and a easily transition from daytime to nighttime activities, allowing spaces to transform quickly and efficiently.

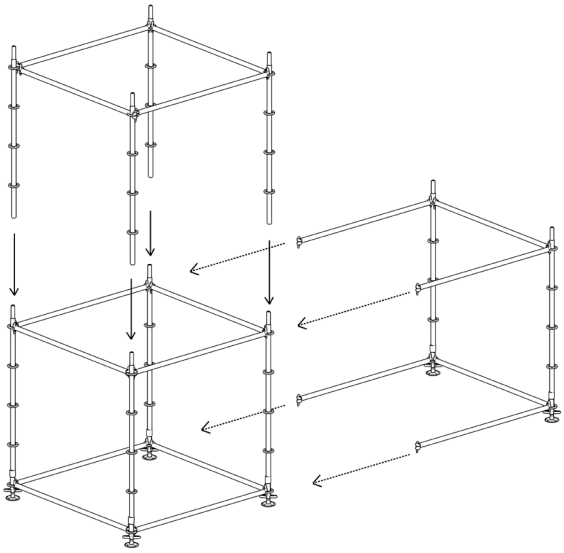


Fig. 98 Modules can be added from the side and upper parts.

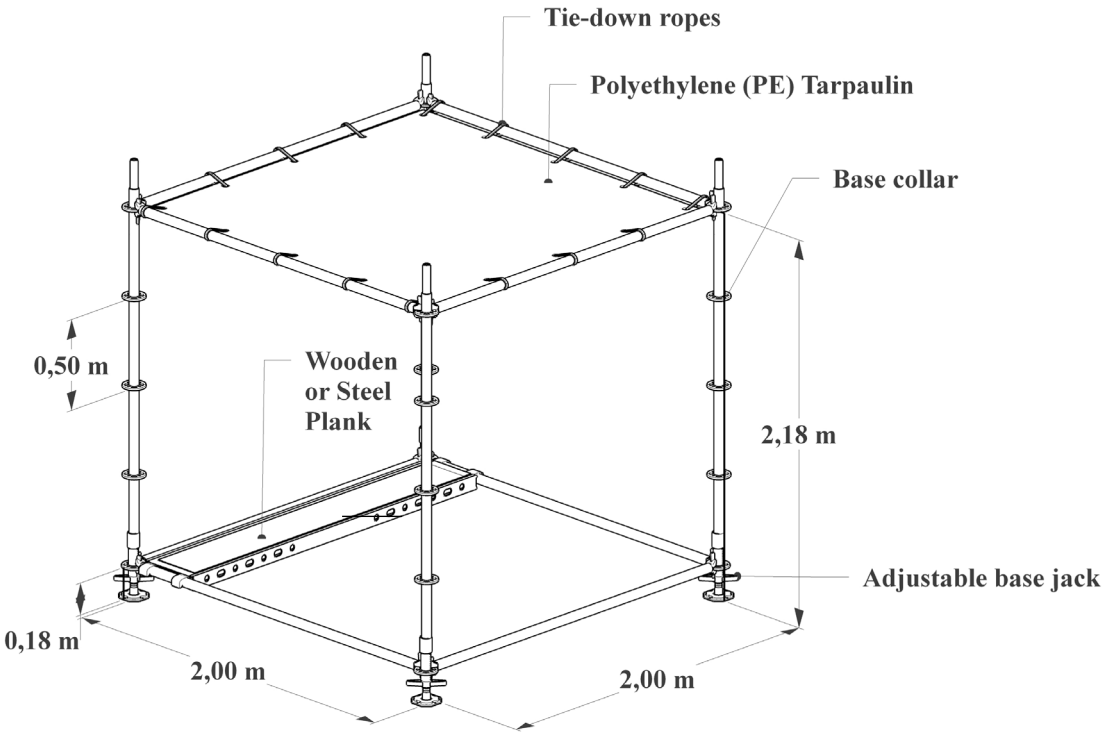


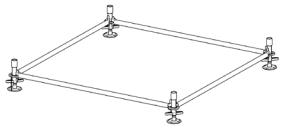
Fig. 99 Parts of the module

ASSEMBLY

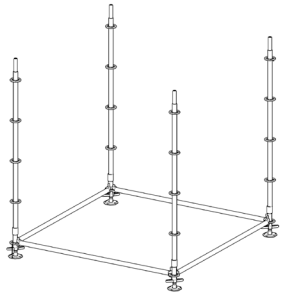
The technical simplicity of the modules allows citizens themselves to participate autonomously in the assembly process, optimizing time and reducing the need for specialized labor. Moreover, by extending the lifespan of the materials and minimizing installation costs, the system reinforces a sustainable and accessible model for the entire community.

STEP 1: Placement of the bases

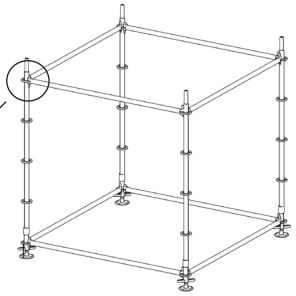
STEP 2: Placement of the frame base



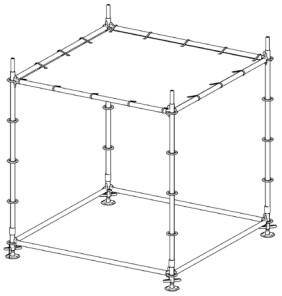
STEP 3: Placement of vertical ledgers



STEP 4: Placement of the horizontal ledgers



STEP 5: Placement of the polyethylene



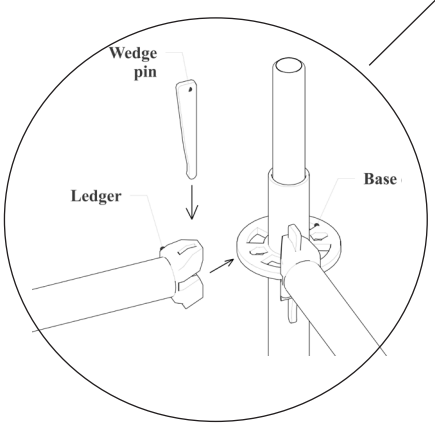


Fig. 100 Assembly steps

STORAGE

The project proposes multifunctional urban benches that, in addition to offering seating areas in each of the squares, integrate compartments specifically designed to store the structural modules when not in use. This system allows the urban furniture to serve a dual purpose.

The strategy responds to the variability in module demand. For instance, one day only 10 modules may be required for sales activities, while the next day the demand may increase to 30, depending on the cultural or commercial programming of the area. By providing a nearby, flexible, and easily accessible storage system, unnecessary transportation is avoided, and resource use is optimized, thus reinforcing the principles of the circular economy: reuse, waste reduction, and extension of material life cycles.

Moreover, the strategic location of these benches within the public space allows for fast and efficient assembly and disassembly logistics, promoting an adaptable model in which infrastructure can transform according to the environment's needs. In this way, the city becomes a living and dynamic organism, capable of reconfiguring itself with ease while maintaining a focus on sustainability.

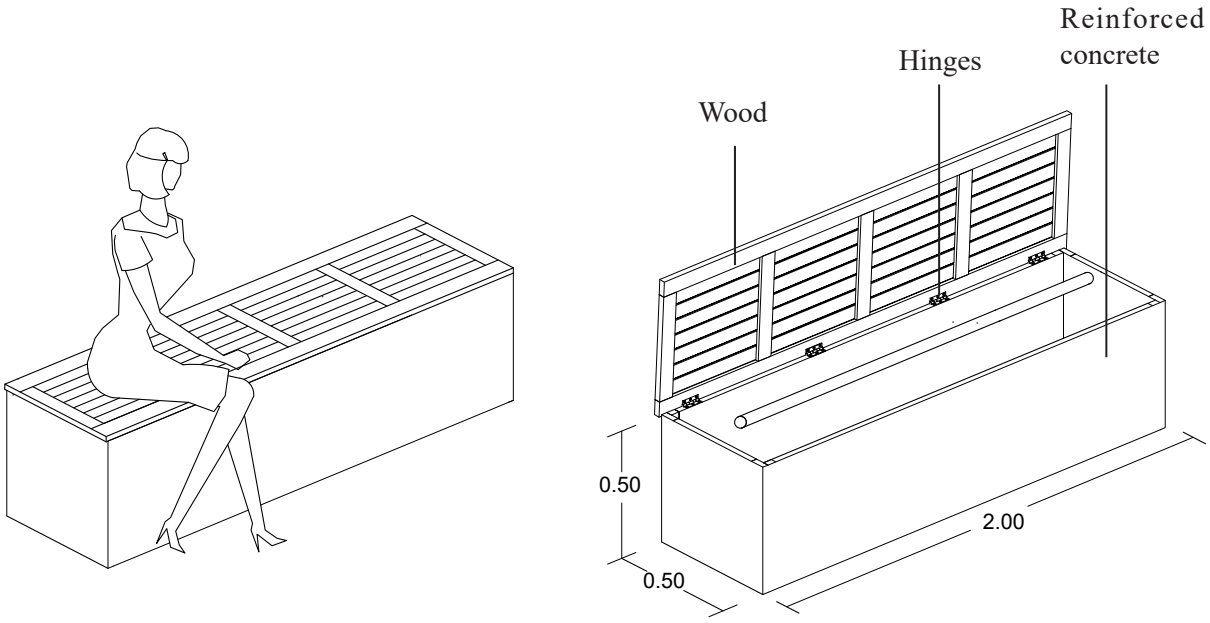


Fig. 101 Storage for the modules

DIFFERENT POSSIBLE USES

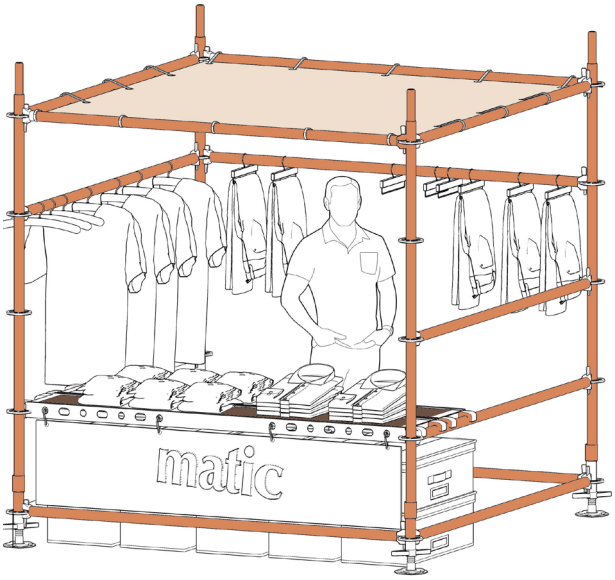


Fig. 102 Commercial use.

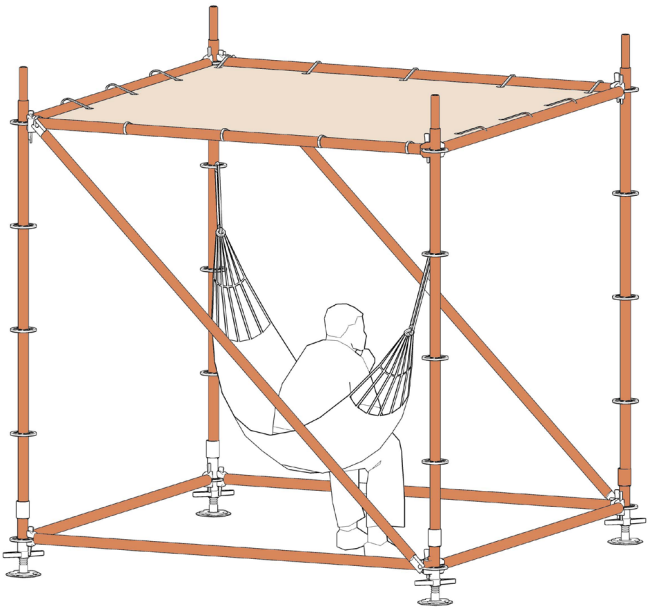


Fig. 103 Gathering use.

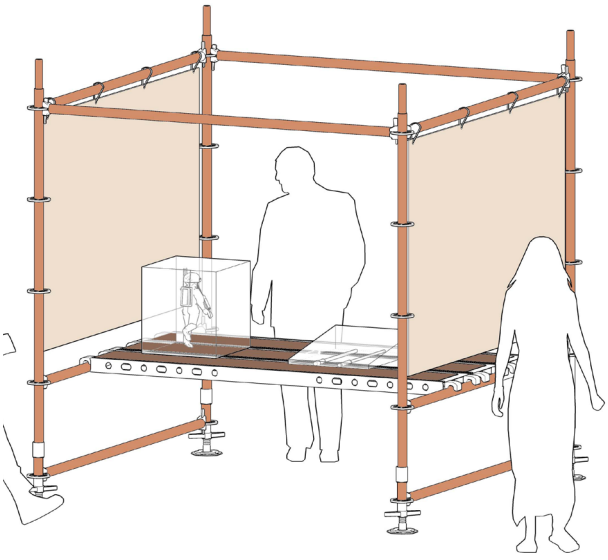


Fig. 104 Cultural use.

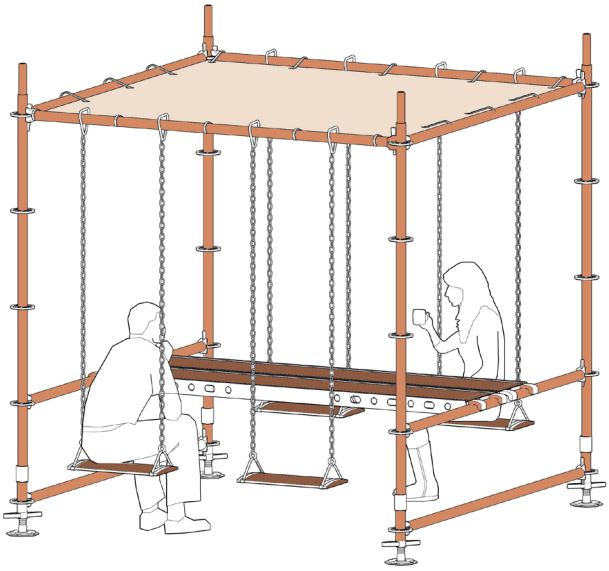


Fig. 105 Gathering use.

Fig. 106 Gastronomical use.

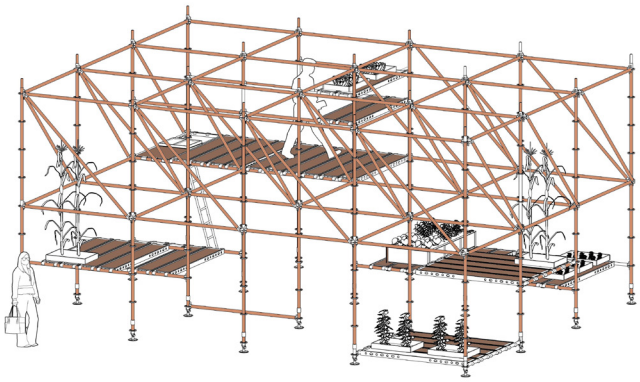


Fig. 107 Urban garden use.

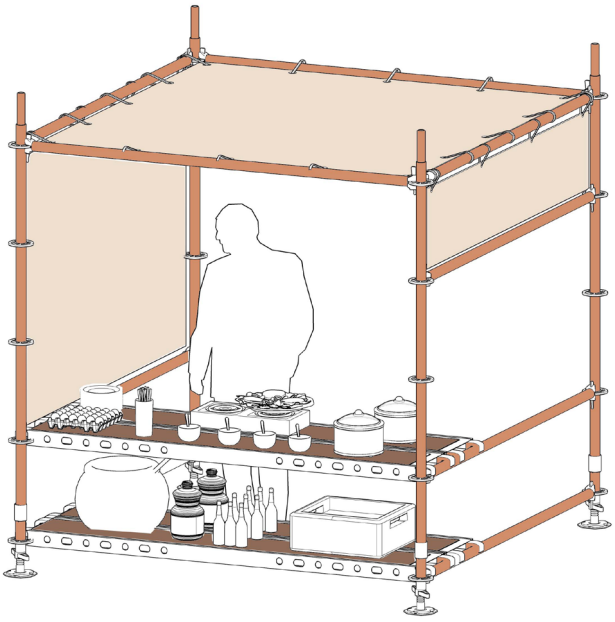


Fig. 108 Gastronomical use.

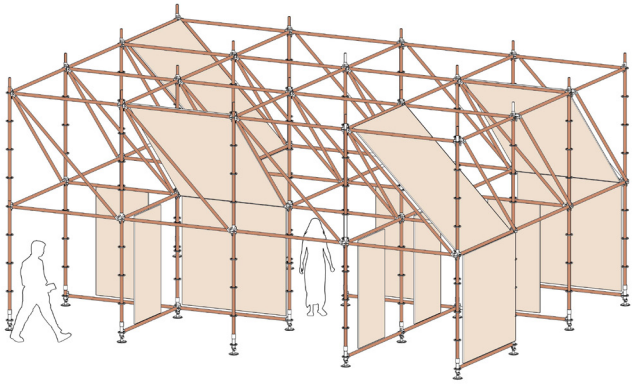


Fig. 109 Exhibition use.

1.2 FUNCTIONALITY

As was mentioned in the resilient urbanism section, transforming public spaces becomes an essential component for creating livable and vibrant cities[12]. These spaces should not only be designed to be navigable, but also conceived to foster interaction, social encounters, and a sense of belonging among those who inhabit them.

To materialize this criterion, the strategy of remendation of the squares was adopted to strengthen their multifunctionality and allow social, cultural, and economic activities to converge, thereby promoting social interaction. Similarly, the development of local economies is encouraged by incorporating accessible markets and commercial spaces, which not only energize the neighborhood's economic activity but also strengthen the identity of the place.

In this way, the remediation strategy applied to the plazas allows functionality to be understood not only as fulfilling the original purpose of the space but also as a means to create resilient, inclusive, and adaptable places capable of responding to the challenges of contemporary urban life, while simultaneously promoting interaction, diversity of uses, and the vitality of the environment.

articulate pedestrian flows, and their proximity to cultural and commercial facilities. Leveraging these strengths and opportunities allows for the development of revitalization strategies that address not only the need to improve the quality of public space but also to strengthen the identity of the area, enhancing safety, accessibility, and community engagement.

11 Sennett, R. (2018). *Building and Dwelling: Ethics for the City*. New York: Farrar, Straus and Giroux.
12 Project for Public Spaces. *About placemaking*. Retrieved from https://www.pps.org

CURRENT SITUATION OF THE SQUARES

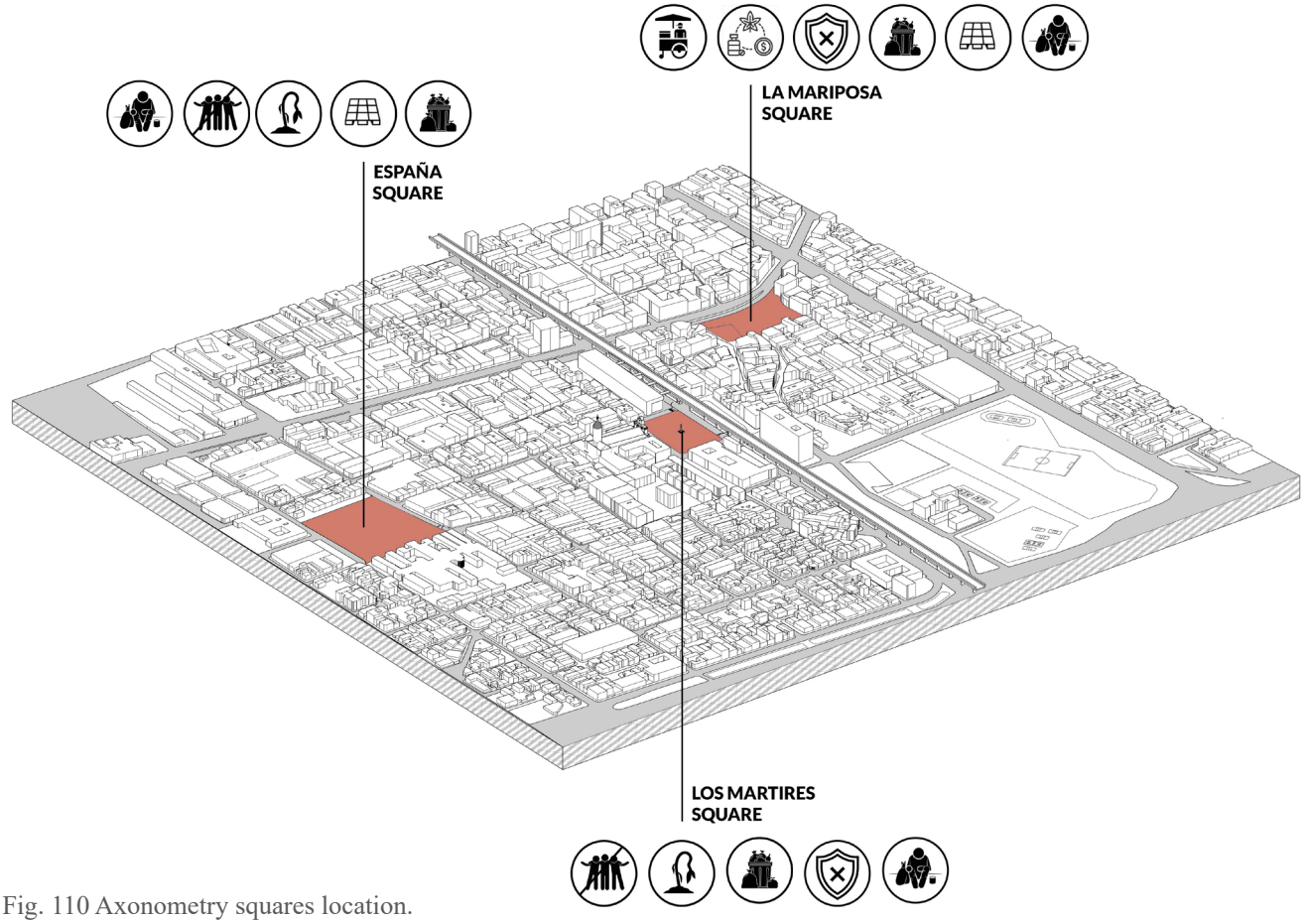


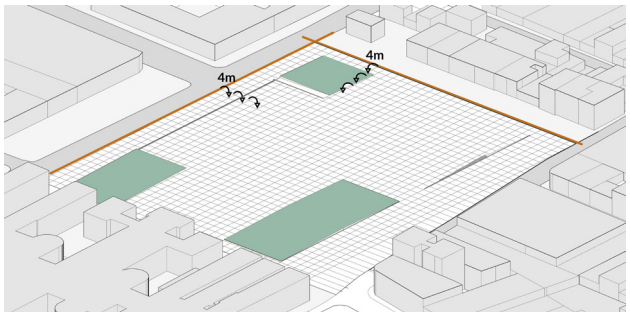
Fig. 110 Axonometry squares location.

España Square
-Large empty space
-Lacking activities
-Huge pavement area
-Accumulated trash
-Deteriorated gardens
-Presence of homeless people
-Drug trafficking

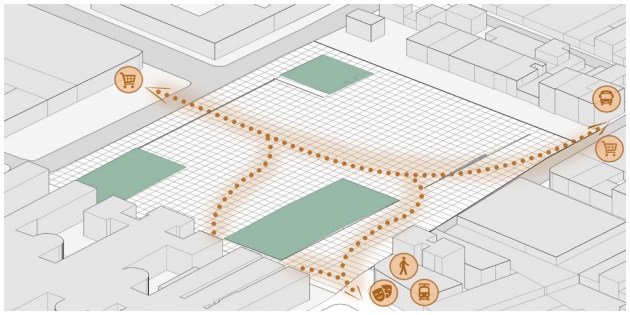
Los Martires Square
-Insecurity
-Presence of homeless people
-Large empty space
-Deteriorated gardens
-Accumulated trash

La Mariposa Square
-Cogested by street vendors.
-Drug trafficking
-Insecurity
-Accumulated trash
-Huge pavement area
-Presence of homeless people

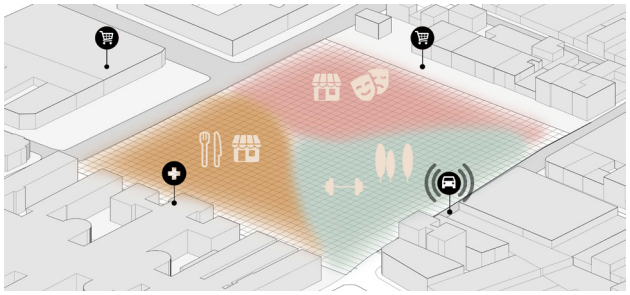
1.The design of the plaza began keeping the existing green areas since the main objetive is make a remendation, not a reconfiguration[11]. Then a 4-meter modular grid is placed to follow the logic of the modules and ensure the possibility of accommodate the modules in various configurations seamlessly and adjust to the needs over time.



2. After an analysis of pedestrian flows was conducted to identify the areas with the highest movement, such the connection between the plaza españa mall with the metro line and the connection with between the two near commercial areas.



3. The layout of the uses was determined based on the specific conditions of the surrounding context. A green buffer zone was placed near the main noise source. Designated areas were created for informal commerce, which during the day occupy two main zones. At night, these areas turn into a gastronomical (near the hospital to avoid increasing noise levels) and cultural areas, adjacent to the commercial strip to boost nighttime activity and revitalize the sector.



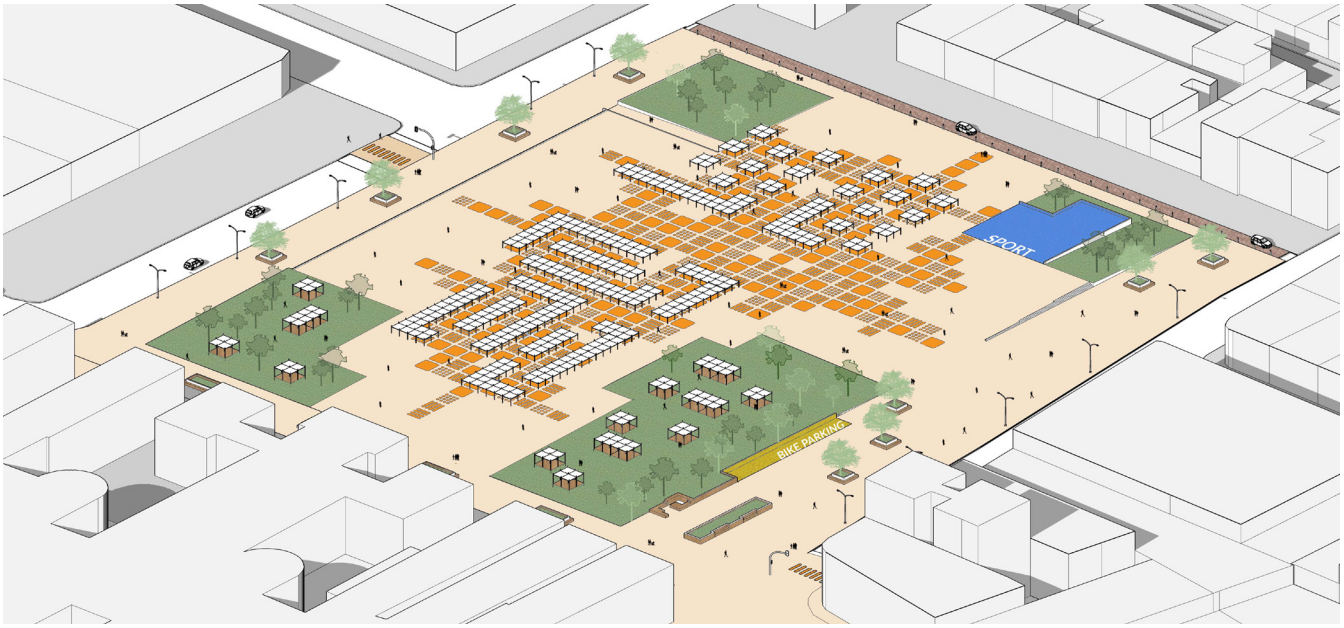
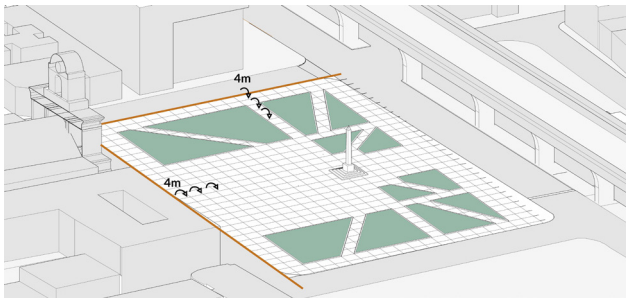


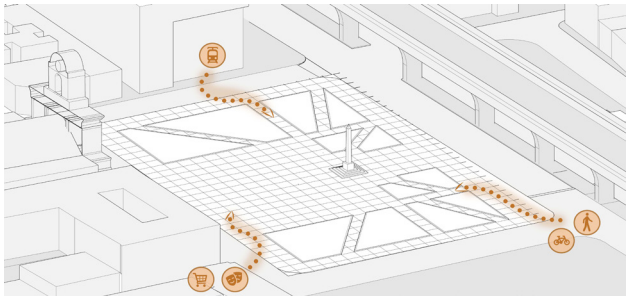
Fig. 111 Axonometry España square proposal.

11 Sennett, R. (2018). *Building and Dwelling: Ethics for the City*. New York: Farrar, Straus and Giroux.
12 Project for Public Spaces. *About placemaking*. Retrieved from https://www.pps.org

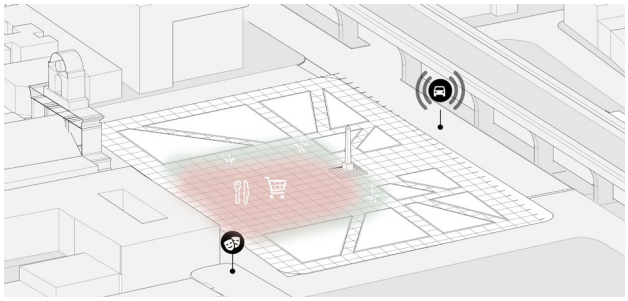
1.The design of the plaza began keeping the existing green areas since the main objetive is make a remendation, not a reconfiguration[11]. Then a 4-meter modular grid is placed to follow the logic of the modules and ensure the possibility of accommodate the modules in various configurations seamlessly and adjust to the needs over time.



2. After an analysis of pedestrian flows was conducted to identify the areas with the highest movement, such the connection with the metro line and the connection with the Distrital cultural center “el Bronx”



3. The layout of the uses was determined based on the specific conditions of the surrounding context. Water features were placed inside the squere to mask the noise source. Following this, designated areas were created for informal commerce, but at night, these same areas transition into a gastronomical spaces since is close to a cultural center, it will boost nighttime activity and revitalize the sector.



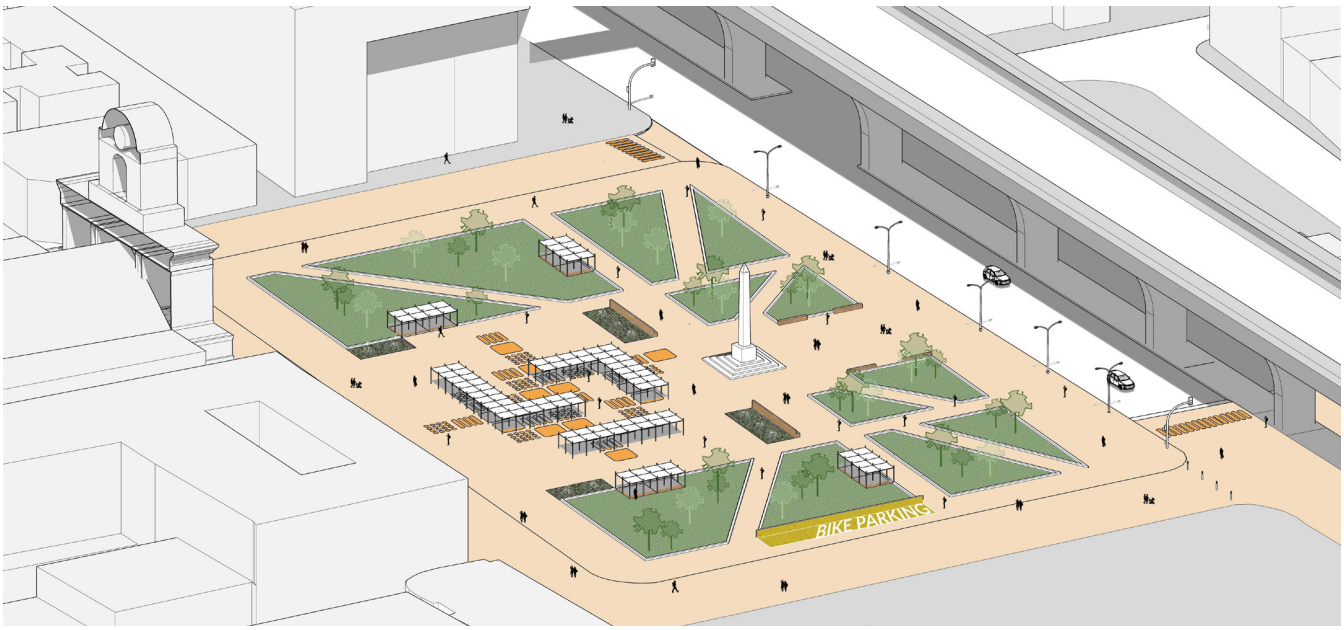
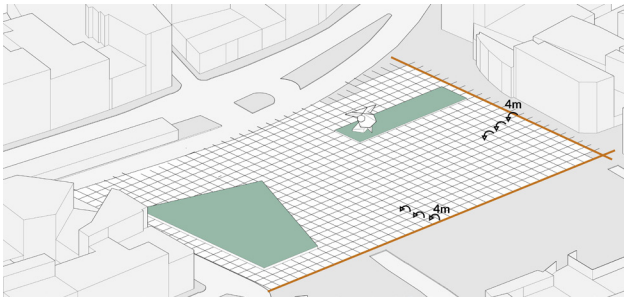
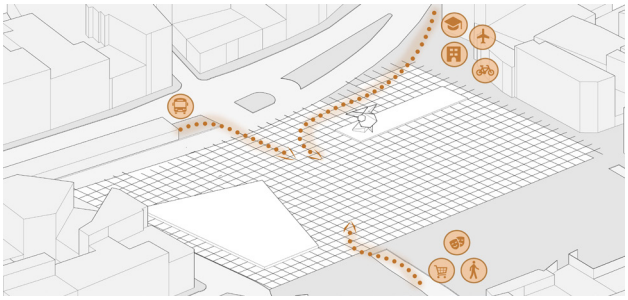


Fig. 112 Axonometry Los martires square proposal.

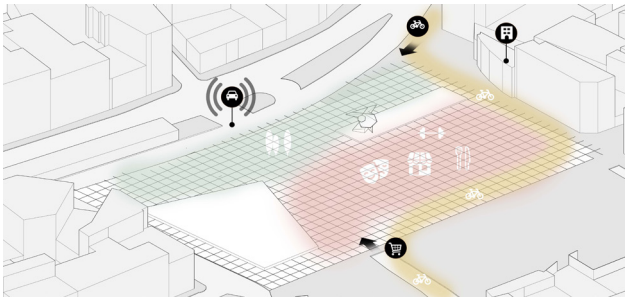
1.The design of the plaza began keeping the existing green areas since the main objetive is make a remendation, not a reconfiguration[11]. Then a 4-meter modular grid is placed to follow the logic of the modules and ensure the possibility of accommodate the modules in various configurations seamlessly and adjust to the needs over time.



2. After an analysis of pedestrian flows was conducted to identify the areas with the highest movement, such the connection with the universities, touristic node and the main bus station.



3. The layout of the uses was determined based on the specific conditions of the surrounding context. Designated area far from the main source of noise was created during the day for informal commerce and at night, these areas turn into a gastronomical and cultural areas, to boost nighttime activity. A continuty of the bike line is proposed to promote the universal accesibility.



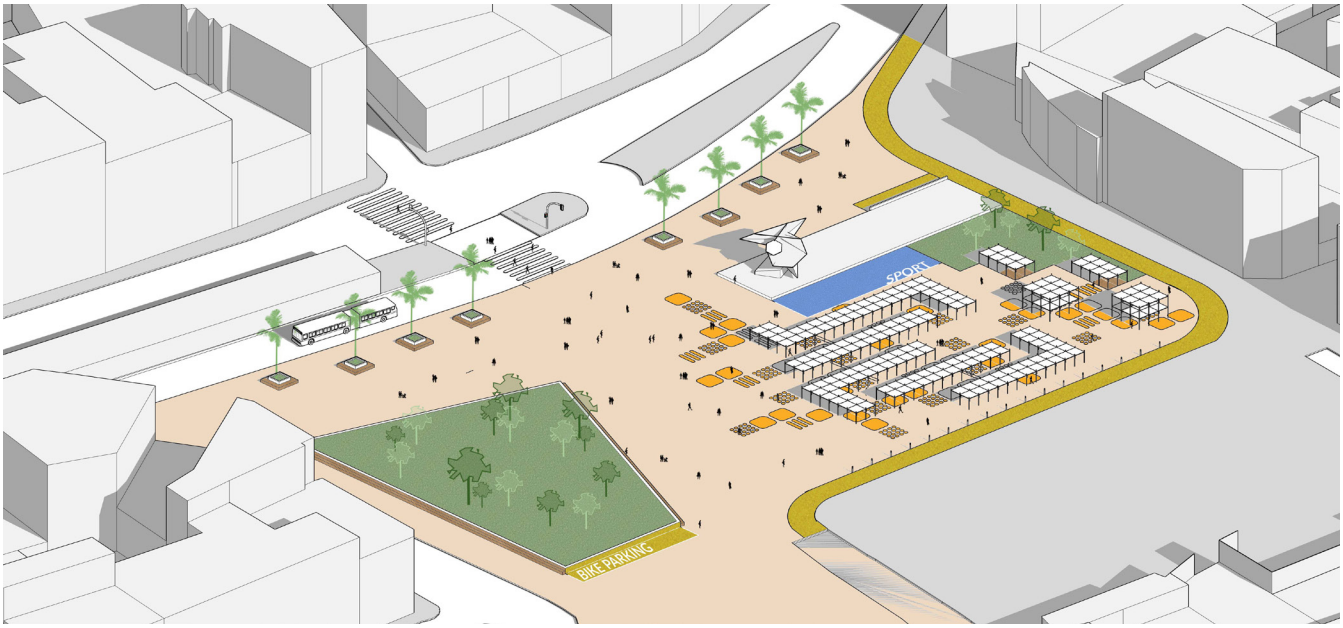


Fig. 113 Axonometry La Mariposa square proposal.

1.3 PROMOTING PHYSICAL ACTIVITY

As was exposed in the healthy urbanism section, the main goal of a public space is to positively impact human health and quality of life. Public spaces, when well-designed, go beyond being mere areas of circulation or leisure; they become vital components of the urban fabric, shaping the daily experiences of residents and visitors alike. Based on the WHO guidelines[19] on physical activity for different population groups, the design of public spaces that actively promote physical activity and overall well-being emerges as a fundamental requirement in the creation of healthy, inclusive, and sustainable cities.

Designing public spaces that actively promote physical activity and well-being becomes a fundamental requirement for building healthy and inclusive cities. These spaces must go beyond offering recreational opportunities: they should prioritize accessibility, safety, and inclusivity to ensure that people of all ages, abilities, and backgrounds can comfortably and confidently engage in physical activities.

To achieve this, the strategy focuses on the creation of inclusive sports spaces within the revitalized squares, specifically designed to accommodate the diverse needs of children, adolescents, older adults, pregnant women, and individuals with disabilities. By integrating them into the public realm rather than isolating them, these spaces become dynamic nodes for physical exercise, social interaction, and intergenerational engagement, fostering active lifestyles within the broader urban context.

Fig. 114 Axonometry Sport area inside the España square proposal.

19 World Health Organization. (2018). Global action plan on physical activity 2018–2030: More active people for a healthier world.

1.4 SOUND DESIGN AND CONTROL

As was highlighted in the urban comfort section, controlling noise levels in public spaces has become essential to ensure that these areas remain functional, comfortable, and conducive to social interaction. The acoustic quality of a space directly affects its usability, safety, and the well-being of its users.

To materialize this criterion, the sound control strategy was applied differently in each public space according to its specific context. In España Square, tree barriers were introduced to reduce noise propagation[30] and create quieter areas for social and recreational activities. In Los Mártires Square, a masking technique using water fountains was implemented to incorporate pleasant natural sounds[30] that conceal unwanted urban noise, as vegetation alone was insufficient to achieve acceptable acoustic conditions. Finally, in La Mariposa Square, the activity areas were strategically located away from the main noise sources [30], ensuring a more comfortable auditory experience for users.

Through these interventions, the sound control strategy not only mitigates the negative impacts of noise pollution but also enhances the quality, functionality, and habitability of public spaces, transforming them into healthier, more inclusive, and more resilient urban environments.

30 Wolfgang Kropp,Jens Forssen, Laura Estevez Mauriz (2016), *"Urban Sound Planning-The Sonorus Project"*, Chalmers University of Technology, Division of Applied Acoustics.

Fig. 115 Perspective masking technique Los Martires square

Fig. 116 Perspective Sound control España square

1.5 CLIMATE RESILIENCE

As was mentioned in the sustainable urbanism section, addressing climate change requires a shift toward sustainable, equitable, resilient, and low-carbon cities. This involves designing urban spac-es that integrate two fundamental imperatives[2]: The Green, which focuses on reducing emissions and enhancing climate resilience, and the Thriving, which prioritizes people-centered spaces that foster social interaction, inclusivity, and community well-being.

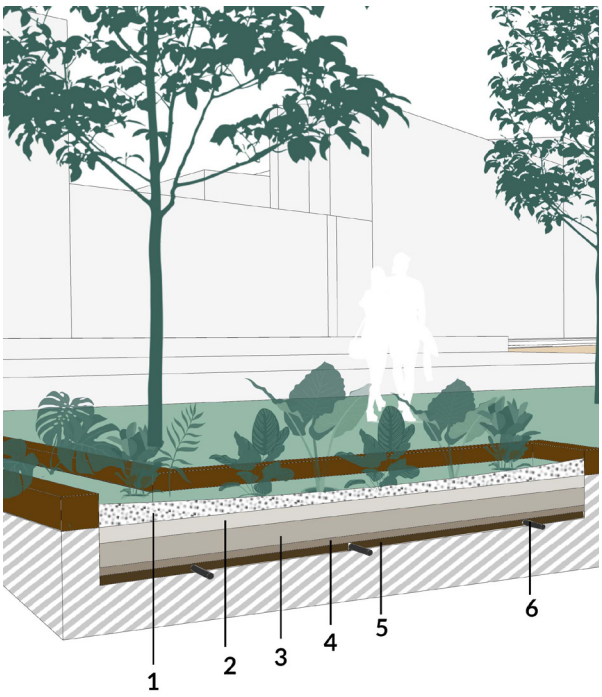
Within this framework, climate resilience in urban design refers to the ability of cities and public spaces to adapt to changing environmental conditions while maintaining safety, functionality, and a high quality of life for all residents. Achieving this requires a combination of nature-based solutions with low-carbon construction practices, ensuring that urban interventions mitigate climate risks while simultaneously delivering ecological and social benefits.

The proposed strategy specifically addresses key climate-related challenges by focusing on stormwater management, mitigation of the urban heat island effect, and revitalization of degraded green areas. For instance, the implementation of raingardens[53] plays a crucial role: their shallow depressions allow stormwater infiltration, reducing runoff volumes while simultaneously minimizing the extent of hard, heat-absorbing surfaces exposed to the sun. This dual function helps both to manage water more sustainably and to cool urban microclimates, creating more comfortable and resilient public spaces. Furthermore, the introduction of scaffold structures within the underused green areas will transformthem into a vibrant community spaces. These structures not only improve the perception of safety through better visibility and activation of public spaces but also encourage communal interaction and foster a sense of ownership among residents.By reimagining degraded areas into multifunctional green hubs, the interventions support ecological restoration, enhance biodiversity, and provide inclusive spaces where people can gather, play, and relax.

Collectively, these measures go beyond risk mitigation. They contribute to creating adaptive, in-clusive, and people-oriented public spaces that strengthen the social fabric of neighborhoods while addressing pressing environmental challenges. The combination of raingardens, green infras-tructure, and community-focused design principles ensures that urban environments are better equipped to withstand climate impacts, reduce carbon footprints, and promote long-term sustainability and well-being.

2 C40 Cities. (2024). *Guidance to design green and thriving public spaces: Reinventing Cities São Paulo.*

53 University of Maryland Extension. (2025). Rain Gardens. Retrieved from https://extension.umd.edu/resource/rain-gardens-0



1- Ponding Depth
2-Sand
3-Silt
4-Clay
5-Gravel
6-Perforated pipe underdrains to outlet

Fig. 117 Raingarden detail

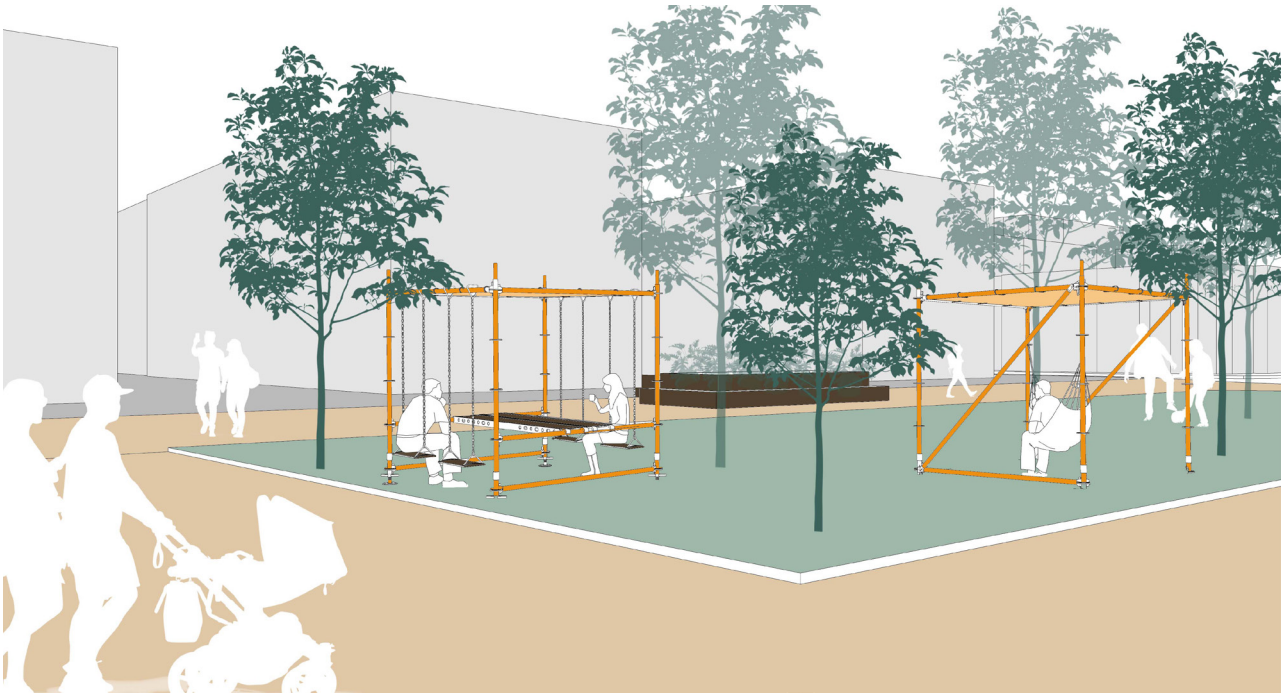


Fig. 118 Revitalization of degraded green areas.

1.6 ECONOMIC REVITALIZATION

As was highlighted in the tactical urbanism section, small-scale, low-cost interventions have the potential to generate significant urban transformations by revitalizing underutilized public spaces[9]. This approach not only seeks to improve the physical environment but also to stimulate local economies and strengthen neighborhood identity.

To materialize this criterion, two streets were pedestrianized to create a continuous connection between the squares, following the Building a Better Block approach, which focuses on revitalizing underused urban blocks through interventions such as pop-up cafés, potted trees, urban art, and painted bike lanes[9]. To avoid overloading the area, 10th street was selected for pedestrianization due to its proximity to the Creative District, and the Carrera 12a, a secondary road to minimize the vehicular traffic visiting the area.

Additionally, the building edges were painted to reactivate street life and encourage commercial and cultural activities at the pedestrian scale. At the same time temporary urban furniture was installed, allowing multiple configurations according to the needs of the community and promoting more dynamic and adaptable public spaces[9] and ntersection repairs were carried out at key crossings, introducing painted murals on the pavement, urban art, and small-scale furniture installations to reclaim intersections as community spaces[9]. These interventions not only improved pedestrian safety but also fostered local identity

.

Together, these low-cost, creative interventions reactivated public spaces, promoted social interaction and economic activity, and contributed to the creation of more vibrant, inclusive, and resilient urban environments.

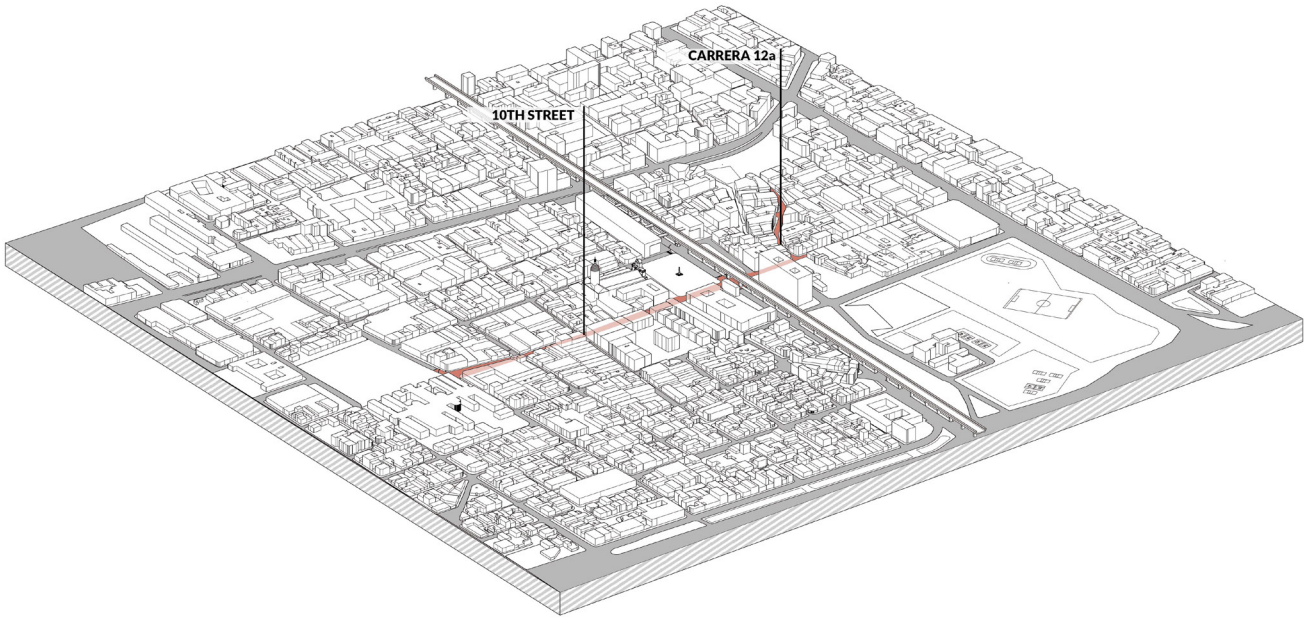


Fig. 119 Axonometry local streets pedestranization

9 Mike Lydon, Antony Garcia, Tactical Urbanism. Short-term actions for long-term change,Island Press, 2015

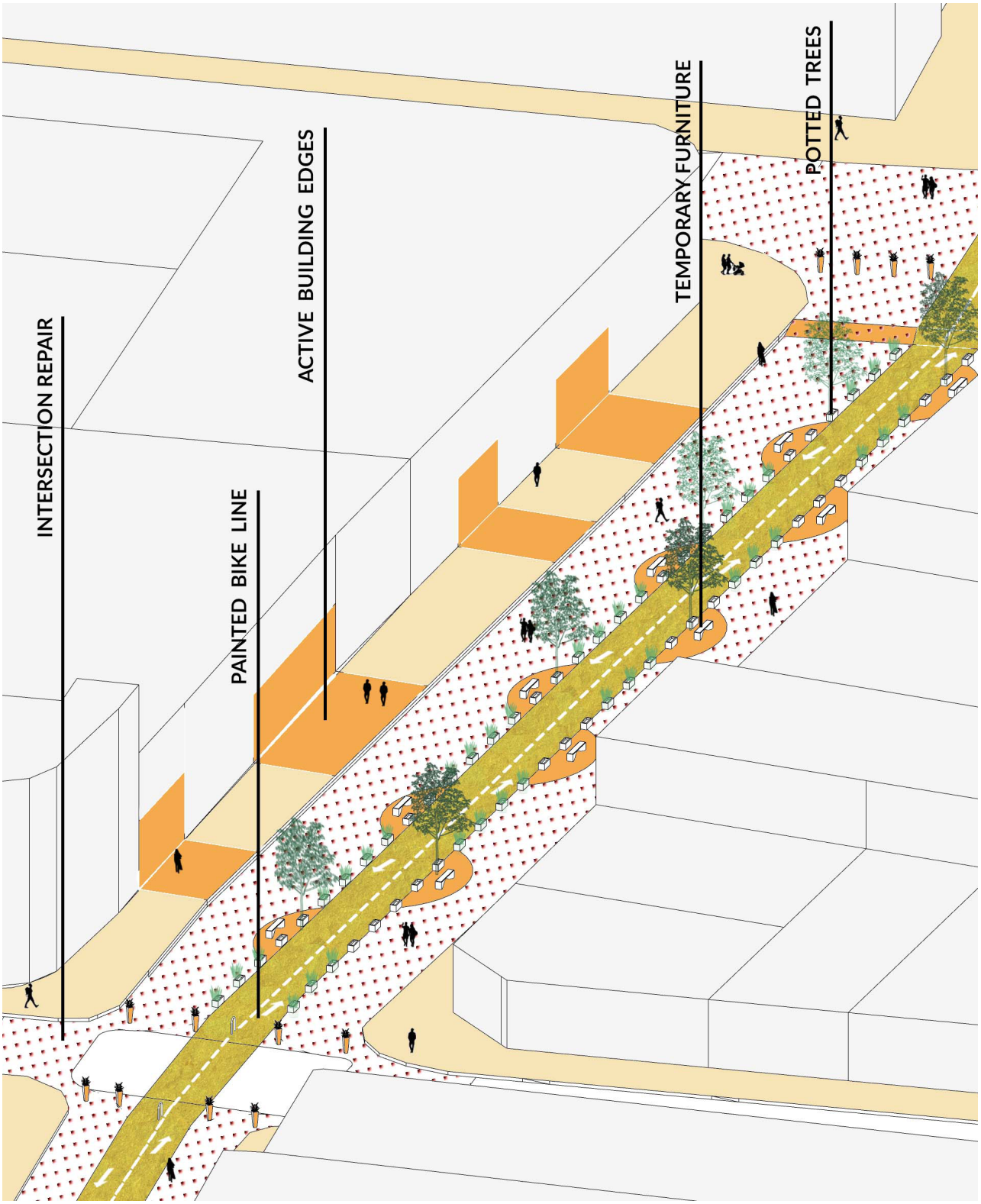


Fig. 120 Axonometry 10th street pedestranization

1.7 DESIGN FOR PEDESTRIANS AND CYCLIST

As was highlighted in the urban mobility section, creating streets that prioritize pedestrians and cyclists is essential for developing safe, inclusive, and resilient urban environments. The contemporary city demands public spaces that are not only corridors for movement but also places that foster social interaction, accessibility, and a genuine sense of community. Designing for pedestrians and cyclists directly contributes to promoting sustainable and healthy modes of transportation[35], reducing environmental impacts, and improving the overall quality of urban life.

To effectively implement this criterion, the proposed strategy focuses on the design of dedicated and well-integrated lanes for both pedestrians and cyclists. The design includes wide sidewalks with ample space for seating, user-friendly urban furniture, and clear signage of circulation and permanence spaces to ensure safety and comfort for all users.

Moreover, the organization of urban activities within these streets is restructured to minimize conflicts and improve func-tionality. Informal commerce, often concentrated in narrow and congested streets, is strategi-cally relocated to the revitalized plazas, this not only preserves the fluidity and openness of pedestrian and cycling corridors but also supports local economic activities by giving ven-dors better visibility and integrating them into vibrant public spaces designed for multiple uses.

By combining these elements, the streets evolve into accessible, functional, and inclusive pu-blic spaces that invite walking and cycling as primary modes of transport. They help reduce car dependency, improve air quality, and create a healthier, more socially engaging urban experien-ce. Ultimately, this approach transforms mobility corridors into multi-dimensional spaces whe-re movement, culture, and community life converge

35 Global Designing Cities Initiative. (2016). Global street design guide. Island Press. https://globaldesigningcities.org/publication/global-street-design-guide/

CURRENT STREET MORPHOLOGY
1OTH STREET

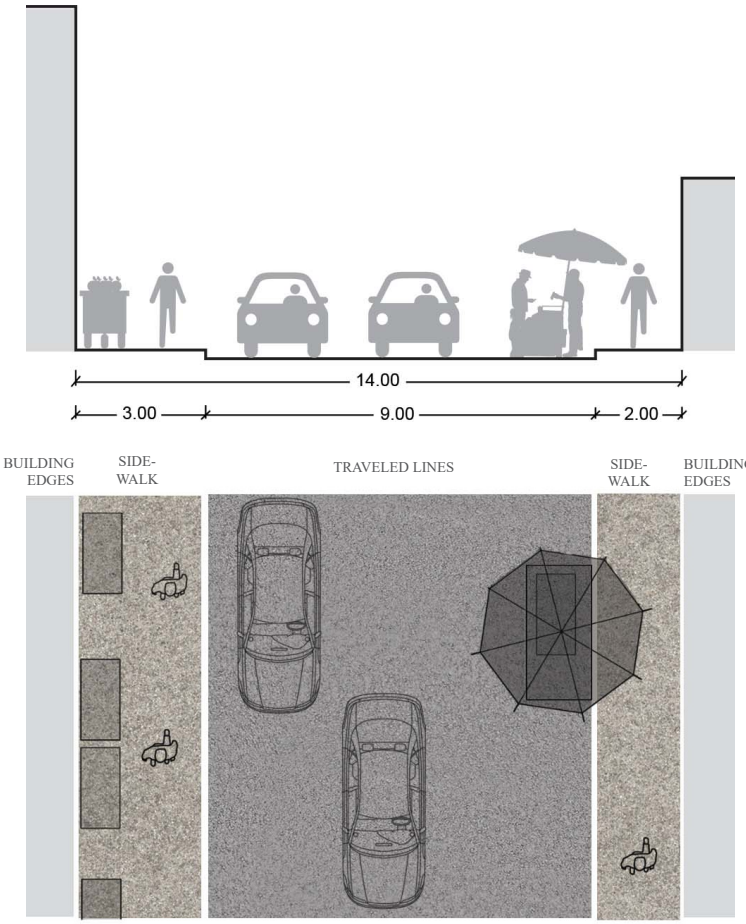


Fig. 118 Current street morphology 10th street

PROPOSAL STREET MORPHOLOGY
1OTH STREET

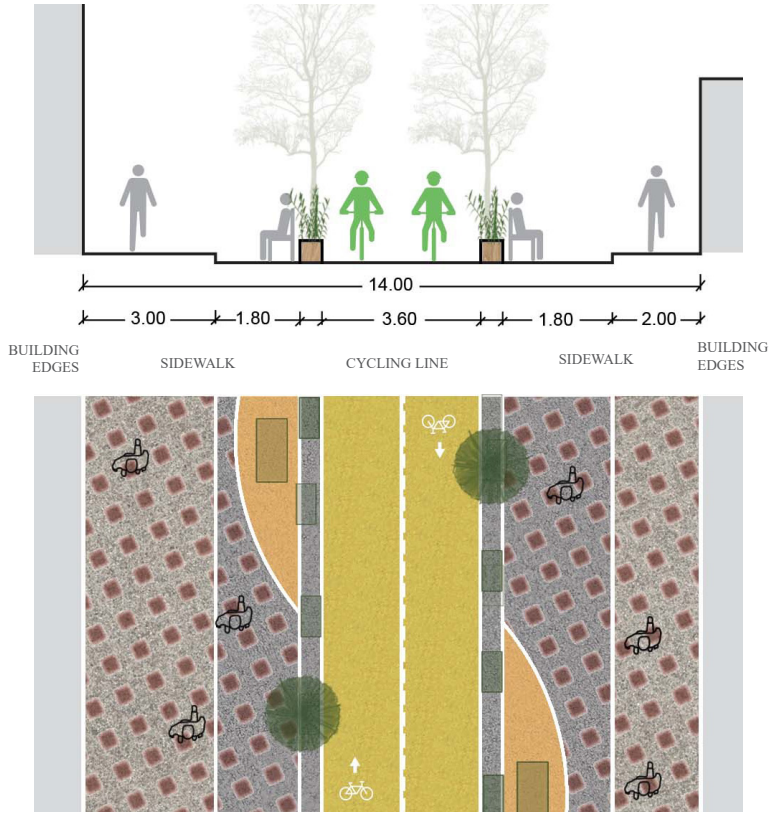


Fig. 121 Proposal street morphology 10th street

1.8 LIGHTING FOR SECURITY

As was highlighted in the urban comfort section, creating visually pleasing and safe nighttime environments is fundamental to enhancing not only the usability of public spaces but also the perception, identity, and overall experience of urban life after dark. Proper lighting serves as a critical element in shaping how people interact with the city at night. It ensures physical safety by improving visibility and orientation, while simultaneously fostering a sense of psychological comfort that encourages residents and visitors to use public spaces even after sunset. Beyond its functional role, lighting acts as a catalyst for social interaction, transforms urban settings into vibrant meeting points, and can even activate commercial and cultural fronts, thereby strengthening the sense of community and contributing to the city's economic and social vitality[32].

In this project, the strategy specifically focused on lighting as a tool for security and spatial activation, adopting a layered lighting approach to create environments that are both functional and visually engaging. The design integrates two main layers of lighting:

Interior building lighting[33]: Allowing interior activity to be visible from the outside in order to create a sense of transparency and dynamism that encourages passersby to interact with the surroundings. Visually activating façades and strengthening the relationship between the interior and exterior, creating more attractive and safer environments during nighttime hours.

Light for social interaction[33] : With focal lighting on the floor, carefully Designed to enhance cyclist safety, reducing potential risks and ensuring they can move with confidence, allowing users to clearly identify the path while other road users can also recognize them and with linear strip lighting, to define the pedestrian lanes and gathering areas, improving spatial legibility and orientation at night, creating a visual boundary that protects and organizes the different flows of movement while reinforcing accessibility and connectivity throughout the site.

By integrating these layers into a cohesive lighting strategy, the project achieves a dual goal: addressing the functional needs of safety, orientation, and circulation while simultaneously enriching the experiential qualities of the urban environment. The result is a night-time setting that feels inclusive, secure, and dynamic, supporting activities such as walking, cycling, social gatherings, and commercial interaction in a comfortable and aesthetically appealing atmosphere.

32 Florence Lam, Chris Luebkeman, Leni Schwendinger, Josef Hargrave (2015), "Cities Alive-Rethinking the Shades of Night.

33 Calvillo, Berenice & Falcon, Luis. (2016) Emotions and the Urban Lighting Environment: A Cross-Cultural Comparison. SAGE Open. 6. 10.1177/2158244016629708Shades of Night.

Fig. 122 Safe pedestrian crossing

Fig. 123 Lighthing Layers

CONCLUSION

The project is based on the conviction that urban regeneration is not about replacing what already exists but about recovering, reactivating, and re-signifying spaces by unlocking their latent potential in response to current social, economic, and environmental dynamics. Under this vision, the intervention of the commercial node is conceived as a comprehensive master plan capable of operating at different scales to weave new urban connections, diversify the uses of public space, and revitalize its role within the city.

At the urban scale, the project proposes the articulation of the commercial node with the other three main nodes of downtown Bogotá, the historical, cultural, and touristic nodes, through the extension of the green corridor along Avenida Jiménez and the expansion of the bike lane on 7th Street, aiming to create a sustainable mobility network that promotes walkability, cycling, and public transportation.

On the other hand, at the local scale, the project focuses on the social and economic reactivation of the neighborhood through the pedestrianization of the main plazas and public spaces within the commercial node. The relocation of informal commerce into the plazas is a key strategy to support the local economy without conflicting with pedestrian mobility. To achieve this, modular scaffolding structures are proposed as reversible and adaptable elements capable of hosting temporary commerce, cultural events, or community facilities depending on the neighborhood's needs. These structures not only activate the physical space but also stimulate low-cost, high-impact economic and social dynamics. Complemented by urban comfort design criteria, the project significantly improves the habitability of public spaces, fostering permanence and social interaction throughout the day.

Ultimately, the project seeks not only to enhance the image and functionality of the commercial node but also to build a resilient, diverse, and adaptive model of public space, capable of attracting visitors, strengthening local identity, and consolidating itself as a vibrant and articulating point in the heart of the city. In doing so, it lays the foundation for urban regeneration that prioritizes people, promotes sustainability, and reactivates the latent potential of a historically marginalized area, fully integrating it into the contemporary dynamics of the city.

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