

Revitalizing Ciutat Vella, Barcelona

for a resilient, equitable, and balanced urban future

Columbia University GSAPP Urban Planning Studio Report
Spring 2025



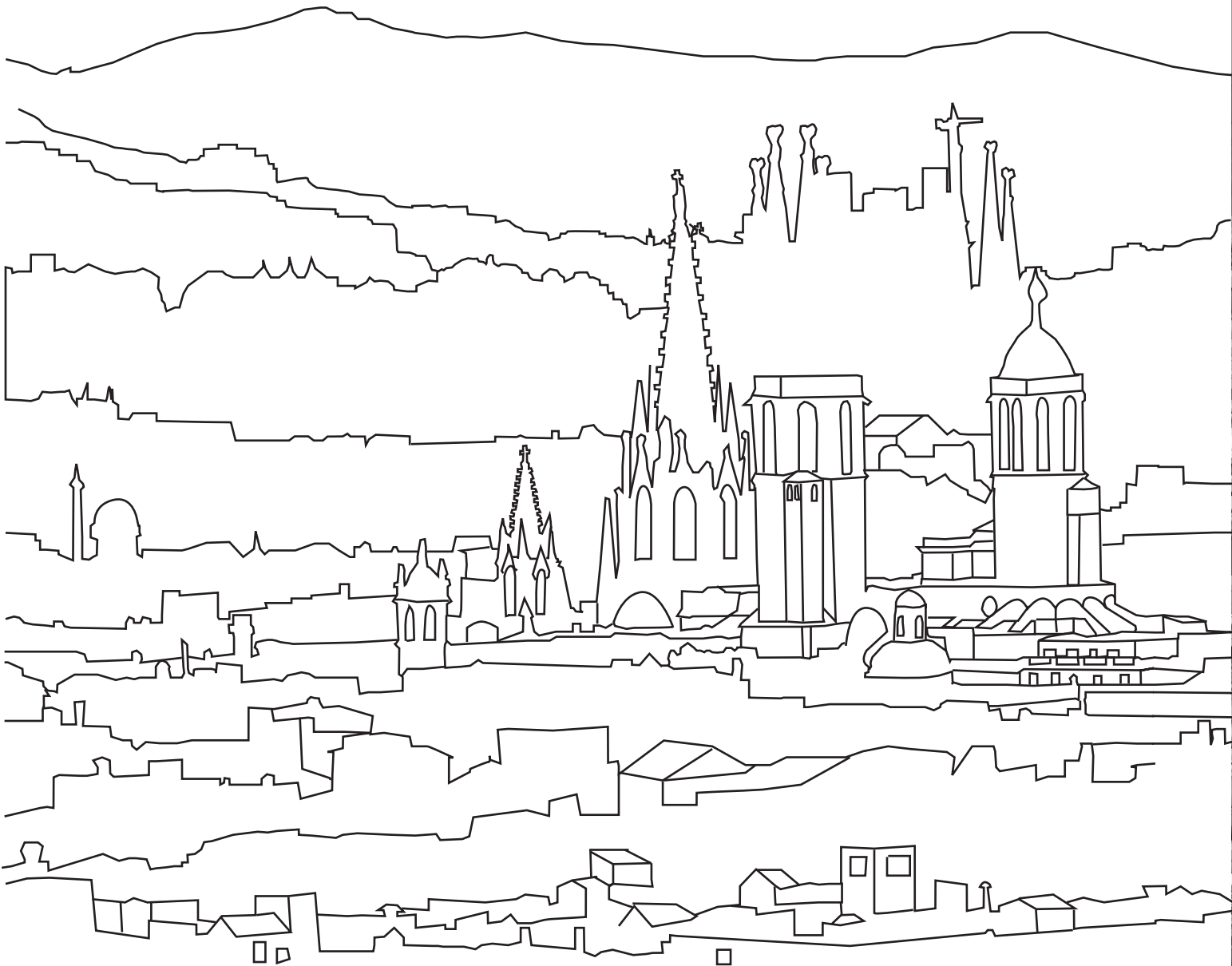
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Spring 2025 | GSAPP Urban Planning





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EXECUTIVE SUMMARY

Ciutat Vella, Barcelona's oldest district, is a place where ancient Roman walls, Gothic alleys, and vibrant cultural heritage converge to tell the story of a city shaped by centuries of change and continuity. Beneath this layered history lies a city grappling with contemporary pressures and vulnerabilities. In Spring 2025, Columbia University's Urban Planning Studio: Revitalizing Ciutat Vella set out to investigate how resilience — social, economic, and environmental — can be reimagined in a dense, socially diverse, and historically preserved urban core.

The studio was guided by a central inquiry: How can Ciutat Vella be revitalized to serve its residents while preserving its unique historical and cultural fabric? To answer this, our team followed a deliberate three-phase methodology: research, engagement, and proposal. Phase One consisted of secondary research and spatial analysis using geographic information systems and publicly accessible municipal data to identify challenges and vulnerabilities. In March 2025, Phase Two brought the studio to Barcelona for on-site fieldwork. There, we conducted site observations, interviews with local stakeholders, and workshops with institutional partners including the City of Barcelona and Universitat Politècnica de Catalunya (UPC). Phase 3 followed our return to New York, where we synthesized our findings into strategic proposals to achieve a comprehensive revitalization framework for the district.

The studio's purpose was to frame Ciutat Vella as a living case study for context-sensitive resilience in historic cities. Resilience was conceptualized not merely as the ability to "bounce back" from immutable external pressures, but as the capacity to adapt to changes, recover effectively, and ultimately thrive.



We arrived at a forward-looking vision to transform Ciutat Vella into a more resilient, equitable, and balanced urban environment, anchored in four key pillars: fostering social and cultural resilience, promoting climate resilience, strengthening housing and economic resilience, and embedding equitable planning throughout.

A multi-pronged proposal framework was developed around two core domains:

- 1.** Housing and Economic Rehabilitation in the Private Realm: Specific initiatives include vulnerability-indexed funding, structural and accessibility upgrades for historic buildings, public acquisition of expiring tourist rental properties, and a land lease funding model at Port Vell aimed at economically sustainable waterfront redevelopment.
- 2.** Public Space Activation and Connectivity: Initiatives include revitalization strategies for three key plazas through a combination of green infrastructure, tactical urbanism, and social programming recommendations. A proposed green connectivity network links these plazas and enhances district-wide walkability and climate adaptation.

The final outputs of the studio include this report, along with Midterm and Final Reviews that were presented at Columbia University. This studio affirms that resilience in historic areas requires more than preservation — it demands a just reinvestment in place and people. Through this context-responsive framework, Ciutat Vella can be revitalized in pursuit of a more resilient, inclusive, and balanced urban future.

Note: Unless otherwise noted, all figures, maps, and images in this report are developed by the Studio Team.



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ACKNOWLEDGEMENT

We would like to express our heartfelt gratitude for our collaborators and partners, the City of Barcelona- Neda Kostandinovic, the Universitat Politècnica de Catalunya - Carles Crosas, Helena Trias, Aleix Saura Vallverdu, Joan Martí Elias, Enric Villavieja, as well as Inés Aquilué Junyent, Gloria Serra Coch, and Cynthia Echave for their generous inputs and insights. We would also like to thank Erin Robin, an incoming architecture student, for sharing his local views on Ciutat Vella. This studio would not have been possible without the dedication of our teaming team- Professor Ebru Gencer, Professor Ubaldo Escalante, and Teaching Associate Ethan Floyd - we are grateful for their tireless guidance throughout this semester.



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JOAN MIRÓ
LLUNA, SOL I UNA ESTRELLA
DIPINTA DE AL PARRIS BOUTIER - 1954 - JOAN

01 INTRODUCTION

“

Barcelona is a very old city in which you can feel the weight of history; it is haunted by history. You cannot walk around it without perceiving it.

– Carlos Ruiz Zafón

INTRODUCTION

Author Zafón's sentiment echoes throughout Ciutat Vella, the historic heart of Barcelona and the focus of our studio. Guided by the theme of urban resilience, our studio Revitalizing Ciutat Vella, Barcelona for a Just and Green Urban Future, undertakes a comprehensive study of the city's oldest district, where centuries of cultural, architectural, and social layers converge within a dense and continually evolving urban fabric. Today, Ciutat Vella grapples with a range of contemporary challenges, including an aging built environment, socio-economic disparities, climate vulnerabilities, and the pressures of mass tourism. Our work begins with a deep historical awareness—an understanding that any visions for the future must be rooted in respect for the district's layered past. Through a multifaceted investigation into the shifting socio-economic and environmental conditions, we explore how Ciutat Vella could be revitalized without compromising the very qualities that make it unique. Anchored in rigorous research, critical analysis, and meaningful engagement with local stakeholders and partners, we aim to propose pathways to resilience that are socially inclusive, environmentally sustainable, and historically grounded.





STUDIO PURPOSE + VALUES

Through a holistic and context-sensitive approach, this studio frames Ciutat Vella as a living case study of how historic urban cores can be revitalized to enhance resilience within local communities. While resilience has a myriad of definitions, this studio defines it as a comprehensive and dynamic condition—one in which communities are able to endure challenges and thrive amidst shifting socio-economic pressures, environmental vulnerabilities, and the constrictions of the existing built environment. In other words, we aim to position resilience not solely as an environmental objective, but as a social, cultural, and economic one as well, ensuring that our intervention proposals are grounded in local conditions and responsive to the residents' needs.

This studio is organized around three core objectives. First, we adopt a systems-thinking approach to investigate Ciutat Vella, analyzing its historical, demographic, spatial, economic, and environmental contexts to identify the district's key challenges and opportunities. In collaboration with the City of Barcelona and the Universitat Politècnica de Catalunya, we then conduct field research in Barcelona, evaluating initial hypotheses through site observations and stakeholder engagement. Finally, we refine our vision, set goals and strategies, and develop interventions aimed at reinforcing the urban resilience of Ciutat Vella.

In the following sections of this report, we examine the site context with a particular focus on socio-demographic and historical contexts as well as the neighborhood profiles. We will then identify key challenges and vulnerabilities within the district. This is followed by our field research findings and the repositioning of our visions and goals. In the final section, we present our proposed interventions that embody the visions and goals we have established throughout.



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STUDIO TEAM + POSITIONALITY

As visiting students and researchers from various parts of the world, we acknowledge the inherent biases we bring to our findings. Our position as outsiders — working within a limited timeframe, staying in tourist accommodations, and engaging primarily with academic contacts who are non-residents of our area of study — shaped our understanding through partial access and privileged perspective. While our training in urban planning guided our analysis, our insights are constrained by temporal, linguistic, and data limitations. We approach this work with humility, seeking points of connection through shared languages and immigrant experiences, and aimed to center local voices and lived realities wherever possible. We recognize our role within broader dynamics of tourism, displacement, and knowledge extraction, and strove to remain mindful of these impacts throughout our engagement with the historic core of Barcelona. Throughout this process, we kept our work neutral and centered our findings and suggestions around the needs of the residents of Ciutat Vella.

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Resilience in historic urban contexts such as Ciutat Vella must be understood as a multifaceted construct that extends beyond ecological adaptability or climate mitigation. It requires recognizing both the unique vulnerabilities and the distinctive assets embedded in centuries old neighborhoods. Historic places such as Ciutat Vella are culturally significant, socially diverse, and spatially complex, yet they are also disproportionately vulnerable to climate risks, infrastructural decay, and socio-economic disparities. Urban resilience in such contexts is not a singular goal but a delicate balancing act, preserving historical heritage and identity while remaining spatially adaptive and socially inclusive.

For Ciutat Vella specifically, we had to engage with its past as a port city and emphasize that while its history is that of a transitive site, many communities had set down roots and shifted the narrative of the site to one of permanent residence. By establishing this, we prioritized the right to stay-in-place in our conception of urban resilience.

This studio frames resilience through three interlinked pillars:

Social & Cultural Resilience - emphasizing the right of local communities to remain, thrive, and actively shape their neighborhoods. Confronted by tourist-driven transformations, rising housing costs, and demographic shifts, the resilience of Ciutat Vella's residents depends on inclusive policies that prioritize their needs, and strengthen social cohesion.

Climate & Environmental Resilience - acknowledging the disproportionate exposure to urban heat, flooding, and drought in Ciutat Vella, whereby conditions are more severe than in other parts of Barcelona. The district's lack of vegetation, permeable surfaces, and climate adaptive infrastructure exacerbates its vulnerability. Resilience in this context needs site-sensitive, nature-based solutions that align with conservation regulations and heritage preservation.

Housing & Economic Resilience - focusing on the imperative for equitable and affordable housing, while advancing innovative policy solutions to address the aging housing stock within Ciutat Vella's already dense urban fabric.

This framework advocates for a form of revitalization that is not extractive or cosmetic, but just and inclusive. It is crucial to view Ciutat Vella not as a passive relic or tourist spectacle, but as an active living urban environment, one that deserves reinvestment, participatory stewardship, and resident-centered policies. By adopting strategies that are socially inclusive, environmentally responsive, and address existing disparities, this studio contributes to the growing discourse on how heritage neighborhoods can lead, rather than lag, in the pursuit of resilient urban futures.

Framing Resilience in Historical Urban Context



02 **SITE CONTEXT**



To orient our analysis, we begin by examining our chosen site: Ciutat Vella, Barcelona, located in Spain's Catalonia region on the Mediterranean coast. The historical and sociodemographic context of the district provides a critical foundation for identifying and analyzing urban challenges. As such, extensive time was dedicated to understanding these dimensions. The background research consisted of literature reviews and expert-led lectures on the history of our site, while sociodemographic data, based on sources from the Barcelona City government's database, is analyzed using geographic methods to inform our spatial understanding of the site.

2.1 Historical Evolution of Ciutat Vella

Examining the district's history allows us to understand the forces that have shaped its built environment and to identify the enduring architectural and cultural legacies embedded within the urban fabric.

Ciutat Vella is the oldest district in Barcelona and represents the historical foundation of the city. The earliest known settlement in the area was the Roman city of *Barcino*, which was established in the first century BC, between two waterways that now correspond to the district's major thoroughfares: La Rambla and Via Laietana (Coch, 2025). Under Roman rule, defensive walls were erected to fortify the city's perimeter. These remained until the 12th century, when the population growth led to the formation of the Gothic Quarter and, in the 15th century, El Raval to the west (Coch, 2025).

As a coastal city, Barcelona's development was driven by its major port. However, the historic presence of walls separated the city from the waterfront and prevented residents from experiencing it as a civic space, serving instead as a hub for merchant trade (Aquilue, 2025). The spatial disconnect from the waterfront remains a defining legacy in the city's urban structure today.

In 1714, the Bourbonic rulers seized control following a prolonged siege, ending a period of Catalanian self-governance (Breen, 2019). In 1716, the new regime built the military fortress La Ciutadella, razing an entire neighborhood and displacing approximately 5,000 residents in the process (Venteno, 2014, p. 35). The fortress served as a symbol of

Castilian oppression (Breen, 2019). At this time, residents were prohibited from settling outside the walls within cannon's throw, being forced to either stay in the walls or move farther out to villages near the mountains. This exacerbated the overcrowding within the city limits (Coch, 2025). Completed in 1725, La Ciutadella's stated goal was "to entirely subject those perverse humans" to military surveillance (Venteno, 2014, p. 35). This repressive period in Barcelona's past is physically embodied by the fortress and city walls. La Ciutadella underwent repeated cycles of destruction and repair before being demolished in the mid-19th century (Breen, 2019).

By the 1850s, the need to demolish the city walls was apparent. After almost a century of oppression and restrictive urban policy, Barcelona's population faced deteriorating living conditions and growing discontent (Breen, 2019). In 1859, Ildefons Cerdà's comprehensive city expansion plan was adopted (Figure 4). The plan proposed a geometric extension of uniform city blocks across the alluvial plain, reaching from the urban core to the surrounding hills. Today, this layout forms the structural backbone of modern Barcelona, defined by broad boulevards and a regular grid of chamfered blocks. Cerdà envisioned this new fabric as one that would provide light, air, and green space to urban residents. However, by calling it a "foundation" rather than an expansion, his plan was perceived by the government as dismissive of the city's historic core (Aibar & Bijker, 1997).

This view was reinforced by Cerdà's proposal to relocate the city center from Plaça

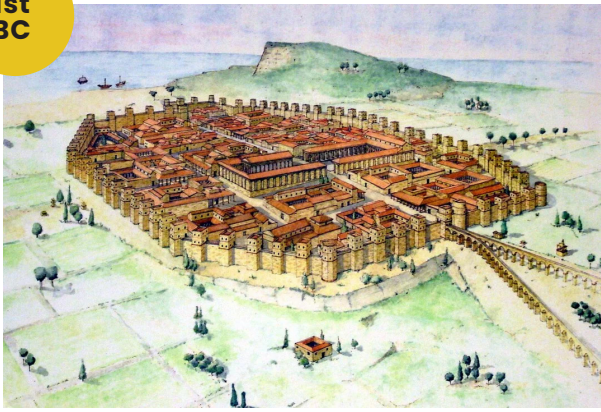
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Figure 1: Barcino. Source: Paseando por la Historia

Catalunya in Ciutat Vella to a new plaza in the L'Eixample district. He also proposed residential development on the former site of La Ciutadella. This, however, was ultimately rejected in favor of Àngel Baixeras's alternative vision to convert the site into a large public park. The city thus transformed a former symbol of repression into a civic space for collective enjoyment (Breen, 2019).

Aside from the wall removals, the great building campaign led by Ildefons Cerdà largely bypassed the interior of Ciutat Vella. Today, this divergence is starkly visible: while the rest of the city reflects Cerdà's modernist vision with wide boulevards and a rational street grid, Ciutat Vella retains its narrow, winding streets, and aging building stock. The urban greening that Cerdà envisioned for the expanded city was never extended to the historic core.

This contrast in planning approaches prompted a different set of interventions within Ciutat Vella. Throughout the 19th and 20th centuries, the district underwent a series of "urban surgeries" – targeted demolitions of specific blocks– often justified by their deteriorated conditions or associations with informal and illicit activities (Coch, 2025). These interventions aimed to open up new plazas and improve neighborhood connectivity. However, this piecemeal strategy has not met the broader needs for accessible public space in Ciutat Vella, where many historic and sometimes dilapidated structures remain home to a socioeconomically diverse population.

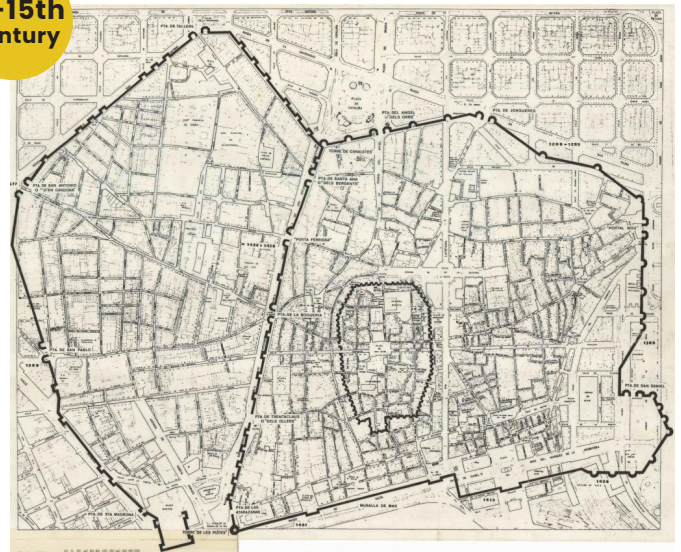
13-15th
Century

Figure 2: Medieval expansions. Source: Barcelona Architecture Walks.

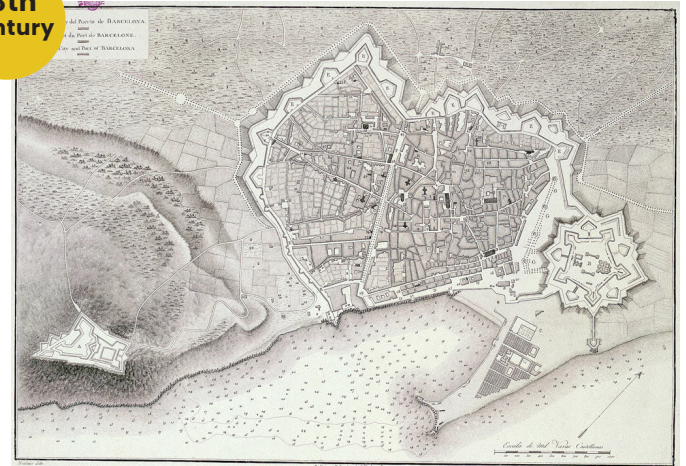
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Figure 3: Figure 3: La Ciutadella and City Walls around Barcelona during Bourbonic Rule. Source: Barcelona Architecture Walks.

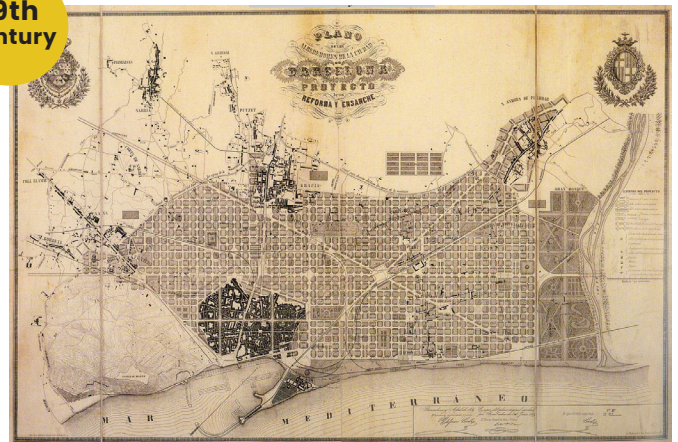
19th
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Figure 4: Cerdà's modified plan, in 1859. Museu d'Història de la Ciutat, Barcelona. Source: Barcelona Architecture Walks.

2.2 Socio-Demographic Analysis

Historically a port city, Barcelona has long been home to traders, agricultural laborers, and later, industrial workers who migrated during the industrial revolution. Due to its proximity to the port and industrial zones, Ciutat Vella historically housed a large number of working-class families. Today, the district remains socio-demographically distinct from the rest of Barcelona, a factor that informs our planning approach.

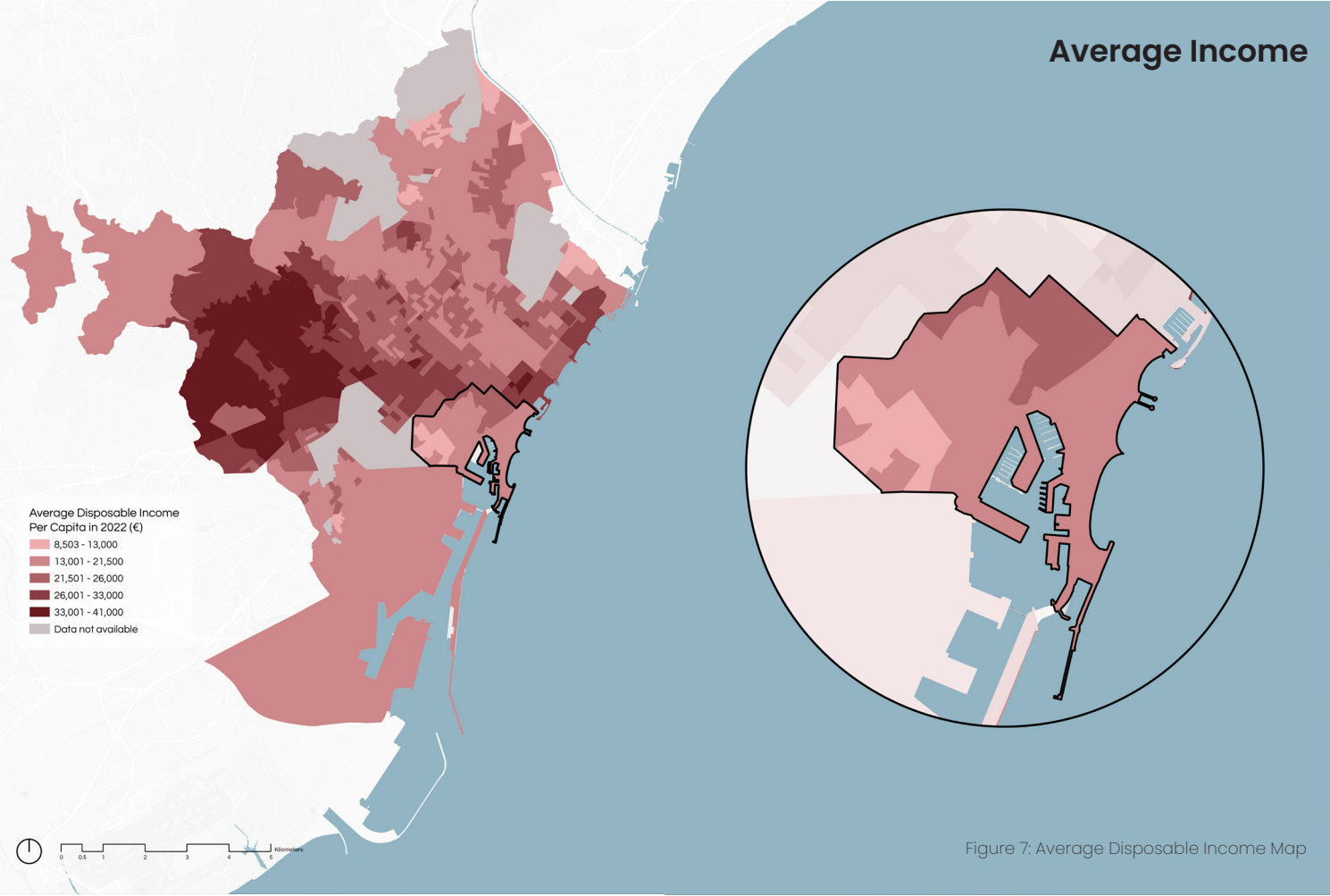
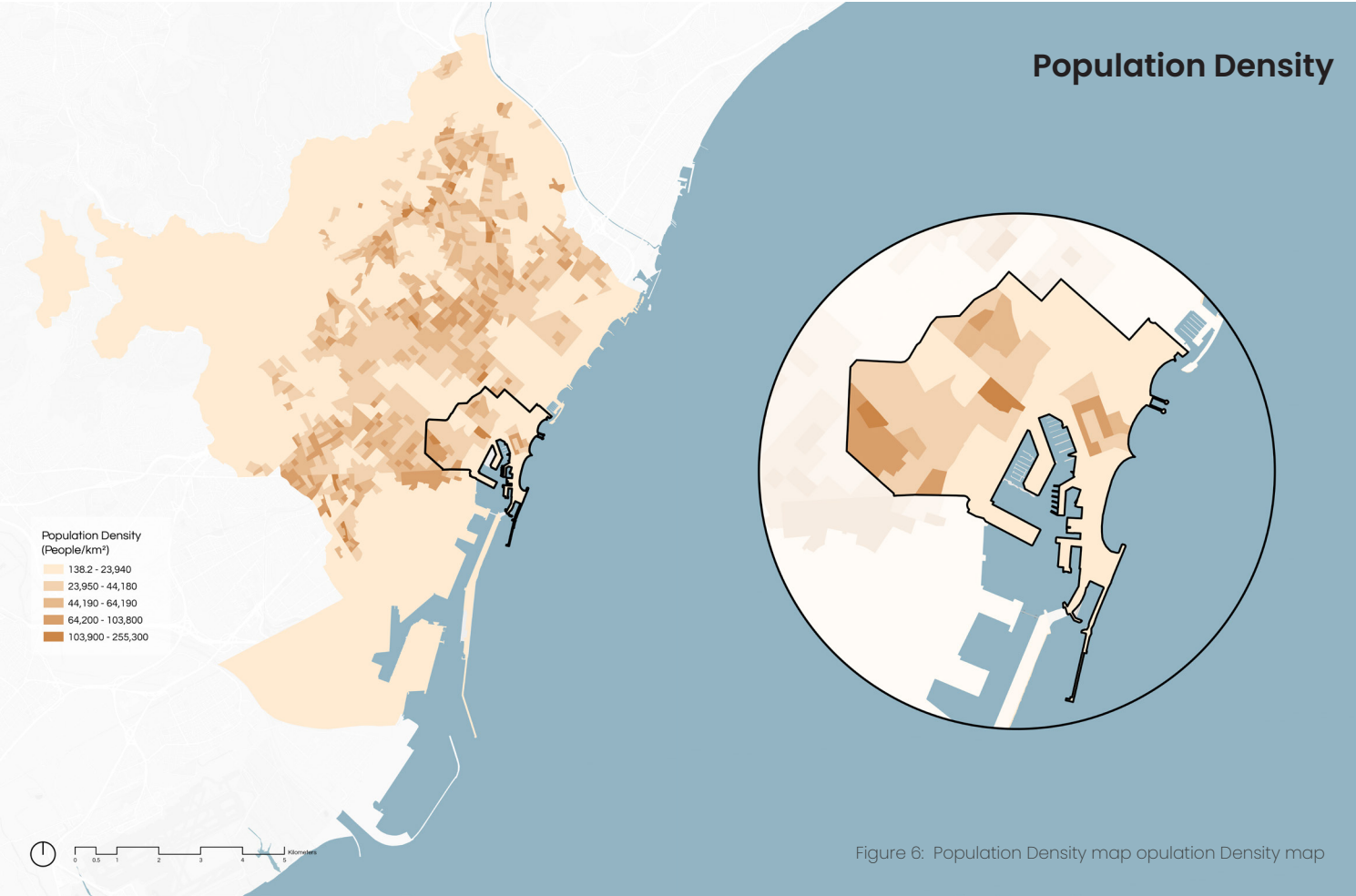
We have selected key demographic indicators for this study that are closely aligned with the urban challenges identified in Ciutat Vella. These include population density, age distributions, income levels, nationality, and household structure. These data are particularly informative, as they allow us to assess vulnerability to climate impact and service needs with greater spatial precision. Mapping the distribution of specific age groups, for example, helps to identify areas that may require targeted interventions. Older adults, young children, and low-income households have been shown to be more susceptible to extreme heat events (Reid et al., 2009), making these populations especially relevant in Ciutat Vella, which faces acute environmental challenges related to heat. Ciutat Vella has a lower proportion of residents over 65 than the broader, aging city of Barcelona (Ajuntament de Barcelona, n.d.), yet the spatial concentration of this group within the district will be important for evaluating exposure to heat stress. The same applies to young children, who represent 4% of the district's population. The area is also marked by high levels of international diversity, with approximately 40% of residents originating from outside of the European

Union (Ajuntament de Barcelona, n.d.). This is a significant finding, as non-EU migrants in Barcelona are statistically more likely to live in substandard housing conditions (Valdivia et al., 2011).

Alongside its broader distinction from the rest of the city, each neighborhood within Ciutat Vella has its own distinct social and cultural composition, which will be central to our localized analysis of urban issues and interventions. As we identify areas of heightened climate risk, spatially differentiated demographic data will play a key role in guiding our assessment and proposals.



Figure 5: Map of Barcelona with Ciutat Vella outlined



2.3 NEIGHBORHOOD PROFILES

El Raval was the first expansion beyond the original Roman city of Barcino, incorporated during the construction of Barcelona's second and third city walls in the 14th century (Ajuntament de Barcelona, n.d.). Amid wars and recurring plagues, the neighborhood's growth remained limited until the 18th century, when industrialization took root. Factories and workers' housing began to appear, eventually making El Raval one of the most densely populated urban areas in Europe (Ajuntament de Barcelona, n.d.). Long associated with working-class communities, the neighborhood became a key residential area for low-income populations, including successive waves of immigrants.

In present-day El Raval, the northeastern section registers the highest population density within the neighborhood and ranks among the most densely populated areas in Ciutat Vella overall (Figure 6). The neighborhood is also home to some of the district's lowest-income residents, with disposable per capita income levels as low as €9,400 (Figure 7). It hosts a large immigrant population, particularly from Asian and South American countries (Ajuntament de Barcelona, n.d.).

El Raval also exhibits a significant concentration of children, both within the context of Ciutat Vella and across Barcelona more broadly. Children under the age of six make up ~6% of the population, while school-aged children account for ~9% – the highest proportion in the district (Ajuntament de Barcelona, 2024). These figures are especially relevant for informing strategies related to heat vulnerability, early childhood services, and the equitable distribution of public amenities such as playgrounds and educational infrastructure.



Figures 8 & 9: El Raval street and shop

Figure 10: Map of Ciutat Vella with El Raval outlined



El Raval



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Kilometers

El Gòtic The Gothic Quarter is the oldest part of both the city and the district of Ciutat Vella, historically serving as the site of the first Roman settlement in the area. During the 18th century, limitations on city expansions led to significant densification within the neighborhood. In the 19th century, a series of urban improvements introduced more public space and repositioned the quarter as a protected heritage area – a status now strongly upheld and promoted by the city (Ajuntament de Barcelona, n.d.).

The southeastern area of the neighborhood, near the Catedral de Barcelona, is among the most densely populated zones (Figure 6). Overall, the neighborhood's population is composed predominantly of adults, with no notable concentrations of vulnerable age groups such as children or the elderly. Income levels within the Gothic Quarter generally increase as one moves inland towards the city's periphery (Figure 7). Household structures in the neighborhood are characterized by a high prevalence of adults living alone, with a partner, or in shared living arrangements, according to 2024 estimates from the Barcelona municipal government. In terms of nationality, the Gothic Quarter exhibits a diverse population profile. Among the ten largest nationality groups, significant communities of Pakistani, Bangladeshi, and Moroccan residents are present. The Spanish-born population does not constitute a dominant majority as in other neighborhoods of Ciutat Vella.



Figure 11 & 12: Plaça Sant Jaume & El Gotic bridge, a passageway connecting City Hall Plaza to Plaza Nova where Catedral de Barcelona is located

Figure 13: Map of Ciutat Vella with El Gòtic outlined



La Barceloneta, the coastal, marine neighborhood of Ciutat Vella was created in the 15th century by land reclamation from the sea. Functioning as a port and fishing village until the 19th century, La Barceloneta then became home to more industrial activities: metallurgy, gas production, and ship building. From the 1920s onward, industries shifted to low-intensity, urban industries due to the need for building more housing in the neighborhood. Now the neighborhood retains these uses as well as wellness-related tourism activities (Ajuntament de Barcelona, n.d.-b).

The Plaça de la Barceloneta sub-neighborhood, originally created to house residents whose homes were demolished due to the construction of Ciutadella in La Ribera, is the most population-dense section of La Barceloneta. The neighborhood has the largest percentage of people over 65, with close to 16% of its residents falling in this category, while in the greater Barcelona, there are neighborhoods where this ratio goes up to 30 percent. Within Ciutat Vella, Barceloneta stands out as the demographically older population of the district neighborhoods. Close to 20% of households consist of people aged 65 and over living alone (Ajuntament de Barcelona, 2024).

The residents have a mix of middle- and low-income households, with the marina section of the neighborhood having an average per capita income of €19,000, while the northern section, including the high-population density neighborhood, falling in the lowest bracket with €15,000 (Figure 7). The national makeup of the neighborhood is mainly Spanish residents, with the remaining residents of the neighborhood being from South America, other European countries, and the United Kingdom (Ajuntament de Barcelona, n.d.).



Figure 17 & 18: La Barceloneta neighborhood & Open Space

Figure 19: Map of Ciutat Vella with La Barceloneta outlined



Sant Pere, Santa Caterina i

La Ribera neighborhood were part of one of the initial expansions of the Roman city. Acting as a center of trade activities in the 13th century, the neighborhood declined in the 16th century as Mediterranean commerce slowed and was further impacted by demolition in the 18th century to make way for a new citadel (Ajuntament de Barcelona, n.d.). The demographics shifted in the early 20th century, with immigrants comprising almost 33% of the population, drawn by jobs created for Barcelona's Universal Exhibition. While housing quality issues were pervasive, subsequent revitalization efforts have made visible progress. Today, the area is home to a mix of markets, nightclubs, art galleries, and antique shops and it is increasingly targeted by public programs aimed at improving open spaces, waste management, and social infrastructure.

According to Barcelona's 2024 census estimates, Sant Pere is home to moderate populations of older adults and young children, comprising approximately 13% and 4% of residents, respectively. Income levels vary across the neighborhood: residents near Ciutadella report nearly double the disposable income of those living near Le Barri Gòtic (Figure 6). Over 20% of households are two-parent families with children, followed closely by adults cohabiting or living alone (Ajuntament de Barcelona, 2024). The population is primarily Spanish, with EU and South American immigrants rounding out the top nationality groups.

The historical and demographic context of Ciutat Vella frame the contemporary urban challenges in the site today. Getting to know the key communities on the site today and the legacies the built history brings was key during each step of our research process. Making built environment changes in the district is difficult, both due to the existing

dense buildings, and the challenge of historical preservation rules and potential of historic underground structures posing a barrier to more greening. That being said, there is also a need for these built environment changes in the form of rehabilitation, as the structures in Ciutat Vella are the oldest in all of Barcelona.

Meanwhile, the demographics of the area reflect an economically vulnerable, yet culturally diverse community. These will manifest both in our efforts to bring just and affordable rehabilitation to the built fabric, and activating existing public spaces in an inclusive manner that caters to all residents of the district.



Figure 14 & 15: Sant Pere, Santa Caterina and La Ribera neighborhood & open spaces

Figure 16: Map of Ciutat Vella with Sant Pere outlined

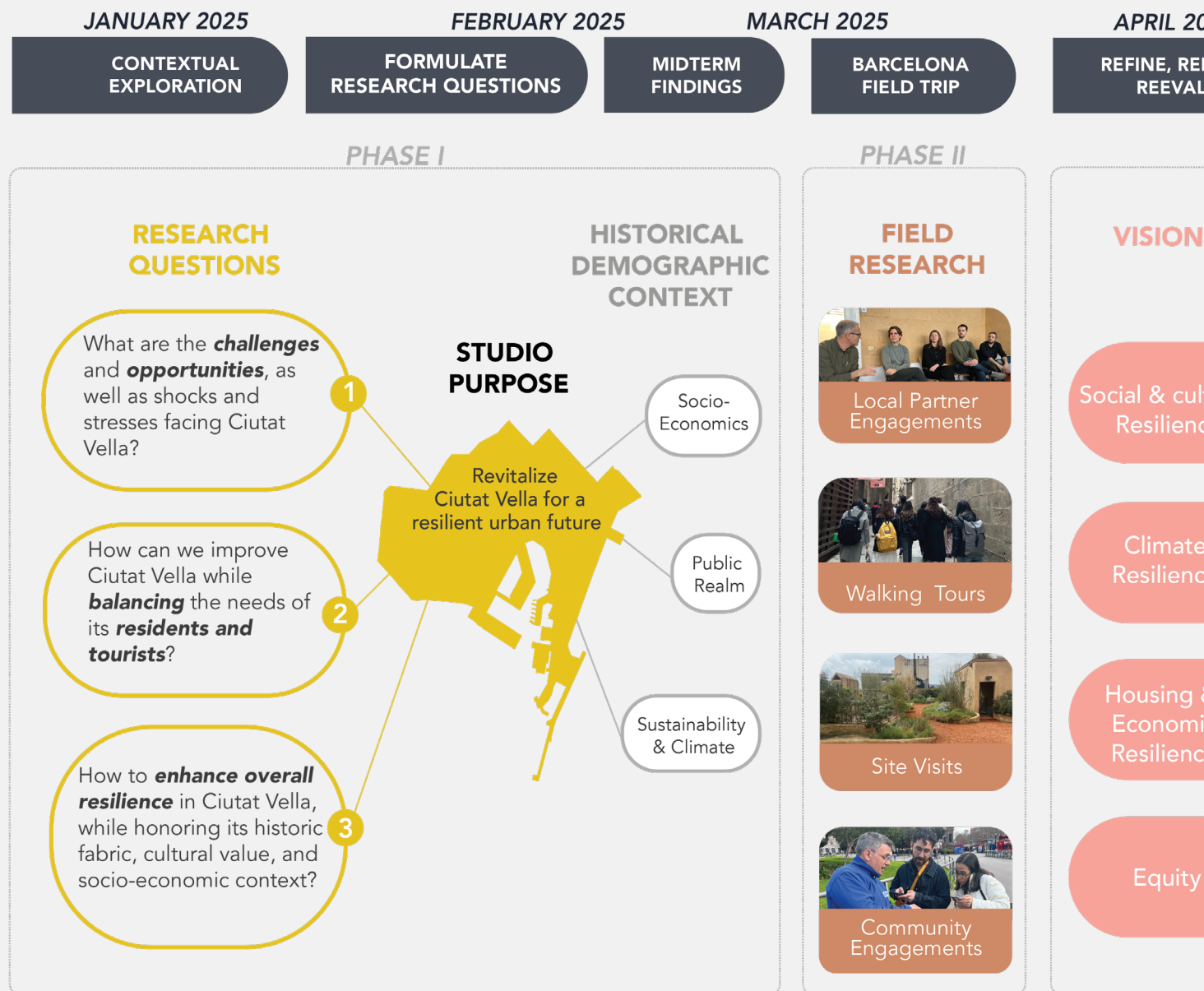




03 **METHODOLOGY**

METHODOLOGY FRAMEWORK

As previously mentioned, the methodology of the studio follows a 3-phased process. Each phase and its specific approaches are shown in detail in Figure 20 below. Our methodology was developed in alignment with our main research questions. The overarching question guiding our work was



How can we promote resilience in Ciutat Vella, while respecting its historical context?

In **Phase 1** of our project, we conducted extensive secondary research. Our main sources were academic literature, news articles, and information directly from the Ajuntament of Barcelona. We also conducted spatial analyses using primary data from Open Data BCN to quantify our findings and created visualizations of key statistics in GIS after synthesizing data gathered. We also had several guest lectures from Barcelona natives, including Gloria Serra Coch, architect and graduate of the Universitat Politècnica de Catalunya.



In **Phase 2**, during our visit to Ciutat Vella, we were able to meet with our partners directly. The Universitat Politècnica de Catalunya, as well as the Barcelona City Council delivered presentations on the historic and modern challenges faced by locals in Ciutat Vella, and held robust discussions with us to interrogate and flesh out our preliminary findings. We also leveraged our time on site to gather our own primary data through: field observations of activity in the urban landscape, informal conversations with locals, and semi-structured interviews with key community leaders and social organizations.



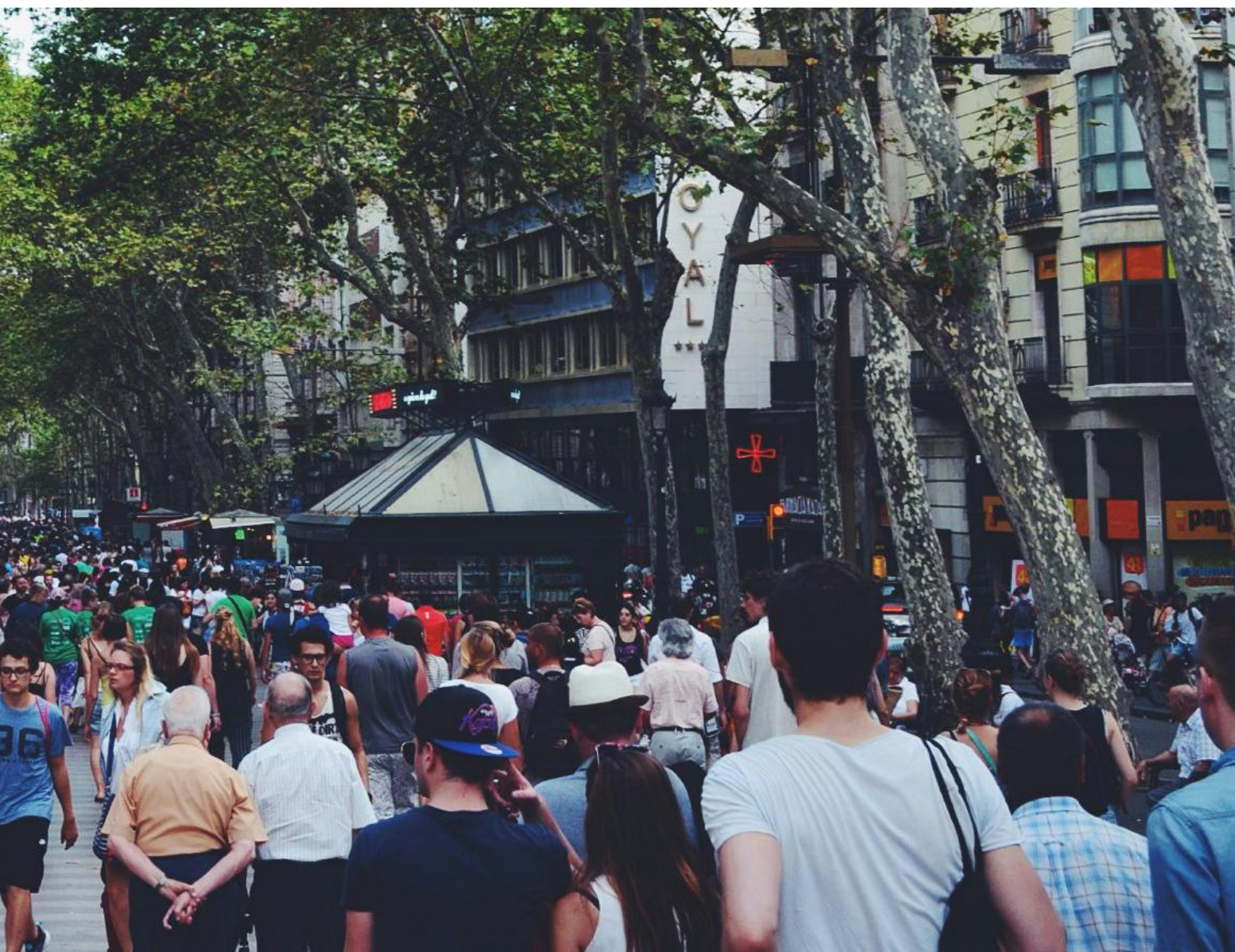
After our return from site, in **Phase 3** of our studio, we continued to build upon our existing findings. This time, our research was more directed, finding existing city plans, legislation, and funding sources to build a framework for our specific proposals..



Figure 20: Methodology Diagram

04 PRELIMINARY RESEARCH & ANALYSIS





In our studio's preliminary research analysis of Ciutat Vella, we categorized emergent challenges into three primary domains: socioeconomic factors, the public realm, and sustainability/climate considerations.

4.1 Socioeconomic Pressures

Our socioeconomic assessment identified four critical challenges: retail gentrification, diminished housing affordability, substandard housing quality, and insufficient economic opportunities for local residents.

4.1.1 Retail Gentrification

Barcelona's status as a major tourism hub has enabled it to thrive economically, with tourist spending in Barcelona standing at 9600 million euros in 2023 and making up 14% of its GDP. This high volume of tourists in the city has also led to increasing gentrification. Ciutat Vella, as the popular historic district of the city, is especially vulnerable to retail gentrification. It's recognized by the Ajuntament of Barcelona as "one of the most vital assets of the tourist strategy" in the city due to its rich history and heritage.

As tourist presence has increased in Ciutat Vella, businesses in the district have become increasingly tailored to this dominant consumer group. This has resulted in the phenomenon of retail gentrification. In their chapter of *Whose Urban Renaissance?*, Pascual-Molinas and Ribera Fumaz (2009, p.187) note that businesses that cater towards the needs of locals, especially vulnerable groups such as low-income individuals and the elderly, have been replaced by shops

that are geared towards tourists, such as "new fashionable music shops, designer outlets, bars and restaurants." This shift of the retail landscape in Ciutat Vella has not only resulted in a loss of authentic heritage, but also means that basic needs are increasingly inaccessible, leading to secondary displacement of existing residents due to higher living costs.

To further investigate the extent of retail gentrification within Ciutat Vella, we conducted a spatial analysis of the retail landscape to evaluate the density of local-oriented businesses and tourist-oriented businesses respectively in Ciutat Vella. From a dataset containing information on all premises intended for economic activity in Barcelona, we extracted and geolocated categories of businesses geared primarily towards tourists (i.e. souvenir stores, ice cream shops) and categories of businesses considered essential services (i.e. produce stands, grocery stores) within the district.

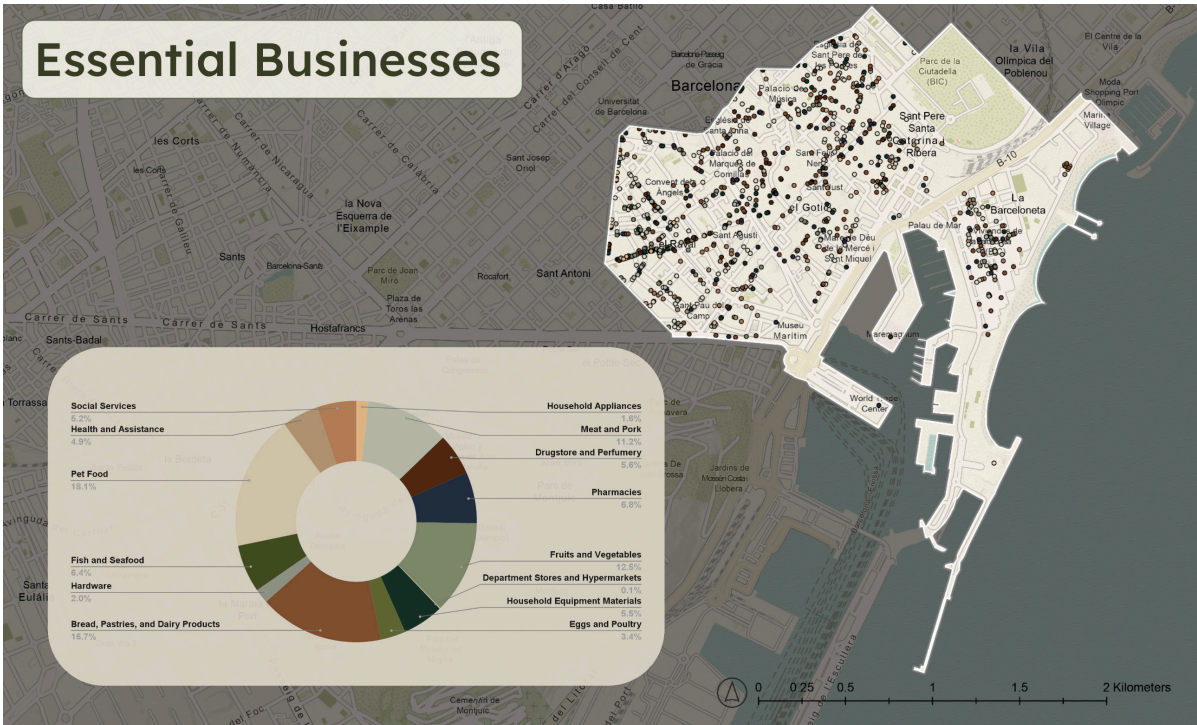
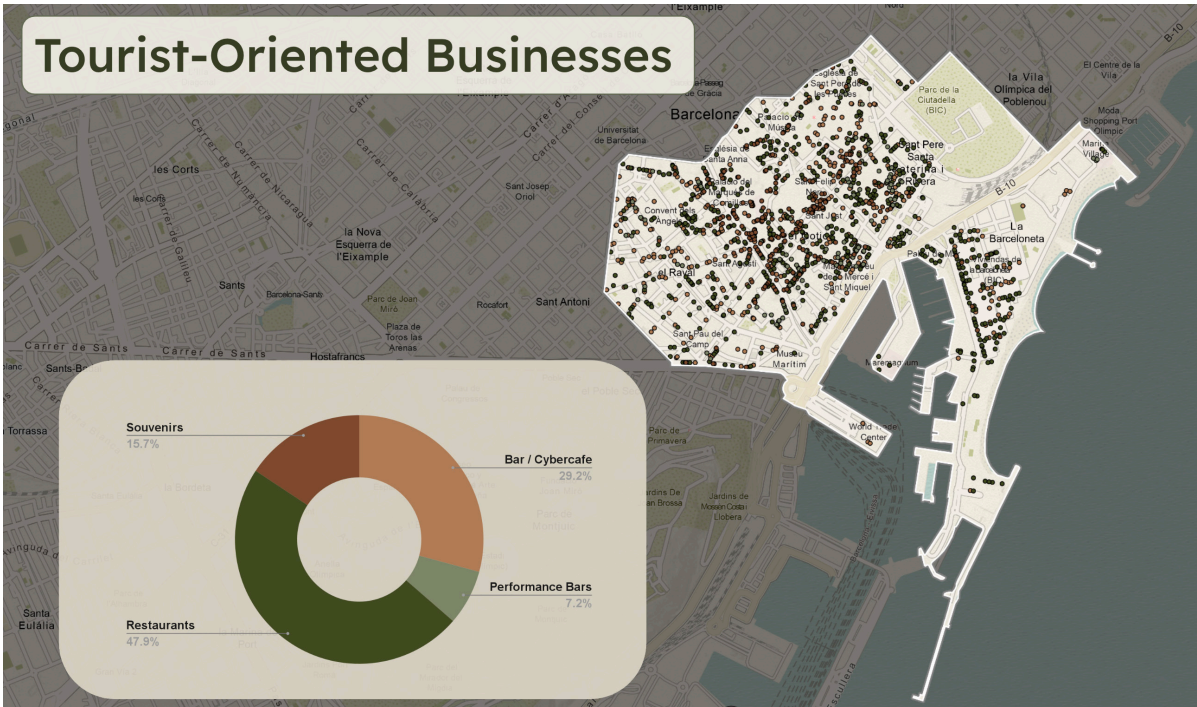
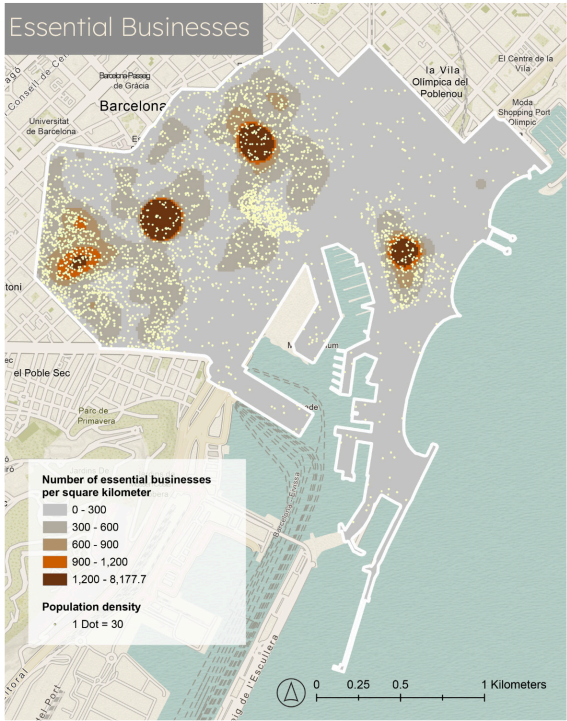
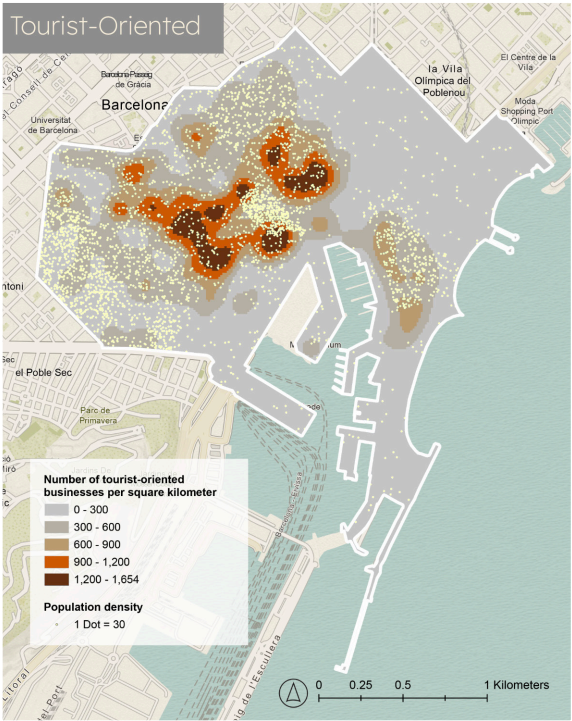


Figure 21 & 22: Locations of Tourist Oriented Businesses and Essential Businesses

There are a total of 1,377 tourist-oriented businesses in Ciutat Vella, with its distribution of categories represented in the pie chart in the figures above. A majority of these businesses are located in the El Gòtic neighborhood, as well as lined along La Rambla. In comparison, there are only 1,126 essential businesses in Ciutat Vella, which are also distributed between a wider range of categories that are essential for local activity, further emphasizing how rare they are in comparison to those that fall under the tourism industry.

The following kernel density analysis of these business typologies, overlaid with population dot density in Ciutat Vella, informs possible sites of intervention. El Raval, which is the most highly populated neighborhood in the district, is revealed as our primary site of intervention.

Figure 23 & 24: Kernel Density Analysis of Tourist-Oriented Businesses and Essential Businesses



4.1.2 Housing Affordability

Housing affordability is another significant issue in Ciutat Vella. On a national scale, the cost of rent has almost doubled within the last decade in Spain, rising from €7 per square meter in 2014 to €13 per square meter in 2024. At the same time, rental prices in Barcelona are the second highest in the country at around €14.8 per square meter in 2021. This marks a 28.43% increase since 2014 in the city. The cost to purchase property in Barcelona has also increased by 52.32% from 2014 to 2021.

This affordability crisis can largely be attributed to the proliferation of tourist flat conversions, as well as the purchase of homes as investment

properties by internationals seeking Spain's Golden Visa. This has led to a shortage of housing supply, and thereby an increase in rental cost. Ciutat Vella contains the highest percentage of tourist housing in Barcelona at 5.2% of total housing stock, with a total of 2,890 tourist housing properties in the district as of 2021. Notably, Ciutat Vella also has the highest percentage of vacant properties relative to the rest of the city, with El Raval and Sant-Pere having 1.5- 2% vacancy rate, and El Gòtic having more than 2% of properties left vacant.

4.1.3 Housing Quality

Around 84.4% of the buildings in Ciutat Vella were built before 1960, with the oldest structures located in El Raval and El Gòtic. In these neighborhoods, the average age of housing is approximately 110 years. These areas demonstrate the highest levels of residential vulnerability as it relates to quality of housing stock, as older buildings are more prone to a range of maintenance and safety issues. In particular, many dwellings suffer from structural decay, such as damaged facades, cracks, and weakened foundations. Poor ventilation, narrow stairwells, and a lack of emergency egress points exacerbate safety and accessibility concerns and increase the risk of injurious fire events. Accessibility concerns for the elderly who make up a significant portion of Ciutat Vella's population, and other residents with mobility issues, are compounded by the lack of elevators in most of this aging housing.

Several rehabilitation plans have been introduced to attempt to address these housing issues. In 1986, Ciutat Vella was declared an integral rehabilitation area as part of the ARI (Àreas de Rehabilitación Integral) scheme. As a high-density zone, it faced compounded challenges including the concentration of poverty, aging populations, and depopulation — all common features of urban decline in historic European cities. The PERI (Planes Especiales de Reforma Interior) reforms, implemented

in El Raval and the eastern sector of the town, were introduced to apply urban renewal strategies to improve deficient infrastructure and living conditions. This was accomplished by targeting areas of social and physical deprivation. From the 1990s onwards, a planning instrument commonly referred to as "microsurgery" was also brought into play and focused on tackling localized infrastructure issues in the district. These microsurgeries affected more than 500 buildings, 4,200 homes, and 800 shops.

There are also existing subsidies designed to support individual housing rehabilitation projects on a city level in Barcelona. These subsidies cover between 20% and 50% of construction costs, following national regulations, with annual open calls for applications organized by the City Council. However, neighborhoods with lower per capita disposable income, including Ciutat Vella, have received fewer of these grants, highlighting disparities in how financial assistance is distributed through these public schemes. As such, despite existing measures to improve housing stock in Ciutat Vella, significant work remains to ensure that the older buildings in the district meet modern standards of livability, safety, and accessibility.

4.2 Public Realm Conflicts

We have identified two significant issues within the public realm: mobility conflicts and waste management, both stemming from Ciutat Vella's congested urban fabric. In contrast to the rest of Barcelona, where streets are laid out perpendicularly, Ciutat Vella has tight and organic streets, at times only accessible by foot. Combined with congestion from tourism, residents, and local businesses, the neighborhood is, understandably, prone to traffic accidents and waste pileups.

4.2.1 Mobility

Ciutat Vella is one of the most densely populated neighborhoods in Barcelona with approximately 26,000 residents per square kilometer. Layered on top of this residential density is intense tourism pressure, at times reaching up to 44,000 visitors per square kilometer, drawn by the area's historic character and central location. This convergence of residents and visitors produce severe spatial conflicts in the district's narrow streets, as pedestrians, delivery vehicles, waste management infrastructure, and micro mobility users compete for limited space. Ciutat Vella's mobility issues have exacerbated as the district tries to balance the needs of modern transportation with its dense, ancient urban fabric. Everyday conflicts between the many forms of transportation in the area: cars, bicycles, walkers, and micro-mobility options lead to serious issues that expose to the risk of public safety and the standard of living for both locals and tourists.

One of the most critical challenges is the ongoing conflict between pedestrian movement and vehicular intrusion. Despite the fact that many of Ciutat Vella's streets and squares are intended or designated as pedestrian zones, private automobiles, vans, and service vehicles regularly infringe on them. This is particularly true in busy places like La Rambla and the communities of El Gòtic and El Raval, where cars are frequently parked on public squares or pedestrian routes, defeating their purpose as gathering places. As a result, people must traverse congested, badly maintained roadways, creating a risky and unpleasant environment.

The district also has trouble integrating micro-mobility and bicycles. Although these forms of transportation are essential for sustainable urban mobility, their existence in Ciutat Vella frequently leads to other issues. Originally intended for merchants and horses, the narrow passageways have now been misappropriated into bike and e-scooter parking areas, severely limiting available space and impeding pedestrian movement. Bicycles frequently intrude on walkways with people due to a lack of designated lanes, which increases the risk of accidents and creates dangerous situations. The public sphere becomes crowded and dysfunctional when lanes for various modalities of movement are not clearly distinguished.

Overcoming these obstacles will need a multipronged approach that involves reorganizing public areas, putting in place specialized transportation infrastructure, and enforcing existing regulations. Restoring order and improving safety are the key tenants of strategies such as tactical urbanism, altered street plans, and more distinct boundaries between pedestrian and vehicle zones. In the end, Ciutat Vella's transportation issues highlight a larger struggle between the need for modern, inclusive, and sustainable urban infrastructure and the preservation of cultural heritage. In order to promote resilience in one of Barcelona's most recognizable and vulnerable neighborhoods, this tension must be resolved.

4.2.2 Waste Management

The overlapping demands of tourism and daily life create specific challenges for waste management. Tourists, who tend to engage in higher rates of short-term consumption and

single-use behavior, generate disproportionate amounts of trash relative to their length of stay. On the other hand, residents and businesses must face limited bin capacity, irregular waste disposal schedules, and a generally overburdened sanitation service.

According to municipal data, improper waste disposal is a persistent issue in three neighborhoods — Sant Pere, El Gòtic, and El Raval — where between 53% and 80% of household and commercial waste is discarded uncorrected, either outside of designated collection times or in unauthorized locations. Compounded by limited public awareness and inadequate infrastructure, these behaviors contribute to chronic issues such as overflowing bins, improper recycling sorting, and pervasive litter. Additional nuisances, such as street urination and animal scavenging, further deteriorates the quality of the public realm.

The impact of these waste management practices failures are spatially uneven. Areas of

high pedestrian volume — public plazas and transit stops — are particularly vulnerable. Spatial data shows that locations with high concentration of tourist-oriented businesses and activity, often responsible for greater volumes of commercial and pedestrian waste, correlate with hotspots of waste pileup. When overlaid with pedestrian density maps, these data highlight El Gòtic as the most affected neighborhood, where the intensity of tourism, commercial activity, and public use intersect.

The cumulative impact of these pressures is a degraded urban environment that threatens public health and disproportionately impacts the daily lives of permanent residents — particularly vulnerable populations such as the elderly and low-income households. Addressing these conditions require coordinated improvements in infrastructure, enforcement, business practices, and public education.

4.3 Climate & Economic Vulnerability

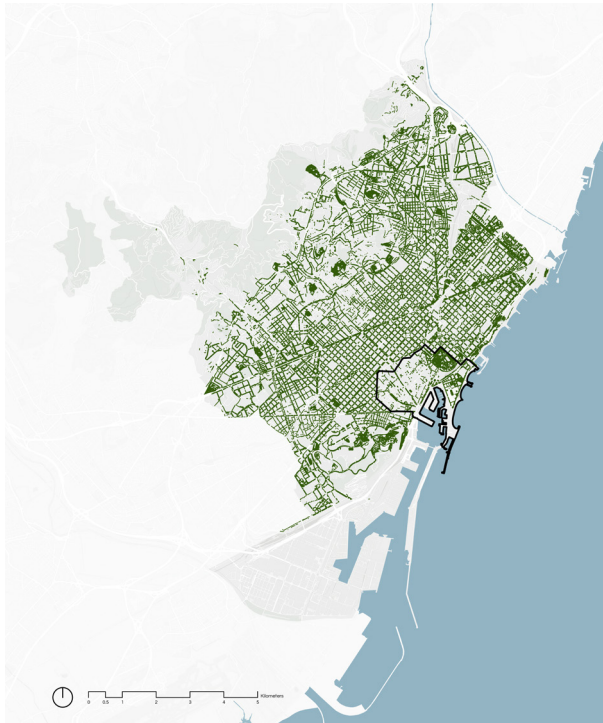


Figure 25. Green Space Distribution map

We identified a few key issues as inhibiting climate and environmental resilience in Ciutat Vella through our secondary research prior to field visits, the most pervasive being heat vulnerability, drought, and flooding. Foremost among these was the state of the natural environment in Ciutat Vella, and Barcelona as a whole, especially in terms of greenery. In Figure 21 below, a visualization of all the areas of vegetation in Barcelona reveals that Ciutat Vella is disproportionately starved of green space in comparison to the rest of the city. This makes Ciutat Vella extraordinarily vulnerable to several forms of climate change impacts. In conjunction with this observation, the three aforementioned environmental issues were selected.

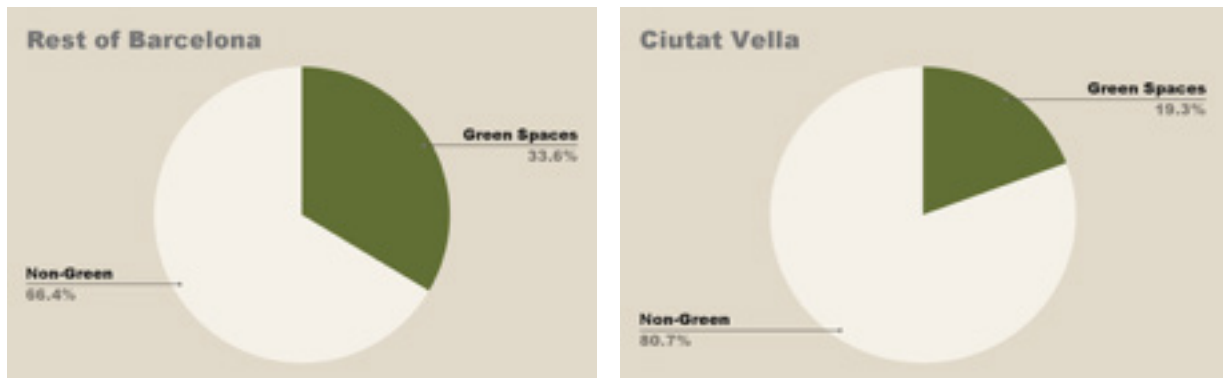


Figure 26. Green space percentage diagram

4.3.1 Heat

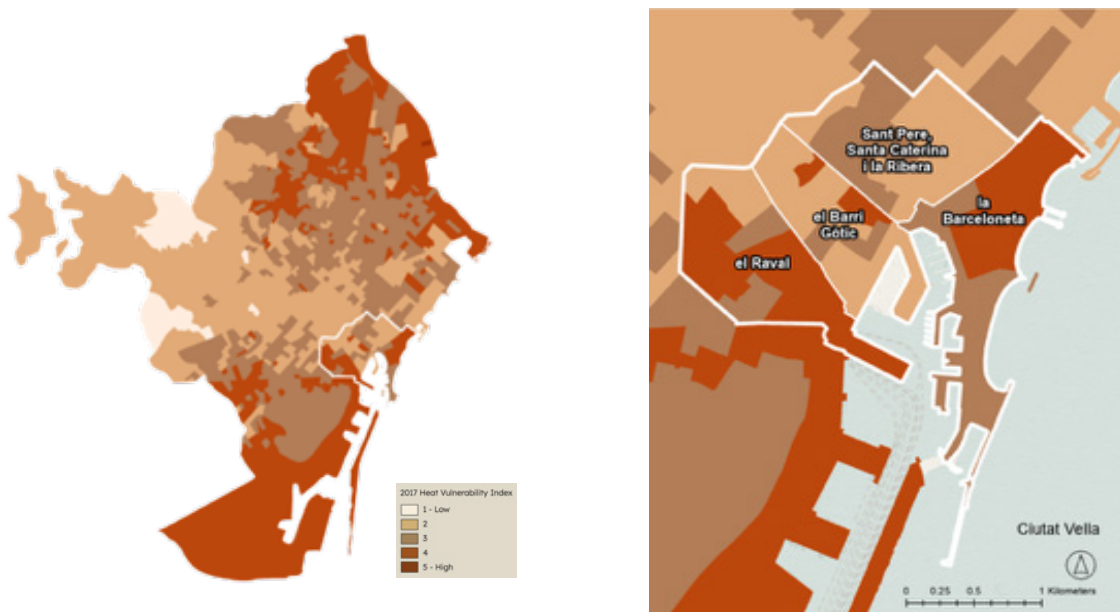


Figure 27. Heat Vulnerability Index Map

Due to climate change and global warming, the Catalan region has faced rising temperatures, more frequent heat waves, and increasingly severe and prolonged droughts. According to Barcelona's 2018 Climate Plan (Ajuntament de Barcelona, 2018), if greenhouse gas emission reduction goals are not met by the end of the century, average temperatures are projected to rise by 3 degrees Celsius. Barcelona's Atlas of Urban Resilience – Heat Index (Ajuntament de Barcelona, 2017) offers an interactive, data-driven overview of the city's vulnerability to extreme heat events, integrating climate projections with social, demographic, and built-environment indicators. The tool defines a heat wave as "three or more consecutive days with maximum temperatures exceeding 33.1°C" (ibid.). To assess the overall impact of heat on Barcelona, key vulnerability factors were identified. These include population, urban form, energy efficiency, and socio-economic conditions. We mapped data from the 2015 heat wave, the most severe of events studied, by census section to highlight areas with the highest temperatures. We then overlaid the heat exposure with the vulnerability indicators. The resulting map (Figure 23) reveals priority areas where the population is most at risk, guiding targeted interventions such as adding green space, protecting vulnerable groups, improving building efficiency, and addressing social inequalities.

Using this data, we have observed that the southern parts of El Raval and the northern part of La Barceloneta are some of the regions within Ciutat Vella that experience the most negative effects and are the most vulnerable to extreme heat. Thus, these areas should be prioritized for heat mitigation interventions.

4.3.2 Drought

The next environmental issue that we identified through our analysis is drought. With climate change producing extreme weather and storm changes, Catalonia is experiencing a decrease in the overall amount of rain and number of regular rain events. As such, there is a predicted

decrease in cumulative rainfall in the region of between 14% and 26% by the end of the century (Ajuntament de Barcelona, 2018), which is shifting the typical mediterranean climate into a drier, more desert-like climate. This is producing severe issues of drought in the region, and in Barcelona particularly, leading to lower surface groundwater levels and reduced fresh and potable water availability in the city. To make matters worse, water is disproportionately consumed between locals and tourists, and the effects of the disproportionate use are especially felt in times of drought (Barcelona City Council, 2024). Since Ciutat Vella is a hotspot for tourism in Barcelona, locals in this region are thus impacted the most by lack of fresh usable water. Additionally, the city has an existing system of water retention tanks and storage for drought mitigation purposes, but there are no current tanks located in Ciutat Vella or in its periphery (Ajuntament de Barcelona, 2018). The city has a list of proposed tanks, of which two are located in adjacent areas to Ciutat Vella, but none are proposed within its boundaries.

In order to combat the issue of drought for the locals of Ciutat Vella and make water accessibility more equitable, there needs to be a combination of policy and physical interventions throughout the entire district. Barcelona has to adapt alongside this diminishing natural resource and come up with modern solutions for water conservation and recycling, as well as ensuring the equitable distribution of water resources among locals and tourists.

4.3.3 Flooding

Drought and flooding go hand in hand, and weather changes produced by climate change are a double-edged sword for the region of Catalonia. While the region is experiencing fewer and fewer rain events, the experienced events have become more and more intense; for example, the probability

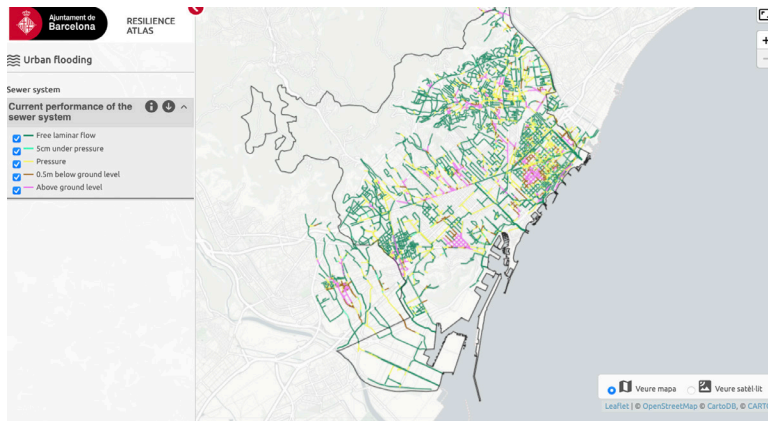


Figure 28. Present sewer performance levels map

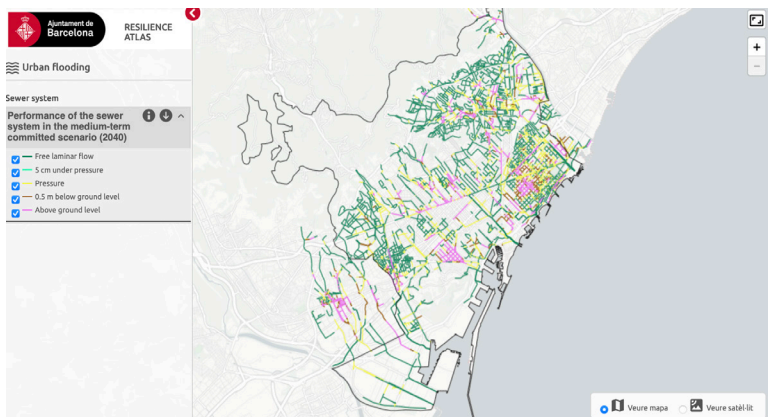


Figure 29. Future committed sewage performance map

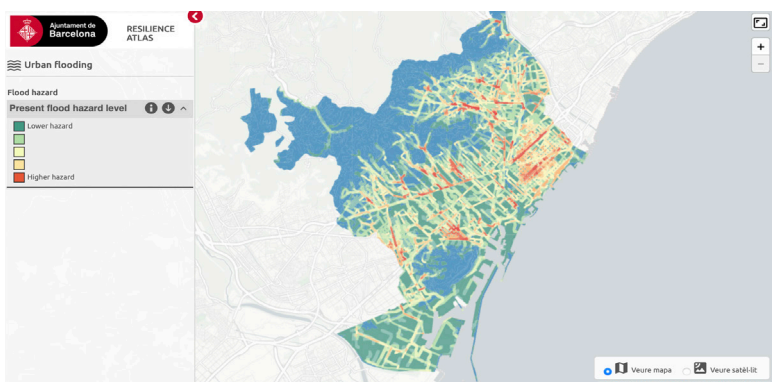


Figure 30. Present day flood hazard map

of extreme rainfall events is predicted to increase between 10% and 15% (Ajuntament de Barcelona, 2018). This can lead to issues with flooding, overwhelmed sewer systems (especially in such a region with old infrastructure), public health and safety risks, and other hazards. Flooding is also exacerbated by the presence of impermeable surfaces, which cover a significant portion of Ciutat Vella (Ajuntament de Barcelona, 2018), a growing trend across the whole city of Barcelona. Combined with Ciutat Vella's lack of green space, extreme rainfall increases runoff and hinders infiltration. The map shown in Figure 28. displays areas of low, medium, and high flood risk in the current 10-year storm, and we can see that the southern area of El Raval experiences the highest flood risk.

The City of Barcelona's Resilience Atlas provides data and maps that categorize flood hazard zones and sewer system performance into three scenarios: current conditions, a future with no climate action (Business As Usual), and a future with committed climate mitigation efforts aligned with the Paris COP24 agreement (Ajuntament de Barcelona, 2018). Flood hazard levels in the Atlas are determined by factors such as sewer capacity, land slope, and catchment area. The following maps show the current state of sewer performance and flood risk, alongside projections under both future scenarios.

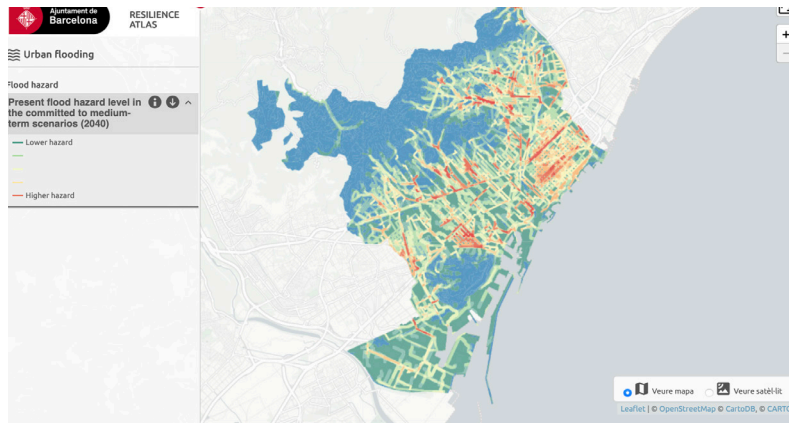


Figure 31. Future committed flood hazard map

The Barcelona Resilience Action Plan Report also provides additional flood risk data with a focus on pedestrian effects. This analysis anticipates present day conditions for flooding in a 10-year storm. The map reflecting this data is shown below.

From the maps, it is apparent that nearly all of Ciutat Vella has medium flood risk, and a large strip of Ciutat Vella is denoted as high flood risk.

Sewer performance is also most overwhelmed along the southwest border of El Raval, where much of the highest flood risk occurs. This region of highest flood risk and

sewer overflows can be identified as a potential intervention area for green infrastructure improvements. Areas of existing greenery, such as gardens or vegetation patches, can be transformed into bioretention basins for water retention and infiltration. Areas of impermeable surface that experiences low vehicle traffic or only pedestrian traffic can be replaced with pervious pavement for additional aid in infiltration. In order to combat issues of flood risk, as well as to relieve pressure on the region's overwhelmed sewer system, the southern border of El Raval should be targeted for green infrastructure development.

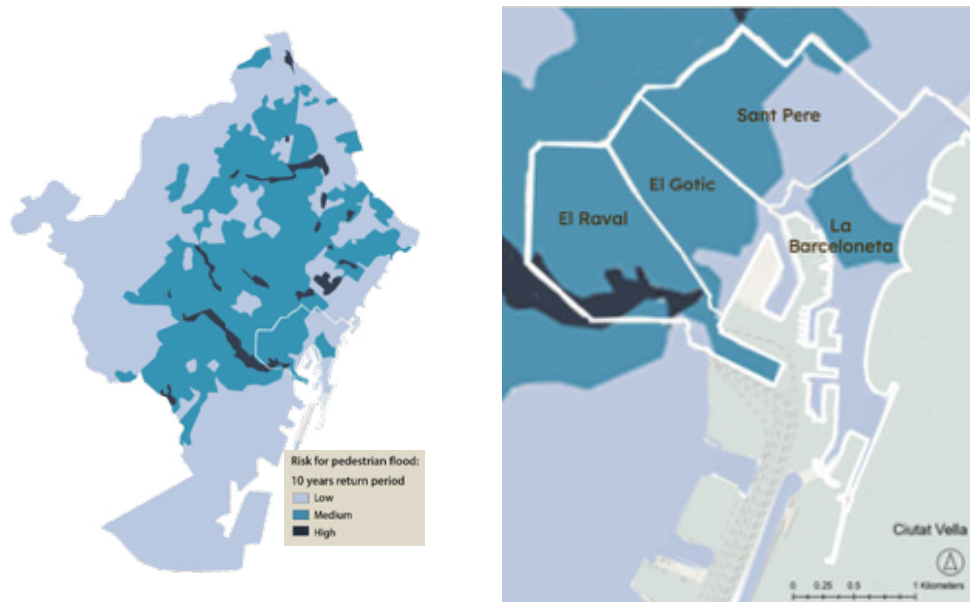


Figure 32. Present day flood risk to pedestrians map

4.4 Mapping Vulnerabilities



Figure 33. Sociodemographic vulnerabilities map



Figure 34. Mobility/ public realm vulnerabilities map



Figure 35. Climate vulnerabilities map

The map on page 51 presents an overlay of various areas of vulnerability identified in our preliminary analysis. This visualization not only informed the sections of key locations for on-site investigation in Ciutat Vella, but also highlighted zones where multiple vulnerabilities intersect, signaling areas of heightened risk and need for intervention.



Figure 36. All vulnerabilities overlaid

05 **FIELD RESEARCH FINDINGS & REPOSITIONING**





5.1 Field Research

There are limitations to utilizing secondary research, as this information may often be outdated, biased, or missing in general. Thus, building on this initial research, we conducted a site visit to Ciutat Vella, Barcelona from March 10-14, 2025. We held meetings with officials from the City of Barcelona and faculty from the Universitat Politècnica de Catalunya, where we presented our preliminary findings and held discussions with them on current city plans and academic projects in Ciutat Vella. We also made efforts to do as much on-the ground engagement as possible, having conversations with locals of Ciutat Vella, broader Barcelonans, immigrant communities, and tourists on the perceptions and lived realities of Ciutat Vella.

These engagements allowed us to assess the validity of our preliminary findings, identify existing interventions we had not previously accounted for, and develop a more nuanced understanding of how overlapping vulnerabilities manifest in the district. This process was essential in tailoring our proposed solutions to support resilience in Ciutat Vella through locally responsive and context-specific strategies.



Figure 37. Walking paths in Ciutat Vella



Figure 38. Street interview with local police officer

5.2 Field Research Results

5.2.1 Socioeconomic Observations

True to our preliminary findings prior to the field trip, we observed that there were many tourist-oriented businesses in Ciutat Vella, especially souvenir shops that sold generic goods. Despite this, the availability of essential businesses didn't seem to be impacted. Grocery stores, clinics, and local eateries that catered to locals were available throughout the district. These observations, in tandem with knowledge of existing city efforts to pare down licenses for tourist-oriented businesses and housing, led us to conclude that retail gentrification is not as pressing an issue

as we originally predicted. We did notice some notable trends among local businesses. In El Raval, we noticed a high proportion of ethnic grocery stores servicing immigrant communities. Shopkeepers revealed that many of them form coalitions to bulk import goods they sell from Asia, in order to avoid high taxes and turn a higher profit. There were also a significant number of mobile phone and local consumer electronics stores in the same areas, with little observable foot traffic, implying some level of social and community support in order to develop a sustainable financial model.



Figure 39. Souvenir shop in Ciutat Vella



Figure 40. Souvenir shop in Ciutat Vella

Housing affordability and housing quality seemed to be the primary issues that needed to be addressed – while speaking to realtors, we saw listings for many apartments and learned about the common leasing models in the district. There were little to no listings in El Raval that had an elevator or otherwise accessible entrances for those with mobility issues; but most, if not all of them, did not have elevators in the building. Ciutat Vella is also currently a better area to buy than to rent, with many owners of short-term tourist properties looking to sell with the upcoming ban (see Section 6.2.2). Even for rental units, many landlords were only offering 11-month leases; for leases of 12 months or more, they would have to honor rent control regulations per the Spanish Ley de Arrendamientos Urbanos (LAU), which caps rent hikes at 3% over the previous five years' rate. This short-term only lease availability further increases housing insecurity for locals.

Precent, both for additional housing and for building rehabilitation, was also seen. During a tour of Fundació de la Esperança, we were informed that their buildings, used for offices and for women's housing, were the result of adaptive reuse, highlighting that this is a possible strategy for housing rehabilitation.

5.2.2 Public Realm Observations

Mobility Conflicts



Figure 41. Street pedestrian use

Our field observations indicated that the intensity of mobility conflicts was not as severe as initially anticipated. Ciutat Vella, on the whole, experiences very high foot traffic and is characterized by numerous narrow alleys. Bicycles and scooters are a large part of the micro-mobility landscape, but there is comparatively little conflict associated with their use. Conflicts between pedestrians and automobile traffic were more commonly observed in the district, particularly near popular tourist attractions and in areas where the road width was on the higher end for the district. These conflicts were less frequently observed in more residential parts of the district and were largely confined to these high traffic locations.



Figure 42. Vehicular conflicts on the road



Figure 43. Multi-use conflicts on the street

The most pronounced conflicts typically occur in the vicinity of metro stations. These areas experience a high volume of pedestrian movement through the plaza, while automobiles simultaneously pass along the periphery. Additionally, the presence of bicycles entering the plazas contributes to overall congestion. Groups of people engaging in informal activities or congregating in the center of the plazas further obstruct pedestrian flow, particularly along routes leading to the metro stations. We identified Plaça de L'Àngel as the location most affected by these mobility conflicts.



Figure 44. Plaça de L'Àngel pedestrian crossing

The government has already taken proactive steps to address mobility challenges in the area. During our visit to the city's municipal offices, we learned that local authorities have already implemented various regulations regarding transportation and mobility in Ciutat Vella. Certain alleyways are restricted to specific modes of transportation, and dedicated parking areas are provided for residents.



Figure 45. Signage that regulates types of mobility within each corridor.



Figure 46. Signage that regulates types of mobility within each corridor.



Figure 47. Garbage bins



Figure 48. Street garbage dumping

Waste & Trash

Despite the high concentration of tourist activity, including shops, cafés, bars, and restaurants with late hours, Ciutat Vella retains a high standard of cleanliness. Public garbage bins are accessible throughout the district, with a range of can and bin sizes and types (i.e. organic waste, recycling) available and well-utilized. During our meeting with the Office of the Chief Architect, we were informed that in high traffic plazas, many of these trash receptacles are emptied on a 15-minute schedule at peak hours. Sanitation workers are frequently observed emptying

receptacles and cleaning streets, and trash cans are rarely overflowing. During daytime hours, street littering is not a significant issue. In the evening, beginning around 6 p.m., waste mismanagement does become a problem. When business establishments begin to close, commercial waste is often placed directly on sidewalks for collection by sanitation vehicles, which typically occurs around 10 p.m. While this collection is usually prompt, there is notable room for improvement with regard to introducing temporary receptacles or enclosed dumpsters for trash awaiting pickup.



Figure 49. Sanitation vehicle



Figure 50: Sanitation staff



Figure 51. Sanitation staff and vehicles



Figure 52. Sanitation staff and vehicles

Plaza Programming

Most plazas are active and vibrant, accommodating pedestrian movement, outdoor dining, pop-up markets, and informal performances. However, many had neglected corners and pockets of underutilization due to lack of formal programming. These underused spaces are often characterized as dead space. They were typically lacking in amenities or adjacent alleys to attract foot traffic or serve as a point of rest.

This imbalance in spatial use within the same plaza is a common pattern across many open public spaces in Ciutat Vella. One example of this phenomenon is Plaça Nova, where, along the length of the plaza, clusters of pedestrian activity coexist alongside empty and inactive sections where no significant use or engagement takes place. Within the same plazas, there are often overutilized areas where activity is concentrated and conflict is observed.



Figure 53. Dead space in Plaça Nova



Figure 54. Most vibrant area of Plaça Nova



Figure 55. Under-utilized area in plaza Nova in the Gothic Quarter



Figure 56. Under-utilized plaza in El Raval

Some larger plazas feel notably barren, consisting only of paved surfaces without any meaningful features or amenities. In these cases, pedestrians tend to move through uninterrupted, with no physical markers or programming encouraging them to linger or engage with the space.



Figure 57. Plaça Nova

Sustainability & Climate Vulnerability Observations

The impact of climate stresses on Ciutat Vella was also a key concern we set out to observe. Many spaces mapped as green areas on our secondary datasets (i.e. certain plazas) were in actuality, sparsely, if at all, vegetated. One example of such spaces was Plaça de Josep M. Folch i Torres in El Raval. This plaza was mapped fully as a green space, but upon visiting we realized that there were only a few vegetated plots, and the remainder of the space was paved. In some of these existing vegetated plots, most of the plots consisted solely of soil as opposed to plant vegetation,



Figure 58. Plaça Josep M. Folch i Torres

Locals corroborated our concerns about drought in the district. When discussing with residents, shop owners, and pedestrians, many people expressed that drought was the biggest climate related issue in their minds. The general sentiment was that the city is overseeing the crisis well, effectively rationing water and managing consumption for residents. They noted that greenery was sparse in the district and required extensive irrigation efforts, and as such the more imminent issue posed by drought in Ciutat Vella is its effect on local vegetation.

The green roof at Porxos d'en Xifré, located in El Raval, is a spacious rooftop filled with planting boxes, native trees, and insect life, quiet and serene in contrast to the busy streets below. Though technically open to the public, it is located above a residential complex with no clear signage or opening/closing hours

and certain areas of soil were so highly compacted and dry that water was ponding, allowing for no infiltration. Alternatively, some plots that did have densely populated greenery seemed to be supplemented by some forms of irrigation systems. In a region already undergoing a crisis of drought, using municipal water to supplement water-intensive plantings, shows a need for more thoughtful landscape design; the installation of drought resistant plantings or drought mitigating water recycling systems to replace existing irrigation infrastructure are options moving forward.



Figure 59. Tree plot in Plaça Pedro

posted. While the roof itself was beautifully maintained, the surrounding infrastructure told a different story. In terms of access to the roof, there were two staircases leading up. One was in good condition, while the other showed signs of serious deterioration: crumbling walls, holes, and decay. There was no elevator available for access. We also observed unhoused people camped at the base of the building on multiple occasions, potentially further disincentivizing visitors.

This green roof exemplifies the layered reality of Ciutat Vella: a place where vibrant public interventions coexist with visible precarity, and where opportunity and challenge often sit side by side



Figure 60. Existing green roof in Ciutat Vella

5.3 Community Engagement / Field Interview Results

Age Profile

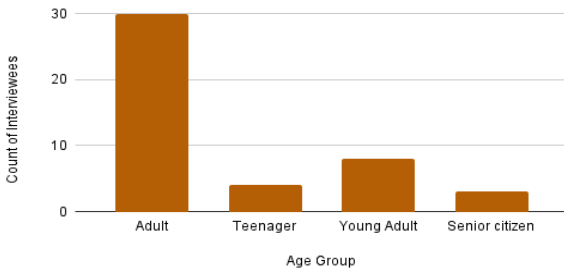


Figure 61. Percentage of age groups engaged with

Residency Profile

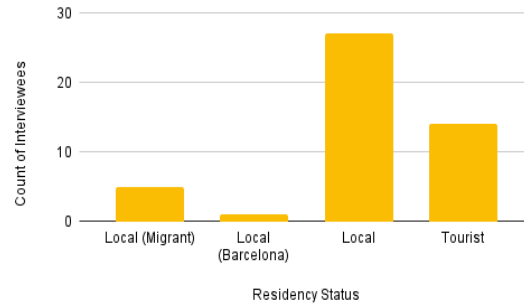


Figure 62. Percentage of residency profile engaged with

Residency Profile Legend	
Tourist	Temporary visitor (<6 months)
Local	Local residents of CV; Spanish background
Local (Migrant)	Local residents of CV; Immigrant background
Local (Barcelona)	Barcelona non-resident of CV

Figure 63. Valuable insights from locals

Age Status Legend	
Teenager	15-20 years old
Young Adult	20-30 years old
Adult	30-50 years old
Senior Citizen	>50 years old

Figure 64. Valuable insights from locals

From our conversations with people in Ciutat Vella, we learned that some problems we initially considered urgent, such as waste management or flooding, are actually lower priorities for residents, largely due to the success of existing city initiatives in addressing them. While tourist-oriented businesses were abundant, essential services such as grocery stores and clinics remained readily accessible within the area.

Drought and heat were mentioned as concerns, but primarily in relation to their impact on urban greenery rather than personal consumption. Public spaces emerged as more prominent in terms of inefficiencies in use and mobility-related conflicts. The most significant takeaway was that in Ciutat Vella, housing stress clearly overshadows environmental concerns.

We also observed strong community networks and local cultural organizations providing social support. However, these were often siloed by language barriers and lacked institutional backing. One particularly inspiring example of community power we encountered was the Àgora Juan Andrés Benítez community garden, dedicated to a victim of police violence. The bank that owns the land had previously intended to demolish the garden in order to construct a luxury hotel in Raval, but through occupying the space and protesting in Benítez's memory, the neighborhood successfully prevented the development. It has now functioned as an active community garden for nearly twelve years.

Their perception about plazas and open public spaces in Ciutat Vella shows that open spaces were an important part of residents. With such densely packed fabric, these spaces opened up to opportunities for businesses, respite and engage within the community. Plazas and public open

spaces in Ciutat Vella are always occupied with multiple stakeholders and tourists. While these spaces hold such significance, they lack in many other aspects that the communities highlighted. Many places especially in El Raval were unsafe and unclean, which created a fear among the residents of the neighborhood. El Raval also had a handful of spaces that were dedicated to public use and were in a good condition. One specific want that one of the shopkeepers asked for at the public square in front of the city hall was inclusion of more greens, temporary shading devices during summers and flood resistant infrastructure.

Engaging in these conversations with local residents about the on-the-ground realities of Ciutat Vella allowed us to adjust our proposals to address gaps that the city has not yet filled – particularly in relation to housing and local capacity.

"Immigrants lease to each other – without that established network it's very **hard to find a place to live** here."

"**Crime has been on the rise** in the district since Covid. People need other things to do."

"We've lived in one house, on one street, for the last 17 years. And **we have no plans to move.**"

"At one point small **businesses pivoted towards tourism** to survive, so I'm confident that **they'll have no trouble pivoting away** now."



Figure 65. Valuable insights from out interactions with the locals

5.4 Vision for Revitalization

5.4.1 Proposal Framework

Following the site visit and thorough reevaluation of our methodology, we articulated the following objective for the remainder of our studio:

To propose planning intervention ideas for the revitalization of Ciutat Vella that promote housing, social, and climate resilience, equity in the greater Barcelona context, and a more balanced urban environment for the residents and visitors, while respecting the historical heritage of the old town.



Figure 66: Vision Framework

Strategies

Ciutat Vella, faces two intersecting private realm challenges: the deteriorating condition of its housing stock and a shortage of housing units suitable for long-term residency. These issues are compounded by mounting climate pressures and an imbalance in public investment across the city. While adjacent districts benefit from green infrastructure grants and public housing investment, Ciutat Vella has remained structurally and politically marginalized, its complex morphology often cited as a barrier to intervention.

To address these disparities, our strategic framework outlines a coordinated policy roll out and project-based proposals aimed at enhancing Ciutat Vella's effort in the city's livability objectives. The plan advocates for targeted investment in housing rehabilitation and green infrastructure backed by novel municipal funding mechanisms.

The key opportunity lies in a thorough reevaluation of the upcoming releasing of publicly owned waterfront property. Beyond its potential to activate underused shoreline areas for public access and recreation, this proposal offers a financial mechanism for reinvestment. By capturing a share of development-generated value, the new-found resources can be concentrated into critical upgrades within Ciutat Vella, especially residential buildings that lack accessibility and structural integrity.

Ciutat Vella's climate resilience strategy centers on the retrofitting of the existing housing stock with nature-based solutions that do not compromise the integrity of the historic fabric. Drawing from case studies

across the municipality, the plan adapts green infrastructure typologies, such as green roofs and bioretention landscape, to the private realms of Ciutat Vella. These measures address the district's primary environmental vulnerabilities: urban heat, rainwater flooding, and drought. While interventions were enacted in other parts of the city, their application in Ciutat Vella has been limited. Correcting this imbalance is essential for a more equitable and holistic climate strategy. In parallel, the plan proposes a renovation of public space to serve residents more directly. As a district renowned for its high-density tourism and constrained open space, Ciutat Vella's plazas and streets must serve several needs simultaneously. The intervention includes both physical modifications and community-based programming, particularly in areas surrounding schools, elder care facilities, and community centers. These efforts are not designed to bar tourism, but rather to recalibrate the features of the public realm towards shared use and neighborhood-scale utility.

Together these strategies reflect a series of interwoven proposals. Each is grounded in spatial analysis, local demographic conditions, and the district's pressing environmental and housing needs. By linking site-specific design with structural funding mechanisms, the framework aims to reposition Ciutat Vella at the forefront of Barcelona's equitable and climate conscious future.

06 PROPOSALS



6.1 PROJECT TYPES & PLANS

To address the various vulnerabilities that we have identified through our research, site visit, and conversations with our partners from the City of Barcelona and the Universitat Politècnica de Catalunya, we propose two main categories of projects. These categories are (1) Housing & Economic Rehabilitation, and (2) Public Space Activation & Connectivity. The projects involved in each category aim to implement the strategies and goals previously discussed.



Private Realm Proposal Framework

PROPOSAL I

Achieving community resilience through housing and economic rehabilitation and climate adaptation

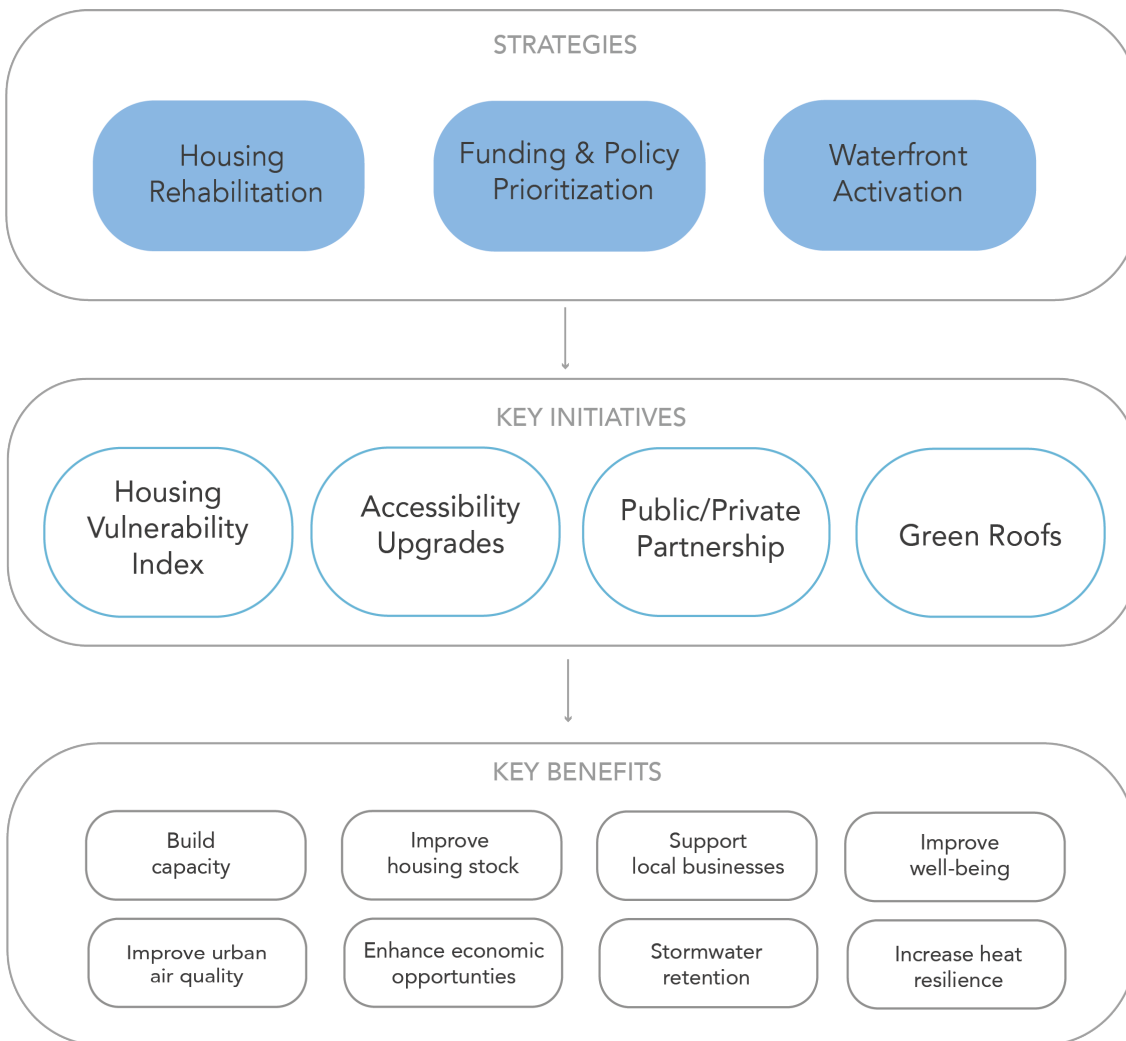


Figure 67: Private Realm Proposal Framework

6.2 HOUSING & ECONOMIC REHABILITATION

6.2.1 Existing Funding Mechanisms

Policies & Grants

As outlined in our preliminary findings (see Sections 4.1.2 and 4.1.3), the issues of housing quality and housing affordability are a foremost concern in Barcelona, and are more pronounced in the high tourist volume district of Ciutat Vella. The rental prices of even the most affordable neighborhood in Ciutat Vella, El Raval, are still higher than the city average, at €1,281/month versus €1,132/month. This can in part be attributed to housing scarcity, an issue that is only exacerbated by the age and poor quality of housing stock, and the high concentration of short-term tourist housing in the district. These issues have been acknowledged by the municipality in recent years, and the existing legislation in this sector is key context for our policy focused proposals.

Barcelona's housing agenda is driven by strong alignment between the City Council and the Generalitat de Catalunya, reflecting a shared commitment to expanding affordable and protected housing. The 2016–2025 Housing Plan targeted 19,000 affordable units, with the follow-up Pla Viure 2025–2032 aiming to deliver 1,000 new protected homes annually. The 2025–2028 Neighbourhood Plan allocates €300 million toward housing and social infrastructure across 27 neighborhoods, incorporating resident input into development priorities with special priority designated for Ciutat Vella. These municipal initiatives are reinforced by the Generalitat's €22 million co-financing agreement for subsidized housing, a 2025 housing decree mandating 50% public housing in rezoned areas, and a €1.1 billion annual investment plan to deliver 50,000 public units by 2030.

Collectively, these efforts signal a coordinated, long-term strategy to address Barcelona's structural housing challenges.

According to Article 18.4 of State Law 12/2023 of the Generalitat de Catalunya, Zones de Mercat Residencial Tensionat (ZMRs) are stressed residential zones designated due to significant housing market imbalances resulting from affordability gaps, supply-demand asymmetries, and sustained displacement pressures. Under the article, municipal administrators are required to develop and implement corrective plans in ZMRs to reduce market strain and improve access to stable, affordable housing. Ciutat Vella is emblematic of such conditions, marked by aging residential infrastructure, demographic vulnerability, and a disproportionately high volume of properties dedicated to tourist use.

There are several other key pieces of legislation that do not specifically address Ciutat Vella's housing crisis, but that we aim for the city to better leverage in our proposal. They are as follows:

- The Catalan Housing Law (Llei 18/2007, del dret a l'habitatge) is the foundational legal framework recognizing the right to housing in Catalonia. It grants the Generalitat and municipalities the authority to intervene in the housing market, including by issuing subsidies for the rehabilitation of residential buildings. These subsidies can be used to address structural deficiencies, improve energy efficiency, or ensure adequate living conditions.

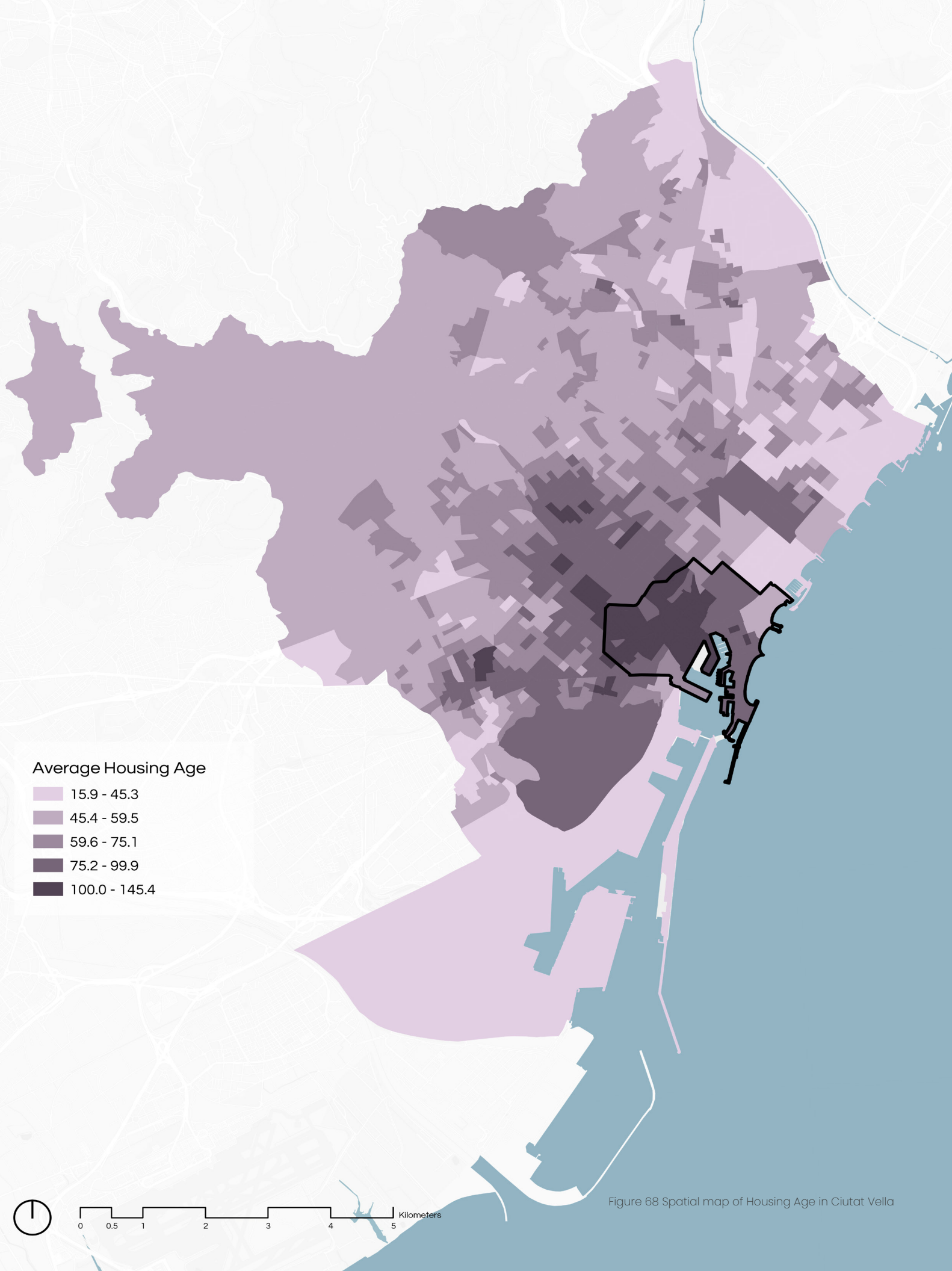
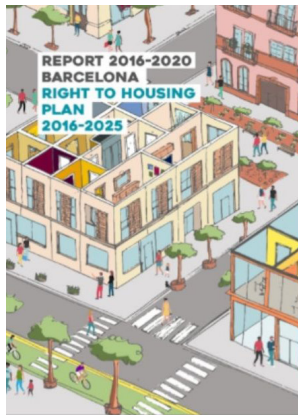


Figure 68 Spatial map of Housing Age in Ciutat Vella



Arxivers Metropolitans de l'Habitatge de Barcelona

"Planned to develop
1,000 affordable units."



Àrea d'Urbanisme, Transició Ecològica, Serveis Urbans i Habitatge

"Planned to include
1,000 new protected



L'Ajuntament de Barcelona

"Prioritizes **€300M**
among 27 distressed

Figure 69. Existing plans by the city of Barcelona

- The Regulatory Decrees on Housing Rehabilitation (Decret 75/2014) establish the specific conditions and eligible actions for accessing public subsidies under the broader housing law. The decree identifies a range of rehabilitation activities that qualify for aid, including accessibility upgrades such as the installation of elevators, ramps, or other measures that enable mobility-impaired residents to live safely and independently.

- The Pla de Rehabilitació d'Habitatges is an active public program that disburses grants to support physical improvements to the housing stock. It is available

to both individual property owners and communities of residents (e.g., building associations), and is intended to encourage small- and medium-scale upgrades that extend the life of existing housing, improve safety, and enhance quality of life.

- The Spanish Urban Lease Law (Ley de Arrendamientos Urbanos – LAU) is the national legislation governing rental contracts. It includes rent control provisions applicable to long-term leases. For rental contracts of 12 months or more, rent increases are capped at 3% above the rent charged in the previous five years, providing a tool to help stabilize housing costs for tenants in high-demand areas like Ciutat Vella.

6.2.2 Proposed Funding Mechanisms

Port Vell Land Lease Framework

In the 2025 Pla Accio Port Vell, the government of Barcelona identified the need for a holistic reevaluation of the Port Vell district public-private partnership model and programming. The expiration of the 30-year Moll d'Espanya lease and the planned demolition of the IMAX and Cinesa Maremagnum buildings offers a unique opportunity to formulate a new land-lease model that allows the government to participate in the growing economic revitalization of the area dynamically.

The city has identified Moll D'Espanya as the epicenter of the coast redevelopment project in addition to Moll de Pescadors in their vision. We propose a public-private partnership structure that will primarily target Moll D'Espanya for commercial redevelopment and Moll Nou for all future shipyard operator contracts but will be applicable for commercial and residential development in other areas of the city. Moll D'Espanya is currently operated by Klepierre, the

third operator, and Marina Port Vell is operated by QInvest LCC, the second operator.

Typical land-lease models – such as Hong Kong, Singapore, and the Netherlands – involve the government leasing publicly held land to private developers and operators for a fixed term at either a flat cost or an escalating rate. This agreement allows the government to control urban form, development, and partnership while generating revenue from lease payments without surrendering the right to the land. However, the primary challenge is with regard to the methods of rent and payment calculation. If the terms do not include dynamic pricing integrated with various layers of growth and revaluation periods, Barcelona could be left with a long-term contract whereby the profits are disproportionate to the inevitable prosperity of one of the city's most sought-after neighborhoods. Given the government's role in driving economic activity through infrastructure investment, tourism promotion, and long-term urban planning, it is both reasonable and appropriate that it participates in the value it helps create.

The current lease agreement for Moll D'Espanya does not include any upside participation and no rent reset mechanism. The city does benefit from the economic development of the area through a temporary minority equity stake that it acquired to stabilize projects during the financial crisis – 20% in the World Trade Center, 15% in Marina Port Vell, 21.5% in Mundo Submarino, and 38.15% in Maremagnum. Although an equity stake does de-risk strategic projects and result in more alignment of interests, the financial exposure from project failure and the political complications of selling a city's stake possess a disproportionate risk that we do not believe is in the interest of the city. As such, our proposal will focus on a strictly dual-track land-lease model with built in upside participation and revaluation.

The city of Barcelona, through the Gerencia Urbanista del Port Vell, will be the authority in charge of negotiating ground leases, enforcing community benefit agreements and public

programming, and approving designs in accordance with existing government stands and organizations. While lease terms are subject to negotiation, another 30-year lease ensures that developers are sufficiently compensated for their risk. However, the city will retain land ownership throughout the period, and all improvements will revert to the government at the lease end without compensation. The city can also renegotiate terms or release to another developer if the developer does not meet operational standards and any sale or transfer of leasehold interests must be approved before the transaction. The relevant authorities will further iron out the legal structure, but this framework will ensure that the government can reset terms without compensation, creating leverage over future land use and revenue terms.

The monthly lease payment will be calculated using a dual-track rent structure similar to those implemented by retail property managers. Rent will be based on the combination of an escalating base rent and percent rent embedded into a profit-sharing structure. The base rent will be a fixed amount (€X/M²/Year) paid in monthly installments, and escalation will be, by default, set to the municipal CPI, currently 3.1%. The escalation is also subject to acceleration given increased performance, for example, 4% on the first €10 million in revenue, 6% on the next €20 million in revenue, and 8% on all further milestones. The percent rent will be additional to the base rent and is derived from a share of the lessor's revenue, at a rate of 5% of retail revenue, 1% of residential rental income, and 10% of net parking, event, and hospitality income. The tandem model combines predictable income with upside sharing.

The government retains rights to participate in the financial upside of the project through structured mechanisms, including sale participation, refinancing participation, and periodic land reappraisal resets. Under the prior lease framework, the Maremagnum property changed ownership multiple times. While

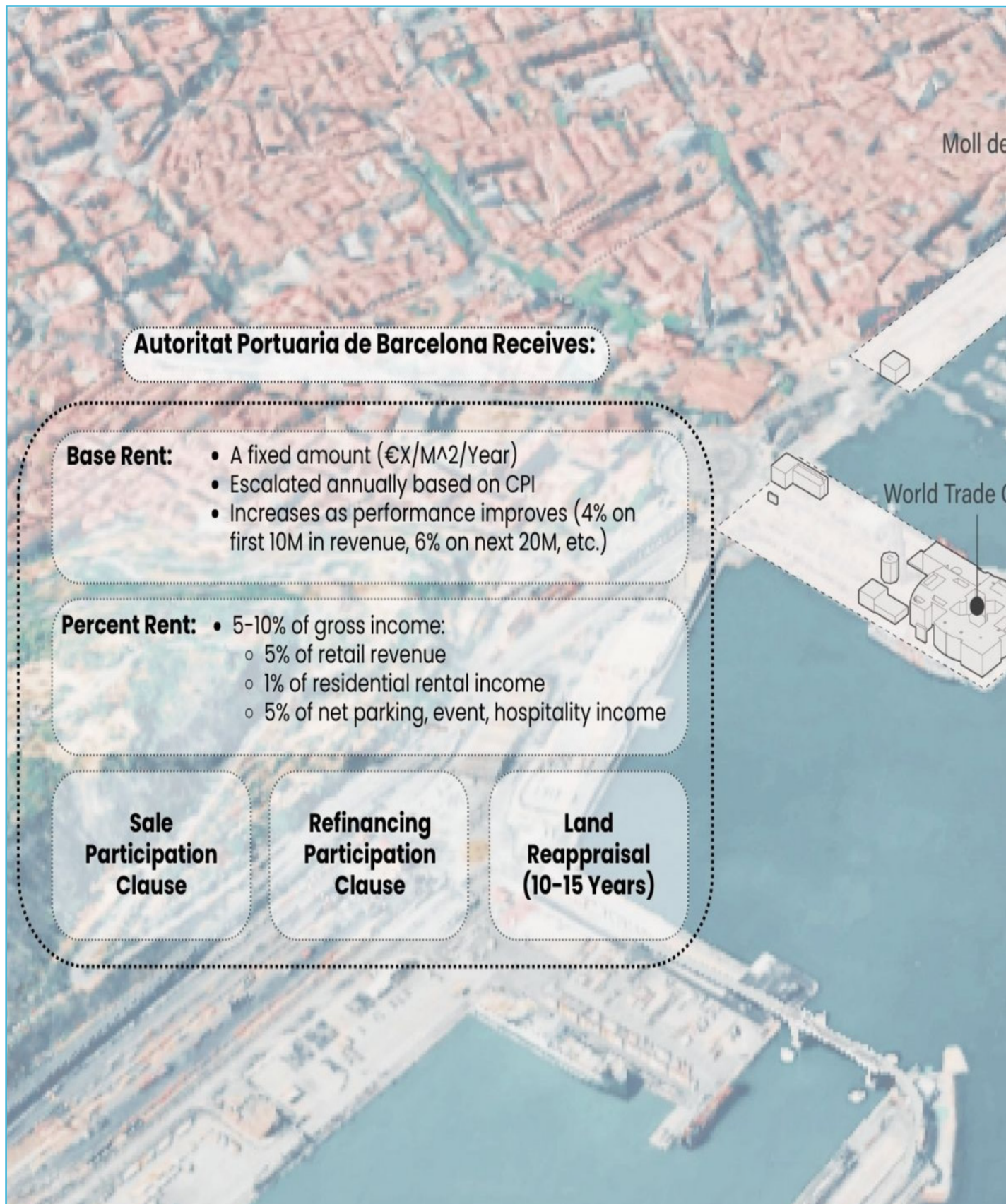


Figure 70. Port Vell land lease proposal



the government should facilitate property transactions to enable programmatic and design updates aligned with the city's long-term strategic vision, it is also appropriate for the public sector to capture a share of the value created—particularly given the site's enhanced attractiveness is a direct result of government-led investment and planning efforts. Accordingly, the sale participation clause entitles the city to receive 1% of net sale proceeds on each transaction throughout the lease term. The refinancing participation clause allows the city to share in the cash proceeds generated from any refinancing activity. The land reappraisal reset provision enables the city to periodically revalue the land—every 12 to 20 years—in order to reset the base rent in line with current market conditions.

All bidding for development and operation rights will be selected through a competitive RFP process scored on land value offered, public benefit, urban design, and sustainability. Land value offered will be a quantitative metric based on the net-present value of projected lease payments. The public benefit criteria will encourage participants to include programs that improve housing affordability, job training, local employment, and feasibility for community tenants. Urban design and sustainability will be based on currently existing standards as established by the city's urban planning agency. The city retains veto power over design via a formal design review board and all RFP scoring and lease terms will be published.

Land leasing models have been deployed around the world, and it is pertinent to recognize that there are as many challenges as there are benefits. In New York City's Battery Park City and Vancouver's False Creek South, 99-year lease agreements have led to land devaluation and long-term lock-in clauses have resulted in dated buildings that do not meet current building standards. In London's Canary Wharf, the public sector missed out on billions in appreciated value because its lease

structure did not capture the upside from future developments. Equally important, reappraisal has led to transaction friction in Amsterdam and Honolulu, especially for homeowners who own units on leased municipal land. While most of the complications can be avoided by leasing solely to commercial operations, as is the case with Moll d’Espanya, the extensive upside clauses will create friction that will need to be negotiated to satisfy the needs of both the private and the public.

Given the already existing zoning amendment and division of authority for Moll d’Espanya and Moll Nou, we do not foresee any conflict with the Autoritat Portuaria de Barcelona. Furthermore, the revenue generated from the dual-track rent agreement will be directed towards public housing development in Ciutat Vella, which is the existing primary concern of the current City Council.

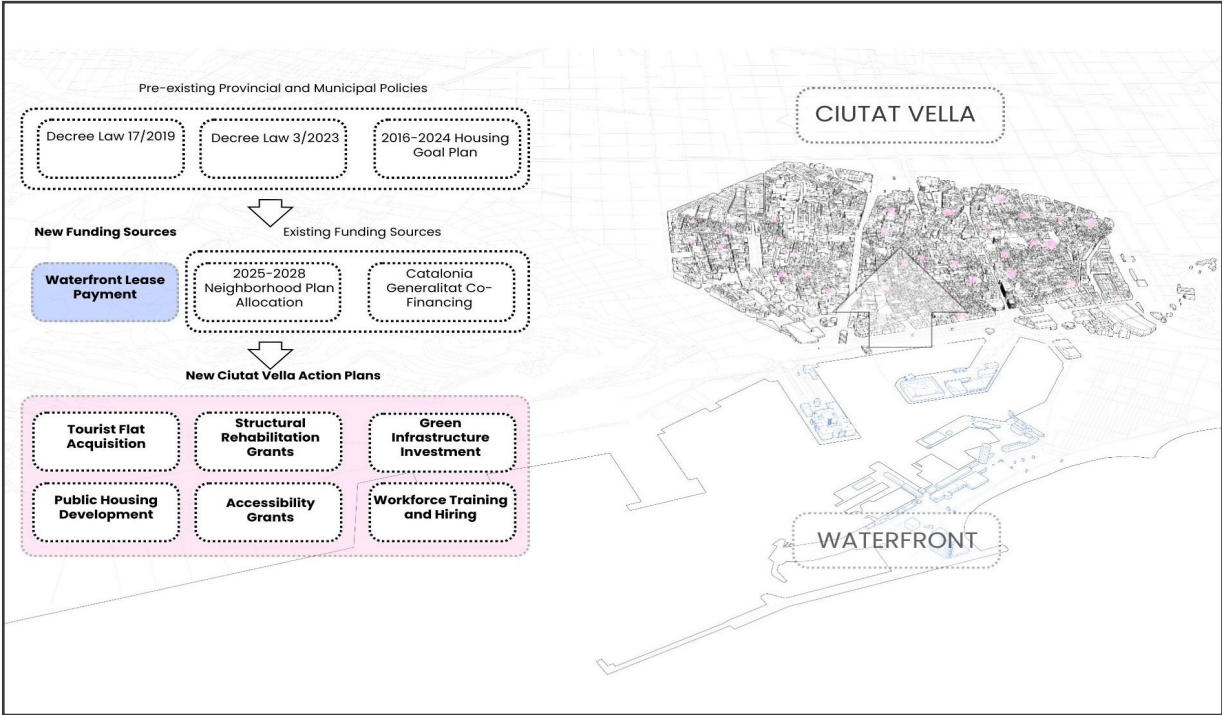


Figure 71. Public acquisition proposal

Public Acquisition

The Port Vell land-lease funds will directly fund the public acquisition and improvement of existing housing stock in Ciutat Vella, notably tourist properties vacated in accordance with Decree Law 2/2023. The proposed reinvestment of waterfront lease revenue into this district offers a legally aligned and spatially targeted response to the obligations set forth by the state housing framework.

The central pillar of the reinvestment strategy is the public acquisition of existing housing,

particularly units currently operating as tourist-use properties expected to be vacated by 2028, in accordance with Decree-Law 3/2023 of the Generalitat de Catalunya. This law mandates the phase-out of all licensed and unlicensed tourist flats in municipalities with certified housing stress, under the pretense that these units violate the approved land uses designated by the city. As more than 10,000 units revert to residential lease rental use, they create a window of opportunity for acquisition into the public or publicly-supported housing stock,

benefiting more than 25,000 citizens across Barcelona.

The existing legal framework for acquisition comprises three disparate but codified mechanisms. Firstly, as Decree-Law 3/2023 triggers the release of units onto the open market, properties will be assessed and acquired based on their rehabilitation or ground-up development potential—specifically, capital costs, structural condition, and site accessibility.

Second, pursuant to the Right of First Refusal and Retract clause established under Section V of Decree-Law 17/2019, the City of Barcelona will exercise its unique emphasized right to acquire units at market value. This clause was deployed at a small scale during COVID-19 to acquire Jaume Giralt (15 units) for €3.5mm, Forat de la Vergonya (10 units) for €860,000, Passatge Bernardi 2 (9 units) for €1.4mm, and Santcliment (9 units) for €2.4 million – the prior two being located in El Born, Ciutat Vella.

Finally, the acquired units are subject to targeted rehabilitation, such as energy retrofitting, accessibility upgrades, modifications to accommodate aging and mobility-limited residents, or greening, predicated upon the needs of the targeted demographic. All rehabilitation will be designed in accordance with regional urban planning laws with state-level rehabilitation mandates to reduce uncertainty and promote upkeep of existing housing stock, ie, a 70 m²/unit average. While most units will be in residential zones, under Section VI of Decree-Law 17/2019, the municipality is also permitted to construct public housing without prior zoning change in rare instances. These improvements are co-financed by the €152.7 million municipal housing budget, the €20 million in hiked regional tourist tax, the €44 million State and Municipal housing rehabilitation pledge, all proceeds from the waterfront land lease, and European and regional housing funds earmarked for climate and social resilience.

Rehabilitated properties are then integrated into the public rental system, either directly managed by the Agència de l'Habitatge de Catalunya or

delegated to qualified social entities. These include non-profit housing cooperatives, foundations, and third-sector organizations such as Fundació Hàbitat3, Sostre Cívic, and others working within the Catalan Network for Inclusive Housing (Xarxa d'Habitatges d'Inclusió). The aforementioned organizations provide both professional property management services and specialized social support frameworks designed to meet the specific needs of vulnerable tenants.

6.2.3 Housing Rehabilitation Framework

Development of Vulnerability Index

In Ciutat Vella's dense and historically layered urban fabric, the condition of shared architectural elements—such as roofs, staircases, hallways, lighting, and balconies—serves as a crucial metric for evaluating residential habitability (INICI - Co-Hab Raval). These features are not only essential to physical infrastructure but also deeply influence everyday routines, perceptions of safety, and opportunities for social interaction among neighbors. The 2016 Enquesta Tècnica de l'Habitatge revealed that buildings in older districts like Ciutat Vella often suffer from uneven maintenance patterns, with many shared spaces showing signs of wear due to age, limited accessibility upgrades, or fragmented property ownership. While a subset of buildings has benefited from rehabilitation initiatives and community-led improvements (INICI - Co-Hab Raval), others continue to face serious issues such as water infiltration, structural fatigue, and poor natural lighting. These disparities underscore the need for a standardized diagnostic approach, such as the multiscale assessment methods developed in recent studies of El Raval, which highlight the spatial inequalities in housing quality within a single neighborhood (Vima-Grau et al., 2021). To mitigate such effects

and improve equity in the housing stock, the 2016–2025 Barcelona Right to Housing Plan introduced several reforms, including targeted grants for communal renovations, structural interventions in deteriorated public housing, and the prioritization of habitability upgrades in the most at-risk areas (Ajuntament de Barcelona, 2018). Assessing the condition of shared architectural features through clearly defined levels—adequate, substandard, and critical—enables planners and policymakers to allocate resources and fund more effectively.

Roofs in adequate condition are structurally sound, waterproof, and accessible for maintenance, though often underutilized and dominated by mechanical equipment. In substandard cases, roofs are cluttered with debris and poorly insulated, leading to overheating and moisture damage. Critically deteriorated roofs show signs of structural failure, such as cracked waterproofing layers, exposed beams, or collapsed walls, and are frequently inaccessible due to safety concerns.

Staircases in adequate buildings are generally safe, with structurally stable steps and secure handrails, though they

may show surface wear like chipped edges or scuffed finishes. Substandard staircases may include worn, uneven, or broken steps, rusted railings, and visible signs of moisture-related damage. In critical conditions, staircases are unsafe for daily use, with missing structural elements, collapsed segments, and total absence of railings.

Hallways in adequate condition are functional but often narrow, dimly lit, and aesthetically outdated, with minor cracks or moisture stains. Substandard hallways exhibit more severe neglect—peeling paint, mold, and poor ventilation—contributing to discomfort and reduced quality of life. Critical hallways show advanced decay such as collapsing floors, warped walls, and structural insecurity, often exacerbated by vandalism or unauthorized occupancy.

Lighting in adequately maintained buildings is operational but may be outdated or dim, offering only basic navigation. Substandard lighting is often insufficient or malfunctioning, with flickering or missing fixtures, creating unsafe and poorly illuminated shared spaces. In critically deficient conditions, lighting systems may be entirely absent, with exposed electrical wiring and broken fixtures presenting serious hazards.



Figure 72. Rehabilitation strategies

Balconies in adequate condition are structurally sound but show minor wear such as peeling paint or surface rust. These balconies remain functional for light activities but are rarely optimized. Substandard balconies suffer from cracked concrete, poor drainage, and unsafe or deteriorating railings. In critical cases, balconies exhibit structural instability, including failing supports and detached components, posing collapse risks for residents and passersby.

Scoring Framework

Each of the five shared architectural features—roof, staircase, hallway, lighting, and balcony—is rated on a scale from 1 to 6. A score of 1–2 indicates a Critical condition, meaning the element is unsafe or unusable due to extreme deterioration. A score of 3–4 reflects a Substandard condition, where the feature is functional but deficient in comfort, design, or compliance. A score of 5–6 signifies an Adequate condition, structurally sound and legally compliant with only minor wear.

Composite Habitability Index (CHI): The CHI is the average of the five individual scores, calculated as: $CHI = (\text{Roof} + \text{Staircase} + \text{Hallway} + \text{Lighting} + \text{Balcony}) / 5$

Structural & Accessibility Upgrades

To enhance the safety and usability of shared architectural spaces, targeted improvements should correspond to the assessed condition of each element—ranging from light upgrades in adequate areas to full structural rehabilitation in critical cases.

Roofs in adequate condition can be transformed into communal assets through small-scale interventions such as adding seating, planters, or solar panels to encourage social use and sustainability. For substandard roofs, essential repairs include debris clearance, insulation

improvement, and drainage enhancement. Critically damaged roofs require complete structural rehabilitation and waterproofing to ensure safe accessibility and future use.

Staircases in good condition benefit from tactile enhancements, resurfacing, or the installation of resting platforms to support aging residents. Substandard staircases need more substantial repairs, such as reinforcing handrails, fixing uneven steps, and improving lighting. Critically damaged staircases should be prioritized for total reconstruction.

Hallways can be upgraded through aesthetic and comfort-focused interventions in adequate cases—such as repainting, reopening ventilation outlets.

Substandard hallways should be targeted for mold removal, moisture control, and airflow improvements. Critical conditions demand structural reinforcement, flooring repair, and security upgrades to restore safe access and habitability.

Lighting in adequate environments can be upgraded with energy-efficient LED fixtures and improved fixture placement. Substandard lighting systems require partial rewiring and replacement to restore safe visibility, while critical cases call for complete electrical system rehabilitation to eliminate hazards and comply with safety standards.

Balconies that are structurally safe can be enhanced with sealing, painting, and green plantation to improve function and appearance. Where balconies are substandard, rehabilitation should include structural reinforcement, better drainage, and new railings. Critical balconies must undergo urgent structural assessment and, in most cases, total reconstruction to eliminate immediate safety threats and restore safe exterior access.

New Grant Framework for Private Owners

The 70-meter square unit size is used as a standardized average for estimating per-unit rehabilitation costs in Barcelona's urban housing programs. This figure is derived from the *Enquesta Tècnica de l'Habitatge 2016*, which provides technical surveys of housing conditions across the city. It reflects the typical floor area of residential units in dense, historic neighborhoods such as Ciutat Vella, where most buildings consist of compact, subdivided apartments built between the late 19th and mid-20th centuries.

For buildings in critical condition (CHI score 1–2.9), where shared architectural elements such as roofs, staircases, or balconies pose serious safety risks or structural failure, Barcelona prioritizes full-scale rehabilitation. These interventions typically involve demolition and reconstruction of unsafe components, installation of modern energy systems, and accessibility retrofits. The estimated cost ranges between €65,000 and €80,000 per unit, which corresponds to deep retrofitting costs of approximately €800 to €1,200 per square meter—a figure commonly cited in the European Commission's *Renovation Wave Strategy* (2020) and OECD (2021) urban regeneration case studies. Based on Barcelona's average residential unit size of 70 m², this results in a baseline investment of €56,000–€84,000 per unit. Funding is provided through a combination of sources: the €152.7 million municipal housing budget, €44 million State and Municipal Housing Rehabilitation Pledge. Because residents in these buildings are often low-income, elderly, or mobility-limited, no co-financing is required from occupants. Once rehabilitated, units are integrated into the public rental system, managed either directly by the *Agència de l'Habitatge de Catalunya* or delegated to nonprofit providers such as *Fundació Hàbitat3* and *Sostre Cívic* (Uzqueda et al., 2021).

For buildings in substandard condition (CHI score 3–4.9), where elements remain functional but are compromised in comfort, design, or code compliance, Barcelona funds a preventative rehabilitation model. Typical interventions include railing repair, waterproofing, lighting upgrades, and modest energy-efficiency improvements. The estimated cost per unit ranges from €35,000 to €50,000 (López-Mesa et al., 2021). For reference, the Italian *Superbonus 110%* program, which estimated moderate retrofits at €500–€700 per square meter (D'Orazio & Dirutigliano, 2021). Funding for substandard-tier buildings is drawn from district-level allocations within the municipal budget and returns from waterfront land leases help finance these neighborhood-scale improvements.

For buildings in adequate condition (CHI score 5–6), where shared features are structurally sound and legally compliant, the focus shifts from repair to sustainability and optimization. These buildings are eligible for light-touch improvements such as green rooftop, solar panels, LED lighting, and façade upgrades. These interventions typically cost €10,000 to €20,000 per unit, based on shallow retrofit benchmarks of €150–€300 per square meter. Funding for buildings in adequate condition is primarily structured through incentive-based and participatory mechanisms, rather than direct full subsidies. For instance, ethical banking institutions like *Coop57* and *Fiare Banca Ètica* provide low-interest loans specifically for community-led energy efficiency projects (Bündnis Bürgerenergie, 2022; Global Alliance for Banking on Values, 2023).

Implementation Timeline

The duration of housing rehabilitation projects in Barcelona varies significantly depending on the Composite Habitability Index (CHI) score, with timelines structured to reflect the urgency, scope, and complexity of each condition tier.

For buildings in critical condition, full-scale interventions typically span 18 to 24 months. This period includes preliminary technical assessments and funding approvals (0–3 months), followed by architectural planning and permitting (3–6 months),

and extensive construction work encompassing demolition, retrofitting, and accessibility upgrades (6–18 months). The final stages involve tenant re-onboarding and integration into the public rental system (18–24 months). Rehabilitation for substandard buildings, generally unfolds over 4 to 12 months. The process begins with CHI assessment and

stakeholder consultation (0–2 months), budget approvals (2–4 months), and medium-scale upgrades such as waterproofing, stair repairs, and insulation improvements (4–10 months), concluding with post-renovation evaluations (10–12 months).

For adequate buildings, typically follow a 6-to-8-month cycle, including co-design and budgeting (0–2 months), financing through participatory or cooperative channels (2–3 months), implementation (3–6 months), and resident engagement or activation phases (6–8 months) (Frantzeskaki et al., 2016).

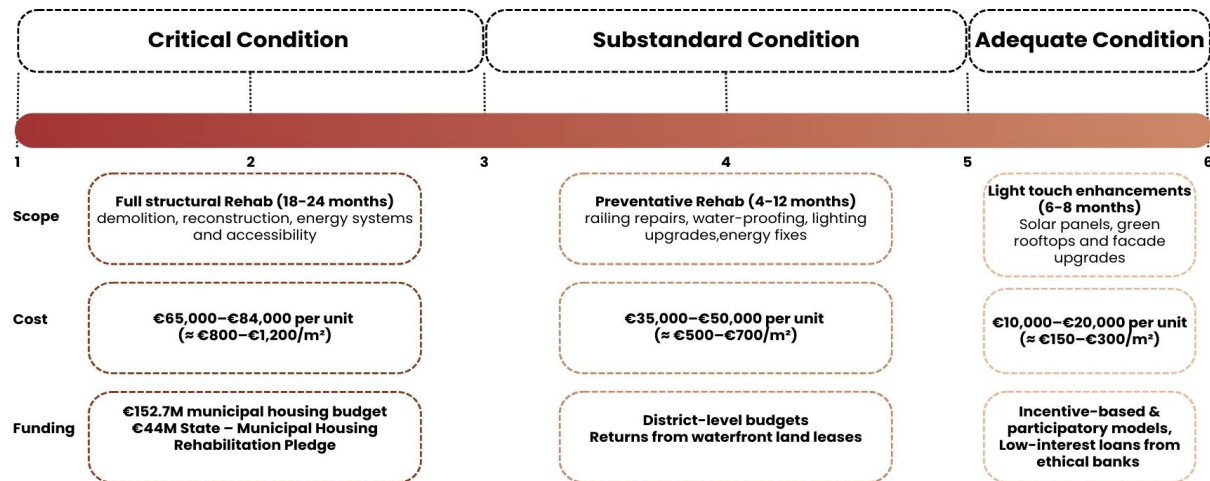


Figure 73. Timeline according to building vulnerability

6.2.4 Green Roofs

Historical and Heritage of Living Terraces in Barcelona

Viewed from above, Barcelona is immediately recognizable for its iconic urban morphology and its distinctive flat terrace roofs, both of which are integral to the city's identity. Oral histories and written accounts of these spaces confirm that terrace roofs were once vibrant communal spaces used extensively by residents for socializing, household chores,

and even cultural traditions. (Ajuntament de Barcelona, 2020; Ajuntament de Barcelona, 2015). While these spaces were primarily used to hang clothing, they also provided platforms for community building and often included places for children to play. (Ajuntament de Barcelona, 2015).



Figure 74. Green roofs historical timeline

The communal uses of these terraces declined, especially as rooftop spaces became occupied by HVAC systems and other mechanical infrastructure. However, especially after the pandemic, the city has shifted its focus back to optimize outdoor space for residents as part of a greater refocusing on mitigating climate change and building resilience to heat and flood exposure (Ajuntament de Barcelona, 2020).

Barcelona's Green Infrastructure Project aims to preserve and enhance the natural heritage of the city, expand green infrastructure, maximize social and environmental services from green infrastructure, improve environmental education, and create a resilient city (Ajuntament de Barcelona, 2020). The program so far has successfully created 14 green roofs in Ciutat Vella, and 22 more across the rest of the city.

While advancements have been made, much remains to be done. This section analyzes the current green roof initiatives within Ciutat Vella and makes recommendations for expanding the program and better utilizing rooftop spaces to meet climate and social needs.

Barcelona formally introduced its Living Terrace and Green Roof initiative in 2014 (Ajuntament de Barcelona, 2015). The initiative was reinforced in the 2018–2023 Climate Plan,

which identified rooftop greening as a core adaptation strategy. The city subsequently committed 34,100 square meters of green roofs, walls, and facades by 2030 (Ajuntament de Barcelona, 2018).

The Cobertes Verdes (Green Roofs) program was launched in 2017 through the Municipal Institute of Urban Landscape and Quality of Life (IMPUQV). The initiative aims to transform underused rooftops into multifunctional green spaces that provide environmental, social, and aesthetic benefits (Ajuntament de Barcelona, n.d.-a).

This program has operated two separate competitions. The first, the Cobertes Mosaic competition in 2017, selected ten winning projects that resulted in the construction of approximately 5,500 square meters of green infrastructure, such as solar panels, rainwater systems, biodiversity installations, and communal areas. A second round in 2020 awarded up to €100,000 per project to another ten rooftop initiatives, delivering 2,055 square meters of greenery to 362 residential flats across the city (Ajuntament de Barcelona, n.d.-a).

Among the most notable examples is the Porxos d'en Xifré project in Ciutat Vella, chosen not only for its architectural and historical significance — as it housed Pablo Picasso and his family — but also for its technical and environmental merit (Ajuntament de Barcelona, 2020). The building's rooftop is also rumored to have been where Pablo began his famous cityscape painting series (Ajuntament de Barcelona, 2020). Today, it features a 1,500 square meters of green infrastructure combining solar panels and rainwater collection with native plantings. "The aim of this design concept is to strengthen the connection with the natural environment by means of vegetation. This principle generates economic, environmental, and public health benefits for the occupants of the building and for the urban environment" (Ajuntament de Barcelona, 2020, p. 14).

These efforts reflect a strong municipal commitment to integrating green infrastructure into the urban landscape. However, the dense

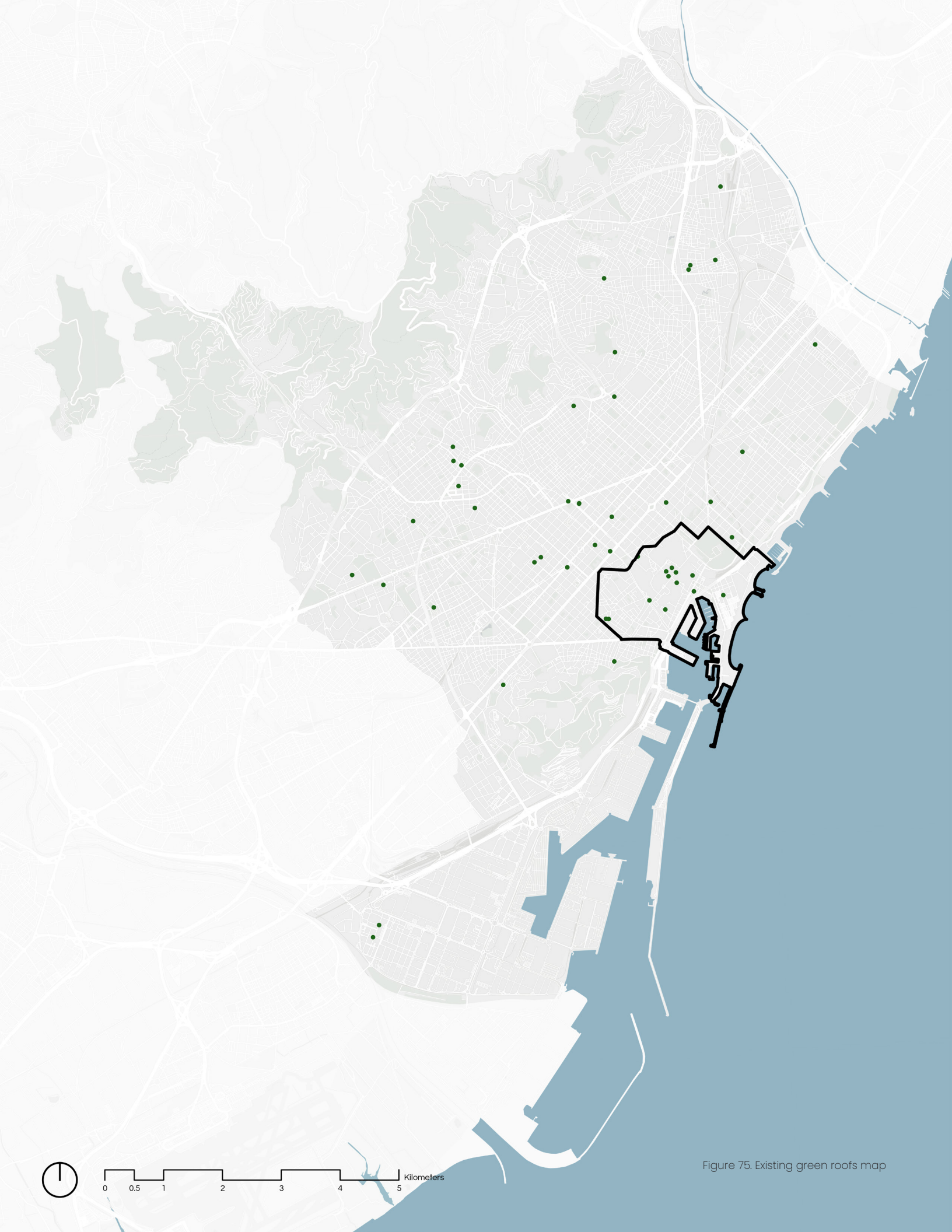


Figure 75. Existing green roofs map

morphology of Ciutat Vella has intensified the demand for space within the historic core. Narrow streets and an influx of tourists have heightened the need for shared semi-private spaces that serve local residents (Ajuntament de Barcelona, 2020).



Figure 76. Existing green roof in Ciutat Vella

Challenges in Ciutat Vella

Several limitations exist for implementation in Ciutat Vella. According to the Barcelona Green Infrastructure and Biodiversity Plan 2020, districts with historic centers, such as Ciutat Vella, have a less abundant presence of green areas due to the lack of available space in dense urban fabric (Ajuntament de Barcelona, 2020). Above the ground, the age and structural integrity of buildings in the neighborhood make implementation more complicated, cumbersome, and expensive. These constraints, coupled with a lack of targeted policy support for this specific district, have resulted in Ciutat Vella being left behind in the city's otherwise expanding green infrastructure network. To close this gap, the city would benefit from introducing tailored incentives for green roofs in historic areas, including technical support for retrofitting, co-financing schemes for residents (see Section 6.2.3), and community-led maintenance programs. Without intentional efforts to integrate Ciutat Vella into the city's broader ecological transformation, the district risks falling further behind.

Field Research Findings Concerning Green Roofs

While in Ciutat Vella, we observed only one established green roof, Porxos d'en Xifré, located on the outskirts of El Raval on the way to Barceloneta. This iconic complex from the early 19th century consists of 10 individual buildings. Completed in 2019, the 1,500 m² green roof combines solar energy, rainwater collection, and biodiversity restoration. Developed not as a formal municipal initiative but through community creativity and care, the space transforms underutilized rooftop infrastructure into an ecologically productive, socially cohesive environment. We also noted that no other green roofs are visible from above in the area. There is little publicly available information on the current status of the city's green roof initiative. As a result, we have developed policy recommendations to better integrate green roofs into the urban fabric of Barcelona.

Potential Benefits of Green Roofs in Ciutat Vella

Due to the lack of green spaces, the urban heat island effect is particularly potent in Ciutat Vella. Green roofs provide a solution for cooling residences and the overall ambient temperature through evapotranspiration and provide a buffer against heat extremes. In addition, green roofs can improve the air quality by trapping pollutants, dust, smog, and other airborne pollutants. Water retention can also assist in alleviating the pressure of drought in the region, especially in El Raval. Green roofs can retain 50-90% of rainfall and therefore create a multi-pronged solution for many environmental issues in Barcelona.

Green roofs can also contribute to the cultural and ecological revitalization of Ciutat Vella. By using native plants and encouraging the return of pollinators and urban wildlife, they can help strengthen the district's ecological connectivity with surrounding green corridors, including Montjuïc and Collserola. Rooftop agriculture initiatives can also reconnect residents with

traditional knowledge and practices around food cultivation, supporting urban resilience and self-sufficiency.

Green roofs provide economic opportunities to many different stakeholders. Green roofs can lead to long-term cost savings and revenue-generating opportunities. Buildings in Ciutat Vella, many of which are older and less energy efficient, would benefit from the natural insulation provided by green roofs, reducing the need for artificial cooling in summer and heating in winter. This translates into lower energy bills for residents and businesses. Increased cash for residents will likely translate into more spending, greater levels of private investment from everyday people, and increases in entrepreneurship. This, in turn, improves economic development overall, provides further growth potential in the community, and improves the quality of life of residents. Furthermore, maintaining green roofs can increase the lifespan of the roof membrane by protecting it from UV radiation and temperature fluctuations, reducing maintenance and replacement costs. Green roofs also create jobs as reinforcement of buildings may be necessary, landscapers and gardeners will be needed, and funding will need to be raised to implement such programs. Contractors, engineering firms, laborers, and policy experts will need to be employed. Programs to implement roofs will require labor inputs from many sectors within the economy. This investment will translate to an increase in growth and opportunities, especially in a city where entry-level blue-collar jobs are on the decline.

Rooftops can be transformed into community gardens, leisure areas, or educational spaces, offering residents access to fresh air, greenery, and opportunities for social interaction without leaving their buildings and being exposed to crowded streets, mobility conflicts, noise level issues and other physical realities of public spaces within Ciutat Vella. These spaces can improve mental well-being, foster a sense of community, and offer therapeutic benefits, particularly for vulnerable populations like

children and the elderly. In neighborhoods where private courtyards are limited and many households lack balconies or terraces, green roofs can serve as vital extensions of living space.

In a historic center where modernization must be balanced with preservation, green roofs offer a way to adapt to climate and social challenges while respecting the built heritage and fabric of the neighborhood.

Types of Green Roofs for Implementation in Ciutat Vella

This section outlines the different types of green roofs that, given Ciutat Vella's diverse building typology and needs, are best suited for implementation:

Extensive Green Roofs have a thin layer of soil (8-15 cm) and can be populated with drought-tolerant and resilient plants. Minimal maintenance is required, while environmental benefits and cost reductions are achieved. These systems are ideal for improving insulation during both the heat waves of the summer and any low temperatures in the winter. Installation only cost ~€70-90/m² and weighs less than any of the other green roofs at only 120-225 kg/m². Suitable for aging buildings, warehouses, and public infrastructure, extensive green roofs are not optimal for recreation or gatherings. Only limited social or community benefits are typically realized.

Intensive green roofs offer a more all-encompassing approach, incorporating deep soil (30-100+cm) to support trees, shrubs, lawns, and built features such as pergolas, seating, and lighting. These fully accessible systems enable recreational educational, and commercial use. Costs typically begin at €150/m², depending on design. The maintenance requirements are also high and include full garden upkeep. Features like solar panels, irrigation, and water elements may be included. Implementation requires strong

structural support to ensure safe long-term performance.

Naturalised green roofs are designed to enhance urban biodiversity by using indigenous plants, natural substrates, and habitat features like logs and stones to attract local fauna. They are best suited for buildings with flat or slightly sloped roofs that have limited human access, such as public buildings, schools, or older residential blocks with sufficient structural capacity. With low to moderate maintenance needs, the installation typically cost between €70–130 per m², depending on whether they overlap with extensive or semi-intensive systems. These roofs primarily benefit pollinators, birds, and small urban wildlife, while also contributing to cleaner air and cooler temperatures for city residents. Naturalised green roofs are ideal for cities like Barcelona seeking to restore ecological corridors and integrate nature into the built environment without major structural interventions.

Energy-generating roofs combine vegetation with solar panels or hot sanitary water systems, using the green roof's natural cooling effect to increase panel efficiency by up to 16%. They are ideal for buildings with good sun exposure—such as schools, office buildings, and municipal facilities—where both renewable energy production and environmental benefits are desired. These roofs can be built as either extensive or semi-intensive systems and typically require moderate maintenance to ensure both vegetation and energy components perform well. While installation costs vary based on the energy system chosen, the dual benefit of energy savings and environmental performance makes them cost-effective over time. Energy-generating roofs benefit both building owners (through lower utility bills) and the broader community by reducing emissions and urban heat.

Water-accumulating roofs are designed to capture, retain, and reuse rainwater, helping reduce runoff by 50–90% and supporting

sustainable water use in cities. These systems are best suited for buildings in flood-prone areas, or where water reuse, such as for toilets or irrigation, is a priority. They often use semi-intensive or intensive structures, with added components like cisterns, drainage boards, or tanks, and require maintenance focused on water quality and drainage performance. While costs depend on the level of water infrastructure, they can be a strong investment in resilience and climate adaptation, especially in urban areas with aging drainage systems. Water-accumulating roofs benefit both building occupants (through water reuse) and the public sector by easing pressure on city sewers during storms.

Allotment roofs transform rooftops into urban farms, enabling the cultivation of fruits, vegetables, and herbs through deep soil beds, composting areas, and irrigation systems. They are most appropriate for schools, cooperative housing, restaurants, or residential buildings where users can regularly access and tend to the space. Due to the nature of food production, these roofs require high maintenance and strong structural support but offer significant benefits for community building, food security, and educational programming. Costs can vary but are generally higher than other systems due to the need for deep substrate, irrigation infrastructure, and ongoing care. These roofs directly benefit residents and institutions through access to healthy food and a shared sense of stewardship over a productive green space.

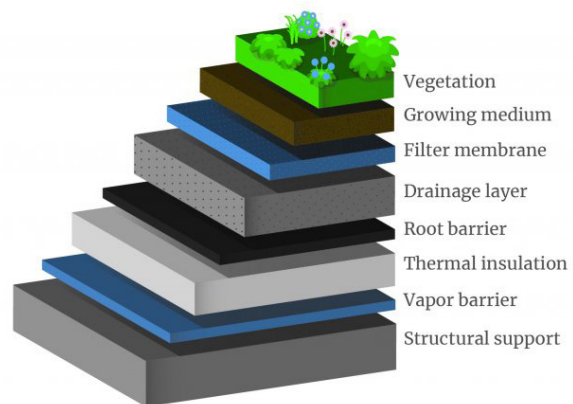


Figure 77 Green roof structural layers

Impacts and Insights so far

Real-time monitoring systems, like that of the BCN-Verd de Proximitat project, have been installed to measure the impact of green roofs on air quality, temperature regulation, and stormwater management, helping demonstrate their value as a long-term investment (Pérez et al., 2024). Despite these promising developments, the overall adoption of green roofs in Barcelona remains limited: as of recent assessments, only about 1% of buildings in the city have green roofs installed (Greenroofs.com, 2019). Experts suggest that reaching 20% coverage would significantly enhance the city's capacity to mitigate heat island effects, improve air quality, and address flood risks (Greenroofs.com, 2019).

Regulatory Framework

Implementing green roofs in Barcelona is not as simple as installing some soil and plants on a rooftop; it is a multi-step process that operates within a specific regulatory framework, particularly when retrofitting older or residential buildings. The city has developed guidelines through publications like the Guide to Living Terrace Roofs and Green Roofs (2020), which breaks down everything from technical feasibility to legal responsibilities. The process begins with identifying ownership and securing consent. In individual homes, this is fairly straightforward. But in condominium buildings, the entire community of owners must agree to move forward, often through a formal vote. This aspect is especially important in places like Ciutat Vella, where the density of apartment buildings makes consensus a necessary, if sometimes complicated, first step.

Before any physical work can begin, a structural assessment must be completed by a certified structural engineer. This is a non-negotiable part of the process, as green roofs, while beneficial, also place an additional load on existing structures. The assessment determines whether reinforcement is needed, what type of green roof is feasible (extensive, semi-intensive, etc.), and whether the existing waterproofing

and drainage systems can support the intervention. Older buildings, especially those in Ciutat Vella, may need modifications before any installation can begin. The city has emphasized safety and durability as top priorities and projects that do not meet the minimum structural standards will not receive approval or subsidy support (Guia de terrats vius i cobertes verdes, 2020).

Once structural feasibility is confirmed, a project plan is drawn up. This must include detailed technical specifications—plant selection, substrate depth, irrigation and drainage strategies, and long-term maintenance plans. Projects are reviewed not only for environmental soundness, but also for their alignment with zoning laws, building codes, and—in the case of historic districts like Ciutat Vella—heritage preservation standards. If the building is protected or located in a historic area, additional permits and reviews may be required. This is a major barrier for implementation in Ciutat Vella, where many roofs are part of buildings under preservation protection.

After a project plan is approved, it moves to the municipal permitting phase, where it is formally reviewed by the relevant city departments. Barcelona's regulatory framework favors green infrastructure and projects aligned with municipal sustainability goals can access public funding or technical support. However, the city also requires strict compliance with its urban planning and construction regulations, which means delays and revisions are not uncommon. For example, even community-led initiatives like Porxos d'en Xifré had to navigate multiple rounds of coordination and adjustments, despite broad public support and a compelling ecological vision.

Finally, once construction is complete, the maintenance phase begins. Responsibility for this usually falls to the building's ownership community or a contracted landscape professional. The city emphasizes that green roofs are not one-time interventions—they are living systems that require regular attention, including irrigation, seasonal plant

care, and occasional structural checks. As part of the regulatory framework, buildings receiving subsidies or public investment may be required to submit documentation showing compliance with maintenance standards over time.

Policy Recommendations

As mentioned above, the green roof approval process in Barcelona requires several tightly regulated steps. As a result, many of the roofs most in need of greening, those in vulnerable, heat-exposed districts with limited green space, are the ones least able to navigate this complex system (Langemeyer et al., 2020).

To address this, Barcelona should adopt a tiered and streamlined process that adjusts requirements based on building type, structural feasibility, and intended roof design. For example, lightweight extensive and naturalized green roofs, those with shallow soil and drought-tolerant plantings, could be fast-tracked for approval on buildings that meet basic structural and waterproofing standards. These systems are low-impact and visually unobtrusive, making them well-suited to historic districts where preserving roofline aesthetics is essential. Drawing from U.S. National Park Service guidelines, Barcelona can revise its permitting criteria to allow for

green roofs on historic buildings so long as they are reversible, minimally visible, and do not compromise structural integrity (National Park Service, 2021). Pre-approved modules and tray systems could be standardized and listed for use on buildings under heritage protection, reducing the burden on architects and engineers.

Equally critical is financial reform. Barcelona's current funding and subsidy opportunities are often tied to complex technical evaluations and limited to certain building types. A new, tiered incentive system could make green roofs more accessible (See Figure 65). For public and semi-public buildings, such as schools, libraries, and social housing, the city should expand direct investment and lead by example, showcasing successful projects. In multi-owner residential buildings, where consensus can be a hurdle, Barcelona could offer grants or tax deductions to communities that secure a majority (e.g., 60%) vote in favor of implementation, rather than full unanimity. Matching funds could be tied to outcomes such as energy savings, biodiversity improvements, or improved thermal comfort (Langemeyer et al., 2020).

Rental buildings, which make up a large share of housing in Ciutat Vella and similar districts, require a different approach. Landlords are often reluctant to invest in improvements with



Figure 78. Green roof policy proposal

long payback periods. The city could establish a low-interest green roof loan program, with repayments tied to energy savings or minor increases in property taxes, provided that anti-displacement measures are in place. In return, landlords would be required to commit to long-term affordability guarantees or tenant protections. Maintenance costs, often a hidden barrier, could be offset with technical assistance programs, job apprenticeships for residents interested in maintaining the roof space, and free city-supported inspections in the first few years (Ajuntament de Barcelona, 2020).

To guide these changes effectively, Barcelona should leverage the spatial decision-support models developed by Langemeyer and colleagues (2020), which map areas of greatest ecosystem service deficits. For instance, rooftops in Raval, Gòtic, and parts of Sants-Montjuïc provide some of the highest potential for thermal regulation, stormwater control, and pollinator habitat. Matching roof typologies to local needs, naturalized roofs for biodiversity corridors, intensive roofs in recreation-scarce zones, and allotment roofs in food-insecure areas, will help

ensure that subsidies are used where the public benefit is greatest (Langemeyer et al., 2020).

Finally, the city should modernize the implementation process with clearer timelines, simplified documentation, and digital tracking. Establishing a public Green Roof Registry would allow the municipality to monitor roof performance, offer maintenance guidance, and ensure that public investment yields long-term ecological returns. Participants could submit brief photo documentation and plant health reports in exchange for ongoing tax rebates or maintenance support.

By refining its legal frameworks, aligning financial tools with building types, and adopting a spatially responsive planning model, Barcelona can shift from a reactive permitting culture to a proactive green infrastructure strategy. Streamlining green roof adoption, particularly in areas of high need, will not only make the city more sustainable and resilient, but also more equitable in how environmental benefits are distributed across its neighborhoods.

Proposed Sites for Green Roof Implementation



Figure 79. Proposed pilot site

To achieve this policy recommendation, a multi-pronged incentive strategy tailored to Ciutat Vella’s diverse ownership structures is needed. For public and semi-public buildings, the city should lead by example—installing green roofs on municipal properties and creating revenue-sharing models with public-private partners to fund long-term upkeep (Ajuntament de Barcelona, n.d.). For private condominiums, “streamlining” means offering pre-approved contractor lists, template-based permitting applications, and targeted outreach to homeowner associations to build awareness. These measures would reduce the administrative burden and planning costs typically associated with retrofitting rooftops. For rental properties, where landlords are hesitant to invest without direct return, we recommend a city-backed low-interest loan program tied to energy savings. This could function like a green mortgage add-on or performance-based rebate, making environmental upgrades economically rational even for profit-driven owners (C40 Cities, n.d.; Pla Clima i Energia, 2023).

To test these proposals, we identify the Via Laietana redevelopment site as a high-potential green roof pilot. Barcelona is currently converting five municipal buildings along this corridor into a multi-use complex that includes new affordable housing, healthcare facilities, and public offices—spanning over 5,600 square meters (Ajuntament de Barcelona, 2023). Located in the heart of Ciutat Vella, the site sits within walking distance of several underserved neighborhoods where green space is extremely limited. If green roof infrastructure is integrated into this redevelopment, it could save an estimated 65,000 kWh annually, cutting cooling costs by €16,000 and preventing 16 metric tons of CO₂ emissions per year—equivalent to driving 64,000 kilometers. More importantly, the site could demonstrate a scalable model for climate-smart, community-centered development in historic districts, showing how sustainability and heritage preservation can go hand in hand.

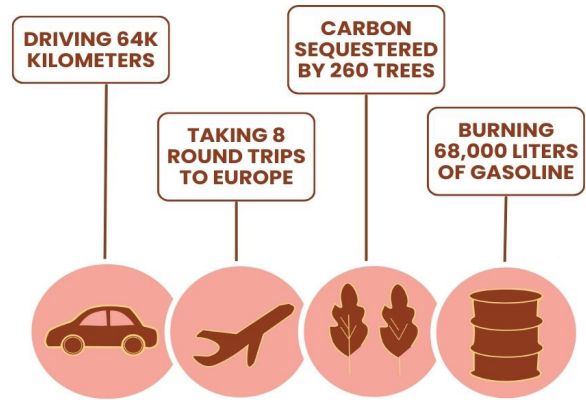
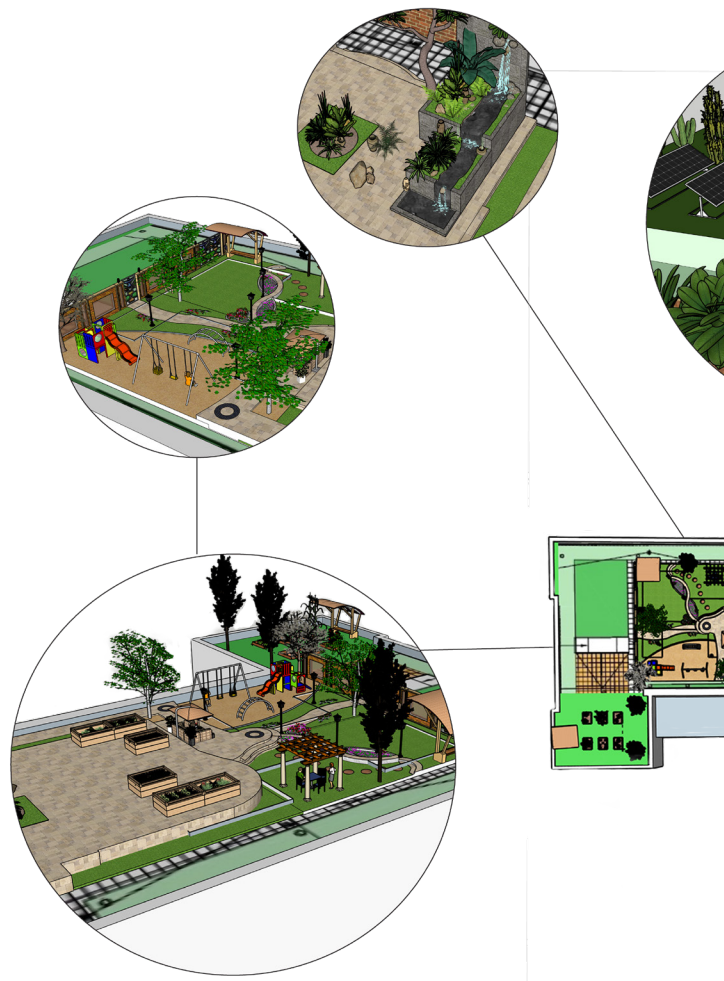


Figure 80. Proposed pilot potential benefits

Below diagram is our proposed green roof design illustrating how different elements could be implemented alongside vegetation.



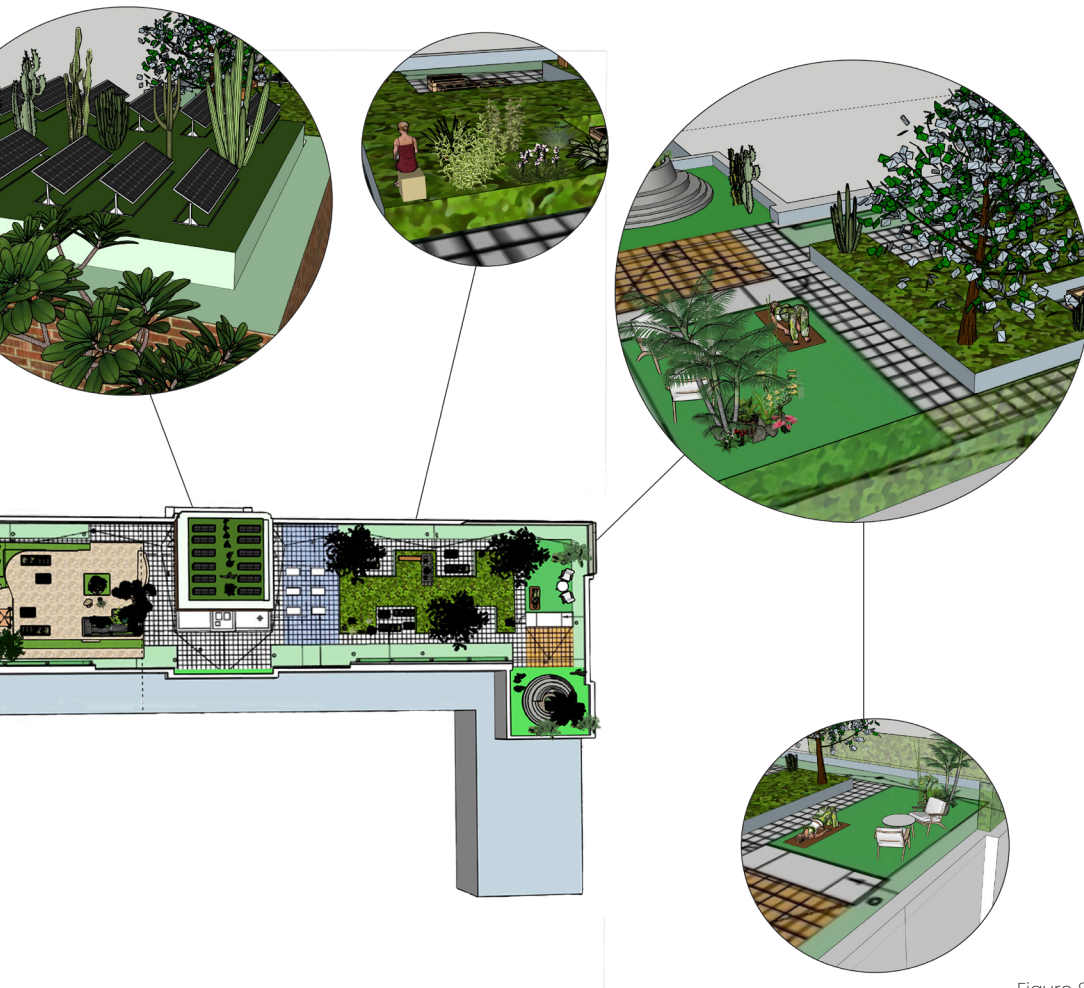


Figure 81. Green roof proposal diagram

PROPOSAL II

Enhance **public spaces** in Ciutat Vella to improve residents' well being, reduce mobility conflicts, and activate underutilized plazas, while integrating climate adaptation measures and honoring its layered history.



Public Realm Proposal Framework

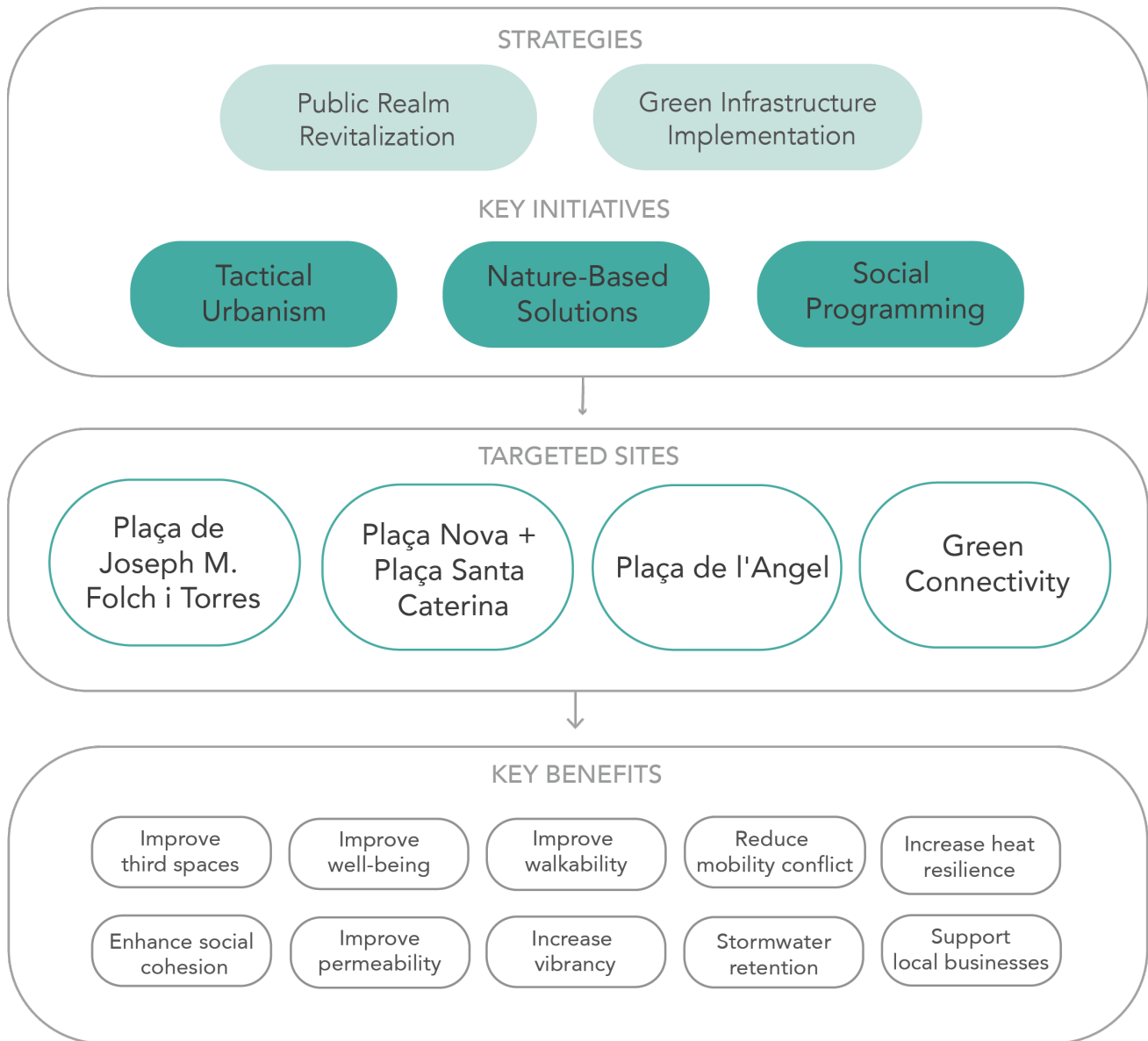


Figure 82: Public Realm Proposal Framework

6.3 PUBLIC SPACE ACTIVATION + CONNECTION

From our field research and visits, we identified a few public spaces that were highly affected by either climate vulnerabilities, mobility conflicts, and use inefficiencies. In this section, we propose various solutions that aim to address these issues through strategies such as tactical urbanism, implementing nature-based solutions, and providing social activation interventions. We intend to focus on a few selected plazas in Ciutat Vella, as well as a connectivity route between each, in order to improve infrastructure, climate resilience, and overall to activate them in terms of efficient mobility and programming.

The city is investing a lot in public space revitalization and green connectivity, especially through the Superblocks, but such interventions are rare in Ciutat Vella. With a history of ‘urban surgeries’ serving as the precedent for public space creation, new clearings are complex in the dense urban fabric, making the existing public spaces precious for residents. The city’s recent plans address betterment of some spaces in our district. An example is Plaça de la Gardunya

(Ajuntament de Barcelona, 2025), where they are adding more greenery and improving connections with nearby spaces, but no other major projects in the area are prioritized in the city’s budget. Based on district-wide and place-based challenges, we propose revitalizing more existing public spaces in Ciutat Vella to promote climate and social resilience, balancing the use of urban space by residents and visitors.

Thus, as stated, for our revitalization plan we would like to offer proposals for a few targeted plazas and an enhanced green connection route. These specific plazas are chosen because they are a good representation for the differing variety of plazas all over the district in terms of size and primary function. Additionally, these plazas experience relatively heightened vulnerabilities and do not currently have extensive revitalization plans. Our targeted plazas are Plaza de Josep M. Folch i Torres, Plaza Nova & Santa Caterina, and Plaza l’Angel. The proposed green connection route will tie each of these plazas together, including Plaza de la Gardunya as well, for which the city already has plans for.



Figure 83. Plaça de la Gardunya revitalization plans. Ajuntament de Barcelona.



Figure 84. Map of sites identified for activation or intervention

6.3.1 Stakeholders & Funding Mechanisms

Our approach to public realm revitalization in aspects of climate, utility, and social relevance will likely be important on the neighborhood and district level, while its impacts may be less robust on a regional scale. Thus, in the governance structure, we expect the major stakeholders will be the Barcelona city government and the district level private municipal body, Foment de Ciutat. Aside from the governance, we expect to engage the local community organizations, museums, and schools in taking part in the social activation of the plazas chosen and utilize them for their programming. The residents of the district, as well as visitors are the final and crucial part of our stakeholder list.

In terms of funding sources, there are various scales of opportunities we explore. At the EU scale, the European Commission's (n.d.) LIFE programme, for instance, provides project-based grants for environmental and climate action projects. Additionally, European Investment Bank Loans can be leveraged by the city to fund public space betterment, climate resilience building and improving social

integration with these public realm projects. (European Investment Bank, n.d.)

At the city level, there is already some budget allocated to urban greening and green spaces. There also exists a bottom-up planning body, Decidim Barcelona, who works with neighborhood-level projects and their funding. A portion of the city budget is allocated to citizen-proposed projects, their feasibility is assessed by the government, and then the projects are put up for a hybrid (online and in-person) voting (Ajuntament de Barcelona, n.d.). This scheme prioritizes highest voted projects and projects are funded in order, until the budget runs out. We have seen that some public space proposals were proposed in Ciutat Vella, specifically in El Raval for locations we were exploring as potential proposal sites, but these locations were not selected. Although this is a great scheme for a new way of citizen participation, we want to emphasize that our site area may not be fully represented in the process due to language barriers, age and other factors, so

we put forward our proposals as a means of just prioritization of better public spaces for all.

So, alternate city-level funding sources we may consider are the Fundación Biodiversidad's (n.d.) grants for neighborhood flood protection projects, the budgets set aside for Barcelona's Municipal Climate Plan's funding for green measures in the city, and leveraging the emphasis on improved public space based on community processes strategy in the Neighborhoods Plan (Pla de Barris) city-wide, to advocate for the district's prioritization. This plan specifically has up to 3000 million euros as its allocated budget, with 15 million euros specifically for individual projects such as the following revitalization proposals (Ajuntament de Barcelona, 2025). Target demographics include immigrants and adolescents, all of which are at a high concentration in Ciutat Vella's El Raval neighborhood which is reason for prioritization.

Lastly, as the district-level options, we want to approach La Ciutat Proactiva grants that most recently had a grant cycle in 2024. These are specific to drought mitigation and water management, which some of our proposals will touch on, and have innovative solutions to public realm rainwater retention and reuse, which may qualify them for these 30,000- to 100,000- euro grants BIT Habitat is offering with this initiative (BIT Habitat, n.d.).

More on the maintenance level, we propose to explore an 'adopt a green' program for the urban greening efforts, offering local businesses tax credits for taking care of a plot or a street section of green infrastructure. For the plaza social programming aspects, it will be essential to work with the organizations around the activated plazas, to keep programming sustained and funded, while adding value to their work in the meantime by creating more space in the public realm for the arts, education, and cultural enrichment of the community.

6.3.2 Interventions

Our intervention strategies revolve around tactical urbanism, social programming, and nature-based solutions. Strategies vary for each plaza, as context-based issues will require more specifically catered solutions. These interventions aim to improve climate, social, and cultural resilience, as well as equity overall.

The success of public plazas, especially in historic sites, is strongly associated with factors such as clusters of landmarks/sites of interest or activities within a 3-5 minute walking distance radius, good connectivity with neighborhoods and provision of proper pedestrian infrastructure, and frequency of local festivals, celebrations, and gatherings which generate a sense of community and belonging (Alvaro et al., 2023, p. 1). Our proposals draw from this research - they include tactical urbanism efforts that will provide landmarks (through standing landmarks and ground markings) and pedestrian connectivity, social programming that will provide local events catered to the contextual population and a greater sense of community, and nature-based interventions that will tackle climate and environmental stresses and add to pedestrian comfort overall. Each of these will aid the resilience and longevity of Ciutat Vella's public realm.

Tactical Urbanism

Tactical urbanism emerged as a tactical response by citizens to the "slow and siloed conventional city-building process" (Lydon & Garcia, 2015, 3). While these strategies vary depending on the site context, they generally involve low-budget, temporary, and bottom-up urban space interventions intended as initial steps toward long-term change (Silva, 2016, p. 1044; Mohankumar et al., 2020, p.15; Lydon & Garcia, 2015, p. 2). Implementation is typically rapid and can occur in a guerrilla manner.

For Ciutat Vella, the proposed interventions include such strategies that work within the constraints of the existing physical environment. In this context, examples of tactical urbanism include painting the pavement and adding movable, non-permanent amenities such as chairs and planting pots. These interventions typically require less financial investment than permanent street furniture and can be implemented without altering the permanent structure of public spaces. Moreover, they can often be carried out by community members themselves, without necessarily requiring government involvement.

Because tactical urbanism typically focuses on highly targeted interventions with a low budget, leaving little room for decorative or non-essential elements, its applications are directly beneficial to the public—prioritizing functionality over aesthetics. Some of the key benefits of tactical urbanism that will also inform our intervention proposal include connecting places and people, reducing conflicts between mobility and livability, improving access to public transportation, and enhancing wayfinding to improve spatial legibility (Mohankumar et al., 2020, p. 42). In this context, several of our proposed interventions



Figure 85: Examples of tactical urbanism that enhance local events. Source: spacing.ca, Ottawa Queensway Underpass pop-up acoustic performance using carpet



Figure 86: Example of tactical urbanism that enhances mobility. Source: <https://sites.google.com/view/asu3calleidea>, Curb Extension in Asunción, Paraguay



Figure 87: Adding seating and shading could be a way to implement tactical urbanism. Source: nacto.org, Shaded seating in a corner plaza in Mexico City, Mexico.



Figure 88: Painting or marking the ground as a way to enhance public space activation. Source: luc4me.com, Painted Leiden Historic City Center maps on the floor of Leiden Stationsplein.

will incorporate the use of movable seating and tables, shading structures, floor wayfinding and signage, and potted plants as part of a tactical urbanism approach.

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structures, floor wayfinding and signage, and potted plants as part of a tactical urbanism approach.

In the context of this historical area, where strict preservation policies allow limited scope for physical change or development, it is essential to adopt a design strategy that does not significantly alter or damage the existing built environment. Incorporating tactical urbanism as a core strategy offers an effective way to balance preservation concerns in Ciutat Vella while simultaneously addressing the needs of public space users. Tactical urbanism proposals, which rely on rapid and low-cost interventions, can be readily implemented in the public spaces of Ciutat Vella, wherein extensive preservation regulations often complicate permanent construction or urban modifications.

Social Programming

Plazas are more than physical spaces; they are social ecosystems where experiences, memories, and interactions shape the urban fabric. They serve as communal platforms for civic identity, cultural expression and everyday life— from casual gatherings and cultural rituals to political demonstrations and public services delivery. Social programming in plazas can be a transformative tool for activating underused spaces, coordinating meaningful activities, fostering community bonds, and ensuring inclusive participation across age, culture, and socioeconomic backgrounds. It is not merely entertainment; it is an urban strategy. At its core, what happens in a place is what makes it meaningful. As Peinhardt and Storrington from Project for Public Spaces (PPS, 2019) explain, people remember what happens in a place, not just how it looks.

In Ciutat Vella, where residents and tourists of all ages and backgrounds intersect and sometimes clash, intentional and inclusive programming that promotes social interaction,

community engagement, service delivery, and equitable space-making is essential.

Social programming should never follow a one-size-fits-all solution, especially in a district as complex and layered as Ciutat Vella, with its dense urban fabric, rich history, and distinct neighborhood identities. Programming must be tailored to the unique character and needs of each plaza, spanning a continuum of temporalities— from daily routines and seasonal events to long term infrastructure for social services. As such, we propose a temporal and functional continuum of programming that reflects the diversity and dynamism of Ciutat Vella's public life.

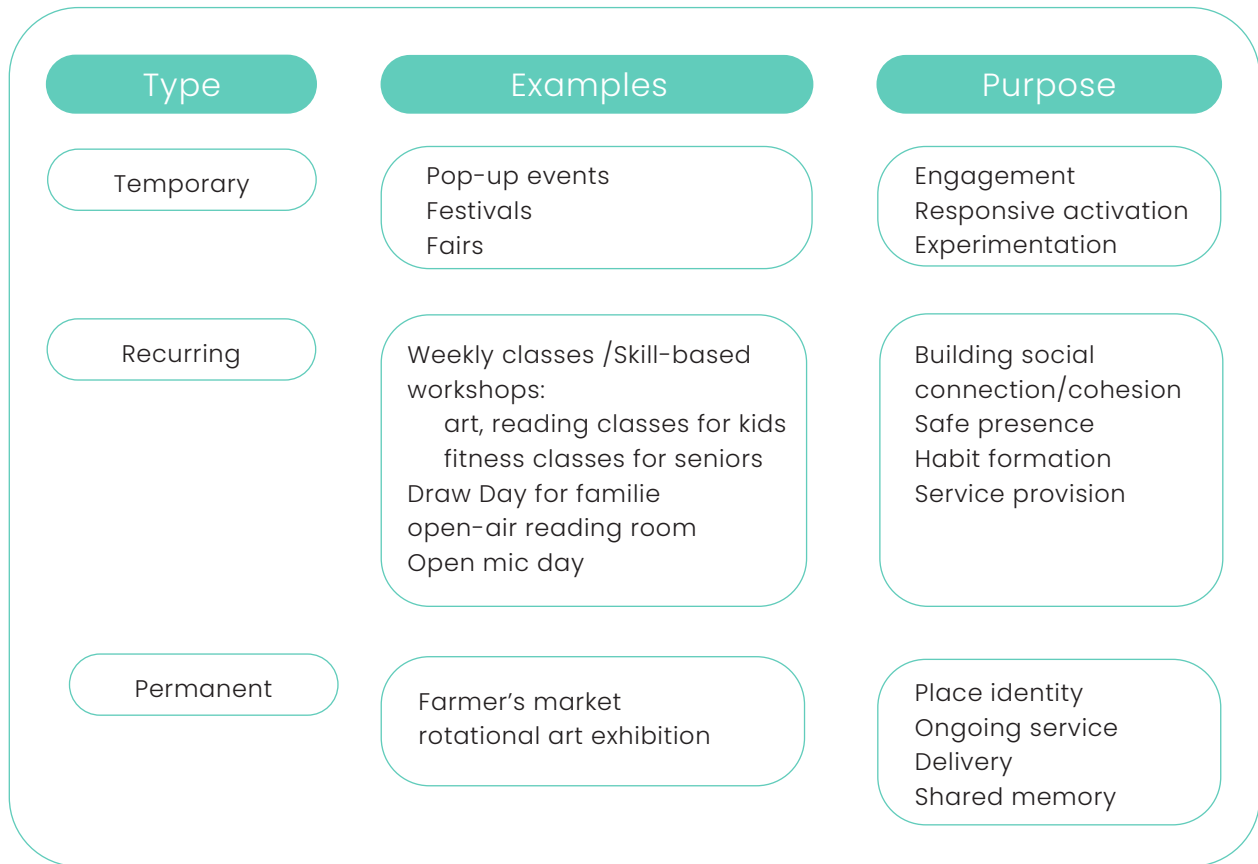


Figure 89: social programming chart (Developed by Studio Team)

To ensure social programming is effective and equitable, we draw on four key frameworks adapted from GIZ (2022), Project for Public Spaces (2008, 2015, 2019), and Urban Omnibus (2015).

Community Engagement: Use participatory planning to involve residents and community groups to identify desired use, programming needs, and cultural practices. In particular, we propose working with community leaders in the planning of different events to ensure that programming is tailored to the needs and wants of different communities in Ciutat Vella.

Social Interaction: Host program activities that appeal to multi-generational users such as storytelling, open-air reading library, craft workshops and open-air performances. Build in activities that facilitate informal encounters and reduce social isolation e.g. shared gardens, pop-up events and festivals.

Service Delivery: Collaboration between city agencies and grassroots groups or local organizations to embed rotating service provision into recurring weekly routines. Use programming to pilot services such as employment, wellness classes.

Inclusive Public Space Design: Programming mirrors the physical design that are accessible, diverse, and adaptable. Program culturally resonant events as ongoing opportunities to reinforce identity, pride, and pluralism.

Site specific programming recommendations

Plaça Joseph M. Folch I Torres

Located across from Casal de Barri del Raval, a cultural center, a vibrant cultural center, Plaça Joseph M. Folch I Torres has the potential to become an extension of the Casal's public programming. This presents a unique opportunity to host rotational outdoor exhibitions in partnership with the Casal, featuring local artists or community-based causes. This helps to extend the visibility of the Casal's cultural work into the public realm but also invites passerby to pause, reflect, and engage.



Additionally, the plaza's proximity to an elderly care facility creates opportunities for programming tailored to the needs of senior residents. For instance, weekly fitness classes or group exercise sessions for older adults can promote wellness, routine, and social visibility among older adults in the public realm. We also propose partnering with neighboring schools or educational organizations to implement open-air reading rooms within the plaza's gazebos and shaded areas, as outlined in our proposed site plan, where books are on shelves with wheels. This initiative would encourage intergenerational interaction at this plaza and foster an inclusive and engaging public space.



Figure 90. Open Air Reading room in Washington Square Park. Source: Street Lab, 2018. (left)

Figure 91. Shape Up NYC offers free fitness classes at NYC Source: NYCParks, n.d (left)

Nature-Based Solutions

In the age of climate change and rising environmental pressures, nature-based solutions are increasingly important to incorporate into the urban fabric. This strategy utilizes facets of the natural environment to aid in efforts like flood mitigation, heat reduction, air quality improvements, biodiversity, food security, and more (IUCN, 2025). Barcelona is located in a region specifically prone to extreme heat, long periods of drought, as well as growing intensity of rainfall. Ciutat Vella is especially vulnerable to these issues, as discussed earlier, and its unique urban contexts make environmental stresses even more complex and urgent. Solutions such as bioretention swales, expanding tree coverage, climate shelters,

living trellises, stormwater recycling systems, and drought resistant vegetation will be integral to combating the climate crisis as it relates to this region (Ajuntament de Barcelona, 2025). In our proposal for public space revitalization, we propose the addition or expansion of some of these solutions in order to reach the goal of long-term climate resilience for Ciutat Vella.

Natural Drainage Interventions

To relieve issues of flooding, heat, and drought, nature-based drainage systems like bioretention basins and rain gardens are a solution that can be physically implemented in existing green and open spaces throughout

flood prone areas. Bioretention systems typically consist of a shallow depressed area of vegetation and soils, underneath which lie a few different layers of varying thickness of water-absorbing materials, additional soils, and gravels. Water flows into the depression, and is either absorbed by vegetation, percolated into the soils to be absorbed by groundwater, allowed to pond in the depression, or is conveyed out of the system by an optional underdrain or overflow piping system to prevent flooding (Geosyntec, n.d.). Additionally, stormwater capture and recycling mechanisms can be optionally incorporated into bioretention design through things such as rain capture cisterns, which can reuse stored water for irrigation purposes in dry times. This addition helps to relieve pressures of drought while maintaining precious vegetated spaces. Bioretention basins provide many benefits, including flood prevention, pollutant removal, heat mitigation, and have the potential to become pollinator habitats and spaces of educational purposes. Figure 75. Below shows a diagram of typical bioretention basin components.

The City of Barcelona has already begun nature-based implementation strategies, including the SUDS (Sustainable Urban Drainage System) initiative, in various parts of the city, but only a couple projects have been conducted within Ciutat Vella (Barcelona Regional, n.d.). The SUDS initiative includes methods like bioretention, but also includes floodable beds, filter strips, and permeable pavements. Our proposals are intended to address the gap between the implementation of nature-based drainage solutions in the greater Barcelona region vs. in Ciutat Vella.

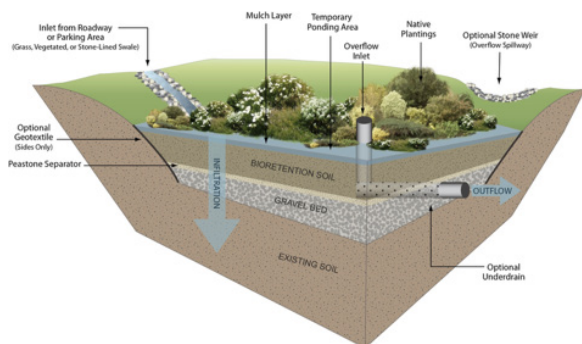


Figure 92: Bioretention swale

Permeable Pavement

When tackling the threats of climate change in Ciutat Vella, another solution becomes apparent. Increasing permeable surfaces is one of the most significant opportunities the city can use to not only decrease the risk of flooding, but also to impact the overall water table. While experiencing the city, we noticed that many of the public spaces were heavily paved with impervious materials.



Figure 93: Plaza del Petro, El Raval

There was great opportunity in these such spaces for not only expanding greenery, but even for implementing permeable surfaces in areas used for pedestrian walkways and other recreational sites. Permeable materials allow rainwater to pass through into the subsoil, reducing surface runoff, relieving pressure on the sewer infrastructure, and mitigating localized flooding. Moreover, they help recharge groundwater levels, which is a significant problem in Catalonia, and can improve urban heat conditions by promoting natural cooling through evaporation (EPA, 2025). Yet, through our research and discussions, we learned that permeable pavement is especially difficult to consider for such a historic district like Ciutat Vella, due to the vast unknowns of the underground ruins and state of infrastructure. Due to the limited scope and capacity of our team, we are unable to conduct further research on place-based underground infrastructure states, and thus unable to confidently

propose permeable pavement interventions in specific areas. However, we would still like to base this intervention strategy simply as a suggestion to the City, dependent on feasibility studies in various areas.

Green Connectivity

Connectivity is a concept that planning in Ciutat Vella has historically lacked. From the city walls cutting the district off from the water to the aforementioned urban surgeries that only created localized public spaces, it is a challenge to see connectivity of the public realm. But this is an essential aspect that the city of Barcelona prioritizes everywhere else. From our conversations with Ms. Neda Kostandinovic, from the Office of the Chief Architect of Barcelona, we gleaned that the city has positioned connecting green spaces and public areas as a central component of projects, as seen in the renovation of Avenue Meridiana running towards the northeast of the city (Av Meridiana renovation process, n.d.).

Within Ciutat Vella, this concept has been explored on the eastern side of the district, with a project attempting to connect Santa Caterina and La Ribera with the outer neighborhoods of Poblenou and Sant Martí with a 'biodiversity promenade' going over the Ciutadella Zoo (Himelfarb, 2025). While this is an important project for connections with outer Barcelona, the theme doesn't go further into Ciutat Vella's core.



Figure 94: Ciutadella biodiversity promenade plan. Source: <https://barcelonasecreta.com/en/bridge-ciutadella-re-form-new-promenade/>, Biodiversity Promenade

We propose to explore the theme of connectivity within Ciutat Vella with a green passage between existing plazas that activation programs are proposed in. A lot of these plaza spaces were urban surgeries to create much needed space within the densely built scape of the old town, without consideration of how they relate to the larger district context. We aim to bring this theme inward and create a conceptual connection between spaces.

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Figure 95: Agora Juan Andres Benitez, El Raval

When we look at the overall layout of the plazas we seek to revitalize, we can imagine a pathway connecting all of them that also goes through some important sites of greening like Agora Juan Andres, where a community garden was created by locals as an act of resistance to corporate tourism industry pressures, and Rambla de Raval, which is one of the few spaces in El Raval that has prominent presence of large chips (Figure 78). In the context of the existing street connections, our proposed route of the green path creates an addition of vegetation where the streetscape is mostly lacking.

Of course, in imagining this intervention, we have to keep in mind the structural challenges. What we are not proposing is a green corridor between spaces, as this term refers to more extensive and large-scale green scapes connecting important ecological areas within a city (Iberdrola, 2021). The narrow and paved streets that may have underground structures blocking extensive roots, as well as our priority to respect the historic fabric of the district and leave streets open for emergency vehicle and delivery access led us to evaluate more modular, flexible and adaptable ways of street greening for our green pathway. Small scale urban greening that we propose here has potential for boosting mental health and connectedness with nature (Anstis, 2021), as well as bringing forward some climate and air-quality benefits.

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As the less intensive greening tactics, we propose base greening and partial façade greening along the route. This route mainly has three different street morphologies: narrow (6–8 m) streets with no dividers between pedestrian and vehicular traffic, narrow streets with said separators, and a large road (Via Laeitana) that has 10–12 meters of space between buildings.

In some streets where the width is 6–8 meters and the road is shared by vehicles and pedestrians, we are aware of the space constraints, and as such, exploring a partial façade greening of buildings can be considered. This is a tactic where support structures are planned out in some areas of the building façade and a lightweight trellis is secured to allow a plant to grow along the façade, and the plant can take root from the ground or from a planter.

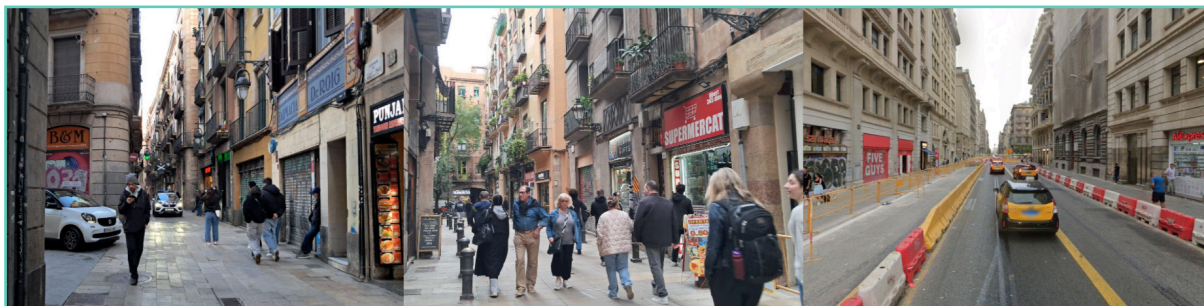


Figure 96: Street typologies (narrow without dividers; narrow with dividers; large avenue.)

Moreover, we seek to select plants that are easy to control and gentler on the building structure to make the implementation as protective as possible on the historical buildings. Carlucci and colleagues (2023) also set out a robust evaluation for plant choice for walls, and identified some species like *Gazania rigens* var. *leucolaena*, *Lavandula angustifolia*, and *Mentha spicata* as suitable for semi-arid Mediterranean climates for easier maintenance. These choices can be considered for any structure of wall greening. This approach, combined with housing rehabilitation efforts will highlight the historic

buildings, while providing a lightweight green layer to help with cooling both the building and the streetscape.

In narrow streets with some separators between pedestrians and vehicular traffic, we would propose replacing these structures with suitably-sized planters, doubling down on the functions of the street furniture. Lastly, on Via Laietana, we urge the exploration of the maximum street tree canopy that can maximize the heat mitigation benefits while also improving air quality on the heavily-trafficked avenue.



Figure 97, 98, 99: greening techniques partial greening, potted plants, potted trees. Sources: Groene Gevels, Succulent Source, Eye for Design.

During our site visit, we observed several building façades in Ciutat Vella with visibly deteriorating surface conditions—such as peeling paint, worn plaster, and exposed masonry. These walls not only diminish the aesthetic quality of the streetscape but also signal underlying maintenance challenges.

In these locations, we propose covering the entire façade with green vegetation, using full-surface trellis systems or modular green wall panels. They help mitigate the urban heat island (UHI) effect by shading façades and enabling evapotranspiration, which cools the surrounding air. The installation of green walls on southeast- and southwest-facing façades in Mediterranean climates like Barcelona has been shown to significantly reduce building

energy demand and improve thermal comfort (Moghaddam et al., 2020).

These systems also improve urban air quality by capturing airborne particulates and sequestering carbon dioxide. Furthermore, they enhance biodiversity in dense districts by offering microhabitats for pollinators and birds. Given the projected rise in extreme weather events, such as intense rainfall, green façades also play a role in retaining and filtering rainwater, thereby reducing stress on urban drainage infrastructure (Ajuntament de Barcelona, 2018).

We want to underline that we are suggesting this façade greening strategy as an addendum to the other proposals in this report, and



Figure 100: Building with exposed and damaged façade

specifically to be evaluated after the much-needed building renovations have taken place. While base greening poses less structural issues, we are aware of the building conditions in the district and see a need for suitability analysis for this green pathway idea after they have been better structurally. In doing that, attributes specific to the region's buildings and climate conditions need to be assessed in a framework that also considers social factors and compares cost and benefit of specific installations (Ling, 2022).

Green façades have strong economic and social justifications. From an energy perspective, buildings that integrate vertical greening can reduce energy use by up to 30% annually, with optimal results observed using a 20 cm cavity depth (Moghaddam et al., 2020). This is particularly beneficial in Ciutat Vella, where many buildings lack insulation and where energy poverty is a significant concern. In fact, 10.6% of residents in Barcelona suffer from energy poverty, with Ciutat Vella among the most affected areas (Ajuntament de Barcelona, 2018). On a social level, greening improves psychological well-being and neighborhood aesthetics. The visibility of living walls in public plazas such as Plaça de les Olles can encourage community pride and environmental stewardship. Additionally, the implementation and maintenance of such systems provide

employment opportunities in green construction, urban horticulture, and maintenance, thus contributing to the local economy.

As the green connection will be mostly public-facing and incorporates connecting activated public spaces, the funding resources we propose are the government-forward grants and funds like the European Climate, Infrastructure, and Environment Executive Agency's LIFE Programme, which provides grants for nature-based solutions on an application-basis. The city's budget for the Pla de Barris can also be harnessed for this project's start, as one of the pillars is urban greening.

For the maintenance of the shared green, we propose providing tax incentives to building and business owners that agree to help maintain trellised or potted greens in their street section for contributing to the urban greenspace.

Additionally, a community-based program adjacent to "Adopt a Plant" in multiple NYC organizations could prove beneficial. This involves an 'adoption fee' that goes towards the maintenance of the greenery, while the person receives a symbiotic adoption certificate for the plant (Friends of the High Line, n.d.). This can also take the form of business tax breaks for being responsible for a section of public greenery in the business locale.

6.3.3 Targeted Site:

Plaça de Josep M. Folch i Torres

Plaça de Josep M. Folch i Torres, named after the renowned Catalan novelist, narrator, and playwright Josep Maria Folch i Torres (Barcelona, 1880–1950), sits at the southern border of El Raval, a popular destination situated amongst residential buildings and public facilities. Plaça de Josep M. Folch i Torres will serve as a model for both a medium-sized plaza activation proposal, as well as one where climate risk is highest amongst other plazas.

Site Context

Within a five-minute walking rate (400 meters), several public facilities are present in Plaça de Josep M. Folch i Torres, including the Casal de Barri del Raval, a multifunctional community center with a primary school, elderly care facilities, and health services. These institutions shape the plaza's user base, which, based on our on-site observations, consists largely of young children and older adults. Demographic data support this characterization as El Raval has the highest concentration of young children compared to other neighborhoods in Ciutat Vella (6% under 5 and 9% school aged), and approximately 10% of its population is over 65 years old. These figures underscore the urgent need for accessible, inclusive, and climate-resilient public spaces with amenities and programming that support multigenerational use.

Cultural
Institutions

Elderly &
Healthcare
Facilities

Educational &
Childcare
Facilities

Climate
Vulnerabilities



Figure 10i: Plaça Josep Folch i Torres site analysis

Existing Conditions on the ground

The plaza is also situated within one of Barcelona's highest flood risk regions while also facing significant heat vulnerability. The site's inkling of green infrastructure, the sparsely populated soil beds and trees provide minimal stormwater infiltration or thermal regulation.



Figure 101, 102, 103, & 104: Plaza Josep M. Folch i Torres current conditions

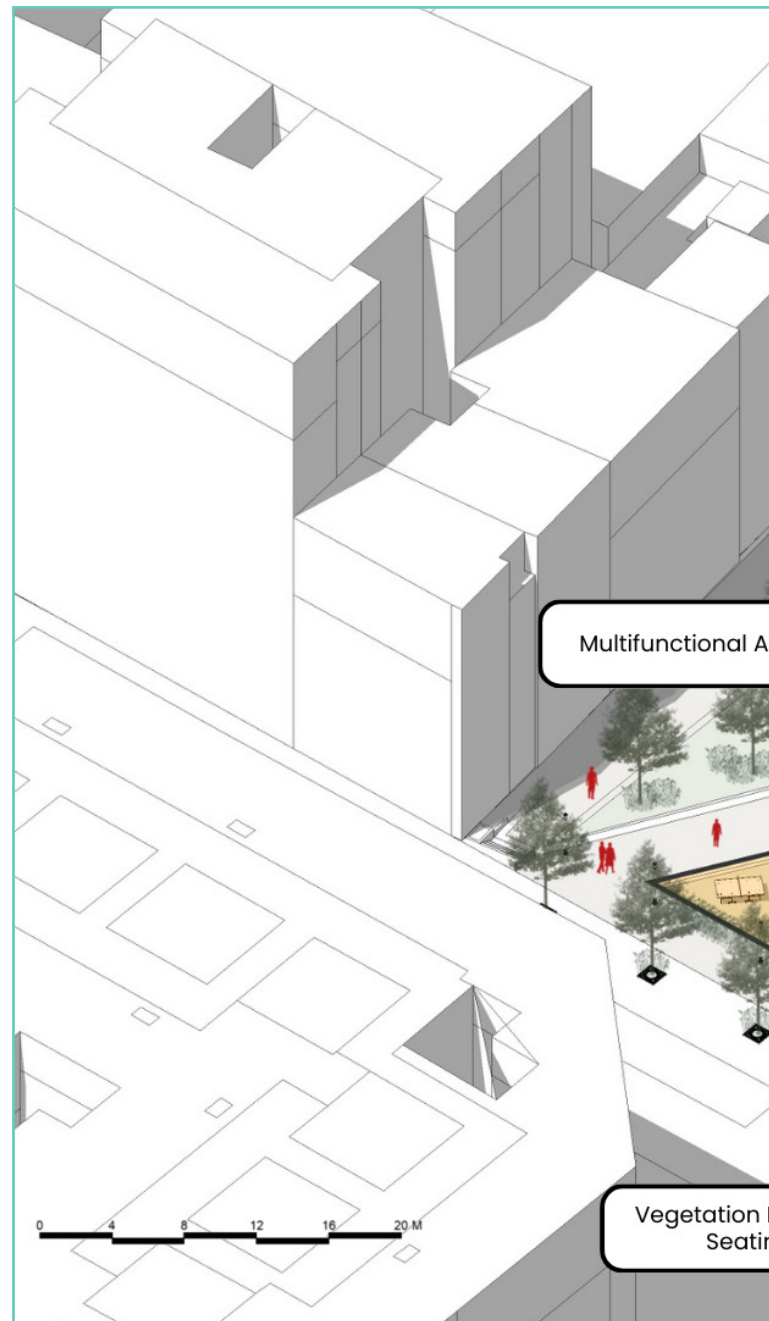
Proposed Intervention

Given spatial constraints, historic infrastructure, and limited capacity for deep excavation, the proposal prioritizes upgrading existing green plots rather than threatening the subterranean heritage with underground systems. Within current soil beds, bioretention swales can be introduced to manage surface runoff, improve infiltration, and reduce heat through vegetation. Existing trees and plants will be preserved where possible, and native, drought resistant species introduced to enhance durability and minimize maintenance.

A vegetated barrier is proposed along the edge of the plaza facing Ronda de Sant Pau. This element provides a protective buffer between the plaza and a high-traffic corridor. Rather than a solid barrier, the intervention employs dense planting to offer noise reduction and improved air quality while maintaining visual and physical permeability. The use of vegetation instead of hard boundaries is a nod to the historic walls of Ciutat Vella while reflecting contemporary urban values of openness and comfortable shared space. The barrier also enhances safety for older adults and children who use the plaza frequently.

New plantings should prioritize native and drought-tolerant vegetation suited to Barcelona's climate. Species such as Spanish stonecrop (*Sedum*), agave, yucca, mastic, olive, rosemary, and lavender offer ecological function, aesthetic value, and resilience (Gardenia, 2025).

Additional paved areas may be redeveloped selectively, depending on the feasibility of subsurface infrastructure. Where underground assessments have already confirmed sufficient depth and drainage potential, permeable pavement and bioretention features will be installed. In areas where excavation is restricted but infiltration remains plausible, compact rain gardens will be more appropriate. Paved surfaces not suited to green development will remain intact but should be subject to periodic reevaluation.



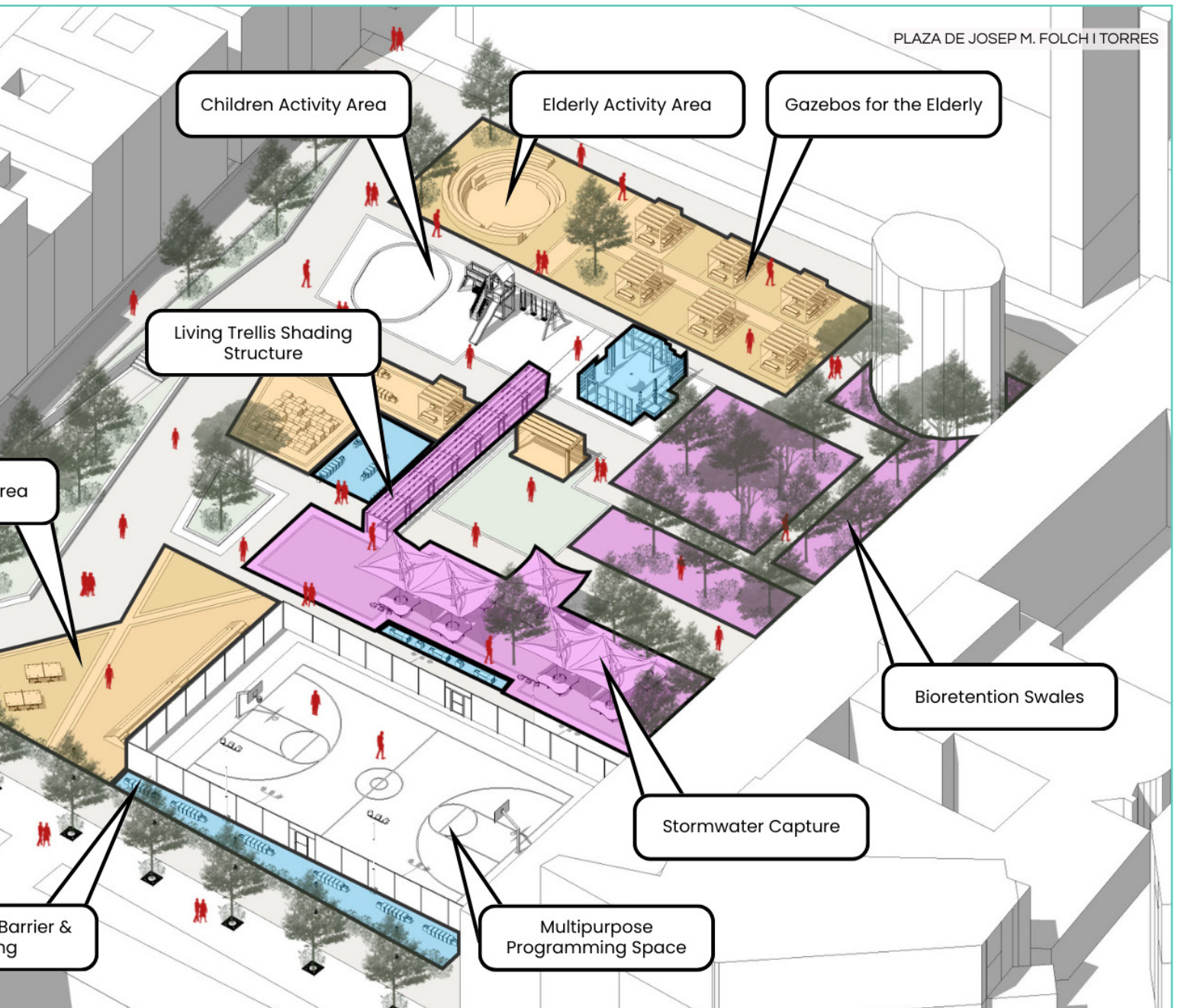


Figure 106: Plaça Josep Folch i Torres proposal design

The presence of an elder care facility adjacent to the plaza makes older adults a significant user group within the plaza. As such, interventions must prioritize amenities that enhance both the physical and mental well-being of its users. Navigational challenges are common among older populations, and the incorporation of large-font, high contrast signage can assist with wayfinding and orientation (Anastasia et al., 2014 p.18). In addition to improved signage, visual guidance can be reinforced by applying a contrasting color to the main pathway leading to the care facility. The painted route would offer a clear, continuous visual cue for seniors traversing the space.

The adjacent Ronda de Sant Pau, a cramped vehicular corridor, presents a particular safety concern. To reduce risk and increase accessibility, the pedestrian crosswalk should incorporate countdown timers and audible signals, enabling older individuals to better anticipate signal changes and cross safely (Anastasia et al., 2014, p.114). Within the plaza, supplemental amenities, such as seating and lighting are essential. Shaded benches provide resting opportunities for those with limited mobility, while adequate lighting ensures that the space remains safe and navigable during evening hours.

In parallel, the nearby school and family-oriented housing contribute to a high volume of children and caregivers. The existing basketball court and playground serve these users well and should be preserved. However,

additional seating and shading structures are needed to improve thermal comfort and usability throughout the day.

To further animate the plaza and strengthen its role as a civic gathering place, a series of community-led events is proposed. These programs will vary in frequency and duration to foster a dynamic and responsive use of space. Coordination with local stakeholders—particularly neighborhood leaders and social organizations will ensure that activities are tailored to the needs and interests of the community.

Plaça Joseph M. Folch I Torres is located opposite the Casal de Barri del Raval, a community cultural center that provides a platform for artistic expression and civic engagement. This proximity creates a unique opportunity to extend the Casal's exhibitions outdoors. A rotating display in the plaza can activate the public realm, attract pedestrian traffic, and encourage greater use of the cultural center itself.

Given the proximity to the elderly care facility, certain programs should specifically address the needs and interests of older adults. proposed offerings include weekly outdoor fitness classes designed for seniors and an open-air reading area featuring books accessibility to all age groups. These activities not only encourage regular use but also reinforce the plaza's role as a socially inclusive and inter-generational space.

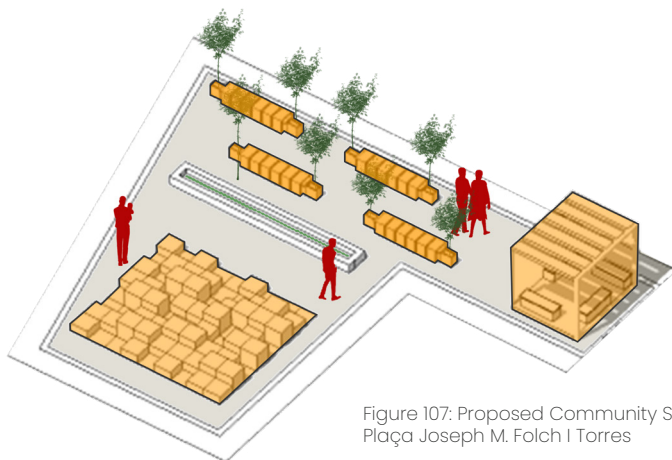


Figure 107: Proposed Community Space for Plaça Joseph M. Folch I Torres

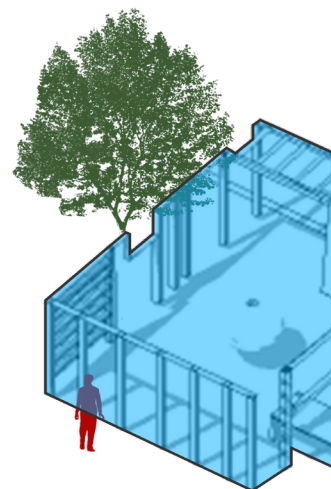




Figure 109: Site Plan of Plaça Joseph M. Folch I Torres

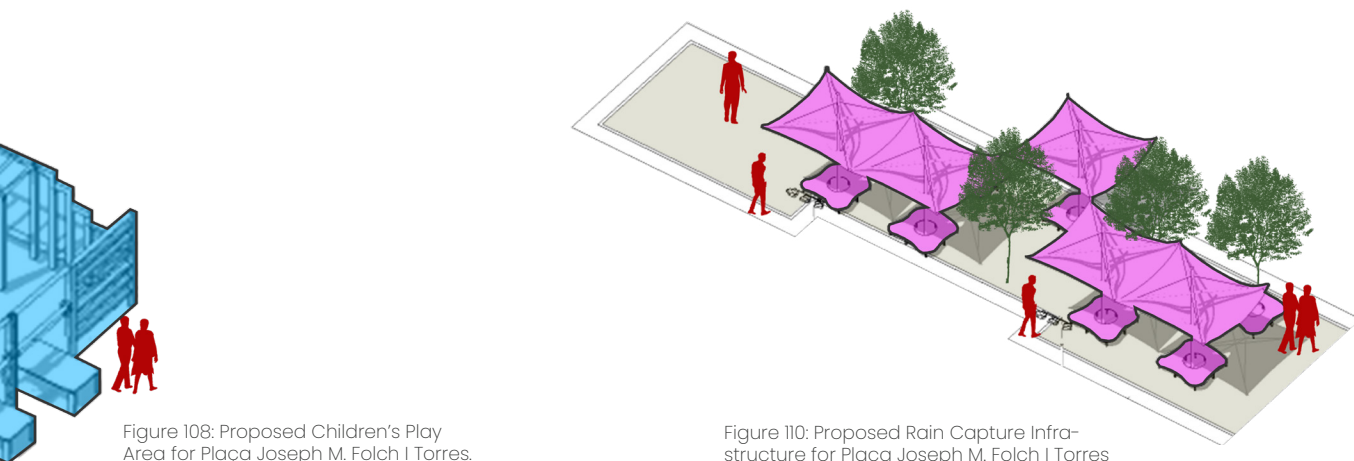


Figure 108: Proposed Children's Play Area for Plaça Joseph M. Folch I Torres.

Figure 110: Proposed Rain Capture Infrastructure for Plaça Joseph M. Folch I Torres

Targeted Site:

Plaça Nova + Santa Caterina

At the heart of Ciutat Vella in El Gòtic, where most of the popular historical buildings reside, there lies a vast plaza in front of the Catedral de Barcelona—Plaça Nova. This plaza stretches northeast to Plaça Santa Caterina, but the plazas are divided by the road Via Laietana. Plaça Nova is one of the one of the most visited spots in Ciutat Vella due to its location next to the Catedral de Barcelona. It is a hotspot for tourists, and at the same time has a higher population density compared to the other neighborhoods outside Ciutat Vella. With a high attraction of tourists, Plaça Nova is bustling with foot traffic that aims to enjoy and explore the old city. Plaça Santa Caterina is the plaza that stretches from Mercat de Santa Caterina to Via Laietana. The location of Santa Caterina in the Sant Pere neighborhood gives a slightly different nuance than Plaza Nova, which is more touristy, yet the spatial connection of the plazas is important for a sense of fluidity between neighborhoods. Although the plazas lie along the same axis, the connectivity between them is not immediately apparent, partly due to the division caused by the road, but also due to a lack of visual and design-based continuity.

In terms of climate stress, Plaças Nova and Santa Caterina are located in a region experiencing a medium flood risk as well as lower to moderate heat vulnerability, meaning the need for nature-based drainage or heat mitigating solutions may not be as urgent as other regions. However, the plazas are almost entirely paved over and span a large open space, providing many opportunities for green improvements in order to deliver future climate resilience and maximum comfort for plaza dwellers and pedestrians

Together, these plazas serve as our model for a larger sized public space activation site in Ciutat Vella, with the main concepts of usability, pedestrian comfort, connectivity, and heat mitigation being specifically targeted.

Existing Conditions on the ground

Plaza Nova offers a huge public space which facilitates free pedestrian movement, but a majority of this space is underutilized and can be designed for better user comfort and functionality. The plaza currently offers seating in the form of benches in front of the cafés, which is insufficient compared to the number of visitors visiting the plaza and the adjacent Barcelona Cathedral. Overall, there is not a lot of shaded space which would invite people to sit and escape the heat, and many of the existing spaces do not encourage social interaction. The space in front of the Barcelona Cathedral offers a stage for local performers and artists. Towards Via Laitena, the plaza becomes less active and feels disconnected due to lack of potted plants and spatial coherence. This not only makes the plaza unwelcoming but also weakens its visual and functional link to the adjoining plaza.

Moving towards Plaza Santa Catarina, the activity noticeably decreases as the foot traffic drastically reduces. The space outside Mercat de Santa Caterina appears to be underutilized and does not reflect the vibrant energy found within the market. The plaza potentially lacks amenities that would encourage the public to gather and engage with the space. Additionally, there are very few shaded spaces within the plaza that invite people and provide resistance from heat overall.

Given the context, both these plazas hold significant potential for improvement in terms of usability, social interaction, user comfort and nature-based design interventions. Some key priorities for enhancing these spaces include improving pedestrian comfort, honoring the historical significance of the space and addressing heat mitigation within the area. Our proposed interventions aim to tackle these issues as a part of broader effort to foster resilience, equity and harmony of public spaces in Ciutat Vella.



Figure 111, 112, & 113: Existing public spaces and activities at Plaza Nova and Plaza Santa Caterina

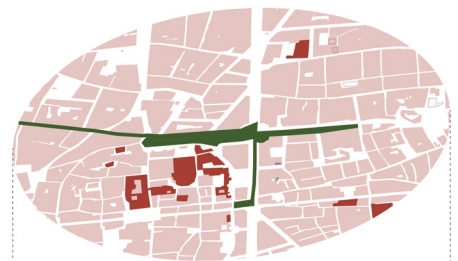
Site Context

Within a 5-to-10 minute radius of walking distance from Plaza Nova and Plaza Santa Caterina, we analyzed the buildings and institutions, mass transport stations, and other significant places that affect the mobility and use of the plaza. Together with the site observation and climate data, these will influence the basis of our proposal.

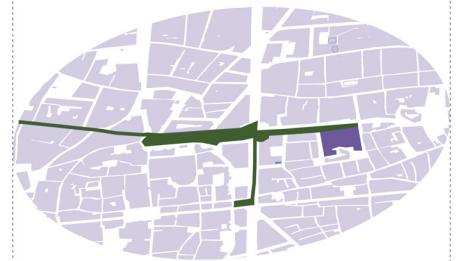
The site analysis radius shows that there are many historical buildings and cultural institutions near the plaza. Many of the historical buildings are tourist-oriented destinations that consist of museums, ruins, theatres, and art exhibitions. Apart from tourist attraction buildings and institutions, there are several education institutions and workplaces near Plaza Santa Caterina. There are significant buildings located at the ends of each plaza that serve as magnets and popular destinations for locals and tourists: Catedral de Barcelona and Santa Caterina Market. The locations and presence of each of these buildings and institutions influences the mobility of pedestrians that pass through and utilize the plaza, as well as influences the characteristics of the plaza's users. Moreover, the vast yet bare plaza has additional potential to reflect its position as a hub of the historical significance of Ciutat Vella.

Regarding pedestrian movement, we first identified three significant entrances to the plazas. The first one is the city hall and adjacent plaza, located within 180 meters from Plaza Nova. This historic hall is still being used as an active municipality office, and at the same time attracts tourists from all over the world. From Via Laietana, within a 200-meter walking distance to each plaza, is the Jaume I metro station, the nearest station to Plaza Nova and is heavily used by tourists to reach El Gòtic. Lastly, there is the Portal de Angel passageway that connects Plaza de Catalunya (another significant historical plaza) with Plaza Nova. We expect significant pedestrian movement from these three places to the site.

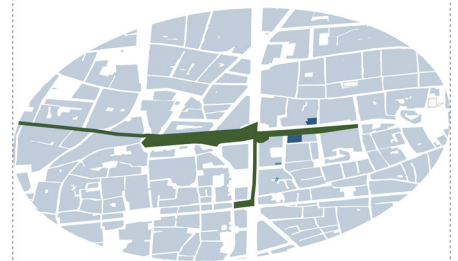
Cultural
Institutions



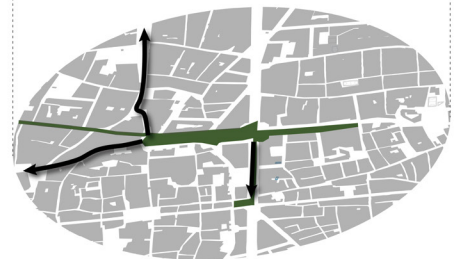
Points
of Interest



Educational &
Co-working
Facilities



Pedestrian
Movement



5 min walk / 400 meters

Figure 114. Plaça Joseph M. Folch I Torres Site Analysis

Proposed Interventions



Figure 115: Proposed design for Plaças Nova and Santa Caterina

Given the scale of both these plazas, our proposals aim to enhance the tourist experience with more historical elements that encourage social interaction within these spaces. The proposed interventions are further subdivided into two parts with distinct strategies tailored for each of the two plazas- Plaza Nova and Plaza Santa Caterina.

From our observation and analysis, we found that the plaza experiences high foot traffic from tourists. At the same time, they are treated merely as passersby, with a lack of activities and amenities. To make Plaza Nova a more active space, we acknowledge the diversity of its users and will focus on enhancing overall pedestrian comfort and heat mitigation, while allowing some historical elements to stand out.

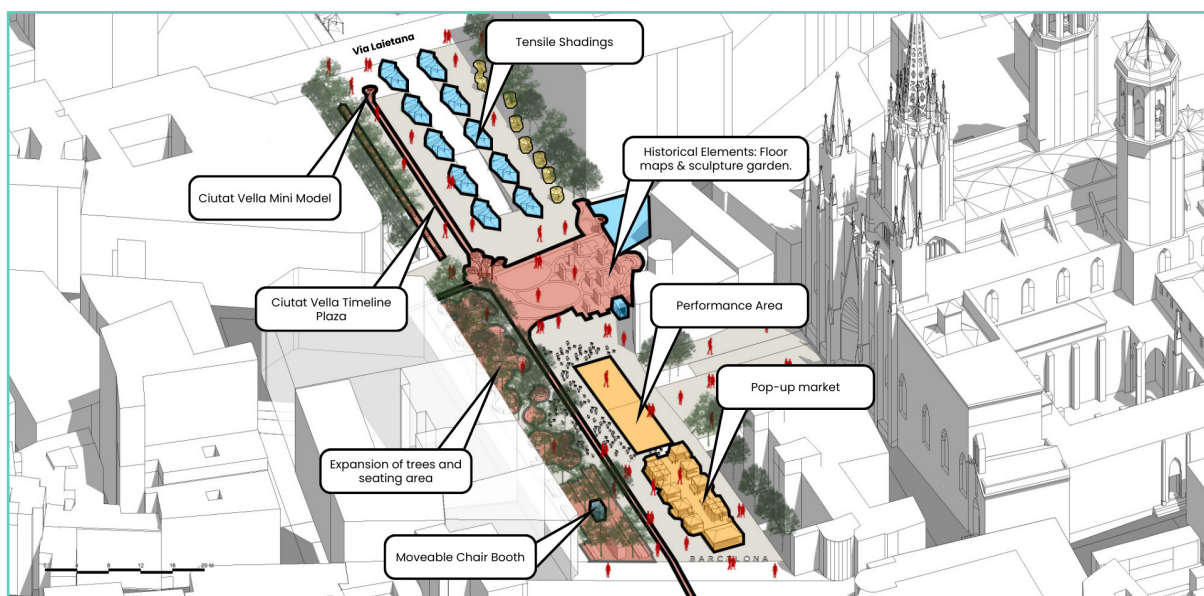


Figure 116: Plaça Nova proposed design. Blue color represents tactical urbanism, red represents context-based issues (embracing historic element and wayfinding in a busy plaza, and orange represents social activation

From the three main entrances to the plaza, we seek to incorporate wayfinding signage. These main entrances are at the southwest end of the plaza, northeast end, and in the middle towards Via Laietana. We propose having design elements that highlight the historical nature of the space, like a 3D model of Ciutat Vella and a running timeline of how the plaza came to be, extending from one side of the plaza to the other. Furthermore, at the crossroads of these footpaths, we propose a statue or art installation that signifies the importance and the history of Plaza Nova, or Ciutat Vella as a whole.

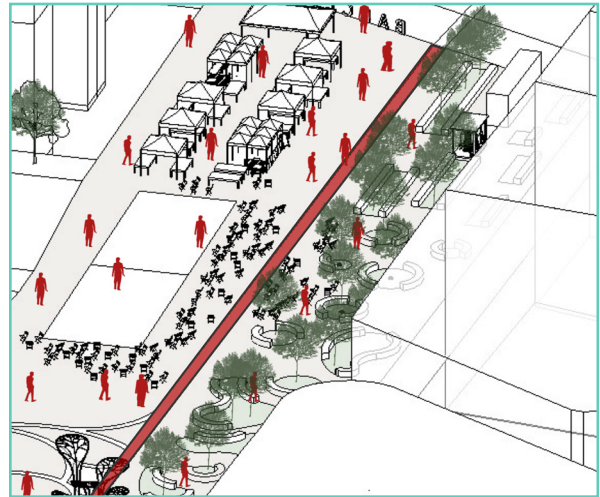


Figure 118: Plaça Nova Detailed Design

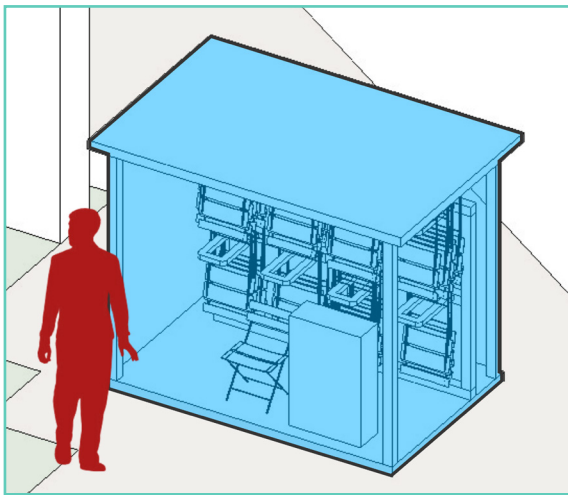


Figure 117: Seating Booth for moveable seating

For the provision of movable seating, we propose a chair distribution booth, where people can deposit a small amount of money to get the seats to place around the plaza, and get back their money after returning their seats. Multiple booths across the space will provide accessibility throughout the plaza. In addition, we want to preserve the areas where existing pop-up markets and performances take place.

As Plaça Nova already has existing events and activities in place such as performances by musicians and an antique market every Thursday (Barcelona.com, 2025), we seek not to implement additional social programming within the space, but to rather facilitate them through tactical urbanism interventions as previously discussed.

Shadings will also be incorporated as a form of tensile shadings, running from the northeast end of Plaza Nova to Plaza Santa Caterina. Having these continuous structures will visually attract attention and connect the plazas, while at the same time providing shade from heat and a guiding path towards Plaza Santa Caterina from Plaza Nova. The shading structures also provide opportunity to collaborate with local artists to paint the tensile fabrics.

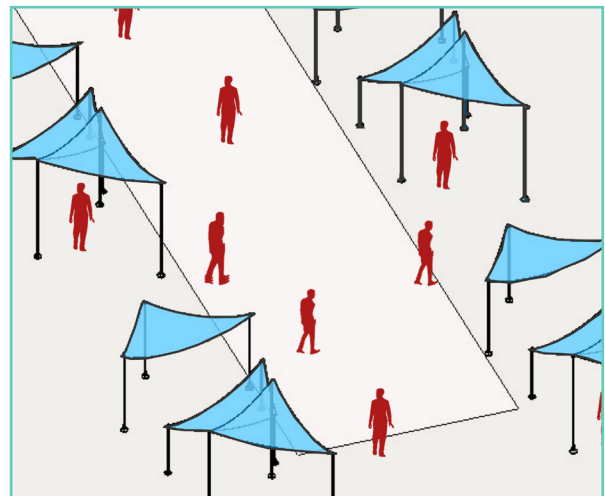


Figure 119: Plaça Nova Tensile shadings that also acts as visual guidance to Plaza Santa Katerina

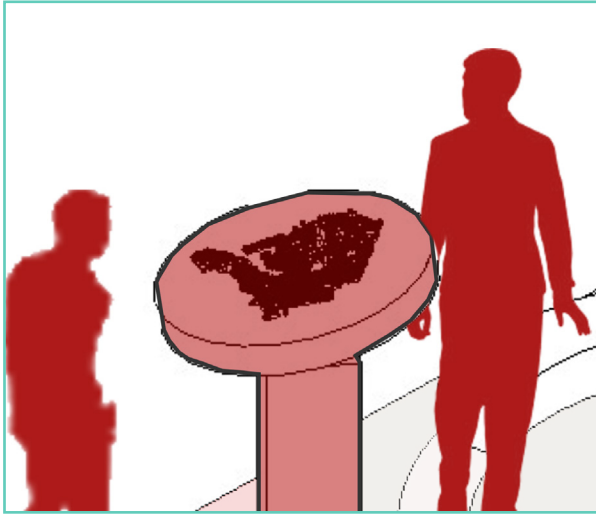


Figure 120: Plaça Nova Detailed Design

The historical elements incorporated into the plaza are not just the 3D model and timeline, but also painted maps on the floor and a potential sculpture garden area around the middle entrance where the most significant old buildings located around the plaza are also visible from the vantage point. The content of the timeline and sculpture will be a matter of collaboration with the nearby museum and can act like a teaser to the museum itself. The placement of the 3D standing model, the floor timeline and maps can be done in a tactical urbanism way, without damaging the existing pavement. Especially for the standing model, we emphasize the opportunity to utilize local craftsmanship and a semi-permanent placement so as to adhere to historical heritage protection rules.

To respond to the heat risk and pedestrian comfort, we propose to deploy the same design proposal of adding shadings and benches. For heat mitigation, we propose for existing plots of soils and vegetation to be redeveloped with new soils and gravels to provide maximum infiltration, and in soil plots with no existing vegetation, new drought resistant vegetation will be planted. In areas where underground status proves feasible, we propose the planting of additional trees to provide maximum nature-based shading. All additional seating in this proposal shall be supplemented by expansion or addition of tree coverage and vegetation presence.

Proposed Elements

The addition of benches for pedestrian comfort will come in two ways: Expanding the benches area and providing moveable seating throughout the plaza. As mentioned earlier, we propose to expand the soil and vegetation area, with that we also want to incorporate more benches in the expanded area. The expanded area will form a linear green seating area where it runs almost half the length of the plaza and will be divided into two areas based on the seating activities: performance seating located facing the Cathedral, and group-oriented seating for the rest. The performance seating area will have seating facing directly to the Cathedral and existing performance area, while the group seating will have a bench arrangement facing each other, enabling interaction between people. This new arrangement of bench seating in the area of the existing row will be supplemented by a new arrangement of trees providing shading and additional canopy.

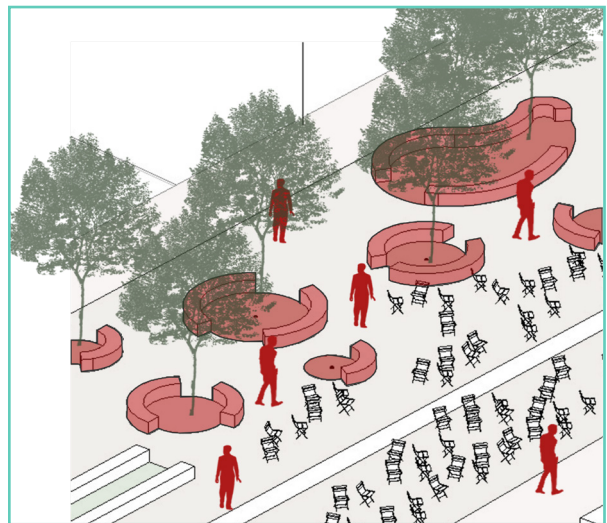


Figure 121: Plaça Nova greens and benches expanded area

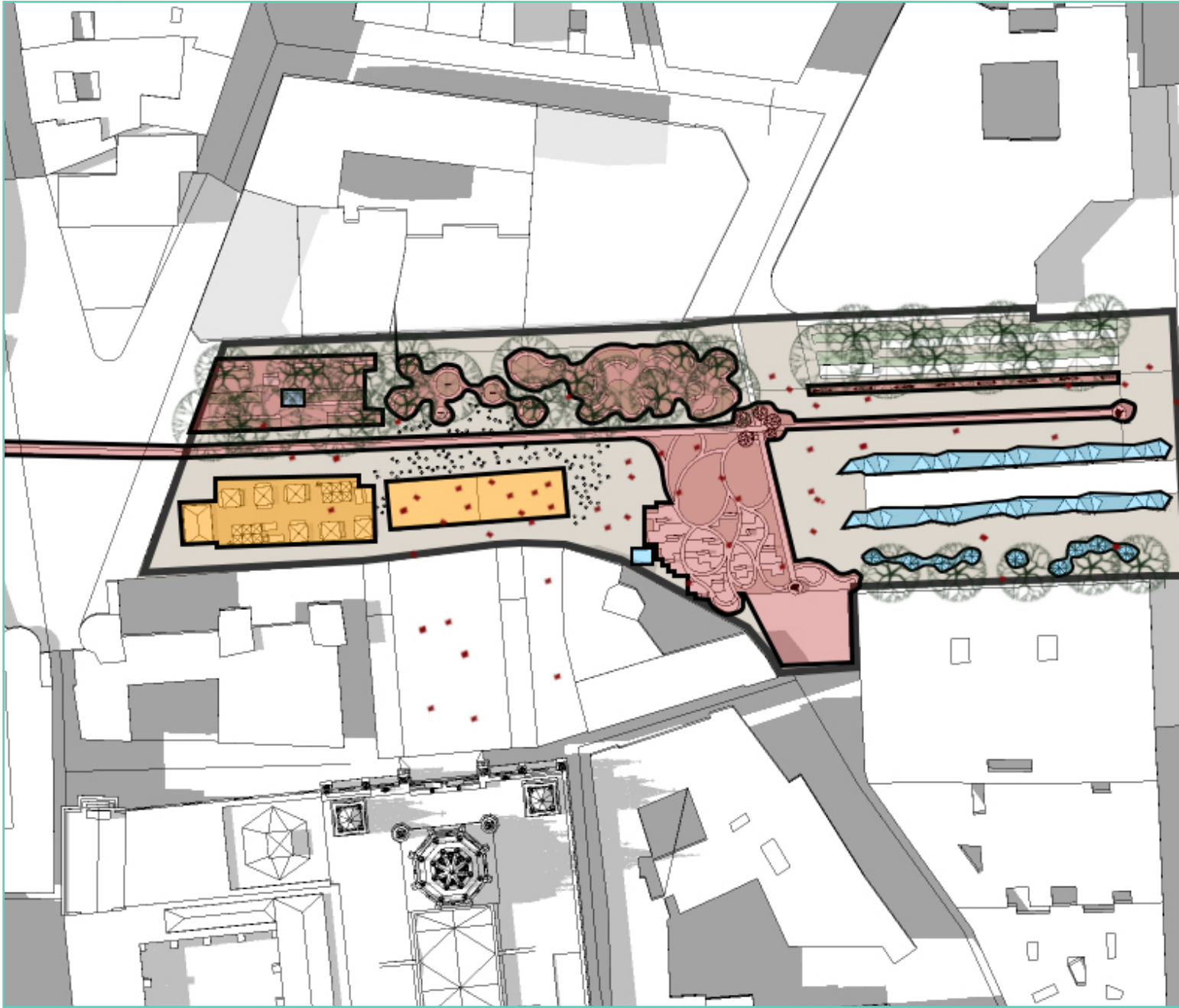
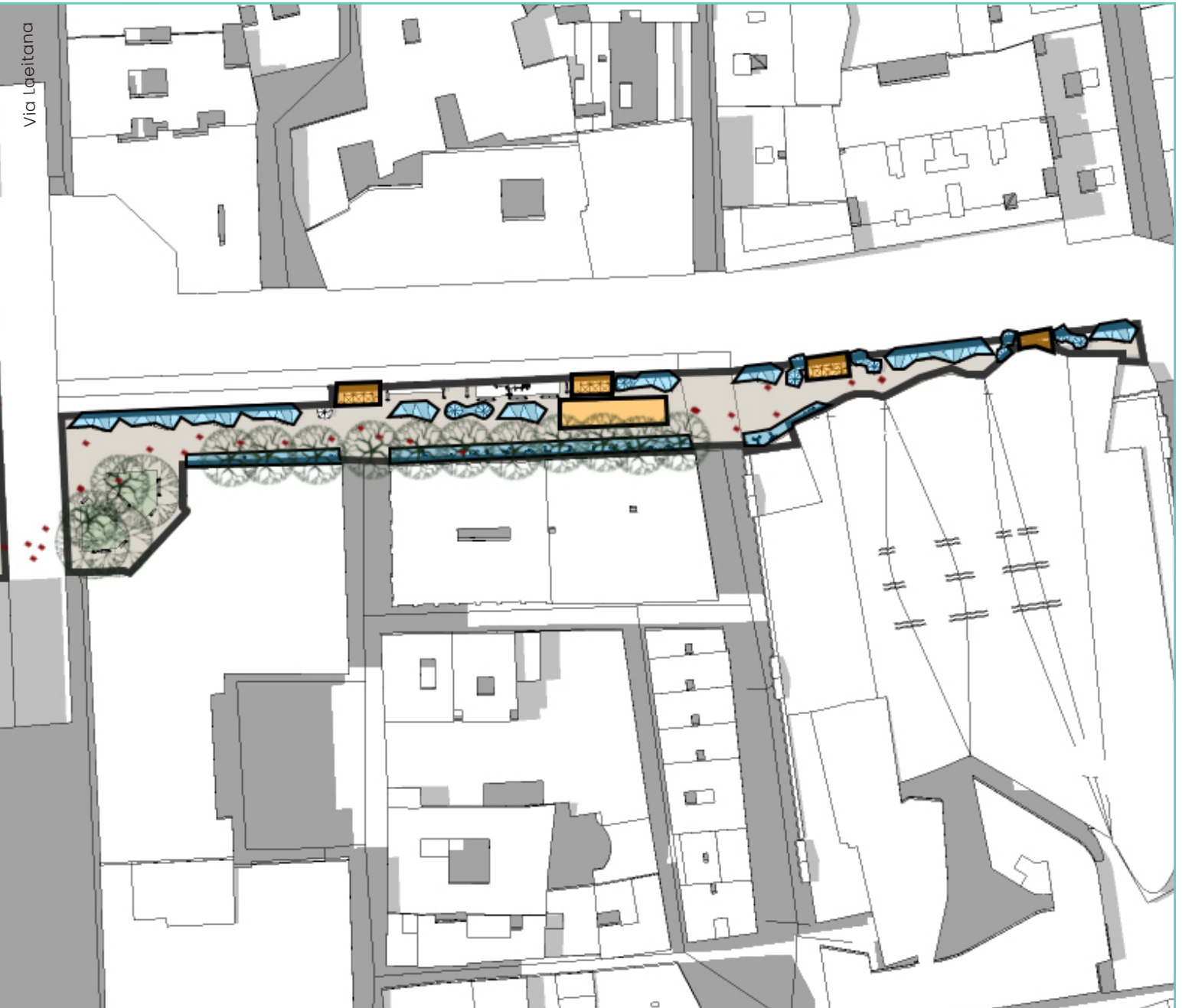
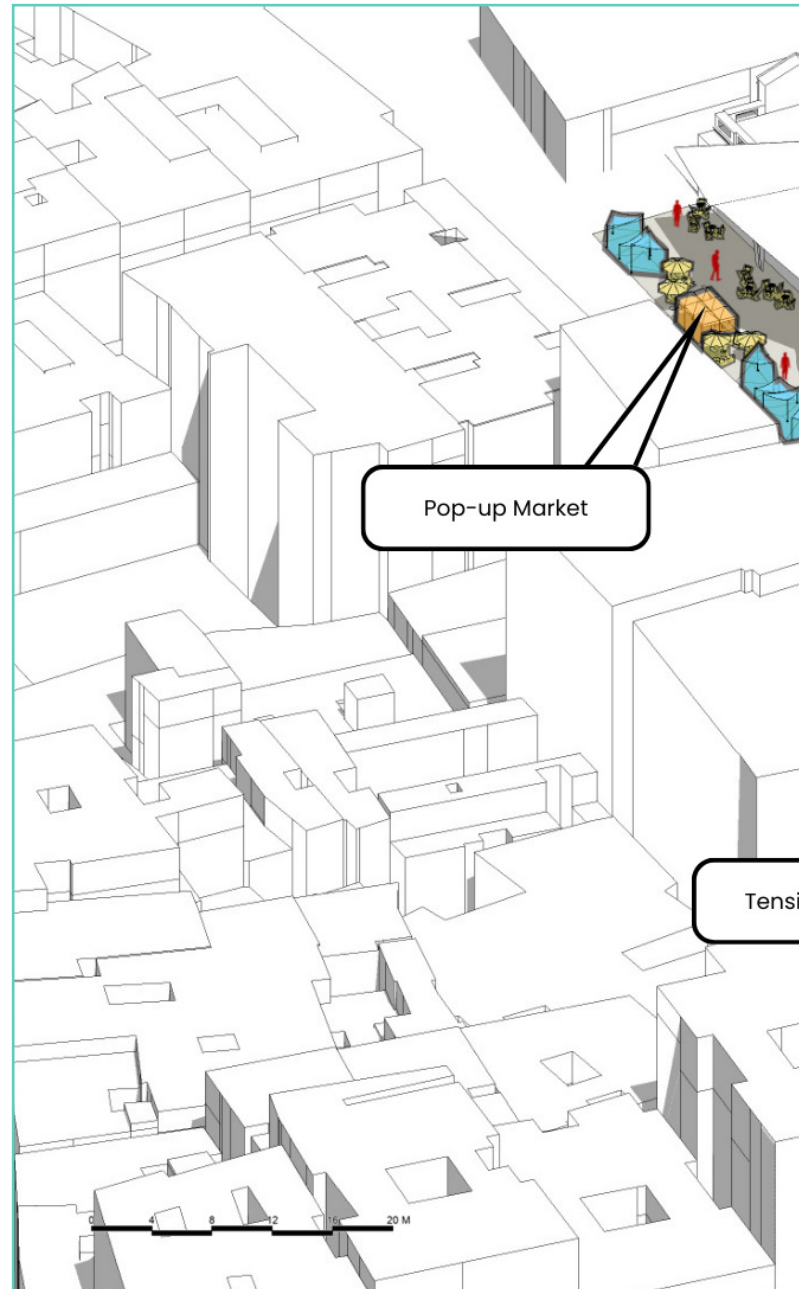


Figure 122: Site Plans for Plaça Nova on the left and Plaza Santa Caterina on the right



We also propose the revitalization of the small entrance recess area near Via Laietana to have more trees, vegetated plots, and benches as a welcoming gesture from the road. In the same area there will be placed the continuous tensile shading structures from Plaza Nova towards the Mercat de Santa Caterina. As a variation to the tensile shadings, as we head towards the market, the shadings can have an ephemeral component, allowing shade and sun to alternate through the space. Underneath, there could be room for more pop-up style market activities from the businesses in the market, thus bringing the vibrant activities of the market out to the plaza.



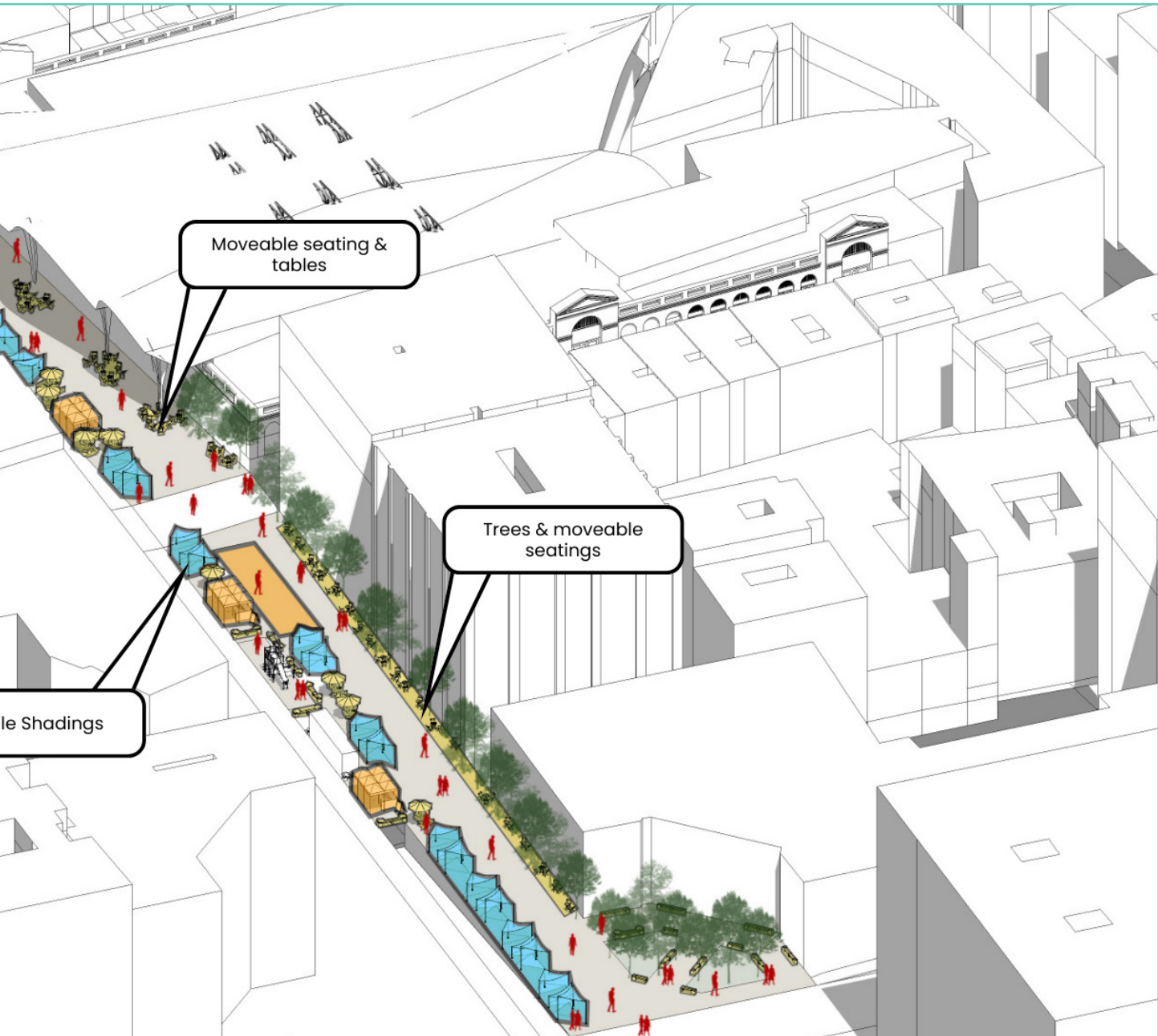


Figure 123: Plaza Santa Caterina proposed design

Targeted Site: *Plaza de L'Àngel*

Plaça de L'Àngel represents a small sized open public space in Ciutat Vella, where we focus all our proposed design elements on the most pressing issue faced by the plaza: mobility conflicts. Despite the size, this plaza holds an immense volume of people going in and out of Ciutat Vella's various neighborhoods.

Site Context

Located at the border of El Gòtic and Sant Pere, Plaça de L'Àngel serves commuters and metro riders that are headed to both neighborhoods. We mapped the significant institutions, buildings, and places within a 5-to-10 minute walking radius, and that act as destinations for users of the plaza.

Within this radius, there are numerous historical buildings, including Barcelona City Hall and Cathedral de Barcelona in El Gòtic, and other museums and art institutions in Sant Pere. In terms of pedestrian movement, the station serves three main destinations: Le Barri Gòtic, Sant Pere, and the waterfront area of Ciutat Vella. The location of the metro station is very strategic in that it is a useful spot for both visitors and resident commuters. With that being said, the plaza is extremely busy and some movement organizing interventions can benefit the use of space.

Cultural
Institutions

Pedestrian
Movement



Figure 124: Plaça de L'Àngel site analysis

Existing Conditions on the ground

A high volume of pedestrians meeting many micro mobility users such as bikes and scooters. The location of the metro entrance/exit is close to Carrer de Jaume without much protection. There are also some alfresco dining areas at the center of the plaza near the entrance/exit of the metro station.



Figure: 125
A high traffic area by Jaume I Metro station shared by all mobility users: foot traffic, micro-mobility vehicles, automobiles and more. As shown here, the exit is close to the street without much protection for pedestrians.



Figure: 126
The junction by Metro station Jaume I intersecting with Via Laetana is under construction currently, further adding to mobility conflict already existent from the limited space within a high traffic area.



Figure: 127: Another angle of Via Laetana with pedestrians crossing and navigating around construction

Proposed Intervention

To respond to mobility issues in this part of the public realm, the proposal will focus on transforming the area into transit plaza, where amenities and other activities will be minimized while enhancing the wayfinding, transit utility, and accessibility of the area.

For the small plaza that is roughly 25 meters by 25 meters, we propose adding floor wayfinding markers leading out from each exit, towards specific destinations in Ciutat Vella. Thus, each metro rider can know where to head towards their destination, without having to orient themselves with a navigation app first thing out of the metro station.

Furthermore, we would like to explore the possibility of adding additional exits based on the main aggregation of destinations: Waterfront, Sant Pere, Le Barri Gòtic. These additional exits will be placed outside the plaza, facing Via Laietana as well, where the plaza's area is significantly more spacious than the existing exit, and farther from the street in a central location of the plaza.

To increase pedestrian safety and comfort, we propose to add a vegetated barrier along the side of the plaza that meets the Carrer de Jaume I street, as well as to implement raised intersections around the plaza where pedestrian crossing is likely to happen in a high volume. The vegetated buffer provides greenery to the perimeter, as well as adds

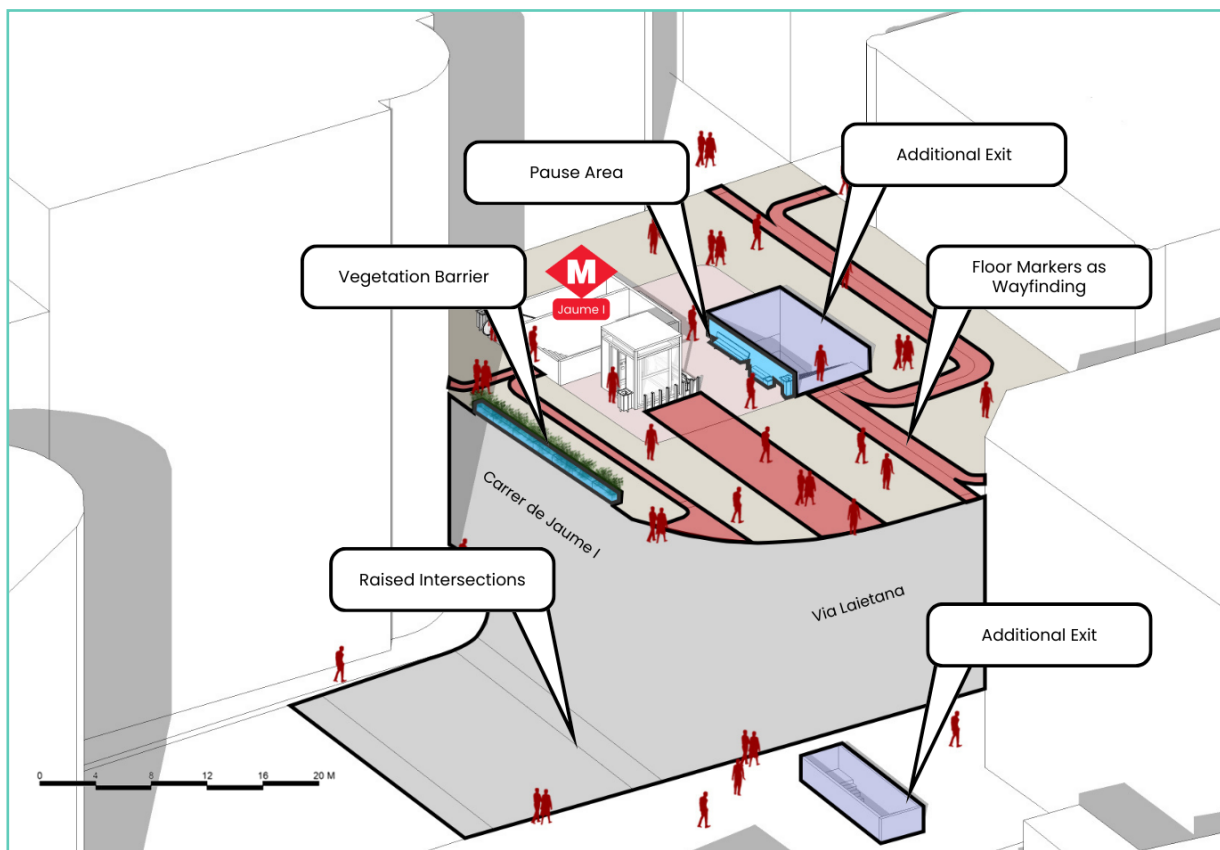


Figure: 128: Plaça de L'Àngel 3D proposed design

some enclosure and sense of safety from the street as pedestrians exit the metro station.

Not all of the riders know where to head out once they are exiting the metro. With that awareness and to prevent pedestrian crowding in the area where they should keep moving, we propose creating a pause area at the center of the plaza. The area can be cleared as a space for added seating and rest capacity so that commuters can pause and reorient themselves and not block other users of the space.

Due to the pressing issues of mobility conflict and limited space highlighted in this site, our interventions have the primary goal of enhancing mobility. As such, we will not be proposing the implementation of additional amenities or social programming.

In conclusion, the public realm strategies for climate risk mitigation and the equitable activation of existing public spaces aim to deploy flexible, lightweight, and context-specific interventions tailored not only to the broader needs of Ciutat Vella, but also to the unique conditions of each individual plaza. These strategies seek to meaningfully activate the district's limited public space to better serve local residents, accommodate visitors, and address pressing issues such as urban heat and mobility challenges within the public realm.

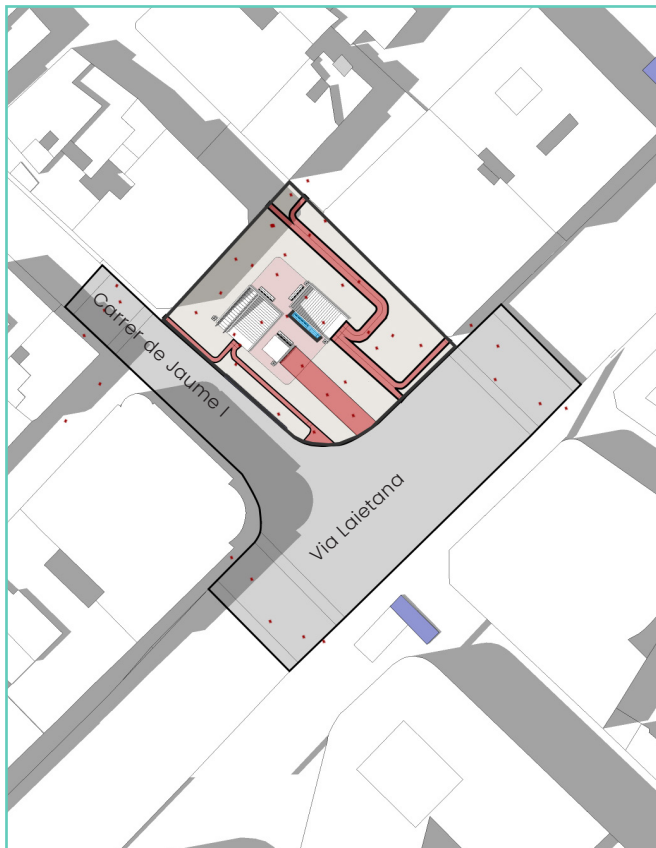


Figure: 129: Plaça de L'Àngel site plan

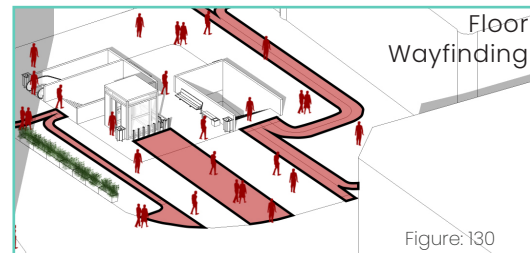


Figure: 130

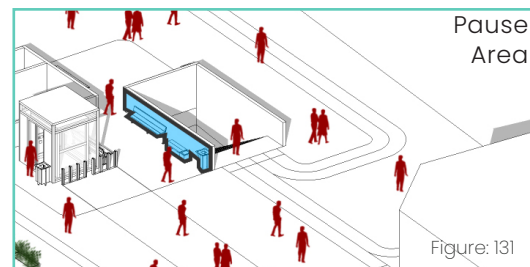


Figure: 131

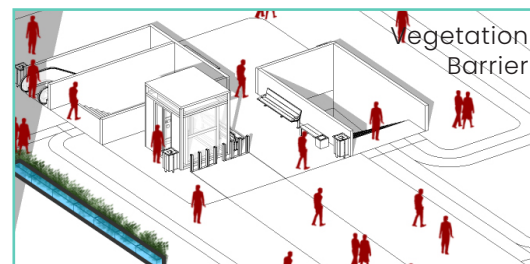


Figure: 132

CONCLUSION

Over the centuries, Ciutat Vella has evolved from a transitional port district into a historically significant and culturally rich space, where many Catalanian and immigrant communities have made permanent homes. Our approach respects that history — not as something to freeze in time, but as a foundation for thoughtful renewal.

Informed by our research and community insight, our policy and design proposals, including for the private and public realms, aim to strengthen what already exists in this unique district: resilient housing, vibrant public spaces, and inclusive infrastructure that keeps residents at the center. We hope to ensure that Ciutat Vella remains livable and equitable for generations to come.



Gracias, Barcelona.



Collage by:
Barcelona Studio
Team 2025

APPENDIX





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