

TOWARDS A METROPOLITAN PUBLIC SPACE NETWORK

Lessons, Projects and Prospects from Lisbon

EDITED BY JOÃO RAFAEL SANTOS,
MARIA MATOS SILVA,
AND ANA BEJA DA COSTA



Towards a Metropolitan Public Space Network

This book explores the hypothesis that public space – if conceptualised, imagined, and shaped at the metropolitan scale through innovative territorial design approaches – offers the possibility to interconnect and integrate various systems in search for synergic responses to emerging societal challenges that impact large, urbanised landscapes.

The book offers a multidimensional and multi-geographic framework to discuss the role of public space on contemporary metropolitan territories, as part of *MetroPublicNet – Building the foundations of a Metropolitan Public Space Network to support the robust, low-carbon and cohesive city: Projects, lessons, and prospects in Lisbon* research project. The reader will find a critical and overarching perspective on the conceptual, methodological, and empirical lenses that unfolded throughout the research process, namely a systematised decoding of the public space projects, policies, and rationales that shaped the recent transformation of Lisbon Metropolitan Area. With a diverse range of authors actively engaged in academic research and professorship, in design practice, and in policy-oriented roles, the book concludes with the outlining of forward-looking guidelines, policy recommendations, and design experimentations.

This book will be of interest to researchers and students of architecture, urbanism, landscape architecture, and geography.

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Introduction

*João Rafael Santos, Maria Matos Silva,
and Ana Beja da Costa*

Introduction – A public space for the metropolis

The public realm has been elegantly compared by Hannah Arendt to a communal table that ‘like every other in-between, relates and separates men at the same time’, joining people together while preventing ‘our falling over each other, so to speak’ (Arendt, 1998 [1958], p. 52). Surely our readers dismiss yet another set of words framing and marvelling at the concept of public space. Its greatness as a place that configures a complex variety of processes resulting from collective will, where empathy, equity, and justice is exposed, is widely acknowledged. These simple and noble characteristics of public space are furthermore likely to be the motivational foundation of the curiosity, interest, and expectations that brings us together on the continuous exploration of such theme.

Conceptually, the meaning of public space in classical antiquity was clearly delimited. Indeed, the so-called ‘Agora’ literally served and was destined to be a gathering place for discussion. This definition is far from today’s reality, namely when considering our current social structure as a hypertext society (Ascher, 2001). And the same happens with the physical meaning of public space. While we can recall the moment in history where public space had a precise boundary, today’s understanding of the scale of public life turns this perception as something close to impossible. Nevertheless, even if complexity, subjectivity, and uncertainty rule our contemporary understanding of what public space is, as mentioned by Innerarity: we still need and strive out of the existence of such places that are unequivocally ‘for’ the public (Innerarity, 2006, p. 135).

In view of a new and singular perspective aiming to contribute on such reasoning, the research here presented explores the potential of a consistent network of public spaces adapted to the scale of current metropolis, with both a conceptual and physical meaning. Specifically, an approach where the analysis on mobility goes beyond the usual or common interpretations of mere connecting systems, and considers the contemporary disposition of people using their own bodies, neglecting the (mostly facilitated) need for an external source of energy; where the analysis on green and blue infrastructures takes advantage of an era that desperately searches for new forms of including rich ecological processes into our daily lives; and where social cohesion is assumed to thrive out of an improved equity in the access and

accessibility to public space and in the surpassing of a physically fragmented territory. All this, using the Lisbon Metropolitan Area (LMA) not only as a case study but also as a laboratory for in search for different futures. Indeed, the contours of this investigation are revealed as literature and academic theories accompany a close and slow look into the specificities of each analysed public space qualification projects and as creativity and imagination seek to propose new visions and solutions.

Overall, in this book, you may find an original approach on the understanding and prospect of public space and its encompassing design, aiming to add on accumulated memory and knowledge through a theoretical and creative process. We are, therefore, very much pleased to welcome you through these pages and into the reflections of our four years of research unravelling the specific potentialities of a hypothesis that can transform LMA.

The MetroPublicNet project

The book is developed as an output of the research project ‘MetroPublicNet – Building the foundations of a Metropolitan Public Space Network to support the robust, low-carbon and cohesive city: Projects, lessons and prospects in Lisbon’ (<https://metropublicnet.fa.ulisboa.pt>), funded by FCT – Fundação para a Ciência e Tecnologia, I.P. – the Portuguese national research funding agency, and hosted in Lisbon School of Architecture, Universidade de Lisboa and its research centre – CIAUD – Research Centre for Architecture, Urbanism and Design (<https://doi.org/10.54499/PTDC/ART-DAQ/0919/2020>). Bringing together scholars from different fields of expertise, the project’s team includes researchers from the School of Agronomy, Universidade de Lisboa and its Centre for Applied Ecology ‘Prof. Baeta Neves’ (CEABN), and from the Faculty of Architecture, Universidade do Porto and its Center for Studies in Architecture and Urbanism (CEAU).

The project inquires on the spatial and policy gaps that persist in the way how public space qualification projects are conceived and delivered in today’s metropolitan areas, under complex jurisdictions and competing agendas. Taking the Portuguese context, and particularly LMA, its capital city region, as an entry point to a wider discussion on public space territorial role, MetroPublicNet’s starting question is simple: how can we deliver a more integrated approach to public space development that contributes to the cohesive structuring and qualification of the metropolitan territory?

This question can be further refined: how the proliferation of public space projects can be combined or brought together to form larger metropolitan structures? How such integration can better respond to emerging challenges and global agendas of sustainable development, namely of building up urban and environmental robustness, transitioning towards low-carbon mobility, and fostering inclusion and territorial cohesion?

Like many European metropolises, Lisbon’s metropolitan development through the 20th century was characterised by fast, intensive, and discontinuous growth resulting in highly fragmented, splintering, and often disqualified

urban spaces. In recent years, however, it has been transitioning towards more polycentric and regeneration-based dynamics in which public space requalification is playing a prominent role. However, as a result of highly heterogeneous development patterns and the juxtaposition of complex and often unarticulated administrative jurisdictions, considerable gaps remain in a cohesive and coherent public space policy perspective. On the other hand, LMA has been a testbed for various urban development policies, namely those with European Union (EU) funding, requiring critical assessment and evaluation for future adjustment. Considering this opportunity and relevance, the project seeks to build a multidimensional platform to monitor and inform urban policies and to strengthen territorial design practices. For that, it counts with the partnership of AML – Área Metropolitana de Lisboa, the institutional body that congregates LMA's 18 municipalities.

MetroPublicNet's main hypothesis is that public space, if conceptualised, imagined, and shaped at the metropolitan scale through innovative territorial design approaches, offers the possibility to interconnect and integrate various systems in search for synergic responses to emerging societal challenges that impact large, urbanised landscapes.

To explore this hypothesis, the project developed in a two-tiered research perspective: one aimed at learning from the legacy of the past 25 years of public space qualification in LMA, critically assessing the experiences, processes, and contributions to improve its territorial resilience, cohesion, and spatial quality; the other looking forward, exploring possible ways to outline, test, and discuss what a future Metropolitan Public Space Network could look like.

Bringing in the disciplinary contributions of architecture, landscape architecture, urban design and planning, and geography, these research perspectives were strongly grounded in a research-by-design approach, in which spatial interpretation, through multiple methods of mapping, representation, and project experimentation were explored and iteratively articulated. As cross-cutting arguments that have supported most of the investment in public space qualification over the past quarter of century in Portugal while remaining as current urban policy agendas, three thematic rationales were used to systematise MetroPublicNet's research:

- 1 Green and blue infrastructures, aiming at the qualification and environmental resilience of the territory, present in projects related to nature-based solutions, such as reinforcement of the urban green structure, water management, prevention of floods and extreme weather events, structuring of green corridors, promotion of urban agriculture, protection and enhancement of coastal and riverside fronts, and climate change adaptation.
- 2 Walkability and active mobility, promoted through projects related to transport-oriented development, the spatial integration of rail and road infrastructures, and the promotion of accessible pedestrian and cycling routes, that together with traffic control and parking solutions, favouring inter-modality and public transport usage.

- 3 Neighbourhoods' connection and cohesion, as the goal of multi-functional projects aimed at providing urban infrastructure and amenities and promoting commercial vitality and social interaction, especially, but not only, in economically disadvantaged areas, social housing neighbourhoods, precarious settlements, and areas surrounding new local facilities.

This book synthesises the key results of these research perspectives: a conceptual, multidimensional and multi-geographic framework to discuss the role of public space on contemporary metropolitan territories and their multi-systemic complexity; a systematised decoding of the public space projects, processes, policies, and rationales that shaped the recent transformation of a both unique and paradigmatic metropolis in Southern Europe; and the outlining of action-oriented guidelines, policy recommendations, and design experimentations that emphasises the potential role of public space as a tool for metropolitan integration and collective imaginary-building.

Structure of the book

The book aims at providing the reader with an overarching perspective on the conceptual, systemic, methodological, and empirical lenses that unfolded throughout the MetroPublicNet research process. With a diverse range of authors, actively engaged in academic research and professorship, in design practice and in policy-oriented roles, the book combines empirically grounded research on recent patterns of public space development in Lisbon, with an open, critical, and prospective inquiry on its potential as a consistent and multidimensional territorial network.

The two opening chapters introduce the fundamental MetroPublicNet's conceptual frame: the first outlining the current state of art on the metropolitan scale of public space as a conceptual construct and an operational tool; the second by examining the goals, priorities, and planning tools that shape public policy aimed at qualifying public spaces in Portugal and in LMA.

Following these introductory chapters, the book unfolds in four parts. The first one – the *Atlas of the Lisbon Metropolitan Area Public Spaces* – presents MetroPublicNet's empirical approach, namely its survey, systematisation, and interpretative reading of the multiple projects of public space qualification delivered in LMA from 1998 to 2023. With three scales of approach as the basis for the analytical exercises, both quantitative and qualitative methods were employed, combining statistical, morphological, and geo-referenced spatial information to frame a systematised glimpse on such kaleidoscopic body of urban and territorial interventions. The Atlas concludes with an array of interpretative 'ecologies' that outline emerging patterns in specific urban landscape conditions are being reshaped by the ensemble of recent public space transformations.

Part II – *Systemic Perspectives* – explores the diversity of systemic rationales through which public space can be understood. With a focus on Lisbon and its metropolitan area, these perspectives highlight the specific modes through which public space, seen as a multi-systemic realm, engages with specific layers of urban

landscapes: the water, the road and streetscapes, the residential fabrics, the retail activities, and the food production.

Part III – *Beyond Lisbon* – opens the debate to other geographical conditions, inquiring at the unique conditions in which public space – our shared object of research and exploration – is materialised in the different contexts of Porto, Barcelona, Brussels, and Ho Chi Minh.

As reflective interludes, four ‘Viewpoints’ authored by key thinkers on the contemporary urban and landscape conditions are introduced between the book’s parts. They bring a critical insight to instigate and open debate on the fundamental questions, challenges, and values at stake when researching and discussing the future of public space, and of our urban landscapes.

The fourth and final part – *Designing the Metropolis with Public Space* – presents a future-oriented outlook, directly linked with MetroPublicNet’s central hypothesis, that a Metropolitan Public Space Network strategy could be seen as a politically and technically robust tool to address sustainable urban development challenges. For that, a methodological approach to imagine, discuss, and strategically envision such network is outlined, as a territorial design toolbox, enriched with a selection of forward-looking, design-oriented forays developed through academic partnering in urban and landscape design studios, workshops, and curricular units.

The book closes with a collective *Manifesto* authored by MetroPublicNet’s team, suggesting ten principles to move towards a better articulated and cohesive metropolitan landscape, using public space as a realm for imagination, compromise, and systemic response to our societies’ aspirations, demands, and challenges.

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1 Public space as network

Ana Beja da Costa and João Rafael Santos

The conceptual versatility of public space

Public space is acknowledged as a relational, and structural urban and territorial system, which provides a range of social, ecological, and economical valuable services and a central concept in contemporary discourse in urbanism, spatial planning, and architecture. Public spaces can be perceived as stages of representation and collective expression of citizenship (Borja, 2003; Matos Silva, 2016), as democratic places for socialisation, conviviality, and cultural significance (Ricart and Remesar, 2013), as the *agora* for societal engagement, and the epicentre for city life (Crawford, 2005; Lefebvre, 2012). They may also be understood as multifunctional areas that create opportunities for gatherings and consumption, that allow movement and exchange and organise the social, material, and ecological flows through urban spaces (Carmona, 2019). In its complex layering between the public and the private domains, between the collective and the domestic realms, public space boundaries, thresholds, and jurisdictions are fundamental devices that respond to complex morphological and legal apparatus, as well as to social norms and everyday practices (Scheerlinck et al., 2017), for gatherings and for consumption, becoming central places of – and stages for – collective experience. It engages with the political dimension, the governance apparatus and the discursive narratives associated with its planning, management, and social claiming (Madanipour, 2019). This raises the need to develop critical insight regarding its recent developments, namely on the physical, infrastructural, and architectural dimensions, that translated into its materiality's 'are able to make perceptible an idea of the city' (Solà-Morales, 2010, p. 31).

Taking on the cues of public spaces as elements of long-lasting permanence as a structuring urban space (Martin, 2007, Portas, 2003, Solà-Morales, 2008), more recent authors have been contemplating it as an infrastructure of the metropolis (Clos, 2016), assuming the hybrid, diverse, and multifunctional spaces, with a geographical sense (Byrne, 2007). Beyond the traditional conception of public spaces defined by the use of streets, sidewalks, and squares, current conceptualisation refers more and more to other types, such as waterfronts, ecological continuities, large open spaces, or small-scale spaces embedded in the urban fabric. Considered as an element of urban consistency and internal structure, public space can

therefore become an operative element to tackle complex urban territories and to articulate multiple systems and urban fabrics, playing various roles: ordering expansions, reconstructing the unplanned city or (re)structuring the metropolitan city (Coelho, 2017). Particularly in current urban areas characterised by extensive, often splintered and unequally accessible territorial patches, investment in the structuring and qualification of public space can represent an opportunity for providing the same urban qualities among centralities and peripheries (Coelho, 2017; Pinto and Remesar, 2015; Torra, 2018).

Overall, public space encompasses a myriad of spatial layers, functions, and social significance that enables it to answer societal, environmental, and urban challenges of the 21st-century cities in a systemic way. As a matrix that provides multiple services (Brandão and Brandão, 2017), it can provide social infrastructure and neighbourhood vitality (Aelbrecht and Stevens, 2019; Madanipour, 2010; Pinto and Remesar, 2015), as it can reinforce green and blue infrastructures, while accommodating inherent ecological functions and services (Ahern, 2011; Balestrieri and Ganciu, 2017), and multiple solutions for active and sustainable mobility (Rouillard and Guiheux, 2020).

In this context, public space is both a material and a socio-political construction, and its management is neither neutral nor exclusively technical, or solely based on good practices. It is the paradoxical, conflictive, and opportunistic outcome of political agendas, actor interplays, economic rationales, and social claims (Mehta, 2022). Public space cannot be understood outside of specific geographical, cultural, and disciplinary frameworks (Wylie, 2007), which include an increasingly fluid exchange of ideas, models, and global capital (Carmona and Wunderlich, 2012), facilitated by new technological and digital communication, that bring an additional layer of complexity to the variable geometry of (urban) space.

Shaping the metropolis through public space

Urban development dynamics into the 21st century led to a shift in scale when reading the city. Its interpretation has evolved towards the reading of the metropolitan territories (Brenner and Schmid, 2015; Portas, 2012; Viganò, 2019) where the city-countryside dichotomy of well-defined urban clusters fade in a gradient towards zones of urban dispersion up to the rural settlements. As the boundaries between urban and rural become blurred, and the urban expansion processes generate territories that not only offer but also demand the services and terciarisation of the urban poles, and that (ideally) provide the primary resources from the non-urbanised territories (Secchi and Viganò, 2012), one apprehends the confirmation that the metropolitan territories are the 21st-century *modus-vivendi* for most people. As Prosperi, Moudon, and Claessens (2009) suggest, there is the need to inquire into contemporary metropolitan form resorting to new epistemological, linguistic, and empirical approaches in order to recognise and understand metropolitan urbanised regions.

As referred by Lynch (1960) in his studies on the metropolitan form, the perception of the city's image and of public space has been structurally changed and made

difficult by changing speeds and harder to grasp recognisable urban features. As referred by [Ibelings \(2015, p. 162\)](#), the postmodern discourse on the city and public space started in the 1960s, gained traction in the 1970s and started to materialise in the 1980s, being the epicentre for public space postmodernism experimentation in Europe. The following decades showcased extraordinary urban transformations in European cities with the implementation of several large public space projects, such as the London Docklands, Olympic Barcelona, the Eastern Docklands in Amsterdam, Hafen City in Hamburg, the Île de Nantes or the Expo 98 premises in Lisbon, as means to reuse and revive post-industrial brownfields and derelict waterfronts ([Berger, 2006](#); [Portas, 2005](#)) and to explore new qualities and possibilities of public space. The IBA's projects of Emscher Park, Fürst-Pückler-Land, and Saxony-Anhalt in Germany introduced a new scale and potential to reimagine and promote structural change in highly artificialised landscapes and their networked ecological, productive, and cultural realms through regional approaches to public space.

After several decades in which Global North metropolises were shaped by continuing urban growth in greenfield along with internal regeneration of brownfield and derelict sites based in large-scale flagship projects, important shifts in the scale, nature, and rationales of urban projects have been detected. In the wake of the 2008 financial crisis, smaller scale, more selective and incremental actions gained a prominent role, introducing a wider consideration for territorial and metropolitan cohesion ([Llop, 2016](#)), sustainability, and resilience, all of which requiring a systemic approach (i.e., mobility and ecological systems). Currently, public space requalification can also relate to urban acupuncture ([Bohigas, 2014](#)), which calls upon [Ohno's \(2009\)](#) small-scale interventions that allow for urban reorganisation, falling back to the metropolitan scale perspective. As stated by [Ibelings \(2015, p. 165\)](#), 'the trend is of interventions based on incremental changes, rather than drastic make-overs', being Europe's urban tissue trend to remain downscaled, to interventions at the neighbourhood, square or street level, the small scale public spaces, all of which 'need purposive design to exist and grow in the polycentric metropolis' ([Burkhalter and Castells, 2009, p. 23](#)).

Framing a systemic approach: three rationales for public space

Public space as a green and blue infrastructure device

Green and blue infrastructures are essential in the 21st-century metropolis to address the challenges of densification and span of urbanised territories and their impact on planetary resources. These functional landscape networks are fundamental for biodiversity, water, and energy flows ([Cunha and Magalhães, 2019](#); [Magalhães et al., 2007](#)), as well as the resilience and adaptive response capacity ([Ahern, 2011](#)) to risk events, including climate-related risks. These landscape networks tend to be functionally combined and supported by hybrid or built infrastructure that can integrate public space, along with agriculture and forestry production areas, dry and wet systems, open spaces, river- and waterfronts. Its reinforcement also extends to

smaller-scale public spaces, where the introduction of trees in squares and streets, the choice of local materials that favour the natural dynamics of water, the increase in permeable and vegetated areas allow public space to be not only a space of social and cultural flows, but also of ecological and biodiversity flows. Examples of metropolitan green and blue infrastructures can be observed in the Greater London, where the ‘All London Green Grid’ coordinated strategy is being implemented, focusing on a shift from grey to green infrastructure through a network of multi-functional green and open spaces (Mayor of London, 2012); and the city of New York, that has been reinforcing its iconic public space infrastructure through the ‘Plan NYC’ initiative, based on environmental sustainability and climate change adaptation strategies at various intervention scales, relying on public, private, and local stewardship for public space implementation and maintenance (The City of New York, 2011).

Public space for social cohesion

Seen from the social perspective, public space should define a connective fabric of communities and places, and a network through which access to the opportunities of urban life is managed and contested. Here, the public and private domains interact, according to multiple configurations and forms of transition. In this multi-layered fringe, domestic relationships intertwine with the permeability and visibility (Segura, 2018) that characterise collective spaces: the appropriation of streets of old neighbourhoods from the openings of single-storey houses, the entrances of collective housing buildings, the terraces that extend commercial spaces towards the outside, the playgrounds where children play together under the close watch of their relatives. The principle that public space acts as a social balance vector and social cohesion catalyser (Torra, 2018) was adopted as a clear strategy in the Barcelona Metropolitan Area. In this example, local and metropolitan policies have emphasised public space role as a public amenity, articulated with social, cultural, and civic centres, sports halls, libraries, health and education services, and social housing (Segura, 2018). Furthermore, investments have proven to be effective means for collective appropriation and successful retrofitting of social fabrics (De Matteis, 2015). In the Rotterdam – Den Hague metropolitan region the participatory processes and grassroots initiatives have demonstrated to be fundamental means for place making. Here, public space renewal initiatives are seen as a relevant urban renewal vector, rather than its collateral effect or final result (Van Melik and Lawton, 2011), of which the ‘City in the Making’ (Stad in de Maak), led by housing cooperatives and open source and circular economy circuits is an example (Storm, 2016).

Public space as an active mobility enhancer

As an infrastructure of circulation, convergence, and connection that has genetically shaped cities and territories, public space has adapted to technological needs over time. Its partition and sharing among multiple users reveal the political priorities

and management rationales that affect it. From its most elementary forms, such as old paths and streets absorbed by urban growth, to those of greater infrastructural complexity or technological specialisation, mobility is a cornerstone dimension of urban design and public space management. Particularly when faced with the challenges of transition towards low-carbon forms of mobility and energy scarcity, along with those of inclusive, universal, and equitable accessibility to urban amenities, there's the need to develop alternatives to the use of the private car. Public space design and networking is a powerful tool to promote better conditions for public transport and intermodal connection, to improve walkability and bicycle use and to address the spatial barriers and discontinuities that result from large-scale infrastructures, often splintering urban fabrics and ecological corridors. The strategy envisioned by [Secchi and Viganò \(2011\)](#) for the Greater Paris (Le Grand Paris) metropolitan territory resulted from the reading of its systems, in order to re-define the metropolis habitability by reconstructing its horizontal continuities. Several spinoff projects emerged from this consultation study, such as the 'the Greater Paris Sidewalk' ([Masbounji, 2013](#)), that aimed at enhancing the connection between Saint-Denis city centre and the Gare du Nord through the establishment of a continuous 'promenade', that included the consequent requalification of adjacent squares, intersections and nodes, enhancing pre-existing conditions – of ancient roads and its landmarks – and the more recent public transport infrastructure, such as metro stations, tram networks, for a coherent reading, dwelling, and moving within the Parisian metropolis.

Public space as network

Urban life and its deeply intertwined urban systems are ever-changing. At the current point, metropolitan public space is a multi-scale device, that can act both as a catalyser for large-scale landscape reclamation processes or as surgical interventions within the urban fabric, and in all the in-between scales and systems, driven by different actors and investment agendas. Public space, when conceptualised as an infrastructure of the metropolis, can become an operative element to tackle complex urban territories and to articulate multiple networks and urban fabrics. One can resume the overview on such broad topic stating that the 'Public Space as Network' in the metropolitan city:

- Lies in the intersection between the multiplicity of territorial situations, and in the organisation of systemic and integrated responses; in interventions that leverage other complementary valences such as: the reinforcement of accessibility to collective facilities, the rehabilitation and revitalisation of relevant urban spaces, the opening of links along ecological corridors or the integration of large infrastructures and public transport interfaces into the urban fabric;
- Is the means for the ecological transition of the metropolis, integrating local food production, water and flood management, and climate risk adaption, transitioning to a sustainable use of natural resources, integrating natural processes and cycles; is the means for the transition to more sustainable modes of mobility

and those that encourage the development of new employment dynamics and commercial vitality, contributing to socio-spatial integration and cohesion;

- Is an opportunity for promoting multifunctional, multigenerational, and flexible uses, adapted to different programmes and needs, aiming at greater inclusion and promotion of social and economic diversity. This includes interventions that promote intra-urban connection and continuity between different neighbourhoods, overcoming physical and socio-spatial barriers.

To (re)view public space at a metropolitan scale, be it through strategies, policies, visions, or projects, brings an overview on cities that are transitioning towards sustainability, resilience, and cohesion through means of wide range of processes, forms, and territorialities, either by simple, low-cost actions, or by heavier and more structural interventions. As part of newly developed urban space or as part of renewal projects, a larger-scale approach to public space provides a frame on which both the specific and the generic can be politically articulated under a broader territorial and social constituency. This manifesto sheds a light on how public space can gain recognition as a metropolitan networking device, that can leverage effective positive and progressive change of today's urbanised regions.

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2 Public space as an urban policy agenda? Policies, funding, and soft planning in Lisbon Metropolitan Area

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Introduction

As a foundational layer of the urban territory, the physical development of public spaces undergoes diverse rationales and purposes. Their materialisation and evolution are intricately woven into the complex interplay of multiple actors with distinct interests and agendas, endowing these spaces with a profound socio-political dimension. This scrutiny gains heightened significance when examining interventions directly promoted by the public sector, such as government agencies and municipalities, where the impact of political agendas on urban development is evident.

This chapter explores this interplay by looking into the goals, priorities, and planning tools used in the policy framing of public space qualification interventions in Lisbon Metropolitan Area (LMA). As occurs in other South European countries, Portuguese urban development is primarily delivered by private developers under a market-oriented rationale, with public space usually handed over to municipalities for management and maintenance. However, public space qualification interventions (i.e., those focusing on existing spaces) are mostly funded and delivered by the public sector, in its multi-level institutional apparatus.

Interestingly, most of the funding priorities and rationales do not consider public space as a focus per se; instead, they aim at more abstract realms such as urban resilience, sustainable mobility, or social cohesion. Nevertheless, when looking at their physical outcome, public space qualification projects hold a prominent share in funding allocation. Furthermore, along with specific European Union (EU) agendas and funding priorities, a set of non-statutory planning instruments were deployed in order to frame funded projects under strategic soft-planning practices that emerged parallel and complementary to longer-term land-use normative planning processes.

The chapter presents an overview of the interplay between the policy framework for urban development, with a particular emphasis on Portugal-EU funding agreements and their main goals and priorities, and their impact on the effectively delivered public space projects in LMA. This interplay offers interesting insights into an increasingly important role of the metropolitan scale in urban policy-design, as part of more collaborative and integrated approaches between central and local administrations.

The role of both urban development and planning in the production and qualification of public spaces

In Portugal, urban development has predominantly rested within the sphere of the private sector. With land holdings and investment goals in hand, property owners and real estate developers have taken on the role of steering the majority of urban operations geared towards urban growth and development.

The private initiative for urbanisation and construction purposes was officially established in 1965 with the introduction of the legal device of '*loteamento urbano*' (urban land subdivision) into the Portuguese legal framework, aimed at controlling and licensing urban development operations endorsed by private stakeholders. This legal mechanism provided a prompt response to the demographic and social pressures experienced in the mid-20th century, driven by urban growth dynamics that the public administration, at that time, lacked the capacity and tools to address. This was particularly relevant in the LMA, where the pressure for urbanisation was more pronounced. Since then, private urban operations have evolved to become the primary mechanism for shaping and producing urban spaces, and, consequently, public spaces¹ (Cavaco, 2009).

Despite private land ownership, the law mandates the free cession of land portions for public purposes within the context of urban development operations. This encompasses the establishment of infrastructure, public facilities, public green spaces, and other open areas designated for collective use. However, the issue is not only a matter of land tenure. This mandatory transfer of the land to the ownership of the municipality, whether integrated into the public or the private domain, is accompanied by responsibilities for management and maintenance. These responsibilities encompass various particularities that impose additional duties on municipalities:

- i Public spaces are designated for free collective use and are *extra commercium*, meaning that the property cannot be traded or leased and private rights cannot be established over it whenever the property is part of the public domain²;
- ii In such cases, ownership is theoretically 'eternal', with no set deadline for cessation.³
- iii Property rights over the land include both the ground surface, the underground (where supply and sanitation infrastructures are typically placed, along with the possibility of tunnels or parking), as well as the airspace (including electrical infrastructure);
- iv Duties range from simple cleaning and maintenance to the management of permitted uses and occupations, mediating potential conflicts and disturbances, and pursuing refurbishments and rehabilitation actions.

While public spaces in Portuguese cities predominately result from autonomous private urban development operations, spatial planning and urban management in Portugal have undergone significant changes since private stakeholders were granted the privilege of handling urban development. In the 1990s, a campaign was

initiated to encourage the formulation of Municipal Master Plans (PDM) in every municipality. Additionally, in 1998/1999, a Framework Act and integrated spatial planning system were introduced for the first time, laying the foundation for the consolidated system we have today (Cavaco et al., 2021).

However, despite growing planning efforts and increased demands over the private sector for granted urbanisation and construction rights, the current state of public spaces reflects vulnerabilities and shortcomings stemming from decades of urbanisation and urban growth under weak planning directives and inadequate quality standards. Firstly, due to the absence of comprehensive urban policies, unregulated metropolitan growth has led to the emergence of numerous substandard areas marked by inadequate living conditions, lacking essential collective infrastructures and facilities, which often resulted from illegal settlements. Secondly, *'loteamentos urbanos'*, heavily reliant on the property cadastre's geometry, have driven a fragmented urban development process, highly contingent on the timing and preferences of each owner and real estate investor, leading to ad hoc cession areas without a comprehensive and articulated vision (Cavaco, 2009). Thirdly, the formal acceptance of urbanisation works – a crucial step where the municipality verifies compliance with required conditions for roads, infrastructure, and public spaces – has not consistently occurred, resulting in areas marked by deficiencies and a lack of quality (Catarino, 2024). Finally, use and time contribute to the wear and deterioration of public spaces, at a time when there are new requirements for safety and quality, along with emerging concerns like adapting public spaces to climate change (Matos Silva, 2019). Collectively, these circumstances underscore the pressing need for the regeneration and requalification of public spaces, a responsibility primarily entrusted to municipalities.

According to the law, one of the objectives to be addressed by statutory municipal spatial plans is the establishment of *'parameters for the use and enjoyment of public spaces'* (article 75.º, j) *Decreto-Lei N.º 80/2015, de 14 de maio, 2015*). However, this is usually a content restricted to Detailed Local Plans (PP), that establish the urban design, including the rules for the management and occupation of public spaces, in specific areas within the municipal territory. While urban regeneration, including the requalification of public spaces, is increasingly recognised as an integral part of urban development strategies, it is not explicitly outlined in spatial planning instruments like the PDM, especially in terms of land-use directives and regulations (Teixeira et al., 2016, pp. 23–25). Public spaces, despite being associated with structural elements in the territorial models and zoning schemes of PDM, such as infrastructure and the ecological network, are not defined as specific planning content. The emphasis predominantly centres on the building fabric, lacking specific criteria for addressing public spaces.⁴

In the LMA, the currently enforced Regional Spatial Planning Plan (PROTAML), approved in 2002, acknowledges the need for a paradigm shift. It emphasises that *'particularly in terms of spatial planning instruments, [the approach] must evolve towards creating more qualified, environmentally effective, and sustainable urban spaces. This involves investing in the development of public spaces, urban green areas, and enhancing the overall quality of life for populations, especially those in*

suburbs or less developed areas of the LMA' (Presidência do Conselho de Ministros, 2002, p. 3292). In this strategy-oriented regional spatial plan, the requalification of public spaces is considered a policy option to achieve environmental and socio-territorial cohesion goals, recognising them as fundamental components for the proper functioning and overall quality of the urban system.

Nevertheless, none of these statutory planning instruments allocate specific financial resources to underpin the implementation of the planning options they prescribe. This is particularly true for the rehabilitation of public spaces, leaving such operations dependent on alternative funding sources and policy programs.

Enhancing public spaces through EU-led policy initiatives and funding

In the past few decades, the increasing interest and attention towards improving public spaces can be largely attributed to investments catalysed by European funds under various Community Support Frameworks (CSF), especially since urban policy gained explicit focus with the URBAN (1994–1999) and URBAN II (2000–2006) Community Initiatives. While public spaces are not the primary target of support programs dedicated to urban policy, they have progressively gained significance within initiatives explicitly focused on urban regeneration and rehabilitation – a growing priority in both European and national policy agendas aiming to foster integrated territorial approaches.

In the mid-1990s, the URBAN Community Initiative marked a pivotal shift, directing attention and funding towards disadvantaged neighbourhoods and deprived urban areas. This initiative introduced a novel instrument aimed at fostering urban regeneration through integrated and collaborative actions that simultaneously addressed issues of social cohesion, economic rehabilitation, and environmental sustainability (Hurtado, 2015). In Portugal, the LMA was among the chosen territories for URBAN's implementation in deprived areas such as Casal Ventoso in Lisbon, Venda Nova-Damaia in Amadora, and Outorela-Portela in Oeiras, during URBAN I. Additionally, Vale de Alcântara in Lisbon and Buraca-Damaia in Amadora joined the initiative during URBAN II (Teixeira et al., 2016).

However, the substantial advancement of public space qualification occurred during the third Community Support Framework (CSF III 2000–2006), with a notable surge in community funding and specially crafted programs to facilitate interventions in cities and urban areas (Cavaco, Florentino and Pagliuso, 2020).

Leveraging the experience gained from both the URBAN initiative and the renovation of the Expo 98's International Exhibition site in the eastern part of Lisbon, the Portuguese government launched the Polis Program – Program for Urban Requalification and Environmental Improvement of Cities (Presidência do Conselho de Ministros, 2000). Focused on the urban and environmental requalification of deteriorated urban sites, including coastal and riverside areas, abandoned brownfields, and heritage sites, the Polis Program strategically pursued emblematic actions described as '*exemplary and demonstrative*'. Its primary objective was to inspire and catalyse broader initiatives, with a strong emphasis on substantial

investments in revitalising and enhancing the urban environment. This included prioritising public spaces while fostering urban multifunctionality and promoting sustainable mobility.

On the contrary to the majority of the EU-funded programs, in this case, the initiative required the preliminary execution of statutory planning instruments, such as urban development plans (PUs) and detailed local plans (PPs), to outline the prescribed urban strategy. That was the case of Agualva-Cacém in Sintra, Costa da Caparica in Almada, and riverfront of Setúbal, all in the LMA. Despite shortcomings in completing the envisioned aims under the scheduled timelines, we can say, in the aftermath, that the interventions carried out under the Polis Program played a pivotal role in instigating a transformative culture for the qualification of public spaces.

In the context of CSF III, the Integrated Program for the Qualification of Sub-urban Areas in the LMA (PROQUAL) was also established under the Operational Program for the Lisbon and Tagus Valley Region (PORLVT). Its objective was to address the social dimension of areas facing severe issues of poverty and social exclusion, primarily through interventions in public spaces such as squares, gardens, streets, and public art projects. These efforts were complemented by projects aimed at creating and modernising collective facilities and implementing other intangible actions to promote employment and enhance living conditions. The selection of intervention areas resulted from the PROTAML where a diagnosis had been done that identified the population living in critical areas, such as illegal settlements, slums, degraded historical centres, and social housing neighbourhoods ([Ministério do Planeamento and CCRLVT, 2001](#)).

Throughout the 2007–2013 NSRF (National Strategic Reference Framework) programming cycle, endeavours to strengthen the urban dimension within the European policy agenda were undertaken on multiple fronts. This included the ‘*URBAN mainstreaming*’, involving the integration of the URBAN Community Initiative into mainstream Operational Programs. Member states were granted the authority to formulate their initiatives, extending the opportunity for all cities to potentially benefit from EU Cohesion Policy ([Cavaco, Florentino and Pagliuso, 2020](#)). In this context, Portugal launched its *Policy for Cities* – Polis XXI, extending urban approaches to broader scales and targeted territories, including city-region and inter-urban networks, beyond the traditional intra-urban focus. This initiative also introduced a set of innovative instruments for its implementation, comprising *Partnerships for Urban Regeneration* (PRU); *Urban Networks for Competitiveness and Innovation* (RUCI); *Innovative Actions for Urban Development* (AIDU); and *Structural Equipments of the National Urban System*.

Nonetheless, PRUs have notably taken the forefront, surpassing other tools, not just in the number of approved projects (84.6% of total operations, with 1303 PRUs out of 1540 projects nationwide) but also in terms of the substantial share of eligible investment (62.6% of the total investment in urban development ([Barata Salgueiro, André and Brito-Henriques, 2015](#)). Specifically dedicated to initiatives aimed at enhancing public spaces and revitalising urban areas, including the provision and improvement of infrastructure and communal facilities, the PRUs stand out for their innovative approach, notably, the governance model based on close collaboration among public and private stakeholders and the establishment

of a partnership protocol (Breda-Vázquez, Conceição and Fernandes, 2009; Vale and Queirós, 2015). Nonetheless, more specific data reveals that, despite efforts to engage additional stakeholders beyond the administration, their participation remained marginal in comparison to local authorities and central administration (Barata Salgueiro, André and Brito-Henriques, 2015).

Much like the Polis Program, the PRUs focused on areas with significant potential for enhancement, like historic centres, coastal and riverside fronts, illegal settlement areas, and social housing, where the lack of quality in the built environment was often linked to economic vulnerability and social exclusion. In 2011, PRUs were re-directed to converge with Urban Rehabilitation Areas, aiming to enhance community funding and public investments in public spaces by leveraging initiatives undertaken by private stakeholders in the building fabric and private housing.

In summary, within the 2007–2013 programming period, at the national level and under the overarching framework of NSRF, the requalification of public spaces emerged as the predominant category of actions, encompassing the highest number of funded projects (434 out of 1540) and constituting a substantial percentage of the overall budget expenditure (29.2%, equivalent to 325 million euros) (Barata Salgueiro et al., 2015).

In the 2014–2020 programming cycle, Portugal witnessed a shift in its approach to integrated territorial development. Unlike the previous period, where national-level policy experimentation played a role, Portugal 2020 experienced a top-down standardisation process. This process dictated the adoption of specific EU-led policy instruments, including Integrated Territorial Investments (ITI), Community-Led Local Development (CLLD), and ERDF's Article 7 for Integrated Sustainable Urban Development (ISUD), and the alignment of proposals with ex-ante conditionalities dictated at a European level, such as the set thematic objectives and investment priorities (Cavaco et al., 2021).

Nevertheless, despite the extensive set of constraints, the way stakeholders, particularly the municipalities, made use of available funding, appears to have been more influenced by local needs related to advancing projects in the pipeline awaiting financial capacity than by a broader policy agenda guided by supranational directives. At least, a blend of both these endeavours seemed to have guided the final framework of approved actions. In this context, material operations focused on the qualification of public spaces seem to have taken precedence, constituting a significant proportion of the funded projects and allocated funding (Carvalho et al., 2022; Santos and Carvalho, 2022). This trend seems to persist, even as the doctrine surrounding place-based approaches increasingly underscores the importance of intangible initiatives, such as empowering local actors, fostering the local grass-roots economy, and enhancing employability, over purely physical interventions.

In the context of Portugal 2020, initiatives focused on enhancing public spaces were primarily funded through the ERDF's Article 7 for Integrated Sustainable Urban Development (AIDUS). The European Commission mandated a minimum allocation of 5% of the total ERDF for urban affairs, as part of the ring-fencing requirements. Accessing this funding was contingent upon the formulation of a Sustainable Urban Development Strategic Plan (PEDU). This plan aimed to establish a municipal strategic framework, serving as the foundation for the development of

three subsequent instruments and their respective action plans – the Urban Regeneration Action Plan (PARU), Deprived Communities Integrated Action (PAICD), and Sustainable Urban Mobility Action Plan (PAMUS). Each of these plans was directly linked to specific investment objectives and priorities, aligning with the imposed conditionalities and following a set of pre-established typologies for eligible actions (Figure 2.1).

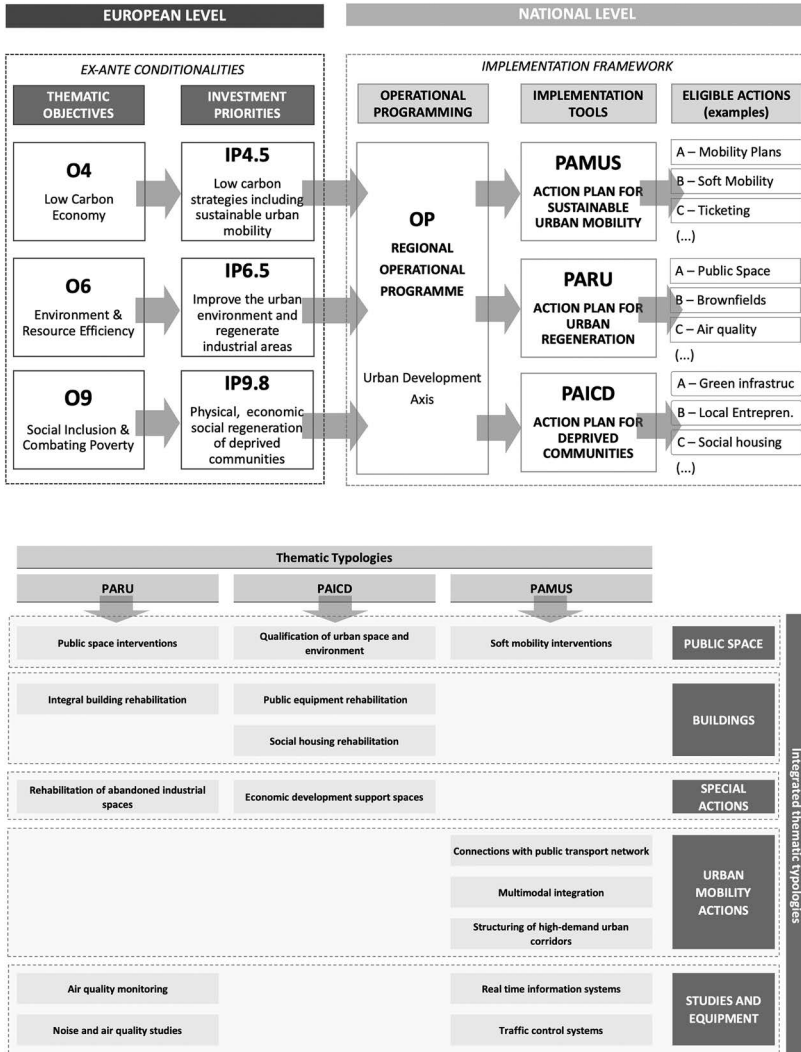


Figure 2.1 Articulation framework between European level policy conditionalities and national-level implementation tools, under Portugal 2020 (top) and thematic typologies of PARU, PAICD, and PAMUS (bottom)

Source: Research Project SOFTPLAN – From Soft Planning to Territorial Design: Practices and Prospects.

The rehabilitation of public spaces is clearly the main thematic priority for the set of PARUs in the LMA: it accounts for 60% of all planned actions and over 75% of the total programmed investment. Out of the 70 planned actions, 43 are related to the revitalisation of public spaces, 24 related to the rehabilitation of buildings, and only one action for each of the remaining typologies: conversion of abandoned industrial units, acquisition of equipment for air quality monitoring, and studies and plans for improving air and noise quality. In the scope of the PAICDs, the relationship is similar, with 64 out of 141 planned actions directed towards the enhancement of public spaces. Here, too, immaterial actions, in this case, aimed at creating spaces to support economic development (6 actions), are a scarce minority (4%) compared to the total of 141. On the contrary, material actions are distributed among interventions in public spaces (64 actions – 45%), in social housing buildings (27 actions – 19%), and collective facilities (44 actions – 31%). Also, in the context of the PAMUS, public spaces take the lead, in this case indirectly through interventions focused on increasing soft modes, such as the construction of cycle paths and pedestrian routes. Out of the 108 planned actions, 79 fall into this category (73%), with 15 aimed at improving interfaces (14%) and 14 falling into the three other thematic typologies: structuring high-demand urban corridors (4%), adoption of information systems (1%), and investments in intelligent system equipment (8%). In terms of financial allocation, the lion's share of investments, totalling over 85 million euros, is dedicated to the enhancement of public spaces. This constitutes approximately 65% of the funding directed within the scope of AIDUS. Furthermore, from the perspective of intervention areas ([Figure 2.2](#)), it is observed that interventions in public spaces are relatively widespread across various territorial typologies, encompassing both historical centres and old urban areas, as well as social housing neighbourhoods and other consolidated urban areas, riverside zones, precarious construction nuclei, and clandestine neighbourhoods ([Carvalho et al., 2022](#)).

Soft planning towards a metropolitan platform for place-based urban development

Based on the undertaken review, it can be concluded that efforts to enhance the quality of public spaces, particularly in recent decades, have received significant attention from public authorities, especially municipalities. These endeavours can largely be attributed to the instruments and financial sources associated with community funding.

Notably, the driving force behind the transformation of public spaces in Portugal has been, to a large extent, policy initiatives and planning tools that transcend formal procedures and mandatory regulations. Unlike statutory planning instruments integral to the Portuguese spatial planning and territorial management system, which have binding effects for both administration and individuals, the more operative role in effecting territorial development and change has been played by what we term 'soft planning'. These voluntary and informal initiatives are geared towards streamlining effective territorial development, involving collaborative

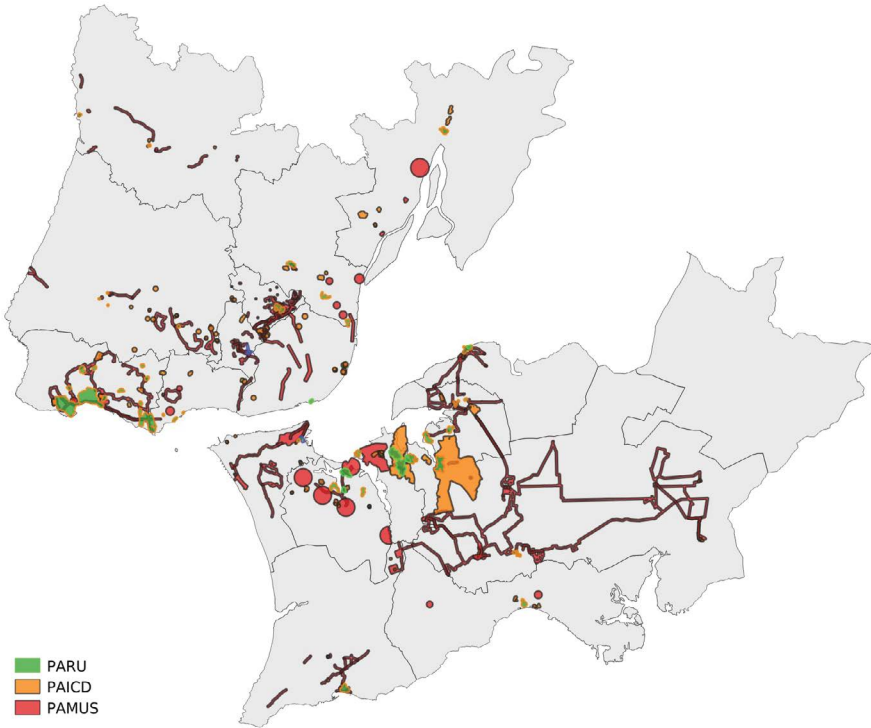


Figure 2.2 Programmed actions in PARU, PAICD, and PAMUS in LMA

Source: Research Project SOFTPLAN – From Soft Planning to Territorial Design: Practices and Prospects.

processes and territorial governance that often operate outside and beyond the traditional administrative and governmental structures (Cavaco et al., 2023).

In fact, the EU, particularly through its Cohesion Policy, has strongly encouraged these soft planning processes, pushing forward new planning spaces that transcend traditional administrative boundaries and government structures (Cavaco and Costa, 2019).

This is the case of the LMA. Operating without formal political powers and functioning on an inter-municipal basis as public associations of local authorities, the LMA is dependent on the willingness of municipal-elected political representatives to collaborate. However, its role in addressing territorial issues at a metropolitan scale has been highly stimulated by the allocation of EU funds. This is particularly evident in the last (2014–2020) and current (2021–2027) programming cycles, during which the Portuguese government decided to address ITI at the NUTS III level, assigning responsibilities to Intermunicipal Entities, as is the case of the LMA.

In both of these CSFs, the LMA was responsible for the crafting of strategic documents for territorial development – the Integrated Strategy for Territorial

Development in the LMA – EIDT 2014–2020 (AML, 2015) and the Lisboa 2030 – A Regional Strategy for Lisbon (AML and CCDRLVT, 2020). In either of these strategies, the enhancement of public space, while not constituting a central objective or policy priority per se, is mentioned as one of the means and areas of intervention to pursue the outlined metropolitan strategy, particularly concerning urban regeneration and the environmental quality of urban areas.

In the case of the EIDT 2014–2020, the focus on the rehabilitation of public spaces, integrated with building rehabilitation, the enhancement and modernisation of urban environment, as well as interventions in renaturalisation and the creation of green spaces, is highlighted as one of the actions aimed at achieving strategic objective 5 – *‘Reinforce the aspect of inclusive and sustainable urban development that incorporates a strategy of urban regeneration and rehabilitation (...)’* (AML, 2015, p. 161).

For the 2021–2027 period, the Lisboa 2030 strategy views the enhancement of public space as one of the aspects reinforcing a polycentric metropolitan urban system. Public space is even seen as a structuring component regarding the pursuit of various priorities identified within the scope of the ‘Urban Regeneration and Habitat’ subdomain, whether as a means to ‘Promote the regeneration and qualification of consolidated urban spaces’ – priority 1, or as a fundamental component of urban space to ‘Improve air quality in urban areas and mitigate the effects of climate change’ – priority 2, and as infrastructure to ‘Promote the nearby, accessible, and healthy city’ – priority 3 (AML and CCDRLVT, 2020, pp. 62, 96–97).

In fact, the significance of the metropolitan scale in policy-making directed towards urban and territorial development has been progressively highlighted. This is evident in the expanding collection of strategic documents across various policy domains, approached from a metropolitan standpoint through collaborative processes. It goes beyond the involvement of municipalities as local authorities wielding effective decision-making power. Collaboration with the central administration, along with a diverse array of local actors, is increasingly becoming a guiding principle within the regional context.

Despite the fact that, up until now, interventions in public spaces have largely operated within a strictly municipal framework – illustrated, for instance, by initiatives such as PRUs (NSFR 2007-2013) and, notably, the PEDUS (Portugal 2020), where each municipality independently submitted operations and projects for funding – it is undeniable that since Portugal 2020, the involvement of the LMA, particularly through soft planning, has broadened significantly. The following cases are emblematic of this paradigm shift:

- i In the realm of urban mobility, the Sustainable Urban Mobility Action Plan for the Metropolitan Area of Lisbon (PAMUS), was adopted in 2016 and revised in 2019 (AML, 2019a). Although initially conceived within the framework of PEDUS and, consequently, at the municipal level, the collective decision of the municipalities was to opt for a metropolitan-scale document capable of addressing mobility and transportation issues from a supra-municipal perspective.

- ii In the environmental context, the Metropolitan Plan for Climate Change Adaptation (PMAAC-AML) (AML, 2019b), serves as a pivotal instrument, aiming to equip the metropolitan community, along with strategic public and private entities, for the challenges of climate change. It emphasises the necessity of a supra-municipal approach to climate change adaptation, discouraging isolated municipal efforts.
- iii In the context of intervention in deprived urban communities, the Metropolitan Plan to Support LMA's Disadvantaged Communities (PMACD-AML) envisions a long-term initiative aimed at socially and economically communities and territories. This metropolitan-scale initiative has emerged to address the requirements of the Recovery and Resilience Facility (PRR) under the Next-GenerationEU programme (AML, 2021).
- iv In the field of housing, also under the auspices of NextGenerationEU (PRR), various municipalities have collaborated to present a Diagnosis of Unworthy Housing Conditions in the Metropolitan Area of Lisbon (Pinho, Carvalho and Vale, 2022) and the PRR-AML 2021/2016 Housing Action Plan (Pinho, Barroso and Lopes, 2021) for the entire region.
- v Lastly, the FoodLink – Network for Food Transition in the Metropolitan Area of Lisbon endeavours to promote the transition towards sustainable, competitive, and resilient food systems within the LMA. This initiative, a collaborative effort between the local and central administration and the university (CCDR-LVT, ICS-ULisboa and AML, 2022) emphasises a place-based approach. The corresponding strategy has recently been unveiled to the public and is currently open for public discussion.

Collectively, these documents and strategic visions lay the groundwork for acknowledging the metropolitan scale as a unified and cohesive planning space, acting as a catalyst to reinforce institutional cooperation and metropolitan governance. While public space, up to this point, has not been an autonomous policy field, it has functioned to amalgamate various other domains, potentially serving as a platform to articulate a comprehensive and integrated vision for the metropolitan space.

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Notes

- 1 While precise data on the contribution of private development to the creation of public spaces is unavailable, the fact that 98% of the overall housing stock production has been driven by the private sector allows us to draw a parallel in relation to the production of public space. It's important to note, however, that when it comes to the development of essential infrastructures such as structuring roadways, bridges, tunnels, water treatment

plants, and power plants, the predominant role is played by the central government, be it at a national or local level.

- 2 Concessions over public domain assets, such as paid parking, terraces, fairs, and others, are permitted for a limited period of time, subject to the execution of a contract.
- 3 The law allows for the withdrawal of a portion of land from the public domain, but only in exceptional cases that involve specific legal conditions and procedures.
- 4 A study examining the consideration of urban rehabilitation in 11 PDMs of LMA (Teixeira et al., 2016) reveals a notably limited approach to the issue. While more recent PDMs have begun to address rehabilitation concerns – a significant shift from the virtually non-existent attention in those developed in the 1990s – specific regulations for rehabilitative areas remain scarce. Instead, their development is deferred to other instruments at lower scales. In certain PDMs (e.g., Lisbon, Cascais, Loures, and Odivelas), private sector-driven urban rehabilitation is incentivised with public counterparts, including increased building capacity.

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3 Viewpoint I. On metropolitan landscapes. A conversation with João Nunes

*João Nunes, João Rafael Santos,
and Ana Beja da Costa*

Interviewee: João Nunes (JN)

Interviewers: João Rafael Santos (JRS), Ana Beja da Costa (ABC)

JRS: In the MetroPublicNet project context, we are questioning the relevance, opportunity, and reasonableness of thinking about public space on a metropolitan scale, the scale of the extensive urbanisation in which we live. This discussion is entailed with the biophysical and the cultural components that make up the landscape, and which we see as fundamental supports for a metropolitan public space network.

ABC: You have previously reflected on the issues of continuity and overcoming physical and social barriers. That this idea of a network would be closely linked to this concept of continuity and accessibility for human fruition. This is also very much related to the concepts we work on, of ecosystem flows, biodiversity, energy, water... The homeostasis of a networked system.

In relation to combining this with the idea of accessibility for public fruition, how do you think these systems can not only be a backdrop, but can become more of a leading network? How can we make these flows more visible, from the perspective of public acknowledgement and fruition?

JN: I think we need to think a bit about how cities, and specifically cities in the Lisbon Metropolitan Area, were formed. They have always been very much linked to a commercial logic, to the urban value of building land, and to the value of the commercial square metre. Also linked to the way how infrastructure networks bring value and create opportunities for valorisation, in tandem with the extreme fragility and depreciation of agricultural land's value in the face of urban development processes.

A relatively effective mechanism was the creation of centralities or relatively privileged access points through the infrastructure network, replacing agricultural land whose value was declining for various social and economic reasons, but also encouraged by the speculation mechanisms, which were extremely interested in this loss of value. This process built an urban system based on concentrating value in the centre and reducing it radially.

I believe that landscape architecture has traditionally, and until now, almost always worked with a raw material that is made up of leftovers. We are the last to enter the chronological hierarchy of those involved in transformation operations, we are the last to be involved in design process and therefore the most sacrificed, and even physically we work with these leftovers. So urban speculation is consuming the territory by exchanging low agricultural value for high urban value. A process that in the 1960s was fairly uncontrolled, resulted in many leftovers, pieces that no longer had any connection as part of a related agricultural system and were no longer interesting from the point of view of urban speculation.

Far from points of attraction, centrality or infrastructure accessibility, these spaces often became forgotten, worthless, many times occupied by shanty settlements throughout the 1960s, 1970s, 1980s, and 1990s. Marginal spaces to which Gilles Clement refers as belonging to a *third landscape*, assigning them a value – that I believe is small in relation to the one they can actually have. It's part of the reasoning behind landscape architecture to be able to understand these small spaces as having an extremely important and structural value. We take these spaces, devoid of meaning, significance, and value, and build a chain of relationships, that aren't necessarily direct: we start from the interpretation of the possible role of this fragment in a broader structural reading, then assigning it a role, and ultimately a value.

[The example of Monte Palatino]

We (PROAP) did some very interesting work on *Monte Palatino*, in Rome. Our main questions were related to vegetation and the interference between tree roots and the existing substructures. *Monte Palatino* (Figure 3.1) is built by a continuous succession of constructions, because when the emperor died, the new emperor immediately had to tear down the palace of the previous emperor and build a new one on top of it. The structures, or even part of the palace would be left relatively evident underneath; successively built one over the other. These layered structures produced what I consider to be a fantastic situation, where you can hardly see the transition between the natural terrain that supported the first buildings, and the overlapping of the more recent constructions.

When we worked on this project, the other question was how to find a public space that was less archaeologically constrained. Where we could provide minimal infrastructure to the visiting routes. We're talking about toilets, water, basic things that people didn't really have before this intervention. People didn't have a place to eat, a toilet, shade, or a water tap. And we found a curious contrast between this strange insistence on building the palaces, a successive overlapping of frustrated eternities, and several unbuilt spaces that were either necessary from a constructive or operational point of view, but did not have any noteworthy construction. This defined a continuum of interstitial spaces that, that when linked together, revealed the possibility of planting and build infrastructure without restrictions, which



Figure 3.1 Monte Palatino interstitial spaces

Source: By João Rafael Santos.

solved the project's problems quite well, with the added advantage of being able to find a visiting system from which you could enter the epochal organisation of the space, something completely impossible nowadays. It's a very confusing visit because archaeologists leave things in the conditions and times that seem most interesting to them, without any overall logic. This juxtaposition of different eras is not revealed to the visitor either, who faces a very confusing reading of times.

The least qualified spaces, dedicated to the rough construction operations, the forgotten spaces of the whole complex were, in the end, the ones that experienced the most solid continuity.

In this context, it was a bit like what happens in general at the level of the metropolitan area. The administrative divisions are generally made by the headwaters because they follow the geometry of the watersheds, and there is a kind of weakening of the supervisory capacities as we get closer to the headwaters. So, not only is there a weakening of the energy of the watershed itself, which activates the metabolism of water, but there is also a weakening of the capacity to control and supervise. As a result, ridges very often coincide with these interstitial, void spaces. It seems to me that we could try to recompose this idea of structure, by researching into the ridge spaces and linking them with other significant areas through minimal,

almost invisible interstitial spaces. I believe that art lies in the search for arguments that can activate these minimal interstices, rather than in the revelation of large open spaces. Researching along these lines is a difficult task, as it activates spatial and landscape relationships between organisations that have different managements, different strategic objectives, and sometimes latent animosities.

There's a bit of contradiction between the management of a physical space, which finds its articulations through the very expression of the landscape's energies, and the fragmentation created by the administration, together with our inability to cooperate beyond the petty things of the country's political life.

JRS: This idea that through the project you can create a theory of value resonates with MetroPublicNet's research argument – the shared and social recognition of values among various institutions, professionals, and the society that can contribute to assembling a wider public space network. In the reading we've been doing, we've found signs of a relatively rich process, and also interesting contributions, such as the incremental requalification and continuous linking of the Tagus riverfronts. With it there's a shared recognition and awareness not only of the riverfront space itself, but also of its wider surroundings, the Tagus estuary, the Tagus *lezirias*... Our project explores only a short time of the city's long history. But, looking at it as a long-term and accumulated process, do you feel that these public space transformations are contributing to a changing awareness in society, in politics, in academia, in the media?

JN: I think there are transformations. Nobody expected it, and I think the beauty of these things is the surprise. Whilst everything was, and still is to a certain extent, directed towards the world of the commercialisation and functional supply and demand of space, there's a surprising and spontaneous uprise of another value that has absolutely nothing to do with this – the value of certain spaces just because they are empty. Just because they can be used to operate systems, such as the hydrological system.

Spaces that are collective, anonymous, and undifferentiated, capable of touching everyone and unrelated to a commercial value, suddenly and surprisingly begin to gain value in people's interpretation of the structure of the city, as spaces for direct use. People are looking for these spaces, whether it's to make vegetable gardens, to go for a walk, to take photographs, to take the dog or to go cycling. Suddenly, there's a transformation in people's habits and there's a transformation in people's awareness of the value of space. Of course, this has to do with the fact that basic demands such as having a home has mostly been met, a very different situation of were the 1960s.

I believe we have a wave in our favour, a historical moment in which *Homo ludens* is imposing itself and slowly replacing the *Homo faber*. I believe that we are in a major transition in which the meaning of work, and the meaning of free time are changing. The implications this has for the

city space are profound and unexpected. It suddenly transforms collective space into a space of greater value than private space, communal space into a space more valuable than individual space.

With the help of unexpected things, such as the pandemic that ended up showing that even those who have their own house, flat or terrace, if they don't have the street, the square, the park, have enormous difficulties in making their lives. Something is missing in the comprehensive idea of dwelling. This has been explained in a practical way. And at least there are one or two generations who will live with this awareness, and the need to meet. They will realise that a private garden, however beautiful, is not the same thing as a public garden and that what results in a public meeting space, a square, is no substitute for what can be done in a private space.

I believe that MetroPublicNet project has to ride this moment, it has to know how to do so, it has to learn how to use this enormous energy. I think that's what the transition is all about, a gigantic transition in the way we live. Work itself and the very way in which it is transformed, in a way, into a game. And all work becomes a game, even the hardest and most difficult work ends up becoming a kind of video game. The other day I was watching a documentary about mining technology, in which the miner is in a booth outside operating a series of machines. What he's doing is basically a computer game.

JRS: There is a relationship of scale here that is being transformed – the proximity and the distance, the direct experience of space, or the mediated interconnection with territories at a distance using a range of devices. In that sense, the very notion of public space as a living space of proximity is gaining value. But there are also dynamics that project our social and economic relationships to other spheres and other scales, to other territories. When we talk about the infrastructural networks that form the backbone of these wider territories, large pieces, or more linear pieces, or artefacts that allow very specific resources to be exploited and created in a very surgical way. There are important transformations here too. This is landscape. A few years ago, you wrote a contribution in which you claimed that infrastructure is landscape and, in this sense, that public space can also be understood as an infrastructure, or a space that incorporates multiple infrastructures that are also recombining in their territorial scope, in their nature and configuration, in their purposes, in their agents of control and political definition.

What are these networks? What are these landscapes? What are these territories and scales in which, from the closest to the most distant, from the most connected to the least connected, we are experiencing this transformation? Is this also a transition?

JN: Yes, no doubt. I have to say that I'm not the only one who's been saying for years that infrastructure is landscape. It's, for example, all the landscape painters who have been painting Roman aqueducts and the like. But we're certainly also going through a transition.

My perspective on transformation during this transition is the radicalisation of the only borders that I believe we will end up with in the future: the borders between domesticated space and the last protective strongholds of wild space. As we deepen our understanding and mastery of the domestication of the world, these few refuges from the wild will become increasingly important, significant spaces. In a way, it's the same reasoning explaining botanical gardens and zoos from the end of the 16th century and into the 19th century. I believe that these borders will become very important and very impenetrable, but once again, also visitable through our machines. So, in a way, that border will also be diluted and repositioned and will have a different meaning. And there will be an expansion of urban space.

Today's gentrification mechanisms, that I find deeply perverse, and which I believe lacks rules, ends up building different populations in the first peripheries, that will also have a qualifying consequence to those peripheries. When people with extremely well-established urban mindsets, training and lifestyle habits are forced to move to the first periphery, they bring their habits with them. They're not going to pick up the habits of the place they're going to; therefore, they're obviously going to contaminate and qualify those places very quickly. I hope, wish, and anticipate a moment of enormous qualification of life, easier physical communication between spaces, changes in infrastructures and means of transportation and, above all, different forms of using the different timings of infrastructure, something we still don't manage well. We concentrate everything, we don't have any imagination when it comes to using flows; we don't use the night for anything; we're still in the 20th century, as we use all these networks with very low efficiency. Before we start inventing new networks, if we use intelligently the existing ones, we'll solve a lot of problems.

[The example of the Venice Lagoon]

I believe that this expands what we now call city space and the urban way of living, and, in Lisbon, this will inevitably end up involving the Tagus River estuary itself. I believe that there is an extraordinary potential there, that Lisbon continuously rejects. It's time to start thinking about it seriously.

Venice isn't being transformed much. But we need to understand it on the scale of the lagoon – the big lagoon that ends up being the city; with people easily moving from island to island (Figure 3.2); having dinner on one and lunch on another, resorting to an intelligent use of public transport. The example of how a surface of water of that size and scale ends up functioning as that community's real public space is a lesson, notwithstanding the importance of the cruise ship activities and the industrial port in Marghera. They've managed to reconcile the microscopic, pulverised scale of everyone's use of the water. Everyone has a little boat, everyone uses it, and everyone goes to catch clams.

I'm struck by the contrast between the freely accessible expanse of the water and the lagoon as Venice's great public space, and the enclosed and



Figure 3.2 Grid tripods (*briccolle*) as part of the Venice Lagoon navigable landscape

Source: By João Rafael Santos.

blocked nature of our Tagus estuary, full of inaccessibility, prohibitions, and docking restrictions. Obviously this needs to be considered and solved by articulating Lisbon Metropolitan Area and the port authority.

JRS: More than a spatial or territorial project, it's also a political and land management project.

ABC: Basically, you spoke about the transition and its different facets. We're in a time of urgency – about climate change projections or rising water levels in the near future. I think that the landscape architects' approach, as your perspective, are always optimistic, and that we are working for the common good. But how can we, through our perspective of networking territories, optimise this transition so that it is effective? How can we maximise it, rather than just projecting it?

JN: I think that more than networked territories, we need to consider that there is only one territory, and this is an idea that has to be imposed from a cultural point of view. We can't talk about landscapes, we're talking about landscape, we're not talking about natures, we're talking about nature.

We have lived through ideas that were utopias, in relation to the conditions that allowed us to base certain readings of the world as a unit, and of humanity as one. In a way, they were shown by science itself, because at the beginning of the 20th century there was a man who told us that the

continents were once all together, then they separated, then they are on the move, and one day they will all be together again. So, those separations between geographical areas that seemed divine to us until the 20th century, and which explained abysmal differences between all things, we know that this is not the case. It just has to do with the moment and the reading of the moment in the life of our common territory.

The deciphering of our DNA spirals and the conclusion that our DNA is practically the same as that of the stranger next to us on the underground, who has a different skin colour, a different structure, different hair, and who is just the same and hardly any different from our blood brother, is also another lesson that science has taught us. So, we can't think about humanities, we can only think about humanity.

That's why I like to talk about landscape rather than territory. The word landscape has a bottom-up origin, so to speak. Landscape is recognised as something that is familiar to people who share the habits and ways of life of a certain geographical and climatic area, with transitions that are diffuse to other areas. Territory means the transformation of this diversity into something that has implications of power and almost militarised defence of a surface, and of a border, which are completely different things.

[The example of the Italian landscape]

It's one thing to walk around Italy, with its enormous landscape and cultural diversity, where dialects change diffusely from one to another with three or four in between, and where landscapes change in the same way (Figure 3.3). Gastronomy changes, ways of weaving wool and making carpets also change with all the intermediate degrees of the diffuse transition between one condition and another. It's another thing to have borders that, sometimes by contrast, divide territories that are strictly continuous, and we have very recent examples of this. Therefore, I believe that de-territorialisation is fundamental, and recognising the landscape, with its transitions, with its diffuse passage from one condition to another, should become the way we understand the composition of the world. I believe it is the cultural starting point for resolving many issues.

This is also a very complicated time in the world, and like all times of transition, it will be a very troubled time. Today, we have a cycle path that allows us to go from Lisbon to Moscow without interruption, a fabulous achievement from the point of view of continuity; and walking to Santiago or walking from Santiago to Paris – things that are exceptional for celebrating continuity from all points of view: human, geographical, the landscape. At the same time, we have absurd situations, as the wars going on in Europe or nearby. These are things that belong to different centuries, but which coexist here, and at the same time.

ABC: That come back in cycles?

JN: I'm always convinced, perhaps because I'm an optimist, that now really is better than before. So far, if we analyse the past, we're faced with this observation: we've lived longer, happier lives, with less suffering; despite



Figure 3.3 An Italian landscape, Veneto region

Source: By Ana Beja da Costa.

everything, there are less inequalities. And since the French Revolution, we've always been scoring, we haven't gone backwards. So, I don't see any reason why we should go backwards... Despite these setbacks, which I always interpret as peaks in the transition, they will eventually be resolved and disappear.

But it's amazing how we don't realise how important it is in our daily lives to celebrate and demand a clear cultural stance on these issues. I think the issue of de-territorialisation is one that we don't talk about enough. We still have the Homeland, Flag, and Frontier in our heads.

JRS: From an optimistic perspective, but also aware of the risks and conflicts, perhaps the public space can be a space of peace.



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Part I

**Atlas of the Lisbon
Metropolitan Area
Public Spaces**



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4 Scales, methods, and representations

*João Rafael Santos, Ana Beja da Costa,
Marina Carreiras, David Vale,
and Cristina Delgado Henriques*

Introduction

The Atlas for the Lisbon Metropolitan Area (LMA) Public Spaces is the core body of the MetroPublicNet research project, regarding the public space requalification interventions in the LMA, in the past 25 years (1998–2023). It presents the information gathered in MetroPublicNet research project, in a process of interpretative mapping that unfolds in multiple scales, as a recognition tool, testing scales and territory types, and for the representation of the vast public space interventions universe. The Atlas showcases the MetroPublicNet outputs in a multi-scale approach: the scale of the LMA; the scale of selected case studies; and the intermediate scale of a territorial sample. It aims at the systematic decoding, and non-hierarchical comparison of the various interventions according to a set of urban systems and features that coexist and constitute the public space.

Taking cues from Viganò's (see Viewpoint II of this book), whose reflection underlines the way how atlases are a sheer reflection of a research-by-design process, and how mapping is a recognition tool, allowing to test hypothesis, systems of typological organisation, or interpretative associations of multiple objects. In times where available information is often overwhelming (Cavalieri, 2019), collecting, interpreting, and re-presenting it in a consistent and precise way is a complex and challenging task.

The Atlas is divided into five sections, each organised as a chapter. This chapter – 'Scales, methods, and representations' – the first of the five sections, offers a methodological overview of the database's development, namely the criteria and processes used to identify public space qualification projects in LMA, organising them according to different public space attributes and typological categories.

The second section, [Chapter 5](#), is dedicated to 'The metropolitan scale', drawing insights on what happened, at the scale of the metropolis, i.e. within the 18 municipalities of the LMA. Using MetroPublicNet's database, the aim of this section is to systematise the collected spatial data, characterise it according to various indicators, and provide the basis for the analytical interpretation of investment priorities, institutional frameworks, and socio-territorial impact.

The third section, [Chapter 6](#), '24 Case studies' presents selected case studies that were identified as relevant in terms of their geographic, locational, and

programmatic diversity, and decoded through a systematic de-layering. The section showcases the mapping method developed within the MetroPublicNet research, as means of understanding each public space project, in its territorial embeddedness. The case study's scale approach highlights possible intersystem spatial relations, between public space and other thematic polarities, that contribute to better understand the articulation between isolated public space qualification projects, that are already contributing to (parts of) a network at a metropolitan scale. Three of the 24 cases are also illustrated and briefly presented.

The fourth section, [Chapter 7](#), 'The intermediate scale. A territorial sample' contemplates a mapping approach that lies in-between the metropolitan and the case study scales, focusing on a territory selected by being also intermediate – between complex geomorphological features, from the hills of Serra da Luz towards the Tagus River, comprising heterogeneous urbanisation, and large-scale mobility infrastructures, and centred on the meeting administrative boundaries of four municipalities.

The final section, [Chapter 8](#), 'Territorial ecologies of public space in Lisbon metropolis', offers an interpretative description of paradigmatic and relevant relationships between public space configurations and their location, morphological and biophysical context in the metropolitan landscape. Resorting to Reynar Bahnam's terminology, these *ecologies* emphasise the mediation between the objective and the subjective, and pinpoint potential lines of territorial networking based on public space interventions.

Mapping a research *corpus*

As a first step towards a more ambitious inquiring on an immanent and potential metropolitan public space network, the research began by the extensive and comprehensive mapping of the multiple public space qualification interventions. This large universe of delivered territorial projects can be seen as multidimensional *corpus* for inquiry, reflection, and proposition as it reveals multiple facets concerning its inception, institutional framework, and systemic organisation:

- With over one thousand mapped interventions, this universe goes beyond the individualised and piecemeal perception of each separate project, creating a field for relational thinking on what are the shared characteristics as well as the existing and potential assemblages and articulations that arise from a combined vision. As relational entities, these spaces are part of a continuous, complex, and layered urban and landscape fabric. More than a pattern, the combined figure of these projects symbiotically reveals and embodies an underlying territorial structure that is often elusive and difficult to grasp.
- By looking particularly to the urban *qualification* interventions – leaving aside the conventional public space creation that results from newly developed urban subdivisions – a specific perspective is put on the regeneration and consolidation of the metropolitan territory. Such perspective is based on the acknowledgement of a fundamental shift from urban sprawl and fast growth development models

that characterised much of the 20th century, to more integrated strategies aimed at improving the sustainability, cohesion, and spatial quality of the already urbanised landscape.

- As projects, each of these interventions reveals rationales and programmatic purposes that allow for a critical reading of the policy and design aims that support public space transformation. This facet helps to better understand the role of planning tools, governance configurations, and the funding and institutional frameworks in shaping specific spatial solutions. Reading them as part of a project-based and forward-looking process, it is possible to detect existing and future incremental processes towards the establishment of a public space network.
- As material constructions, the mapped public spaces are specific spatial, functional, and formal devices that organise, process, combine, and support social and natural flows, uses, and interactions. As such, they embody an architectural apparatus which can also be decoded and discussed as part of a design-oriented approach. As a fundamental component of a qualified urban environment, their spatial expression can be seen as the synthesis of a multiple range of technical systems and cultural contributions, that can be captured through photographic lenses, interpretative drawings, or graphical de-layering.
- As lived spaces, they are relatable with the personal and collective experiences, and therefore a field for future delving into the phenomenological perception of the metropolis. Even when considered as abstract graphical elements within an atlas, when looking at these projects' typology, spatial distribution, or dominant forms of use, it is possible to sense what are the most requested and those that respond to the communities' expectations and desires, while defining new realms for conviviality and shared cultural values.
- As bricks of an interpretative and conceptual hypothesis, the universe of the studied public space qualification projects can be seen as constituents of a *Metropolitan Project*. Beyond the specific and self-referenced rationales that sustain each project, their display and rearrangement through design-based processes can support new forward-looking rationales. They can be seen as holding a genetic code that is open for further recombination, following an argument that can be submitted for discussion, scrutiny, and legitimation through disciplinary, political, or artistic processes.

The research-by-design exercise of assembling an atlas begins with an acknowledgement: the mapping of Lisbon territory on a metropolitan scale, where over one thousand public space qualification interventions have been identified. Focusing on the time frame of 1998–2023, a period in which LMA underwent structural changes, the identification and mapping of public space qualification interventions was based on the following criteria:

- interventions predominantly affecting the public domain and outdoor spaces;
- interventions predominantly located on already developed urban fabric or built areas, regardless of the degree and/or quality of infrastructural provision;

- interventions that although dominantly responding to specialised or sectoral purposes (i.e., water course regularisation, introduction of stormwater infrastructure, road redesign to improve safety, etc.) are also offering amenities for active mobility, for outdoor activities and conviviality.

Public spaces produced as a result of newly built urban development processes, e.g. streets, parks, and other public amenities created as part of expansion projects or urban subdivisions in previously unoccupied land, have not been included. Not only the research scope would be too extensive, but it would also divert the research questions and hypotheses from the realm of public policy rationales and recommendations towards distinct rationales and processes of market-driven private initiatives. Nevertheless, a few cases where newly developed public space had a significant impact on the existing urban fabric justified their inclusion in the project's mapping.

Methods

Given the extension and diversity of the interventions, a diverse set of data-gathering and identification methods were used, such as: (1) publicly accessible information provided by the municipalities regarding the interventions, namely on websites and institutional publications; (2) official databases relating to public works contracts awarded by state bodies and municipalities; (3) reports relating to projects co-financed by the European Union; (4) specialised publications in the field of urban development, architecture, and landscape architecture; (5) photo-interpretation of online aerial images and orthophoto databases, e.g. Portuguese Directorate General for the Territory, Google Earth, Bing Maps; and (6) direct fieldwork by the research team.

A polygon of each intervention area was added to a GIS database, allowing for display and interpretation on multiple georeferenced platforms. As the research evolved, the structure of attributes associated with each polygon was progressively refined. Besides generic and descriptive project attributes – project name, municipality (location), date, design team (when available), cost, short text, and site photo, a set of typological attributes was drafted as the base of more complex and systematic typological interpretation.

Figure 4.1 presents the mapped identification of all identified interventions in LMA.

As a complex, multidimensional, and multi-scalar research object, the universe of public space projects requires a set of different analytical tools that, while trying to avoid splitting an indivisible entity into simplistic classifications, seeks to create a common framework to cope with its kaleidoscopic nature. As argued by [Cavaliere \(2019, p. 70\)](#), the complexity ‘should lie in the multitude of existing and potential connections, rather than in the single component. In this sense, the process of representation is thus – even implicitly – a continuous mechanism of partition and reconstruction, where the act itself of reconstructing, reorganising, and reshaping is conceived as a research operation’. In trying to keep a coherent methodological

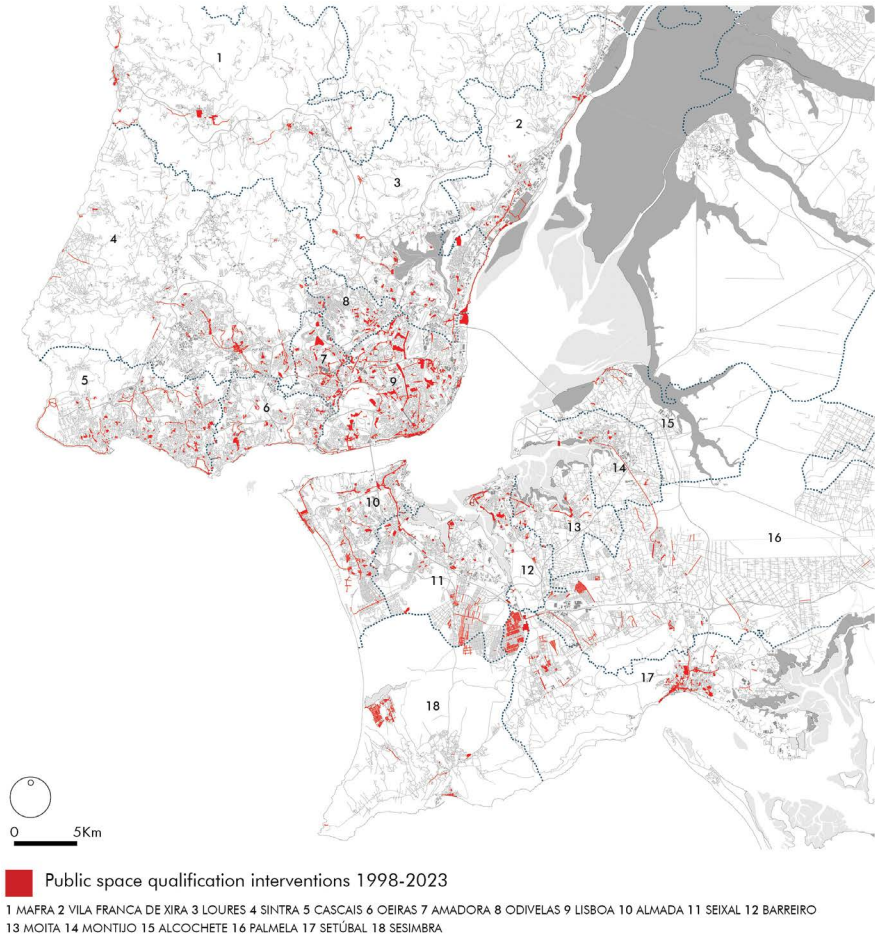


Figure 4.1 Public space qualification interventions in LMA (1998–2023)

Source: MetroPublicNet.

strategy with the research argument, different methods and criteria were used depending on the scale, relations, and objectives of the analysis (Table 4.1).

The research was iteratively developed in reading the territory at various scales, from the metropolitan – where a more quantified approach based on typological classifications was used – to the local scale – through the case study’s mapping analysis. An intermediate scale was introduced responding to the need to test the integration of various public space qualification projects in relation to the specific morphological characteristics of a portion of the metropolitan territory. For each scale, a more thematic approach was also introduced, reflecting MetroPublicNet’s three key rationales – the walkability and active mobility; the green and blue infrastructures; the neighbourhoods’ connection and cohesion.

Table 4.1 Methodological strategy of the Atlas

	<i>Study object</i>	<i>Analysis method</i>
Scale #1: Metropolitan scale: LMA	All public space qualification interventions in LMA with collected information	Extensive mapping of public space interventions Analysis by: 1 location in terms of administrative units; 2 typological classification; 3 proximity to living places and specific land uses; 4 financial and institutional frameworks; 5 relationship to key metropolitan systems.
Scale #2: Case studies	24 Case studies: local scale	Selection according to criteria of diversity: location, spatial types, types of territory, types of financing. Interpretation of the intervention ‘according to its urban and territorial setting’ Each of the interventions is analysed according to one of the three public space rationales, highlighted in MetroPublicNet: (1) walkability and active mobility; (2) green and blue infrastructures; (3) neighbourhoods’ connection and cohesion.
Scale #3: Intermediate scale	Complex and heterogeneous intermunicipal territory that includes part of Lisbon, Amadora, Oeiras, and Odivelas Municipalities	The area was selected according to various criteria: proximity to the centre of the LMA, territorial diversity, presence of limits and discontinuities, presence of key metropolitan systems. The area is analysed according to the three public space rationales: (1) walkability and active mobility; (2) green and blue infrastructures; (3) neighbourhoods’ connection and cohesion.

Public space classifications

The classification of the public space qualification interventions is based on three main attributes: (1) the spatial types of public space according to their dominant program and land use; (2) the territory type in which the projects are located, e.g. the urban and locational attributes in their relationship with the metropolitan region; (3) the institutional and financial frameworks used to plan, set up, and deliver the project, i.e. the institutions responsible for its funding and implementation (Table 4.2).

The spatial types

To better understand the nature of qualification projects carried out, the interventions were categorised as the public space’s ‘spatial types’. Each spatial type refers to the physical dimension, and to the function that is intended to reinforce or create, translated in its dominant program and land use (see Table 4.2,

Table 4.2 Typological systematisation of public space interventions in the LMA

1. Spatial types^a	Reprofiting of roads, arterial streets, and cycle paths Requalification of local streets and proximity spaces Requalification of squares and plazas Creation or improvement of parks and green spaces Water regulation, green infrastructure, and urban agriculture Transport hubs and dedicated lanes Structuring and ordering of car parking Structuring and qualification of coastal and river waterfronts
2. Territory types^a	Historic districts and small urban cores Urban nodes and attractors Medium-to-high density predominantly residential areas Social housing districts Sprawling low-density residential areas Precarious and under-equipped settlement Inter-urban corridors Valleys and watercourses Urban waterfronts Coastal areas
3. Institutional and funding frameworks^b	Polis Program (government and municipalities) PROQUAL Program (government and municipalities) EU Co-funding: NSRF (<i>QREN</i>) (2007–2013) EU Co-funding: Portugal 2020 (2014–2020) Government and central administration/State companies Exclusively municipal promotion and funding Private development

^a These categories are not mutually exclusive. A given intervention may have characteristics from several categories.

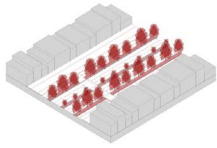
^b This classification refers to the dominant institutional and funding frameworks. A given intervention may be planned and funded in cooperation between more than one entity.

Figures 4.2 and 4.3). As in previous works (Guallart, Bárcena and Gratacòs, 2015; Torra and Segura, 2018), a categorisation of the spatial types aims at systematising public spaces as material constructions that, as previously mentioned, refer to the mapped public spaces, and that are specific spatial, functional, and formal devices that organise, process, combine, and support social and natural flows, uses, and interactions.

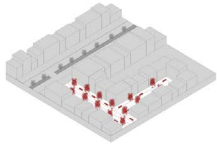
Territory types

The territory types are based on a simple and pragmatic organisation that allows a contextual positioning of each public space intervention in relation to the morphological, functional, and territorial contexts in the LMA. In this sense, there is no attempt to create a comprehensive territorial matrix to describe the entire metropolitan area, which would include, for example, very low-density areas and others with strong rural character.

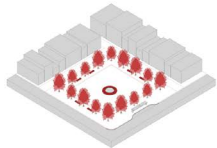
The definition of this typological organisation is based on previous studies on LMA's territorial structure and morphological evolution (Santos, 2018), along with specific criteria directly related with MetroPublicNet's research goals, namely: (1)



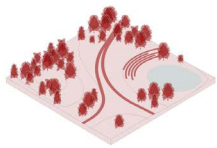
Repaving of roads, arterial streets and introduction of bicycle paths consists of interventions in significant linear spaces, usually resorting to the reorganizing of the street profile, and reinforcing active mobility and accessibility conditions, as well as pedestrian comfort. As part of structural streets and circulation axes, these interventions are mostly aimed at improving spatial and active mobility conditions, while keeping consistent and efficient conditions for motorised vehicle traffic.



Requalification of local streets and proximity spaces mostly aim at improving the spatial quality of social use in close proximity to local urban functions, namely in residential neighbourhoods. These interventions usually provide a balanced combination between local traffic calming and provision of parking spaces, urban furniture and equipment's for pedestrian, multigenerational convivial spaces, and qualified transitions to building frontages with commercial uses, and/or social facilities.



Requalification of squares and plazas include interventions in the exceptional spaces of intersection, social representation and collective gathering within the urban fabric, generally resorting to changes in paving surfaces, in urban furniture and in lighting, the reorganisation or limitation of car traffic, the improvement of conditions for social and convivial use and the staging of ephemeral events.



Creation or improvement of green spaces focuses on interventions concerning the provision of green spaces, e.g. urban parks, small scale gardens and courtyards, on a local scale, according to logics of social and collective equipment for fruition, conviviality and social interaction. Although they are primarily aimed at providing for social infrastructure, they commonly articulate or integrate the following type, reinforcing the urban green and blue infrastructures.

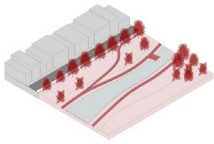
Figure 4.2 Spatial types of public space I

Source: MetroPublicNet.

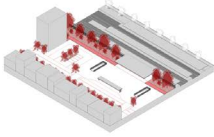
easily identifiable morphological characterisation by the ordinary observer (e.g., by landscape character, or predominant land use and type of building); (2) alignment with the research project's thematic organisation, e.g. identification of areas located along valleys and water lines is relevant to the 'green and blue infrastructures' rationale, inter-urban corridors can be related with the 'walkability and active mobility' rationale, whereas social housing areas and public space interventions in precarious and under-equipped settlements are relevant to the 'neighbourhood connection and cohesion' rationale; (3) that it allows for the overlapping, of non-exclusive types, meaning that some areas may belong to more than one type, e.g. riverfronts and historic districts. The following territorial typologies were systematised (Figures 4.4 and 4.5):

Institutional and funding frameworks

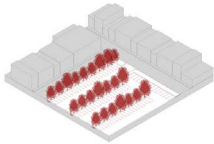
The institutional, regulatory, and governance frameworks for public space is one of the key components to be discussed in the context of urban policy in Portugal (see Chapter 2). During the studied period, most of the production of new public spaces



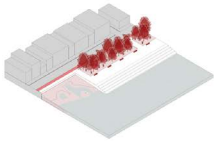
Water regulation, green infrastructures and urban agriculture relates to interventions focused on the protection and reinforcement of the urban ecological structure, tending towards a supra-local scale, according to logics of ecological continuity, biodiversity and habitats promotion, and natural and environmental risks prevention, often related to streams, wetlands and floodable areas. They may articulate or integrate the previous type, and are primarily oriented towards nature-based solutions. It also includes interventions that integrate the agriculture and food production components.



Public transport interfaces and dedicated lanes are interventions that focus on the structuring and qualification of public transport network, aiming at a more efficient, comfortable and qualified access to transportation services. This type includes interventions where dedicated public transport lanes are introduced as part of a comprehensive public space redesign to better integrate the infrastructural space within the heterogeneous urban space where it is inserted.



Structuring and ordering of car parking relates to interventions where the reorganisation or creation of relevant parking facilities, e.g. silos, underground car parking is a condition, and an opportunity for the requalification or creation of public space, through the strengthening of pedestrian accessibility and soft mobility, improving the quality of the urban environment, and promoting social interaction.



Structuring and qualification of coastal and riverside waterfronts revolves around interventions that articulate the provision of spaces for social use, particularly those related to leisure, sport and fruition, with the specific natural and landscape conditions of coastal and riverside spaces. These interventions integrate various configurations, from the most urban and infrastructural, to the most naturalized ones, dealing with sensitive transitions and dynamic thresholds between land and water.

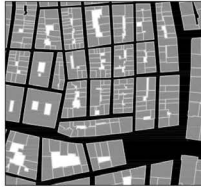
Figure 4.3 Spatial types of public space II

Source: MetroPublicNet.

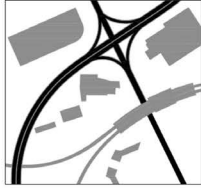
is the result of private initiative, in the context of market-driven urbanisation processes, albeit within the framework of planning instruments approved by public authorities. At the end of the urbanisation process, the public spaces are transferred to the municipalities, both in terms of ownership, and responsibility for its management, maintenance, and eventual improvement. In the case of redevelopment interventions (the subject of this study), public authorities are the main players in planning and financing. Therefore, understanding public space interventions under institutional and governance configurations, namely those associated with their funding, can be of interest to monitor the impact of public policy on urban and territorial transformation.

Seven categories of institutional and financial frameworks have been identified, based on the Portuguese government organisation and the spatial planning policies and delivery mechanisms implemented during the studied period:

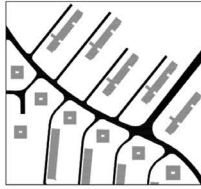
Polis Program was an initiative led, and 60% funded by the central government, in collaboration with the municipalities between 2001 and 2006, with the aim of developing urban and environmental regeneration projects in cities with



Historic districts and small urban cores refer to consolidated areas, with compact morphological characteristics, resulting from slow transformation and sedimentation processes. They include the older areas of the main urban centres of the metropolitan area, namely those that existed before 1856, when the first railway line in the LMA was inaugurated. It also includes small urban centres throughout the metropolitan area, with recognised historic heritage value, originated by the villages that organised a pre-modern and predominantly agricultural landscape.



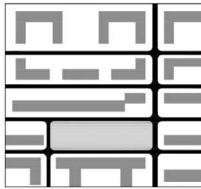
Urban nodes and attractors considers areas where services, economic activities or major urban facilities are concentrated, constituting attraction poles for users. Areas surrounding relevant transport hubs or major road junctions, large shopping centres or office complexes, university campuses or monumental and tourist complexes are also considered.



Medium-to-high density residential areas refer to areas where multi-storey buildings, from different periods and with different morphological characteristics predominate, and where there is a medium to high density of residential uses. They tend to be located in areas of continuity with the oldest urban centres, around railway lines. They are associated with suburbanisation, or with dispersed urban sprawl areas supported by car mobility. These include heterogeneous situations, with considerable morphological and typological diversity, where multi-storey building coexist with single-family houses.



Sprawling low-density residential areas are areas with a predominance of single-family houses, from different periods, with different typological characteristics, and with low density. They tend to be poorly integrated into public transport networks, highly dependent on car mobility, and with reduced diversity of functions and services.



Social housing districts are generally characterised significant levels of socio-spatial segregation and socio-economic precarity. The primary goal of the public investment and management of the building stock – mostly decentralised to municipalities – was to provide housing conditions for low and very low income social

Figure 4.4 Types of territory I

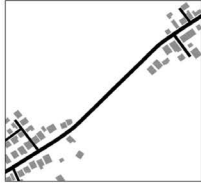
Source: MetroPublicNet.

significant heritage values, shaped by important environmental elements or relevant to the structuring of the national urban system and metropolitan areas. Within the LMA, the Polis Program funded interventions in the municipalities of Almada, Barreiro, Moita, Setúbal, Sintra, and Vila Franca de Xira.

PROQUAL Program was led and financed by the central government in collaboration with the municipalities between 2001 and 2006, aiming at the qualification and socio-spatial integration of residential neighbourhoods that were considered vulnerable in the LMA. This program funded projects in the municipalities of Loures, Moita, Odivelas, Oeiras, Setúbal, and Vila Franca de Xira.



Precarious and under-equipped settlements are urban areas that were originally developed through illegal or informal processes, and with limited and precarious patterns of infrastructure, urban facilities and public space. Despite significant efforts to promote their spatial and legal integration, many remain fragile in its territorial connections and local amenities. In some cases, they are characterised by significant levels of vulnerability to environmental risks and socio-economic exclusion.



Interurban corridors refer to areas between urban centres, generally characterised by the presence of road or rail infrastructure that supports connectivity. These areas become relevant in the context of interventions to improve the road network by introducing pedestrian and/or cycle networks.



Urban waterfronts concern areas located along the river fronts and estuaries of the Tagus and Sado rivers, where environmental and landscape values converge. They include leisure and recreational areas of landscape value and ecological sensitivity, e.g. beaches, salt marshes, marshlands, but also the complex infrastructures and public spaces that shape the transition between the water and the urban fabric in riverfront settlements.



Coastal areas are located along the Atlantic coastline and characterised by very specific situations in terms of exposure to climate and coastal phenomena. They include urban centres, as well as recreational and leisure areas located in ecologically sensitive landscapes with relevant environmental value, e.g. beaches, dunes and cliffs.



Valleys and watercourses relate to areas characterised by the presence of water, withholding significant ecological values, and often vulnerable to flood risk and erosion. They may be found in a wide range of urban conditions, in a gradient from vacant spaces with low levels of conflict and risk, to heavily artificialized spaces with visible signs of environmental degradation.

Figure 4.5 Types of territory II

Source: MetroPublicNet.

EU Co-funding: NSRF (National Strategic Reference Framework) was part of the partnership agreements between Portugal and the European Union for the 2007–2013 period, with funding for various economic and territorial sectors, includes interventions in all LMA municipalities. In the case of public spaces, the investments were generally carried out by the municipalities, with variable co-funding share.

EU Co-funding: Portugal 2020, was part of the partnership agreements between Portugal and the European Union for the 2014–2020 period, with funding for various economic and territorial sectors, includes interventions in all LMA

municipalities. In the case of public spaces, the investments were generally carried out by the municipalities, with variable co-funding share.

Government and central administration/State companies include structural interventions with regional and national scope, e.g. railway and urban transport systems, or related to sectoral activities, e.g. port infrastructures, nature conservation areas.

Exclusively municipal promotion and funding consider the interventions linked to local urban planning policies, supported by municipal budgets, which often include statutory compensations due by private developers and articulated with municipal development guidelines.

Private development includes occasional situations in which the intervention in public space is part of larger private-led projects with wider scope and impact, often combined with local urban planning strategies.

An open-ended research tool

The Atlas of the Lisbon Metropolitan Area Public Spaces stands at the core of MetroPublicNet's research in its goal to survey the potential of a combined approach to public space qualification development in addressing the challenges of metropolitan territories. Based on a thorough and comprehensive inventory, the Atlas offers, for the first time, a systematised representation of the LMA's public space transformation in recent times, allowing for multiple readings and opening new research paths.

Through its multi-scalar mapping, and multi-level analysis, the Atlas reveals the kaleidoscopic character of Lisbon's metropolitan public spaces, in their multi-functionality, multi-territoriality, and diversity of landscape conditions. Throughout the following chapters, public space qualification interventions are categorised and interpreted using different approaches and dimensions of analysis. While reading them in isolation may run the risk of oversimplification and disarticulation, as a whole they make it possible to retain the multiple roles and values of public space.

As such, the Atlas remains as an open-ended project that acknowledges more than the sum of the many identified projects. It becomes a tool to explore, understand, and offer clues both for outlining policy and planning priorities, and for research-by-design propositional hints towards a potential Metropolitan Public Space Network.

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5 [Scale #1] The metropolitan scale

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A territorialised perspective on public space typologies in Lisbon Metropolitan Area

A total of 20 129 823 m² of public space qualification interventions has been identified and mapped. As a quantitative indicator, the intervened area does not in itself have a qualitative dimension, since it includes interventions of high complexity, cost, and urban impact, but of relatively small size, as well as lighter and simpler interventions, but of larger extension, which could distort a linear and direct interpretation of the figures presented. However, using the area of intervention as an objective, transversal, and harmonised indicator, allows a simpler and clearer first level of reading.

In order to nuance this quantitative dimension with qualitative attributes, the area of each mapped project is cross-referenced with the various typological attributes described in the previous chapter. From this cross-referencing, synthesised data are extracted that provide a geographical overview of the distribution and composition of the qualified public space system over the last 25 years in Lisbon Metropolitan Area (LMA).

The results are divided into six points: (1) time frame, (2) location, (3) territorial typology (urban and territorial contexts), (4) spatial type, (5) type of institutional and funding frameworks, (6) proximity to living places and land uses.

Time frame – When were public space projects delivered?

Public space qualification interventions in LMA have steadily increased during the 1998–2023 period of analysis (Figure 5.1). As an analytical framework, three periods have been defined: 1998–2006, 2007–2015, and 2016–2023. These periods can be read in tandem with consistent policy frameworks, namely in terms of EU funding mechanisms. During the 1998–2006 period, a total of around 5 million m² of public space areas were delivered, particularly related with green spaces, and in smaller numbers, transportation hubs and integration of transit lanes, along with squares, local streets, and proximity spaces. The next period – 2007–2015 – saw an increase to almost 6 million m², with expressive growth in the waterfronts and the reprofiling of roads and arterial streets. The last period – 2016–2023 – totalled

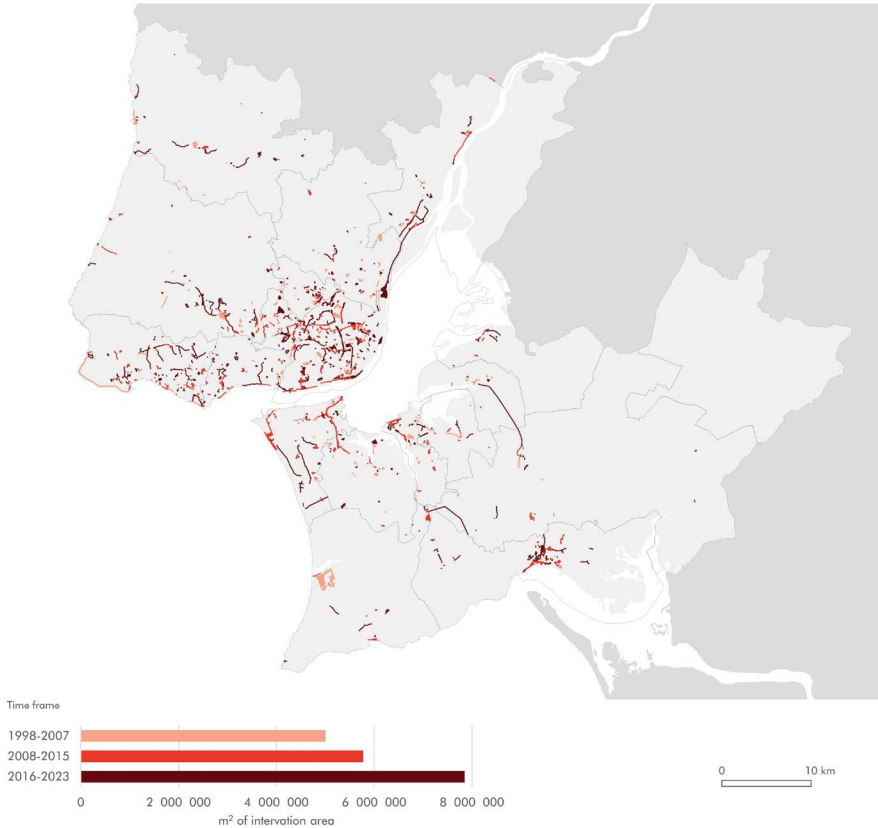


Figure 5.1 Temporal distribution of public space qualification interventions

Source: MetroPublicNet.

almost 8 million m² of intervened area, confirming the tendency to increasingly invest in public space as a strategic line of urban and territorial policy.

Reading the different spatial types across the three time periods shows a steady increase in the those related to longer, more continuous types of public space – such as the Spatial type #1 [Reprofiling of roads, arterial streets, and cycle paths], Spatial type #2 [Water regulation, green infrastructure, and urban agriculture], and Spatial type #8 [Structuring and qualification of coastal and river waterfronts]. This trend underlines a transition from area-based, local interventions, to more systemic and territorial-wise perspective.

Location – In which municipalities have public space projects been delivered?

The analysis of the distribution of the public space intervention area (Figures 5.2 and 5.3) shows that the municipality of Lisbon stands out with around 25% of the total intervened area. In a second level, the municipalities of Almada, Cascais, and

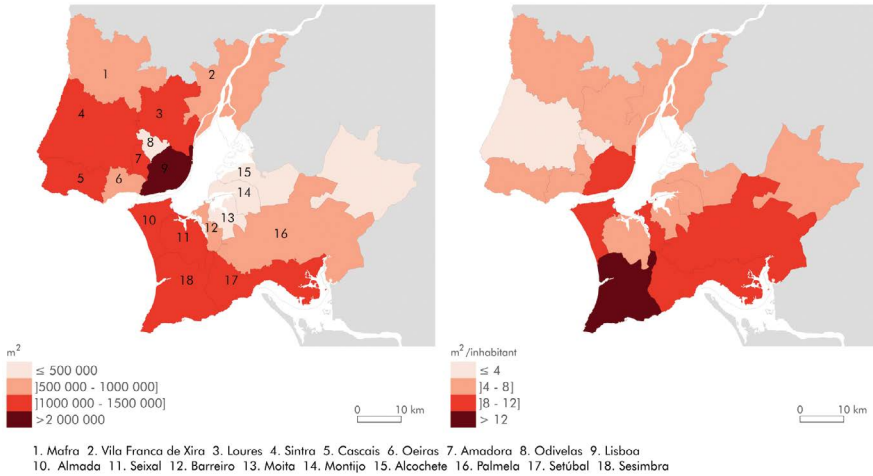


Figure 5.2 Map with public space intervention area by municipality: m² and m² per inhabitant

Source: MetroPublicNet.

Setúbal have each a representation between 7% and 8% of the total; the municipalities of Amadora, Loures, Seixal, Sesimbra, and Sintra, each with a portion of 5% to 7% are in a third level, and each of the remaining nine municipalities in LMA account for numbers between 1% and 4%. It should be noted that three-quarters of the intervention area are located outside of Lisbon's boundaries, notwithstanding being the country's capital and, therefore in a rather unique condition. This proportion reveals a meaningful and considerable distribution of the public space projects across the whole metropolitan area.

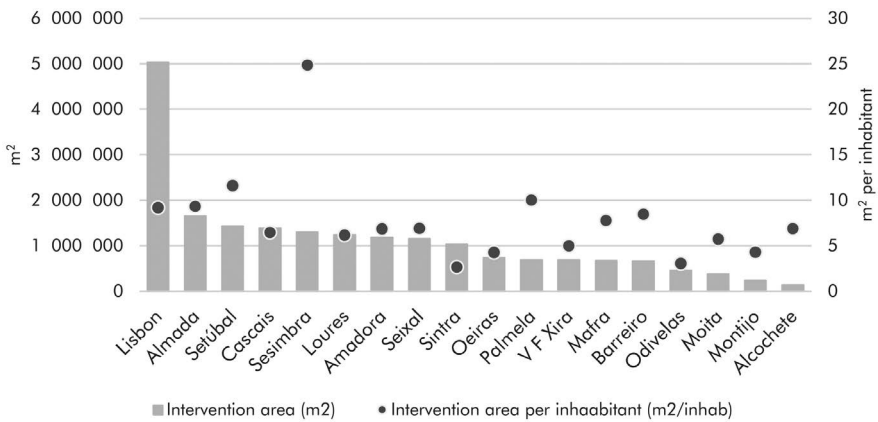


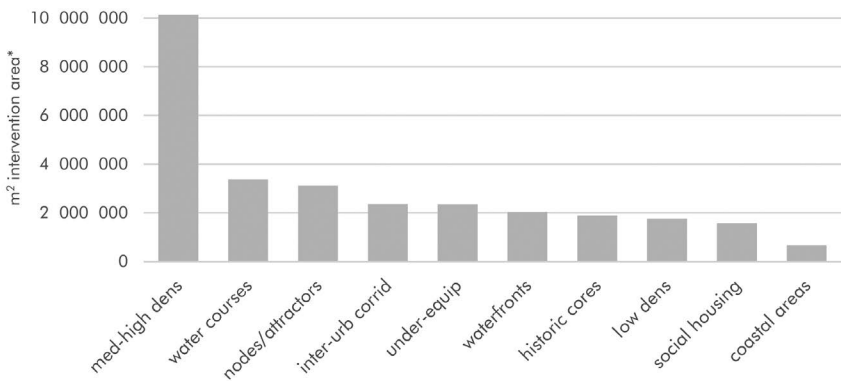
Figure 5.3 Public space intervention area by municipality: m² and m² per inhabitant

Source: MetroPublicNet.

The total intervened area is higher on the north bank of the Tagus River (62%) than on the south bank (38%), although the per capita figures are higher on the south bank (9.5 m²/inhabitant) than on the north (6.0 m²/inhabitant). At the upper end is Sesimbra, a municipality strongly characterised by large areas of illegal development from the 1970s to the 1980s (Quinta do Conde and Lagoa de Albufeira), where investment in its infrastructure and regularisation is having a significant impact on per capita values. At the lower end, at around 3.0 m²/inhabitant, the municipalities of Sintra and Odivelas stand out, characterised by high housing densities in the urbanised areas and by recent processes of (sub-)urbanisation, with few areas that have been (re)qualified. Most of the other municipalities, including Lisbon, are in the range of 4 to 12 m² per inhabitant.

Territorial typology – Which kind of territory is being addressed in public space interventions?

Looking at the breakdown of intervention areas according to their territorial attributes, e.g. the morphological and functional characteristics that characterise the projects’ surroundings (Figure 5.4), there is a very significant presence – almost 51% – of areas of medium-to-high density and predominantly residential land-use, i.e. with more intensive built patterns, multi-storey buildings, and a predominance of collective housing. This contrasts with the areas of extensive urbanisation, in which a predominance of single-family houses, relatively low building densities, low functional diversity, and a high level of car-dependency raises major challenge to maintain and sustain public infrastructure. Nevertheless, and although accounting only 9% of the total intervention area, they are becoming increasingly important in the allocation of interventions.



Several intervention areas are classified with different territory types

Figure 5.4 Public space intervention area by territorial type

Source: MetroPublicNet.

There is also a significant presence of areas related with urban nodes and attractors that when combined with the interventions in historic districts – usually associated with heritage and touristic valorisation – represent almost a quarter of the total intervened areas. These functional and cultural nodes are important drivers of metropolitan life with a high impact throughout the territory. Besides the nodes, links and linear continuities are also important in shaping consistent networks. In that regard, public space interventions in interurban corridors, with 11%, and waterfronts, with 10%, highlight a relevant and increasing investment in spaces with a high capacity of metropolitan articulation. Within this framework, 17% of the interventions are in valleys and along watercourses, reflecting a significant effort to act on the territorial water and ecological systems.

With relevance for social and territorial cohesion, the interventions in precarious and under-equipped settlement (12%) and in social housing neighbourhoods (8%) is also noteworthy, notwithstanding their specific socio-spatial configuration – the former with significant shortcomings in physical amenities, the later facing challenging poverty and social exclusion issues.

When considering the global territorial distribution, one can argue that the location of the interventions is being less determined by the symbolic values of older urban areas than by the structuring and qualification of a more extensive, anonymous areas usually associated with the idea of the periphery. In that regard, the role of mobility infrastructures and of prominent landscape features – valleys, watercourses, waterfronts – is a relevant focus for public space qualification.

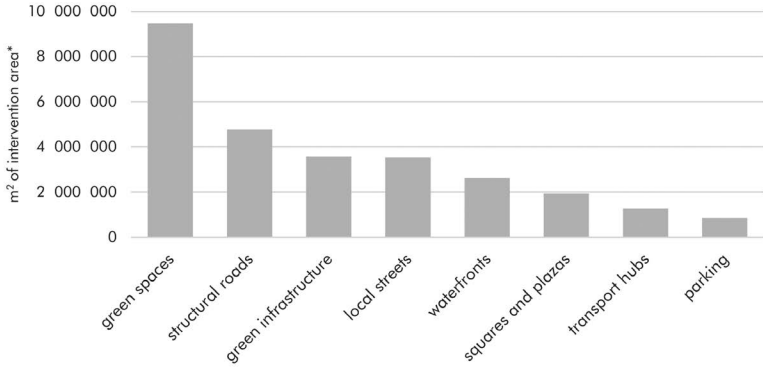
Spatial types – What kind of public space was developed?

In addition to the characteristics of the areas in which the public space has been upgraded, it is also important to understand the nature or type of intervention carried out. Although directly linked to their territorial context, they reveal preferences and priorities in the way they qualify and respond to the wishes of the population, the expectations of the various actors, or the priorities of urban policy.

Figure 5.5 shows that almost 50% of the interventions involve the creation or enhancement of green spaces. These spaces are particularly mentioned in people's expectations and tend to respond to the demand for local and neighbourhood scale amenities for recreation and social interaction (Falanga, Verheij and Bina, 2021).

The requalification of local and neighbourhood spaces and streets (Figure 5.6) are particularly important in residential areas because of their direct impact on daily life and the extension of the domestic space into the urban environment. As in the case of green spaces (Figures 5.7 and 5.8), they reflect situations in which the first stages of LMA's urbanisation were carried out without adequate, coherent, and integrated organisation and materialisation of public spaces and urban amenities.

Figure 5.9 showcases the relevance of the reprofiling of roads and structural roads and the introduction of cycle paths, the upgrading of green infrastructure, the



* Several intervention areas are classified with different spatial types

Figure 5.5 Public space intervention area by spatial type

Source: MetroPublicNet.



Figure 5.6 Spatial types of public space intervention – Geographical distribution and examples (I)

Source: MetroPublicNet.



Figure 5.7 Spatial types of public space intervention – Geographical distribution and examples (II)

Source: MetroPublicNet.

regulation of water and the structuring of agri-food production areas, as well as the structuring and upgrading of coastal and river waterfronts. Being based on linear structures (watercourses, coastlines, major roads), they play an important role in contributing to a territorial network of public spaces, as they connect different parts of the territory and support social flows and ecological systems.

Institutional and funding frameworks – Through which funding and institutions is public space qualification being delivered?

The distribution of public space interventions by territorial type reflects a strong relationship between the metropolitan settlement patterns and the urban policy options and priorities for the allocation of public resources. The institutional and

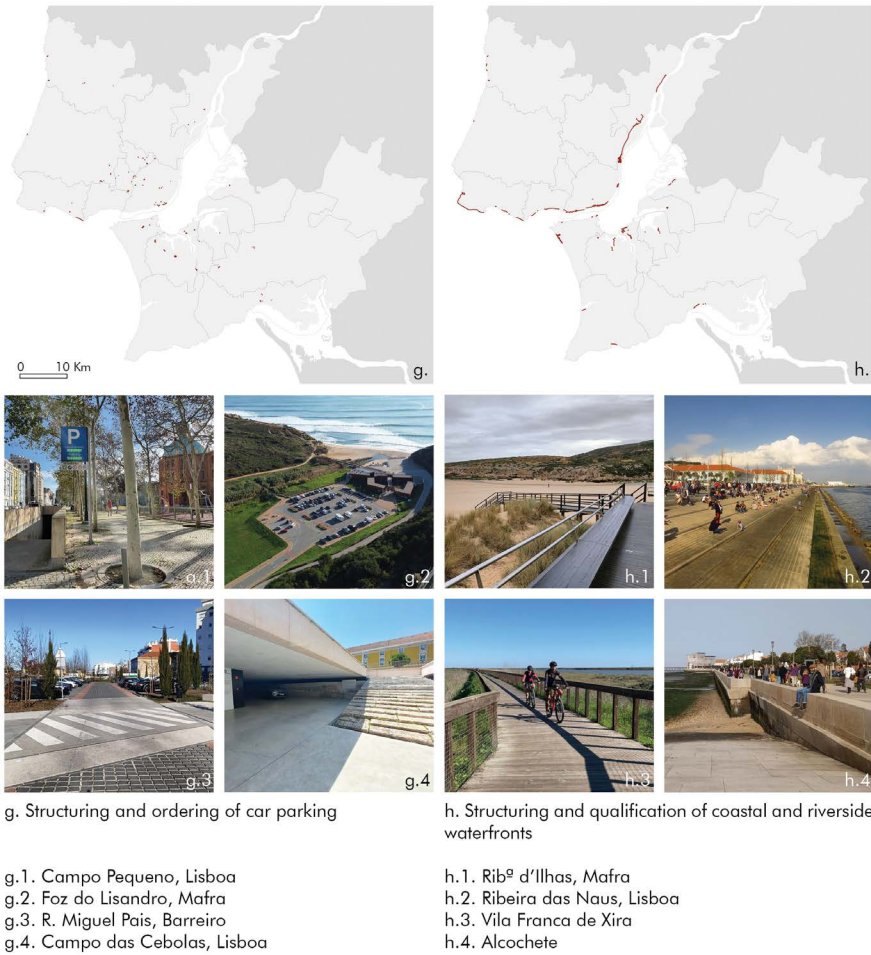


Figure 5.8 Spatial types of public space intervention – Geographical distribution and examples (III)

Source: MetroPublicNet.

funding frameworks under which projects are developed (Figure 5.10), reveal the conditions in which actors, funding, and policies interplay, as well as their outcome in terms of the different spatial types and territorial typologies involved.

Figure 5.11a and b shows the predominance of promotion and funding by municipalities, with around 67% of the total intervention area falling into this category. Taking into account that municipalities are also key stakeholders in projects financed under partnership agreements with the EU (*National Strategic Reference Framework [NSRF]* and *Portugal 2020*), this number is even higher. Looking at the municipal funding by territorial type, there's a clear predominance in precarious and the sprawling low-density areas but also in medium-to-high density residential urban areas.



g. Structuring and ordering of car parking

h. Structuring and qualification of coastal and riverside waterfronts

- g.1. Campo Pequeno, Lisboa
- g.2. Foz do Lisandro, Mafra
- g.3. R. Miguel Pais, Barreiro
- g.4. Campo das Cebolas, Lisboa

- h.1. Ribª d'Ilhas, Mafra
- h.2. Ribeira das Naus, Lisboa
- h.3. Vila Franca de Xira
- h.4. Alcochete

Figure 5.9 Spatial types of public space intervention – Geographical distribution and examples (IV)

Source: MetroPublicNet.

Looking at the distribution of the other funding programmes, more subject to supra-municipal objectives and priorities, Polis Programme is more relevant on coastal areas, historic districts, nodal areas, medium-to-high density residential areas, and waterfronts, revealing the priority given to the requalification of cities from an urban and environmental point of view (Queirós and Vale, 2005). The PROQUAL Programme, on the other hand, reflects a more limited programmatic objective focused on intensive residential areas, public housing, and watercourses. Although it pioneered a strategic move towards the socio-spatial integration of critical areas, it was limited in terms of duration and investment, covering only 2% of the total area of intervention.

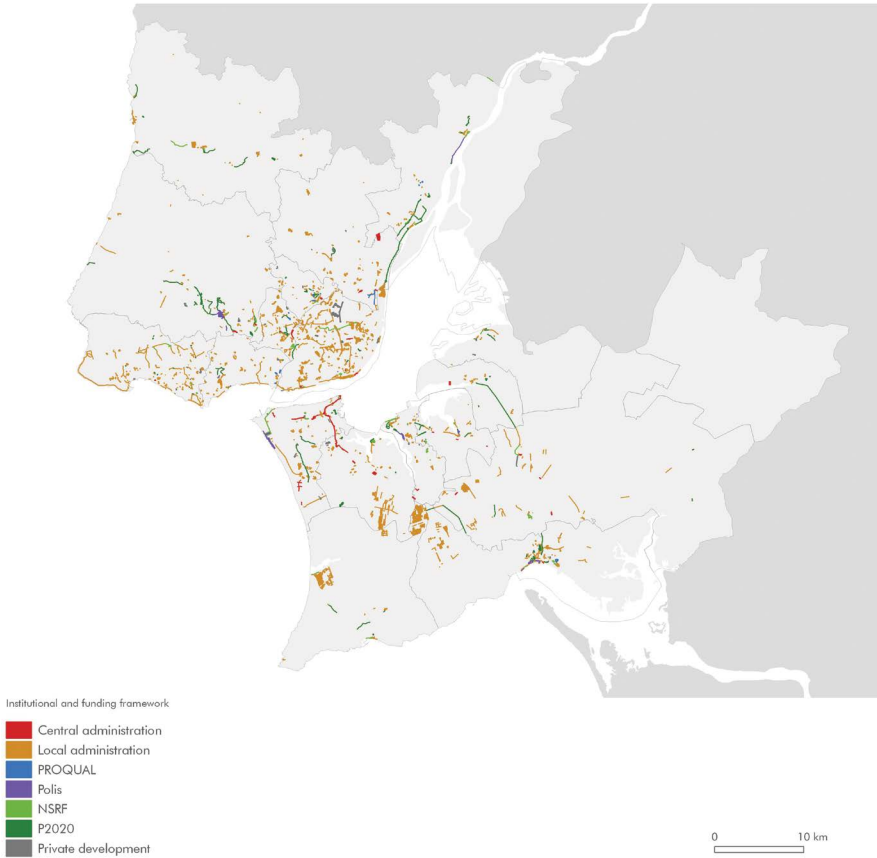
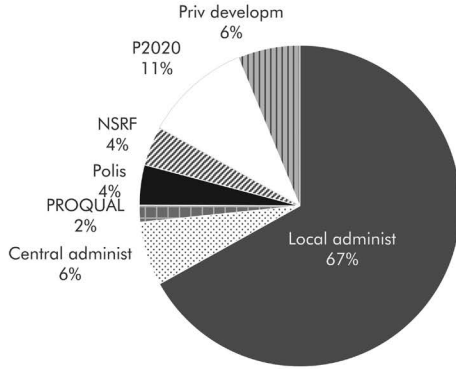


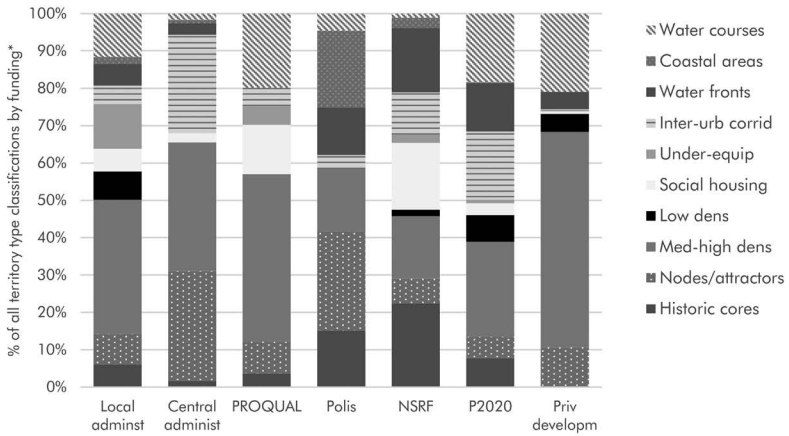
Figure 5.10 Geographical location of public space intervention area by funding framework
 Source: MetroPublicNet.

Regarding the structural European funding programmes, there is an increasing weight in the total intervened area, with 4% for the NSRF and 11% for Portugal 2020. In chronological order, the NSRF, with major interventions delivered between 2011 and 2014, had a significant focus on historic fabric, waterfronts, and public housing areas (in the latter case, financing and implementing part of the interventions programmed under PROQUAL), followed by Portugal 2020, with major interventions carried out between 2017 and 2023, where areas of medium-to-high density, sprawling areas, interurban corridors, and areas along watercourses gained importance. This reflects a growing attention to more recently developed urban residential areas, but also a prioritisation of territorial connections, both for active mobility and for ecosystem support.

Lastly, the projects developed by the central administration bodies and state companies, which are accountable for about 6% of the total intervention area, have a fundamental impact on three types of territory – urban nodes and attractors,

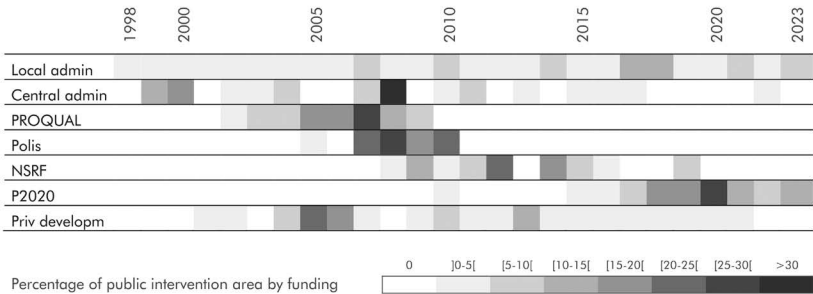


(a)



* Several intervention areas are classified with different territorial types

(b)



(c)

Figure 5.11 Public space intervention area and funding framework. (a) Public space intervention area by funding framework; (b) territorial type area of public space intervention by funding framework; (c) timeline of institutional and funding framework.

Source: MetroPublicNet.

medium-to-high density areas, and interurban corridors. They are frequently associated with public transportation infrastructures and interfaces and the urban integration of metropolitan motorways around Lisbon.

When funding is analysed according to its duration (Figure 5.11c), two types stand out. Those that extend over time (central and local administrative promotion) and others that are limited to specific periods (PROQUAL, Polis, NSRF, and Portugal 2020).

Proximity – How close are public space interventions to the living spaces and different land uses?

Considering a 400-m radius buffer around the public space intervention polygons (Figure 5.12), a total of 2.1 million people is identified as living within its area of influence. This corresponds to 73% of the total LMA resident population. If considering only the green space types Spatial type #4 [Creation or improvement of parks and green spaces] or Spatial type #5 [Water regulation, green infrastructure, and urban agriculture], 49% of LMA's residents live within 400 m of one of these interventions.

These numbers vary among municipalities, with Lisbon, Amadora, Alcochete, Almada, Barreiro, and Setúbal with the highest percentage of residents living in close proximity to a public space qualification intervention – all above 80%. This proportion must be interpreted in tandem with the specific settlement patterns of each municipality, with the highest levels related to more concentrated and dense residential patterns. When considering only the green space and green infrastructure interventions, the municipalities of Amadora, Odivelas, and Cascais stand out, revealing a considerable effort in providing green amenities to a dense and continuous urban fabric. In contrast, municipalities with lower percentage of population living close to green space interventions either have a considerable offer of urban parks developed prior to 1998 (Almada, Moita) or have larger areas of dispersed and low-density settlement along with prominent landscape and open space features (Palmela, Sesimbra, Mafra, Loures).

An analysis of the proximity of public space interventions to specialised employment areas and functional polarities (industry, trade, tourist facilities, and other facilities), based on the Portuguese Land Use and Land Cover Map 2018 (Figure 5.13), reveals a visible disconnection between them. Despite a high concentration of services and commercial employment in relatively compact urban districts, namely in Lisbon and Setúbal, the more specialised tend to be located along important infrastructural axes and often distant from residential fabrics. Considering a 400-m buffer from public space qualification interventions, only 40.2% of these specialised use areas benefit from some proximity. Particularly relevant in what concerns mobility – e.g. bicycle paths or dedicated public transport lanes – these numbers reveal a considerable gap regarding newly developed public space services to these spaces of job concentration.

The Land Use and Land Cover Map also shows an interesting distribution of public space interventions in regard to the different land use classes: 59% of the

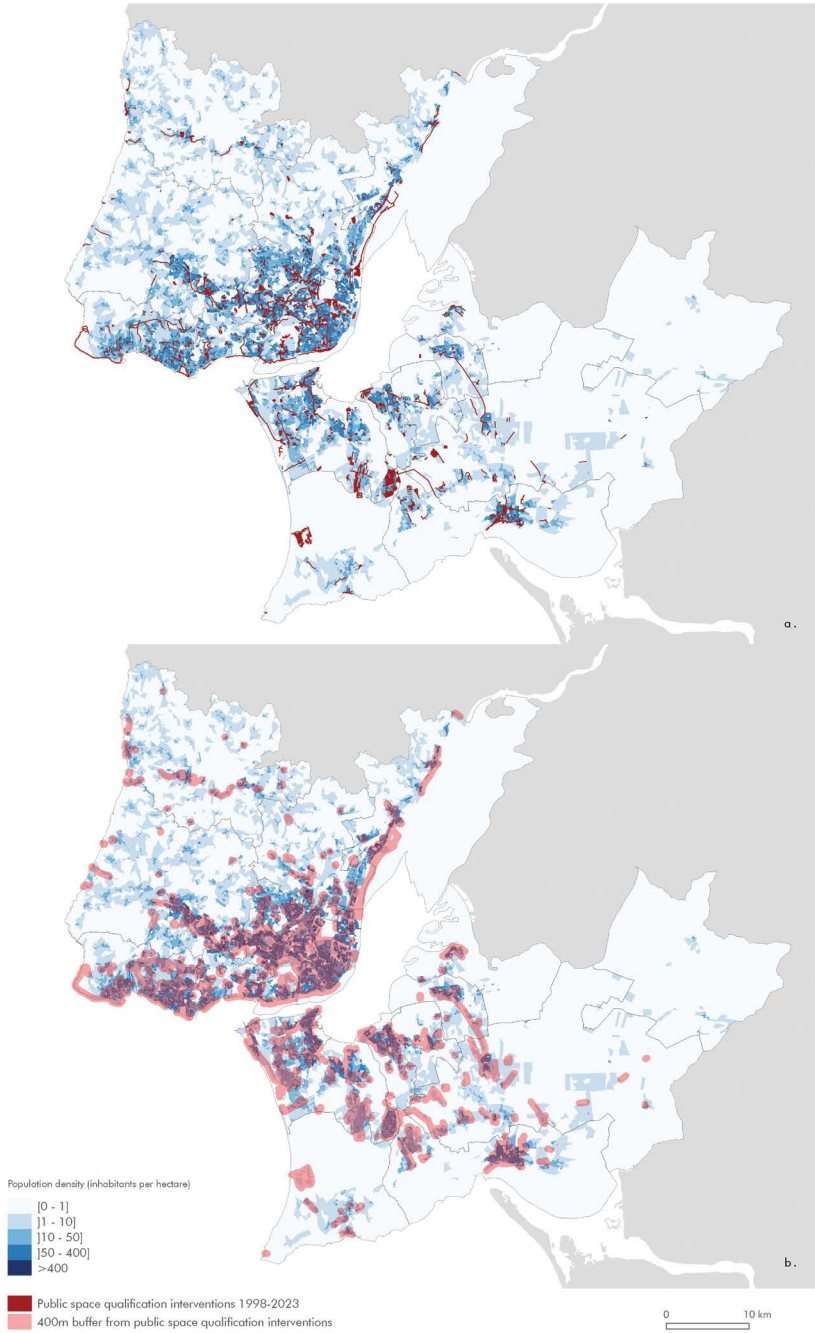


Figure 5.12 Public space qualification interventions and LMA's resident population density

Source: MetroPublicNet, based on Statistics Portugal Census Data 2021.

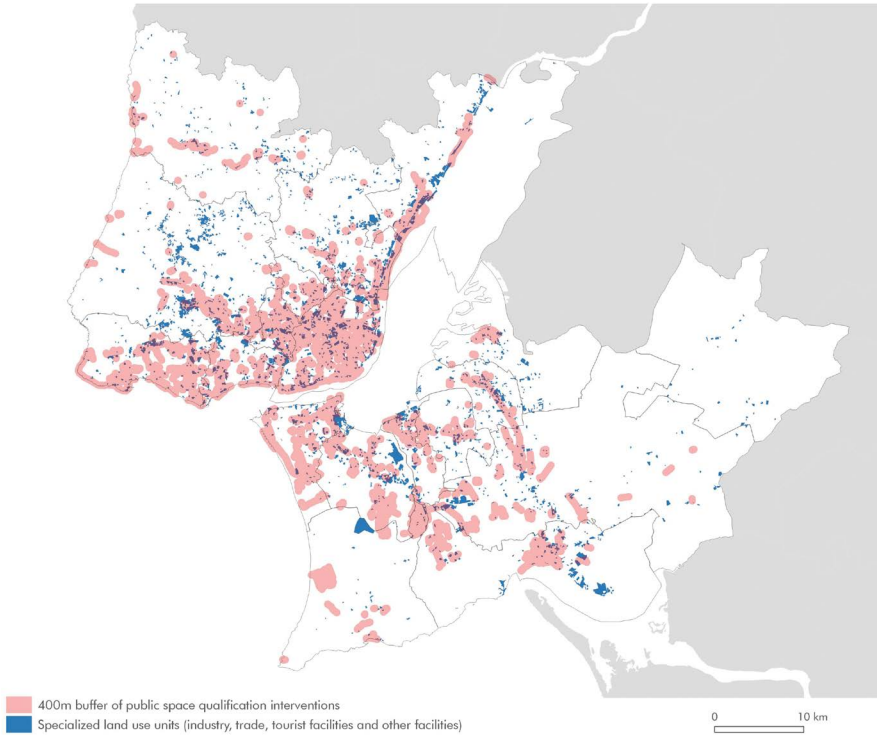


Figure 5.13 Specialised land use units and 400-m buffer from public space qualification interventions.

Source: MetroPublicNet, Direção-Geral do Território: COS – Land Use and Land Cover Map 2018.

areas within a 400-m range to public space qualification interventions are categorised as artificial territories, 17% are agricultural land, pastures and agroforestry productive land, and 18% are considered as forests, scrubland, or areas with no vegetation. The remaining 6% fall under wetlands and water bodies.

In turn, when considering the definition of the Lisbon’s Metropolitan Ecological Structure, as defined in Franco, Cunha and Magalhães (2013), public space interventions aimed at the ‘creation or improvement of parks and green spaces’ or ‘water regulation, green infrastructure, and urban agriculture’ coincide in 72%, whereas the ‘structuring and qualification of coastal and river waterfronts’, coincides in 96%. This major overlap represents a clear opportunity to reconcile the human appropriation of the territory with its ecological values.

The impact of these levels of proximity on particularly vulnerable social groups is also a relevant indicator to assess the public space’s contribution to socio-economic inclusion and territorial cohesion. For this, a multi-criteria socio-spatial vulnerability analysis was developed (Figure 5.14 and Table 5.1) considering four variables by statistical section: (a) population without higher education; (b) unemployed population, including those looking for their first job; (c) illiterate

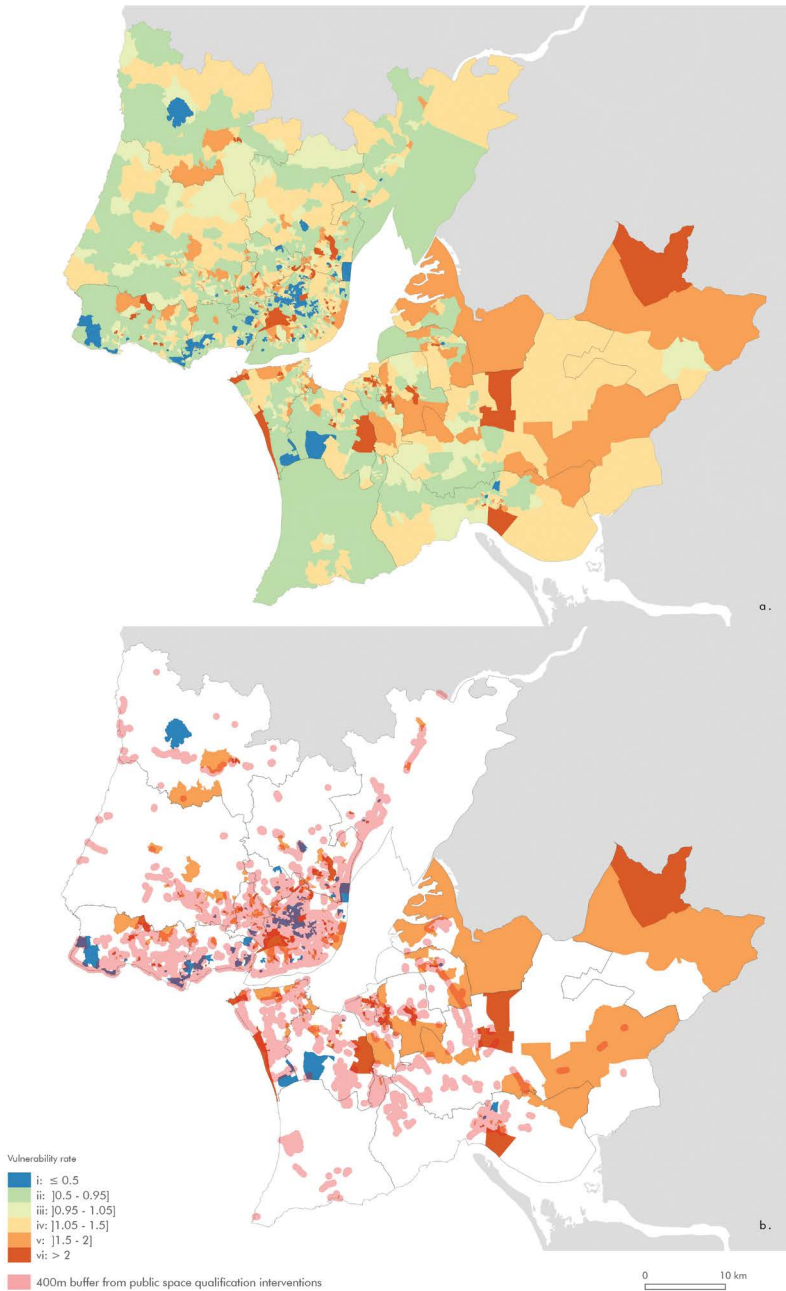


Figure 5.14 Vulnerability map of LMA: (a) All statistical sections; (b) least and most vulnerable statistical sections and 400-m buffer from public space qualification interventions.

Source: MetroPublicNet, based on Statistics Portugal Census Data 2021.

Table 5.1 Population and public space interventions by vulnerability rate

Vulnerability rate		Residents (2021)		Public space interventions		Residents living in 400-m buffer from public space interventions ^a	
Rank	Value range	n	%	m ²	%	n	%
I	≤0.5	186 139	6.5	1 829 253	9.1	141 057	75.8
II	[0.5–0.95]	1 452 603	50.6	8 557 609	42.5	1 000 836	68.9
III	[0.95–1.05]	281 315	9.8	1 665 285	8.3	193 374	68.7
IV	[1.05–1.5]	611 721	21.3	5 250 307	26.1	415 463	67.9
V	[1.5–2]	225 080	7.8	2 069 001	10.3	153 692	68.3
VI	>2	113 350	3.9	753 260	3.7	91 079	80.4

^a Population value weighted by the area of the statistical section covered by the buffer.

population; (d) buildings in need of medium or major repairs. The highest levels of socio-spatial vulnerability (ranks V and VI) are found in the eastern districts of Lisbon municipality and its northern border with Loures, Odivelas, and Amadora, the suburban lines of Sintra, the multiple public social housing estates spread in different locations across LMA, the illegal genesis urban areas, and the more distant and sparsely inhabited rural parishes of Setúbal peninsula hinterland.

According to this analysis, ranks I (least vulnerable) and VI (most vulnerable) stand out with the highest proportion of impacted population (76% and 80%, respectively), when compared to an average of around 68% on the other rank classes. Of the 338,430 inhabitants (12% of the total LMA population) living in the two more vulnerable (ranks V and VI) territories, 72% are within a 400-m distance from a public space intervention.

These numbers show a marginal tendency to favour the more vulnerable areas than those with lower socio-economic risks: 14.0% of the total intervened areas are located in districts ranked as V and VI, where 11.8% of the population lives; on the other hand, only 60% of the intervention are in ranks I, II, and III, where 67% of the population lives. Globally, this reveals a positive approach to the redistributive and cohesive rationality of recent public space investment in LMA.

Systemic rationales – How are public spaces interventions relating with the metropolitan infrastructure and spatial patterns?

Assessing the relationship of recent public space qualification interventions with the LMA's spatial structure requires a multi-systemic perspective, in which the mobility infrastructure, the green and blue infrastructure, and the morphological and land use patterns are combined. Figures 5.15–5.17 show the mapped public space interventions overlapped on key territorial systems of LMA.

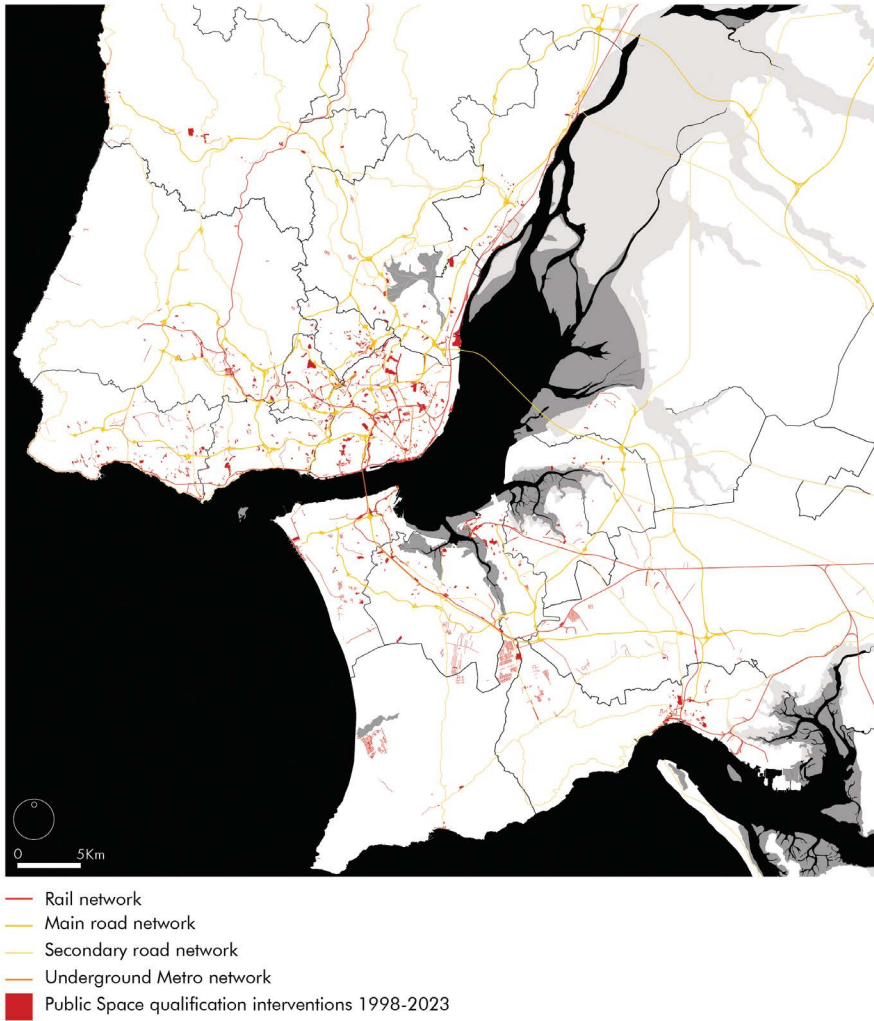


Figure 5.15 MetroPublicNet public spaces and LMA's mobility infrastructure

Source: MetroPublicNet.

When observing the territorialised and typological distribution of public space interventions in LMA, nine major multi-systemic relationships can be identified:

- 1 *A strong investment in the improvement of public transport interfaces and hubs, starting with those related with the railroad system and its intermodal interconnection with metro or river ferries, and expanding on a later stage to local bus terminals in areas that are not served by heavy transport infrastructure. A particularly important change in the metropolitan structure was the expansion*



Figure 5.16 MetroPublicNet public spaces and LMA's green and blue infrastructure

Source: MetroPublicNet.

Lisbon's underground metro network to Oriente/Expo 98 site, the airport, and several peripheral areas where it connected with suburban train, thus overcoming the original disconnection between all of these systems (Santos et al., 2021). Public space in these projects acts as facilitator of convenient, functional, and attractive connections between the transport modes, but also as a contributor for the global upgrade of urban image of the stations' surrounding urban districts. Lisbon's riverfront, the railroad station squares in Sintra railroad line or Setúbal's new transport interface areas are relevant examples. The projects in

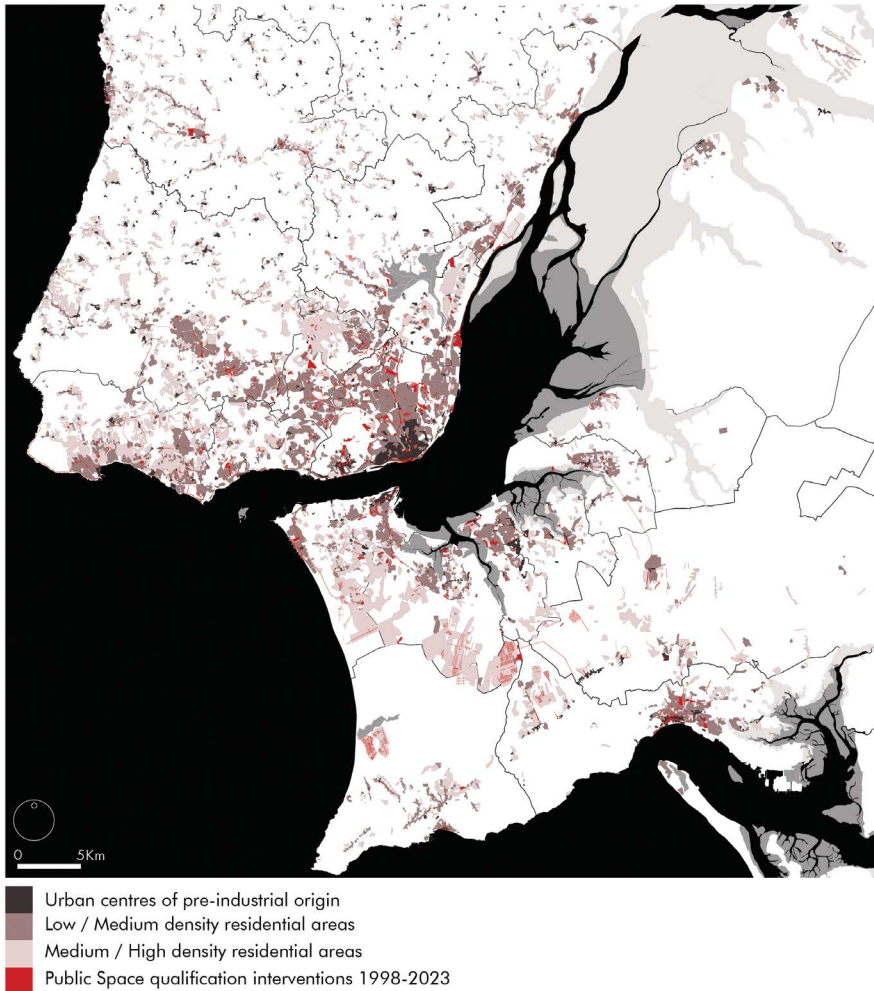


Figure 5.17 MetroPublicNet public spaces and LMA's residential urban fabrics

Source: MetroPublicNet.

larger interfaces tend to be promoted by central administration bodies, whereas the later have a stronger involvement of municipalities. The funding frameworks for these interventions are increasingly privileging a coordinated metropolitan perspective on mobility strategies and management tools, in which public space projects are taking an active part.

- 2 *The introduction of light metro and tramways as triggers of comprehensive public space improvement in diverse urban areas, particularly with the laying of Metro Sul do Tejo light metro system, in the Tagus River south bank, serving as a backbone for intermediate-scale mobility and an opportunity for a*

coherent redesign of highly heterogeneous urban districts. On a smaller scale and more focused in the city of Lisbon, the old tramway network has also been considered in several public space requalification interventions, namely by a seamless integration in predominantly shared and pedestrian spaces. Moreover, new light metro and tramways extension projects are being developed using the public space as a key system for urban regeneration in the newly served transport corridors.

- 3 *The redevelopment of several urban and interurban corridors along national roads or important local arteries, by introducing substantially improved conditions for walkability and bikeability.* This trend, while promoted under the most recent EU funding framework, namely under the rationale of transition to low-carbon mobility, has been an opportunity to globally reconfigure existing roads that were absorbed into the metropolitan fabrics, as found in Cascais, Vila Franca de Xira, or Almada municipalities. They serve both on a local level, with proper sidewalks and a more qualified spatial frame, but also as alternative paths for longer distance connections using bicycle. Despite still far from reaching a truly metropolitan network or supporting the idea of the city of proximity (Vale, 2021) – e.g. with accessible conditions to urban amenities and basic functions within a short time without resorting to the private car – these are significant first steps that are increasingly being framed under longer-term urban planning and strategic development documents. On the other hand, the development of a bicycle path network is also supporting new players that use public space infrastructure, namely e-scooters, on-demand delivery services, or shared bikes users (Santos and Silva Leite, 2021). Starting on specific areas of Lisbon, these operators are expanding to other locations across the metropolitan area, particularly those around public transport hubs, boosting the overall capacity of the intermodal mobility system.
- 4 *A very strong move favouring pedestrian accessibility, safety, comfort, and adequacy in public space design in the various locations, spatial types, and territorial typologies, namely resorting to a more disciplined and compact delimitation of traffic lanes and car parking, resulting in more generous provision of walkable space.* As part of this trend, the provision of larger silos of underground car-parking facilities, is a two-faced solution, as it often opens the opportunity to free and requalify public space on the surface, while sustaining persistent habits of driving into the urban centres. The widespread development of more walkable spaces has also contributed to improved ecosystem services – e.g. heat island control, water infiltration, biodiversity – and the possibility to introduce outdoor terraces, for local shops and other economic activities. Municipalities are the most common actors in developing and funding this kind of intervention, given the scale of proximity on which they operate. However, local levels of government have limited capacity to interfere with metropolitan mobility and car-traffic patterns, given the intrinsically metropolitan nature that underpins these systems.
- 5 *The acknowledgement of green spaces as a priority for urban policies and investment, moving towards more multi-functional and systemic approaches to*

their programming, design, and integration. Of all the public spaces interventions, those related to green and blue infrastructure and the metropolitan ecological structure, stand out in more recent years, with many being related to watercourses or floodable areas. This trend reveals a change in the political and planning priorities, from a focus on providing local amenities towards a more comprehensive role of the urban green including flood prevention and climate change adaptation (Matos Silva and Costa, 2018). Adding to the leisure, sport, and scenic roles commonly found in most urban parks developed in LMA in previous decades, many of the 21st-century green space projects include water management, community vegetable gardens, or biodiversity support rationales (Ahern, 2007). Their geographical distribution and spatial configuration reveal LMA's most prominent territorial features: a pattern of linear parks located along valleys and watercourses, thus shaping multiple tracts of a wider structure of ecological corridors; a more dispersed patchwork of variously sized green spaces, integrated in the dense fabric of urban settlements; a few recently developed cases related to beaches, forests, wetlands, and other large-scale landscape features, increasingly acknowledging their central role in providing the social and cultural dimension of ecological services to the metropolitan population.

- 6 *The consistent development of riverfront public space continuities in tandem with a complex reorganisation of the urban and infrastructural interface between land and water.* Particularly evident in the Tagus River northern bank, where the geomorphology facilitated linear connections, riverfront public space facilitates active mobility on a metropolitan scale, while working on the complex infrastructural barriers that exist between the land and the water. This change entangles with the reorganisation of the port, industrial, and logistics systems, that have become more compact and efficient, opening spaces for compatible uses on the waterfront. The more entrenched configuration of the south bank results in more interspersed public spaces, centred around the small historical urban settlements, and expanding to the surrounding bays. A first generation of projects related to scenic valorisation and leisure-oriented uses, was followed by more complex interventions, close to transport interfaces or related with more comprehensive traffic reorganisation. As these linear interventions spread out, lighter solutions connect to discrete landscape values (Santos, 2017), and represent a sometimes-missed opportunity for climate change adaptation, in what concerns floods related to extreme weather events, subsequent erosion, and sea level rise.
- 7 *A prominent concentration of diversified types of public space intervention in publicly managed housing neighbourhoods, mostly framed under national and EU-funded urban policy programmes, with an initial tendency for self-centred spatial configurations, then opening to the surrounding territory.* An often-neglected side of public housing development, public space amenities were targeted as a priority in requalification programmes, particularly in regard to green space and convivial areas, seen as realms for a more dignified residential habitat. However, in the face of persistent levels of poverty and socio-economic exclusion, the more recent projects are focusing on better active mobility connections

in trying to break barriers and provide better accessibility. A very recent generation of public funding based on post-pandemic EU funding is aimed at rehabilitating the decade-long poorly maintained building units, hopefully to level them with the public space's overall quality.

- 8 *An expressive investment in precarious and under-equipped settlement areas, particularly in illegally developed neighbourhoods from the 1960s through the 1980s, resulting in the upgrade of basic infrastructure.* A slow and complex process involving thousands of plot owners and the municipalities, the incremental qualification of streets and small squares and parks introduced a fairly distributed sense of territorial integration. Holding a high portion of unbuilt lots, many of these areas have the capacity to frame and absorb future urban development and are supporting some of the most dynamic growth trends in LMA. With their progressive upgrading and transformation, most of these areas are now an integral part of the socio-territorial fabric of LMA, despite the challenges of sustaining their infrastructure in the long term.
- 9 *Particularly active real-estate segments in the study period, shopping malls and medium-to-large scale retail units have had some impact in public space requalification throughout the metropolitan area.* Requiring an infrastructural upgrade of their surroundings, some of these projects were integrated in wider redevelopment schemes as part of mandatory compensations, resulting in improved walkable and bikeable connections or specifically developed local amenities. Nevertheless, and despite some exceptional cases, such as Setúbal, where a global redefinition of the city's commercial pole was accompanied by street requalification and green infrastructure upgrade, the transformative potential of large-scale shopping malls hasn't yet been fully taken. This gap is also observable in the requalification of specialised employment areas, such as office and small industry districts, with very low levels of public investment in public space.

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6 [Scale #2] 24 Case studies

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João Silva Leite, and Maria Manuela da Fonte*

The case studies: Criteria, typological features, interpretative matrix

This chapter presents a synthesis of the case study analysis developed by MetroPublicNet research. Of the more than 1000 identified public space interventions, 24 were selected for further study (Figure 6.1), as representative of typological diversity and relevance in regard to the research rationales. The selection was based on the combined result of several criteria:

- diversity in terms of location, choosing at least one intervention for each of the 18 Lisbon Metropolitan Area (LMA) municipalities, within varied territory types;
- typological diversity, portraying different spatial types of intervention – streets; squares; green parks, riverfronts, etc. – in different urban contexts;
- temporal diversity, with examples from the period under study;
- diversity of funding and promotion frameworks (municipal; central administration; private development operations; European Union funding, etc.);
- diversity of spatial and programme complexity, showing relatively simple interventions alongside more complex and larger ones;
- relevance from the point of view of their potential for incremental transformation, i.e. their capacity for expansion, continuity, and phased territorial articulation;
- relevance as a demonstration of recurring approaches in each of the three research rationalities.

Table 6.1 presents the key features that are present in each case study, according to MetroPublicNet's typological classification of public space.

Each case was interpreted according to its urban and territorial setting and may include more than one intervention or project. For each case, in addition to a context plan with the case study outline and location, several de-layered maps were developed according to a common and transversal graphic code, worked on with equal detail, regardless of its spatial or territory type, scale, institutional framework, or investment values (Santos and Beja da Costa, 2023). This allows for the systematic decoding and non-hierarchical comparison of the various interventions

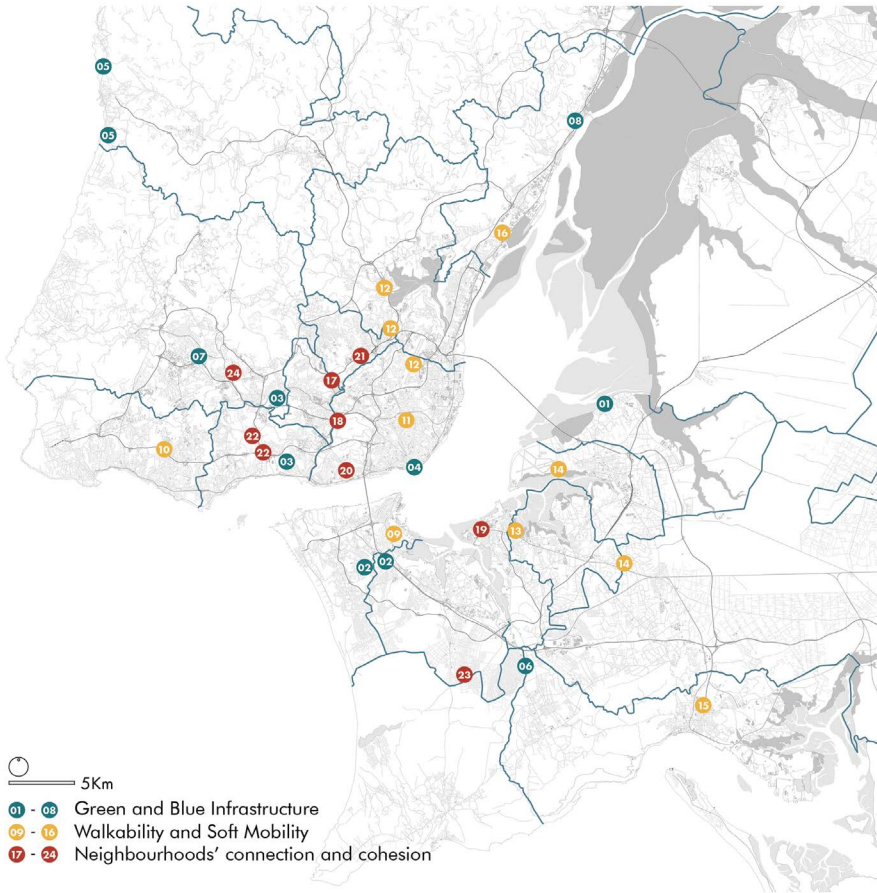


Figure 6.1 Twenty-four case study location [per rationale] within the LMA

Source: MetroPublicNet.

according to a set of urban systems and features that coexist and constitute the public space, such as:

- *Collective facilities and reference elements*, both related to daily community life and to heritage and identity values.
- *Green and blue infrastructures*, highlighting the different typologies of green areas, namely park areas and tree planted axes, green areas dedicated to public fruition, agricultural plots, as well as those integrated in larger natural structures, such forests; wet and floodable areas, water courses, and water bodies, that play a fundamental role in the maintenance of the landscape ecological balance.

Table 6.1 Typological systematisation of case studies

<i>Case studies</i>	<i>Spatial types</i>					<i>Territorial types</i>												
	<i>Structural roads</i>	<i>Local streets</i>	<i>Squares and plazas</i>	<i>Green spaces</i>	<i>Green infrastructure</i>	<i>Parking</i>	<i>Transport hubs</i>	<i>Waterfronts</i>	<i>Historic cores</i>	<i>Nodes and attractors</i>	<i>Medium-to-high density</i>	<i>Low-density</i>	<i>Social housing</i>	<i>Under-equipped settlement</i>	<i>Inter-urban corridors</i>	<i>Watercourses</i>	<i>Waterfronts</i>	<i>Coastal areas</i>
01. Alcochete – riverfront	•			•	•			•	•									•
02. Almada/Seixal – Sobreda and Corroios Parks				•	•					•	•					•		
03. Sintra/Oeiras/Amadora – Green and Blue Axis				•	•					•	•			•	•			
04. Lisboa – Riverfront	•	•	•	•		•	•	•	•	•								•
05. Mafra – Rib. D’Ilhas and F. Lizandro beach amenities								•							•	•		•
06. Sesimbra – Quinta do Conde Parks					•					•	•			•	•			
07. Sintra – Algueirão-Mem Martins linear park	•	•		•	•					•				•	•			
08. V.F. Xira – Luís C. Pereira Park and Santa Sofia valley		•		•	•			•		•						•		
09. Almada/Seixal – MST tram	•		•				•		•	•					•			
10. Cascais – Tires/Manique roads	•							•			•			•				
11. Lisboa – Central Axis	•		•						•	•								
12. Loures – R. República, R. G. Fernandes, Av. Moscavide	•							•		•								
13. Moita – Av. 25 de Abril and R. 1º de Maio	•									•				•				
14. Montijo/Palmela – Bicycle path Montijo-Pinhal Novo	•													•				
15. Setúbal – central city streets and Várzea Park	•		•	•		•			•	•				•	•			
16. V.F. Xira – Tagus riverfront parks and EN10 national road	•						•	•		•				•		•		

(Continued)

Table 6.1 (Continued)

Case studies	Spatial types					Territorial types												
	Structural roads	Local streets	Squares and plazas	Green spaces	Green infrastructure	Parking	Transport hubs	Waterfronts	Historic cores	Nodes and attractors	Medium-to-high density	Low-density	Social housing	Under-equipped settlement	Inter-urban corridors	Watercourses	Waterfronts	Coastal areas
17. Amadora – Brandoa neighbourhood	●	●	●	●							●			●				
18. Amadora – Zambujal neighbourhood		●	●	●										●				●
19. Barreiro – central streets	●			●		●					●							
20. Lisboa – Ajuda neighbourhood	●	●	●						●									
21. Odivelas – Serra da Luz and Vale do Forno		●	●		●									●				●
22. Oeiras – Leceia and Pedreira Italiana neighbourhoods		●	●											●				●
23. Seixal – Fernão Ferro urban requalification		●		●								●		●				●
24. Sintra – Cacém urban requalification	●	●	●	●	●	●	●		●		●							●

- *Mobility*, establishing the relation between the public space qualification interventions and the different modes of collective transport, their interfaces, and the active mobility systems.
- *Ground floor porosity*, revealing the reciprocal relations between the public space and the built structures, particularly at the ground level; this threshold is critical for the activation of socio-spatial dynamics, not only in the interaction with collectively used spaces – shops, services, and public facilities – but also for a fine-grained and domestic relationship between residential buildings and their immediate surroundings.
- *‘Before and after’ street profiles*, identifying the changes occurred in cases associated with the transversal profile of roads and streets.

As a graphical synthesis, [Figures 6.2–6.4](#) present the case studies’ interpretative matrix.

Although each case was looked into in its contribution for a specific rationale – chosen prior to the mapping process – the more they were developed, the more blurred the categorisation became, with each case study contributing in broader or minor extent to all rationales.

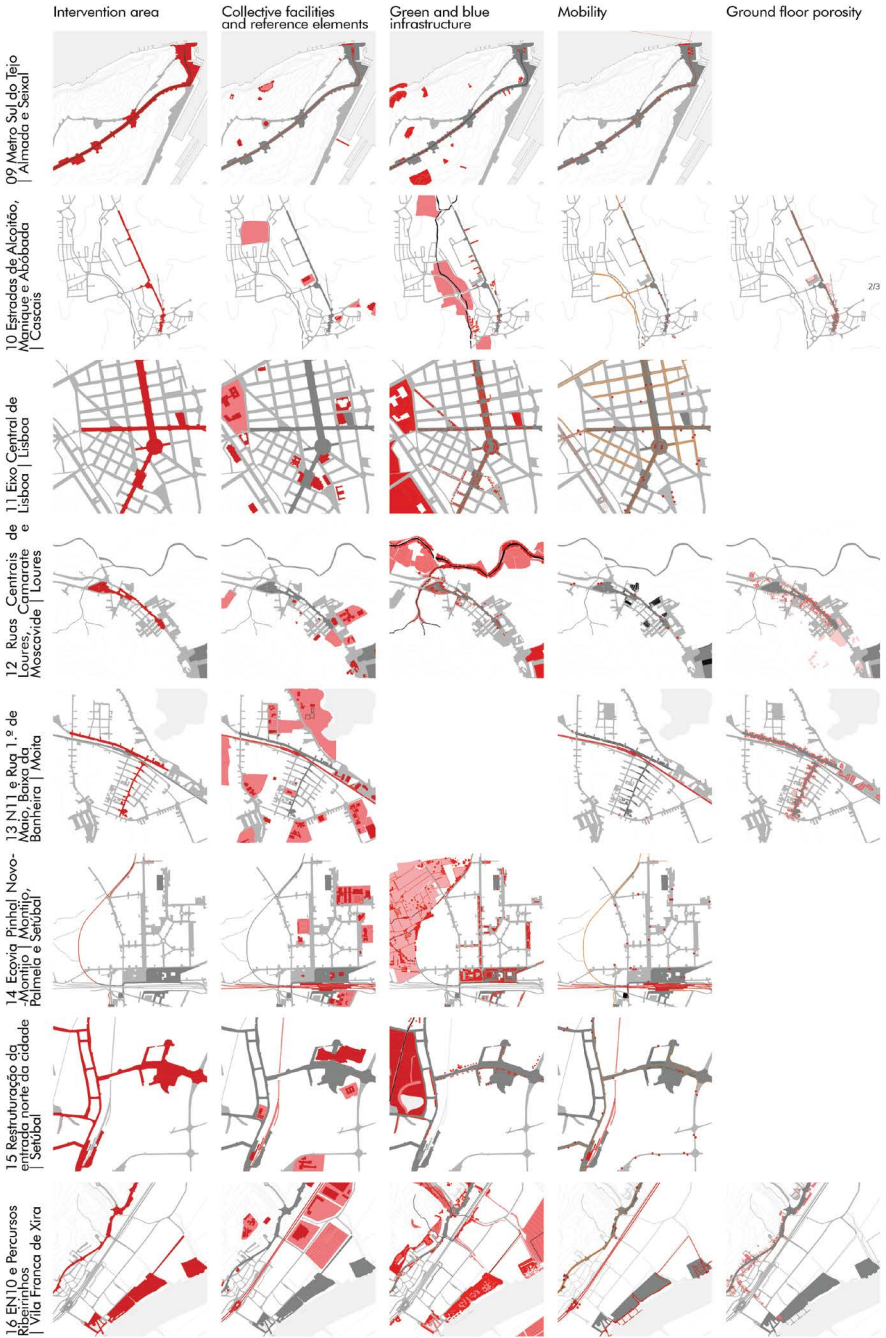


Figure 6.2 Walkability and active mobility case study mapping according to themes/layers
 Source: MetroPublicNet.

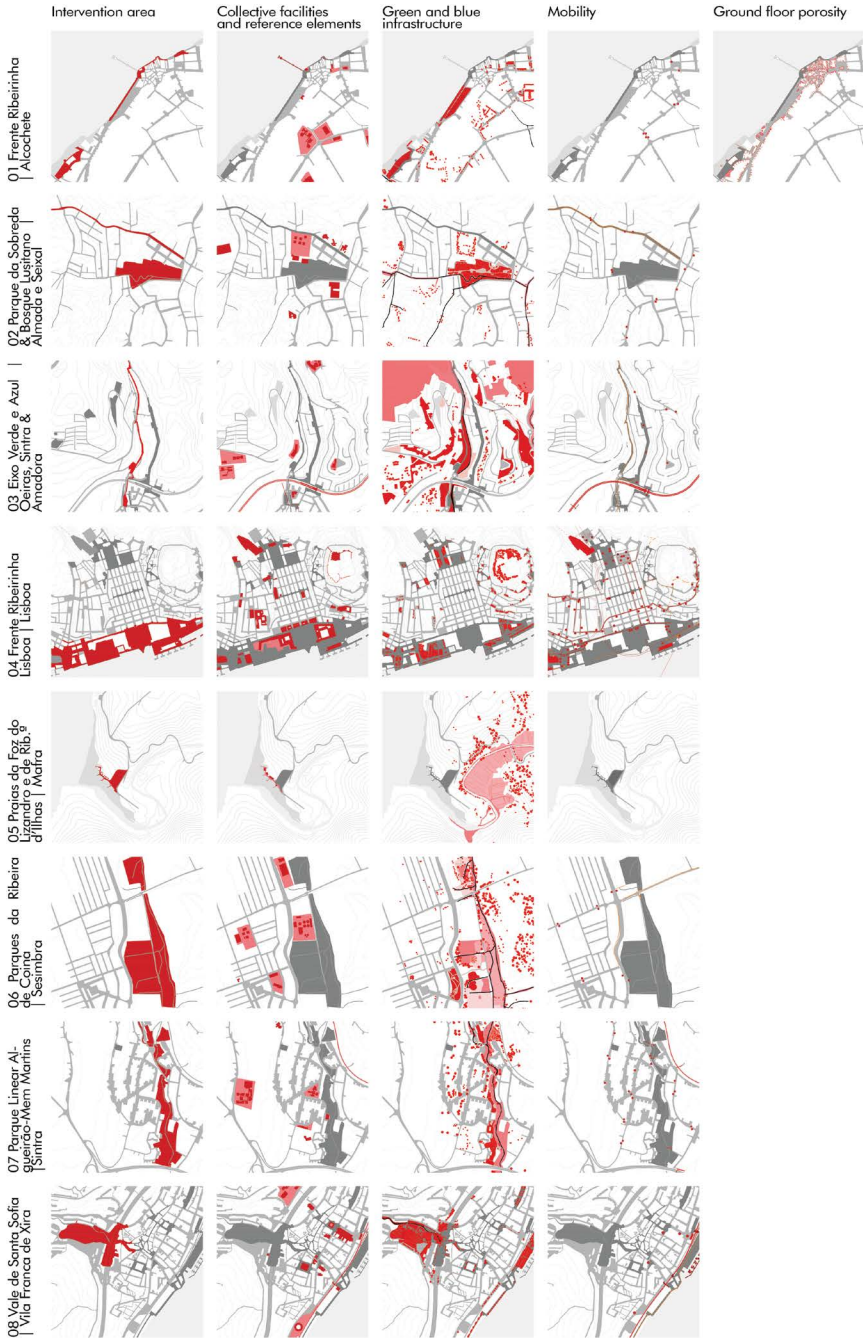


Figure 6.3 Green and blue infrastructures case study mapping according to themes/layers

Source: MetroPublicNet.

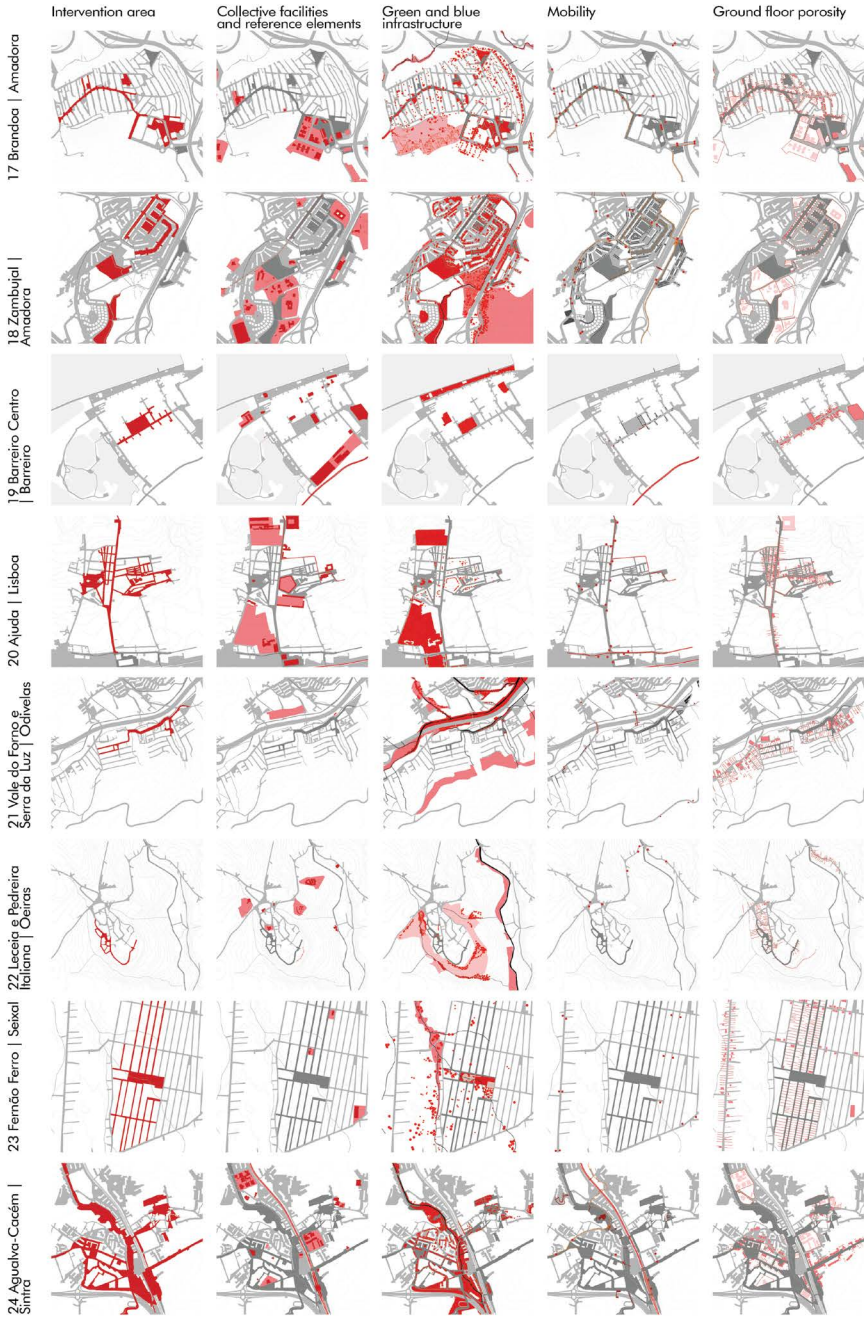


Figure 6.4 Neighbourhoods' connection and cohesion case study mapping according to themes/layers

Source: MetroPublicNet.

The linear axes of Vila Franca de Xira, between the Tagus River and the National Road EN10

The Vila Franca de Xira case study is one of the 24 case studies that, through its detailed mapping and de-layering (Figures 6.5–6.7), showcases a clear sequence of



Figure 6.5 Vila Franca de Xira case study decomposition per theme/layers

Source: MetroPublicNet.



a. Structuring and qualification of riverside waterfront
c. Requalification of local streets and proximity spaces

b. Reprofiling of roads, arterial streets and introduction of bicycle paths
d. Creation of green spaces + structuring and qualification of riverside waterfront

Figure 6.6 Vila Franca de Xira case study

Source: MetroPublicNet.

public spaces supported by two territory types: the ‘interurban corridors’ – represented by the National Road EN10 between Póvoa de Santa Iria and Alverca – and the ‘valley and watercourses’ type – comprising the Tagus River’s floodplain and riverfront, where marshes and various built structures are interspersed, some in activity, others in decline and/or conversion.

Mobility-wise, the public space interventions create two linear axes, running parallel to each other. The EN10 axis has evolved as the structuring backbone of the Lisboa-Vila Franca de Xira metropolitan corridor, a very heterogeneous set of urban and industrial spaces characterised very high traffic intensity. Although parallel and relatively close, the two axes were only occasionally connected, and lacked pedestrian and cycle mobility solutions.

The transformation of a heavy traffic road into a qualified urban axis [Spatial type #1 – Reprofiling of roads, arterial streets, and cycle paths], where sidewalks

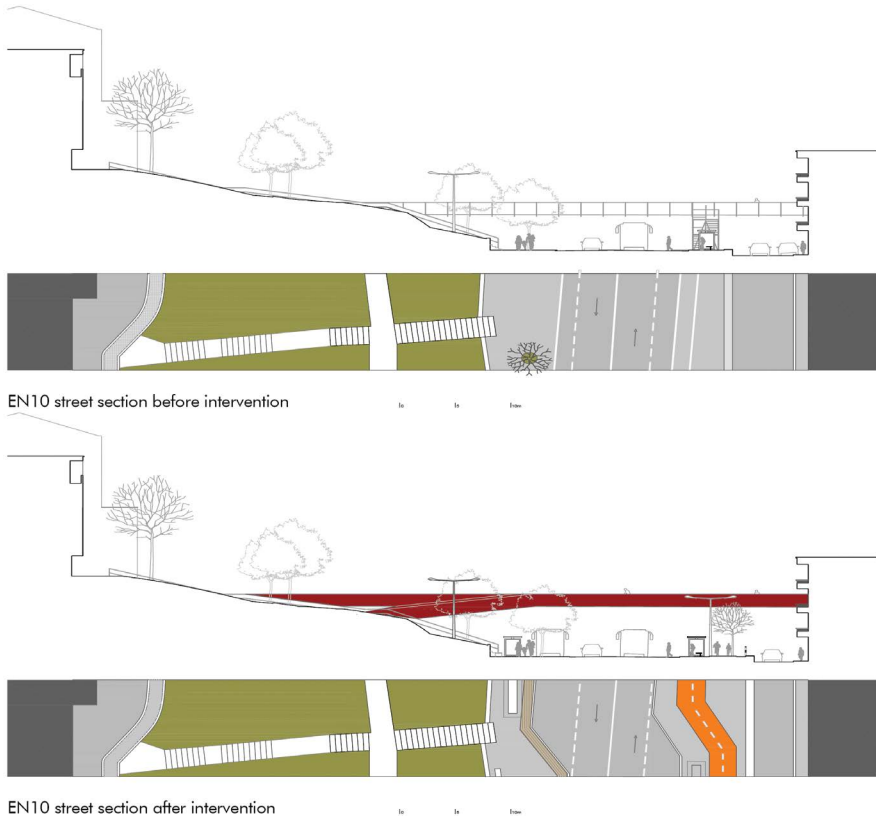


Figure 6.7 Vila Franca de Xira case study 'before and after' section

Source: MetroPublicNet.

and cycle paths were added, and the construction of a system of riverside parks [Spatial type #4 – Creation or improvement of parks and green spaces] and [Spatial type #8 – Structuring and qualification of coastal and riverside waterfronts] accessible from nearby residential settlements, results in an interesting solution combining two territorial contributions: (1) as an intermediate step towards an extended metropolitan network, read as the continuation of the two parallel axes, but also (2) as it provides new accessibility in a territory lacking consistent and qualified urban public space amenities and characterised by strong barriers and discontinuities.

In view of the mobility rationale in which this case was explored, the sequence of public space projects is now shaping an articulated, multifunctional, and incremental system, promoting continuity, enhancing the qualities of the intervened spaces, facilitating pedestrian and cycling mobility, while disciplining traffic and car parking. Nevertheless, it became clear throughout the process that this case study also made relevant contributions concerning both the blue and green infrastructures, and the neighbourhood's connection and cohesion rationales. Firstly, the

incremental requalification of the Vila Franca de Xira riverfront reinforces both the capacity of these areas to withstand extreme weather events and rising sea levels through a set of minimal infrastructural works, aiming at protecting the coastline and enhancing the sensitive riverside ecosystems. The tidal dynamics and marshland conservation are indeed the more efficient and inexpensive means for climate change adaptation and biodiversity conservation along the Tagus banks. For the latter, these public spaces allow accessibility and permanent contact with the previously inaccessible riverfront, reinforcing these areas both as a fruition space for outdoor activities, and as a reference touristic destination. Furthermore, they play a relevant role in contributing to the collective memory of the Tagus River, thus reinforcing the relevance of these public spaces in the creation of a meaningful metropolitan identity.

The public space as the trigger to reinvent the urban perception of Agualva-Cacém

Usually seen as a paradigmatic expression of the 1960s through 1990s process of rapid and fragmentary suburbanisation on the outskirts of Lisbon, based on private-led intensive, piecemeal, and poorly designed urban development, Agualva-Cacém underwent through a comprehensive urban and environmental requalification project (Figures 6.8–6.9) that put public space at the core of its strategy. This suburban city located 15 km west of Lisbon grew from two old rural villages located at opposite slopes of Ribeira das Jardas watercourse, taking advantage of an important railway station passing along the valley line and with good services to Lisbon. In a few decades, the slopes were completely occupied through incremental, poorly articulated, and under-serviced subdivisions, resulting in a disjointed public space system and a contaminated watercourse at its core.

The site was integrated as one of the territories to be intervened under the Polis Programme in 2000 as one of the first large-scale operations to focus on complex and densely populated suburban districts of LMA. The intervention plan was based on four types of intervention: reorganisation of the rail-road interface [Spatial type #6 – Transport hubs and dedicated lanes]; reorganisation, optimisation, and qualification of the road and pedestrian system [Spatial type #2 – Requalification of local streets and proximity spaces]; land restructuring associated with the filling in and completion of fragmented urban fabrics; and regularisation of the watercourse and structuring of a linear urban park along its banks [Spatial type #5 – Water regulation, green infrastructure, and urban agriculture].

As a result, the combined public space improvement interventions developed in Agualva-Cacém strategically placed the Ribeira das Jardas watercourse as the territory's central space. This initiative has ingeniously transformed the watercourse into the area's focal point, creating a linear park that seamlessly weaves through the banks and interstices of the densely built and imposing urban landscape along the adjacent slopes.

Moreover, the spatial quality that emerged around the renewed railroad station and the linear park was further spread around through a network of

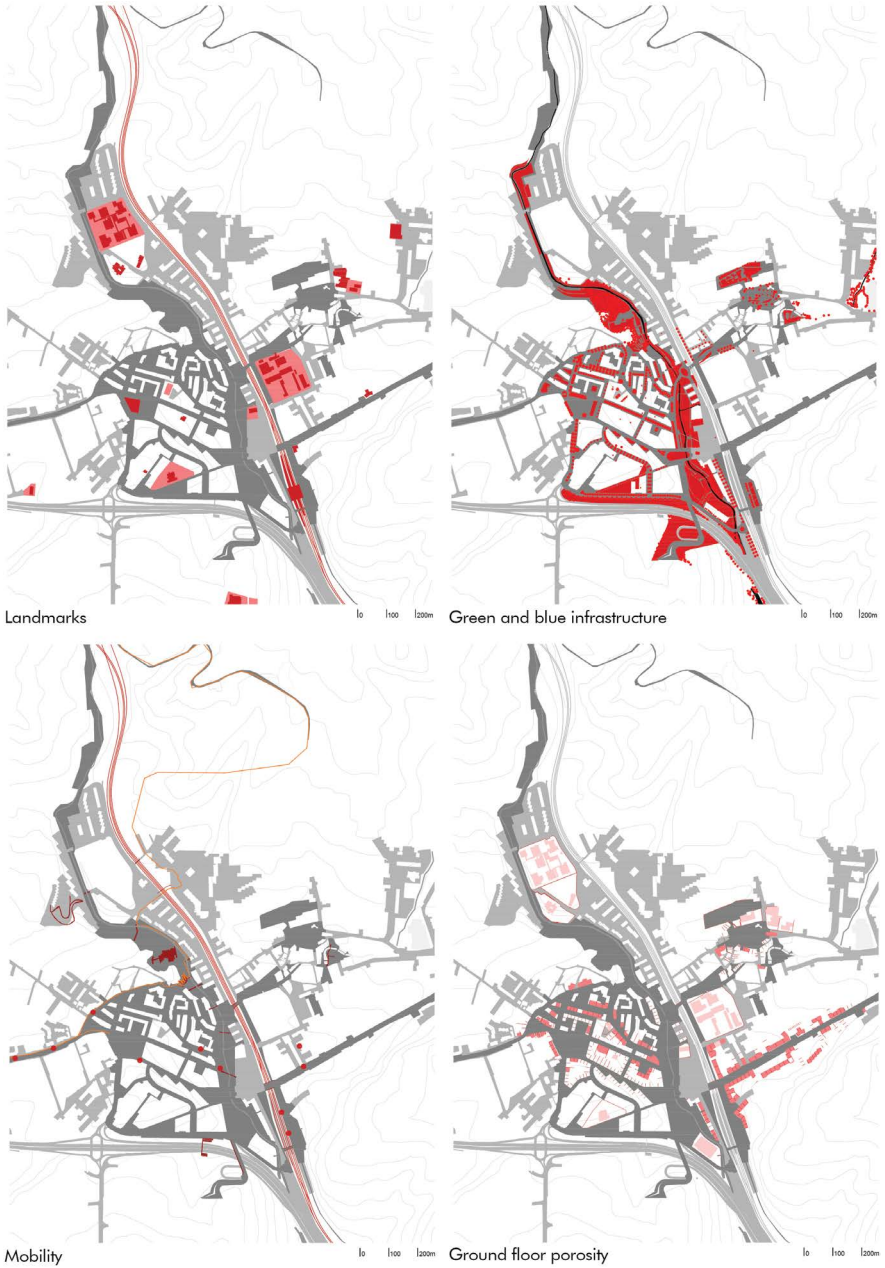


Figure 6.8 Agualva-Cacém case study decomposition per theme/layers

Source: MetroPublicNet.



a. Reprofiling of roads, arterial streets and introduction of bicycle paths
b. Water regulation, green infrastructures and urban agriculture.
c. Requalification of local streets and proximity spaces.
d. Creation or improvement of green spaces.

Figure 6.9 Agualva-Cacém case study

Source: MetroPublicNet.

interconnected public spaces. As a result, a more dignified, structured, and attractive urban environment was brought to the socially mixed neighbourhoods and local urban facilities that surround the new city centre. This transformation has made a structural contribution to changing the stigma often associated with the area. Despite it still misses some of the programmed interventions, the linear park became a place of multigenerational conviviality and a cherished landmark for local residents, contributing to a more cohesive and equitable urban space in the metropolitan area.

Reclaiming the riverscape in the requalification of Lisbon's waterfront

The redevelopment of Lisbon's waterfront is one of the most complex and representative operations in the transformation and qualification of urban and

public space in the LMA. Involving the Municipality, the Port Authority, public transport operators, and several national government agencies, it has been a long process that has been underwent complex planning processes for the past three decades, with its most visible projects being delivered since 2012. Lisbon's ancient relationship with the Tagus has been profoundly reshaped during the 19th and 20th centuries' development of industrial and port activities. The laying of vast landfills, railroad, and tram lines, later followed by heavy traffic lanes, severed the direct contact of the city's prominent public spaces with the river. From the 1980s onwards, a reorganisation of the port activities, along with metropolitan-wide interventions to address water contamination, allowed for a renewed perspective on the city's keen relationship with its River and Estuary. Based on an idea of spatial continuity – both along the water and the parallel inner streets – a series of interventions were developed (Figures 6.10–6.13) in order to qualify prominent plazas, squares, and public fruition spaces [Spatial type #3 – Requalification of squares and plazas], while keeping and upgrading the complex public transportation mobility infrastructure that converges on the riverside [Spatial type #5 – Transport hubs and dedicated lanes].

In fact, although heavier cargo-related and ship-building port facilities have been relocated, Lisbon riverfront keeps on being a critical space for the metropolitan mobility, with river ferries, national and suburban railroad lines, underground metro lines, as multiple bus and tram connections passing through or having their terminal stations close to the river. As part of this system a recently built cruise ship terminal reinforced this interfacial condition. On the other hand, strong limitations to car-based traffic have been implemented, namely through considerable spatial car-lane reduction, traffic-calming solutions, and prioritisation to pedestrian areas [Spatial type #1 – Reprofilng of roads, arterial streets, and cycle paths], along with new underground parking provision that allowed for improved public space on the surface [Spatial type #7 – Reorganisation of parking]. Design strategies have also promoted a qualified perception of the public space system, resorting to continuous and walkable pavements, the increase of open space terraces, of green surfaces, and of resting areas [Spatial type #4 – Creation or improvement of parks and green spaces], the introduction of outdoor kiosks and commercial activities. Opportunities for direct contact with the water and spatially dynamic relationships with the tidal cycles are also important elements of a more dynamic entanglement between public space and the river.

Furthermore, and witnessing to a historically thick territory, many interventions based their design in the extensive archaeological surveys and offered particularly sensitive solutions in which many of the older and previously land-filled fragments of the riverfront were revealed and articulated into new spatial configurations. In observing the multiple times of transformation of the city and of its interdependent relationship with the water, the joint and incremental reading of Lisbon's riverfront projects offers a significant contribution to the sense of a continuous, multiple, and integrating network of public space. Far



Figure 6.10 Lisbon riverfront case study location and general setting, and case study decomposition: landmarks map

Source: MetroPublicNet.



Green and blue infrastructure



Mobility

Figure 6.11 Lisbon riverfront case study decomposition per theme/layers

Source: MetroPublicNet.



a. Structuring and qualification of riverside waterfront. b. Creation of green spaces + structuring and qualification of riverside waterfront.
c. Reprofiting of roads, arterial streets and introduction of bicycle paths. d. Structuring and qualification of riverside waterfront.

Figure 6.12 Lisbon riverfront case study

Source: MetroPublicNet.

from being complete and consistently deigned, a clear path along most of the city's riverfront can today be made on foot or on bicycle, connecting with the adjoining municipalities of Oeiras, to the west, and Loures, to the northeast. This incrementally developed system, for which the large-scale urban renovation project of Expo 98 was a prominent trigger, is currently reaching a mature state, with an important pedestrian connection between Lisbon and Loures riversides opened on the summer of 2023. As this riverside path and its adjoining urban spaces become more consistent, a completely different perspective on the role of the Tagus River and its estuary as pivotal shapers of the metropolitan landscape emerges. From a functional and mechanised relationship based on the 19th-century technologies and their urban fixes, the River is increasingly a multifunctional landscape on which metropolitan flows articulate and collective imaginaries are being reworked.

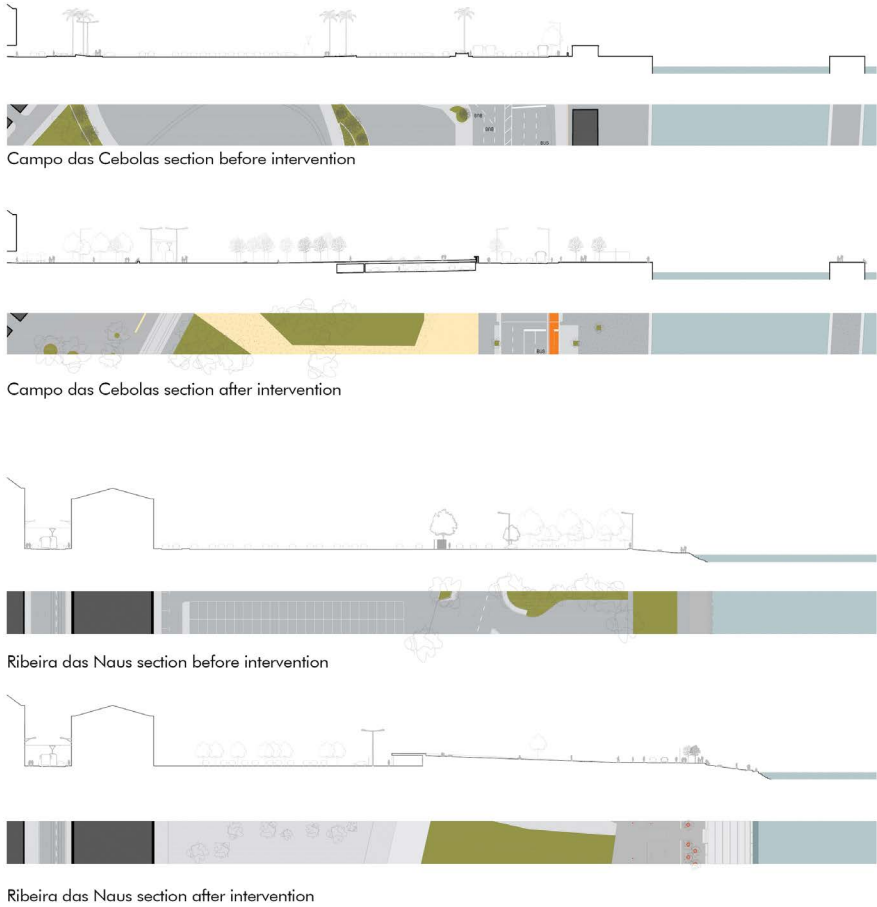


Figure 6.13 Lisbon riverfront case study ‘before and after’ section

Source: MetroPublicNet.

Reference

Santos, J. R., Beja da Costa, A. (2023), *O Espaço Público na Área Metropolitana de Lisboa. Projetos de qualificação do território [1998-2023], vol. I – as infraestruturas verdes e azuis, vol. II – caminhabilidade e mobilidade ativa, vol. III – bairros coesos e conectados*, Lisboa: FA-ULisboa/CIAUD/Área Metropolitana de Lisboa, available in: https://urbinlab.fa.ulisboa.pt/EspacoPublicoAML_InfraestruturasVerdesAzuis.pdf; https://urbinlab.fa.ulisboa.pt/EspacoPublicoAML_CaminhabilidadeMobilidadeAtiva.pdf; https://urbinlab.fa.ulisboa.pt/EspacoPublicoAML_BairrosConectadosCoesos.pdf.

7 [Scale #3] The intermediate scale. A territorial sample

*João Rafael Santos, José Duarte,
and Ana Beja da Costa*

A complex territorial patchwork to test public space adherence

Working on an intermediate scale – between the metropolitan scale, and that of the case study – reveals the adherence of public space interventions to the structures of a metropolitan nature – the coastline and water courses; the large topographical features, such as valleys and hills; the heavy mobility infrastructures; or the nodal attractors such as large shopping malls, stadiums, hospitals, or university campus. Incremental processes of public space development can be intuited and perceived through the cartographical representation of such adherence between individualised interventions and the larger, structural, metropolitan structures.

The exercise is based on a territorial section that, although only partially representative of the metropolitan whole, contains the main characters and dynamics of public space production in Lisbon Metropolitan Area (LMA) (Figure 7.1).

The territorial sample reveals the heterogeneous, discontinuous, and fragmented urban condition that results from very diverse forms of metropolitan production (Santos, 2018), while offering a particularly rich concentration of its main morphological structures. Firstly, the centre of the sample area is roughly the border between Lisbon, the capital and the core of the metropolis, and three of its adjoining municipalities: Oeiras, Amadora, and Odivelas – displacing the focus from the centre-periphery dichotomy to the thresholds and the continuities that collide and intersect along the administrative borders. Secondly, and also at the centre, Monsanto Forest Park is prominently shaping the surrounding territory, along with a complex structure of valleys, which provide an important figure to discuss the ecological dimension of public space interventions. Thirdly, this is a criss-crossed patchwork of large-scale transportation infrastructures, that not only converge radially in the central districts of Lisbon, but are also configured as ring connections, thus defining a matrix grid that supports an increasingly polycentric functional structure. On the other hand, these powerful connections are also major dividing lines that fragment the patchwork of urban fabrics they cross. Finally, this part of LMA's territory showcases the diversity of its residential landscape, forms of urban development, and socio-territorial patterns (Figure 7.2).

A first layer of urban structure is weaved along historical high streets and old rural paths running along the riverfront and valleys around Monsanto. As the late

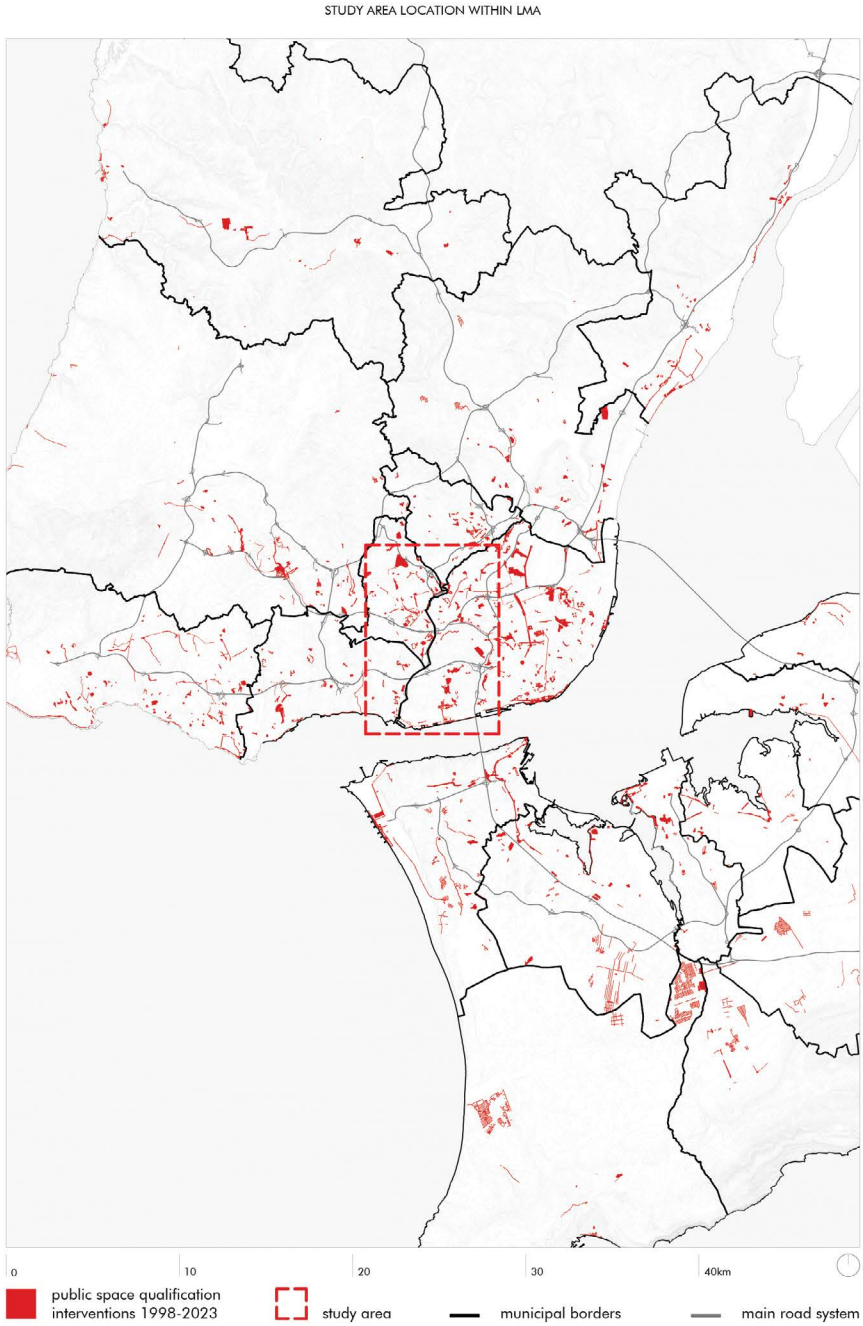


Figure 7.1 Territorial sample for interpretation of the intermediate scale

Source: MetroPublicNet.



Figure 7.2 Urban evolution of the intermediate-scale territory sample

Source: MetroPublicNet.

19th and early 20th centuries unfolded, railroad and tram lines together with the port and industrial development pushed new patterns of urban growth, taking over older rural estates and defining the first strings of suburban development. The second half of the 20th century saw the planned residential expansions in the Belém and Restelo neighbourhoods, the planting of Monsanto Forest Park – hitherto a tree-less hill covered with cereal crop fields – but also the fragmentary development of a piece-meal pattern of urban subdivisions that mostly grew without adequate infrastructural and public space support. Among these patches, a varied range of precarious, illegal and shanty settlements emerged and persisted almost into the 21st century. Large-scale territorial investments in infrastructure, facilities, and tertiary functions delivered from the 1990s onwards made this territory coalesce as a dynamic, diverse, and well-connected sector, notwithstanding its multiple spatial disjunctions and strong socio-economic imbalances. The following sections present an interpretation of this territory from the three systemic rationales as reading lenses.

Walkability and active mobility: Discontinuities and limits + hubs and collective facilities

To better understand the role of public space interventions in responding to mobility-related conditions, two sets of maps were developed: (1) one highlighting the presence of discontinuities and spatial limits, such as the restricted-access port spaces, the infrastructural and topographical barriers, as well as the interstitial spaces that accompany them, disrupting or preventing connections between the adjoining areas; and the (2) nodal hubs that facilitate public transport-based mobility along with the urban collective facilities – schools and universities, health and sport centres, etc. – that should be serviced by adequate public space and accessibility infrastructure.

For this mapping, public space interventions characterised by their linear nature were highlighted, as they are most probably related with improved sidewalks and bicycle lanes. These interventions were further organised in two types: (1) Thick Linear Spaces and (2) Thin Linear Spaces. The first category considers interventions related with the reprofiling of structural roads and streets, as well as green spaces. The second category is made up entirely of bicycle paths, which tend to effectively link more distant areas, with relatively simple and low-cost interventions.

Discontinuities and limits

One of the great barriers to the continuity of public space arises from multiple discontinuities. Many are the expression of physical elements, such as steep slopes, prominent hills, or water bodies, but many are also caused by the laying of heavy infrastructure, such as motorways, railways, or fenced-off port areas. To these physical barriers, one can add the administrative, such as the municipal boundaries or the many sectoral jurisdictions. In these cases, the discontinuities are often the result of a mismatch between actors and actions on both sides of the boundaries.

They materialise the complex governance arrangements, the different priorities, resources, and interests on which territorial management and development is grounded.

An interpretation of the territorialised map (Figure 7.3) reveals the potential of Thick Linear Spaces that tend to be organised with a combination of linear paths, adjoining streets, and green spaces. This combination contributes to their

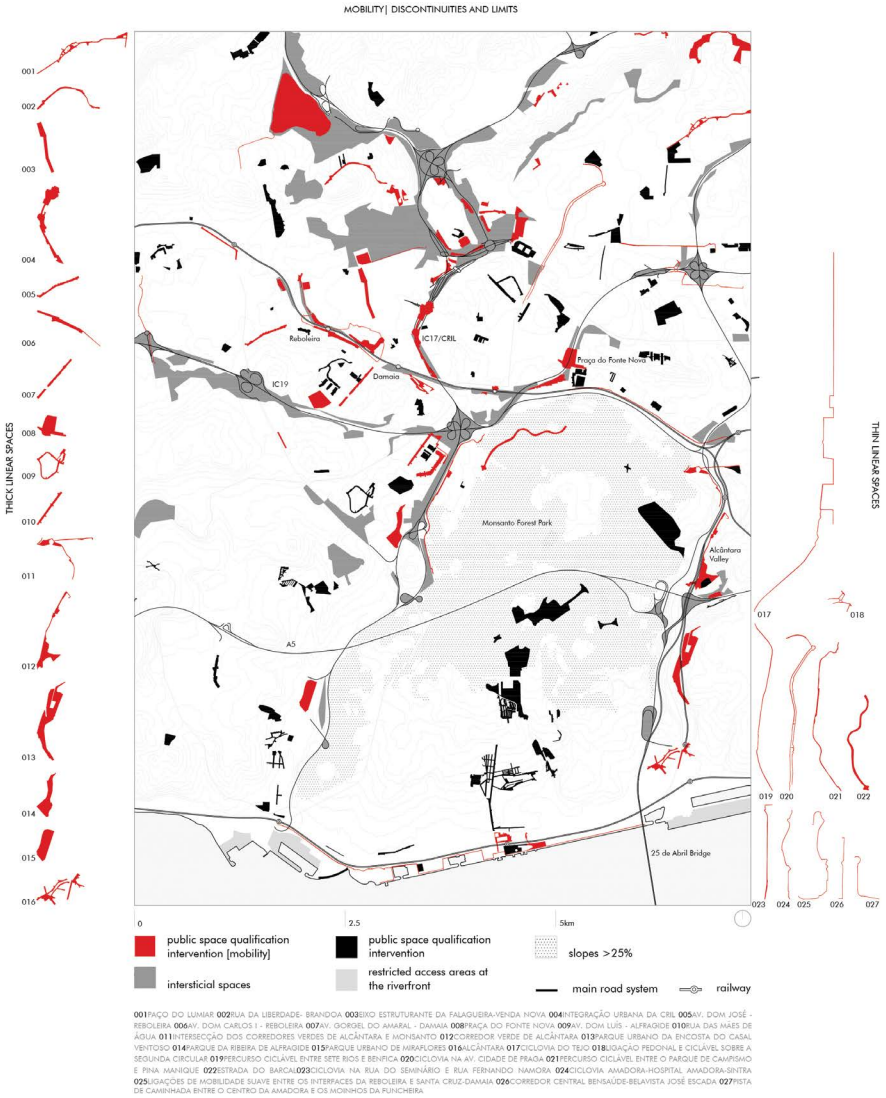


Figure 7.3 Walkability and active mobility: discontinuities and limits

Source: MetroPublicNet.

‘thickness’, both spatially – adapting to the surroundings – but also functionally – including different uses that contribute to the local community. Some are related with surface spaces over buried motorways (IC17/CRIL in Benfica, Pontinha, and Alfovelos) or reclaiming unattractive spaces under elevated viaducts (Praça do Fonte Nova). An interesting and complex spatial sequence can also be observed along Alcântara Valley, with several urban parks, bike paths, and pedestrian crossings located along the multiple infrastructural channels of two parallel railroad lines, the main motorways access to 25 de Abril Bridge over the Tagus, an important city ring-road and a large-scale wastewater treatment plant. These complex infrastructural landscapes are effectively introducing a middle scale between the specialised fibres of the urban machinery and the local networks of everyday life connections. On a smaller scale, one can highlight the importance of many smaller-scale public spaces located as buffers close to the infrastructures, taking advantage of residual or left-over spaces, but also of incrementally articulated systems around Reboleira and Damaia stations in Sintra railroad line.

Observing the thinner linear interventions, it is possible to recognise the role of a city-wide and growing bicycle network in Lisbon that is connecting different parts of the city, passing over or under heavier motorways and, therefore contributing to reducing their impact. Nevertheless, this kind of thinner crossings is still far from being fully exploited, as many limitations persist in the riverfront passages, in the western borders of Monsanto Forest Park, and along metropolitan highways, such as the A5 and IC19.

Hubs and collective facilities

The second territorialised interpretation relates public space interventions to railroad and metro hubs and interfaces, on one hand, and to polarising urban collective facilities, on the other hand. In many cases, these two elements are the driving force behind the qualification of public space. While in the case of the facilities one can observe that the interventions are self-centred, in the case of the transport hubs, an intention for continuity and articulated with structuring axes can be recognised. This approach is aligned with the prospect of creating crossovers over existing barriers and devising complementary links and connections between transit stations.

The map (Figure 7.4) reveals that public spaces interventions related with mobility hubs remain concentrated and constrained. Exception to this are the relatively recent metro line extensions in Pontinha, Amadora Este, and Reboleira, where bus interfaces and large plazas have been set, and Campolide, where the train station intersects a large-scale green corridor intervention. In these cases, bicycle paths have also been set allowing for a wider area of influence. An interesting situation is also identified in Belém, where a new pedestrian passage giving access to the train station platforms was integrated in a sequence of multiple interventions, connecting the riverside and the different sites of cultural importance on the adjoining slope.

The potential of collective hubs to improve public space networks could also be further developed when considering urban facilities. This can be seen in major

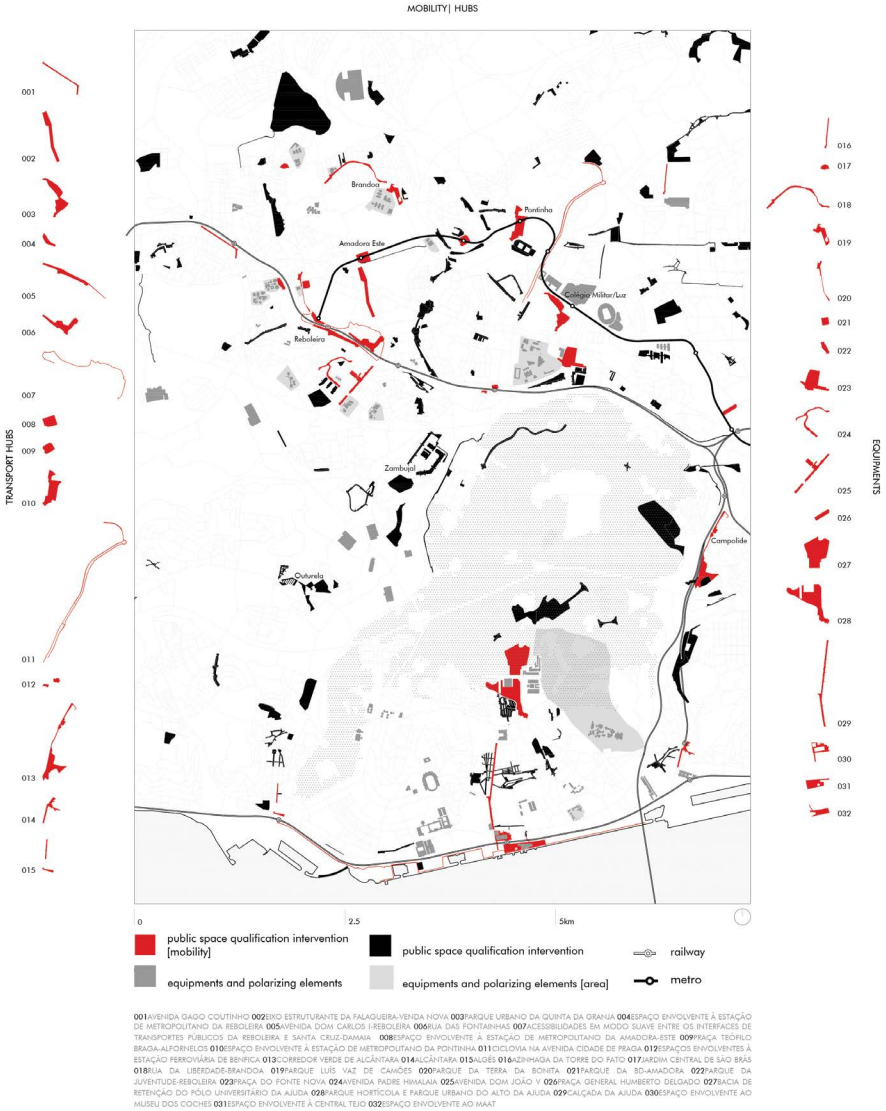


Figure 7.4 Walkability and active mobility: hubs and collective facilities

Source: MetroPublicNet.

facilities such as hospitals, football stadiums, and secondary schools, which play a prominent role in metropolitan mobility patterns. University campuses and the local schools could also benefit from a robust bicycle network, which is lacking in most of the studied territory. Exceptions to this are some urban facilities located areas designated as of specific interest. It is the case of Colégio Militar/Luz, taking advantage of an integration in an historical district, or the socially

disadvantaged neighbourhoods of Zambujal, Outurela, and Brandoa, for which comprehensive urban requalification programmes (i.e., PROQUAL) prioritised a combined intervention between public space improvement and provision of local urban facilities. In these cases, large urban parks and central squares tend to aggregate a range of schools, markets, sport centres, and other social and cultural facilities.

Green and blue infrastructures: Valleys + green spaces

Well into the 21st century, green and blue infrastructures are proven to be essential to the homeostasis of the urbanised territories. Within the territorial sample water lines and floodable zones, patches of scrubland and forests, green spaces and areas with slopes over 25% are represented, as part the metropolitan ecological structure (Franco, Cunha and Magalhães, 2013), informing the analysis and interpretation exercise. Public space interventions situated in these conditions represent more than a mere coincidence, they are opportunities to strengthen the green and blue infrastructures, by contributing to ongoing ecosystem services, and by reinforcing the system's resilience. The relationship between public space interventions and green and blue infrastructures in the intermediate-scale territory was mapped according to two lenses: (1) in the valleys, as a complex entanglement between water, biophysical, and urban systems, and (2) the green spaces of various typologies and sizes.

Valleys

The first map (Figure 7.5) is the base for an analysis of the public space interventions that relate to, or overlap with the area's prominent valley structure, organised in three watershed systems: the valley of the Algés stream, with the derivation of its tributary, the Outurela stream; the Rio Seco valley and the Alcântara valley. Alcântara valley's prominence is clear, both in terms of its area, and the length of its waterline.

Valleys offer the possibility of a territorial reading and suggest – as a metropolitan system – the capacity to organise and aggregate a continuous system of public space. This understanding has led to the creation of ecological corridors, that take advantage of the valleys' linearity. In the Rio Seco valley, we can observe a series of interventions that suggest spatial continuity, and an overall reading, integrated into a programme of fruition, production, and environmental regulation. This operation begins upstream with the creation of the Alto da Ajuda retention basin, and the Alto da Ajuda urban and horticultural parks. Downstream, with the qualification of the Rio Seco square and the Rio Seco caves urban park. Without an integrated programme, the valley of the Algés stream also suggests the possibility of establishing spatial continuities. A series of interventions that are divided between the two main watercourses in this catchment area – Algés stream and Outurela stream – start upstream at Zambujal park, Alfragide stream park, Miraflores urban park and Algés urban park form a linear whole that is not yet truly connected, but which

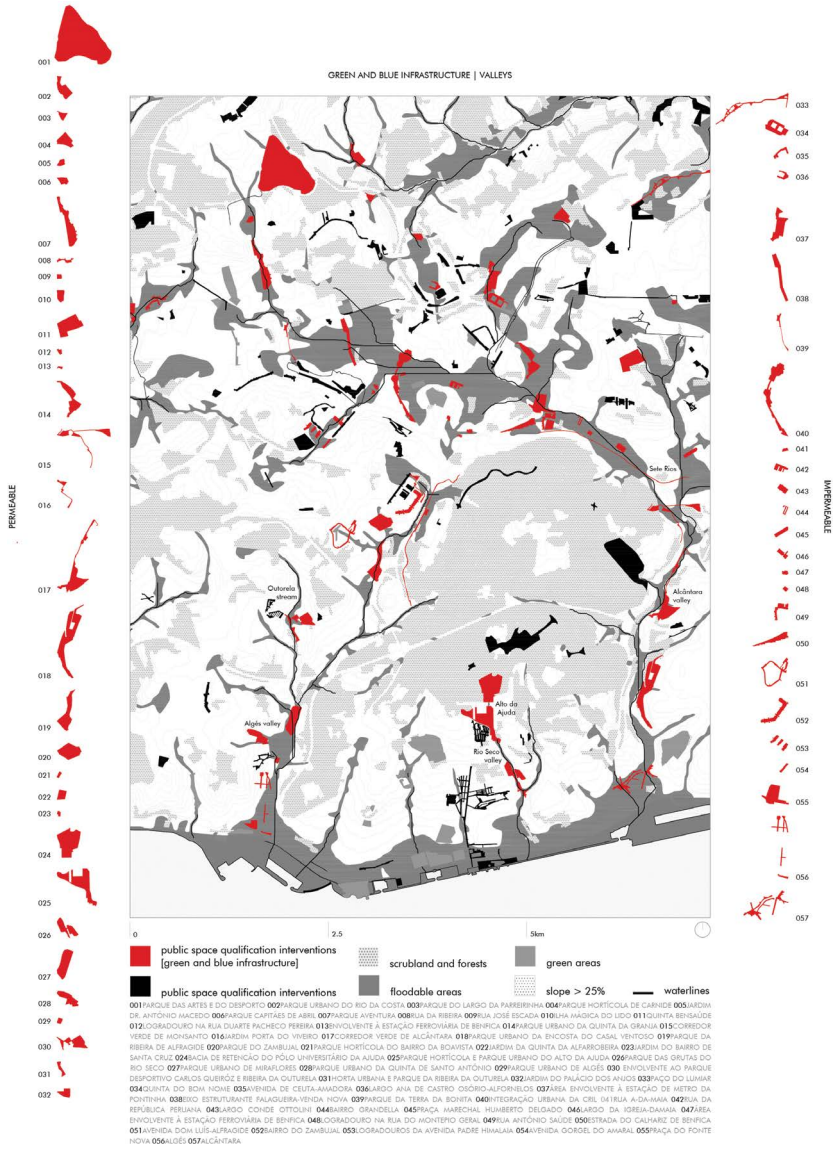


Figure 7.5 Green and blue infrastructures: valleys

Source: MetroPublicNet.

suggests that through incremental mechanisms this objective can be achieved. The Alcântara valley also has an integrated operation – the Alcântara green corridor – in a strategy that connects Alcântara and Campolide. The Alcântara stream is fully channelled, and the perception of its existence is blurred, especially in the upstream section of Sete Rios.

This motivated the exercise of identifying the qualification of permeable and non-permeable public spaces. It does not seem to be a clear association of permeable spaces in flood zones, where the possibility of surface water infiltration could be valued in order to promote more effective drainage. Similarly, the potential for rainwater storage is not considered, either in terms of its usage, nor mitigation of excessive flows that often cause flood problems. As a global assessment, the introduction of green spaces with some degree of permeability along the main urban valleys is a positive contribution to the highly impermeable surroundings. Nevertheless, these spaces are still lacking a systemic perspective as part of a water-sensitive urban design strategy, namely with a more consistent use of retention basins and water management at street level.

Green spaces

The mapping of green spaces interventions (Figure 7.6) was further divided in two types: (1) small- and medium-sized, and (2) large- and extra-large-sized. This simple distinction enables an effective perception of the multiplicity of shapes, sizes, and locations of the green public space interventions. The smaller spaces are often local amenities in residential neighbourhoods, acting as patches within the broader ecological system (Odum, 1971) – for infiltration, biodiversity niches, heat island effect mitigation, etc., with a relatively intensive use. Often they occupy formerly vacant plots or residual fragments adjacent to road infrastructures, and steep slope hillsides, acting as a tool to better integrate underused spaces in the urban fabric, to frame heavy infrastructure and to preserve areas that are not suitable for construction.

The larger spaces, over 30,000 m², tend to be located in Monsanto Forest Park, or part of green corridors, such as in Alcântara valley, or Parque Aventura in Amadora. As the scale increases, less intensive are its uses – as is the case of some agricultural parks. The largest – Parque das Artes e do Desporto, also in Amadora – is a former waste landfill reconverted as a leisure and sport urban park. The sealing and reclamation of former wastelands has also been an important investment in LMA's environmental qualification recurring to specialised environmental engineering technical solutions, and a contribution for the overall public space system. This typological diversification of green space has widened its potential from the small-scale, local gardens and parks to larger entities and with new functional roles, better suited to be a structural support to the heterogeneous fabrics of the metropolitan landscape.

Neighbourhoods' connection and cohesion: Critical neighbourhoods + shopping and retail porosity

To understand the spatial dimension of neighbourhood life and socio-territorial cohesion at an intermediate scale between the local and the metropolitan scales, two interpretative lenses were selected: (1) the public space interventions focused on residential areas characterised by socially disadvantaged communities, and (2) the interventions located in commercially dynamic areas, seen as functional proxies for urban vitality, conviviality, and economic inclusion.

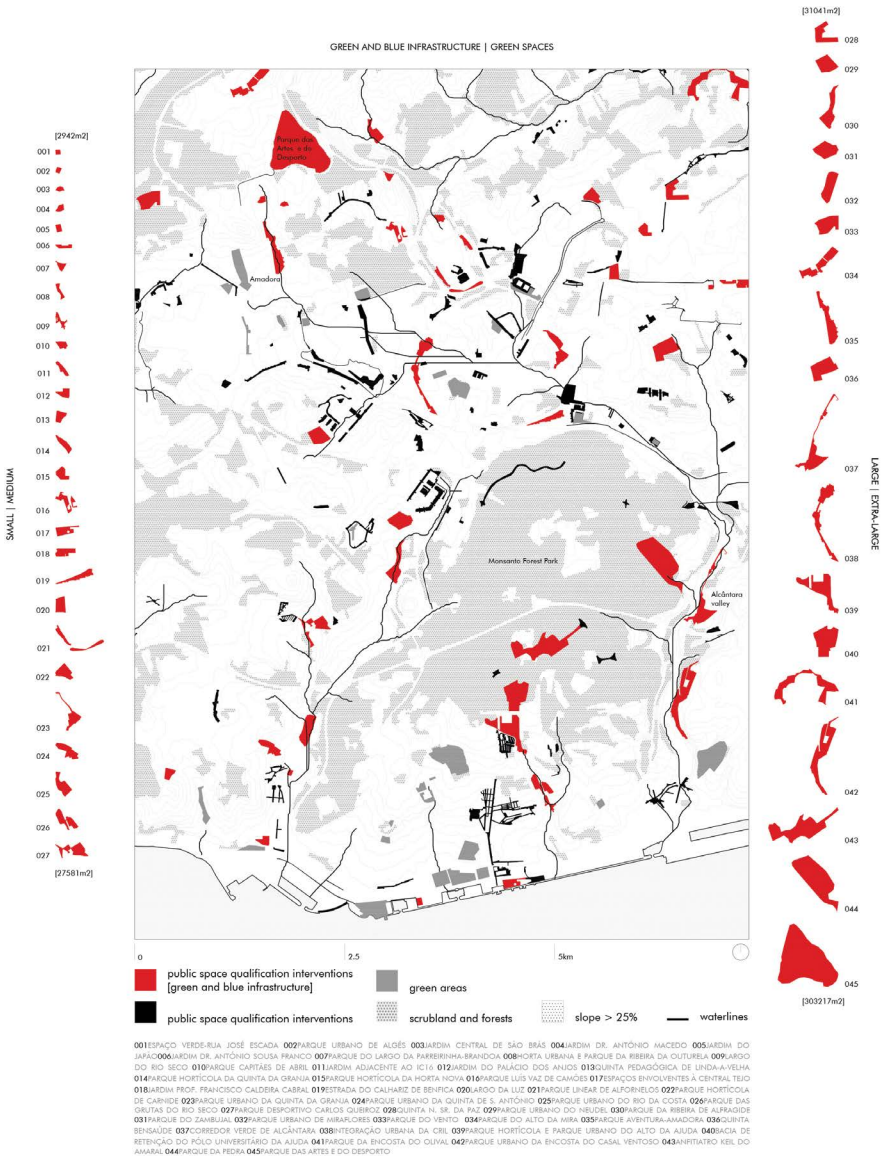


Figure 7.6 Green and blue infrastructures: green spaces

Source: MetroPublicNet.

Critical neighbourhoods

Critical neighbourhoods – the name of an urban policy initiative set by the Portuguese government in 2009 aimed at developing comprehensive interventions in urban districts characterised by a concentration of low-income residents and often

discriminated social groups, facing multiple vulnerabilities, high unemployment levels, and spatial disconnection from their context – is an overarching designation used for this interpretation, and it includes three types of urban area: (1) publicly developed housing neighbourhoods, (2) precarious neighbourhoods, and (3) urban areas of illegal genesis (AUGI).

With only 2% of publicly managed housing stock based on [Statistics Portugal \(2016\)](#), Portuguese policies have largely favoured a private-led residential market as the main source of housing provision. In the context of the pre-1974 ‘Estado Novo’ regime, very limited and selective public housing initiatives were developed, mostly located in the city of Lisbon, leaving large tracts of the population with the capacity to afford market-sourced dwellings. Some of these housing projects were characterised by single-family homes, often segregated from what were the then central city districts. Today, some of them have been absorbed into the surrounding urban fabric, and have become well integrated into the city, such as the Santa Cruz neighbourhood in Benfica, or the Restelo neighbourhood. Others, such as Caselas or Alvito, are still today isolated, with fragile urban connections. Those who couldn’t find affordable housing, had to resort to illegal and informal processes, in the form of extremely precarious shanty settlements, or for those with some small investment capacity, resorting to self-building processes in illegally parcelled plots.

As social and political pressure increased in the last decade of ‘Estado Novo’, larger-scale collective housing estates, such as the Zambujal neighbourhood started to be developed on the industrial ring that surrounded Lisbon, a process that continued until the mid-1980s, but still far from reaching the existing demand. Most of the publicly developed housing production in LMA after the 1974 revolution was targeted at low- and very-low-income population, some of it relocated from the extensive settlements of shanty buildings that were a common sight until the early 2000s.

The implementation of the Special Rehousing Programme (PER), which began in 1993, was accompanied by a diagnosis in the LMA that described more than 28,000 shacks with more than 115,000 inhabitants ([Allegra et al., 2017](#)). Large estates like Casal da Boba and Casal da Mira in Amadora, Av. de Ceuta in Alcântara Valley, or Outorela in Oeiras municipality, were built as part of PER. These interventions were carried out as integrated projects, where housing and public space were coherently designed and built. However, their disconnection to the established city is evident in their distance to central areas, in the lack of adequate public transport and public space links, and in the exposure to nuisances from nearby heavy infrastructures.

Despite having been almost completely eradicated, a few of the shanty building settlements persist, namely in the municipality of Amadora, such as Cova da Moura, Quinta da Lage, or Alto da Damaia. With extremely poor conditions of housing and public space, they are the result of precarious self-building in illegally occupied infrastructural fringes, former military defensive lines, or privately owned farmland.

The third category of critical neighbourhood are the AUGI, defined in the Portuguese planning system as rustic parcels that have been subdivided for building

purposes without a legal authorisation. Throughout the 1960s through early 1980s, LMA witnessed a widespread proliferation of these areas, as a response to housing shortage and a lack of legally urbanised land. Usually characterised by extensive, low-density built fabric, mostly comprised of single-family housing, AUGI offered poor conditions of basic infrastructure and public space, often lacking street pavements, sewage, or even electricity. Particularly after the 1974 revolution and still an ongoing complex and time-consuming process, involving local municipalities and these irregular landowners, the majority have been legalised and incrementally serviced by public amenities. In the studied territorial sample, the neighbourhoods of Brandoa, Serra da Luz, Moínhos da Funcheira, and Quinta das Canoas are included in this category.

To address the role of public space interventions on these critical neighbourhoods' connection and cohesion (Figure 7.7), two groups of public space were used: (1) the mobility-related interventions, and (2) the green infrastructure-related interventions. Together, they triangulate MetroPublicNet's rationales, in considering a comprehensive and articulated interaction between them.

When looking at the publicly developed housing estates and neighbourhoods, two patterns emerge. One, in which relatively large, diverse, and spatially articulated projects are identified, namely in the Zambujal, Outurela, 2 de Maio, and Alcântara Valley. These cases are related with comprehensive interventions with high-investment costs, aimed at structural upgrade of the internal neighbourhood amenities, along with a better integration in the surrounding urban system. They tend to combine mobility improvement (passages, bicycle paths, local street requalification) and green space and infrastructure (parks, stream regularisation, local agricultural production). A second, in which only smaller actions are identified, usually related with green space or small convivial squares, with very limited relationships with the surrounding areas.

Regarding the shanty building settlements and the AUGI, very limited public space qualification has been identified. The exception being Brandoa and Serra da Luz neighbourhoods, where several projects have been incrementally developed. In both cases, important streets and small squares have been upgraded, in order to introduce a more dignified urban image to the overall neighbourhoods, along with improved walkability and convivial conditions. Serra da Luz also is an example in which some unbuilt parcels have been converted to public space amenities, given the fact that none were consistently planned and allocated in its original settlement process.

Shopping and retail porosity

The second lens to address neighbourhoods' connection and cohesion focuses on the spatial relationships between commercial activities and the public space structure. Besides accommodating transient forms of commerce or intermittent events, such as street vendors or farmer's markets, public space can have a more structural role in activating local neighbourhood commercial dynamics while and integrating them on a broader metropolitan network of diverse forms of consumption. As one of the layers

Like in the previous topic, to understand the contribution of commercial-related public spaces to neighbourhoods' connection and cohesion, two lenses were used: (1) the mobility-related interventions, and (2) the green infrastructure-related interventions.

In the case of the older urban districts, such as Alcântara, Belém, Ajuda, Alcântara, or Algés, there is a clear relationship between their morphological configuration and the main streets that connect them to the wider territory. This relationship is reinforced by the strong commercial frontage along these streets. Despite relatively small – with the exception of Ajuda – interventions in these districts focused on improving the walkability and on reducing traffic. Such trend favoured the consolidation and development of new trades and a more generous relationship between shops and outside spaces, namely resorting to terraces. Projects acting on local streets and squares can thus have a relevant role not only in these neighbourhoods, but also in more anonymous residential neighbourhoods, such as Damaia, Reboleira, or Brandoa, which had a global upgrade of their commercial environment as a result of local street qualification projects. The case of Ajuda, however, must also be discussed in regard to the nearby district of Belém, one of the main monumental and touristic destinations in Lisbon. In this case, the impact of public space improvement is resulting in increased pressure on housing rents and social gentrification. Such process is particularly evident in Lisbon's central districts and a major challenge when assessing the socio-economic impact of public space policies.

Across LMA and within the studied area, medium-sized retail areas have multiplied significantly in the last two decades, capturing gross and specialised consumption that was previously found in more traditional groceries and local shopping districts. Some ageing industrial and warehouse districts, such as Portela and Alfragide, are also being renewed as commercial districts, a process for which public space can clearly contribute. On a bigger scale, the large shopping malls play a prominent role as a facet of contemporary consumerism society and a particularly impacting structure on the urban and metropolitan flows. In the studied area, three large shopping malls and four large retail supermarkets are identified, most surrounded by motorways. Only two – Colombo and UBBO – having meaningful public space qualification interventions in their surroundings. This relative absence can be seen as an indication of a self-centred spatial and functional rationale, where urban integration takes a back seat and is mostly defined by car accessibility and branding signage. It can also be seen as a missing opportunity to use the dissemination of these shopping and retail formats to structure better connected urban districts and public space networks, not only aimed at attracting consumers, but also to provide equitable and convenient access for their employees.

Interestingly, the only projects identified in their vicinity are related with green space and green infrastructure. Despite lacking a direct functional relationship, these spaces can extend the entertainment and leisure role of large shopping and retail areas to their outside premises. In fact, green spaces are particularly suited to sustain transient events and develop specific commercial functions – i.e. kiosks, fairs, food, and beverage – and therefore activating neighbouring communities.

Again, Brandoa is a good example, in which a new park at the neighbourhood's main entrance organises a set of urban facilities, among which a fixed market and a very popular informal market is set on the nearby roads every Sunday.

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8 Territorial ecologies of public space in Lisbon metropolis

João Rafael Santos

Territorial ecologies: Linking landscape, networks, and the everyday metropolitan life

‘Once the history of the city is brought under review, it is immediately apparent that no city has have been produced by such an extraordinary mixture of geography, climate, economics, demography, mechanics, and culture’ (Banham, 1971, p. 24). Banham brings an interpretation of Los Angeles as a ‘comprehensible unity’ under the double framing of its topographical and historical context. This approach dislocates the focus of the urban image perception from the accumulation of singled out banal architectural objects to an experimental and relational subjectivity that embraces large-scale territorial features and artefacts. Such subjectivity reveals unique combinations of lifestyles, market production, and the spatial arrangements that make them possible, establishing narrative nexuses between architecture, its biophysical support, and the way how inhabitants relate to their city. It can be seen as a descriptive synthesis coming in line with the phenomenological conceptualisation of landscape such as those of Augustin Berque (1994), who highlights the fundamental mechanisms of mediation between the subjective and objective components the *milieu*, a relational entity established between society and its environment.

Banham’s account introduces a simple, yet powerful mapping of the key elements around which *ecologies* are assembled, bringing in a tool that challenges conventional notions of centre and periphery, core, and suburb, often biased as positive and negative constructs. Instead, they offer cross-sections that contribute to the intelligibility of a sprawling and incommensurable territory, contributing to the need to find alternative references and rationales on an urban landscape that escapes morphological and semantic conventions. These maps offer a sharp view on what could be a conceptualisation of landscape as an infrastructure (Mossop, 2006) that underlies other urban systems matrixes by revealing the way how incrementally and cumulatively built networked artefacts can be understood as ecological entities, along with rivers, forests, and other landscape features. It’s this sort of far more complex urban territory what Kazys Varnelis finds in his reading of Los Angeles, almost 40 years after Banham’s: a city made of networked ecologies that act as ‘a series of co-dependent systems

of environmental mitigation, land-use organisation, communication and service delivery. (...) networked, hyper complex systems produced by technology, laws, political pressures, disciplinary desires, environmental constraints and a myriad of other pressures, tied together with feedback mechanisms' (Varnelis, 2008, p. 15).

An interpretative outline of Lisbon's ecologies of public space

A heterogeneous metropolis, where a diverse patchwork of urban, industrial, and infrastructural fabrics is interwoven over outstanding landscape features – two rivers, two estuaries, three natural parks, and the Atlantic coast – Lisbon is a rich laboratory to explore the multiple sides of public space in its structural relationship with the territory. In its process of fast metropolisation, particularly throughout the second half of the 20th century, the long-standing rural cadastre, small villages, roads, and paths, became embedded in nowadays urban fabric, despite fundamental changes in the economic and social strata. Together with new rationales for the exploitation of natural resources, environmental protection agendas, and social practices of leisure, consumption, and residential demand, one can witness the rise of new, multiple – and networked – *ecologies*, based on Banham's and Varnelys' conceptual legacy.

Looking at Lisbon, after several decades of urban growth with significant gaps in a coherent, cohesive, and sustained offer of housing, sanitation, road infrastructure, and urban facilities, the transition to the 21st century brought a process of incremental territorial qualification, in which public space played an increasingly systemic role in addressing urban challenges (Coelho, 2017; Santos, 2019) and in creating a collective benchmark for urban sustainability.

On another hand, LMA has also evolved from a mono-centred metropolitan core surrounded by industrial, suburban, and rural settlements, into a more poly-centred and networked urban fabric (Santos, 2018), in which mobility patterns have significantly evolved beyond simple home to work commuting. Its morphological, social, and economic diversity comes hand in hand with heterogeneous natural features that have also evolved into highly artificial and urbanised landscapes, embedding a patchwork of valleys, flood plains, steep hills, and flatter plateaus as fundamental shapers of the urban fabric. Navigating such metropolitan landscape in search for meaningful and shared designations is a challenging task, often clashing with the widespread use of blurry and imprecise labels of urban dispersion, fragmentation, sprawl, and disorder.

Acknowledging this disciplinary difficulty as a challenge and an opportunity for continued inquiry into the fast-changing territorial dynamics, Metro-PublicNet research project focused on public space as a common ground from which new descriptive and design-oriented perspectives can be outlined. Taking Paola Viganò's (2010) proposition of 'description' as a crucial operation of territorial project, a selective articulation of spatial representations may contribute with strategic readings on what are often read as ambiguous territorial conditions.

In the following lines, a preliminary display of nine territorial *ecologies* of public space is identified (Figures 8.1 and 8.2), each offering a relational perspective between recent public space qualification interventions, their territorial embeddedness, and potential design-oriented rationales. Their outline groups some of the projects mapped in the Atlas of LMA's public space, as paradigmatic of relevant relationships between public space configurations and their territorialised context.

1. *Lisbon riverfront/downtown | Shaping a continuous waterfront, connecting hills and squares, integrating metropolitan transport*

Lisbon's genetic relationship with water is revealed on the complex layering of its riverfront. From an interspersed sequence of small bays and promontories, shaped by the sand and rocky formations of its shoreline, to the late 19th-century landfilling of its port, Lisbon's riverfront use was highly fragmented and restricted. It was

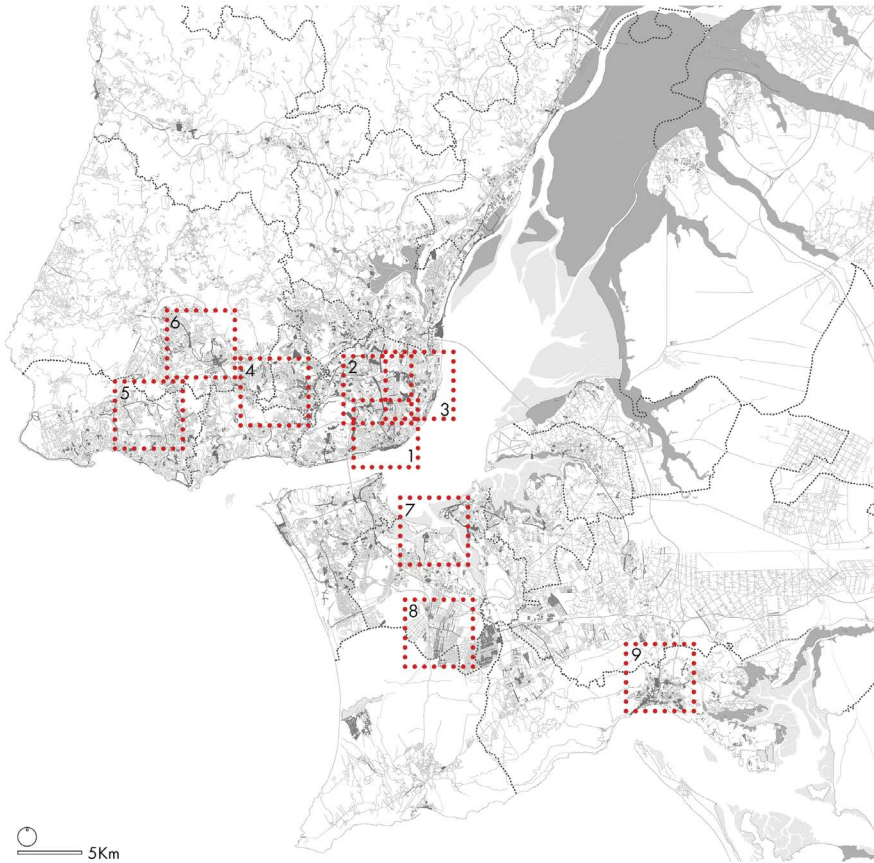
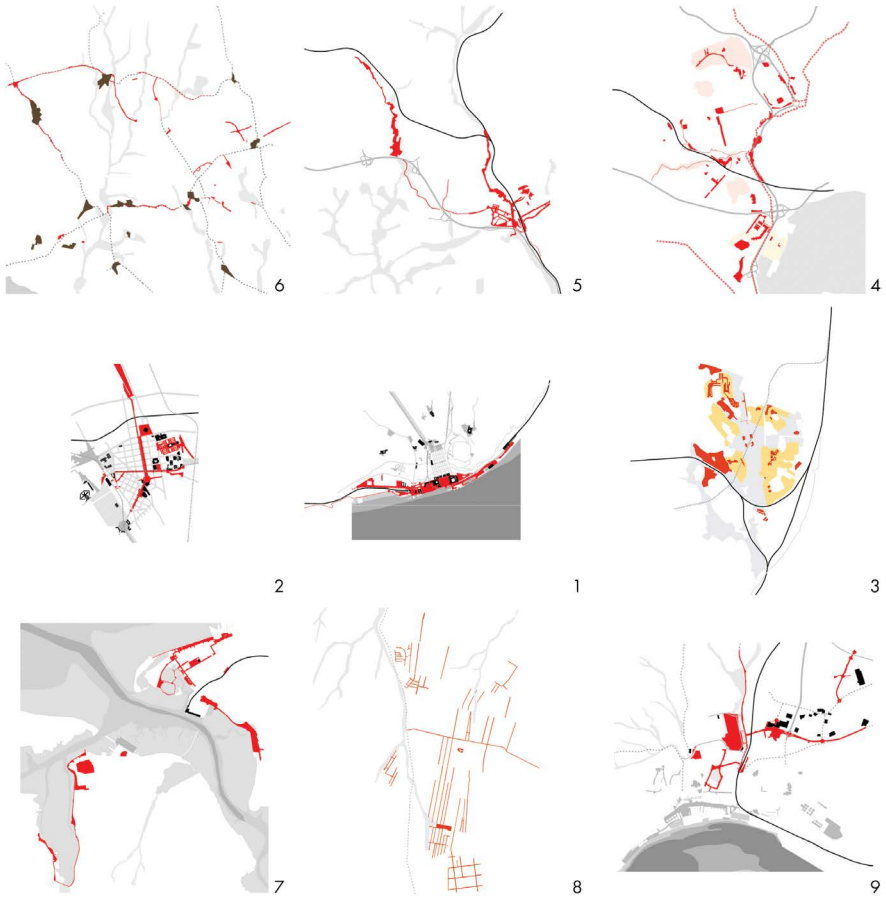


Figure 8.1 The location of Lisbon's ecologies of public space

Source: MetroPublicNet.



1. Lisbon riverfront / downtown | shaping a continuous waterfront, connecting hills and squares, integrating metropolitan transport
2. Lisbon / Eixo Central | reclaiming walkability, bikeability and conviviality in streets and avenues
3. Lisbon / Chelas | using the green structure to reconnect splintered social housing districts
4. Amadora | stitching boundaries and upgrading community spaces in critical neighborhoods
5. Rio de Mouro / Cacém | combining urban stream regeneration with public space in high-density suburban locations
6. Cascais | upgrading old roads to frame an active mobility network across a sprawling suburban patchwork
7. Seixal / Barreiro | connecting water landscapes and town squares in the Tagus south bays
8. Fernão Ferro | creating basic urban infrastructure in illegally developed low-density areas
9. Setúbal | assembling an incremental sequence of streets, urban polarities and green infrastructure

Figure 8.2 An interpretative outline of Lisbon's ecologies of public space

Source: by author.

not until the 1990s that an idea of establishing an accessible and continuous line along the riverfront emerged, requiring complex and long-term planning, legal and jurisdictional processes involving the municipality, the port authority, the military, transport operators, and wastewater infrastructure agencies. Particularly from 2012 to 2022, many public space projects were incrementally delivered under a global

scheme to restrict car circulation and open access to former port and military facilities. Since then, it became a flag for Lisbon's tourism boom and a place for new leisure activities. It remains, however, a fundamental hub for metropolitan transport, becoming a sort of infrastructural public space shared between metropolitan commuters, global tourists, and the occasional joggers. Lisbon's riverfront is a three-dimensional intersection between the *longitudinal* line that connects the Atlantic Ocean and the river upstream, the *transversal* line that projects Lisbon's axial line of growth towards the core of the estuary, and a *vertical* line on which the multiple layers of time overlap in rich archaeological grounds, only partially revealed by recent public space renovation works.

2. *Lisbon/Eixo Central | Reclaiming walkability, bikeability, and conviviality in streets and avenues*

After an initial stage of moderate urban growth during the late 19th century and the first half of the 20th century – mostly based on the opportunities provided by railroad and modern shipping – Lisbon's expansion as a metropolitan area was mostly supported by car and – to a lesser extent – by bus. Particularly after Portugal's adhesion to European Economic Community in 1986, a strong push towards economic liberalisation went hand in hand with private home and car ownership, bringing unprecedented traffic and parking pressure to existing urban spaces. Notwithstanding some localised experiences of pedestrianisation in old historical areas, it was not until the 2010s that more consistent steps were taken to reclaim space for alternative mobility and more convivial urban places. By that time, most of the LMA's municipalities had initiated projects to improve relevant streets, whether of historical or of more anonymous character. Although extremely varied in form and results, many of these projects have succeeded in bringing more friendly and dignified conditions to urban streets throughout the territory. The qualification of Lisbon's Eixo Central [*central axis*] is based on the reclaiming of a structural avenue as a convivial, pedestrian- and bike-friendly boulevard, in which a more compact traffic layout allowed for wider sidewalks, tree linings, and outdoor commercial terraces. The avenue becomes the backbone that fosters new mixed-use activities in the surrounding 19th-century block grid.

3. *Lisbon/Chelas | Using the green structure to reconnect splintered social housing districts*

One of the most critical faces of Lisbon's metropolitan development was the multiplication of precarious neighbourhoods, often occupying publicly owned lands, decommissioned military barriers, or private estates absorbed by the city's growth. Facing a severe housing shortage, the rapid development of large-scale publicly developed housing estates became a political priority, particularly after 1974. Building fast and on a tight budget compromised social mix, functional diversification, and public amenities provision, creating many pockets of poverty and socio-spatial exclusion. Given its diversity and presence across a significant part of the

metropolitan area, it is possible to identify a pattern of recent actions aimed at improving these neighbourhoods and their inhabitants' spatial conditions, based on public space and green infrastructure interventions. Chelas neighbourhood, in eastern Lisbon, offers a good example of such process, in which many of the undeveloped and highly splintered spaces around the mono-functional housing estates were reconverted to parks, vegetable gardens – including a vineyard – and articulated through walking and bicycle networks with the neighbouring areas. Chelas valley and its open spaces became a connective structure, simultaneously responding to local communities' practices, and to a more coherent green and soft mobility system.

4. *Amadora | Stitching boundaries and upgrading community spaces in critical neighbourhoods*

Lisbon's current municipal boundaries were established in the late 19th century as part of a military defensive area structurally related to the natural dividing conditions of Monsanto hill and the deep valleys to the west and north. These boundaries were largely overcome as the city grew in different patterns: radial growth following old roads and railroad lines; settlements' development along the boundary's edge, taking advantage of lower tax and administrative control; illegal and precarious shanty buildings areas over government, military, or private land; splintered and poorly connected public housing estates; medium-sized industrial and retail estates. A major regional ring motorway built in the 1990s over the old military perimeter underlined the spatial divide along the municipal boundary. Under these circumstances, urban qualification projects focused on improving connections over and along this heavy infrastructure, unlocking bounded neighbourhoods and articulating local streets and centralities. A new public space system starts to emerge, offering a more consistent and dignified urban image to a highly fragmented territory.

5. *Rio de Mouro/Cacém | Combining urban stream regeneration with public space in high-density suburban locations*

Much of the 1960s fast and intensive radial suburban development in LMA was located in the vicinities of railroad stations, and along the system of valleys that shapes the region. Dense settlements, based on multi-storey apartment buildings and with poor public space, grew under limited planning control. Water courses became leftover, backyard, waste dump spaces. At the turn of the century, pollution and environmental disrepair converged with public stigma to label suburban neighbourhoods as places of neglect and low-quality living environment. The post Expo 98 environmental turn on Portuguese urban policies opened the door to tackle these urban areas, by reclaiming water courses and valleys as linear parks, combining sewage decontamination, flood control, and public space qualification. The linear parks of Cacém and Rio de Mouro are good examples of an incremental approach that has reshaped the spatial character, the ecosystemic functioning of these waterlines, and the social imaginary self-esteem of hitherto stigmatised urban

areas. Whether as part of more complex urban projects, such as that of Cacém Polis (see [Chapter 6](#)), or of simpler projects focused on green space provision, such as that of Rio de Mouro, they both share the potential for incremental extension along green and blue corridors, with a wide range of functions and spatial characteristics, within a broad territorial scale.

6. *Cascais | Upgrading old roads to frame an active mobility network across a sprawling suburban patchwork*

A very significant part of the urban growth developed around Lisbon during the second half of the 20th century, occurred away from the metropolitan corridors that were formed around railroad lines and the main national roads. Low- to medium-density fabrics, largely supported by local roads and rural land cadastre, started to emerge. As anchorages of this persistent old road network, small villages have also become nodes in a heterogeneous landscape mixing different uses and tracts of open space. As part of a highly splintered private-led urban development process (see [Chapter 2](#)), these roads became the only connective infrastructure, lacking proper sidewalks and public space amenities. Facing high congestion, they became a focus for qualification, starting with traffic calming measures and improved walking and cycling conditions, along with better lighting, public transport stops and upgrades in the old village's central streets and squares. As relevant players, many private retail developers have been involved with municipalities in the upgrade of their sites and surroundings, notwithstanding their continuing dependence on a car-oriented business model.

7. *Seixal/Barreiro | Connecting water landscapes and town squares in the Tagus south bank*

Unlike Tagus River's northern banks, the Estuary's south bank is shaped by a highly irregular and trenched system of deep bays and shallow river tributaries, as a result of sand sedimentation processes. Here, navigation was more difficult and constrained by tides, shallow waters, and the lack of direct mooring quays, preventing the development of a large-scale urban settlement as that found in Lisbon. Nevertheless, the south bank was always a fundamental part of Lisbon's hinterland, supplying the capital city with agriculture, forest, and industrial goods, shipped by river boats. On the other hand, tidal movements allowed for the development of an extensive network of salt marshes, water mills, embedded in a rich marshland ecosystem. Well into the 21st century, the reconversion of large post-industrial sites and abandoned agricultural estates remains a challenge across these areas; nevertheless, in more urbanised spaces a slow, but incremental process of reclaiming these waterfronts is ongoing. Far from large-scale real estate-based projects, these tend to be discrete interventions, sensitive to the environmental values, to the architectural and landscape heritage, and to the local water-based sport, leisure, and shipbuilding activities. The Tagus south bays can be seen as small-scale estuaries, that mirror the scale of the whole estuary.

8. *Fernão Ferro* | *Creating basic urban infrastructure in illegally developed low-density areas*

Resorting to a legal gap in urban legislation, extensive areas of agricultural and forest use were illegally subdivided to accommodate for rising housing demand during the 1960s and 1970s. Lacking any formal planning framework, most of these operations were carried out without basic infrastructure and self-built with scarce resources. In the following decades reconversion processes were initiated, with municipalities struggling to find ways to legalise and fund – together with the owners – its basic infrastructure, community facilities and public spaces. The phenomenon was particularly present in the southern bank municipalities of Almada, Seixal, and Sesimbra, but also in the northern municipalities of Cascais, Loures, and Vila Franca de Xira, in relatively close areas to road connections to Lisbon and its industrial belt. After 1995, specific legislation was passed to facilitate urban infrastructure upgrade processes and since then, and with considerable investment, many of these areas appear as relatively consistent and well serviced. Nevertheless, many of these areas still represent a challenge for urban management, given their relatively scarce density and lack of critical mass to feasibly provide more robust services, public transport, and community spaces.

9. *Setúbal* | *Assembling an incremental sequence of streets, urban polarities, and green infrastructure*

Along with the sharp increase of car ownership, the 1990s and 2000s saw a considerable increase in large-scale retail and shopping centres, particularly in close locations to (also new) highway nodes. With parking as a central feature, the first generation of such centres was designed for car accessibility, with poor public space relationships with their surroundings. Nevertheless, they became important spaces for everyday life and relevant nodes in Lisbon's metropolitan landscape. As the retail business models evolved into more diversified arrangements, along with increased demands from local planning authorities, emerging concerns with architectural image and urban integration are being addressed. Being in the proximity of large-scale infrastructures, many shopping redevelopment projects included improved walkability and green spaces amenities and better access to public transport. In some cases, as the one of Setúbal, a medium-sized city 40 km to the southwest of Lisbon, a shopping centre expansion and refurbishment was the trigger for a systematic upgrade of a complex highway and national road intersection, completely reframing one of the main city's entrances. The operation was articulated with the Municipality to scale up its impact and leverage the investment on new infrastructure, including a new transport hub, the reorganisation of traffic flows, or the creation of a large-scale urban park around a major storm water retention basin.

An ongoing description

Going back to Banham's quest to reveal a city that escapes comparison and canonical descriptions, this chapter may be read as a provocation. Incomparable in size, shape, culture, urban form, and so many other features, Lisbon and Los Angeles

share a Mediterranean climate, a coastal position, a rich relationship with water and all the supply networks that brings it to human use. Incomparable also in the way how public space is planned, used, and understood, they provide an intellectual challenge when it comes to offer a unitary, coherent description for its territorial whole. Yet both are made of a highly mobile and complex layering of natural and human-shaped networks, developed under (not always) synchronised individual and collective actions, often escaping a scalar fix on what is perceived as the *city* and the *metropolis*.

The exercise of identifying and mapping of nine *ecologies*, in which public space projects have engaged with specific biophysical, infrastructural, and built urban structures in LMA aimed at contributing to an open and ongoing re-interpretation of such complex and ever evolving layering of public space. More than providing an outline of Lisbon's particular conditions, they may suggest policy and design perspectives for networked systems of public space on other cities and metropolises. These *ecologies* are understood as interpretative descriptions in which public space is revealed in its multi-scalar geographical dimensions – from local urban spaces to territorial landscapes – and in its multi-systemic capacity – a construction dealing with both natural and artificial flows. Furthermore, and analogously with Banham's method to decode the complexity of Los Angeles, such interpretative approach emphasises the mediation between the objective and the subjective or, in other words, the relationship of specific spatial patterns with the contingent and emerging events that continuously reshape the urbanised territory.

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9 Viewpoint II. The Atlas of four landscapes

Thick landscape as socio-ecological medium

Paola Viganò

Sauntering

The Atlas of Paris Landscapes is a collective interpretative journey guided by the idea, conveyed by the European Convention on Landscape, following which “Landscape is a part of a territory, as perceived by local people or visitors, which changes over time as a result of natural forces and human activity” (European Landscape Convention, 2000). But unlike all those already produced, this atlas concerns a metropolis, a state capital, one of the most intense and stratified cities in the world. Paris is a fundamental *tópos* in the collective planetary imagination, a place of excessive power concentration, of a thousand cultures, an urban area in the throes of the ecological and social transition. Starting from the landscape definition offered by the EU convention, the Atlas explores its rich ambiguity and inclusive character, opens to the geographical and cultural tradition of landscape studies, the material production of the urban scape, a systemic and ecological reading, the aesthetic dimension of the contemporary sentiment of nature. The Atlas of four Landscapes¹ is then the deposit of the collective experience of Paris realised during its construction: readings, discussions, presentations, walks, interviews, seminars, involving residents, experts, civil servants, associations, schools, places, monuments, geographies, perceptions, and atmospheres. A “space for different narratives”, “un espace de récit” (Besse, 2024).

As we wander around Paris, we are like the stroller described by Thoreau in his little book *Walking* (1862): not just Baudelairean *flâneurs*, but rather those who practise “sauntering”, whose etymology takes us back to the French language and the search for the Holy Land (*Sainte Terre*) at the time of the Crusades, or, following different roots, to the *Sans Terre* (nomads without land) who are never at home and at home all the time, sharing descriptions, interpretations with inhabitants, visitors, local experts, institutional levels. The choral dialogue around landscapes traces the possibility of common understanding and visions. Each chapter of the Atlas concludes with issues and recommendations for the future of Paris landscapes. Here, it reveals the full “social and political significance of urban landscapes” as pointed out by sociologist Luca Pattaroni (HRC-EPFL, 2024); the ecological and social transition emerges in all its centrality as a profound gap between consolidated landscapes and novel imaginaries which alters all codes of coexistence.

Four landscapes

The Atlas is built on the semantic complexity of its terms: “An atlas is not just a book; it is an intellectual method of exploration. It must be seen as a superimposition of images, texts, and maps of all kinds in a space that is the space of representation of our world” (Besse, 2024). Such a definition gives form to a hybrid product that contains multiple perceptions, descriptions, and narratives.

The methodologies traditionally used in landscapes atlases have never focused on an (in its entirety) “urban landscape” such as Paris. Nor on the perception of the city as a sum of landscapes, a “social space” whose psycho-geographical representation enables inhabitants to situate themselves in a concrete space (Chombart de Lauwe, 1952). The right to landscape and the right to express oneself about natural and urban landscapes legitimise speaking through perceptions, collective or individual memories; the right to make a public space exists through ordinary language. The common experience of place is fundamental: being there, sharing the moment, crossing spatial and cultural barriers, appropriating the landscape. The “right to landscape” is a democratic right (Settis, 2023), and landscape is a relational concept that is activated through collective and individual experience; it introduces new possibilities into urban thinking.

The Atlas proposes a thick concept of landscape because the simplicity of the European Convention’s definition is only apparent. Its openness and inclusiveness risk the paradoxical impossibility of dealing with such semantic breadth. Originating in the geographic turn, the EU convention deals with the sometimes-surprising interaction between man and nature, between the natural landscape and man-made transformations. Its foundations lie in a cultural idea of landscape that goes beyond the “veduta” and becomes the sensitive experience and expression of human and non-human uses, activities, and organisations. The value of all living environments is an essential character of any landscape, although only a few have the cultural power to define a place, valorise it, aesthetically and politically (Zukin, 1991). Other traditions of thought need to be mobilised.

Cultural perception is the first dimension of the Atlas thick landscape, a cognitive approach that is at the opposite of the Cartesian analytical one. *Gestalt* psychology, developed at the beginning of the twentieth century, gives primary importance to the visual act, but it involves the whole spectrum of the senses. What we see, the landscapes inscribed in our gaze, are transformed into sensible memories: of a comfortable place, a repulsive situation, which can be intimate or shared by groups (the inhabitants of Paris, young Parisians, tourists, etc.). The status of sensibility and appearance (Carnevali, 2012) recovers social importance, beyond the constant dualism that runs through Western culture: the opposition sensitive appearance/reality. Shared perceptions create points of reference in the collective imagination and structure socio-political discourses; they are powerful levers for action engraved in the material urban consistency. These perceptions – sensitive and affectionate, shared, or intimate – are the starting point of the Atlas: the world presents itself to human observation. To access these perceptions, it weaves together multiple lines of exchange: public walks, conversations, seminars, and meetings between experts

and public stakeholders, citizens' associations discovered along the way, literature, or visual art. These perceptions are unstable in time and space, but common motifs and infinite variations build together unequivocal Parisian themes.

The second landscape dimension covered by the Atlas is material and systemic: topography, water, trees, and their complex interactions with a city of two million inhabitants. Landscape is the form of the earth, the unique work realised by waters that erode, soils that move, altered, and stratified, it is vegetation and fauna. It cannot be described without ecosystemic readings of characteristics and functionalities (the agency of slope and water flow, soil and subsoil permeability, drought and flooding risks and the potential of relationships). Perception reveals, passes through the rapid path of impression; the atlas explores, decants, finds threads, reasons for being there of certain landscapes. The Atlas cross-references perception and experience with ecological logics and rationalities of a "territory subject" (Viganò, 2024).

However, the two landscape dimensions do not exhaust the Atlas; a third landscape must be added: façades, passages, the urban ground floors, the intricacy of open and built space. All material and cultural elements creating unique contexts that are typologically and morphologically defined: the urban landscape of the built palimpsest. A disappeared landscape structure, such as the Bièvre watercourse and its phantasmatic presence, or the Belleville *villa* housing types, the zinc roofs of Paris, another mythical landscape, or the evolution of parks and gardens give depth to the investigations of the Atlas, clarifying the cultural and technical issues of the Parisian material and immaterial heritage.

The fourth landscape, finally, includes the aesthetic dimension, i.e. the evolution of codes that express a sentiment of nature, today partially connected to climate and societal adaptation, and inevitably underpinned by philosophical ideas of landscape, its meaning and necessity. The recent "environmental aesthetic" is a particularly important issue to highlight which extends and hybridise heritage, social, and political issues. In an age that questions traditional aesthetics by ecological concepts and climate adaptation, environmental aesthetics criticises the idea itself of landscape construction as a set of inherited codes and patrimonial considerations (Briffaud, 2022).

The four landscapes are brought together to enable a discourse on landscape that practices its full thickness. Issues and recommendations underline the centrality, in the future, of thinking in landscape terms to address the controversial choices implied in the project of the socio-ecological transition.

The Atlas

Paris is its position, its natural foundation, modified over time by urban and environmental history. Among the landscape structures, topography is the first and fundamental one, together with the Seine and others for their function in organising space (well beyond its boundaries: *Paris sort*, it is a sum of open territorial figures), or as major landmarks (axis, monuments, large parks, forests, etc.). They unite and define a common horizon, but also cut, divide, and fragment. Structures are often

limits, boundaries that act in the collective imagination, drawn in physical and social spaces. With their strong ecological/geomorphological/symbolical expression, they are source of multiple inspirations through their forms, materiality, and aesthetics.

The metropolitan “villages” and “commons” (Figure 9.1) are the entities that deconstruct the built mass of the city: “Paris is a big city, made up of little towns and villages...” writes Jean Cocteau describing the Palais Royal, his own “village” (Cocteau, 2013). The “villages and metropolis” dialectic has always been crucial in urban and territorial thinking. The centrality of the village as a socio-cultural-historical spatial entity stems from the multiple paths of its roots (history, uses, culture, etc.), and even more so from its relevance to the contemporary debate in the face of gentrification and expulsion dynamics. In his 1887 study *Community and Society*, the German sociologist Ferdinand Tönnies (1957 [1887]) drew a distinction between the *Gesellschaft* of modern society and the traditional values of the *Gemeinschaft*. In the modern and contemporary metropolis, every individual lives in both dimensions and, as Tönnies describes, moving from one to the other fluidly. The intermediate landscape of the village, located between the large metropolis and the housing units, opens the way for a discussion on a contemporary form of urban and socio-ecological coexistence. Against homogenisation, villages describe the particularity, the exception, the diversities that coexist in the big city. A “metropolis made of villages” is not a sum of enclaves, but represents culture as an assembly of eras, populations, histories, and landscapes. By stressing their formation process, their representation and literary description, their existence in the public space means listening to their stories: lifestyles, daily trajectories, micro centralities and meaningful places, revealing unexpected mechanisms of sharing and solidarity. The villages reflect a widespread feeling among the participants, that of still being able, in Paris, to recognise an intermediate scale of proximity, of solidarity which is readable in space and assumes the characters of a landscape of affection.

The “metropolitan common”, the space in-between villages, sometimes a “free zone” (Hazan, 2002), often a specialised enclave (religious, military, political, etc.), is no less inhabited, it produces pauses and interruptions in urban multifunctionality and in the fine grain of the Parisian street level-ground floor (*rez-de-ville*) (Mangin and Boudjenane, 2023). It is through this subtle, often abrupt play of fractures/pauses/continuities that the recognition of places, boundaries between one landscape and another, often contrasted worlds, is played out. It is a question of atmospheres created by the practices, and by the very traces of inhabiting (Benjamin, 1989). Understanding the material conditions of space production contributes to make the urban landscape visible, because, paradoxically, we see differently if we know how to read traces, and spatial practices.

Landscape elements usefully complete the logic of organisation and structuring of space and, at the same time, unequivocally characterise the landscapes of Paris. The Seine bridges, for example, with their exceptional number, reinforce the structuring role of the river; the fragments of the fortifications, with their gates, help to understand certain breaks in the continuous fabric, the *métro* stations reveal the dense Parisian underground.

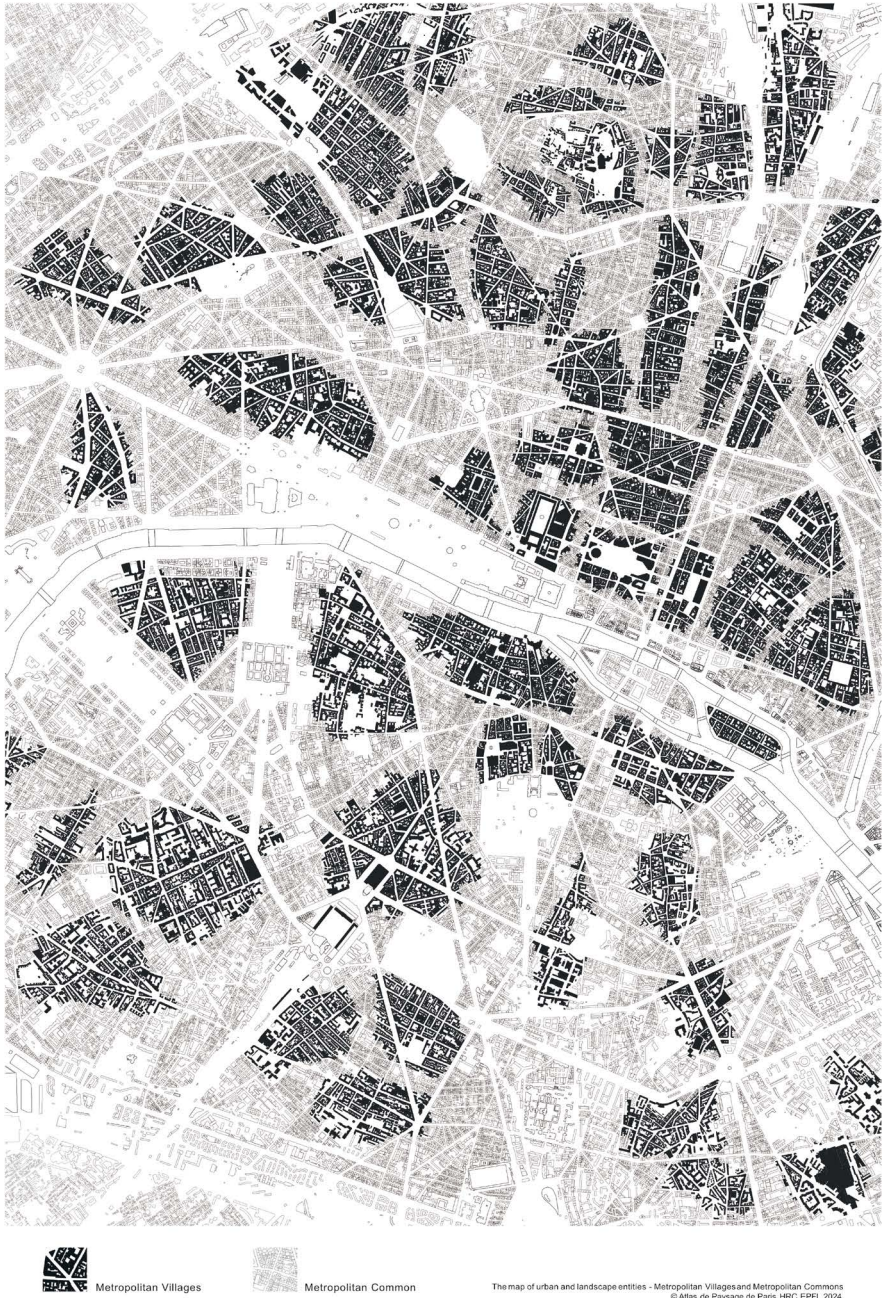


Figure 9.1 The map of urban and landscape entities - Metropolitan Villages (extract and detail)

Source: EPFL-HRC, 2023.

The landscape units, with the fractures and discontinuities recognised in the Parisian space, offer an overall image of Paris, and it is an original, unexpected image: for once, the *arrondissements* are not “taken for granted”, nor the “neighbourhoods” in the administrative sense, the most distant from a landscape gaze. The units are based on the topographical reading of the Parisian bedrock, the historical evolution of the city, always in relation to the inhabitants’ perceptions. Another Paris emerges in relation to valleys, hillsides, plateaus, and *cols* (passes), a term that has disappeared in recent maps and revalued by the Atlas.

Walking has been one of the fundamental research tools in the Atlas construction, it produces information, exchanges, testimonies recorded by video, maps drawn on site. Walks are always complex activities: our body is exposed to the place; all its perceptions produce the individuation of each landscape. It is re-territorialisation, we are there and not elsewhere, it is individuation of figures (Augoyard, 1979). It is always the construction of situations, through our presence with others, the synchronous movement of a group, its stops and movements. There are moments of intensity, production of ideas, debate. Walking with children, elderly people, with fragile populations or choreographers, with expert citizens or quasi-tourists, let arise the fears, the desires, the commitments of each individual, the positions taken on the possible futures of each landscape crossed. It is thanks to the generosity of each speaker, participant, person that the Atlas can call itself a “choral”, where “chorality” touches on polyphony (a plurality of voices and themes), a narration around a common territory: the “carte de paysages” returns this collective endeavour.

The Atlas of landscapes as medium: First and provisional conclusions

Paris is changing “all the same” (Bailly, 2022). Between planning and spontaneous transformation, ecological crisis and urbanism, landscape opens to multiple perspectives: all subjects are likely to be questioned by its existence. Collective representations reveal or imply the relationships among the subjects who construct and modify landscapes. Together with landscape, the Atlas acts as a medium: of discourse, positions, criticism, a vast collected knowledge² to discuss the evolution of landscapes inside the radical nature of the change underway.

Through this, the Atlas speaks of a city, its characters, shared or contrasted images, transformations, issues. Its approach might be extended to other urban and metropolitan contexts including the frame of the MetroPublicNet research and of Lisbon Metropolitan Area. The exploration of the metropolitan palimpsest through the lens of public space defines places of accumulated memory on which to inscribe a contemporary creative process. Some of the categories explored in the Atlas resonate with the research and with metropolitan Lisbon: the “metropolitan common”, for example, the space in-between villages, translates well what is the Lisbon Metropolitan Area up to current times, and that only recently is becoming part of a metropolitan imaginary. Public spaces contribute to this same imaginary. They are part of fundamental metropolitan landscape structures, and to recognise

them means to explore the figures that organise the metropolitan space, ecologically and socially.

It is obvious that the Atlas talks about society, ecologies, economies, urbanism, urban policies, and power relations. But thanks to the entrance through the landscape, the Atlas opens rare possibilities of expression. Because regarding landscape we are all free to express ourselves: from what we see, from what landscapes bring us, sharing memories, and images of the future.

Notes

- 1 The Atlas has been realised by HRC (Habitat Research Centre) at EPFL (Paola Viganò, director, Ben Gitai coordinator of the team, Noémie Lécoanet, Joanne Nussbaum, Clarisse Protat, Hugo Silva Costa, and, as EPFL experts, Charlotte Grossiord, Gabriele Manoli, Luca Pattaroni, Paolo Perona), and with Jean-Marc Besse, Valentin Bourdon, Dominique Marchais, Chiara Santini, Pieter Uyttenhove as external experts. Clients: City of Paris and DRIEAT (State of France).
- 2 In collaboration with APUR and taking advantage of its unique accumulation of information, studies, and projects.

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Part II

Systemic Perspectives



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10 How land meets water in river edge urban regeneration projects

Building the perspective of a City of the Tagus Estuary

Caterina Anastasia

Introduction

Over the course of the last decade or so, urban design has come to reclaim infrastructure as a structuring device useful in dealing with existing complex spatial conditions characterised by rural-urban hybridity, accelerating horizontal urbanisation, neoliberal economic regimes, and rising environmental concerns (De Block, 2015).

Being elements of environmental, cultural, and mobility infrastructures, water corridors have underpinned continuous and profound functional transformations. Due to their importance in the location and construction of human settlements, they offer a basis for urban and landscape regeneration projects seeking to address environmental resilience, for a more broadly integrated water-urban arrangement, and for context-based design strategies (Anastasia, 2023; Muñoz, 2019; Ranzato, 2017). Water-related projects are thus entrusted with features crucial for adapting cities to the current climate emergency (UN Water, 2010), for contextualising the intervention on the basis of the physical, social, and cultural characteristics of the local milieu (Muñoz, 2019), and for addressing social justice in the processes of promotion (gentrification) and in heritage conservation processes (Avni and Teschner, 2019) (Anastasia, 2023). They also play a key role in improving inhabitants' well-being and social cohesion (Anastasia, 2022; Beute et al., 2020).

Setting aside the imposing tasks ultimately entrusted to it, the waterside regeneration project has the definition of the water-edge as its immediate result – the characterisation of the land-water interface. If thought according to Matias Ferreira and Castro's (1999) suggestion regarding the waterfront, the 'thick' land-water interface (Anastasia, 2019) assumes the role of a territorial border, not an obstacle, but on the contrary the delimitation of territories that, while polarising separate identities, also acts to integrate them.

With a focus on the main riverbed of the Tagus, this chapter analyses the land-water border as renewed by recent public space projects. While maintaining awareness that the characteristics of the border can contribute to addressing the emergencies outlined above, particular attention is here given to the appearance, character, and shape of this limit.

We begin by constructing maps of the Tagus Estuary territory with a new orientation that reveals the potential of the huge water space as a core of the city settled along it – the City of the Tagus Estuary. We then present an overview of the elements and materials that characterise the renewed land-water interface on its two banks and along the main water axis.

Through the analysis of twenty interventions along the Tagus, we visualise how the estuarine land-water limit is designed. The work aims at understanding the character of this boundary, its porosity, and associated materials. Ultimately, the work wants to probe the terms in which water is a material part of the project. This is to say, in addition to the visual factor, which is clearly dominant, the research aims to verify whether the analysed interventions use water (its essence and dynamics) as an element that interferes with the shape and characteristics of the land-water boundary.¹

The Tagus Estuary, the beating heart of the CTE

Ré-orienter la vision et questionner les conventions est la démarche du projet.

Reorienting vision and questioning conventions is the approach of the project (Réthoré, 2023, translated by the author)

My cartography is precise. It's just my point of view that is different

(Réthoré, 2012)

In the collection of maps called ‘*a l’ouest*’, the artist and cartographer Sabine Réthoré redefines and ‘rebalances’ the north-south and, at the same time, the relationship between the represented elements. The result is a change of the visually dominant elements. With *Méditerranée Sans Frontières*, a map of the Middle Sea in which the borders and names of states do not appear, departing from the classic north-south orientation, the artist proposes an east-west orientation following the course of the sun. Due to the absence of administrative divisions and above all due to the new point of view, the Mediterranean Sea appears as a meeting space and no longer as a space of water that divides (see: *La carte Méditerranée Sans Frontières*, Réthoré, 2023).

Réthoré’s map questions the single point of view and, thereby, the single narrative of a place. Looking at the point of view suggested by the artist, one recalls ancient representations of atlases or encyclopaedias, which, with an eye to taking the measure of different watercourses, presented river networks ‘hanging’ along a vertical axis. Similar to human capillary networks, the river illustrated in these atlases took leave of the classical north orientation by favouring the axis of the flow of the water.

Following these sources of inspiration, [Figures 10.1](#) and [10.2](#) represent the Tagus Estuary and the City that settles along it – the City of the Tagus Estuary – with a new orientation: at the top we find the narrower riverbeds and the river island; in a central position, the inland sea (*Mar da Palha*); at the bottom the river

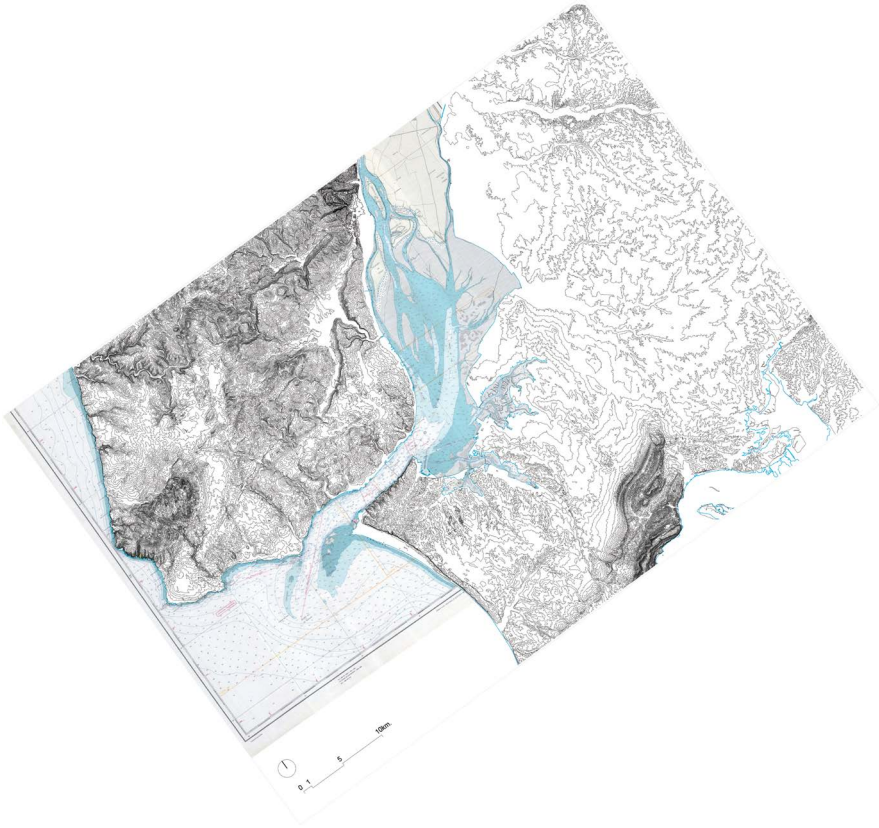


Figure 10.1 Tagus Estuary's topography and bathymetry – the geographical support of the City of the Tagus Estuary – according to the new orientation

Source: Map/collage by the author.

bar opens onto the Atlantic Ocean. In both figures, the 'new north' is according to a vertical axis – as the water flows from the source to its mouth or vice versa, according to the tidal phases.

By changing the point of view, these maps seek to uproot and re-orient the usual interpretations, leading to a critical evaluation of the current political economy of knowledge (Bruna Mancini, 2021).² The new vision of the estuary is evocative: it goes from being a thick barrier for the contiguous cities to their strongest unifying element.

These maps translate the thesis defended by the author's postdoctoral research project 'Through the river landscapes: The City of the Tagus Estuary', now in its sixth year. The estuary is to be seen as nerve, centre, beating heart, and unifying soul of the river-edge city. In contrast, it is the urbanised land and the topography that accommodate and 'contain' the ever-shifting limit. In this light, the crossing infrastructures (the bridges) that connect the two banks can be seen as seams at selected locations.

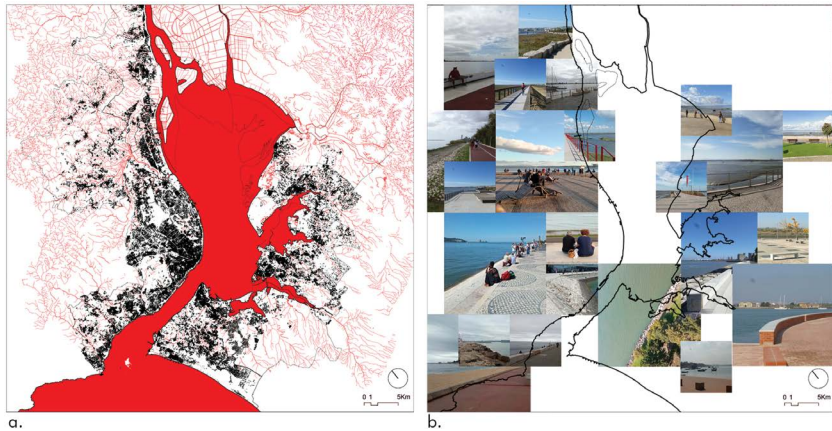


Figure 10.2 (a) The CTE: Tagus Estuary waters (grey) and buildings (black) of the riverside municipalities along the main riverbed of the Tagus, according to the new orientation; (b) The land-water limit: regeneration of the riverside public space

Sources: a. Map by the author; b. Collage by the author.

The land-water interface character of the City of the Tagus Estuary

Previous research undertook a more detailed analysis of projects along the estuarine water network, resulting in the observation that all the interventions for regeneration/renewal aim to ‘build’ or reconstruct a view of the estuarine waters, creating accessibility and paths with places to rest. The work pointed out that three main actions have been implemented in all the projects: the treatment of the limit with the water, the construction of a continuous pathway along it, and the arrangement of seating elements – different types of benches. In inland areas (green corridors along the drainage courses) and riverside areas (along the Tagus main riverbed) the limits, different kind of seats, and cycling-pedestrian paths were analysed by way of constructing three abacuses of more or less intervention – more or fewer elements, materials, and barriers (Anastasia, 2022).

We now proceed to a broader focus on all the elements that materialise the land-water border of the Tagus. The interest is in understanding and rendering the materiality of the interface visible, paying attention to the location on the river profile map (Figure 10.2b).

In the case of interventions located along the Tagus main riverbed, a cycling and pedestrian path tends to be the founding action and the primary motivation for the project. This kind of route is inserted into all the promenades that go along the water, in lanes that are differentiated and protected to varying degrees.

In view of the greater degree of urbanisation and the geomorphological characteristics of the water’s edge, the connection of cycling-pedestrian soft mobility across the entire left³ bank of the Tagus may soon be realised. This goal, shared by all riparian municipalities and encouraged by pandemic concerns and by bicycle purchase incentives enacted by local authorities, has become the banner of local regeneration policies.

In the construction of the fluvial promenade, almost all the interventions work with the water limit itself, minimising the barriers between the new paths and the river area. The solutions range from a complete absence of physical protection – promenades elevated above the flood area or ground sloping towards the water – to barriers that are high but as transparent as possible, to low opaque walls, and a few high opaque protections in contact with the water where the new promenade is on an embankment (one intervention on the right riverbank).

Within sight of the water one finds properly designed benches or low opaque walls (protecting the path from water) that incorporate seats or that simply serve as a seat. At times, a simple difference in height between the promenade and the river area, without vertical protective barriers, serves as a seat for deep immersion in the liquid scenery. Made of materials such as limestone, brickwork, or concrete, the seats by the water are often without backrests. These accommodations do not seem to suggest a seating direction, permitting a view of the path or the urban fluvial façade as much as contemplation of the water (Figure 10.2b).

Concluding remarks

An estuary demands gradients not walls, fluid occupancies not defined land uses, negotiated moments not hard edges. In short, it demands the accommodation of the sea not a war against it, [...] the gradient of an estuary; that accommodate uncertainty through resilience, not overcome it with prediction.

(Mathur and da Cunha, 2009, p. 4)

The estuary's huge expanse of water, at times taken as an obstacle and a barrier for the urban settlements of both banks, should instead be understood as the prerequisite of its identity, where the ties of heritage are woven through symbolism and cultural-historical representation (Matias Ferreira and Castro, 1999).

Waterways are entrusted with significant tasks to improve the condition of the planet and its inhabitants. Contact with water is culturally and physically decisive in terms of a sense of local identity – sense of place and sense of community (Völker and Kistemann, 2013). It is with these considerations in mind that the article has claimed the centrality of the estuary, investigating the materiality of its land-water interface.

With the aim of getting to know and of making visible how land meets water in recent riverfront interventions on the Tagus, this work has constructed a visual overview of the materiality of the land-water limit and its use. The overview can serve as a basis for further reflection.

From reading the constructed overview, we find that the regeneration projects create three forms of land-water contact on both banks of the main riverbed of the Tagus.

- Located close to the urban riverside cores or in rehabilitated in-use or ex-industrial areas – during the 19th century the construction of the Lisbon harbour embankments deeply artificialised both banks of the Tagus (see Santos, 2018)⁴ – the

most common intervention is materialised in a hard boundary; the land-water contact is most often that of a sharp step (usually protected by a wall) and, in more recent interventions, sloping towards water. Even if the edge is only a gentle slope down to the water and it is not designed as a bench, this limit is often used as a seat.

- In peri-urban areas we find land-water limits characterised by the presence of green areas and river beaches (re-created or maintained). In the case of beaches, the (always present) cycling-pedestrian route is protected by barriers. These consist of opaque and low walls of brick or stone blocks. They are often used as seating.
- Finally, we observe portions of previously little-urbanised and inaccessible riverbanks where a certain degree of ‘wildness’ is maintained and where the land-water limit is set by a hard cycling-pedestrian path. In a few cases, characterised by fragile marshlands, the path is made of wood on stilts.

We note that although the right bank is less urbanised than the left bank and has very different geomorphological characteristics, the projects’ methods and materials are similar. From a design point of view, the distinctiveness of the two banks is not adequately emphasised.

It is clear that most projects take as their goal the possibility of accessing the river, passing along its water, and having the opportunity to admire and experience it. The interventions promote total and easy accessibility (on foot and by bicycle) of the entire planned estuarine land-water contact, which necessarily leads to the construction or reconstruction of paths with hard materials (such as limestone, brickwork, concrete, or asphalt).

While it is evident that attempts have been made to minimise barriers to the liquid scenery in choosing limits for the riverside promenades, except for interventions involving beaches or take the form of sloping banks, the regeneration interventions produce a land-water limit that has the formal character of a barrier.

What we have called a ‘barrier’ does not affect the view of water as such, but affects the perception of the variability of the estuarine environment. In fact, very few interventions include this variability as a design material. This could be done, in more urbanised contexts, by proposing new spaces for estuarine water or by playing much more with gentle hard slopes down to the water and, in peri-urban or non-urbanised contexts, by adapting the intervention to varying degrees’ moisture in the soil and fluctuating water levels; making, in both cases, it easier to perceive the water dynamics and the changing landscape of the estuary.

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Notes

- 1 On the one hand, the essence and dynamics of water – the tidal variability, its intensity, and recurrence; the storm surges; the size, intensity, and direction of waves; salinity, to name a few – interact with the constructed limit. On the other hand, the characteristics of the border (both submerged and emerged) influence the water dynamics themselves.
- 2 Mancini’s argument is that the narrativity that maps presuppose and reproduce has a great deal to say about the image of the world they represent (Bruna Mancini, 2021).
- 3 Right or left, instead of north and south bank, reflect the new orientation given by the maps in the [Figures 10.1](#) and [10.2](#)
- 4 ‘The river and its navigable bottoms are now integrated into this invisible layer of infrastructural reticulation, shifting the topological centre of the region’s industrial landscape to the central plane of the Tagus Estuary’ (Santos, 2018, p. 146, translated by the author).

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11 Designing for water in metropolitan landscapes

Maria Matos Silva

The art of taming time for the benefit of mankind

Understanding and working with natural processes is a fundamental component of Landscape Architecture. Time, being the underlying engine of any process, is thus instinctively seen as value of itself within this “Ars cooperative Naturae” (the art to convince nature to collaborate with us), as Caldeira Cabral described the discipline (Cabral, 1961 in [Andresen, 2001](#)). Indeed, in 1984 J. B. Jackson referred that the act of designing landscape is a process of manipulating time (p. 8). In the same line of reasoning, João Nunes frequently develops upon the idea of “the domestication of time” when describing his way of working and designing with natural processes for the benefit of Man ([Nunes et al., 2011](#)). Overall, as a Human artefact that only exists in tandem with time, landscape is therefore forever unfinished, making landscape design an eternal open-ended work.

Interpreting Caldeira Cabral’s abovementioned words, landscape architecture can be defined as a propositional practice, eager of action and change, that, on the one hand, encompasses a technical, scientific, and objective side, that seeks to deepen the understanding of man-nature relationships and its associated processes, and on the other hand, as an art, includes an intuitive, emotional, and affective side, that is subjective by nature. So, alongside with time, and the worthlessness of touching the future, and the certainty that there are no single or stable solutions in light of the implicit subjectivity in the art of design, many authors consider determinant for the design practice to be fundamentally exploitative and experimental ([Bobbink et al., 2022](#); [Vogt, 2015](#)). In other words, the art of taming time for the benefit of mankind implies not only the acknowledgement of perpetual uncertainties but also the ability to include them in processes of change (“change” as in [Steinitz, 2012](#)).

Water, a primary element of landscape

Looking into Alexander von Humboldt’s approach to studying landscape, it can be recognized the value given to topography as a fundamental aspect for the interpretation Earth’s features and processes, as if one could read anything just based on the morphology of the land. In addition, he further recognized the significance of water

systems in shaping landscapes through a variety of processes such as movement, erosion, deposition, or distribution (Humboldt, 1845). Indeed, water is one of the most basic elements of landscape. While the processes associated with water are intrinsically dynamic and inconstant, it is water that gives rise to the most enduring engravings on the landscape. As such, while the permanencies of water systems are structural in the landscapes, the mutability of their processes must also be recognized and applied as a structuring system. On the other hand, the same way a landscape of a river is not just water or associated water systems but also the enveloping relationships with communities, it is no surprise how plainly landscapes can be differentiated considering the distinct ways water processes have been managed and shaped in line with evolving cultures and corresponding ecological, social, and economic priorities.

Water management in Lisbon, a transitions framework

Rebekah Brown, together with other Australian authors, identified in 2008 six stages or “evolutionary plateaus” of how cities have managed water, naming them: (1) Water Supply City, (2) Sewered City, (3) Drained City, (4) Waterways City, (5) Water Cycle City, and (6) Water Sensitive City (Brown, Keath and Wong, 2008).

“Water Supply City” corresponds to the times when concerns were essentially focused on providing good quality and quantity of water for a growing number of urban populations. In Lisbon, these times can be generally associated with the stage from the construction of “Águas Livres” Aqueduct in 1732–1784 until the date of conclusion of the Alviela channel in 1880 as it was only from this date on that water was effectively supplied for all Lisbon’s population. In this period, fountains and waterspouts fed by rainwater and/or natural springs were a major meeting and mingling public space. Urban floods were yet no major concern. Stormwater was either collected in cisterns or wells or drained away to the Tagus River through small conveyance trenches embedded in the pavement morphology or through the still emergent underground drainage network.

Lisbon’s outbreaks of Cholera and Yellow Fever instigated the urgent need to provide the city with a proper and effective drainage and sewage system and started to point towards the upcoming stage of the “Sewered City”. This specific stage had its apotheosis with Ressano Gracia’s drainage master plan “Plano de Esgotos da Capital” (presented in 1884, approved in 1897), Lisbon’s first drainage master plan, greatly influenced by the previous studies of Gotto & Beesley as well as by the hygienist concerns of Edwin Chadwick (Matos et al., 2009). Alongside Ressano Gracia’s aims of providing new broad and decongested public spaces, this drainage master plan significantly improved Lisbon’s healthfulness and overall quality of life. Notably, one of Ressano Gracia’s plans that was later discarded, was a 200-hectare park located in Campo Grande. Most likely, great benefits related to stormwater management, as well to other extensive urban concerns (such as air quality, microclimatic melioration, among others) could have been gained if this project was to be carried out.

In line with what was happening in most European and North American cities, combined sewerage, or the so-called “tout-à-l’égout” approach, was the generally chosen option in the city of Lisbon in this time of great expansions in underground drainage infrastructure. As a result of an increasing use of sewerage systems, and particularly because of the combined sewerage approach, existing watercourses were transformed into open sewerage streams. That was namely the case of the Alcântara stream that, by the middle 20th century, was an exposed deposit of all kinds of debris that came from almost half of the city. To work around this matter, Alcântara stream was channelized in 1942, marking the beginning of the “Drained City” stage.

Facing the need to expand the city, the “Drained City” can be characterized by having roughly channelized waterlines and drained floodplains. A time when stormwater was considered as a nuisance that should be rapidly conveyed out of the city and preferably through imperceptible means with no relation with people and their communal spaces. This Era further encompassed the international dissemination of the new discipline of Urban Hydrology, acknowledged in Celestino da Costa’s drainage master plan for Lisbon (1955). Curiously, Lisbon’s Urbanization Master Plan of 1959 signalled a glimpse of the looming stage as it specifically expressed concerns regarding the need to preserve the environmental quality of pre-existing water courses also for leisure purposes, namely in the landscape analysis made for Benfica, Carnide, and Lumiar (CML, 1959).

The “Waterways City” is the period that emerged together with the global social movement of environmental awareness in the late 1960s. A stage that can be characterized by having brought new values set around the need to protect Earth’s natural resources. Wastewater discharges started to be regulated in treatment plants while new technologies were developed, such as different kinds of bio-filtration systems. In Lisbon, the importance of unpolluted waterways started to be recognized not only for environmental reasons but also for the visual and recreational delight of communities (Júnior, 1971). In accordance, wastewater discharges started to be regulated in treatment plants. Although Arantes e Oliveira had planned the construction of two waste-water treatment plants for the region of Lisbon in a detailed report on Lisbon’s sewerage entitled “Esgotos de Lisboa – Estudos de Anteprojecto” (Oliveira, 2004), the first treatment plant was only constructed in 1989 in Alcântara. Also in the early 1990s, innovative strategies and techniques were developed in the “Plano Verde” report, comprising avantgarde concepts of landscape planning such as the “ecological structure” (Ribeiro Telles, 1997). This knowledge, which has been consecutively transposed into current municipal reports and master plan’s revisions, started to recognize the relevance of interdisciplinary design processes, giving rise to multifunctional public spaces such as the “Corredor Verde de Monsanto” (only officially opened in 2012) or retention and infiltration basins such as the “Oeste Park” at Alta de Lisboa (finalized in 2007) not only contributing with the infrastructural capacity to store and infiltrate stormwater but also promoting a closer relationship between water dynamics and its users. Undertakings from Expo’98 International Exhibition further encompassed a particularly successful waterfront rehabilitation project of what was previously industrial land

with environmental liabilities, resulting in the Tagus and Trancão Park (Walker and Castel-Branco, 1998), as well as the implementation of several public spaces where water is used as a key element of the design. This emphasized presence of water in the design of public spaces is particularly significant when considering the needed approximation between people and this natural resource, as anticipated in the contemporary shift of paradigm onto flood-adapted cities.

The “Water Cycle City” is a period characterized by a generalized understanding that the natural resources are limited and that the urban water cycle must be managed in transdisciplinary means involving technicians, government, and communities. Conceivably, Lisbon’s Drainage Master Plan 2006–2008, marks the entrance in this stage as it clearly recognizes the need for varied and complementary strategies that range from “hard” to “soft” engineering systems such as underground reservoirs and infiltration trenches, respectively. The updated version of this master plan (2016–2030) (Monteiro et al., 2015) entailed further efforts towards a shared management of the water cycle among the public and the private sector as well as among the government and community. Particularly, its initial phase widely benefited from a developed workshop involving various stakeholders, from institutions to professional associations, such as SIMTEJO, APL, EPAL, Lisbon’s Metro and Municipality technicians, which assessed and supported the plan’s decisions. Furthermore, a wide and effective public participation is clearly advocated throughout the report, not only for information purposes, but also for its contributions for alternative flood mitigation solutions, as well as for overall citizen engagement in the water management of the city. For the Municipality, this latest proposal aims at overcoming the problem of floods “in a sustainable way, with minimal social, environmental and economic costs” (CML, 2015, author’s translation), encompassing the implementation of two major deviation tunnels (Monsanto – Sta. Marta – Sta. Apolónia and Chelas – Beato) that lead pluvial waters from the upper drainage basins towards the river (Internal diameter of 5.5 m and total length of about 6 km). Yet the overall stated sustainability attribute is rather questionable once the infrastructural strategy to “drain” is still taken as the ultimate priority, being unevenly balanced with other possible and equally needed strategies such as retention, infiltration, or storage.

The contract for the construction of this underground drainage infrastructure is around 133 million euros (CML, 2022). In contrast, public space interventions with similar flood adaptation and mitigation ambitions, such as the recent case of “Parque Ribeiro Telles”, correspond to 1/8 of the aforementioned investment (DN, 2021). Indeed, the challenges that need to be faced to reach a comprehensive water cycle resolution within cities are so complex that the barriers in its achievement are still significant. Although some of our present public spaces do offer a closer relationship with water and its dynamics, the “Water Cycle City” stage in Lisbon is still in its infancy. In order to effectively move beyond the “Waterways City” stage and overcome the established academic and policy rhetoric, it is necessary to deliver an encompassing strategy that would

gather and make sense out of the existing dispersed interventions such as green roofs (e.g. WWTP de Alcântara), green walls (e.g. house at Travessa do Patrocínio), bioswales (e.g. Instituto Geográfico Português), check dams (e.g. Quinta das Conchas), retention and infiltration basins (e.g. Parque Urbano do Vale da Ameixoeira), embankments (e.g. Ribeira das Naus), elevated promenades (e.g. Parque Tejo e Trancão), among others (Matos Silva, 2020). As a result, Lisbon is quite distant from the “Water Sensitive City” stage – considered by Brown et al. as the most “adapted” stage based on the holistic management of the integrated water cycle (Brown, Keath and Wong, 2008) – as it still strongly relies on the strategy of optimization and enlargement of singular mono-functional infrastructures instead of effectively change traditional mainstreamed approaches towards a multifunctional and integrated water management practice.

Although most cities still perpetuate water management principles and “modus operandi” from the 18th century regarding water management processes (note that by 1955 Celestino da Costa had already proposed an underground drainage deviation tunnel that would start in Avenida da Liberdade, passing through Martim Moniz and exiting at Santa Apolónia), throughout history one may note a big turn in the “before” and “after” the industrial revolution, particularly in the so-called “developed” countries. In this turning point, traditional practices, that inevitably assumed a balanced power-relation between communities and the natural processes, progressively changed to operations whose main goal consisted in taking the most advantage out of the water cycle by aiming for its control. Of course, severe climate-driven catastrophes later clarified as utopian the ambition of Man controlling any natural system in its entirety. Furthermore, when comparing modern post-18th century infrastructural practices with previous approaches, increasing evidence (Brown et al., 2008; Matos Silva, 2020; Novotny, Ahern and Brown, 2010) attests that former traditional water management practices offer knowledge that is generally more reliable when facing contemporary challenges such as water scarcity, water quality, water conservation, among others. Unlike singular mono-functional infrastructural solutions, ideally specialized and detached from its surroundings, traditional ancient practices evidence a mature relationship between place, people, and water; a relationship that thrives out of complex exchanges between systems (Guattari, 2000) and whose outreach is all-encompassing.

As stated by André Barata, the current planetary crises (economic, social, climatic, environmental) demands a paradigmatic “revolutionising” (through small contagions and contaminations) where everything should be thought from an ecological category, forcing us to put relationships in first order: “the convivial relationship, the relationship of environmental diversity; but also cultural, of ways of seeing time, space, and places” (Barata, 2022a, p. 13, author’s translation). As a matter of fact, we are distancing ourselves further away from these relationships, generally disconnecting and “replacing diversity with monoculture” (Barata, 2022a, p. 13, author’s translation). Yet, public space offers the possibility for re-establishing these relationships, reinforcing the role of its design practice,

particularly in the effort for a matured relationship between urban territories and its associated water systems.

Public space as a barometer of the urban-water cultural relationship

As previously explored through Brown's six "evolutionary" stages regarding a city's approach towards water management, public spaces are good descriptors of the urban-water cultural relationships. On the other hand, public spaces can also be seen as active mediators in the promotion of the abovementioned desired need of reconnection, particularly in the re-establishment or maturing of the relationship with the water cycle.

Designing "with" water and "for" water is intimately associated with the understanding of the watershed, in its ecological, social, and economic aspects, both in retrospect and in future reasoning. Lisbon's Metropolitan Area (LMA) encompasses a very rich difference among watersheds, further comprising recent distinct public spaces, where one can note the paradigm shift in the design principles associated with water lines and their respective floodplains. Indeed, the recognition of the vital role of water in ecological systems and water management in urban areas has motivated this change from the plain application of formal and aesthetic design principles to an ecological design encompassing natural-based solutions. Transversally in all LMA's municipalities there has been a progressive implementation of parks and other public spaces on watercourses and riversides, sometimes motivated by infrastructural works and stream regularization, which include rest areas, soft mobility paths, vegetable gardens, and recreational equipment. Under the scope of MetroPublicNet research project, over 60 public spaces along watercourses, developed from 1998 through 2023, were identified. The following 18 selected cases are examples of this new paradigm in the relationship between urban areas and water, where the hydric functions of floodplains are complemented with other valences, such as climate change adaptation, flood mitigation, or public encounter (Beja da Costa, Santos and Matos Silva, 2022) (Figures 11.1–11.3).

Designing for water

To face ever impending global crises, communities need to transition to holistic design approaches in opposition to single sole-solutions or mere technological fixes of a particular parameter – a conscious and active systems thinking lesson previously evidenced in the book "Limits to Growth" (1972) that remains particularly up to date. Also Colin Moorcraft (b.1947), in an ode to Complexity as an intervention proposal, mentioned that "until the rise of industrial technology the surface systems of this planet were continuously evolving into more complex and more stable form. We have reversed that trend and, in a few decades, have undone the work of millennia. The complexity and stability of the atmosphere, hydrosphere and biosphere have all been

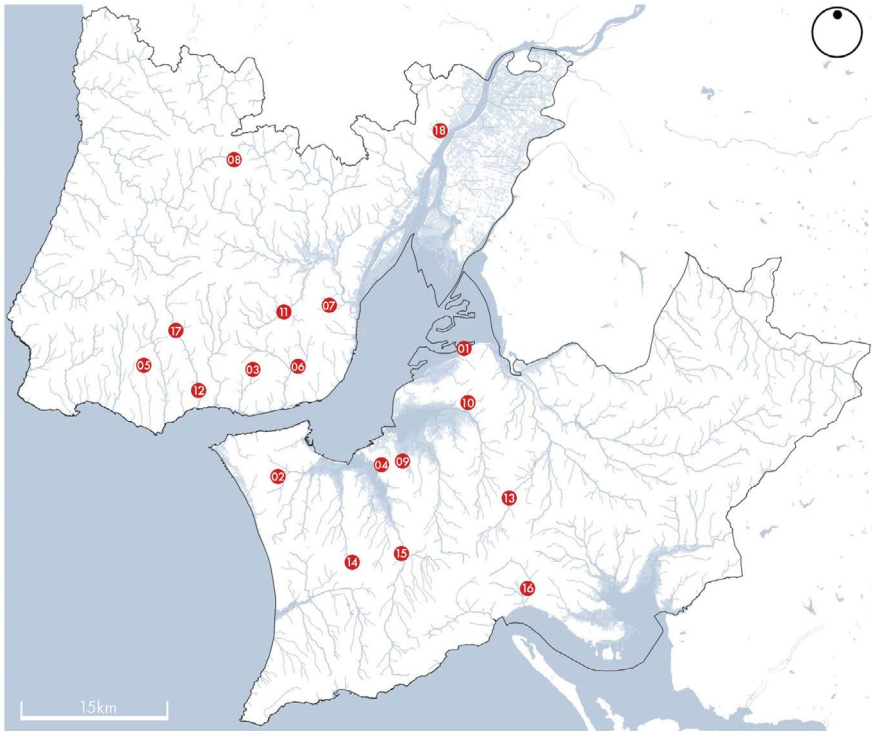


Figure 11.1 Localization of the 18 identified public spaces within Lisbon’s Metropolitan Area (one for each municipality)

Source: MetroPublicNet.

adversely affected” (Moorcraft in [Marot, 2019](#), p. 149). In other words, he argued that ad hoc “mediations between man and its environment” needed to be forged, thus minimizing entropy by emulating and stimulating the complexity of ecosystems.

It is impossible and indeed undesirable to go back in time. Technical evolutions enabled incredible and extremely resourceful advances that must be valued and not ignored. Yet we must enrich current knowledge and practice, especially regarding the urban water cycle, by claiming and employing new water management designs that promote the establishment of ecological and emotional values through compelling relationships among all elements, living or material ([Barata, 2022b](#)). In conclusion, it is here questioned, what if public space, encompassed within a wider metropolitan sustaining network, could embrace the water resource in its design, so that the (still) disproportionate anxiety of its control is pacified and balanced with the preference of safe, experimental, inclusive, and continuously monitored endeavours open to uncertainty?



Figure 11.2 Delimitation and overall view of the identified public space requalification projects; cases from 1 to 10

Source: MetroPublicNet.

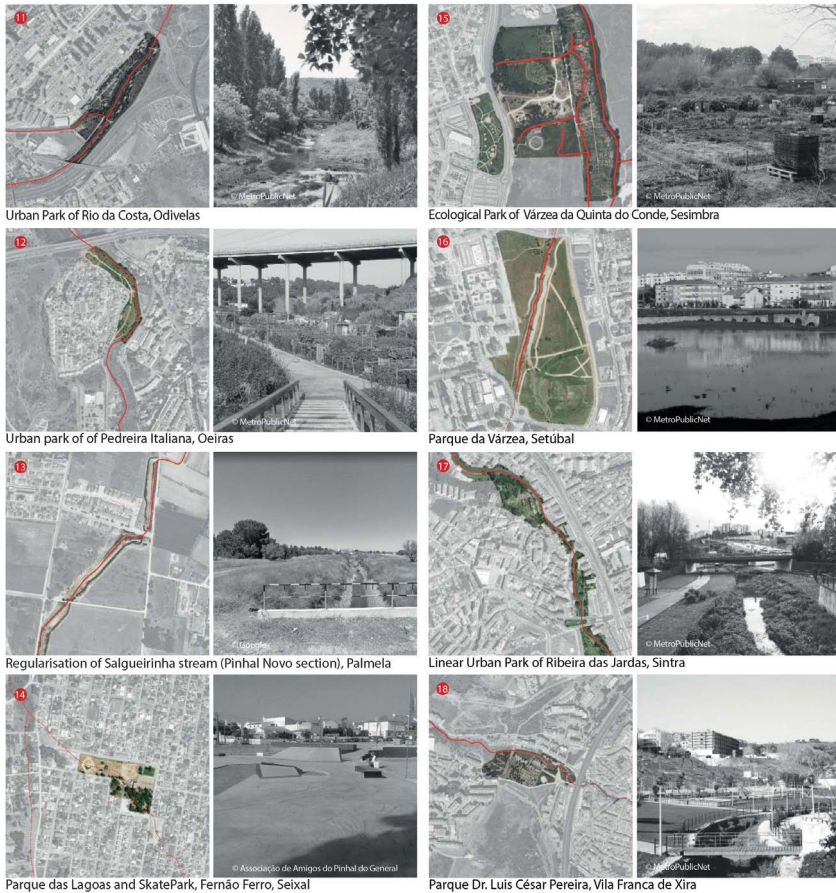


Figure 11.3 Delimitation and overall view of the identified public space requalification projects; cases from 11 to 18

Source: MetroPublicNet.

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12 Upgrading roads to streets

Transforming the *in-between space* to shape public space

João Silva Leite

From the protagonism of the infrastructure to the emerging street

Given its omnipresence and articulating role of activities, infrastructure is not only a central element of the organisation of the territory, but also a constituent domain of the humanised landscape and contemporary collective space (Coelho, 2017; Gregotti, 1981; Hauck and Keller, 2011). The spatialisation of these linear urban formations assumes differentiated and polyhedral forms, embodying situations of adherence and disconnection (Brès, 2015), between extreme polarisation and fracture (Font, 2007). In this sense, the road network, in its various dimensions and hierarchies, stands out as multi-scalar territorial system, with major highways defining a national and metropolitan macrostructure that is progressively densified through thinner and capillarity layers of local roads and urban streets, deeply embedded in the matrix of plots and buildings (Domingues, 2006). In particularly situations, the complex combinations between built fabric and road space result in morphological features comparable to those of the urban *street* (Bohigas, 1998; Marshall, 2005; Silva Leite, 2016).

However, in many cases, the discontinuity, disruption, and inconsistency of public space along and around these roads require a mediating (Santos, 2012; Smets, 2005) and interstitial design approach to better articulate them at different scales (Bremer and Sander, 2011, Rouillard and Guiheux, 2020), both as spaces of flow – made of links and nodes – and as spaces of local interaction – as part of built and landscape fabrics. The *in-between space* (Eyck, 2008; Gehl, 2017; Hertzberger, 2005) emerges as a place of unique potential (Silva Leite, 2021).

There is an already well-established experience of urban projects developed internationally aims precisely at intervening in this interstitial space, seeking on the one hand, to qualify pedestrian circulation and active mobility modes along the road axis and, on the other hand, to contribute to a more effective connection between the built fabric and the infrastructural space (Atefan and Aglaée, 2020; Barcelona Regional Agency, 2019). Working on this interstitial layer can be seen as a new contribution to the metamorphosis of roads into streets.

Under this framework, the chapter outlines the transformation of three sectors of EN10, an important national road in Lisbon Metropolitan Area (LMA), in order to reflect on the process of transformation and upgrading of *roads* – mainly

determined by their infrastructural character – into *streets* – the product of a more complex and multidimensional layering process. Through a morphological reading that explores the transformation of EN10's cross sections, the chapter provides an overview of the spatial devices and urban design strategies used in the reorganisation of the *in-between space* – between building and infrastructure. Each of the three studied road segments reveals different contributions to the process of consolidation of EN10 as a form of *metropolitan street*.

The road network as a structuring support for the Lisbon metropolis

LMA's urban fabric is particularly dependent on the road network. Notwithstanding the existence of some national and regional railway lines, the strong investment in road infrastructure in the 1990s created a mobility macrostructure that is the backbone of today's metropolitan organisation (George, 2007; Santos, 2012).

Large metropolitan corridors are established along major motorways – such as A1, A2, A5 or IC19 – incorporating the pre-existing network of national and regional roads and an intricate network of capillary roads. Using different logics – *tying*, *suturing*, or *intertwining* (Silva Leite, 2016) – these corridors are structured in a symbiotic relationship with the highly diverse urban fabric patchwork that characterises Lisbon's metropolis (Santos, 2012). One of the most interesting expressions of this form of metropolitan development is the emergence of multiple *Road-Streets* (Domingues, 2010), along which a heterogeneous and linear colonisation of retail, logistics, leisure, and even housing plots shape a stage for local daily life. Busy roads such as the EN378, EN249-4, EN10, EM594, or EN377 became places to work, shop, and live, raising new demands in terms of public space qualification and morphological and functional integration.

The improvement of *walkability* and of *active mobility* conditions emerge as project standards along with better organised traffic and parking space, wider, safe, and comfortable pedestrian and cycling paths, in an effort accommodate the different rhythms and modes of moving and living. MetroPublicNet research identified several projects developed in some of these *Street-Roads*, in which different re-profiling solutions benefited their role as more embedded elements of the urban landscape. Although revealing multiple and often inconsistent design strategies across the territory and in different municipalities, the positive impact of these implemented projects can already be sensed at a wider metropolitan scale, as they showcase new opportunities for local or inter-municipal connections and raise the discussion regarding new ways of (re)thinking how to live the metropolitan public space.

EN10: Between diversity and representativeness

The case of the EN10 road is perhaps one of the most interesting examples in LMA, due to the diversity of solutions and strategies used. The road forms an irregular ring around the Tagus River Estuary with tipping points on the south and

on the north of Lisbon. This territorial scope determines different characteristics along its route, for which specific sectors, such as those of Corroios, Setúbal, and Vila Franca de Xira, reveal exemplary forms of intervention and design strategies (Figures 12.1 and 12.2).



[EN10]
Póvoa de Santa Íria



[EN10]
Corroios



[EN10]
Setúbal

Figure 12.1 Road EN10, photographs of the three sectors

Source: Photographs by MetroPublicNet team.

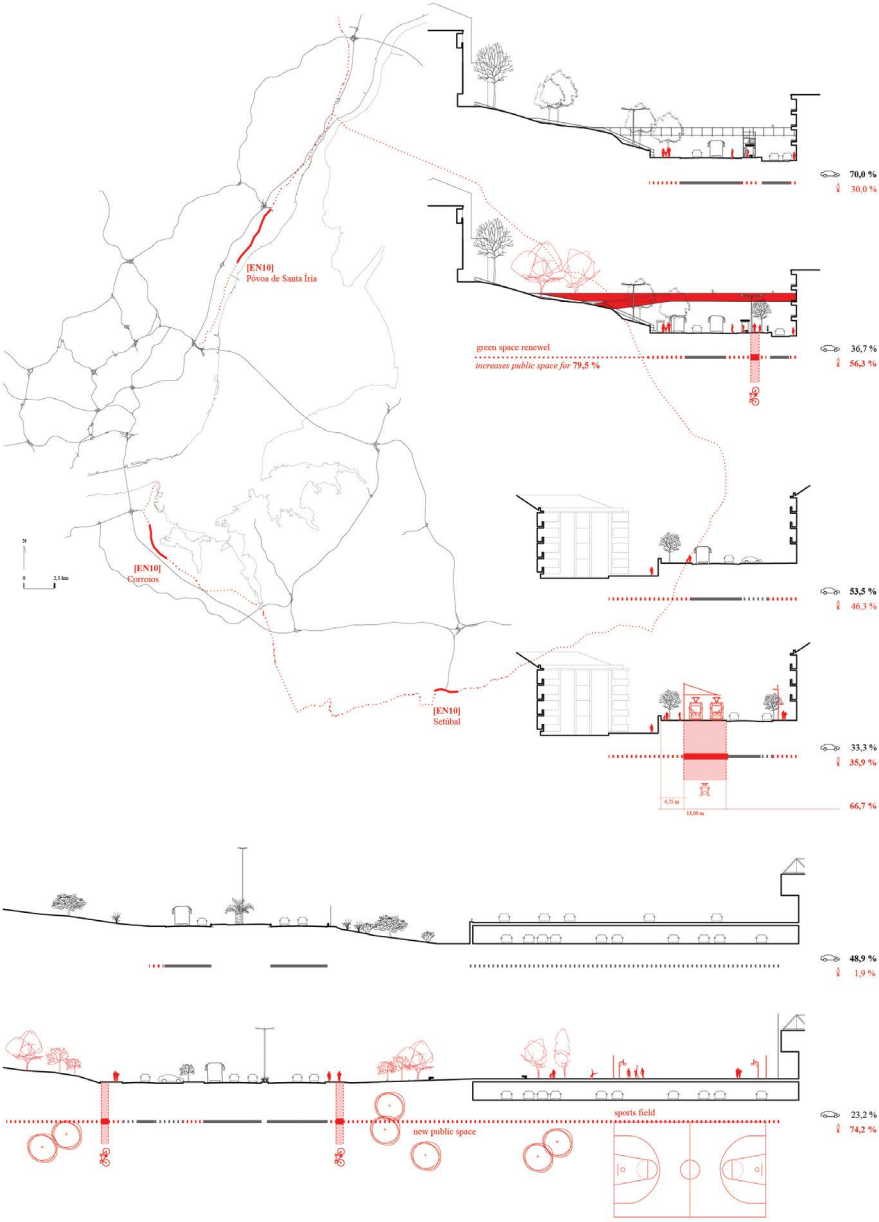


Figure 12.2 Road EN10, sections of the three sectors comparing the state before and after public space interventions

Source: drawings by author.

EN10 [Corroios]. Ordering and calibration

In Corroios, the first case, EN10 is the main reference of a heterogeneous urban patchwork, mostly made of collective housing subdivisions developed over the last three decades of the 20th century, along the historical road that connected Cacilhas, a prominent point in Lisbon's south bank, with the interior of the Setúbal peninsula and the South. After the building of the first Tagus Bridge in Lisbon in 1966, this part of the road became a fundamental link between the metropolitan core and its first suburban expansion corridor to the south.

In 2008, a light metro line – Metro Sul do Tejo (MST) – was implemented along the initial kilometres of EN10, significantly changing the character of the highly urbanised tract of the old national road. The introduction of this public transport infrastructure enabled the creation of a continuous, longitudinal system where the public space qualification contributed to the establishment of a global and more integrated urban structure. The design of the public space was understood as a fundamental opportunity to introduce spatial order in a splintered urban landscape. Taking advantage of clear and continuous definition of the metro's infrastructural corridor, a precise (re)calibration of the traffic lanes and parking space, along with the definition of pedestrian areas and the standardisation of urban furniture, resulted in a more friendly public space. Instead of barriers, the complex infrastructural lines set along the road became elements of aggregation, enabling level crossings and more sophisticated horizontal spatial articulation.

The introduction of the MST in EN10 required a multi-scalar articulation by integrating infrastructure, urban fabric, and public space. By adapting itself to the various scales and modes of circulation, it serves various urban activities and local facilities, while consolidating a sense of reference and spatial intelligibility.

EN10 [Setúbal]. Scale and rhythm articulation

The case of the EN10 section in Setúbal configures a complex articulation between the central core of the city, its peripheral areas to the north, and several rail and motorway infrastructures that, together with the concentration of a wide range of commercial and logistics activities, gives it a sense of an urban gateway. On the other hand, it's a territory shaped by an important floodplain, defining a multi-systemic infrastructural landscape and complex and challenging urban mosaic to manage. As a result of a poorly articulated development process throughout the second half of the 20th century, this area of Setúbal accumulated a number of spatial ruptures produced by the multiple infrastructures and by the piece-meal development of large-scale commercial areas against a background of older and smaller urban fabric fragments. Poor pedestrian connections and a splintered public space structure constrained any integration and pedestrian access to the neighbouring areas.

Therefore, one of the main challenges for the requalification of this sector was the multidimensional articulation of the various roadways, large retail structures and ecological spaces under a coherent and walkable public space stratum. Since 2013, a wide range of interventions, involving the Municipality and multiple private stakeholders, namely a large-scale retail developer, transformed this entire

segment of the EN10 and the surrounding area by increasing the surface of public space, introducing green areas and tree coverage, adding new pedestrian and cycle paths, as part of a complex urban redevelopment scheme. As part of an existing shopping mall redevelopment and expansion project, a section of EN10 formerly built as a motorway was redesigned as an urban avenue, along which privately owned public spaces were created, replacing what used to be fenced off open-air parking lots, thus complexifying the architectural and functional relationship of the retail space with the city.

The outcome of the various interventions resulted in the creation of several generous sidewalks and bike lanes in formerly car-oriented roadways, now connected to the major urban axes and to a newly developed park on Livramento floodplain. Incrementally, a coherent and relational public space system is emerging, optimising, and compacting car-oriented space, while managing the area's multiple morphological conflicts. This nodal segment of EN10 reveals a complex management of spatial transitions and thresholds between public space, infrastructure, and the built fabric, supporting a livelier, cohesive, and humanised urban landscape.

EN10 [Póvoa de Santa Iria]. Intertwining of roads and the marshland

EN10's northern segment follows the old road that leaves Lisbon towards the North, following the Tagus River and the northern railroad line. As it passes through Póvoa de Santa Iria, EN10 was subject to transformation processes based not only on its re-profiling, but also on the creation of larger and intertwined matrix of paths that integrates it on a wider and more complex territory.

Here, as in other cases, EN10's is the main aggregation element of a wide range of urban fabric fragments: small pre-industrial towns, modern housing blocks, industrial complexes, and logistic warehouses. Wedged between the Tagus River, the train line, and a sloped topography to the west, the EN10 has the sense of a backbone that, while structuring a linear urbanisation, is missing the relational capacity of an urban public space. Acknowledging these gaps and missing links, a set of investments led the municipality were carried out throughout the second decade of the 21st century, promoting both the reconfiguration of a 6.5 km road segment and the creation of a parallel Tagus riverside pathway connecting marshlands and other outstanding ecological and landscape features.

The EN10 was reconfigured with the aim of ensuring better pedestrian and bicycle connection along the road's different fragments, while connecting buildings, public space, and infrastructure. Thus, the definition of sidewalks, bike lanes, regularisation of bus stops, and ordering of parking on the roadside stands out. On the other hand, and along the riverfront axis, a network of filamentary paths combines leisure with small nautical and support facilities for local fishing activities, along with the renovation of derelict structures and built complexes. Occasionally, other transversal pedestrian and cycling paths connect the riverside route with to the inner territory, overpassing the railroad and the heavy traffic road, and linking heavily populated residential areas with the riverfront. Besides an important role as dissipators of infrastructural barriers, some of these transversal overpasses are

particularly expressive, becoming landmarks, and spatially qualified references in the urban landscape.

These intervention's *modus operandi* define a combined system that intertwines different axes and different ways of walking through the territory. As for the EN10 interventions *per se*, it showed how is possible to reduce the road's car-determined character of the road, bringing it closer to the image of a street. The qualification and arrangement of the public space helped to spatially frame its heavy traffic load, paving the way for an urban experience closer to the human scale and compatible with the rhythms and activities of daily life.

Transformative devices, results, and conclusions

Along its route, EN10 reveals paradigmatic situations of the main types of intervention that some were developed in several intermediate-level roads in LMA over the last two decades. In the face of a relatively consolidated road layout and built structure on its sideways, the *in-between space* has become a threshold of opportunity to re-profile the roadway and qualify its sidewalks and accessible public space. In many cases, the road missed any kind of sidewalk – the simple introduction of that continuous path brings a relevant change to the image and the way how people can move through and inhabit the roadscape. In the three studied segments, there is a clear improvement in the ratio of space dedicated to pedestrians and other means of active mobility against the one allocated to cars (see Table 12.1).

The case of Setúbal stands out for the significant changes that occurred in the road infrastructure. From an almost inexistent pedestrian space, the new layout includes new elements such as accessible leisure areas and transitions to a large shopping mall, while keeping an effective but more complex traffic flow system. From a total width of 17.25 m (2 + 3 lanes in each direction) before the intervention, car lanes pavement increased to 22.75 m (3 + 3 + 1 circulation lanes). However, the car space becomes more hierarchised, with local roadways and as part of more open, crossable, and humanised cross-section, that includes green areas, bike lanes and meeting and leisure spaces, some of them built over the shopping mall's private parking lot. This intervention takes up the strategic value of the EN10 as a vital mobility infrastructure for the articulation of the flows converging in Setúbal but develops a public space solution that makes the different rhythms, speeds, and land uses compatible.

Table 12.1 Comparison between the percentage of pavement surface dedicated to cars and pedestrians, before and after urban requalification interventions

	<i>EN10. Póvoa de Santa Íria</i>		<i>EN10. Corroios</i>		<i>EN10. Setúbal</i>	
	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>
Car	70.0%	36.7%	53.5%	33.3%	48.9%	23.2%
Pedestrian and active mobility	30.0%	56.3%	46.5%	35.9%	1.9%	74.2%

In the other two road segments, interventions focused on reducing the space dedicated to the car by increasing the width of the sidewalk or by adding lanes dedicated to other types of mobility – light metro or cycle paths. In the case of the road re-profiling in Corroios, the inclusion of the metro lines required public space design in which the redistribution of sidewalk space and the reorganisation of parking was compatibilised with pedestrian flows, preventing the rail line from becoming a physical barrier. On the contrary, it can be interpreted as an extension of the sidewalk, with an increase from 4.75 m to 13 m. The car lanes width is narrowed from 9.75 m to 6.30 m, leading to an average speed slowdown. As a combined result, the urban space became more walkable and pedestrian friendly.

In short, the following strategies stand out in the process of transforming a car-dominated road into a more complex spatial arrangement, similar to that of a street:

- Inclusion of sidewalk or widening of existing ones;
- Introduction of dedicated lanes for new mobility modes – bike lanes or light rail public transport;
- Articulation with territorial active mobility paths;
- Car lane narrowing;
- Introduction or requalification of interstitial spaces into green and leisure areas;
- Ordering and increase of tree coverage;
- Ordering of urban furniture;
- Design and selection of consistent pavement materials.

The combined and adapted use of these strategies has made it possible to re-configure the morphological and functional characteristics of the space between the infrastructure and the built fabric along the EN10, as well as in other cases in LMA. In this in-between space, a new layer is added in a way that tries to respond to two scales, the local and the metropolitan. While incorporating the humanising characters of a street, these roads remain as structural elements in an intermediate-level mobility network. On the other hand, they organise continuous axes of a more qualified public space system, paving the way for the dilution of barriers and urban discontinuities caused by large mobility infrastructures. This intermediate layer can be seen as what Xavier [Monteys \(2010\)](#) refers to as the activating elements of urbanity, linking the functional dimension of the networks to the condition of place that brings urbanity to a territorial scale.

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13 Public space and residential spaces

The construction of urbanity in
the suburban space – proximity,
integration, and cohesion

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and Ariana Marques da Silva*

Introduction

The relationship between public space and the development of housing can be discussed from a wide range of disciplinary perspectives, as it encompasses the fundamental materials of which cities are made. Taking on the seminal works of Manuel de Solà-Morales (1993) on urban growth processes, that relationship can be seen in the spatial and temporal interplay between land subdivision, laying of infrastructure, and building construction. To this morphological form of reading the city, one can add social, cultural, and political dimensions already mentioned by Aldo Rossi as structural frames to understand how the cities can express ‘...the form of its politics, the signs of their collective will’ (Rossi, 2001, p. 162).

In this sense, public space plays a dual role in relation to housing development, both as physical and morphological structure that articulates the parts and the whole, the neighbourhood and the city, the typological and the infrastructural, but also as a social, economic, and political domain where institutional, community, and privately led projects and initiatives interact and often collide. Lisbon is a particularly rich example of this diversity in the morphological, programmatic, and political processes underlying housing development and city-making processes, including those that articulate strong ‘built ideology’ narratives (Serpa, 2015).

By relating the spatial transformation based on cartographic and iconographic analysis with an incursion into the local development history and insights from key actors in its planning, this chapter identifies the urban growth patterns of a complex residential area located in Lisbon’s immediate periphery since the 1950s. It aims to explore the relationships between residential development processes and the ways in which public spaces are shaped and how they can contribute to a better-quality urban environment in the Lisbon Metropolitan Area.

Throughout this process, parallels emerge with other trends of Lisbon’s metropolitan development, allowing for a relational perspective on policies and programmes that reflect paradigm shifts in urban infrastructure and particularly on public space design. The case study’s urban space transformation illustrates different phases in the qualification and improvement of public spaces and the overall impact on residents’ quality of life.

Housing promotion trajectories in Lisbon Metropolitan Area

During the 20th century, particularly in the 1950s and 1960s, internal migration in Portugal was notable as people moved in search of better living conditions from the country's interior regions to the coastal areas, with a particular impact on the capital region, where the extremely high housing demand pressure couldn't be met by an adequate housing offer.

The housing shortage has persisted over the years, leading to the emergence of extensive areas characterised both by extremely precarious construction and shanty building areas and by illegally developed and built neighbourhoods, both within the city of Lisbon and in the neighbouring metropolitan region. In response to the proliferation of informal, often illegal but tolerated, neighbourhoods with distinct characteristics, efforts were made to address this phenomenon, especially after 1965 with much more liberal legislation that encouraged the proliferation of private residential development. The promotion of public housing initiatives was concentrated mostly in Lisbon in the 1940s and 1950s, followed by a series of major plans in a few peripheral locations in the 1970s. Nevertheless, public development remained very limited in the face of the exponential growth in housing demand.

Following the 1974 revolution that overthrew the dictatorial regime and the subsequent independence of the colonies, Portugal experienced an influx of more than a half a million people in a relatively short period, worsening an already critical situation, now with a new vulnerable group of 'national migrants' (Scioldo-Zürcher, 2010, p. 16, cited in [Delaunay, 2022](#)). One of the programmes devised by the emerging democratic state to address the housing challenge was SAAL (Service of Local Ambulatory Support), which fostered active community engagement in close collaboration with architect teams for the design and implementation of urban and housing initiatives. This effort aimed to promote the concept of 'housing for the greater number', emphasising inclusivity and accessibility ([Pereira, 1969](#); [Portas, 2013](#)).

Alongside public sector efforts, the private housing construction market played a role in addressing housing needs across the entire region, targeting a vulnerable middle-class segment through low-cost construction in low-cost areas. Both public and private initiatives proved to be insufficient to ensure access to housing, particularly among working-class and migrant populations. This results in a new stage of self-built and unpermitted residential development, spurring extensive areas of informal settlements throughout the region, particularly along Lisbon's northern borders with the neighbouring municipalities. Built in areas lacking adequate infrastructure, and in some cases exposed to natural hazards, these sites also entailed forms of spatial and social exclusion.

Therefore, the housing production that has shaped large areas of the Lisbon Metropolitan Area throughout the 20th century is characterised by the interplay between private housing developments, public housing initiatives, and self-built and informal housing solutions. The following sections discuss the evolution of this interplay by focusing on a particularly rich case located along the municipal border of Lisbon with Amadora and Odivelas, two of its adjacent municipalities.

Time, space, and process – Peripherisation and integration along Lisbon’s municipal boundary

Brandoa, Alformelos, and Pontinha are three neighbourhoods located in the current municipalities of Amadora and Odivelas, adjacent to the northwestern municipal boundary of Lisbon, whose diverse urbanisation process is clearly marked by the above-mentioned forms of housing development. Formerly an agricultural area, since the mid-20th century it has undergone a gradual transformation from rural to increasingly urban, driven by both public and private housing initiatives and by a complex set of legal and illegal development processes. The result has been a rather fragmented territory with very different spatial and social patterns, made of several coalescing neighbourhoods connected between themselves, with Lisbon and with the surrounding metropolitan fabric through a highly mutable layer of public space amenities and infrastructural networks. Their location just outside of Lisbon’s municipal boundary is an important factor in understanding the complex spatial relationship between the metropolitan centre and the peripheries (Salgueiro, 2001).

In the late 1940s and early 1950s, Pontinha and Dr. Mário Madeira Neighbourhoods (Figure 13.1b), the first two of these housing developments, began to take shape. Pontinha is a privately developed subdivision along an old road that connected Lisbon to the rural area to the northwest. From a series of small agricultural plots just outside the municipal boundary, a small-scale urban development scheme emerged, taking advantage of the lower control standards of the peripheral municipalities and good business prospects in the face of growing demand for housing. This pattern is in line with other suburban settlements that have sprung up around



Figure 13.1 Neighbourhoods: (a) Brandoa; (b) Dr. Mário Madeira; (c) Alformelos; and (d) 11 de Março

Source: Photographs (n.d.). Available at: <https://www.jf-encostadosol.pt/viver-a-freguesia/historia/bairro-da-brandoa/> (Accessed 22 November 2022).

Lisbon's outskirts, in what can be seen as the first steps of suburban metropolitan development. The form of the neighbourhood follows a very simple and compact block structure, following the shape of the existing rustic plots. In each block and street, rows of small urban plots were sold for development, mostly for two to three storeys individually designed and built buildings. A pragmatic response to a low-income market segment, the Pontinha neighbourhood lacked elaborate public spaces or social amenities, depending on its relative proximity to the terminus of one of Lisbon's tram lines for easy access to the city centre.

The Dr. Mário Madeira Neighbourhood, located opposite to Pontinha and adjacent to the military road that defined the municipal boundary of Lisbon, was developed in Quinta da Paiã, a former agricultural estate that came into the possession of the Civil Government of Lisbon. It was built on the initiative of the incumbent Civil Governor, from whom it takes its name. Unlike Pontinha, its general plan followed a more generous and systematic urban layout, based on small rows of terraced houses with small, enclosed courtyards and basic local facilities, namely a church and a primary school. Following a pattern of relatively similar public housing developments in Lisbon in the 1940s, this neighbourhood lacked commercial and employment areas, maintaining a rural atmosphere that corresponded to the conservative political ideology of the dictatorial regime of the time.

About a decade later and 1 kilometre to the west, the 54 hectares of agricultural land of Quinta da Brandoa (Figure 13.1a) was gradually subdivided by its owners, with half of the Quinta sold in plots by the end of 1958 (Casaca and Eufrásia, 1988). An illegally developed neighbourhood was created, with over 80% of its buildings unlicensed, anticipating a process that became a common feature throughout the Lisbon region in the 1960s. However, in contrast to the usual pattern of detached houses, it was characterised by apartment blocks up to nine storeys high, lacking basic infrastructure or amenities, and housing thousands of people who were not able to choose better conditions.

However, its location was advantageous for those who found there a cost-effective alternative to the widespread housing shortage, particularly for a low-income population. The neighbourhood was relatively close to the city centre, despite the lack of public transport (Soares and Dores, 1984). This scenario of a significant lack of habitable conditions, exacerbated by high population density, prompted the then Municipality of Oeiras to set a multidisciplinary team led by the architect Luís Bruno Soares to develop the Brandoa Renewal Plan from 1970 to 1974, aimed at addressing severe urban problems, particularly those related to accessibility and essential infrastructure, such as water, sewerage, and electricity (Fonte, 2022).

Almost simultaneously, to the southeast of Brandoa, the process of urbanisation on other agricultural lands was initiated, nearly bordering Lisbon. The landowners joined forces and in 1962 submitted the 'Urbanisation Program for the Casal de Alfoanel or Alfoanelos Property' (Figure 13.1c) to the Municipality of Oeiras. In 1967, the 'Pre-Urbanisation Plan' was drawn up and in 1969, the 'Urbanisation Plan for Casal de Alfoanel-Quinta da Correia' began the process that would lead to the construction of the future Alfoanelos neighbourhood across 31 hectares.

The urbanisation process of Alfoanelos, carried out under formal planning permissions granted in 1971, benefited from the guidelines of the 1964 draft of the Regional Master Plan for the Lisbon Region (Plano Director da Região de Lisboa). Although it was never formally approved, it designated the area for urban development to be served by several regional-scale infrastructures. The neighbourhood plan was based in a structure of cells served by local facilities and framed by a hierarchical road network. Most residential blocks are 9 to 12 storeys high, with a few with 4 to 5 storeys.

Although urbanisation began in 1972, with the laying of the neighbourhood's road structure on the ground, it was suspended and would only resume after the democratic revolution of 1974. One of the plan's cells – Cell I – was reassigned to house a population of 400 people who had lost their homes in a fire in a nearby shantytown in Falagueira in the end of 1974 (Ferreira, 2001). This relocation was the result of pressure from the residents who organised themselves and were included in the SAAL process. The original plan for this cell with 1.4 hectares, based on high-rise apartment buildings, was completely redesigned to accommodate 76 single-family, single-storey prefabricated houses, featuring side and rear yards, with the possibility of lateral expansion (Bandeirinha, 2007). This part of Alfoanelos became known as the 11 de Março neighbourhood (Figure 13.1d). The land was used to build through a 20-year loan from the Housing Development Fund, in agreement with the Municipality of Oeiras. By the time the neighbourhood was completed in 1976, and people had moved in, the surrounding Alfoanelos urbanisation had resumed its works.

In the early 1980s, the first occupancy licenses were granted for the buildings constructed by the company Alves Ribeiro, Lda, introducing prefabrication as a rapid construction process to a total of 4,000 housing units (Casaca and Eufrásia, 1988). This marked a new time, in which private, larger-scale and industrialised initiative, took on the task of responding to the region's growing housing demand. As development continued into the 1990s, Alfoanelos consolidated as the home to a community that included not only the middle class, but also the upper middle class. These residents found quality housing in the newly developed urban area at prices incomparable to those in the city of Lisbon.

For decades, Alfoanelos was only connected to the surrounding areas of Brandoa and Pontinha by a road that crossed the neighbourhood. The regional roads, planned since the 1960s, were not built until well into the 21st century, leaving large areas around the neighbourhood as reserves for the future infrastructure. As housing pressure increased throughout the 1970s and 1980s, they were gradually taken over for self-built shantytowns, along old footpaths such as Azinhaga dos Besouros, Casal de Alfoanelos, and Caminho de Alfoanelos, covering an area of almost 8 hectares. They became the home to a low-income population with limited education levels, initially from the regions of Trás-os-Montes and Beiras in Portugal (Casaca and Eufrásia, 1988), and after the independence of the former Portuguese colonies in 1975, with a significant influx of people from Cape Verde, Angola, and São Tomé, some of which found jobs in the nearby Alfoanelos urbanisation works.

Introducing a cohesive public space

Both the *served* and the *servicing* city was taking shape through highly distinct forms and processes. The demolition of these precarious areas began in 2001, along with the relocation of their residents to municipal housing estates, paved the way for the complex network of regional mobility infrastructures such as CRIL (Inner Regional Circular of Lisbon, finished in 2011) and IC 16 (2014). Despite faster road connections to Pontinha and to different parts of Lisbon, Alfoanelos became an island surrounded by major motorways. On the other hand, relocated families were moved to much less accessible places in terms of public transportation, pedestrian public space, increasing their distance to employment areas and public amenities (Allegre *et al.*, 2017). This emphasis on automobile mobility was somehow nuanced by the improvement of public transportation with the extension of Lisbon's metro to serve Pontinha in 1997 and Alfoanelos and Amadora-Este in 2004. The evolution of the public transportation accessibility network, combined with the connectivity provided by the main roads, represented a turning point in the transformation and improvement of these neighbourhoods. This shift brought about the creation of new proximities, fostered urban integration, and promoted territorial cohesion within these communities.

In Pontinha, a major public transport hub became the focal point for a series of public space improvements around the metro station, that are complemented with a new network of cycle paths. Specific streets that were faced with very limited pedestrian space, narrow sidewalks, and abusive car-parking practices, were re-profiled in order to guarantee more generous, safe, and comfortable walkable paths. Some of the block courtyards were reconverted as community spaces, with green, sport, and playground areas, that were missing in the original 1950s through 1970s private-led urban subdivision processes. Mário Madeira neighbourhood, on the other hand, remains as a poor example of very limited investment in publicly owned and managed housing estates. Here, the building's limited maintenance and concentration of low-income residents have prevented any meaningful positive changes in terms of socio-territorial qualification. Nevertheless, a rather generous public space structure complemented by small open yards next to the buildings allow for an informal but lively appropriation by local residents, that use them to grow vegetables or extend their domestic life to the outside space.

In Brandoa, the Integrated Program for the Qualification of Suburban Areas in the Lisbon Metropolitan Area (PROQUAL) was initiated in 2001 aiming at the requalification or creation of public spaces and green areas, as well as the enhancement of existing and new educational, cultural, sports, and administrative facilities (CCDRLVT, 2001). Simultaneously, efforts were directed towards the legalisation, licensing, and improvement of the built environment.

While the series of interventions span across the entire neighbourhood, improving the comfort and material image of sidewalks and urban furniture, the most pronounced changes have occurred on the Southeast sector, around the road connection to Alfoanelos, where an articulated complex of new facilities, a new urban park and the revitalisation of smaller-scale public spaces frequently used by the community



Figure 13.2 Neighbourhoods' urban development evolution from 1945 to post-2007

Source: Maps by the authors.

resulted in an urban space of distinct quality. Over the past 20 years, public spaces have undergone transformation and humanisation, facilitating a sense of community within the neighbourhood, and enhancing the residents' quality of life.

Public space changes in Alornelos, the most recent of these neighbourhoods, is mainly seen in the surrounding edges, where former shantytowns were replaced by large motorways, now accompanied by strips of green space aimed at creating some degree of sound barrier and infrastructure landscaping. Furthermore, new pedestrian, cyclable and road connections have been established through some points on these edges, enabling new spatial and functional relationships with Pontinha that can still be improved in the future (Figure 13.2).

The construction of urbanity

This overview of the evolving role of public space design and revitalisation in Lisbon's peripheral urban development reveals a first phase characterised by the absence of a public space project, with only elementary basic infrastructure being

considered during the initial stages of urbanisation. The subsequent phase was characterised by the emphasis given towards road infrastructure as a form of public space and heavier public transportation offer, with mobility emerging as the central focus for addressing urban management. Ultimately, a third phase emerged emphasising pedestrianisation, the promotion of green spaces, and the establishment of seamless and active connectivity networks between the public spaces.

By understanding the studied urban area as an expression of broader urbanisation processes within LMA, the three infrastructural moments in public space design can also reveal a broader picture in the way how it is becoming a key driver of recent metropolitan transformation. The evolution of paradigms related to public space design, addressed within the context of this urban fragment in the timeframe, leads to an enhanced sense of proximity, integration, and both territorial and social cohesion. We can therefore argue that public space qualification has played a pivotal role in the creation of a city that goes beyond the mere construction of housing (Figure 13.2).

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14 Do light and heavy objects fall at the same speed?

The complex construction of
Lisbon's metropolitan leisure and
retail patterns

Alessia Allegri and Pedro Bento

Introduction – Commerce, city, society

This chapter discusses the importance of commercial and recreational spaces in the analysis, organisation, design, and enhancement of metropolitan public spaces, framing it under the current discussion on the relationship between city, commerce, and society. By illustrating two seemingly antagonistic models of public/collective spaces, it argues on the importance of commercial spaces as possible keys to understanding ongoing changes, and as significant drivers of transformation if viewed as strategic tools for urban planning. It invites critical reflection on their shortcomings and innovations, both within and beyond the conventional vocabulary of urban planning.

At its core lies the conviction that there is a mutual relationship between urban spaces and commercial places, based on the idea that the planning of commercial activities cannot be purely economic and managerial in nature, but must play a central role in the city design discourse. It is essential to design cities not just *for* commerce, but *with* commerce, as it is precisely in the need for a city that commerce and social life can find a new field of convergence.

In today's context of vast social, economic, and technological transformations, the imperative to incorporate the commerce and its spatial project becomes even more apparent. It's essential to reconsider and reinterpret commerce and its environments, taking into account the flexibility and dynamism inherent in contemporary social and economic processes. This shift is apparent not only in altered space utilisation, such as remote work and the preference for occasional services over permanent ownership (e.g., car-sharing, Airbnb, Uber) but is also reinforced by advanced mobile communication systems and widespread use of social networks. Similarly, the new commercial models are a clear evidence of the atomisation of time into many 'present moments', where no experience of duration is possible (Han, 2017). The fleeting and the ephemeral are part of the current symbiosis between city and commerce, where society moves according to fluid dynamics that blend habits and attitudes, colonising new spaces and new forms of sales, from the functional reconversion of malls to the omnipresent e-commerce and even the subtlest temporary uses of public space for commercial purposes.

It becomes evident that the ongoing commercial transformations challenge the illusion of cities perceived as stable, static entities (Amendola, 2006). These transformations deeply alter the established uses and values of urban spaces and social life, stimulating entirely new urban practices. As a result, places emerge where the distinctions between private and public, interior and exterior, local and global, real and virtual, commerce and leisure, economic and political become blurred, amplifying the continuous possibilities and multiplicities, which are the essence of the city.

The diversification and multiplicity of commercial spaces. From heavy formats...

Regarding heavy formats, as shopping and entertainment centres, we could ask what is the current role of the shopping centres that have recently appeared in the urban regions where we live? Do they help or not to build the contemporary cityscape-landscape? Do they configure spaces whose essence is the elimination of reality and the entry into the hyper-real [as referred by Koolhaas in his last participation with the electronic music band *Tempers* (2018, p. 2)]? Are they, perhaps, the generators/engines of the new urban space and the new urban images of the *zwischenstadt*, as suggested by Alex Wall (2005, p. 237) in 'Victor Gruen. From Urban Shop to New City?' Or are they artefacts that absorb the real and the false into a new synthesis, as Norman Klein said in 'The Electronic Baroque' (1999, p. 114)

According to Lars Lerup and Sieverts (2013) despite the incredible technological advances that the internet has provided, we will continue to need spaces for 'face to face' physical meeting among the city users – not citizens – of the new city-region, so we can infer that this facility would provide a magnificent answer to this and other needs. Manuel de Sola-Morales (2004) spoke about the importance of territorial corners in response to a territory that escapes and that needs to be legible. And Mirko Zardini (2004) put forward a first response to this call in an article from the same publication entitled 'Corners of the periphery, where are you?'

In recent decades the widespread dissemination of large commercial areas in peripheral urban areas is changing the face of the extensive European city itself, which today and from the recent past is no longer just a dormitory city, but also a place of commerce, rest, and leisure, with consumption becoming one of the vectors of its attractiveness and competitiveness (Moati, 2001, p. 250).

'Throwing consumption out of the city, shopping centres will add to the traditional centripetal flows of commuting, new centrifugal flows that flow into their commercial centers' (Graça, 2010, p. 47). According to Philippe Moati (2001, p. 250), commercial fabrics undergo two apparently opposite processes of 'fragmentation' and 'concentration'. On the one hand, there is a fragmentation between the different poles of an archipelago of large shopping centres resulting from commercial reorganisation operations in compact cities, which are complementary in the centre-periphery opposition and increasingly competitors with each other in inter-peripheral competition. On the other hand, we are witnessing both (1) a spatial concentration in terms of aggregation in clusters of commercial sets and typologies

and (2) an economic concentration, in the domain of large financial groups, in the marketing and management of shopping centres and franchised distribution chains. The field of commercial activity is shared, as well as urban mobility flows.

The shopping centre is now part of one more point that René-Paul Desse (2001) calls urban ‘pilgrimage’, the individual routes, experienced and optimised, associated with the activities of its agents. Adding a new node to the existing mobility networks, the shopping centre constitutes a place that allows access to an accumulation of functions, services or goods that were previously dispersed, including the increasing offer of recreation and leisure opportunities as part of the shopping centre itself. This functional complexification integrates the shopping centre as a node of equal importance in the everyday life flows, in tandem with the places of residence and work. The shopping centre thus becomes a new typology in the contemporary European city.

Adding to this, large peripheral shopping and recreational centres, normally connected to large infrastructures and motorway junctions, and which are organised according to polarising regional logics and macro territorial organisations, are standing out and marking the contemporary urban landscape (Portas et al. 2011). More recently, and due to bold transformations related with e-commerce, internet, and intelligent mobile phones, these ‘heavy materials’ that Álvaro Domingues spoke of have been suffering different metamorphosis.

Other authors and lately the popular retail prophet Doug Stephens explain, with on-line consumption we are facing a kind of a reversal of action: physical stores are being converted into media channels for brands, once digital media is becoming expensive; and on-line stores are being converted into mere points of sale. In that sense, brands are opting for physical stores to connect with their potential customers and build customer loyalty.

So, as the previous author advocates, we are somehow entering into a new era, the one related with the architecture of the experience, where stores should be essentially experiential, and probably of bigger size, as some Apple, Nike, or Ikea stores in Barcelona and Lisbon are becoming, or what is happening in Milan with Starbucks Reserve Roastery, transforming an important post office in the very city centre into a completely new venue for Starbucks, and in doing so, explaining its customers the process of coffee roasting. Another related major transformation, is the association of shopping centres with facilities, such as hospitals or healthcare units, hotels and theme parks, or exquisite venues for food experiences, adopting an increasingly recreational and experiential rather than commercial character.

...To light formats

However, within this significant push of large shopping and entertainment facilities undergoing transformation due to the internet and new technology, another concept of commerce is thriving, associated to a different use of public space. Micro artefacts and commercial happenings, characterised by being ‘light’, temporary, fleeting, less prominent, and devoid of a strictly architectural definition, serve as effective examples of the present trend: the activation of novel modes of perception,

the pop-up phenomenon, Bauman's concept of 'fluidity', flexibility, adaptability, and opportunism (Bauman, 1992). In many cases, these also involve interactive and participatory attitudes, collectively contributing to diverse and engaging experiences in the urban space.

This extensive array of informal commercial spaces, characterised by their temporary and sharing nature, aligns with what Allegri and Ochoa term 'Intermittent Practices' in their project titled 'Intermittent Lisbon: Temporary uses and sharing practices in the adaptive city' (Allegri and Ochoa, 2021). Operating within both public and private domains, Intermittent Practices manifest through temporary actions, delineating spaces, commodities, and services intended for shared use and have the power to transform our built environment. Among the various Intermittent Practices dedicated to commercial exchange, food trucks stand out in many places. These are vehicles equipped to quickly cook and sell food at a low cost. Another form of temporary commercial exchange is the car boot sale, where private individuals come together to sell a variety of goods directly from their car's trunk.

Much more of a North American concept, the 'garage sale' is an informal event for the sale of used goods by private individuals, in which sellers are not required to obtain any kind of business licenses or collect sales tax. The idea has moved beyond the individual front yard or garage and now includes neighbourhood sales. A way to get rid of the excess and superfluous without having to throw it away, and above all, a moment of conviviality and meeting of many residential area, where the meeting point for the community are, many times, limited.

The resurgence of street markets, including variations like night markets and farmers' markets, underscores the resilience of this form of temporary commerce. Beyond economic transactions, these markets contribute to the revitalisation of urban areas and provide platforms for promoting healthier and more sustainable lifestyles. The emphasis on local and organic products aligns with the growing interest in supporting regional economies and sustainable practices. In the case of Fruta Feia, the consumer Co-Op focusing on misshaped produce, there is a creative solution to minimise food waste while simultaneously fostering community engagement. The use of vacant spaces for product distribution adds an element of adaptability to the initiative.

Food trucks (see Figure 14.1), car boot sales, garage sales, and street markets represent diverse forms of Intermittent Practices, each contributing to the creation of unique urban experiences. These practices not only offer economic opportunities but also foster community interaction and a sense of conviviality. The informal and temporary nature of these commercial exchanges provides a refreshing contrast to more conventional retail models.

The presence of many adapted vans, like Marcia Borges' Beauty Van and the Bread Van delivering fresh bread, that roam the streets in towns and cities across the metropolitan area of Lisbon, highlights the mobility aspect of these commercial practices. By bringing services directly to the streets, these vans contribute to the synchronisation of commercial rhythms with urban rhythms, making commerce a more integral part of everyday life. All these kinds of commercial spots, that go beyond physical spaces or built typologies, synchronising commercial rhythms



Figure 14.1 ‘Roulote de Frielas’ Foodtruck and Ikea store at the back

Source: Photograph by the authors.

with urban rhythms and the trajectories of everyday life, shape spaces and create new urban articulations, offering us an alternative model of public spaces in the metropolitan areas.

Garage sales or street vendors alone cannot generate evident spatial changes, but the repetitions, juxtapositions, combinations, and collisions of people, places, and activities create a new condition of spatial, social, and cultural fluidity that has the power to create an invisible network of public and sharing spaces, using the existing public space of the peripheral city as a support, and giving it the strength and character of a place of urbanity and sociability (Allegri, 2018).

Findings

In recent years, urbanised metropolitan areas have undergone significant transformations in the configuration of commercial spaces and consumer behaviours. While the retail landscape of the 1960s could be adequately described with a few terms, contemporary retail demands a more complex array of definitions and terms, adhering to the retailing principle that ‘everything is and must always be new’. Two seemingly opposite formats of commercial spaces have emerged between many: the ‘heavy objects’ represented by the enormous shopping and entertainment centres, and the ‘light objects’ constituted by a diverse array of temporary retail spots.

The logics defining their form, location, public presentation, and operational characteristics showcase two entirely different approaches to understanding and utilising urban and territorial space. Nevertheless, both analysed commercial formats highlight their significant importance in shaping, designing, and giving meaning to metropolitan public spaces. Viewing them as a set of multi-scale, multi-hierarchical, and heterogeneous spaces, suggests the potential existence of a network of diverse public spaces capable of supporting and boosting public life in contemporary urban peripheries.

On the one hand, the presence of large shopping malls and ‘heavy materials’ has elevated the importance of nodes, access routes, and their surroundings as public spaces. Additionally, the concept of ‘collective space’ (privately owned but publicly accessible) has gained complexity, reinforcing the potential use of these equipment within an extended urban and territorial network. The diversity and functional mix of new shopping malls may correspond to greater typological diversity and a mix of public spaces, both in terms of function and management.

On the other hand, intermittent commercial practices have activated spaces previously ‘forgotten’ or underestimated as ‘public space’, granting them potential and recognition. These practices have an exploratory and catalytic effect, serving as a test for design and policy guidelines. They also alter the geography of ‘centralities’ and ‘peripheries’, moving towards greater equivalence and democratisation of opportunities to enjoy public space.

By shaping alternative and significant hubs of urbanity and acting as engines for interesting spatial, social, and economic dynamics, both heavy and light objects underscore the necessity to reintroduce a social purpose to commercial spaces. This restoration aims to revive their capacity to generate ‘quality urban life’ through hybrid and potentially synergistic mechanisms that underpin the reciprocal influence of city and commerce.

So, do light and heavy objects fall at the same speed? The answer is ‘yes’.

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15 Public space and food production

Leonel Fadigas

Introduction

Food is an emerging issue in urban planning, especially in metropolitan areas. Economic and cultural globalisation increased food dependence of large urban areas from distant agricultural and livestock production centres that feed them. Growing risks related with the impact of climate change on soil production and food productivity, along with potential disruption of transport systems and of logistics and distribution chains, as a result of energy crises, social tensions, or military conflicts, highlight uncertainty and insecurity in food supply management and require a fundamental reassessment of its organisation.

Research on the relationship between the development of urban agricultural areas and the improvement and security of the urban food supply shows that the changing urban and metropolitan realities pose new challenges to the way these territories have been planned and managed (Fadigas, 2020; Jarosz, 2008; Komisar and Nasr, 2019). To face the challenge of increasing urban food supply vulnerability, agricultural production within urban perimeters and in close relationship with built areas, can be seen as a strategy to reinforce resilience and urban sustainability. For this reason, the introduction of urban agriculture in land management and urban planning programmes and practices should be understood as an important tool to mitigate and adapt to climate change effects, while actively contributing for improved water management and the reduction of CO₂ levels.

Under this conceptual scope, this chapter aims at articulating the role that food and agricultural production can have in the (re)structuring of urban areas, by particularly underlining the fundamental relationship between urbanisation and agriculture and the potential contribution of agriculture-related public spaces to promote such transitions.

Urbanisation and agriculture

Urbanisation and agriculture are two interlinked social and historical events. The emergence of agriculture, based on the selection and improvement of plants to be cultivated and the domestication of animals, ensured sufficient food for the survival of individuals and groups, resulting in population increase of human communities.

From then on, sedentarisation was the starting point for the development of urbanisation as a social and cultural phenomenon. The settlement and growth of many cities is directly related with the food supply capacity of its surrounding agricultural areas. However, such growth has also played an increased pressure on their agricultural peripheries, thus creating new food supply problems. This pressure was further complexified as the cities' physical expansion was accompanied by population increase, resulting in additional food needs.

Furthermore, the progressive specialisation of agricultural activities regarding the nature of the dominant crops has created a production model that does not cover the entire diversity of products needed for the balanced diet of populations. As a result, agricultural areas close to centres of consumption, whether large cities or small settlements, do not currently produce the full range and diversity of products that make up their diets. Food supply in urban areas, especially in large cities, depends on distant agricultural areas and intensive production systems, which are not always environmentally sustainable, and on long transport and distribution chains, which contribute to increasing consumer food prices. This can be exacerbated in situations of drought caused by climate change, with foreseen reductions in global agricultural production if global warming is not controlled in the coming decades (Challinor et al., 2014; Ericksen, 2008).

On the other hand, an interdependent relationship between the need for space for housing and the need for space for food production is at the crossroads between human history and urban history. A relationship that joins two fundamental rights: the right to housing and the right to food, based on local supply and the proximity between producers and consumers. Urban expansion and the continuing need for new residential and other urban uses affect the preservation and continuity of traditional agriculture, highly vulnerable to the large differences in land value.

The combination of climate change with unstable social and political dynamics has repercussions on food production and distribution, especially in periods of economic and social crises, resulting in considerable levels of food insecurity that must be considered in planning and territorial management. Food scarcity and increasing food cost has a very strong social impact, particularly affecting those with lower incomes. Therefore, food sustainability is a fundamental condition not only for the functional viability of urban and territorial systems, but also as a condition for dignity, safety, and comfort in the relationship between people and their living spaces, both in cities and rural areas. Historically, this relationship represents the capacity of a territory to feed those who live in it and to allow the continuity of its settlement.

The territorial reality of metropolitan areas shows the importance of protecting agricultural production areas against the pressure to use them for other purposes (Figure 15.1). Fertile soils and quality water for agricultural use, on which food production depends, are a finite resource whose scarcity may increase with the worsening of ongoing climate change. Open areas reclaimed for agriculture or green spaces, due to their permeability, are a factor in mitigating urban floods and recharging underground aquifers, which is an important contribution to the environmental stability of the territory and to its resilience in the face of climate



Figure 15.1 Community gardens within the LMA. (a) In Cascais; (b) in Benfica, Lisbon
Source: MetroPublicNet.

change and the increase in environmental risk factors (Asvatourian, 2018; Mendes and Ribeiro, 2017; Willett et al., 2019).

The rational and balanced management of resources and ecological systems is more than the simple regulation of their use. It includes a sense of social responsibility and community service, that must be included in policies, programmes, and the different types of land use plans. Resources and ecological systems are production factors that allow and facilitate the production of agricultural and forestry goods and, therefore, guarantee service to populations, namely regarding the right to food provided for in the Universal Declaration of Human Rights (Estorninho, 2017).

Public territorial planning policies still do not dedicate to food production and supply the attention they deserve, in the face of its important environmental and social impacts, particularly in metropolitan areas, where agriculture can contribute in a positive way to reduce the environmental impact of the large-scale urbanisation process (Cabannes and Marocchino, 2018). Existing territorial and urban planning instruments and management are still primarily focused on regulating land use and its transformation, with an emphasis on built structures. In other words, they are determined by the urbanisation process and by the concern to prevent and control the environmental degradation of the territory and ecosystems. The regulation of agricultural land use depends on scattered norms that fail to frame food production and supply as strategic conditions for urban social and environmental cohesion. Their inclusion in land use planning and management instruments can be seen as a contribution to a more sustainable and economically viable use of natural resources (Oliveira and Morgado, 2016).

Agricultural parks as a support for new forms of public space

Agricultural parks are emerging as a coherent proposal to revitalise existing agricultural areas in diffuse and dispersed urban spaces, where built areas coexist with agricultural areas (Oliveira and Truninguer, 2022; Yacamán, 2018, 2020).

By organising agricultural plots of various sizes, rural infrastructure, areas of ecological interest or biodiversity protection, and public spaces for circulation and leisure, they facilitate the continuity of agricultural activities in proximity to urban areas, for which they can provide fresh food and activate small local markets. As extensive vegetated areas, they provide the same environmental functions as urban green spaces in terms of rainwater collection and storage, microclimate control, and atmospheric CO₂ sequestration (Tóth and Supuka, 2013). In a sense, they can be seen as areas of environmental interest, as they can contribute to mitigating climate change risks, such as urban flash floods, while maintaining a sustainable management of land, soil, and water in the long term. However, despite their significant environmental importance, agricultural parks in metropolitan areas are not nature conservation areas, but areas of economic activity linked to neighbouring communities, with which close links are maintained, thus enabling of short food supply chains, particularly for seasonal production, community-led cultivation, and horticultural products (Jarosz, 2008).

However, it is not only economic reasons that lead to the creation and existence of agricultural parks in metropolitan areas. The increasing attention paid by urban populations to the natural environment contributes to the creation of agricultural parks and small urban vegetable gardens, which are beginning to be considered with attention by many local and metropolitan authorities. Agriculture in urban vegetable gardens is not only a production practice, but also a form of urban green space with an interest in recreation, food self-sufficiency, and the expansion of environmental and ecological areas (Komisar and Nasr, 2019). Together with other forms of recreational use of public space, they add quality to the urban landscape and allow for greater biodiversity near residential areas (Aubry and Kebir, 2013).

With territorial and urban planning focused on infrastructure and the transformation of built land use, agricultural parks fail to be considered as urban territorial realities, but only as areas of rustic land to be preserved as such. The importance of agricultural land in the food supply system has been reduced to environmental and nature conservation issues or simply relegated to a secondary level of interest. The importance of agricultural land in the food supply system is not recognised in land planning and management processes and plans, which contributes to its economic devaluation in relation to urban land. Considering agricultural land simply as a land reserve does not give it the protection and value it deserves as an economic and social activity of great interest for the local supply of fresh food. Therefore, the establishment of forms of governance, management and spatial planning adapted to the compatibility between urban and agricultural uses in a metropolitan context is a necessity today, when issues of urban food supply are proving to be strategic for the normal functioning of large urban agglomerations (Marat-Mendes et al., 2021; Zazo and Paül, 2022).

Agriculture and public space in the metropolis – A relational challenge

If understood as a relational system that supports territorial functionality while articulating diverse land-use and spatial typologies, public space can be seen as a potential field to articulate and connect agricultural and forestry areas with

urbanised spaces in metropolitan areas. The existence of public spaces within areas intended for agricultural and forestry use contributes to their reuse as areas of economic activity and to their inclusion in an organised, functional, safe, and accessible metropolitan territory. As active parts of the territorial mosaic, they can nurture different forms of agricultural production, in relationship to the social fabric of its neighbouring areas, which may include gardening and domestic agricultural production along with more intensive agriculture practices. Taking advantage of their capillary road and pathway networks, they can contribute to improved accessibility across extensive territorial areas, particularly for pedestrian and cycle paths, sport and outdoor recreation, environmental education, and multi-generation activities.

In metropolitan areas, the extension of urban green networks – which include agricultural areas – using vacant land and environmentally and ecologically sensitive areas, can be accompanied by the creation of pedestrian and cycle paths using existing service roads, and incorporating outdoor facilities along these routes. In this way, public spaces, namely paths and circulation routes, bring together existing and new green and agricultural spaces, strengthening their relationship with built areas. The articulation between public spaces and agricultural areas recomposes the landscape and the functional unity broken by the disorderly processes of urbanisation. The rediscovery of agricultural spaces as complementary spaces for open-air recreation, by making them permeable and accessible to pedestrians and cyclists, is a gain in quality in the use of public spaces and a contribution to landscape qualification and territorial cohesion.

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16 Viewpoint III. Metropolitan streets as spaces in transformation through project logics of efficiency

Carles Llop

The renewed role of infrastructures in a transforming project for the metropolis

The renovation of the existing city is a constant strategy to improve the efficiency of its habitability and the ecological and economic effectiveness of the enabling infrastructures that structure it, for its good functional and metabolic balance. Streets, as built and relational infrastructure, constitute the weaved fabric of the urban system and, by extension, of metropolitan systems. They weave and articulate the different components of the system's form, structure, networks, and channels of metabolic flows. Indeed, an integrative and holistic vision of these basic elements of the infrastructuring of settlements is our hypothesis for an integral urban regeneration of urban systems and the prospective renewal of the urban and territorial project. This position has determined our applied research work in order to provide strategies, proposals, and actions for the activation of renewed mechanisms for improving the efficiency of metropolitan areas, and in particular by studying, on the basis of specific actions, the case of metropolitan Barcelona. Based on research carried out between 1985 and 2015, we have recognised a multiplicity of "Territorial Situations" that allow us to systematise a set of "Project Logics", among which metropolitan streets occupy a prominent place where we can intervene through the paradigm of reconversion to a huge number of neo-typologies (accept the concept) that will be useful to us in renewing the way we analyse our territories in terms of a transforming project.

This renewed vision of infrastructures and in particular of metropolitan streets has led us to evolve our objective of working in favour of "polyurbanity", combining four strategies of inclusion, insertion of services by centrality and, therefore, of regeneration of spaces: (1) through the adaptation of interstitial spaces between precarious fabrics, (2) the conversion of infrastructural barriers, (3) polyurbanity versus peri-urbanity detection of centralities along infrastructures, (4) the detection of centralities along infrastructures, as a structuring thread of territories of urban dispersion to promote their transformation into service. Articulating space (centrality on a territorial scale) and (5) the implementation of mobile hyperspaces, by arranging centrality through vehicles that provide services, but above all create new spaces where significant spaces that bring together sociability are lacking.

The combination of these strategies reveals the potential for the creation of smaller central spaces in the “peri-urban” (which we will begin to call “polyurban”) in a renewed vision of metropolitan systems as a territorial mosaic city (see our broader reflection in [Cervera et al., 2022](#)).

Project logics to improve the territorial efficiency of metropolises

The analysis of the database of projects in the Barcelona Metropolitan Region (BMR) for the period 1985–2015 ([Llop, 2016](#)) made it possible to identify the project logics that the different projects had adopted to solve territorial conflicts and problems and to improve local and global territorial efficiency. In this sense, the research sought exemplary projects that would serve as benchmarks of good practice, and to systematise and categorise them in a way that would help to demonstrate accumulated knowledge on intervention in the territory and the repair of anthropic conflicts. The resulting strategies ([Llop and Kourkoutas, 2021](#)) that we consider, still today, relevant and representative of intervention logics are the following:

Consolidating open spaces and green infrastructure into an ecological network

The current metropolitan context is characterised by the vulnerability of metropolitan spaces at present and is motivated by the following reasons: the reduction of agricultural land (which, due to its abandonment, is transformed into forest land or potentially urbanisable areas), the lack of integrated management and adequate instruments, as well as the occupation and waterproofing of many of the fluvial spaces. Thus, the response to this situation would be to consolidate metropolitan open spaces and integrate them into a multi-scale ecological network. The main objective would be the preservation and protection of the biophysical matrix and, where necessary, its restoration and revitalisation/reactivation through innovative and integrated management plans.

- Establishing instruments for the preservation and protection of metropolitan open spaces.
- Revitalising agriculture, re-agriculturalisation of the metropolitan area.
- Working with the natural hydrological network as a structuring element.
- Articulate and incorporate current urban voids into the system of metropolitan open spaces and the formation of a territorial mosaic in continuity.

Restoring territorial continuities

The territorial fragmentation that is taking place and the isolation of metropolitan open spaces not only affects their biodiversity (at local and macro level) and their ecological functioning, but also has social implications, affecting mobility and accessibility. The strategy proposed in this case would be to restore the territorial continuities between open and urban spaces, recovering and restoring the ecological functioning of these areas, as well as re-establishing their social functions

(restoring the historical relationship between the city and its natural environment). In this case the question of scale is fundamental and requires a multi-scale analysis to identify and locate those spaces that will facilitate and enable this interrelationship (both in structural and functional terms).

- Reconstructing the ecological corridors and landscape connectors of the bio-physical matrix and plan the consolidation of the network of metropolitan green corridors and connectors.
- Devising a multi-scalar heritage and landscape network, understood as an element on which to sustain the new connections.
- Building new complex urban spaces with the necessary attributes and qualities and capable of overcoming infrastructural barriers with added value.

Restoring and reprogramming deteriorated natural spaces

Although there are multiple reasons responsible for the current deterioration of many of the metropolitan open spaces, all of them can be better understood by considering this ecological disintegration and functional loss as a direct consequence of the current model of social metabolism of our territories. Although a real solution to this problem would be a change in the current metabolic and territorial management model, this would be a future scenario that would require a lot of work. However, there are already experiences and strategies that allow us to visualise a way forward for these deteriorated areas.

- Recovering and restoring deteriorated natural areas using dynamic and multi-functional management models.
- Minimising the environmental impact caused by the generation of urban waste.
- Optimising metabolic cycles through the revalorisation of inactive infrastructures.

Planning city edges and improving interaction between and within ecotones

The issue of boundaries is of enormous complexity, considering the dynamic and constantly evolving nature of the multiplicity of city limits and the diversity of situations that arise in different places and scales within the territory, and which need to be managed strategically and structurally. In general, it remains an unfinished task in terms of planning, with few projects addressing it in a comprehensive manner. The main focus is twofold; the reversal of those negative and unfavourable ecotonal features that create conflict and loss of efficiency, and on a second level to put a limit to uncontrolled expansion by restructuring those ecotonal areas. The idea is to visualise ecotones not only as indicators of the territorial processes taking place, but also to conceive them as reprogrammable territorial interfaces that can help to address local conflicts and improve overall territorial efficiency.

- Working on urban-rural interaction to increase territorial complexity, considering each of the spaces as dynamic and fluctuating interfaces.

- Creating new permeabilities and improving existing ones.
- Designing and structuring marginal spaces, understanding them as new spaces of opportunity.

Promoting urban and territorial regeneration projects

Urban regeneration as a project logic demonstrates the need to apply any strategy in a cross-cutting and multi-scalar manner when addressing neighbourhoods and urban areas of special attention. It is important to bear in mind that the problems and challenges facing many urban areas today are due not only to local conditions and constraints, but also to the consequences of territorial processes of a larger scale and scope. The opportunity for regeneration provided by these spaces also offers an opportunity for the renaturalisation of urban space and the possibility to integrate and reconnect it with territorial green spaces.

- Rehabilitating existing run-down urban fabrics to improve their quality of life.
- Incorporating new urban morphotypologies to favour greater social diversity.
- Structuring neighbourhoods to improve access to mobility flows.
- Reclassifying and recovering obsolete or deteriorated urban fabrics.
- Increasing and articulating local governance networks.
- Promoting proximity projects and small-scale interventions.

Reconfiguring metropolitan streets as structural territorial axes

The context of the BMR offers many examples of interventions of this type of projects that at one level structure at the local city level, but at the same time, and curiously, come to form an additional network of connecting axes on a territorial scale. It is a complementary metropolitan mobility infrastructure that can connect urban and open spaces, create new public spaces, and open possibilities for the renaturalisation of urban fabrics.

- Transforming roads into metropolitan urban avenues.
- Converting urban boulevards into territorial boulevards.
- Converting road axes on a territorial scale.
- Reinforcing metropolitan circuits.
- Reconfigure metropolitan connectors.
- Covering railways and creating public streets.

Integrating infrastructure

The current dominant model prioritised automobile mobility and efficiency over other aspects, and often provided simplified solutions that generated spaces with poor quality and lacking complexity. As cities evolved and grew, they built new infrastructure to meet demand, but often also constituted significant barriers that conditioned or obstructed social and ecological flows, fragmenting open spaces, and

leaving behind many disconnected and residual spaces. The integration of these infrastructures would reverse and break the barrier effect, while maintaining the levels and quality of social services.

- Overcoming the infrastructural barrier to generate new connecting spaces/re-store territorial continuities.
- Designing the residual spaces generated by infrastructures.
- Designing multiplex sections where the underground, ground, and overground are well interconnected.
- Designing multi-purpose hybrid infrastructures.
- Integrating major territorial routes with local urban structures.

Increase inter-modality and inter-nodality of mobility networks

The different modes of private and public transport have traditionally been designed and developed in a segregated way, with few interconnections and few possibilities to easily change between modes. This leads to an overall inefficiency of the mobility system itself but also of the whole territory given the growing need for new infrastructure developments with all their impact. The shape and structure of the contemporary metropolitan structure demands a complex mobility model that integrates and interrelates as many modes and flows as possible while, at the same time, prioritising those generating the least negative externalities.

- Interconnecting the different modes of transport.
- Connecting mobility flows at and between different scales.
- Integrating cycling as a means of transport on a metropolitan scale.
- Integrating the private car into the intermodal mobility system.
- Implementing intelligent solutions to facilitate and optimise the combined use of different transport networks and modes.

Metropolitan streets as a strategy for the re-articulation of public space in the metropolis

Marcel Smets argues that infrastructure, and in particular mobility infrastructure, is the fundamental building block for the constitution of urban form and regional landscapes (we maintain the meaning as he uses it). Networked, connected, weaved metromobility will mean a progressive transformation of our road networks, both arterial roads and ordinary streets. We live in a culture of mobility, of “great mobility” we could say. Changing mobility, but above all understanding that mobility is not just about movement and motorisation to solve it, but about access to flows: of the economy, of goods and services, information and knowledge, creativity, and communication, and in short, sharing and otherness as forms of life in community and society.

The great community service that the new metropolitan organisation can offer is to manage fluid, easy, and feasible mobility. Indeed, it is the right to mobility that

allows access to information flows, socio-cultural interaction, economic exchanges and, of course, adequate, and appropriate access to them. Indeed, the spectacle of the metropolis also lies in the ability to manage the quality of connected, articulated, and multiregional mobility (a neologism that aims to interconnect the quality of the call and facilitate exchange between different networks).

The key to a renewed management of this lies in a good network, a good infrastructure system, information and communication for operators, intermediaries and users, and the usability of management, pricing, and operations. The network is a set of networks that must ensure the movement of people (but also of the living, thinking coexistence of beings in terms of biodiversity): the road network, the rail network, the network of paths and greenways, and the water network. Four networks that organise the weaved movements in the territory, from daily mobility movements of proximity (access to collective facilities and services) to intercommunal, metropolitan, regional, or international movements; leisure and tourism mobility, or specialised logistics. Mobility flows at different speeds and well-diversified trajectories and exchanges.

As a dispositional hypothesis, we bring forward some questions: How can mobility in contemporary territories be improved? But also, in a reversed a synergic perspective, how to improve contemporary territories through mobility devices?

- Increasing access to spatial connectivity and flows of goods and services, information, communication, entertainment, creativity, social and cultural exchanges;
- Balancing micro-central network proposals with neighbourhood centralities and metropolitan city systems;
- Promoting intermodal systems that allow for feasible, legible, and efficient mobility;
- Ensuring the proximity of facilities and distance to facilities within a maximum radius of 300 metres;
- Overcoming the barriers of the neighbourhood, the city, the metropolis, and creating interconnected passages;
- Incorporating movement-transport-mobility systems taking into account daily itineraries, the type of movement and means linked to the concept of MaaS (Mobility as a Service);
- Facilitating the collective management of travel modes according to the density of people per hectare, but also according to their needs (Personal Rapid Transit) and the corresponding cost and environmental impact;
- Promoting meshed networks taking into account a hierarchy of movements and their links;
- Rethinking social mobility as a device and tool for opening up neighbourhoods to overcome urban vulnerabilities;
- Thinking the plan and the project of the metropolis as a lever for a renewed mobility laboratory;
- Providing fluid and safe channels to eliminate socio-psychological barriers and shanty towns by favouring urban integration;

- Encouraging ecological transition through interconnectivity, inter-modality, eco-electro-modality, and eco-modality;
- Promoting multiple connections between roads such as metropolitan avenues, roads linked to the main regional, national, and international arteries;
- Introducing intermodal hubs in the territorial model, which act as territorial squares at the same time;
- Rethinking the forms of parking on the way to autonomous mobility or at least assisted mobility.

Our action-research proposal is based on action both in the physical and spatial infrastructures (topographical–topological networks) and in the relational information infrastructure (digital), and the experiential dimension – sensorial spaces of mobility. We propose to establish, through the processes already tested in other metropolitan realities with instruments such as the Grenelle of mobility and mobility charter-agreements, metromobility charter, which involve a maximum connection infrastructure beyond the traditional hyper-hierarchical and segregating functions, and a progressive increase in the mobility of intermodal and internodal interchanges; as well as exploring new public transport systems but also new collective transport systems and solutions that incorporate alliances with private and/or private operators.

Thus, our proposal foresees a revision of the types of road network, introducing new categories that make up a complete network from roads to the proposed transformation of the so-called fifth-generation roads (with the intention of favouring concerted agreements between the different competent bodies to manage the continuity of their infrastructure); a prospective vision for the integration of all the networks under a large metropolitan area of network connectivity; and a projective with action in infrastructure in four sectors of the metropolitan territory (Figure 16.1).

It is in these sectors, which present the transformation of metropolitan spaces and trajectories, where we anticipate the effort of inter-regional (inter-communal) concertation to promote new enclaves of connection between settlements and the precious geographical territory of this spectacular metropolis. New typologies of infrastructures that we will call “intermetropolitan streets” (when I generated this concept in Brittany, I called it “metrovilleoise”. The translation into English or other languages is difficult) containing a series of attributes and programming principles:

- Integration of a large number of local and metropolitan flows to promote the coexistence of mobility on demand;
- Modal mobility, transport and parking exchange;
- Articulation between urban districts and metropolitan cities;
- Identification as a space of reference, central to local and metropolitan activity and identity;
- Reprogramming of typological underground sections that interchange well with the city plan at different heights and levels (three-dimensional streets);

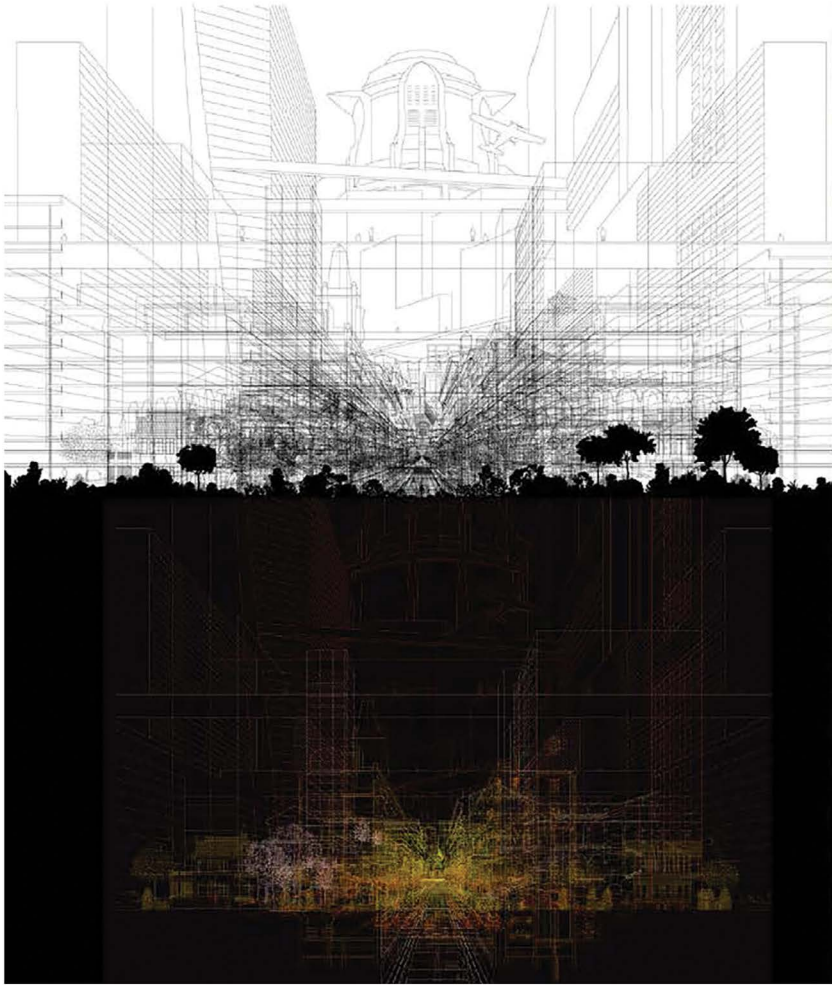


Figure 16.1 The three-dimensional street

Source: Biografía de la calle/Llop, C., Publicación para seminario las calles metropolitanas/CUIMP Barcelona, 2010.

- Designing routes which, longitudinally and on a supra-municipal scale, integrate the components of the geography and landscape of the territory;
- Programming the technical infrastructures in a systemic key, ensuring that they are powerful in terms of socio-environmental quality and in the development of activities, and constant renewal to manage structural support networks of supra-municipal services;
- Contributing to the formation of a structural and structuring system to support green spaces, local open spaces, and territorial and metropolitan open spaces.

This strategy will make it possible to articulate in the agenda of the future metropolis a set of new species of metropolitan areas grouped according to their typology (according to their functions and demands, attributes and spatial components) which can be identified as follows:

- Road transformations into urban-metropolitan avenues.
- Urban and territorial boulevards and boulevards.
- Territorial axis streets.
- Metropolitan circuits.
- Metropolitan central squares (confluences).
- Greenways – metropolitan green corridors.
- Metropolitan ecological connectors.
- New urban – metropolitan ring roads.
- New metropolitan arteries – high-capacity transport routes.

In the connected metropolis, the new mobility, therefore, is formed from capillaries and fibrosities, by cities, towns, villages, cities, and neighbourhoods, and also from the modified or natural physical environment, which gives rise to the diversity of landscapes and a very heterogeneous territory that metropolitan streets need to reconnect fragments of residential areas, commercial areas, urban wastelands, etc. In our territory we emphasise and deepen in sectors that by their unique characteristics become strategic to initiate transformations in the articulation of networks, intermodal travel, linking places and enclaves of the city and stabilised dispersed and diffuse neighbourhoods, legibility means of transport, routes, and indications of use. This strategy can be highly effective for the evolution of the concept of the territorial mosaic city to that of the ecometapolis, as described in our reflection (Llop and Ruiz-Apilániz, 2021): “the preservation of non-anthropised open spaces and a greater optimisation of the urbanised space [*requires a*] [...] management that combines synergies and mutualisations without dualising and confronting the urban and the rural, but rather tends to coexist, compensate, cooperate... A contribution that aims to advance our practice towards a truly holistic and hyperdisciplinary urbanism. A renewed urbanism from new strategic guidelines, project bases, and concrete actions based on principles of social metabolism for the recomposition of the metropolis towards a new ecometapolis already in process”.

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Part III

Beyond Lisbon



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17 Diffuse urbanisation and public space network

Inquiring on the scales and shapes of landscape structuring in the Porto Metropolitan Area

Sara Sucena and Rodrigo Coelho

Introduction

The intervention in the Porto Metropolitan Area's (PMA) public space over the last 25 years has established new typological and usage meanings, along with a new way of looking and recognising territorial 'fragments', beyond the municipality. 1998 was the chronological threshold that marked the emergence of a new paradigm for public space programming and design, for which the intervention of Expo 98, in Lisbon, the Polis Programme (a national urban policy programme that combined national and European Union funds for urban requalification in several Portuguese cities over 2000–2010), and the designation of Porto as European Capital of Culture, in 2001, were decisive events. Over these two-and-a-half decades, the role of public space has changed significantly, namely in terms of its conceptualisation, the number and importance of the interventions, and the variety of geographic scope of the supporting areas (Santos, 2020). The projects presented next show some of this diversity, both functionally and on the territorial scales, defining spatial interrelationships that materialised physical continuities and thus exposed previously unnoticed territorial similarities and heterogeneities. Simultaneously, and despite strong municipal identities (more than that of the metropolis), the various projects showed the potential of 'open space' – and of public space in particular – as a structuring element for a macro territorial entity, namely at the metropolitan scale. The premises, processes, strategies, and forms of these transformations revealed them as the most structuring of the PMA, supporting the metropolitan redesign and building new imaginaries about shared multidimensional spaces.

The landscape as seen

The PMA¹ is the core of a region characterised by diffuse urbanisation, hard to grasp and classify due to its diversity both morpho-typological and of coexisting land uses (Domingues, 2021; Portas, Domingues and Cabral, 2003; Portas, Domingues and Cabral, 2011). The high-density network of roads and waterways, together with the topography (up to 400 m above sea level), formed the primary structure of this diffuse urbanisation, inseparable from the small parcels of land, small-scale agriculture and highly mixed functions, which were the genesis and

support for the spread of urbanisation between towns and the most compact pre-existing nuclei (Domingues and Travasso, 2015; Portas, Domingues and Cabral, 2003; Sucena, 2010). The passage of time has acknowledged this essential dependence but has also introduced new scales into the referential elements, thus making the structure lose its clarity.

The set of these multi-scale elements (e.g., highways, industrial/shopping/logistics platforms) laid the foundation for a landscape of great complexity and specificity, articulating built spaces and nature according to logics of order that are hardly comprehensible today; yet this palimpsestic temporality conveys a culture of use/experience that is deeply rooted in the space, making it resistant to more generalisable classification and qualification stereotypes. Recently, this landscape has been described as ‘transgenic’, in order to capture that identity which, in response to a particular coexistence of formal and functional diversity that does not conform to standards, is stigmatised and is taking a long time to be recognised as an asset (Domingues, 2021).

Absent structure, missing metropolis

The PMA landscape is a composite of built, artificial and natural entities, highly diverse in scale, use and form, encouraging its reading and definition based on the idea of fragmentation. In the *figure-ground* analytical interpretation, the ‘ground’, or space in-between figures, appears as a separator rather than a connector and is not-questioned in its intermediary possibilities. Gradually, however, global scale phenomena and an awareness of the fragility of planetary boundaries changed the focus and aligned projects with new shared interests and concerns – the ‘ground’ changed its status and became a major character.

Among the current themes of urban (re)design of the 21st century – e.g. active and soft mobility, adaptation to climate change, mitigation of ecological imbalances, rehabilitation of biophysical ecosystems – extended areas of ‘in-between space’ have gained prominence and its ‘intermediate’ condition has assigned them roles of ‘structuring’ and ‘urban sewing’ that were usually problematised within the condensed city. This new urban condition seems to have created the opportunity to (finally) promote ‘a project for the reorganization of the territory’, as claimed by Francesco Indovina (1990, p. 42) in the early 1990s, a project that would make the dense and the diffuse cities with an equal footing, with each assigned complementarity and balance roles adapted to their specific characteristics.

A set of reference cases in PMA seeks to represent the way how an articulated and combined perspective on specific projects can reveal the potential that public space holds for the construction of a – not yet existing – idea of metropolis for Porto and its region. This is shown within a twofold scale: (1) public space is considered as a network of a higher order, referring to elements of a geographic macro-scale, which allows for the definition of a metropolitan macro-system linked to the sea fronts, riverfronts, and mountain ranges; and (2) public space is made of a series of municipal and inter-municipal spatial sub-systems, linked to intermediate-scale infrastructural networks, whether related to mobility (e.g., light rail) or to the recovery of natural



Figure 17.1 Diverse type/scale interventions (rows top/down): Espinho-Póvoa de Varzim Seafront, Porto Metro, and Gondomar's medium-scale interventions

Source: Rodrigo Coelho.

systems (rivers and smaller watercourses), often associated with the creation of parks and green corridors of inter-municipal dimension (Figure 17.1).

Taking the PMA as 'the image (...) of a city that already exists, but which is waiting for a project' (Secchi, 2000, p. 164), the challenge of building this twofold project emerges: on the one hand, from public space design and its structuring qualities as a landscape – 'thought of as (...) both the land and the gaze upon it' (Wylie, 2007, p. 55) within an experience that is lived (and conceptualised) with the body and the senses; on the other hand, from a desire of 'metropolis-making', which implies a vision that validates it 'as a collective construction around metropolitan objects' (Salles, Besse and Dubois, 2022, p. 39). Within the scope of 'landscape urbanism' (Medina and Monclús, 2017), public space can be both that instrument and place.

Intermunicipal interventions – Green and blue infrastructures

Espinho-Póvoa de Varzim Seafront

Within the PMA context, interventions on the seafront (covering six municipalities) were among the clearest examples of the design practice commonly termed as metropolitan Public Space System. Its origin stemmed from the municipality of

Gaia's initiative to raise environmental requalification as one of its political flags in the 1990s. Actions centred on improving the water distribution, basic sanitation, and wastewater treatment infrastructure in parallel with the renaturalisation of streams and the restoration/protection of the primary dune system. Although 'isolated' interventions, they gradually formed a physical continuity, which ultimately triggered the public space requalification of the seaside avenue based on the redesign of roadways, parking and sidewalks and the creation of a bike path, a boardwalk over the dunes and new green and leisure areas. The option of bringing together those 'urbanity values' and the preservation of biophysical resources were followed by other municipalities in the PMA. Although developed individually, with occasional inconsistencies in articulation, the set of the various municipal interventions has nevertheless made it possible to create a 40 km metropolitan waterfront between Póvoa de Varzim and Espinho, improving the pedestrian and cycle routes.

Exemplary in this respect, was the interplay between the municipalities of Matosinhos and Porto. The requalification of an important section of Matosinhos waterfront designed by Eduardo Souto de Moura (1995–2000) as a large public walkway (approximately 750 m long and 20 m wide) for leisure purposes and open to varied uses, articulated with an intervention developed to the south, in Porto, by Manuel de Solà-Morales (1999–2002). These projects' interest is twofold because they explore the shift from the condition of transitional and indeterminate space while also working on the connection between the two municipalities based on the requalification of the coastal strip.

Leça River's Green Corridor

The 'Corredor do Rio Leça' Project responded to one of the most pressing and cross-cutting challenges of our time: the treatment of a polluted watercourse, which simultaneously created the opportunity for designing a linear park for public recreation along its 45 km span. In addition, other goals were outlined: (a) encouraging the population's fruition of nature, providing space for leisure/sport activities in favour of an active and healthy life; (b) fostering alternative mobility modes by providing a cycle path in connection with bus/metro stops; (c) establishing a boundary between urbanisation and nature, safeguarding the latter under the argument of climate change response; (d) making previously unknown built heritage (bridges, mills...) visible and accessible to the population; (e) valuing the differences in the (micro)landscape revealed by the walkway's continuous sequence.

The particularity of this intervention, within the PMA and national contexts, stemmed from being a collaborative pro-environment initiative between the four municipalities crossed by the river Leça. Additionally, to being the only river whose watershed is completely enveloped within PMA's boundaries, its remarkable landscape diversity within a relatively small area placed the corridor as an urban laboratory where strategies, interventions, and governance are to be tested. Completed in 2020, the 'Masterplan Corredor do Rio Leça' (Costa, 2020) proposed

a phased implementation, with the works carried out according to the investment priorities and possibilities of each involved municipality. The first 7 km of public walkway along the river have been available since the end of 2021.

Porto Mountains Park

Set under design since 2014, following an exploratory study on a ‘Network of Metropolitan Parks in the Greater Porto Metropolitan Area’ (Andresen, 2009), the ‘Porto Mountains Park’ intended to anchor the implementation of an ecological system on a metropolitan scale combined with a series of material and immaterial values. The existence of important geological, biological, and archaeological assets within the mountain range of Santa Justa, Pias, Castiçal, Flores, Santa Iria, and Banjas brought the municipalities of Gondomar, Paredes, and Valongo together to promote its protection and qualification. This partnership resulted in the ‘Management Plan for Parque das Serras do Porto’ (AMPSP, 2018), which establishes the measures and actions for using this natural heritage of high economic, cultural, and environmental potential.

Known as the ‘Green Lung’ of the PMA and designated as a ‘Protected Landscape’, the 5,700 hectares Park includes 2,000-year-old Roman gold mines, villages, and rural nuclei, which were made available for visitation along with a network of adventure sports and rare flora and fauna exploration routes. Other specific interventions included the control of invasive plants, expanding native forests, and upgrading riverbanks, in addition to building more than 200 km of pedestrian, cycle and equestrian trails, along with walkways and viewpoints.

Intermunicipal interventions – Grey infrastructure

Porto Metro

With six lines and extending over 67 km, the ‘Metro do Porto’ connects six of the densest and most central municipalities in the PMA. The Metro project was launched in 1989 and began construction in 1999, with its first line opening in 2002. The intervention’s core motto was the improvement of mobility, under the argument of diverting private vehicles from the inner city, later reinforced by environmental concerns. Today the Metro continues to expand through the creation of new lines and the extension of existing ones.

As a light rail network in segregated lanes, the ‘Metro do Porto’ implementation strategy was based on the reconversion of old and obsolete railway lines and the laying of new surface infrastructure. Eduardo Souto Moura, the architect in charge of coordinating the project’s urban integration, outlined design, and architectural strategies that made it possible to create a coherent and qualified system, based on systematic design guidelines and fixed building materials. Its main purpose was to define a common order and a unified image for the network and to emphasise flexibility in solving local-scale problems, but also to embrace design variants in response to the specificity of the multiple intervention sites. This strategy sought to

provide a qualified solution for both the consolidated and dense areas and the more dispersed and expectant ones.

As such, the ‘Metro do Porto’ is one of the most structuring elements of the ‘metropolitan city’ not only because of its range and continuing expansion, aimed at reaching ten lines by 2030, but also due to its capacity to promote the urban requalification of its adjacent areas and of larger urban sectors along its path, benefiting from an infrastructure that is mostly laid on the surface and articulated with the public space system. The need to face rather distinct urban contexts showed how the different municipalities used the Metro as a catalyst for transformation, namely concerning the (re)designing of public space crossed by the infrastructure, triggering changes both in the short and on the medium and long terms. The urban and territorial insertion of the infrastructure was instrumental in establishing new road and pedestrian connections and in transforming previously splintered urban relations into more fluid and intelligible ones.

Ring road (EN12)

The ‘Estrada da Circunvalação’, Porto’s first ring road built more than 100 years ago, currently fulfils a strategic role both as a primary distributor of motorway traffic and as part of the local street network. Encircling Porto and bordering three other municipalities (Matosinhos, Maia, and Gondomar), the 17 km ‘Circunvalação’ was eventually enveloped by the process of urban expansion, which resulted in multiple road profiles and a fragmented built frontage. Despite various attempts to reshape it under a unifying project in recent decades, it remains a sort of inter-municipal enclave. Nonetheless, it holds a strong urban potential, namely for consolidating the idea of a public space network at a metropolitan scale. In addition to its historic and symbolic value, and its connective nature as support for diverse kinds of mobility, its in-between nature enables it to be used as a spatial sewing device to reconnect the surrounding urban fragments.

The most recent attempt of a global project dates back to 2014 and was the result of a metropolitan initiative to articulate the four municipalities facing ‘Circunvalação’. Its aim was to define the methodological and programmatic principles in a ‘Metropolitan Program’, which later materialised in the ‘Metropolitan Project for the Urban Requalification of the Ring Road’ (2017). The shared vision for the transformation of ‘Circunvalação’ into a ‘Metropolitan Belt Avenue’, or ‘Metropolitan Boulevard’, took shape as a cohesive project divided into 12 segments that, on the one hand, responded to the pre-existing territorial diversity, and on the other hand, timed the execution stages and correlated investments in accordance with the aforementioned segments.

The adoption of the ‘Boulevard’ model demanded bringing together both hard and soft mobility, and the preservation of the existing trees, which were considered as heritage and a key component of the project. Regarding its surrounding areas, the ‘Circunvalação’ project should integrate with the ongoing and scheduled proposals that were focusing on waterway rehabilitation aimed at the consolidation of a metropolitan scale system of *continuum naturale* corridors. The central tree-lined

median – with a dedicated lane for soft mobility – is defined as the distinctive and identifying element of the project, providing a common ground for the territorial and programmatic diversity of the road.

Municipal interventions that together form a network

Gondomar's medium-scale interventions

Gondomar, a municipality characterised by a harsh orography and dispersed and disordered urbanisation patterns, is a good example of how small- and medium-scale interventions have led to the reinforcement of urbanity and centrality within and between the different urban nuclei around which the territory is organised. A series of actions carried out over the last decade and a half, focusing on transport infrastructure and the regeneration of ecological structures, have proved fundamental to the creation of a proto-network of metropolitan public space, in that they have created a basic matrix across a relatively large area. Three examples are highlighted: the urban reorganisation and expansion axes around the Metro F line, the 'Rio Tinto Walkways', and the requalification of the 'Conduta/Dr. Mário Soares Avenues'.

Taking the opportunity of the expansion of the Metro F line (Estádio do Dragão – Fânzeres) in 2011, the municipality set in motion a series of interventions aimed at requalifying an extensive area taking that infrastructure as a territorial backbone by connecting important residential and commercial urban centres and upgrading other structuring systems, such as the road network. Additionally, its condition as an ordering matrix is also recognised as an axis of expansion, since it crosses areas that have not yet been urbanised, which can use it as a potential reference for future development.

The 'Rio Tinto Walkways' stemmed from the rehabilitation of an ecological corridor crossing the western part of Gondomar, in a north-south direction, and the acknowledgement of an 'interstitial linear area' as an asset for both mobility improvement and urban-sewing. Its transformation into a pedestrian and cycle path of about 6.5 km shaped a reconnecting device for solving typical discontinuity issues within a fragmented and heterogeneous territory, shifting the old building back-sides into a qualified urban front. Furthermore, it configures an inter-municipal connecting axis between the Rio Tinto urban park to the north entrance of Porto eastern park (2010).

The requalification of the 'Conduta/Dr. Mário Soares Avenues' (2022), connecting the municipality's two main urban centres (Rio Tinto, to the north, and the city of Gondomar, to the south) was based on the redesign of its almost 5 km length. The road lanes were reduced, and a bikeway added, a central road divider and parking places were introduced, and the sidewalks' width increased, supplemented with trees, street furniture, and lighting. This transformation introduced continuity and a previously absent urban character, reinforced by the co-existence of other facilities and public spaces (e.g., the Fânzeres urban park), and gave rise to a network of civic, pedestrian, and cycling spaces.

Networks, structure, and metropolis

The projects above showed the increased importance of intervention in open/public spaces over the last 25 years. In the context of the diffuse city and under the paradigms of mobility and environmental sustainability, those initiatives displayed the dominance of the green and blue infrastructures as an instrument for spatial qualification, able to establish territorial continuity and connectivity through unifying elements; simultaneously, they created places beyond the local scale and managed the integration between heterogeneous urban fragments. Bodies of water, both inland waterways and river and coastal fronts, were the main drivers of change, but other landscape and geographical units were also instrumental as alternative and complementary design supports, enabling and showcasing the metropolitan territorial diversity.

At the same time, grey infrastructure remains at the heart of territorial transformation, albeit currently under the banner of reducing the space taken up by cars, returning to soft mobility, and also contributing to a more robust green structure, interconnecting park and areas with greater expression. On a local scale, this building process of the metropolitan framework is replicable. The set of public space interventions in Gondomar asserts the importance of municipal actions towards the restructuring of its own urban space, still with a wider impact. Here, the green/blue and grey infrastructures created internal continuities that correlated with requalifying operations from neighbouring municipalities while resolving the specificities of local junctions.

Regardless of the projects' local or inter-municipal genesis, the shared interests and concerns resulted in territorial-scaled transformations: these interventions were essentially forms of 'landscape urbanism' (Medina and Monclús, 2017; Waldheim, 2006), going beyond administrative units. Their mapping, even if showing the discontinuity of the individual projects, promotes a forward-looking and imaginative reading, highlighting the potential of their connection within a metropolitan structure. This latent condition is present at various scales and under distinct roles:

- by creating local and metropolitan identities via the geographical principle of the visual landscape, and/or the social logic of the cultural landscape (none guided by administrative rationale and therefore superseding artificial boundaries);
- by sewing together and providing an intelligible relationship between the variety of built fragments (diverse densities, morphologies, scales);
- by acting as a territorial infrastructure in response to climate change challenges (mobility and biophysical requalification of green/blue areas);
- by building public spaces for social gathering and leisure activities and providing diverse atmospheres and landscapes (scale, proximity, building densities).

Finally, this mapping shows the imbalances in spatial qualification within the metropolis and calls for an ethical and redistributive territorial approach that challenges the investment dynamics privileging the infrastructure/equipment of more

populated, attractive, and better human and technically resourced municipalities. Only under this premise would the purpose of ‘metropolis-making’ be fully realised.

Note

- 1 The PMA holds a population of 1,737,395 inhabitants over 2,040 km², and a population density of 844 inhabitants/km² (Census 2021).

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18 The multifaceted construction of Barcelona's metropolitan public space

Pedro Bento and Miquel Martí

Introduction

To think about Barcelona is to think about public space (Martí, 2004). The renovation of public space initiated by the city at the beginning of the 1980s became a sign of identity of its urbanism (AMB, 2004, 2006, 2010, 2012,, 2018, 2019a, 2019b, 2022). Barcelona has never stopped to take care of this aspect of its transformation, which has influenced the rest of Catalan towns and has evolved with successive contributions throughout these four decades (Bento and Louro, 2021).

Over time, the metropolitan scale appears as a fundamental driver of this process (Parcerisa, 2014). Alongside the renewal of public spaces in many local urban fabrics, we find a lot of interventions that can be considered genuinely metropolitan. Either because of their scope (they attract many citizens from all over the metropolitan area), or because they address issues characteristic of the metropolitan realm (discontinuities, interstices, fractures, and seams between fragments).

Blue infrastructures (spaces related to water, such as waterfronts and the hydrographic network) are clear examples of metropolitan spaces. So are agricultural lands and peri-urban forests, as well as those transport infrastructures that connect the territory.

The concepts of green infrastructure, ecosystem services, and nature-based solutions, as tools to deal with climate change, have also shaped public space. Seafronts take sea level rise into account; agricultural areas are promoted not only to produce local food, but also as means for fire prevention and management (Morán, 2020); the management of peri-urban forests seeks a balance between biodiversity conservation, recreational access for citizens, and the regulation of the water cycle in a context both of severe droughts and risk of torrential rains. From an ecological perspective, the connectivity of open spaces is fundamental to the 'continuum naturale' (Cabral, 1980).

Efforts to achieve sustainable mobility in metropolitan environments have affected public space. On the one hand, until now segregated (or pedestrian unfriendly) road infrastructures are turned into metropolitan avenues, civic axes intended to encourage social activities. On the other hand, soft active accessibility through cycle paths is provided for large open spaces (seafront, rivers, agricultural lands).

Both metropolitan avenues and paths contribute to structuring the metropolitan territory in a legible way on a human scale.

This chapter on the metropolitan public space of Barcelona aims to show the trends that have been modulating this urban transformation as revisited ecological and mobility paradigms were established.

The tools for redesigning public space have also experienced innovation. Landscaping enables to work with nature as a process in permanent change, as shown by the design of seafronts taking into account sea variabilities. By definition, landscape approaches also consider the perception of citizens on the territory, enhancing, for instance, landmarks, scenic paths, and viewpoints.

Renewal of metropolitan public spaces in local urban fabrics

In the last decades, the Barcelona Metropolitan Area (BMA) authority, working together with the metropolitan municipalities, has been the main agent of transformation, renewal, and qualification of the existing and future metropolitan public space network (see [Figure 18.1](#)), having executed more than 180 public space operations, 40 of which in local urban fabrics alone. As it is not possible on this occasion to address all the cases, we have opted to illustrate just three (located in other municipalities than Barcelona itself, which is responsible for the renovation of its own public spaces). Each one represents an intervention with a metropolitan impact beyond their local scale.

The Plaça Can Fradera in Badalona illustrates a central civic-green space of an important town (223,000 inhabitants) that articulates urban routes connecting open metropolitan spaces. It is a Plaza-Park with an area of 3 ha designed by architects JornetLlopPastor and executed in 2011. It appears in the arrangement of the void of Badalona 'Central Island' where we can find different values of a new urbanity. It aims to be a unitary space, but at the same time shows a repertoire of spaces. It responds to both the vocation of being a metropolitan gateway from the Baix Maresme and the park that the neighbourhood of central Badalona has never had ([Llop and Ruiz-Apiláñez, 2021](#)).

The reurbanisation of the streets of the historic centre of Castellbisbal (13,000 inhabitants) was designed in March 2017 by Cristina Sáez (BMA), with the collaboration of Joan Roca, Sara Arguedas, Susana Casino, Laura Muntada, and Marta Ines. The reurbanisation transforms a set of existing streets into a pedestrian island, through a single platform that facilitates the coexistence of pedestrians and residents' vehicles at low speed. The sequence of platforms adapted to the topography forms spaces of bleachers and flowerbeds with vegetation capable of generating simple and qualified places for stay and leisure.

Finally, the urban spaces of the Ciutat Cooperativa neighbourhood in Sant Boi de Llobregat (83,000 inhabitants) are also highlighted. They were designed by AR47 team in 2016. At metropolitan level this case represents an edge settlement in contact with the hydrographic open spaces. The project aims to improve accessibility and connectivity with the different areas within this working-class neighbourhood. Like the whole town, Ciutat Cooperativa is located next to the

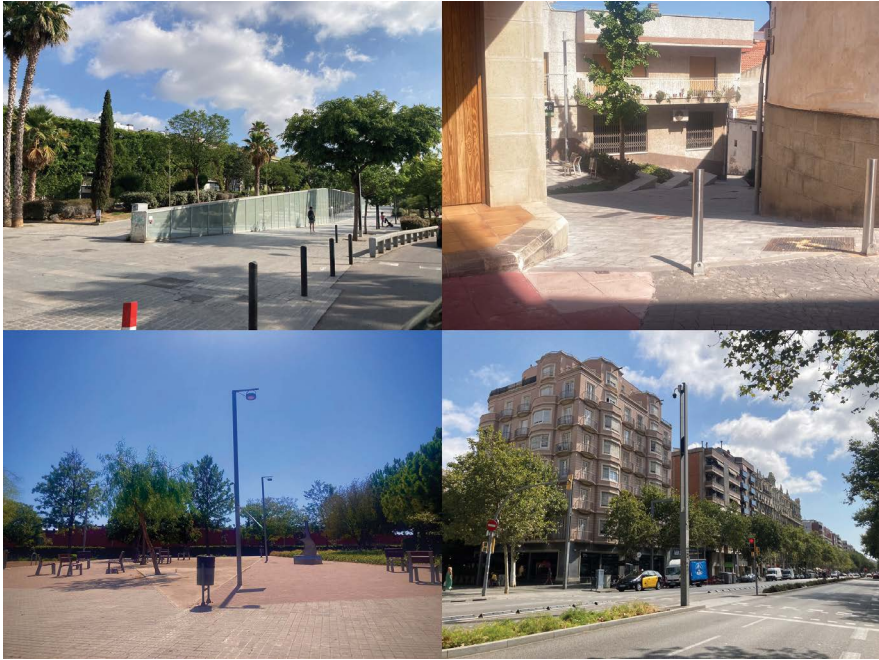


Figure 18.1 Renewal of metropolitan public spaces in local urban fabrics (from left to right and top to bottom: Plaça Pompeu Fabra (ex Can Frandera) in Badalona; the reurbanisation of the streets of the historic centre of Castellbisbal; the urban spaces of the ‘Ciutat Cooperativa’ neighbourhood in Sant Boi de Llobregat; and Paralell Avenue in Barcelona)

Source: The authors, Maria dos Santos-Ferreira and Leonor Bento.

Llobregat river valley but separated from it by a set of transport infrastructures. Its peripheral location at the northern limit of the town can be transformed into an asset as the neighbourhood has direct access to Can Soler stream and it is very close to the important cultural heritage of Colònia Güell (with Gaudi’s crypt as World Heritage Site). The proposal is based on a new central pedestrian axis that structures the neighbourhood from east to west, connecting relevant facilities like the market and the library and articulating the in-between buildings spaces of this housing state.

Public spaces related to blue-green infrastructures

In recent years, the BMA has been actively implementing blue infrastructure projects to enhance the sustainability, resilience, and quality of life for its residents. Blue infrastructure refers to the network of natural and constructed water systems that provide multiple benefits, such adaptation to sea level rise, flood mitigation, water purification, and recreational opportunities. Another significant aspect of blue infrastructure in BMA is the restoration of rivers and streams. The city has

recognised the importance of reclaiming and revitalising water bodies that were once heavily polluted and degraded.

Coastal fronts and water courses interventions

The Gavà beach intervention focuses on striking a balance between tourism and environmental protection. The authorities have implemented measures to safeguard the delicate coastal ecosystem, preserving the native flora and fauna while creating accessible pathways and recreational facilities for beachgoers. The first dune system recovery project in the BMA was carried out in this space. The addition of artistic installations and outdoor recreational spaces has transformed Gavà beach into a vibrant hub for cultural gatherings and community events, fostering a sense of belonging among residents and promoting social cohesion.

Crossing the western part of BMA, the Llobregat river is the most important water course of Barcelona. This large strip of natural land is separated from the side historical settlements by infrastructural corridors including several highways and railways. The restoration of the Llobregat valley started at the beginning of 1990s following a double strategy.

Firstly, it was necessary to improve the ecological quality of the valley. Depollution was carried on; artificial meanders and wetlands were created. Wetlands play a crucial role in water filtration, flood control, and habitat provision for various plant and animal species. For example, the Llobregat Delta Park, located at the mouth of the river, has been protected and enhanced through biodiverse wetlands that serve as a haven for migratory birds and a natural buffer against coastal erosion. These metropolitan wetlands not only provide ecological benefits but also create attractive recreational spaces for residents to enjoy nature near urban settings.

Because the second restoration strategy of the hydrographic system has been to make accessible those spaces which mainly weren't before. A network of blue roads (paths for pedestrians and bikes along rivers and streams) is being implemented. In the case of Llobregat, there exist now two cyclable paths (one in each bank) of about 30 km between Martorell and the mouth of the river. Accesses between the historical towns and those soft arteries are created by overcoming the infrastructural barriers through pedestrian tunnels and bridges (for instance, in Sant Boi de Llobregat by Battleiroig, 2007–2015). Once accessible, these open spaces can provide attracting amenities like natural spaces, birdwatching points, or viewpoint towers.

Collserola: The central park of metropolitan Barcelona

The blue infrastructure is part of the larger concept of green infrastructure, the network of natural and semi-natural spaces strategically planning to provide ecosystem services, that is environmental and social benefits for the human community.

Besides the coastline and the system of rivers and streams, the BMA has made significant strides in recent years towards the implementation of green infrastructure projects, of which the development of metropolitan parks is a key aspect.

The Central Park of Metropolitan Barcelona is the mountain range of Collserola. With a forested area of about 11,000 ha (more than 8,000 protected as a natural park) it offers endless opportunities for outdoor activities and relaxation.

In 2011, the Barcelona City Council launched the competition called Collserola Gates. The objective of the initiative was to enhance the accesses to the Collserola mountain from the city of Barcelona so that it becomes the green lungs of the conurbation. If Barcelona opened towards the sea in the 80s, it was time to open towards the mountains, its traditional natural limit, which had been reinforced with the construction of the Upper Ring Road for the Olympics in 1992. The goal was to rearrange the urban surroundings of the park and connect the mountain with the network of urban public spaces, both to establish ecological connections in terms of biodiversity and to make easier and legible the access for citizens to the system of pedestrian paths in the natural park. Sixteen areas called ‘gates’ have been delimited in order to be converted into green corridors equipped with public facilities. The many ideas produced by the competition have not been implemented yet, but at least a project to complete the Passeig de les Aigües is on the way. The Water Promenade is a flat path of more than 20 km in length, ideal for walking or biking, that follows the topography of the mountain offering breathtaking views over central Barcelona.

In 2020, the new Plan for the Natural Park of Collserola was approved. It is a vision from the natural area, rather than from the surrounding settlements. The plan answers to the human pressure produced by the rise of outdoor activities by proposing ‘calm islands’, areas inside the park with an increased protection to preserve their natural ecosystems. Then, human activities are promoted along the edges of the park with the creation of nodes of amenities while recreational uses are more strictly regulated in the network of paths inside the park. In turn, existing agricultural and livestock uses are preserved and new ones introduced when possible. Particularly, in the interfaces between the forest and urban settlements, where they can play a major role in preventing and managing fire risks.

Metropolitan agriculture: Towards agroforestry mosaics

Another significant initiative of green infrastructure in BMA is the promotion of metropolitan agriculture. The Great Barcelona has important agricultural lands inside its boundaries. Preserved from the pressure of urban development, these extensions provide the metropolis with valuable proximity food, sustain biodiversity, and contribute to the preservation of rural landscapes. The Agricultural Park of the Llobregat Delta is the main of those areas, but in Vallès, north of the coastal range, still subsist others. The protection of the metropolitan agricultural lands exists since the 1990s. The plans aim to combine three aspects: primary production, ecological improvement of the environment, and leisure activities.

Recently, BMA has moved a step forward, by undertaking significant efforts to implement agroforestry mosaic projects (for instance, www.agroforadapt.eu). Agroforestry is a land management system that combines the cultivation of trees with agricultural crops or livestock. This approach makes agricultural practices

more resilient to climate change (involving increasing droughts in a Mediterranean context), while enhancing the multiple benefits related to the permanence of agriculture in urban environments.

Urban blue-green infrastructures: SuDS and BIG and urban gardens

The integration of sustainable urban drainage systems (SuDS) has been a significant aspect of blue-green infrastructure in the BMA and Barcelona has implemented various SuDS techniques, such as permeable pavements (Cristobal de Moura green street) and rain gardens (in some superblocks in Poble Nou), to reduce the impact of urbanisation on the water cycle (Figure 18.2).

In turn, the integration of green roofs and walls is a prominent element of green infrastructure in the BMA. These installations provide numerous benefits, including energy efficiency, stormwater management, and improved air quality. The municipality of Barcelona has promoted the implementation of green roofs and walls in both new developments and retrofitting existing buildings (biannual Cobertes Verdes competition).



Figure 18.2 Public spaces related to blue-green infrastructures (from left to right and top to bottom: the revitalisation of Gavà beach; the restoration of the Besòs River; the restoration of the Llobregat valley; and Passeig de les Aigues in Collserola mountains)

Source: The authors, Maria dos Santos-Ferreira and Leonor Bento.

Eventually, Barcelona has recognised the value of cultivating food within urban areas to enhance food security and improve community engagement (Horts Urbans network).

Metropolitan mobility infrastructures as public spaces

The other main category of metropolitan public space results from the transformation of the mobility system and the reconversion of hard roads, monofunctional and used exclusively by cars and which now intends to be redesigned, incorporating public transport and other modes of soft transport.

Road infrastructures are a key component of the metropolitan landscape. Empty lanes and lanes full of vehicles, roundabouts, railway tracks, entrances, and exits that form scalextric concrete complexes at different levels can be observed... Also natural ecosystems that are isolated due to the passage of the tracks that fragment the territory and prevent us from accessing to the metropolitan fields and forests. In these spaces lies the opportunity to recycle fabrics and infrastructures to articulate the metropolis. The urban dynamics typical of the central city can extend to these areas in new ways (Figure 18.3).

The ‘Nusos i Cruïlles’ competition (2020), an initiative of BMA authority, illustrates different ways of reusing road junctions and motorways to incorporate other forms of mobility. They put forward a set of ideas that propose bus stops on motorways, sidewalks like balconies open onto the landscape, pedestrian paths through the mess of highways, new civic squares and streets in the middle of this infrastructural landscape, among others.

This competition wished to reflect on the implementation of the urban and social structure defined by the Metropolitan Urban Master Plan (PDUM), under approval. This structure favours proximity between uses, sustainable mobility and urban continuity between municipalities. Nowadays, many metropolitan roads form barriers that did not exist some decades ago: expressways that the streets of the urban fabrics cannot cross and that cut the historical roads which, in the past, connected towns and cities. They are also roads where public transport does not run. The new metropolitan structure aims to solve these problems of segregation of urban fabrics and the fragmentation of natural ecosystems.

The proposed structure is based on a system of different typologies of mobility channels. Mainly, metropolitan avenues and streets, and paths.

The network of metropolitan avenues and streets is the backbone of the structure. They prioritise people, bring neighbourhoods together (as they follow long urban layouts that cross the metropolis) and facilitate mobility on foot, by bicycle and by public transport. They are aimed to become the main streets of the metropolis. An example of an ongoing redesign of a metropolitan avenue is the historical road C-245 along the municipalities bordering the Llobregat Delta. The C-31 highway (corresponding to the continuity of la Gran Via in Barcelona) is going to be transformed into a metropolitan avenue both in its northern section across Badalona and in its southern section towards Castelldefels. Speed reduction and the introduction of massive public transport,



Figure 18.3 Metropolitan mobility infrastructures as public spaces (from left to right and top to bottom: an example of an under creation metropolitan avenue is C-245; C-31 highway to be transformed into a metropolitan avenue; C-245 along the municipalities bordering the Llobregat Delta; and metropolitan connectors between Sant Boi de Llobregat and Sant Vicenç dels Horts)

Source: The authors, Maria dos Santos-Ferreira and Leonor Bento.

bike lanes and walkable spaces will make possible the metamorphose of the existing motorway.

Metropolitan paths have the main function of clarifying access from the urban fabric to the agroforestry spaces and order their use. Often, historic paths are links between nature, heritage, and the city. Their redesign is promoting soft mobility modes (walking, running, cycling), like along the Llobregat river.

Conclusion

In 2023, the initial approval of the PDUM was celebrated. The PDUM establishes the regulatory framework and guidelines for the metropolis of Barcelona at the horizon 2050 with the aim of enhancing the natural values of the territory, promoting active and sustainable mobility, and improving the quality of life.

In terms of metropolitan public space, these three goals of the PDUM can be associated to the three layers tackled in this chapter: urban public spaces to improve quality of life in urban fabrics, blue-green infrastructure to enhance natural values,

transport infrastructures to promote sustainable mobility. These layers are tightly intertwined; their interventions are deeply complementary, integrating a common complex network of public spaces.

Besides the interventions to restore its ecological quality and the efforts to maintain its productivity in terms of food and wood, the network of metropolitan walkable and bikeable paths introduces a new level of accessibility to large open spaces until recently inaccessible. These paths become useful for leisure activities and for everyday commuting trips, structuring the metropolis at the human scale, making it legible.

In turn, metropolitan avenues will connect the traditional system of urban public spaces inserted in the neighbourhoods with new public spaces emerging in the realm of transport infrastructures. Along roads and expressways, and particularly in their junctions, a metropolitan landscape is born. It offers conditions of urbanity – accessibility, intensity of use, respectful dialogue between components, aesthetic values... – in a context that lacks the continuities and the orders of the compact city (Sabaté, 2019). The aspiration of creating a system of metropolitan public spaces is close to being real. They are places with their own identity, but the qualities previously achieved for the urban places.

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19 From Brussels Metropolis to the National Park as eco-urban figure

Studies on the Senne and the Sonian

Wim Wambecq and Bruno De Meulder

Introduction: On the Brussels metropolis

Unlike other metropolises – London, Paris, Barcelona, or Lisbon – Brussels shares its influence over its hinterland with other cities at close distances – as Leuven, Mechelen, or Antwerp – that have claimed a dominant territorial position in time and that continue to share the hinterland’s resources. Until the territory between these cities was widely urbanised in the post-war development, we could have described their spatial organisation as polycentric, yet today its territorial consistency is unclear (De Meulder et al., 1999). Brussels’ internal cohesion can also be questioned. The city is managed by 19 different mayors in charge of a municipality that are somehow held together on a higher level by the regional administrative entity, the Brussels Capital Region. This regional entity, which is curiously the size of a city, is bordered by both the Walloon and Flemish regions. As spatial policy is a regional competence the city must engage in structural collaborations with other regions to exert influence beyond its administrative straitjacket, as is mostly the case in the search for a cohesive metropolis. Unfortunately, a culture of collaboration between the regions with strong cultural differences, only existed sporadically. Considering its shared hinterland, internal and external challenges for cohesion, a project for a Brussels metropolis in fact does not exist which is somehow reflected in the (lack of) quality and connectedness of its metropolitan public space. If the scope of the fore lying book is to elaborate a theoretical and practical frame of reference for a ‘Metropolitan Network of Public Space’, then we must understand the contribution of this chapter in this context.

Searching for metropolitan cohesion for Brussels

The ‘Brussels 2040’ study (2010–2012) was one of the few cross-regional studies in search of an operational framework towards a more cohesive metropolis. A public partnership between the three regions commissioned research-by-design on the construction of a Brussels Metropolis, grafted on the recalibration of the national train network to serve as a regional network for the Brussels metropolis and its surrounding residential tissue. However, the commissioner’s ambition was to look beyond the transport system as the driving force behind the creation of the metropolis.

Three interdisciplinary teams proposed their vision for the Brussels Metropolis by 2040 (Bruxelles-Capitale et al., 2012). The design team around 51N4E highlighted the development capacity of a dense metropolitan model – with a strong focus on Brussels as the urban centre – driven by an adapted regional rail network. Besides the architecturally enticing, sometimes innovative forms of urbanity, it was essentially a transit-oriented development (TOD) strategy. Not surprisingly, the vision strongly referenced the work on ‘Grand Paris’ from 2007 (, 2011). Ten years later, densification at public transport nodes has indeed occurred widely after the adaptation of the mobility network and fuelled by neoliberal market forces. These projects focus on the multiplication of high-value residential surface area, but often lack an integrated vision for public space, for strengthening local communities and promoting urban cohesion or for addressing environmental concerns. It is therefore questionable to what extent this (TOD) trend constructs a cohesive metropolis, or even a network of public spaces that serves it, and how it has consequently improved the metropolis.

Studio Secchi-Viganò proposed a reading of the larger territory by evaluating the city, its residential hinterland and its different expressions of urbanity as part of one horizontal metropolis, well-served by public transport, well serviced by amenities and rich in diversity of places and landscapes (Viganò, Cavalieri and Barcelloni Corte, 2018). This ‘Horizontal Metropolis’, subject of continued research, forms a strong theoretical base of reinterpretation of the dispersed territory, seeking quality in what has always been classified as ‘bad’. As it extends the concept far beyond the administrative boundaries and classic processes of urbanisation and planning, a comprehensive implementation process for the consolidation of such a horizontal metropolis is less defined; it underlines, however, the key role of the piecemeal improvement of local conditions and gradual remediation of its ecology as significant contributions to the transformation of the metropolis, as shown by the vision’s case studies on the Eastern and Western edges of Brussels (Studio Associato Bernardo Secchi - Paola Viganò, 2012).

The studies on ‘Metropolitan Landscapes’ (2015–2016) and the most recent elaboration of the National Park ‘Brabantse Wouden’ (2021–ongoing), seek to contribute similarly, but shift strongly from the ‘anthropocentric urban’ to an ‘eco-urban’ perspective (Moonen et al., 2015; Provincie Vlaams-Brabant, 2023). Both studies underpin the importance of the ecological systems and their landscapes of magnificence as the substrate that hosts the metropolitan life, in all senses. In fact, the ecological systems, in these cases the Senne valley and the Sonian forest, have been most influential in how urbanisation and urbanity evolved in time. Some consider the before-mentioned power shifts between Leuven and Brussels the result of the Sonian forest’s position between both, since the nobility basically sought proximity to the forest, not necessarily to the city (De Meulder, Shannon and Nguyen, 2019). Perhaps it is simply not possible to conceptualise the metropolis of Brussels with the ‘pentagon’ as its sole (anthropocentric) centre? Are the ecological systems of river valley and forest on the plateau references for a different (eco-urban) kind of metropolis? This was the hypothesis for the design research conducted at the Research group of Urbanism and Architecture (OSA) of the Department of

Architecture, KU Leuven. Two cases are discussed that focus on the Senne valley (as part of a commission on ‘Metropolitan Landscapes’) and the Sonian forest (self-initiated design research) as conceptual carriers of metropolitan change.

Studies on the Senne and the Sonian

Research-by-design: Exploring the metropolitan change through landscape

The Brussels territory suffers from the ecological consequences of its disperse settlement pattern, with increased impermeability of soil and water run-off, reduced water availability, fragmentation of forests, river valleys, heathlands and other important landscapes, and biodiversity loss. The hypothesis at the core of the design research is that if an ecological transition is desired, the characteristic landscapes of the territory must become the focus of urban reorganisation. This approach does not necessarily replace the current development model of a TOD metropolis or of a polycentric organisation, but provides an attractive, complementary, and necessary alternative with the landscape metaphorically positioned at its ‘centre’. This supports the theory that the changing shape of the metropolis – with its denser and more dispersed urbanisation pattern – cannot be tackled by one sole model but, as Dehane argues, ‘they are defined by the recombination of historically overlapping logics of urbanisation’ (Dehaene, 2018, p. 276). The design research seeks to rearticulate these logics through the landscape.

Metropolitan Landscapes: The Southern Senne valley

Metropolitan Landscapes was a research-by-design study commissioned by an alliance of both Brussels and Flemish partners to explore the potential of certain open spaces for the consolidation of the metropolis. By abandoning the classic dichotomy of the ‘built’ and the ‘leftover’ space, the open space labelled as ‘metropolitan landscape’ can play an active role in the making of the metropolis, while supporting a new conceptual approach to the metropolis (Loeckx et al., 2015). Wit Architects and the Research Group of Urbanism and Architecture (OSA) were commissioned the design research of the Southern Senne valley as a Metropolitan Landscape, bordered to the north by the Brussels ringroad and to the south by a more loosely defined area in Beersel.

Both in Brussels and in Flanders, the Southern Senne valley was highly fragmented by a sequence of water, rail, and road infrastructures that gradually grew in and along the valley. In Brussels the abundance of infrastructure was used for large-scale industrial and logistical operations, occupying the entire valley, while on the Flemish side, the notion of the ‘green belt’ – a political project to hinder the expansion of Brussels into Flanders – prevailed, resulting in the ‘Zennebeemden’ park, a unique remnant of the original landscape. The Southern Senne valley is either completely industrialised without qualitative public space, or underappreciated in its potential to structure the metropolis due to the political hindrance that stems from the cultural difference between the regions.

The design research explored a systemic reactivation of the Senne valley based on a series of controlled floodable areas, capable of retaining one million cubic metres of water upstream of Brussels. The river was uncovered where possible and reprofiled with dynamic, soft edges. The strategy was as simple as it was challenging: to find wide spaces for water to restore the valley's systemic and ecological functions, which could then support a new and coherent urbanity. A lively waterscape would be again revealed, combining a key role at the metropolitan scale, while sustaining a local civic magnificence. The current static and schematic organisation of the river as a drainage project – the river as a canal and the canal as the river – would give way for a wide and active waterscape that holds water and all kinds of life.

The systemic reactivation of the Southern Senne valley is as much an urban as it is an ecological project. It incorporates the small urban tissue and large industrial compounds. Space for water imposes the creation of public space throughout the urbanised pieces of the river valley. The water machinery at the regional scale goes hand in hand with the civic magnificence of new public spaces that appear in the urban wilderness. Water structures break through urban isolation, infiltrate and make parts of the metropolis accessible that were seemingly out of bounds. Water becomes an alibi for making a liveable metropolis. The systemic exploitation of water as a quality in the Southern Senne valley allows for a pathway to urban cohesion that includes all sorts of new urbanities. Water requires similar reflections as the metropolis' urbanity and can therefore be (ab)used to induce change. Water appears everywhere in its most modest existence (drops, ponds, and small streams), then aggregates and accumulates to form important structures (rivers, valleys, aquifers...) that require systemic thinking. The design research as described seeks to shape the metropolis in function of a joint coherence between urbanity and water, both at the scale of the intervention and local qualities, as on the structural scale of metropolitan and ecological functioning, as envisioned in [Figure 19.1](#).

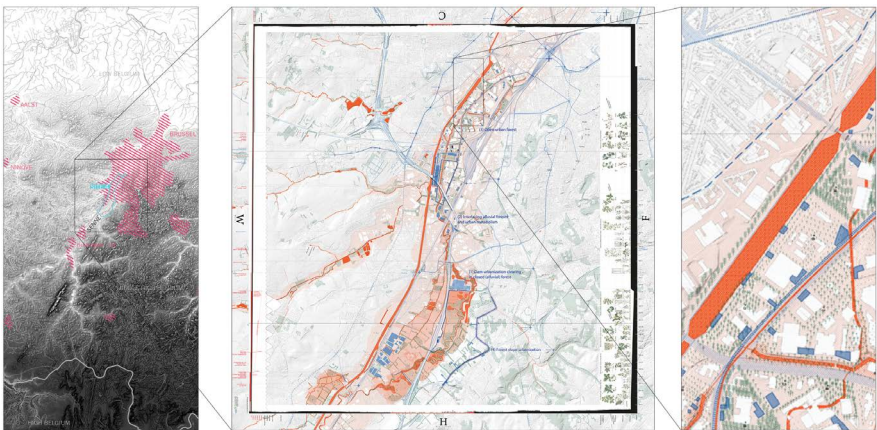


Figure 19.1 Vision for the Metropolitan Landscape 'Southern Senne Valley'.

Source: By Wim Wambeq.

In the 2018 summer school on the Brabant forests, organised by OSA, the hypothesis was put forward to structurally extend the qualities of the forest-urban interface beyond the Sonian forest (De Meulder et al., 2018). The design research explored the expansion of the Sonian forest as a socio-ecological structure covering villages, suburbanisation, river valleys cutting in the Brabant plateau, productive agricultural fields, and several forest fragments that once formed the majestic ‘coal forest’ on the Brabant plateau between the Senne and the Dhyle rivers, as shown in Figure 19.2. The aim was to rearticulate the relation between the consuming (sub)urban structures and the productive, ecological structures. Design strategies on suburban allotments worked with the assumption that any urban intervention needed to strengthen the ecological system of the forested plateau, yet by doing so it would drastically improve the local living conditions. This relation needs to be well curated as the inherent contradiction between space consuming inhabitation benefitting from the unique qualities of the forested landscape, can quickly lead to structural deforestation and the loss of that what people were aspiring (Wambecq, De Meulder and Rojals, 2023, p. 167).

Clearly, such a delicate approach invites the urban planner or urbanist to also be a landscape architect or forest engineer, as shown in Figure 19.3. Vice versa, the notion of working on ecological systems as a substrate for sustainable urban development, was an invite to nature-oriented stakeholders to broaden their disciplinary scope beyond their working field and reflect on the metropolis. Bart Muys – professor of forestry at the Faculty of Science of KU Leuven – advocated for an interdisciplinary metropolitan model when mentioning the possibility of a ‘park territory’ in 2002, well before metropolitan thinking on Brussels, and contemporary to ‘After-sprawl’ by Xaveer De Geyter which was a turning point in seeing quality and possibilities in the Flemish suburbia (Muys, 2002, p. 3, Bekaert and De Boeck, 2002). The need for metropolitan constructs that emerge from ecological reconstruction has now become evident.

The 2018 design research indeed evolved into the ambition for the National Park ‘Brabantse Wouden’ (Woods of Brabant), that centralises the forest as a main identity of this piece of the territory. In 2021, the Flemish government published a call for candidates that seek to establish new national parks through interdisciplinary collaboration. The concept aims for a large area of uninterrupted nature (10,000 ha), yet also advocates for the inclusion of urban structures as part of the identity of the National Park, very similar to the idea of a ‘Park territory’, or reinvented notion of a ‘Landscape Park’ as advocated in numerous design explorations at OSA. The ambition for a National Park is co-supported by the Agency of Nature and Forest, civil society organisations as ‘Friends of Heverlee Forest and Meerdael Forest’, and the Province and local municipalities. The nature-driven, interdisciplinary consortium rallies behind the notion of an inhabited forest that not only serves as a counterfigure to the model of the ‘classic city’, but also to the classic ‘making of the city’. The ecologist holds the pen now. This shift towards disciplinary disobedience – colouring outside of the lines of the disciplinary box – demonstrates an enhanced mindset of territorial appropriation, ownership, and responsibility, meaning that the forester, for example, engages in seeking to establish forest qualities

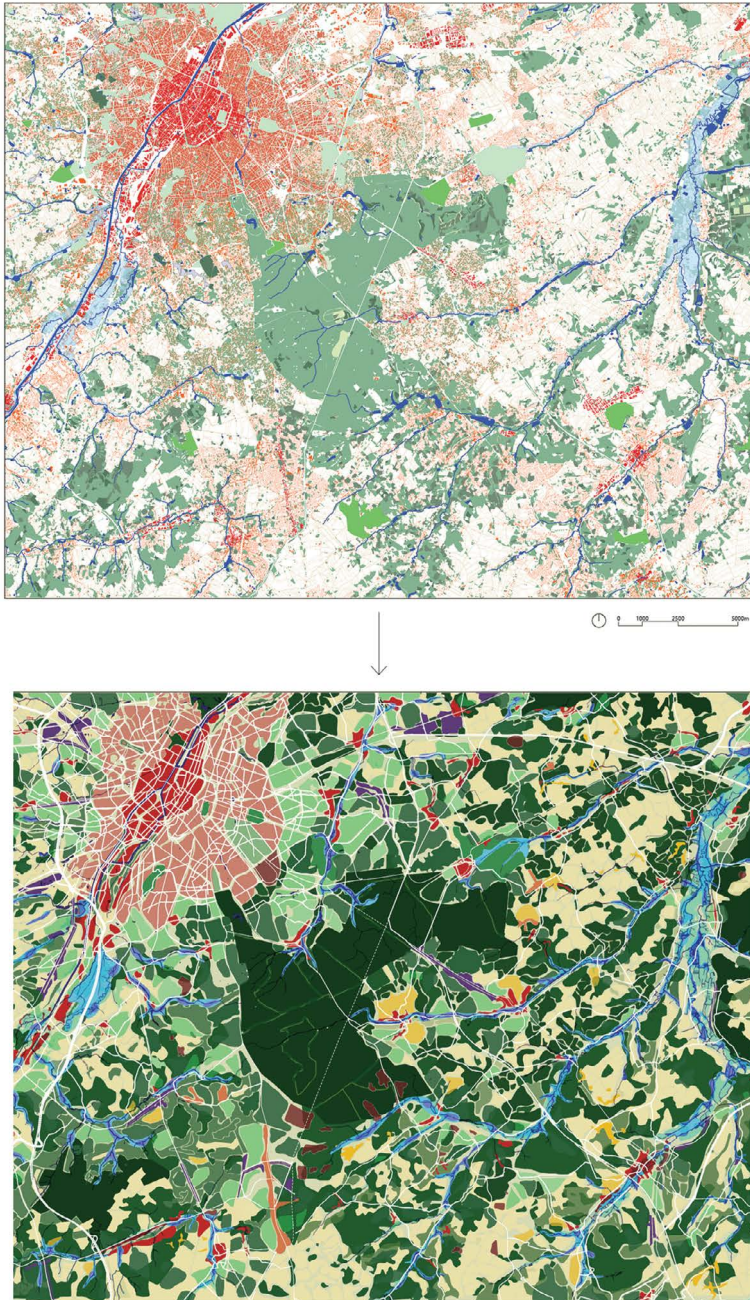


Figure 19.2 Re-articulation of the surroundings of the Sonian forest into a new 'park territory'

Source: OSA, KU Leuven.



Figure 19.3 Range of forest urban figures that create a socio-ecological project around the forest

Source: OSA, KU Leuven.

well beyond their natural working domain of the forest, and as such contributes fundamentally to the metropolis.

It seems evident that the vehicles of change towards the above-mentioned model are many, yet the one acting directly on the collective memory of inhabitants, is the public space in its broadest sense, i.e. the space accessible for the public, both physically as mentally. Ecological structures hold unprecedented potential for broad accessibility and inclusion, and thus power of collective change. For example, recently a competition was launched for the rehabilitation of a highly mineral town square of Huldenberg, one of the village in the middle of the National Park. The competition brief discusses far-going demineralisation of the town square, the

inclusion of natural springs that are now buried beneath the hard surface, and the reintroduction of the forest in the centre. A transition towards an ecological model is rooted in the search for symbolic insertion in its larger context (the village in the regional landscape of 'Brabantse Wouden'), based on the systemic reconnection of that place to its ecological processes (water management, biodiversity etc.) which eventually leads to innovative and inspiring new public space. Even more, the renovation of the square – the undoing of an 'ancient' public space archetype of the densely occupied centre square that in this context only served as parking space – then facilitates a transition to soft mobility and alternative ways of inhabiting the village (in the metropolis). In fact, a systematisation of such public space projects might lead to a metropolitan network of public space, validated as a network of ecological relations around the 'Brabantse Wouden' metropolis.

Conclusion

The design research on the Senne and Sonian as presented break loose from the idea that metropolitan networks need to stem from hierarchic organisation around a main urban core. They rather seek to articulate the answers to complex social and ecological challenges by grafting them on the landscapes that formed the territory, in the case of the Brussels territory, the Senne valley and Sonian forest on the interfluvium between Senne and Dhyle. Such open-ended landscapes are inclusive ecosystems that absorb many expressions of urbanity and the flows (mobility, energy, ...) that organise their collective functioning. The design research in that sense does not seek to reinvent the metropolis, rather add a layer of significance and autonomy that creates a complementary way of producing metropolis by focussing on the challenges at hand. The cases suggest that the landscape figures hold potential to deeply transform the territory around the ecological ambition. Urban cohesion and sustainable mobility are realised by seizing the opportunities created by the socio-ecological construct around the landscape.

The notion of public space of these landscape figures must also be fundamentally different. The 'network' of public space is realised by the continuity of the landscape. Classic public spaces – the square, the street, even the park – are reimagined as systemic contributions to the landscape's ecological functioning. A new vocabulary of urban design and the design of public space, sometimes complementary and sometimes subversive to the existing, can germinate from the rich new interplay between former references of public space, and the reinsertion of the public space in the ecological network of its landscape figure. Such public space interventions are trendsetters to kickstart transition from an anthropocentric to eco-urban perspective of the territory.

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20 Metropolitan park constellations of ecological systems

Lessons from Ho Chi Minh City

Kelly Shannon

Europe's urban restructuring

In historic and developed European, North American, Latin American, Asian, and Australian cities, there is a significant challenge to reweave ecological systems back into the inhabited territory. Metropolitan public space networks need to create constellations from existing civic spaces but as well create new collective spaces for the very survival of both human and non-human species. *Terrain vague*, former (or underutilised) productive landscapes (Solà-Morales, 1995), and (often degraded) infrastructural and ecological corridors are obvious sites for catalysing visionary landscape urbanism projects to address the necessity for renewed nature-culture relations and an enlarged public realm. In recent times, several large metropolitan regions are investing in progressive design research and construction projects at the territorial scale to address by now the well-known litany of issues, including the need to expand the canopy cover to impact the heat island effect, provide necessary shade, contribute to humankind's well-being, increase biodiversity, renaturalise ecological systems and increase soil, water, and air quality.

Madrid has a 75 km long metropolitan forest in the works (Jover, 2023). Brussels has untapped potentials in its valley stems (De Meulder and Shannon, 2019; Wambecq, 2022). Paris, with its long-standing investment in 'strategic urban projects' (Masbouni, 2002) and the present socialist mayor Anne Hidalgo is literally building on committed political will to radically expand urban and peripheral public space networks. Berlin continues to expand its park system in the former east and in defunct airports with attention to both urban nature of abandoned sites and socio-environmental justice (Kabisch and Haase, 2014; Lachmund, 2013). Post-communist cities like Bucharest, Tirana, and Belgrade are restructuring representative spaces and post-industrial sites alike (Badiu et al., 2019). Provocative examples are endless. All are all variations on the same themes. They are metropolises that are more-or-less consolidated (in area and form). Design interventions are all about re-editing the fabric to accommodate a dual need—to increase the robustness of ecological systems and requalify and increase the amount of public space (while reconceptualising what public space means in the 21st century).

Emerging economies' urban expansion

Parallel to the developments in Europe (and similar projects in other global regions) is the development of emergent metropolitan public space networks in the often-turbulent development processes of rapidly urbanising contexts in Africa, Asia, and Latin America. There are numerous metropolitan areas which are rapidly expanding in both footprint and density and incorporating villages, forests, and agricultural areas. In such contexts, it is not about restructuring and consolidating but, on the contrary, about creating emerging megalopolises from already large metropolises. Too often, the frantic rush to 'modernise' and 'develop' often follows the same (bad), compulsive habits of the European (and North American) development process. Road-based infrastructure projects trump all, even as countries pledge to cut emissions. Neoliberal real estate practices seek profit on every square metre of space and open space systems are reduced to their bare minimum by merely adhering to regulatory zoning norms. In many instances, developers drive (and even pay for) infrastructure in exchange for the approval of ad hoc and piecemeal masterplans. The government is complicit with developers since property development is a means for a large tax base. Meanwhile, the hazards wrecked by the increasing number and severity of 'natural' disasters are addressed with evermore landfilling and hardening of coasts and riverbanks—often on the advice of European and other 'experts' who export their outdated knowledge (although there are admittedly valuable exceptions). In many instances, there is a nascent public space network that is largely ignored—and lost—due to rampant speculation. From the neo-liberal perspective, there is always the dubious argument of the feasible and affordable, which always leads to short-term gains in terms of real estate and long-term losses for the larger human and non-human populations.

Ho Chi Minh City's expansive growth consuming open space

The case study of Ho Chi Minh City (HCMC, also known as Saigon), the thriving economic capital of Vietnam, reveals that there is both an explicit and implicit metropolitan public space network embedded in the territory and major threats to such open spaces. However, there are lessons from an alternative reading of the layered narratives, contested territories, and design research strategies that can be drawn and which are applicable to other contexts—particularly ones such as Lisbon that are embedded in a majestic natural setting. The bustling HCMC megaregion, the largest urbanised area in Vietnam, covers an area of 2,095 km² and with official population 9,389,720 in 2022 (GSO, 2024); it is in the Đồng Nai-Sài Gòn-Vàm Cỏ estuary. The estuary is part of a large coastal system that abuts the Mekong Delta to the south and west. The entire region was a tropical quagmire that has been rigorously domesticated over the past three centuries; before then, it was sparsely populated by an ethnic mosaic of Cham, Khmer, and Chinese diaspora with settlements and outposts along waterways and among dense mangrove swamps. Historically, with early Cham and Khmer occupation of the landscape, the qualities of the region's topography and water system drove settlement placement, all in relation to the highly productive tropical landscape.

The Viet (also called Kinh and who are the present dominant ethnic group in Vietnam), as well as French colonisation, imposed large new ordering infrastructures—including intricately designed tree-lined boulevards, parks, quays, and highly sophisticated water management strategies that transformed the open and built, and nature and culture in a balanced way. Since the times of America's overarching presence and economic diktat and continuing to date (with Asian Development Bank-driven and World Bank-driven capital-intensive projects), the hard engineering of waterways and progressive phases of landfilling (typically by 2–3 m) and, last but not the least, a mega-project to protect the metropolitan area against flooding with a gigantic dyke system radically changed the balance and has substantially diminished both the public space network and the landscape's natural systems (rivers, lowlands, mangrove forests, etc.). In the past decade, and projected to continue for the foreseeable future, every five years, the city increases by one million inhabitants (HCMC DPA, 2019). However, the city and its inhabitants are more than ever vulnerable to the consequences of global warming and simultaneously lack the public space. HCMC ranks among the world's lowest ratio of public open space per capita—with the city a mere 0.55 m² per capita (VNE, 2023).

Low-lands, water networks, and forests as regional frames for a metropolitan park system

Low-lying land, with micro-topographical differences and water, with its (micro) bathymetrical variations are *the* registers of HCMC. The exuberant tropical landscape is a primary asset and identity for city region which can capitalise much more on its 'as found' that characterises the rich blue and green quagmire of South Vietnam. At the regional scale, the ever-expanding footprint of the megacity is bookended by two enormous low-lying, vegetated areas. To the west is a canal system connecting the Sài Gòn River with the Vàm Cỏ River. The system comprises three canals, Thầy Cai (43.3 km), Rạch Tra (11.2 km), and Kênh An Hạ (9 km) (the system is referred to as Thầy Cai-An Hạ), which traverse the suburban districts of Binh Chanh, Binh Tan, and Hoc Mon (none of which have public parks); they operate as water drainage systems of the basin and protect the urbanised area as well as irrigating 9,000 ha of agricultural and forestry land (primarily rice but also with banana and coconut plantations). The canal system diverts a potentially an enormous water flow from the Sài Gòn River upstream from the city and in that sense works as a flood protection system for the city. To the southeast (50 km from the city centre) is the majestic Càn Giò Mangrove Biosphere Reserve (UNESCO-recognised since January 2000) with a total area of 75,740 ha, at the confluence of the Đồng Nai, Sài Gòn, and Vàm Cỏ rivers and which drains into the East Sea. The area has a bi-diurnal tidal regime with a seasonal variation of 2–4 m tidal amplitude during spring tides. It hosts a high diversity of mangrove plant species, mangrove-dwelling invertebrates, and mangrove-associated fish and shellfish species and is regarded as the 'green lungs' of the city.

However, the vast expanse of such ecologically rich open spaces is literally disappearing by the day, as large industrial areas (polluting factories in the west

and a huge port container terminal in the southeast) and speculative real estate projects fill lowlands (with 2–3 m of sand, often imported from Cambodia and Laos, where overexploitation causes severe erosion) and build large-scale impenetrable platforms. As all mangrove areas, Cần Giò functions as a natural water cleaning machine and as a protection system (from tropical storms and seasonal flooding) for the upstream metropole. Both the canal system and the mangrove areas are inhabited by what can be considered a rural population that has an intergenerationally acquired knowledge of ways of living with and in such environments.

The metropolitan region has an opportunity to create a regional park system that spans from the western Thầy Cai-An Hạ canal system to Cần Giò and includes a necklace of very different low-lying flood plain areas along the Sài Gòn and Đồng Nai rivers. The region boasts an amazingly fine-mazed water system that covers more than 70% of the metropolitan area of HCMC (RUA, 2019). It is evident that respect needs to be paid to the radical differentiation of locational assets (its micro-topography, soil type, and existing vegetation), and design thinking can capitalise on the variety and intensify the qualities of diversified landscapes. Such an approach makes much more sense than superimposing a generic and uniform mode of landscape architecture. At the same time, a networked system could provide opportunities to advance environmental protection across a continuum of habitats, ranging from coastal areas to areas beyond HCMC's administrative boundaries (Figure 20.1).

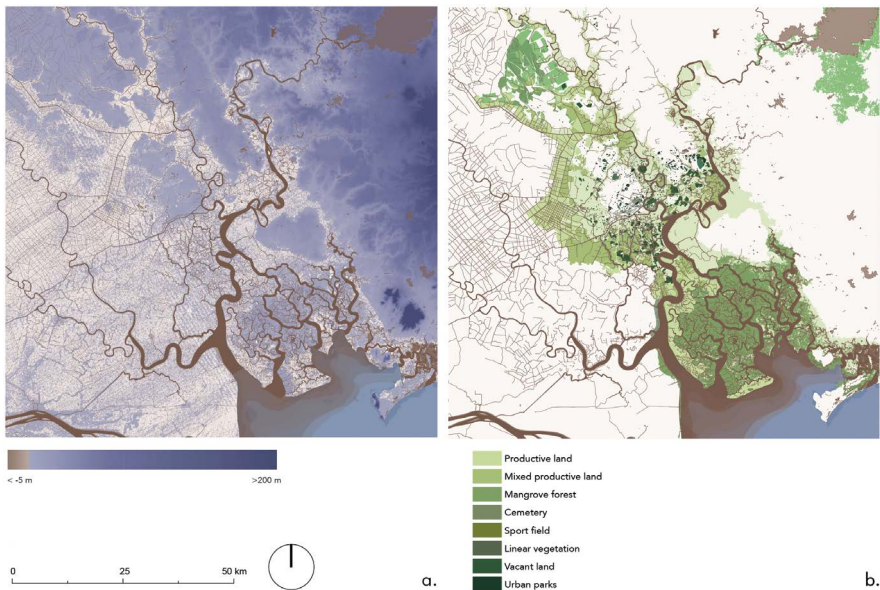


Figure 20.1 (a) The existing low-lying topography of the HCMC environs. (b) A proposed regional park system would combine productive and recreational landscapes, as well as nature reserves.

Source: RUA (Research Urbanism and Architecture) – Shannon and De Meulder with Phạm Thị Phương Nhung, 2023.

Of course, all is easier said than done, especially since much of the territory has already been acquired by investors and developers and massive, speculative projects have been projected. A radical rethinking of the present-day development modus and spatial forms must be initiated to create an alternative way for the desired, as well as inevitable, growth without consuming all the valuable landscape. An intelligent system of transformation of existing development rights—pooling and land banking of properties and transfer of development rights—should be combined with a radically increased density on selective and optimal locations and an overall decrease of building.

Although the area already boasts lush tropical vegetation, there is still the necessity for massive tree planting since areas have been cleared for industry and (expectant) urbanisation. An expanded indigenous tropical landscape could not only sequester carbon, offset the increasing urban heat island effect, improve air quality, enrich habitats, and biodiversity but also frame both traditional and new types of public and recreational spaces. Meanwhile, the water system can further be exploited as the main identity of a new regional park. Rivers and canals can store more water in flood events, serve as the primary public transportation system, form the backbone of an underlying ecological system and work as a mega-sponge to clean river pollution, blackwater, greywater, and stormwater. Constructed wetlands and aerated lagoons could be embedded in public park systems (as in the aerated lagoon constructed the Binh Tan district as part of a 2006 Belgian-Vietnamese cooperation project). The park system could be explicitly designed with different levels of accessibility for humans in relation to intertwined (ecological) water cleaning systems; the reliance on centralised and chemical water purification systems could be foregone. Finally, water docks and water squares could become important new elements in the public space system and the platforms along the waterways could become the cardinal points of the mental map of a new HCMC waterway system.

Safeguarding protective landscape structures

Historically, large public parks were deemed necessary as a foil to industrialising cities. They were so-called green lungs—‘cleansing, refreshing and enriching life in the metropolis’ (Corner, 2007, p. 11)—to counterbalance the ill-effects of pollution and providing respite for all citizens living in over-congested environments, regardless of class and race. They limited (and sometimes also directed the location of) urban sprawl. Well-known parks—including New York’s Central Park, Paris’ Bois de Boulogne and Bois de Vincennes, and London’s Hyde Park among others—were important components of metropolitan-scale urban development. However, the emerging mega-metropolitan regions of the 21st century must be even bolder than their 19th- and 20th-century counterparts. The stakes are higher—for the regions themselves but more broadly for the health of the planet. Natural and dynamic systems logics and a nuanced understanding of topographic, soil, water, and vegetal diversity are essential to create different landscape archetypes with content-specific natural-cultural flora and urban plant communities.

Bold experimentation for future park constellations must simultaneously safeguard landscape systems and densely occupied settlement areas. Interestingly, there are lessons to be learned from visionary unbuilt projects, an example of which is the 1930 Olmsted-Bartholomew public park plan for greater Los Angeles.

The project, at the height of the American Progressive era of social and environmental reform, exhaustively and insightfully mapped the physical landscape as well as the challenges and pressures of the then rapidly expanding region. The project report “addresses the dangers of speculation and ‘injurious encroachment’ ... by the seemingly insatiable demand for subdivided property that could be developed as house lots, business parcels and industrial sites” (Hise and Deverell, 2000, p. 8). To a certain degree, the expanding urban condition of Los Angeles in the 1930s foretells that of HCMC today with rapid ad hoc and piecemeal development. The brilliance of the Olmsted-Bartholomew plan was its unwavering insistence on big regional plans (Olin, 2000, p. 302), its comprehensiveness and the manner in which it developed systems of landscapes (and urban design, with networks of community centres) at the regional scale (in the case of Los Angeles, the mountains, high desert, basin, and Pacific coast) and combines neighbourhood parks, large parks with natural systems (particularly floodways and flood plains), parkway connections, and a number of non-park natural and wildlife sites or ‘reservations’. They underscored the necessity of public procurement of open space and along with a physical plan, the report developed extensive plans for incremental-tax financing (for land acquisition, the park’s creation, and its continued maintenance) new jurisdictional and supervisory bodies. The report precisely articulated how the park system would create economic, social, and environmental value. The fact that it fell on deaf ears—in a context with rampant speculation—and was not implemented has parallels with many regions today. Open spaces that were then identified by the designers are today overbuilt. Clearly a huge opportunity was lost. Space is a resource and once ill-consumed, it is nearly impossible to reverse course.

In the genesis of urban and metropolitan park systems, their original purpose was to counterbalance the adverse effects of industrialisation, providing sanctuaries of solace amidst the chaos of burgeoning cities. They sought to embed nature in cities. In the 21st century, the imperative for a new chapter in park systems is undeniable. Metropolitan park systems 2.0 cannot be viewed as luxuries but as absolute necessities. They have the potential to dampen the increasingly apparent dire consequences of global warming, exacerbated social disparity, and an increasingly profound understanding of human and non-human co-existence.

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21 Viewpoint IV. Urban cosmopolitanism and public spaces

João Seixas

Urbanity in transformation

In one of his insightful essays – *Thinking the City: The Measure of Spaces* – Italo Calvino (2020) recalls how in each era the key elements structuring the dynamics, functionalities, and identity itself of cities have been considerably different. And concomitantly, the way in which the urban systems have been structured, and in turn transformed, with direct consequences on the urban vitality of each era as well as on the powers and rights of the respective communities. In medieval times, the positioning and hierarchy of religious temples would be the main determinants of the pulsars of cities. From the renaissance and European-induced globalisation, urban life will reshape around ports, markets, and major commercial areas interdepending on ever wider geographical scales. In turn, it has provided cities with growing economic and political capacities. With the industrial revolution, urban dynamics will re-escalate again, reinforcing their commodification but now also around factories as well as around the habitat needs of the huge worker contingents. Finally, the gradual increase of extensive urbanisation as the predominant economic and socio-political model will cause the explosion of the city fragmenting it.

In addition to projects intentionally dedicated to demonstrations of political and economic power, over many centuries, the attention to public spaces will be situated, almost exclusively, around and according to the key elements of each era. The rest of the city – both public and private – or increasingly the territories of the vast majority of citizens' daily lives remains almost always peripheral or even ignored, if at all surrogated.

Urbanism, as a new science and public policy from the second phase of the industrial epoch, will seek to meet and structure the growing territorial and urban explosion. The public space being gradually positioned in more systemic forms, not merely in singular or symbolic ways (Hall, 1998; Madanipour, 2023; Sennett, 2018). Being thought and designed not only in artistic, architectural, or morphological terms but now also including concerns of fostering encounter and socialisation, and thus shaping more collective forms of territorial identity and community affirmation in each place, neighbourhood, or city.

This will be a considerably differential and arrhythmic evolution depending on the evolution of the political and urban cultures of each city, region, or country

and along with a growing urbanisation pressure, not infrequently relegating public space to very secondary calends. Today, almost all of our urban landscapes are still vividly shaped by this unbalanced past and by a modernist urbanism that will design public space in an industrially and socio-geographically very partial way. This, together with the huge dynamics of urbanisation of the territory and the motorisation of society that took place in the second half of the 20th century will leave most public spaces successively seconded or, at most, peripherally imitated.

Nevertheless, it has always been, and will continue to be, in the urban public space that the dynamism, the quality of life, the well-being, and the overall cultural identity of the communities are best reflected (Figure 21.1). The same can be said for the very quality of urbanism and urban policies, hence for the promotion of the right to the city and to urban common goods.

Today, we experience an accelerated transition to a digital society. The profound centrifugation effects of the extensive suburbanisation of the spread of logistical hubs and commercial macro-nodes, as well as the parallel processes of gentrification, touristification, and brandification, have strongly blurred and recomposed classical urbanistic and morphological functionalities. The ongoing transformations in social, cultural, and capital flows, as well as in landscapes and urban perceptions themselves, raise radically new dilemmas (Ascher, 1995; Batty, 2017).

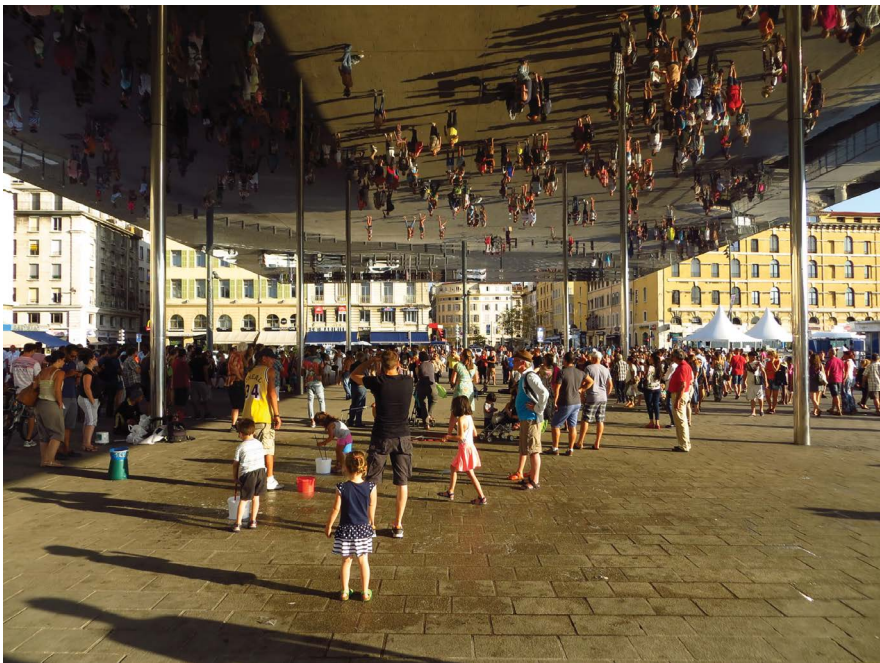


Figure 21.1 Vieux Port in Marseille.

Source: By João Rafael Santos.

The new nature of the city is growingly turning into a sum of varied, hybrid, and hyper-connected urban spaces with dispersed limits and identities.

The deterritorialisation of the fluxes of information, capital, and power, the reformulation of multiple borders, and the growing predominance of digital rhythms and environments in the structuring of daily urban life – of families, companies, politics, and public administration itself – increasingly question the classic cultural and identity agendas of each territory (Innerarity, 2020). The same goes for the scholastics of urban knowledge themselves and the structures of policy and regulation. In turn, fundamental civilisational challenges like the energy crisis and climate change, or the new trends on the deepening of inequalities, becoming all too evident, further leverage ambiguities such as between public and private space, between work and family, between consumption and savings, between freedoms and security, and between rights and duties. Local and everyday ambiguities are intertwined with global ones – between urban and rural, globalisation and sustainability, technology and humanity, cosmopolitanism, and vulnerability. Between present and future.

Cosmopolitan public spaces

What new meaningful and recognition capabilities can today be sensed in these hybrid and ambiguous contexts? The city, as framed by each one's perceptions, seems today only recognisable on each one of its fragments. Most of us being unable to understand the complexity of the new connections and tensions that several global mutations have induced into the urban structures. Our bewildered looks take refuge in exercises of recognition of classical landscapes and rhythms as well as of collateral damages pregnant with nostalgia.

Words like 'home', 'city', or 'public space', even 'nature', still make sense. But now they acquire a multiplicity of new meanings that amplify their contents from their mutual hybridisation – a new, although still transitional, porosity. An absolute permeability that connects, links, and hybridises dimensions separated by former textures and unitary characters.

These ambiguities have been perceived and managed – by society and politics – in an increasingly dedicated way, but once again, in still quite unbalanced forms. A more than predictable evolution as being still supported by several decades of urban planning and city management schools and practices of eminently morphological and functionalist nature, as well as by systems of productivity and capital accumulation, also strongly interdependent with these perspectives. Despite the ongoing changes, both knowledge and management of this transition period being still quite conditioned, if not mainly driven, by the agendas of the former era.

Our present times prove to be, once again, a pivotal moment for cities and their role as engines of transformation. Many of the structures shaping urbanism and urban policy must be reinterpreted and inevitably reinvented. What politics are needed now, in the new polis of the glocal world, considerably transfigured in relation to its classical landscapes and morphologies with government structures divided between actions of competitive affirmation, attempts at economic and social

reconstruction, and conjunction dilemmas for reform with alignments of cultural cognition and society mobilisation? What new meanings can be found for the urban commons and urban rights? How to best guarantee the right and the rights for the city? In what ways can be built and positioned collective projects for the city, especially in socio-cultural landscapes where change and transformation themselves become elements of work?

If the urban spaces are, by definition, complex universes of interconnection and interdependency, the digital era that we have definitely entered with vast entwined and overlapping scales of living, of experience, and of information, with growing questions around universalisation or, on the contrary, of balkanisation and tribalism, new claims for wider cosmopolitan understandings necessarily emerge.

On what concerns cosmopolitanism, one should remember the seminal writings and conceptualisations of Immanuel Kant: ‘the matrix within which all the original capacities of the human race may be developed’ (in ‘Idea for a Universal History with a Cosmopolitan Purpose’). In this sense, cosmopolitanism might be understood ‘as being concerned with the cultivation of a global environment within which everyone can fully develop his or her human capacities’ (Wallace Brown, 2010). In other words, a wider or complete cosmopolitanism can be framed under a perspective of global citizenship – that all individuals and groups are part of a transversal community, even more so considering our increasingly interconnected times, thus being inevitable common the great questions posed to humanity as well as to the planet. This perspectives in turn integrating and valuing the vast human and biophysical diversity as a central pillar of interaction and as such of evolution.

This notion of cosmopolitanism is relevant not only for ecosystemic and global interconnectedness visions but also for an understanding of a role of full responsibility of humanity in the preservation of planetary sustainability, as well as in the parallel promotion of social cohesion and human diversity, at the most diverse scales.

As for public space, it instigates the need for its reinterpretation and repositioning, as a guiding element for the transformation of the city, and inducing a fuller cosmopolitanism (Madanipour, 2023) and a more cosmological urbanity. Ensuring openness, inclusivity and flexibility in public spaces and promoting human and functional diversity in their use. This not only encourages the encounter and knowledge of what is different but also encourages its acceptance and promotes its appreciation by promoting the lived and felt experience of places (Bachelard, 1958; Yi-Fu Tuan, 1977) with messages of cohesion, community, and ecology.

We might therefore ask ourselves: what should, what can, and what is changing in terms of strategic visions for the city; should it also be in terms of strategic visions for public space? Or, being more concrete – notwithstanding the risk of constant incompleteness of the questions to be raised – we can ask as Brandão and Brandão (2018) do: (i) is public space truly recognised as a central element for the valorisation of urban quality as well as for the progress and cohesion of communities?; (ii) is the valorisation of public space still understood mainly in terms of its intrinsic architectural as well as functional and endowment characteristics, but still little in terms of the organisation and production of urbanity itself?; (iii) are we

facing an imminent conceptual leap towards new notions and principles, or are we still facing a heavy deficit of criteria of interpretation and capacity for productive transfiguration?

These perspectives to be pursued not only for each individual public space but also as a whole, especially within entire urban systems and for the various scales of experiences and daily lives, leading to the need of thinking systemically and strategically about public space, directing to broader geographic perspectives. Therefore, the characteristics and quality of each place, or of each space, involve the understanding of its insertion in broad human and ecological functional scales – both in space and in time – and finally, in political terms – also acknowledging the challenges and complexities that come with managing these shared spaces (Innerarity, 2020; Sennett, 2018). The public space is also thought and managed in such a way as to be understood civically as a marker of the valorisation of the common good and justice – social, economic, and ecological justice, as an inter-connecting element of urban complexity and interpretative of ecosystems of various kinds. To be understood unto its rhizomic and ecological nature; and as a non-hierarchical, evolving, adaptive and highly connected system (Figure 21.2). A system composed by multiple other urban and territorial systems, either ecological, infrastructural, or social, operating in their intersection and articulation. These perspectives highlight the fundamental role of the public space system in large-scale



Figure 21.2 Ueno crossing in Tokyo.

Source: By João Rafael Santos.

metropolitan contexts by acknowledging its diffuse and porous boundaries as potential fields to promote synergies and positive differentiation in our highly heterogeneous and multiple territories.

Proposals for cosmological public spaces

The city is making its transitional process towards a new era. However, the overlaps, gaps, and unbalances between strategic visions, professional practices, and everyday life are paramount. Old dichotomies – between home and work, private and public space, centres and suburbs, and urban and rural areas – give way to new forms of hybridism and to new transversal interdependencies. These may help in overcoming old contradictions and time-space limitations, developing different evolutionary realities and capacities.

There is the need to analyse, interpret, and apply new urban grammars. But quite much is open and still up to build on knowledge in terms of connectivity and proximity values, ecological capacities, community and economic energies, and new abilities to combine everyday lives with global dynamics.

Fundamental domains like public space, housing, labour, community, cohesion, climate, and ecology will have central roles in the catalysation of political demands and alternatives. The evolution of these political demands and alternatives will occur in the midst of strong crises and amongst high socio-political stress and anxiety. The ‘new urban questions’ (Merrifield, 2014) being, at the same time, fertile ground for new dynamos of scientific, technical, and political action. It will be crucial to build solid narratives for the future city. By combining two types of policies: active policies of social support – in housing provision, in the support of families, in the local economies, for the community networks and solidarity – and policies for long-term and collaborative transformation, including the restructuring of knowledge, principles, and practices of urban design and planning.

In both senses, the place of public spaces is central to the transformation of the city, to the transformation of urban and metropolitan policies, and to a new intelligibility of urban ecosystems themselves.

Certainly with several of these reflections in mind, the MetroPublicNet project sought to comprehend, reinterpret, and ultimately project public spaces in a broad and changing urban system such as the Lisbon Metropolitan Area (Figure 21.3), an urban system heir of a long and notable history, as well as of five decades of heavy metropolisation and urban explosion, and now revealing a vast accumulation of opportunities, dysfunctions, and dilemmas for urban qualification. These dilemmas being closely dependent on structural difficulties in the social and political positioning of urban policies and local and territorial governmental capacitation (Seixas, 2021).

Along with other projects that sought new types of readings (see, for example, Brandão and Brandão, 2018), the project proposes a structural role for public spaces in the face of three emerging challenges: environmental resilience and ecological robustness, sustainable and low-carbon mobility, and inclusion and territorial cohesion. In these contexts, despite the great variety and functional complexity



Figure 21.3 Parque Urbano do Tejo e Trancão in Lisbon.

Source: By Ana Beja da Costa.

of the public spaces on this unbalanced metropolis – including in terms of its positional, functional, and interpretative complexity – the project analysed a set of 24 public spaces according to three types of rationalities that tended to be integrative (or systemic): (a) ecological and natural (or ‘green and blue’) infrastructures; (b) connectivity, walkability, and active mobility; and (c) connected, intelligible, and cohesive neighbourhoods. In these areas, multiple elements to read functionalities, accessibility, and values were fixed.

In addition to these public spaces’s rationales and reading elements, it is also essential to analyse the very processes of production of public space, namely the policy-making and public administration culture, through a parallel integrated redefinition – through its reasoning (in enhancing strategies and planning instruments), its objectives (translated into technical specifications), its processes of production (into the works), and finally, in its ordinary uses, in its management monitoring, and in its maintenance or requalification. All these phases preferably included public information and citizen participation (Marques da Silva, 2023).

Returning to Calvino’s historical perspective, we may suggest, for the near future, a reinforced place of public space as determinant for a type of permanently evolutionarily Kantian urban cosmopolitanism.

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Part IV

**Designing the Metropolis
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22 A territorial design toolbox for metropolitan public space

*João Rafael Santos, Ana Beja da Costa,
and Maria Matos Silva*

Pathways for building a public space network – a methodological approach

This chapter resumes the prospective and propositive contributions of MetroPublicNet's research. Such endeavours are directly linked with the project's central hypothesis, that a Metropolitan Public Space Network strategy could be seen as a politically and technically robust tool to address sustainable urban development challenges. Beyond the comprehensive and critical overlook on the experience of public space qualification in the past 25 years in Lisbon Metropolitan Area (LMA), it proposes a forward-looking, design-oriented toolbox to imagine, structure, and incrementally assemble such network, organised as in [Figure 22.1](#). The chapter opens with a brief primer on the concept of *network*, as discussed and applied to territorial and urban studies, followed by three sections.

The first section 'Acknowledging values, resources, and critical factors' describes the challenges identified as triggers of awareness towards a more coherent and networked approach to public space qualification in a metropolitan context, namely the fundamental values and societal challenges that demand a structural response in terms of urban and territorial adaptation. It follows on by claiming the need to recognise the existing resources and capacities – at the local and metropolitan level – to face the overall global challenges, acknowledging the ongoing development processes, the role of the different actors, the complex interweaving of the social and collective fabric, and the fundamental components of the landscape. It pinpoints the critical issues that were signalled fragilities for its implementation and need to be overcome in such a process, particularly in terms of institutional agency, procedural capacity, and funding mechanisms.

The section 'Building an imaginary, agency, and strategic vision' is the basis of a policy brief aimed at systematising a set of recommendations for a technical and institutional audience, reinforcing the propositional character of the research legacy. This structure covers three fields: (1) building a territorial argument through which the metropolitan scale is envisioned as a relevant realm for institutional and policy articulation and for collective imagination, (2) defining projects with networked incrementalities, seen as a spatialised toolbox to coherently assemble various critical spaces and territorial interventions towards a better articulated system,

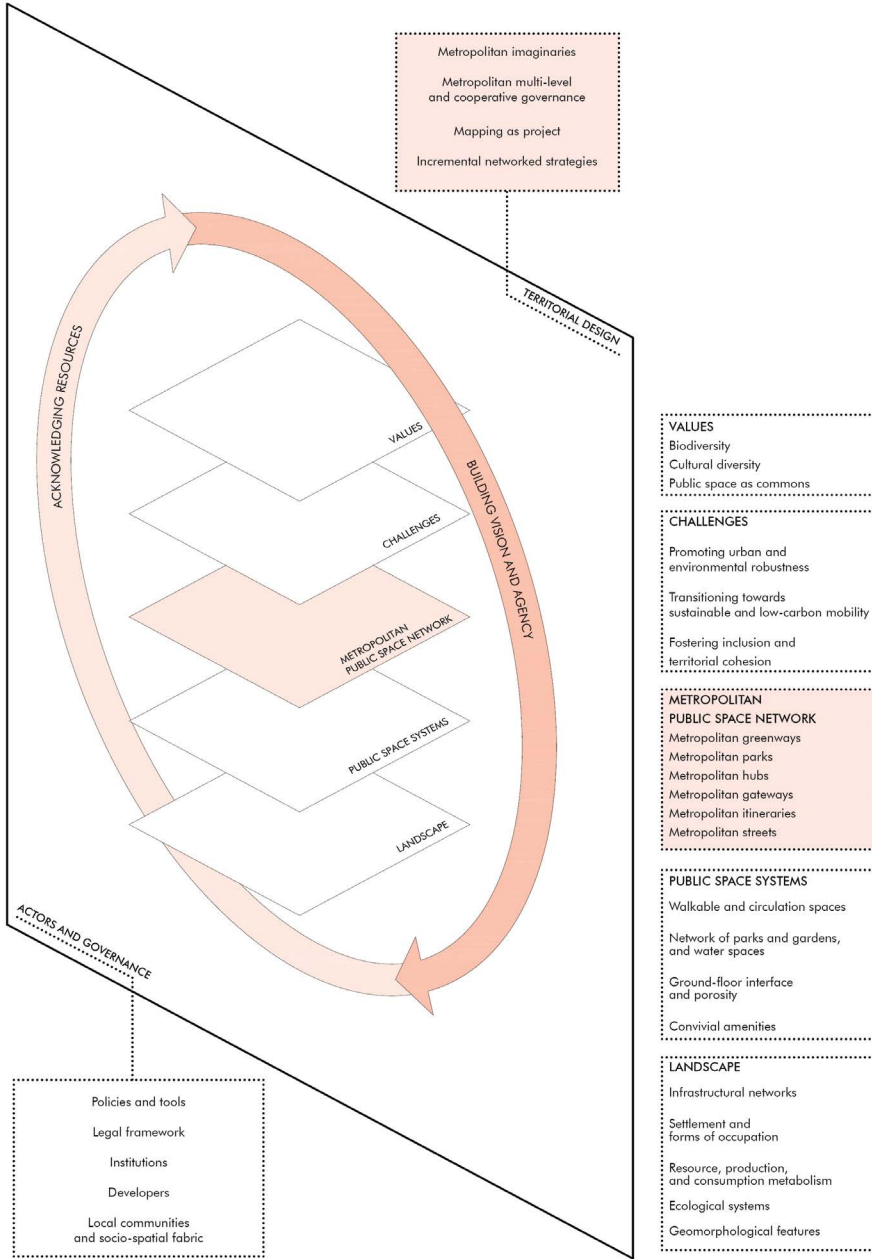


Figure 22.1 Territorial design toolbox for a metropolitan public space network.

Source: MetroPublicNet.

and (3) working on layers of a Metropolitan Public Space Network, highlighting the potential components that may – materially and immaterially – articulate and constitute an intermediary, multi-sectoral, and synergic territorial network made of a wide variety of public spaces.

Finally, the section ‘Experiences and speculations’ showcases the academic forays developed under the MetroPublicNet’s scope, in which the idealisation of spatialised scenarios of a potential Metropolitan Public Space Network is developed at different scales and using specific territorial opportunities. This process is embedded in the strong relation between interpreting the territory and prospective research by design, as part of design studios, academic courses, workshops, or masters’ projects. The incremental research-by-design exercises contribute to a more speculative interpretation of possibilities for a Metropolitan Public Space Network, acting as a ‘catalogue’ that may inspire and test ideas to further examine, both in professional realms and as part of open, participatory design discussions.

The network as a multi-systemic design concept

Resorting to the etymological origin of the concept of *network*, two main threads can be traced. Originally it derives from the Latin *rete*, and from the Indo-European *rets* – with a meaning related to arrow or stem. This etymological line defines the nature of network as an articulate and meshed system of lines or weaved threads, that form a reticulate structure of open spaces with variable geometry and intervals. The German-based etymological line has its roots in the Indo-European *ned*, meaning a node. Under this line, the network is defined as an organisation of intersections and nodal elements.

A widely used term in spatial planning, geography, and urban studies, the *network* is mostly used as metaphor to characterise specific forms of territorial, institutional, social, or economic organisation. Its conceptualisation has focused particularly on developing analytical constructs to better understand the way how spatial and social processes interact, such as the one proposed by Jean-Marc Offner (1996), in which a network can be understood as holding five dimensions: the *morphological* related to its form and spatial configuration, the *infrastructural* related to its role as support of flows and activities, the *functional* that controls the access to service provision, the *regulatory* and its capacity to command and set rules for a system, and the *territorial* and its topological configuration of interconnected points.

Morphological and spatialised approaches to the contemporary forms of urbanisation and territorial organisation, such as the *Zwischenstadt* (Sieverts, 1997), the *Netzstadt* (Oswald and Baccini, 2003), or the *networked city* (Coutard and Rutherford, 2016), have also used the metaphor of the network as an explanatory concept to regions in which a heterogeneous patchwork of urban fabrics coexist intersperse with natural elements, agricultural, and forest fragments in elusive configurations that escape the dominant vision of the compact, walled, self-referential city as dualistic opposite to an open field of the *countryside* (Sieverts, *op. cit.*). In all these configurations, complex power, logistic, and functional relationships are mediated

by sophisticated infrastructural and economic organisational apparatuses (Graham and Marvin, 2001), enabling the controlled management, allocation, and redistribution of resources across wider territorial expanses. Castells' conceptualisation on the information age and the network society (Castells, 1996) highlights precisely the prominent lead of the *spaces of flows* as a dynamic nexus of flows of people, capital, goods, and information working as part of complex social, economic, and political processes, against the *spaces of places*, determined by local, bounded, and self-sustained interactions, shaped by layered cultural processes and strong political and social identities.

Therefore, there are networks based on the hierarchy of its nodes – and its impact in the conditions of connectivity, interfacing, and commutation (i.e. the network of international airports, the global financial centres, or the large-scale data centres on which digital flows are anchored) – or on the hierarchy of its stems – by which conditions of proximity, accessibility, and speed of flow are determined, defining area-based and contiguous spatial systems (i.e. the road network). The metaphor of the network has also been applied to ecological systems, which are also fundamental components of contemporary forms of urbanised regions. In this case, the role of corridors that connect multiple patches and support material flows is based on analogous criteria of linear structure and performance, such as connectivity and continuity. On the other hand, these corridors must also develop complex interactions along their edges and boundaries, akin to the spatial porosity that can be found in the urban thresholds between public and private spaces.

In addressing metropolitan landscapes, in which multiple, dense, and interwoven networks interact, important criteria and indicators for monitoring and assessment must therefore include not only *connectivity* and *continuity* but also *multi-systemic capacity* and *trans-scalarity*, as they must continuously manage multiple forms of material and immaterial flow, across different scales and territorial scopes. Another set of criteria is related with the *capacity to adapt and adjust* to specific local conditions, without losing *integrity and coherence*, for which the *porosity* of the transversal section is an important component, as it facilitates and regulates exchange and interactions. Finally, a network-oriented perspective must acknowledge *time* as part of its dynamic evolution and promote a *cohesive perspective* to redistribute resources and secure internal balance and sustainability.

Acknowledging values, resources, and critical factors

We live in a time where human activities are causing direct, real-time impact on the planet's climate and ecosystems that go together with unprecedented levels of socio-spatial polarisation, fragmentation, and exclusion at the global scale. The impact of globalisation and powerful economic drivers on local communities, territorial flows, and on the planetary resources and ecosystems is also escaping established institutional frameworks, jurisdictions, and systems of political representation and legitimacy.

To cope with these dilemmas, change can no longer be pushed through geographically delimited or sectoral policies; it must be considered in the context of the interconnected system of natural and human-made processes (Grimm *et al.*, 2008). Considering that 68% of the world's population will be living in urban areas by 2050 (UNHabitat, 2022), the developmental dynamics of the 21st century is inevitably leading to a shift in scale in reading the city. Its inception evolved towards the reading of metropolitan territories (Portas, 2012; Viganò, 2019).

Values and challenges

Metropolises are also the territories where fundamental values that govern the social and environmental relationships across the planet are at play: on one hand, the need to sustain biodiversity and cultural diversity as core values of tolerance, solidarity, and respect – considering all the resources, services, and planetary balances needed for human well-being – and, on the other hand, the acknowledgement that cities are the grounds for emancipatory and progressive practices, envisioning public space as core element of the *commons*, i.e. an accessible, shared, and inclusive space for all.

In this view, three main societal challenges arise, closely entangled in the global strategies for sustainable development (UN, 2015):

The challenge of *building up urban and environmental robustness*, associated to the support of biodiversity, the promotion of climate change adaptation, and the development of green and blue infrastructure and ecosystem services provision to the metropolitan territories and its inhabitants. These actions are relevant contributions to decreasing environmental risk, increasing food security, and improving the quality of the landscape systems in place.

The challenge of *transitioning towards sustainable and low-carbon mobility*, intimately related to the transition to green economy system, decreasing fossil fuel dependency, and consequent carbon dioxide emissions. By tackling this challenge, a step forward is also being taken in what concerns the first challenge. Sustainable mobility is also directly related with the promotion of a healthier – individual and community's – lifestyle, as it may be articulated with better conditions for active modes. A decrease in car dependency may also contribute to reallocating public space to pedestrian and convivial activities as well as to green infrastructure.

The challenge of *fostering inclusion and territorial cohesion* by activating territorial strategies that favour communities' access to education, social and health services, economic opportunities, and adequate housing. From a spatial perspective, this challenge requires a commitment towards the improvement of connections and accessibility to employment areas and collective amenities, particularly to the socio-economically disadvantaged and those with more restricted mobility opportunities as well as a comprehensive upgrade of the living habitat and proximity amenities.

Resources, opportunities, and agendas

As a response to the above-mentioned challenges, envisioning public space as a coherent network represents a relevant opportunity to leverage existing resources and capacities with current multi-level policy agendas, looking for effective agency, action, and delivery. A combined approach to foster the economic vitality, the optimisation of mobility, as well as the environmental sustainability, climate resilience, and adaptive response capacity (Ahern, 2011) requires a systemic and coherent approach which relates with other established networks (i.e. ecological, transport, and urban facilities).

The metropolitan scale justifies the perspective of a public space network as an urban device that functions at an intermediary scale between site-specific urban and ecological dynamics and the broader social and economic dynamics that shape current urbanisation processes. Moreover, acting on a metropolitan perspective on public spaces as vectors of change is also aligned with the topical agendas that support the political discourse and resource allocation by government and public authorities. The following five fields pinpoint potential links with current political agendas.

Climate change adaptation and ecological connectivity

Public space design as a means to contribute to ecological networks and to green and blue infrastructure are essential to address the challenges of urban densification and sprawl in today's metropolises and their impact on planetary resources. Moreover, public spaces, when thoughtfully integrated within the underlying landscape systems can address global change more efficiently by adopting an ecosystem-based approach for adaptation to climate change (EC, 2013) based on a multi-functional foundation (Pellegrino, Ahern and Becker, 2015; Ribeiro and Barão, 2006), which can act as a multi-service provider.

This can be achieved by systematically addressing public space requalification projects as means to: (a) responding to water cycle management within the public space; (b) promoting adaptation measures considering climate change and extreme weather events; (c) developing a hierarchised system of green corridors in the built environment that supports biodiversity and ecological flows; (d) introducing consistent soil, site, and climate-specific adapted vegetation; (e) promoting climate-adapted productive landscapes and local food production circuits; and (f) establishing a circular metabolism of wastewater, reusing it for non-potable uses in public space.

Energy transition and mobility decarbonisation

Metropolitan and urban coordinated strategies must be in line with the global commitment to delve into renewable energy, decarbonisation, and energy efficiency, intimately related with the European Union (EU)'s Green Deal (EC, 2021). Current LMA's policy (AML and CCDRLVT, 2020) indicates that a more integrated approach into different modes of transportation must be put in place, by reinforcing

rail and river infrastructure for passengers and goods transportation, in detriment of road infrastructure, and to prioritise public transportation, multi-modal interfaces, and active mobility. This agenda has been increasingly gaining relevance as a trigger for public space requalification projects, but there is still a long way to go until this becomes the rule rather than the exception.

Public space has to continue to adapt to new ways of accommodating sustainable means of moving at a metropolitan scale. This can be achieved by: (a) favouring pedestrian walkability and accessibility comfort; (b) promoting bicycle and other active mobility modes; (c) promoting and favouring public transportation dedicated lanes and infrastructures; (d) always including handicapped, gender, age, and cultural diversity; (e) ensuring traffic security in order to incentive users to adopt soft and/or active mobility means of transportation, which can be achieved through a coordinated strategy of updating traffic regulations, and by community capacity building and educational programmes; and finally, (f) organising traffic circulation and adequate parking offer in line with metropolitan mobility strategies and local public space objectives.

Promotion of just living conditions for all places and people

Emerging agendas (AML, 2021) concerning the inclusion of disadvantaged communities and the elderly, women, and children in public space design are particularly relevant as they intersect the growing concerns for adapting the city not only for an ageing society but also for a multi-generational response for changing demographics, along with specific issues related to the safety and security of the urban environment. Interventions in public space can be regarded as a strategic instrument that can both become nodes for conviviality and stems for social connectivity.

To respond to the inclusion and territorial cohesion challenge, public spaces are to be strategically regarded as spaces for: (a) promoting convivial and diverse spaces, open for diversity, and multi-culturality; (b) activating commercial street frontages that enhance collective and sharing practices; (c) prioritising the connection within socially and spatially segregated neighbourhoods and surrounding urban fabrics; (d) integrating social facilities, e.g. schools, sport, and cultural equipment's in order to facilitate access to social responses and quality services; (e) by providing spaces where active aging, public participation, and interaction are promoted; and (f) as nodal points within outlined public space networks.

Governance innovation, territorial coordination of policies, and new planning practices

Despite a highly hierarchised formal planning system, emerging practices based on ad-hoc or place-based projects are introducing new spaces of cooperation with impact on the planning and transformation of public space. Acknowledging these new practices and governance innovations can contribute to a more effective delivery of guidelines devised at higher-level statutory tools (see [Chapter 2](#)), particularly by

linking them to other policy frameworks and investment resources at the metropolitan or intermunicipal level.

The transition in what concerns public space towards a network approach is also way of fostering greater levels of cooperation between different municipalities and other regional institutions with various projects designed as lines of continuity or as networks that cross administrative boundaries. In LMA, this is already being developed in several non-statutory planning and investment programming tools that directly or indirectly provide systemic contributions to a potential public space network at the metropolitan scale, i.e. the LMA Sustainable Urban Mobility Action Plans (AML, 2019a), Metropolitan Plan for Adaptation to Climate Change (AML, 2019b), the Metropolitan Network of Agri-food Parks, the PRR-AML 2021/2016 Housing Action Plan (Pinho, Barroso and Lopes, 2021), and the Metropolitan Plan of Support to Disadvantaged Communities (AML, 2021).

Moreover, a formerly fragmented and ineffective public transportation system was reconfigured under a newly created metropolitan authority – Lisbon Metropolitan Transports (TML) – introducing an integrated planning, ticket, concession, and monitoring across the region with very meaningful impacts in the system's global perception and mobility capacity.

Using ongoing transformation and intermittent processes to foster the network

As part of post-COVID 19 pandemic economic responses promoted by the EU, under the Green Deal (EC, 2021), Portuguese main investment programme – PRR – Recovery and Resilience Plan (RP, 2021, 2023) – is targeting the development of significative physical interventions in public transportation infrastructure and in public housing development and refurbishment. In LMA, 20 km of new underground and surface metro lines are being extended, thus creating opportunities to reorganise public space on the surrounding urban space. With a fraction of the overall engineering costs and with coherent articulation between the different municipalities, requalified public space amenities can boost a more surgical form of transit-oriented development along these new corridors and nodal stations.

The same can be said regarding the (re)development of relatively large public housing projects that are focused on lower-to-middle income groups. Besides a strong investment in newly built and refurbished housing units, adequate walkable connections and qualified urban settings are key to guarantee their integration in the metropolitan socio-spatial fabric. On the other hand, fostering lively and economically vibrant neighbourhoods may also require innovative typological solutions to combine the domestic and the shared collective spaces to explore more diverse functional mixes and to promote the reuse and adaptation of existing buildings.

To take full advantage of the large-scale investment in both the heavy transportation infrastructures and in a wide range of socially diverse housing districts, a new consideration of time is needed to respond to the fast-changing patterns of social and family life, consumption and sharing, mobility, and communication. Time as a key component to optimise and to take better advantage of opportunities with limited financial and spatial resources. The promotion and activation of

intermittent activities, nurturing bottom-up and pop-up initiatives in well-located facilities (i.e. underused car parking during specific times of the year – summer vacations and weekends), or the flexible reassignment of public space according to a pro-active management of rhythms, demands, and offers is a ground-breaking condition for today's urban management and a fundamental challenge for public space design.

The landscape and built fabrics' structure as resources for design

Shaped by long-term and layered processes, cities and urban landscapes are constituted by a wide diversity of structures and forms of organisation that are spatially fixed and difficult to change, each with its own conditions, history, and capacity to be used and adapted. On the other hand, micro-events and localised socio-temporal dynamics have an important impact on how cities are lived and responsive to the communities' and societal challenges of each time. Nonetheless, a first step is needed by acknowledging the more embedded patterns and systemic of a given territory. The landscape structure is the departing point to developing such a systemic approach to public space design and territorial networking, articulating adaptation strategies to the wider ecological and environmental conditions. The main argument in this regard is the need to acknowledge both the territorial diversity and the landscape structure as potential resources in themselves, i.e. to inquire into the specific characteristics that, while recognising their persistent nature, may hold potential for upgrade or reorganisation.

This requires a consistent consideration of (a) the climate conditions and their impact in the temperature, light exposure, or atmospheric events that frame the comfort of public space and the dynamics of the ecological systems and their flows, particularly under the conditions of extreme weather events; (b) the geomorphological features, namely the type of soil and geological constitution as well as the topographical features, in their relationship with the types of vegetation, superficial runoff and infiltration, land and slope stability, and comfort and capacity to move, walk, and operate in topographically irregular sites; (c) the ecological systems – water, air, fauna, and flora – in their multiple role in supporting habitats and biodiversity, provisioning water and resources, regulating climate, supporting nutrients cycles and oxygen production, and in nurturing cultural and recreational uses; (d) the resource, production, and consumption metabolism through which material flows are processed and interchanged in tandem with the social and economic systems, e.g. in the way how the food production, commercialisation, and disposal/reuse are framed as part of the public space structure (e.g. circularity in vegetable gardens, marketplaces, and community composting); (e) the settlement and built fabric morpho-typological structure and the forms of territorial occupation, in the way how they define the spatial configuration of public space, the building frontages, property lines, and public-private thresholds, and the land uses that impact on its collective fruition, and (f) the infrastructural networks that enable mobility, supply, and communication of people, goods, energy, and information across the territory, in most of the times using public space as their spatial and functional

support, raising conflicts and opportunities in the way how their different requirements, interests, and claims are managed and agreed upon.

Examples of steps towards acknowledging the landscape and built fabrics' structure as resources for design can start by working on the systemic approach to watersheds, as they involve water, topography, and spatial configuration as fundamental and articulated elements of a given site. Secondly, the identification of critical spaces of disruption and discontinuity can be seen as opportunities for new links and discrete interventions. Thirdly, envisioning large infrastructure spaces and projects as a *kinetical* public space (Santos and Silva Leite, 2021) per se, but also in their integration and dialogue with the surroundings, can open new possibilities to articulate the large-scale of the metropolis with the livelihood of local fabrics impacted by those structures. Finally, the identification of morpho-typological units and coherent urban systems may offer the basis for the codification of guidelines and generic principles of intervention in response to the urban landscape spatial specificities and to the socio-cultural processes that produce them.

Critical factors

Developing a design-oriented strategy to foster better articulated public spaces in metropolitan urban regions is a complex endeavour in which a number of difficulties and critical factors need to be considered. Far from a comprehensive, top-down, and linear process, devising such strategy requires a careful understanding of the contextual interplays of different actors, the political and societal expectations and timely management of opportunities, and the manifold cultural expressions regarding the use and recognition of public space, besides the fundamental characteristics of a given's region spatial organisation, both of its natural features and the artificial forms of urbanisation.

The main groups of critical factors may be identified as underpinning an effective metropolitan public space design strategy: (1) the societal imbalances, the deeply rooted habits, and the conflictive political agendas that may hinder shared, cohesive, and democratic approaches; (2) the structural spatial discontinuities, barriers, and land-use conflicts that create very strong physical and functional disconnection, that may be related with important environmental risks; (3) the institutional, disciplinary, and technical splintering that often results in uncoordinated and ineffective action and delivery capacity; and (4) disciplinary fragmentation.

- (1) Societal inequities, deeply ingrained in the economic and social fabric of cities and urbanised regions, manifest spatially, creating stark contrasts in living conditions and opportunities, particularly when public space and mobility infrastructure prevent the fair, affordable, and effective access to the areas of employment, consumption, and social amenities. Extreme oppositions of such societal inequities are spatially expressed in both the marginalised and under-served neighbourhoods and in the fenced-off private lots and closed-condominium estates, one lacking and the other one rejecting a shared, accessible, and multi-functional public space system.

Besides income-related difference, other societal differences are visible in the conflicting and contradictory demands placed on public space. The competition for limited space often leads to tensions between different and highly mobile users, making it difficult to establish legitimate and representative political and advocacy realms. As a shared and limited resource, public spaces must cater to diverse needs but also to a wide range of cultural practices, lifestyles, expectations, and desires according to the individual background, age, gender, religious, and many other characteristics. Such demands and expectations co-exist in one given time but are always changing and evolving, as part of very dynamic interplays between individual conditions, their links into communities and social groups, and the expanding agendas and ideas that are disseminated through increasingly mediated and multiplied forms of communication.

- (2) Spatial discontinuities add another layer of complexity in the urban landscape. Notwithstanding their fundamental role in shaping cities and human settlement and their ecological regulatory role of natural features, such as slopes, watercourses, or prominent hills, they are often difficult elements to overcome, when trying to promote spatial continuity and connection. Moreover, disjointed urban development characterised by fragmented infrastructure, disconnected and dead-end streets, or rigid limits of property divisions also hinder social interaction, functional mobility and spatial accessibility, and articulation. Mono-functional land use is another critical factor that inhibits the activation and complexity of public spaces. When urban areas are dominated by a single purpose, such as residential or commercial, it often results in lack of diversity and vibrancy.
- (3) Institutional splintering poses a significant challenge in developing consistent policies at the metropolitan scale. The lack of coordination between different administrative entities can lead to disjointed policies and fragmented development, particularly in the absence of a cohesive metropolitan government, as is the case in Portugal. This institutional splintering can be sensed both from a multi-level perspective – i.e. lack of legitimate and consistent intermediate regional/metropolitan level between local municipalities and the national government – and from a multi-sector perspective – making it difficult to establish coherent policy frameworks at a given territorial level. In Portugal, such splintering often coexists in critical areas, such as riverfronts, where port authorities are under the national government jurisdiction, despite playing a key role in local and metropolitan spatial, infrastructural, and economic organisation, or along important rivers and watercourses, that come under the scope of national environmental management entities.

On the other hand, local municipalities often tend to prioritise the demands and legitimate expectations of their residents, in the name of which are elected. Inter-municipal cooperation is often a demanding and difficult process, which could be facilitated by a more transversal and politically legitimate metropolitan level. This is particularly visible in the limitations regarding funding and delivery mechanisms, in which local authorities are often too small to be able to cope with larger, more demanding investments, while the national

government lacks the proximity to properly adapt generic policy frameworks to the specific territorial conditions. Besides the public sector, privately developed urban projects may have a considerable impact in shaping – or hindering – public space continuities. Managing the public interest while responding to market-driven initiatives, especially when it comes to major territorial projects, is a delicate and complex process in which legal and planning frameworks are often open to specific negotiations, agreements, and compensations that make it possible to balance the multiple demands at stake.

- (4) A final critical factor is that of technical, design, and disciplinary fragmentation, which creates additional obstacles to holistic urban and public space planning. The compartmentalisation of expertise across different disciplines, administration departments and design professions often result in disjointed solutions that fail to address the complexity and the integration that are defining characteristics of a quality public space network.

Building an imaginary, agency, and strategic vision

In line with MetroPublicNet's research focus on LMA as an experimental territory of inquiry and conceptualisation, a first paradox is noted: the *metropolitan scale* is a rather ambiguous entity in terms of its institutional role in the political and administrative system; an undefined territorial organism in terms of extension, boundaries, and both material and immaterial flows, and a fuzzy space of perception and identification for the ordinary citizen (Gonçalves, Pinto and Santos, 2023).

As Davoudi and Brooks (2021) state, scale can be conceptualised as an imaginary that results from entangled discursive and material practices. Bridging the structural focus on political economic factors and the poststructuralist acknowledgement of cultural, discursive, and argumentative practices, they view the *imaginary* as a key performative process to fix a given city-region scale, in the context of continuously forged, contested, and negotiated political projects and governance arrangements. Scale imaginaries – such as the one underlying the establishment of metropolitan entities, planning tools, territorial projects, or a simple and widespread every day's common word – are, therefore, the complex outcome of layered, dynamic, and historically and context-contingent process in an interplay between different alternatives.

In the debates on the geographies of political agency, territorialisation, and subject formation, several lines emerge highlighting the importance of socially constructed systems of power, the role of place-based communities and movements, and the intrinsically contested and negotiated processes in the face of unequal and diversified contexts and interests at stake (Schwarz and Streule, 2024). As such, territorialisation is shaped and is a shaper of socio-spatial differentiations. In complex and large-scale urban territories, faced with critical disparities and forms of exclusion, the acknowledgement of these subjectivities can therefore be a particularly relevant tool towards a more progressive and inclusive political and spatial policy approach.

Following Davoudi and Brook's perspective, the political project relates the scalar fixing to the political goals (*why is a given scale needed?*), the scalar fix sets the best serving level (*what scale is best suited for those goals?*), and the scalar

imaginaries trigger the rationales, actors, and agency that are devised and mobilised (*how* and by *whom* is a given scale pursued).

If developed as an argumentative line to shape a more cohesive territorial imaginary, enabling innovative forms of institutionalisation and co-creation of a metropolitan subjectivity, the concept of a Metropolitan Public Space Network can become (1) an identifiable brand, facilitating identification and acknowledgement across the metropolitan area; (2) an enabler of new, more inclusive, and extended realm for multiple socio-spatial practices; and (3) a collective project – a *common ground for the Metropolis*. Its main strength comes from the capacity that such network may have to integrate multiple scopes and actors, in response to the critical challenges facing the metropolitan territory, while developing a far-reaching spatial infrastructure to support its development and fruition.

In a way, this process can be understood as the inception of a sort of territorial argument that puts public space as a central feature both of its structure and of its future development. The next section seeks to provide a roadmap to navigate the cornerstone questions of this argument:

- Where to start developing a Metropolitan Public Space Network? Where does it make sense?
- Why do we need it? On what ground can we build this idea?
- How to build agency, to engage with stakeholders, and to exchange knowledge and insight?
- What is this design process shaping? What are its components? Which tools should be used to lead and deliver it?

From a territorial argument to a territorial design process

Where to start and why do we need it?

When considering the role of the metropolitan level in devising a public space network strategy, the relevance and pertinence of its contribution must consider the existing spatial and governance challenges and constrains. The metropolitan level should help to solve difficult and challenging situations in which the municipal level is too small and the national level too distant. Three criteria are important to assess such relevance and contribution: (1) locational interest; (2) complexity, cost, and time; and (3) cohesion goals.

Locational interest regards territorial features that are acknowledged as of inter-municipal strategic interest, namely related with important metropolitan facilities (i.e. university *campi*, large hospitals, large sport complexes, intermodal transport hubs, etc.) or located along metropolitan infrastructural channels (i.e. highways, railroad lines, water mains, high-tension power lines, etc.). It is also the case for sensitive and along large-scale landscape features (i.e. natural parks and reserves, the estuaries and important water courses, large hill ranges, etc.) as well as those subject to natural risks (i.e. flood-prevention in multi-municipal watersheds, etc.). Locational interest can also consider more complex situations around

inter-municipal borders in which a metropolitan platform of dialogue and articulation may help to solve local constrains.

These areas are often faced with highly complex conflicts, involving multiple sectoral and territorial jurisdictions that go well beyond the scope, capacity, and resources of local municipalities or one single authority. The same applies for those projects in which high costs and long-term implementation requirements prevents an adequate provision from local municipalities. The metropolitan level can also be of interest when the technical complexity (i.e. waste and water management, energy services, or transport infrastructures) requires systems that are more efficiently operated with higher critical mass and a larger service area.

Finally, the pursuit of territorial cohesion goals can also be a strong argument for the involvement of the metropolitan level. In a context of competition for attracting investment in a highly globalised investment and economic framework, cohesion goals are particularly difficult to implement across very heterogeneous and unbalanced metropolitan areas, if local municipalities are faced with their own territorial constrains. Using the metropolitan level as a tool for more effective management of an asymmetrical and solidary distribution of public space investment in the peripheral, precarious, and socially disadvantaged communities can contribute to a more cohesive and inclusive territorial development.

What and how to design?

Using Joaquin [Sabaté's \(2010\)](#) discussion on the idea of territorial design (*proyecto territorial*), more than working on fixed scales, spatially delimited areas, codified methods, or thematically focused analysis, its differentiating characteristics are related to the central role of a careful and interpretative territorial reading as the cornerstone for the inception of an alternative outlook. This concern for a meaningful territorial survey relates with the processes of mapping and drawing, through which specific and relevant elements are selected and interpretatively recombined in an iterative propositional approach. This process is particularly interesting to deal with complex and extended territories, as it underlines the fundamental morphological traces of the landscape, without dualistic biases of city *vs.* countryside, but instead, revealing the criss-crossed and persistent structures and figures, namely the physiography, the rural parcel patterns, the open space systems, the water courses, the old paths, and infrastructural threads that support the urban fabric.

Articulating these different layers into new interpretative cartographies with a concern for the public space system – in its multiple declinations and configurations, as an intermediary realm between the existing territorial features and the support for a future network – may reveal relevant conditions and trigger meaningful paths of intervention. In this sense, mapping and description becomes itself a project, a designed revelation of hidden opportunities or, conversely – as Paola [Viganò \(2010\)](#) claims – the project is a particular form of description.

A second line of rationale can be found in the conceptualisation of *regional design* and its recent role ([Neuman and Zonneveld, 2018](#)) in contributing to the procedural and communicative components of territorial development, namely the

concern for collaborative and negotiated processes. Again, as a central component of this approach, images play a key role not only as part of understanding the site and helping in visualising alternative development scenarios but also and importantly, as institution builders (Neuman and Zonneveld, *op. cit.*). In this sense, the design process involves imagination and anticipation as part of an argumentative iteration, seeks a holistic understanding of the multiple interdependencies between parts or components, and is opened to a plurality of different forms of knowledge production, communication, and reflection (Balz, 2024).

Devising a Metropolitan Public Space Network can be a trigger for such a process of iteration between reading, valuing, envisioning, testing, reflecting, and delivering on site-specific projects. Instead of one more plan to fit in the complex statutory framework of urban planning, this network can be seen more as a line of thinking, an adaptive tool to be incrementally fed and substantiated as a circular, feed-back, continuous, and cooperative process (Meijsmans, 2010). This iterative process of going back and forth includes not only the procedural steps – replacing the conventional linear sequence of a brief, analysis, preliminary studies, finishing in a project – but also the scalar approach – jumping from local to regional, from site-specific constrains to more fluid territorial flows, strategically connecting opportunities with the delivery tools for action.

We can therefore envision the public space network as a *project of projects* that can be used to (1) outlining a macro-geographical frame on which relevant links and focal interventions are enabled; (2) using the malleability of public space to inquire into new territorialities, using alternative scalar references that are more adequate to intervene in inter-connected, fuzzy spatial, and administrative configurations; (3) devising a temporal framework to manage territorial interventions, considering strategic long-term structural actions, medium-term, and relatively complex urban projects, and short-term and exploratory actions; and (4) outlining design guidelines on the goals, configuration, materials, and involved agents for strategic public space components, namely the green structure, blue structure, pedestrian and bicycle structure, and metropolitan public transportation structure, having in mind different capacity levels and the territorial frame (urban characteristics, infrastructural provision, position in the network, etc.).

With whom and for whom?

Taking Neuman and Zonneveld's (2018) cue, imagining a Metropolitan Public Space Network can be a tool for institution building, i.e. a process by which different actors and authorities find a relevant, legitimate, and operational realm for political commitment and policymaking. In this sense, lessons from the above-mentioned concepts of regional design and the emerging array of soft planning tools and arrangements (Cavaco *et al.*, 2023) are particularly useful in setting up such process. They highlight the importance not only of a multi-level governance but also of a 'new entangled geometry of governance arrangements' (Cavaco *et al.*, 2023, p. 17), based on 'new levels of geographical resolution to address specific territorial phenomena in a place-based and tailor-made view' (Cavaco *et al.*, 2023, p. 17).

The potential of such arrangements is particularly suited for an exploratory hypothesis such as public space network imagined at a metropolitan level – itself a blurry, fuzzy, *soft space of planning* in LMA.

The process of defining interesting geographical resolutions requires an intertwined acknowledgement of the territorial resources, of the key challenges and opportunities, and the assemblage of an institutional vehicle to deliver it, resorting both to the binding, statutory legal planning framework, and to ad-hoc, non-regulatory, and place-based arrangements. In this sense, testing the hypothesis of a metropolitan network can be a tool to enhance the institutional efficiency – namely as many funding calls for intervention projects come with strictly defined funding conditions – while keeping to the principles of subsidiarity, scrutiny, and participatory engagement. And what better opportunity than the shaping of public space to foster a more aware, demanding, and participatory metropolitan community?

On another hand, the outlining of this governance framework shouldn't duplicate or complicate already ongoing processes, many of them also dealing with the setting of a metropolitan scope of sectoral policies (in LMA, the cases of the public transportation, agricultural parks, or cultural facilities are good examples). On the contrary, synergies and complementarities are needed and can be a well-grounded departure point to further embody a metropolitan institution. On the same direction, benchmarking and lesson-learning from other international cases (i.e. Barcelona, London, the Ruhr area, or the Randstad), resorting to institutional and academic partnerships, can be of paramount importance.

Setting up a metropolitan scope of governance arrangement for a public space network could therefore contribute to: (1) strengthening and aligning multiple actions or projects into a common and coordinated set of goals; (2) promoting new competences and governance arrangements to strengthen the intermediary conditions of the metropolis, testing tailor-made or informal actors' networks, or bringing forward more formalised institutional bodies; (3) increasing the transparency and accountability of public action and policymaking regarding the diversity of the metropolis and the critical challenges it faces; and (4) fostering creative realms for the imagination and proposition, including architectural, urban design, and landscape design competitions for relevant metropolitan spaces and academic partnerships for innovative vision building and speculative testing.

Interactive communication is essential to engage with society and its many groups, both in providing information and to foster participation, feedback, and realms for co-creation. Actions that may develop and facilitate a communicative environment around a Metropolitan Public Space Network include (1) development of an online collaborative platform, aimed at identifying values, problems, resources, initiatives, and projects; (2) creation and dissemination of online database regarding existing public spaces, future projects, and development initiatives; (3) branding and advertising of the network, namely on public transport and on a choice of public spaces; (4) active use of social networks to engage with specific groups; (5) physical and virtual publication of materials related to the values and resources available through the network; and (6) implementation of a range of branded network's info points, kiosks, and urban furniture with free Wi-Fi coverage.

Defining projects with incremental networked strategies

The contribution of public space to a more resilient, cohesive, and articulate metropolitan territory stems primarily from a combined assemblage of multiple interventions that result in a multi-systemic and coherent frame with greater impact on the whole than merely on the individual parts.

Incremental strategies for a Metropolitan Public Space Network are grouped in five main lines, each with specific spatial articulation mechanisms (Figure 22.2). The development of a networked system of public space can resort to more than one of each strategy line, according to the specificities, goals, and available resources.

A. Structuring of linear continuities

Continuity and linear linkages are fundamental elements of a territorial network. They enable and support the multiple flows that run through both natural and artificial systems, clearly relating to the bio-physical ecological lines that shape the landscape and the infrastructural lines that support urbanisation and territorial connectivity. These features are related to a hierarchical system in which different levels of importance are used to manage the intensity, scope, and spatial reach of the flows that run through each linear segment. As an incremental strategy for public space networking, the *structuring of linear continuities* can be assembled through an association with two main territorial systems: (1) the streets, urban axes, and mobility infrastructures and (2) the ecological corridors.

(A1) Being the most visible and perceivable elements of urban structure, fostering public space continuity along streets and urban axes is a fundamental strategy in providing an intelligible network, particularly for pedestrian and active modes of mobility. Although it may seem an obvious feature of a coherent urban landscape, public space continuity in urban streets is often compromised by a number of obstacles, ruptures, and gaps – particularly when considering comfortable and adequately sized pedestrian paths and sidewalks. Creating a sequence of walkable spaces, properly shaped and accompanied by other amenities (shade, lighting, signage, urban furniture and spaces for rest, etc.), is a condition for an equitable, accessible, and attractive urban space. From a metropolitan network perspective, particular attention should be paid to the definition of a hierarchy of pedestrian and cycle paths that structure urban districts and articulate connections on longer distances. These paths can have different roles and characteristics: (1) simpler paths, running through lower density and open landscapes, probably oriented for leisure and open space related activities; (2) intermediate scale roads between more dispersed urban patches; or (3) complex multi-functional and multi-infrastructural streets in compact and intensive urban areas in which local amenities coexist with larger scale structural elements (i.e. large avenues and boulevards or urban water-fronts). A particular situation is the combination of public space lines with public transport corridors, namely with dedicated bus or bus rapid transit (BRT) lanes, usually crossing through very diverse forms of urban fabric. The investment in the transport infrastructure can be a driver of more comprehensive and integral

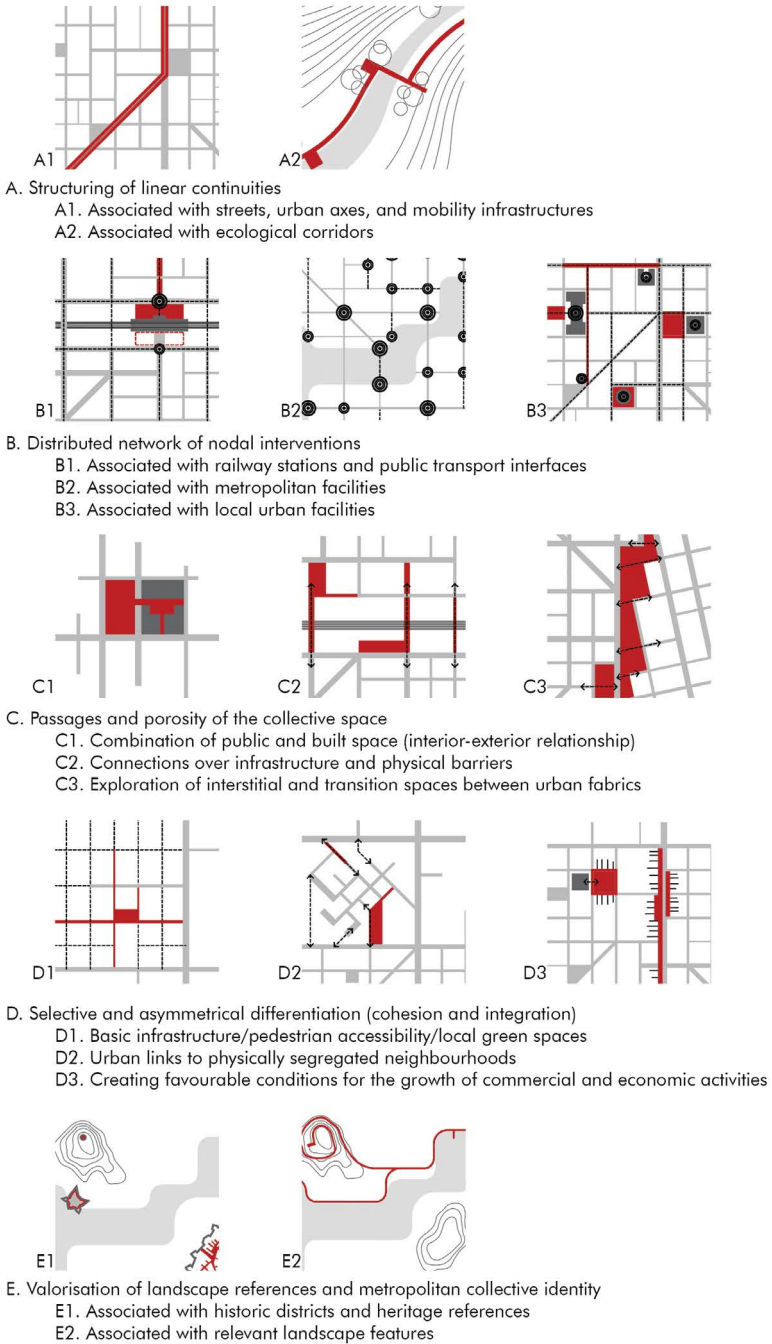


Figure 22.2 Incremental strategies and spatial articulation mechanisms.

Source: MetroPublicNet.

reorganisation of its surroundings, becoming an ordering system for heterogeneous spatial and territorial conditions.

(A2) The role of public space linear continuities in what concerns ecological corridors is linked with the interface between the *continuum naturale* and the *continuum culturale*, e.g. the articulation between bio-physical connections that support ecological flows and the humanised and built elements of landscape that allow circulation, resource exploration, and social activities within a given cultural frame. In this sense, the continuity of public space along ecological corridors can be both a goal – to support resilient eco-social flows – and a driver of action – an opportunity to engage society with its environment, bringing people and communities closer to the natural processes and the opens spaces that frame their habitat. More than simple linear paths along important ecological areas, this interaction can be strengthened through a robust and sequential articulation of thicker open spaces, such as floodable areas along the water streams, agricultural parks, and local food production areas close to residential districts or dense forest patches connected with dense tree-covered boulevards and large urban valleys.

Where possible and adequate, the combination between both types of linear continuities can also promote interesting synergies. For example, by reinforcing vegetation canopies and water-sensitive design along urban streets or as part of longer distance pathways, it is possible to improve green and blue infrastructure solutions as well as promoting a more qualified spatial experience for pedestrians and bicycle riders.

B. Distributed network of nodal interventions

As fundamental components of public transport systems, railway stations, river ferry stations, and multimodal interfaces can play a prominent role in public space qualification strategies. With thousands of passengers and commuter passing through them, their spatial quality has a powerful impact on the metropolitan everyday life. On one hand, they contribute to a smoother and more attractive operation of public transport, promoting its use and offering a good alternative to private car-based mobility. On the other hand, public transportation is the only available option for lower-income social strata; improving its functioning and spatial experience is also a relevant tool to promote a more cohesive and inclusive mobility system across metropolitan territories. The logic underpinning a *distributed network of nodes* is relevant when considering the mobility-land use nexus by creating a fairer, equitable, and consistent coverage of transport hubs in strategic locations as well as complementary distribution of collective urban facilities.

(B1) Public space interventions focused on these nodes should pay attention to the links and pathways passengers must take to exchange between different modes of transportation – a fundamental requirement for these hubs' performance in the mobility network – but also to the way how people can reach them on active modes. When appropriate, conditions for mixed-use activities, retail, and community facilities can be promoted as part of mobility hubs, introducing another potential field for public space amenities in these nodes.

(B2) A second example of metropolitan nodes anchoring public space interventions are metropolitan facilities used for large events and that may temporarily

attract large number of visitors – i.e. stadiums and large sport complexes, large concert, and multi-purpose halls or congress centres and international fairs venues – but also those with high impact on the touristic mobility, such as museum and cultural quarters, creative hubs, and heritage and monumental sites. With particular impact on a social cohesion perspective, facilities such as hospitals, social security and professional training centres, courthouses, and large public administration services require easy and efficient accessibility particularly for those with physical or socio-economic restrictions of mobility. On the other hand, they are important urban and employment poles with a high potential to activate their surroundings.

(B3) Drawing on the long-established concept of the neighbourhood unit, local scale facilities like schools, sport centres, markets, and local civic centres are key to link with safe pedestrian and cycle paths. Their surroundings can be upgraded in order to reinforce these facilities' civic and spatial role, especially if combined with stronger spatial and programmatic articulations along their premises' edges. Intermittent, temporary, and bottom-up actions involving local communities around these facilities can be used to promote, test, and sustain new spatial configurations and an active and inclusive social realm.

C. Passages and porosity of the collective space

Cities and metropolitan territories are faced of multiple divides, barriers, and obstacles to the physical continuity of people. Property limits, walls and building facades, infrastructural lines, fast-traffic roads and motorways, and watercourses are recurrent and ominous in the urban landscape and are an inevitable characteristic of urban fabrics. Nevertheless, significant steps can be taken to mitigate their impact in terms of disconnection and splintering of relevant urban elements and urban areas.

(C1) The first level of action can be implemented at the architectural scale in the complex threshold that mediates the transitions between buildings and open space. Active and porous facades at the ground level that promote a more fluid connection between the interior spaces and exterior public spaces can be fostered at local planning norms, promoting not only a spatial and visual interaction along streets but also a diversified range of collective uses, including retail. From a metropolitan perspective, such strategy can be devised for structural and meaningful urban axes in tandem with the linear continuity strategies, fostering active mobility modes and attracting economic activities. Ground floor porosity together with the use of privately owned public spaces are also potential features to combine in larger scale buildings such as shopping centres and civic facilities. This requires a strong compromise and political negotiation between public and private stakeholders to promote a more robust and qualified contribution of such built structures to a lively and well-connected built environment. A well-articulated circulation system between the interior spaces and the open-air can also be enriched with multi-functional and mixed-use strategies that synergically bring together different users across the daytime.

(C2) A second type of contribution to this strategy is the building of passages and connections over infrastructures and other physical barriers, particularly when they are meaningful in strengthening larger scale and more cohesive networks. Bridges, underpasses, and more complex and multi-level built structures can be

used to accomplish this strategy. Comfort, generous sizing, visibility, safety, and diverse surroundings of such passages are important features to ensure safety and attractive conditions for their uses. More than functional links, they must be acknowledged as key components of the public space system, requiring particular attention to their design and amenities. When adequate and relevant, new or renewed large-scale facilities or private built ensembles located near infrastructures and other spatial barriers can be invited to introduce such connections as part of compensations and floor area bonus schemes. Depending on available resources and site circumstances, more ambitious passage solutions may be devised as extended plazas capable of holding multiple uses. In any case, however, particular attention should be paid to the careful topographic modelling and integration of such passages to facilitate continuous and comfortable pathways.

(C3) Besides strong physical barriers, there are also many cases in which continuities are broken by interstitial spaces between different urban fabrics, as residual spaces between large plots or adjacent to infrastructural channels or as a result of changing topographical conditions. These spaces can also be instrumental in devising segments of a networked public space system, particularly as alternative options to already established and rigid urban structures. In many cases, they are characterised by low-intensity and informal uses, which allows for the development of interesting ecological characteristics. Using interstitial spaces as discrete components of mobility and green infrastructure combined with small-scale transitions, particularly in the presence of large metropolitan facilities and built structures, can provide a fine-grained and more distributed layer when compared to more demanding and cost-consuming interventions.

D. Selective and asymmetrical differentiation (cohesion and integration)

In the face of uneven and socially and economically heterogeneous patterns that characterise contemporary metropolitan territories, a public space network can be a resource to mitigate the impact of structural unbalances and a tool to promote socio-territorial inclusion and cohesion. Acting on basic urban infrastructures, open space amenities, accessible connections, and environmental risks prevention are fundamental steps to improve and dignify the living space of disadvantaged communities. In that sense, the incremental development of public space projects may gain from a selective and asymmetrical differentiation in the sense that it can prioritise investment in least affluent and more segregated spaces as part of a comprehensive territorial cohesion strategy. Acknowledging the need to adapt solutions to the specific territorial conditions, the following three strategies can be used to promote and prioritise public space interventions.

(D1) Despite very significant differences among metropolitan urban areas worldwide, many were developed through very precarious and informal processes, resulting in significantly under-serviced neighbourhoods. Basic infrastructure, such as paving, sanitation, safe and comfortable sidewalks or lighting, along with green space and leisure amenities – i.e. local parks, playgrounds, resting, and convivial areas – is often lacking in these areas. Notwithstanding the diversity on their development process and spatial characteristics, these neighbourhoods require specific

attention not only to meet basic functional amenities but also as nodes of better integrated socio-territorial networks. Public space interventions may include specific features in response to their social fabric and participatory capacity, namely where low-income, sub-standard housing, or other factors of social exclusion are present. In such cases, public space may offer a proportionally higher impact in these communities' living environment, supporting an extension of their domestic habitat to the public space. In illegally developed areas, formal and regulatory procedures – i.e. plot definition and registration, infrastructural provision, metering, etc. – may also be an important component of social and political integration with benefits both for the local communities and for the public sector urban management.

(D2) Accessibility being a key feature of urban living, it equates time and distance as two factors that determine the opportunities and the resources required to move across the territory. A usual pattern in many cities, large tracts of economically disadvantaged groups live in distant areas, where lower land costs and poorer urban amenities allow for affordable housing rents. Even in cases where housing is built and managed by the public sector as part of social inclusion policies, such spatially segregated pattern is often visible. Accessibility can be improved in these areas not only by facilitating public transport convenience and its spatial infrastructure (i.e. comfortable, safe, and well-located bus stops) but also by fostering pedestrian and bicycle mobility as alternatives for intermediate distances. On the other hand, many public housing ensembles were built with limited spatial connection and integration with nearby districts, creating a sense of enclosed enclaves that underlines social and territorial exclusion. Opening these ensembles and intersecting them with a larger public space armature can contribute to unlock relational opportunities, particularly if conceived as multi-system solutions (i.e. green structure combined with new commercial strip; new transit line combined with local urban facilities, cycle pathway laid along re-naturalised water course, etc.).

(D3) Commercial and economic vitality is an important component of lively proximity neighbourhoods and a relevant layer of public space in its relationship with the built fabric. A differentiated and selective prioritisation of public space improvements may target those urban areas in which the relationship between commercial activities and their socio-spatial impact is assessed as meaningful or critical (i.e. neighbourhoods facing commercial decline). This may lead to public space interventions aimed at improving conditions for existing retail (i.e. creating adequate spaces for outside terraces, improving walkability and paving to improve comfort in sidewalks along storefronts, articulating local marketplaces with convivial conditions in nearby squares, implementation of traffic calming and shared space solutions in commercial streets, etc.) or at creating conditions to attract and develop commercial activities and other mixed uses. The latter is particularly important in large public housing ensembles, often characterised by mono-functional residential land use and limited diversity of economic and employment opportunities. In such cases, public space can activate the threshold between the existing built structures and the street (i.e. serving ground floors and underused spaces that can be used to introduce shops and other collectively accessible amenities) but also by creating conditions to bring new activities and commerce to the relevant linkages that connect these ensembles with the surrounding urban districts.

E. Valorisation of landscape references and metropolitan collective identity

The perception and intelligibility of large, urbanised regions require a different approach from that of proximity spaces, reachable by foot or within the historical boundaries of local urban districts. Within the framework of an extremely mobile population, either in its home to work commuting or as part of the multiple daily interactions across the territory, different landmarks and references are important to articulate shared imaginaries and foster renewed senses of belonging at the metropolitan scale. Such references can be useful both as nodes and destinations in a potential public space network but also as common grounds that allow for more cooperative and solidary actions between the multiple actors and across administrative and institutional boundaries.

(E1) Historic districts and heritage references can be a first layer to organise such framework. For such approach, it would be important to acknowledge not only the most celebrated and commonly identified heritage sites but eventually the smaller and more inconspicuous structures – i.e. small rural villages and villas absorbed by urban development, water distribution aqueducts, wind, and tidal mills that signal former processes of landscape resources exploitation. Important paths, old roads, religious sites and pilgrimage routes, and military roads that were used to strategically connect the territory can also be included in such network. These elements can potentially reveal an often overlaid and hidden layer, many times fragmented by more recent infrastructural development and urban growth, that can support the reconstruction of coherent, continuous, and genetic traces of the metropolitan territory.

(E2) Larger landscape structures such as mountain ranges, coastlines and beaches, rivers, and estuaries but also medium-sized hills and forest areas are also an important territorial resource in the design of a Metropolitan Public Space Network. As prominent, large, and easily recognisable open spaces, they effectively combine a clear reference for collective identity and the multiple possibilities that can be explored as a part of the ecosystem services of an accessible and qualified territory: the promotion of biodiversity, climate regulation, water harvesting and purification, coastal protection, agricultural, forest and food production, cultural, and touristic and leisure activities. Particularly in Lisbon, the role of its two rivers and estuaries – the Tagus and the Sado – can include navigation and act as a new field interconnecting a wide range of riverside settlements and activities. These spaces can be seen as the contemporary counterparts to the 19th century urban parks that emerged as a response and structural shaper of the industrial city. Their articulation as part of public space and active mobility networks can support a positive and forward-looking materialisation of planning guidelines relating to nature conservation and ecological network protection by making it useful and responsive to a diverse range of societal demands.

Incrementality lessons from the case studies in Lisbon Metropolitan Area

As an illustration of the way how incremental strategies can be implemented, MetroPublicNet's case studies (see [Chapter 6](#)) were used to highlight some of their specific potential ([Table 22.1](#)). Each case study reveals step-by-step processes of

Table 22.1 Incremental strategies identified in the case studies

	<i>Linear continuities</i>	<i>Distributed network of nodes</i>	<i>Passages and porosity</i>	<i>Selective and asymmetrical differentiation</i>	<i>Landscape references/collective identity</i>								
<i>Case studies</i>	<i>Streets, urban axes, and mobility</i>	<i>Ecological corridors</i>	<i>Railway stations and public transport</i>	<i>Metropolitan facilities</i>	<i>Local urban facilities</i>	<i>Combination of public and built space</i>	<i>Connections over infrastructure and physical barriers</i>	<i>Exploration of intersitital and transition spaces</i>	<i>Basic infrastructure</i>	<i>Links to physically segregated neighbourhoods</i>	<i>Growth of commercial and economic activities</i>	<i>Historic districts and heritage</i>	<i>Landscape features</i>
Vila Franca de Xira – Luís C. Pereira Park and Santa Sofia valley	●	●					●	●				●	
Vila Franca de Xira – Tagus riverfront parks and N10 national road		●	●				●	●					●
Mafra – Ribeira D’Ilhas and Foz do Lizandro beach amenities					●						●		
Loures – R. República, R. Guilherme Fernandes, Av. Moscavide	●				●						●	●	
Odivelas – Serra da Luz and Vale do Forno	●	●			●		●		●	●	●		
Amadora – Brandoa neighborhood	●				●	●		●	●	●	●		
Amadora – Zambujal neighborhood	●	●					●		●				
Sintra – Algueirão-Mem Martins linear park	●	●						●					
Sintra – Cacém urban requalification	●	●	●		●		●	●			●		
Oeiras – Leceia neighborhood								●					

(Continued)

Table 22.1 (Continued)

<i>Case studies</i>	<i>Linear continuities</i>	<i>Distributed network of nodes</i>	<i>Passages and porosity</i>	<i>Selective and asymmetrical differentiation</i>	<i>Landscape references/collective identity</i>							
	<i>Streets, urban axes, and mobility</i>	<i>Ecological corridors</i>	<i>Railway stations and public transport</i>	<i>Metropolitan facilities</i>	<i>Local urban facilities</i>	<i>Combination of public and built space</i>	<i>Connections over infrastructure and physical barriers</i>	<i>Exploration of interstitial and transition spaces</i>	<i>Basic infrastructure</i>	<i>Links to physically segregated neighbourhoods</i>	<i>Growth of commercial and economic activities</i>	<i>Historic districts and heritage</i>
Sintra/Oeiras/ Amadora – Green and Blue Axis	•	•	•		•	•	•	•			•	•
Cascais – Tires/ Manique roads	•				•			•	•			•
Lisboa – Central Axis	•			•	•					•		
Lisboa – Ajuda neighborhood	•			•	•					•	•	
Lisboa – Riverfront	•	•	•	•		•					•	•
Almada/Seixal – Sobreda and Corroios Parks		•			•		•					
Almada/Seixal – MST tram	•		•	•	•		•					
Seixal – Fernão Ferro	•							•				
Barreiro – central streets	•				•					•		
Moita – Av. 25 de Abril, R. 1º de Maio	•		•		•					•		
Montijo/Palmela – Bicycle path Montijo-Pinhal Novo	•		•				•					
Alcochete – riverfront	•	•			•						•	•
Sesimbra – Quinta do Conde Parks		•										•
Setúbal – central city streets and Várzea Park	•	•	•	•	•		•			•		

Source: MetroPublicNet.

public space qualification with interventions being developed across a relatively long-time span. Specific circumstances related to the available resources and the delivery capacity dictate the priorities, the rhythm, and the processes through which complex public space systems are gradually articulated. With the most part of the projects being promoted by local municipalities, often facing limited funding and operational capacity, a phased and incremental process is clearly sensed as the only way to respond to the demands and challenges in the relatively heterogeneous and splintered urban territories, such as those of LMA. Larger, more investment-demanding projects, involving direct investment by national authorities, can more easily be delivered as a single operation. Nevertheless, even those cases, these projects can – and must – have the capacity to articulate with other projects in their surroundings.

Working on layers of a Metropolitan Public Space Network

Early in the research process, a question arose: does a network presuppose spatial continuity? If the answer is no, can we conceptualise a network idea based on a topological matrix, where the continuity of public space exists in the possibility of interconnection between different means of mobility? In this system, mobility is decisive, as are the moments of nodality that allow the articulation between modes of mobility. The possibility of designing a public space network must take these two realities into account as well as their articulation. Paradoxically, the linearity introduced by the patches of interstitial spaces that accompany these infrastructural elements suggests that these voids can be an opportunity to contribute for a network of public spaces. The metropolitan nature of the infrastructure allows us to recognise in this system the capacity to support a continuous network of public space, built from incremental strategies of linearity and porosity through, respectively, accompanying and crossing structures.

On the other hand, if we look at the material continuity of public space and the incremental processes that allow it to be built, we recognise structures of a metropolitan nature that can support its implementation: water courses, the coastline, hill ranges, etc. The landscape geo-morphology is a determining factor for the forms of urban settlement and exploitation of the territorial resources. The valley system defines historical infrastructural lines and organises the process of urban growth, particularly visible in the built densification along the paths network that follows and often overlap the water courses. In this process, old roads became urban streets and the guiding lines for adjacent development.

These ideas merge into an infrastructural understanding of public space, which can be the ground for a propositional synthesis of a Metropolitan Public Space Network. As a multi-systemic infrastructure, this network can be organised in different layers that articulate its material and immaterial components – a vocabulary for a shared and always evolving territorial argument: the Metropolitan Public Space Network is the coherently, designedly, and collectively imagined assembly of *greenways, parks, streets, plazas, gateways, and itineraries*. These layers are the basic constituents of an intelligible metropolitan structure that combine ecological

connectivity, functional operation, perceptive identification, cultural significance, and architectural composition.

Metropolitan greenways

Metropolitan greenways are the layer in which the fundamental ecological continuities are identified and materialised, mostly support not only by the wet system – watercourses and waterfronts – but also by the less evident system of headwaters, maximum infiltration soils, ridgelines, and wind corridors. These greenways may establish a dialogue with the main corridors of the metropolitan ecological structure, linking the large-scale protected areas that are part of the fundamental nature conservation network. Waterbodies, namely the rivers and estuaries, are also understood as potential elements of connection, if accessible and usable through different forms of navigation.

At a lower scale, these greenways may articulate different patches of urban fabric with a significant presence of open space and relevant landscape features; it may also extend through built fabrics activating smaller patches (i.e. urban rewilding spaces, local forests, permeable backyards, small gardens, and community vegetable gardens) and linear vegetation systems (i.e. tree-lined streets and boulevards). Understood as structural layers of public space, metropolitan greenways should be supported by active mobility paths, well-connected to the key public transportation networks and serviced by punctual collective facilities.

Metropolitan parks

Metropolitan parks are made of medium-to-large scale open spaces that can become a relevant figure and an intelligible anchor of the metropolitan landscape with a strong combination between natural and cultural features. These parks are understood as clearly humanised spaces – forest parks, large agricultural parks, large estates with relevant cultural and heritage value, and large sport complexes characterised by relevant open spaces – in which multi-functionality is visible both in the capacity for social use and in the different biophysical ecological services they provide.

As a layer of a Metropolitan Public Space Network, these parks can also be instrumental in reassigning deteriorated, post-industrial, or underused spaces, if relevant in scale and relationship with the territorial open space and ecological network. Such spaces may include the regeneration of waste landfills, declining agricultural estates, borderlands, and infrastructural fragments. As such, they reinvent the notion of the urban park expanding its scalar, functional, and symbolic role in the contemporary and extensively urbanised territory.

Metropolitan plazas

The role of *metropolitan plazas* in a Metropolitan Public Space Network is to rearticulate the symbolic relevance, spatial prominence, and functional nodality that

are characteristic features of squares and plazas in established urban spaces, under a wider territorial scalar frame of the metropolis. In this sense, metropolitan plazas can be seen as large public spaces where people converge and use in many different ways – weekly or monthly fairs and open marketplaces, open-air festival and concert premises, outstanding scenic belvederes, important historical plazas, spaces surrounding stadiums, and large collective facilities.

More than nodal elements in the public space network, these plazas are understood as civic enablers, places to express, protest, or celebrate the social and cultural multiplicity. They may be activated by temporary or more permanent uses; they may be organised according to well-defined layouts or left open for more informal and intuitive forms of appropriation; they may be part of a denser, more built and mineral site, or integrate an open field and become a special place in the landscape structure. The metropolitan plazas are the material expression of the *agora* and the *forum* of the contemporary metropolis.

Metropolitan streets

The layer of *metropolitan streets* plays a fundamental role in the intermediation of the extremely heterogeneous, extensive, and intricate network of streets and roads that support most of the metropolitan fabric. Its role is to clarify and qualify a specific hierarchical level of streets that act as the backbone of the metropolitan urban system. The definition of this level resorts to a range of criteria, such as historical continuities, long high streets, or important urban axes.

This layer can also be an operative tool to promote the multi-modal opportunities of these relevant streets by introducing improved conditions for the use of bicycles and by connecting them to key public transport hubs. As material expressions of the most common type of public space, metropolitan streets can also be equipped with a consistent design of furniture, information points, kiosks, or other built material elements that underline a shared and codified expression of a metropolitan identity.

Metropolitan gateways

The *metropolitan gateways* are public spaces associated with the nodal accesses to the public transportation systems – railway stations, bus terminals, multi-modal interfaces, ferry stations, and the airport. These spaces organise the flows of thousands of commuters and occasional users of the metropolitan mobility backbone. Additionally, to their functional efficiency, smooth articulation, and convenient service, the metropolitan gateways can become referential spaces in the mobile mental map that makes the metropolis intelligible and accessible.

These gateways can also play an interesting role in introducing distinction and reference to the metropolitan edge territories, where national and metropolitan highways intersect, where large bridges connect riverbanks, and where the administrative boundaries are crossed. In this sense, they become landmarks and passage points, conferring a cultural meaning to both to the artefacts and to the territorial jurisdictions that strongly shape today's landscape.

Metropolitan itineraries

Establishing a dialogue with the layer of gateways, the *metropolitan itineraries* are considered as predominantly immaterial constructs, aimed at displaying and suggesting cultural significance to different forms of mobility across the metropolitan landscape. On one hand, and recalling the idea of the parkway, they may be associated with the highways and main roads that are mostly experienced in fast motion, highlighting their potential condition as qualified linear public spaces – from which is possible to have a jump-cut reading and a kinetic perspective of the metropolitan landscape.

On the other hand, they may be organised as roadmaps to be devised and disseminated as thematic itineraries to reveal distinctive sites or sceneries, based on historical, landscape, or social value. As such, they are open to extremely diversified arguments and storylines to performative practices and collective co-creations. These alternative and curated itineraries can become an in-between text that weaves new and unexpected threads of meaning using and activating material, physical public spaces, re-writing the continuously changing palimpsest of the Metropolitan Public Space Network.

Experiences and speculations

Academic forays into design as a research method that explored the MetroPublicNet hypothesis was built upon the various academic courses that were conducted both at the School of Architecture and at the School of Agriculture of the University of Lisbon, as means to foster synergies between didactics and research. This section showcases the key features of courses developed under the MetroPublicNet scope: project design studios, inter-university design workshop collaboration, elective courses, and final master projects, all of which approached public space thematic through various scales, formats, and type of work – site analysis, fieldwork, mapping, planning analysis, narrative and vision development, multi-scale design, etc. – and each involving specific institutional support that could ground the course's subject into the site's specific realities.

By applying the MetroPublicNet hypothesis to various site locations within the LMA allowed for the reconnaissance of this territory as a mirror of its own urban reality of its challenges and materialities. The choice of sites for the different academic experimentations always aimed at introducing complex territorial conditions with the coexistence of large-scale landscape and infrastructural features and multiple forms of urbanisation and land use. Their selection also allowed students to face critical spatial and environmental conflicts requiring complex and comprehensive responses while providing significantly interesting conditions and potential for regeneration and redesign, based on the contextual values and opportunities.

The processes, in its different moments are altogether embedded in the strong relation between interpreting the territory and prospective research-by-design, whose incremental exercises contribute to a free interpretation of possibilities for a Metropolitan Public Space Network, acting as a 'catalogue' that opens up the discussion also in the professional and institutional means of LMA.

Lisbon + Seixal, Axis + Bay design studio

Lisbon + Seixal, Axis + Bay was the motto for the 2020/21 fourth year Urban Design Studio of Lisbon School of Architecture' Master in Architecture, specialisation in Urbanism, in which students were challenged to understand and design a public space system at different scales, as part of a strategic vision to reorganise and qualify Seixal, a complex, highly diverse, and rich territory in the south bank of the Tagus River, opposite to Lisbon.

Lisbon's Metropolitan Area and the Tagus estuary were set as the general frame to understand the structure of its large-scale territorial features in order to identify and explore programmatic and cultural relationships. Along with this territorial reference, two ideas were proposed for the studio's territorial framework: (1) an *axis* that crosses Lisbon and Seixal –connecting the core of the metropolis over the Tagus River and a *cross-section* in which the unique relationship between water and land and the diversity of human settlement and activities can be observed; (2) a *bay* that shapes Seixal – a body of water as the common ground of a complex urban landscape and a mimetic metaphor of the Tagus estuary, as it provides an outstanding landscape, bringing together a range of urban patches of different nature, configuration, and use. These two territorial frameworks provide a synthetical approach to the metropolitan complexity, as they intersect fundamental features of the metropolitan landscape and networks.

A sequence of articulated assignments was developed in three main stages throughout the semester and understood as a methodological approach to the design process (Figure 22.3). For each stage, specific objectives, outcomes, and format were defined:

First stage: MAP + DECODE + INTERPRET – reading and interpreting the site through multi-scale and multi-systemic mapping;

Second stage: REFERENCE + STRATEGY + STRUCTURE – defining a territorial idea and outlining a multi-scale public space structure by assembling relevant paths and sites (a project of projects);

Third stage: DESIGN + ATMOSPHERE + MATERIAL – developing a public space project for a nodal site, coherent with the second stage structure in which the multiple dimensions and systems of public space are explored in tandem with its material features and continuity with the built fabric.

Studio Lisbon: The Trancão floodplains intensive design workshop

Studio Lisbon comprised an intensive six-week design programme as part of the postgraduate courses – Advanced Masters in Human Settlements (MaHS) and Urbanism, Landscape, and Planning (MaULP). This collaboration was organised by the Department of Architecture at KU Leuven, together with the University of Lisbon's School of Architecture, taking place during the Spring semester of 2021/22.

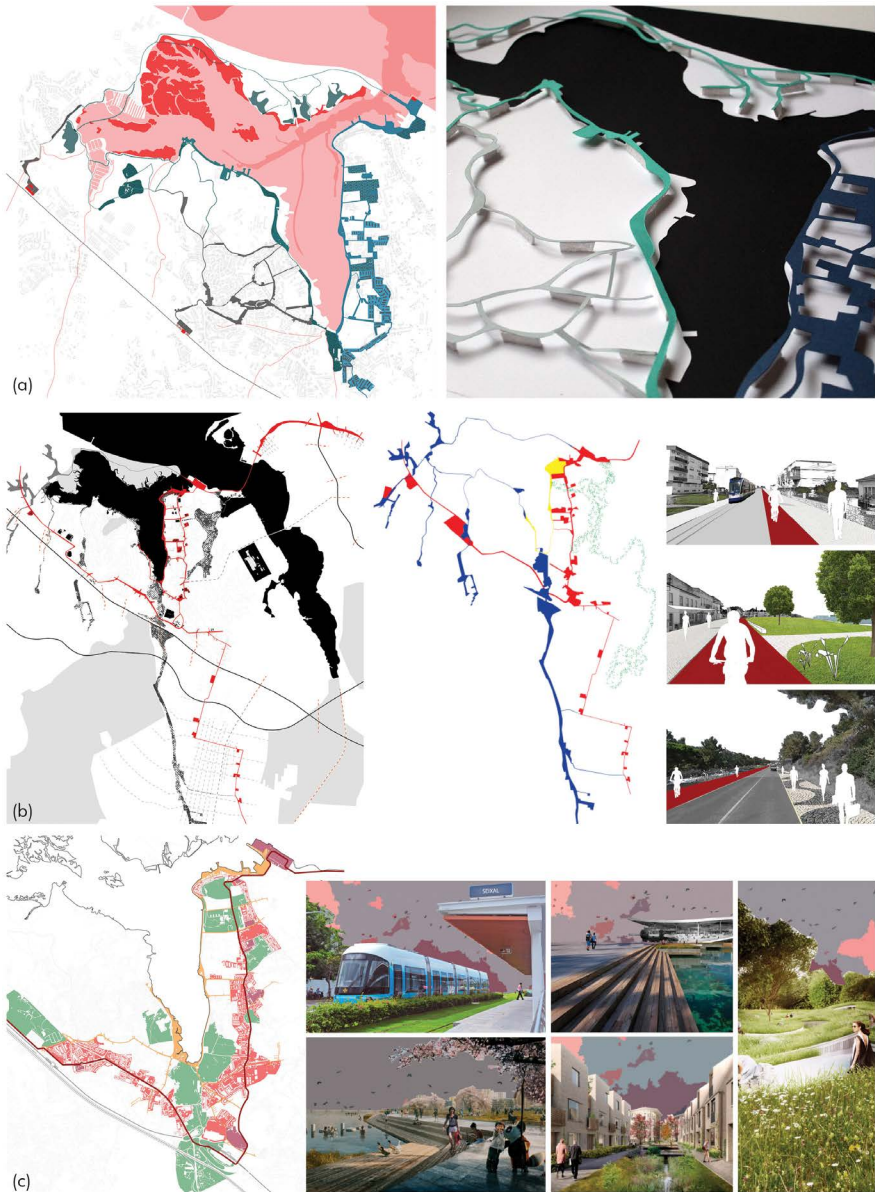


Figure 22.3 Selection of design studio proposals for the Seixal Bay. (a) Anamarija Skobe: Structure plan and model. (b) Francisco Janeiro: structure plan, synthesis, and collages. (c) Eduardo Leitão: structure plan and collages. Academic coordination: João Rafael Santos, Lisbon School of Architecture.

Source: Mentioned students & FA-ULisboa.

During this period, 19 international students from the master's programmes convened at the School of Architecture in Lisbon. They delved into envisioning design possibilities for the LMA near future, guided by broad regional and metropolitan planning frameworks. These endeavours focused on assessing how the Tagus estuary could play a transformative role in confronting the present urban challenges, thereby enhancing the region's resilience and formulating approaches to mitigate the climate crisis (Santos, 2022).

At the start of the studio, participants conducted a territorial analysis of a significant natural landmark – the Trancão Floodplain. Recognising that landscape systems extend beyond administrative borders, the students used a blend of critical examination, interpretive mapping, comprehensive thinking, and a strategic vision for public space networks alongside strategic urban design. The aim was to re-conceptualise the floodplain as an integral component of the LMA, considering the coherent management of its natural and artificial attributes (Figure 22.4).

The execution of the workshop was facilitated by a collaboration agreement between KU Leuven and the University of Lisbon's School of Architecture, which also dovetailed with an opportune moment for its execution. This initiative emerged as a primary academic exchange endeavour within the MetroPublicNet project, promoting collaborative efforts among the two eminent educational institutions. The programme benefitted from the diverse mixture of students, faculty, and institutional support provided by the Municipality of Loures.

Networked public spaces elective course

This elective course was offered to master students in Lisbon School of Architecture and worked as a laboratory to further test the mapping methodology developed under the scope of the MetroPublicNet research. While acknowledging public space complexity, the mapping process engaged with the three rationales associated with the sustainable and integrated use of land and territorial resources: blue and green infrastructure, walkability and active mobility, and neighbourhood's connection and cohesion. Challenging each student to immerse themselves in the assigned case studies – all in the Tejo's south bank – both through fieldwork, aiming at the reconnaissance of the designated public space project (with photographic record, video, and sketches), and through the interpretative mapping of the requalification project. The work was developed individually with group interaction through presentations, discussion on thematic lectures, and guided visits framed within the MetroPublicNet Talk-Walk events. The course aimed at further exploring the adopted mapping method, supporting the students on developing tools for reading, decoding, and interpreting interventions in public space (Figure 22.5); to trigger interest on how to frame public space qualification interventions in the context of contemporary urban production, while reflecting on the systemic and integrating role of the public space and its potential to structure large-scale territorial networks in the LMA.



Figure 22.4 (a) 'Reclaiming the Trancão River mouth' by Noviantari, Samantha Arbotante, Gilles Houben, Jules Descampe (Trancão floodplain location; Trancão Park Masterplan and partial section). (b) 'Revitalising the plateau-valley relation along the Trancão floodplain' by Anagha Pandit, Michelle Valladares, Kshitij Makhija (Infantado urban tissue layout and partial section); Teachers: Wim Wambecq, KU Leuven, and Ana Beja da Costa, Lisbon School of Architecture.

Source: Mentioned students & KULeuven.

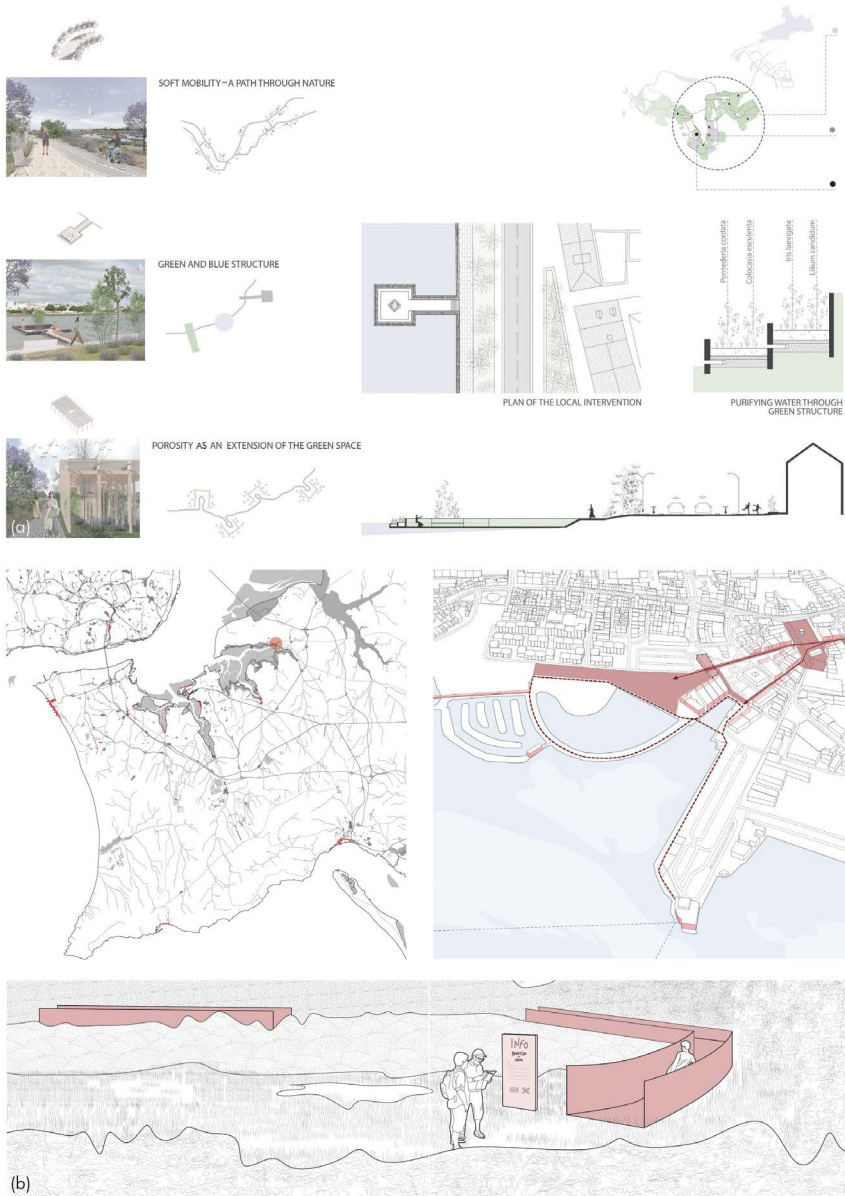


Figure 22.5 Selection for public spaces networked projects. (a) Seixal by Karla-Maria Petrăreanu: Projects location within Seixal Bay; Public space typologies; Green and blue structure public space typology proposal (plan, detail, and section); (b) Montijo by Madeleine Haaland: Site location in the Tagus south bank; Public space network proposal and collage (bottom); Teachers: João Rafael Santos and Ana Beja da Costa, Lisbon School of Architecture.

Source: Mentioned students & FA-ULisboa.

***Exploring the potential of water and soil in a green corridor in Lisbon
Metropolitan Area***

With a Landscape Architecture Master dissertation entitled ‘Water and soil. The use of urban afforestation for territorial reconnection’, Matteo Cappello developed his final master research in close articulation with MetroPublicNet project and under the supervision of Gianni Celestini from La Sapienza University of Rome and Maria Matos Silva from the School of Agriculture of the University of Lisbon.

In this research, it is argued that headwater system areas are among the most critical areas for the promotion of a necessary continuity in such Metropolitan Public Space Network system. These areas, often constituting barriers of all kinds (physical, economic, social, political, etc.), are frequently marginally considered within urban plans, becoming unconnected lost areas that end up hosting situations of environmental neglect. On the other hand, as the source for rivers and streams, headwater areas are crucial in the balance of the hydrologic cycle as they are one of the main areas where rainfall contributes to surface and groundwater. Another fundamental ecological value of headwater areas is the production of soil associated to forestry, which is particularly important when considering the need to enrich the national fertility fund alongside the contemporary urgency for carbon capture.

The proposed research consisted of designing such areas with four different types of forestry configured as a great metropolitan park as well as an ecological infrastructure along the valley of Jamor watercourse – located around 5 km to the west of Lisbon – generating bridges and connections where barriers previously existed. A new public space system that further integrates elements of territorial value, historic buildings, archeology, and existing infrastructures, so that to also re-establish the lost identity and sense of place (Figure 22.6).

An open design process...

The development of potential scenarios in complex metropolitan situations underscores their value as a powerful ‘research by design’ components of a toolbox that acknowledges existing values and resources, aligns strategic operative agendas, and recognises critical factors in many possible combinations.

These scenarios tested the hypothesis of a future Metropolitan Public Space Network using the key steps that are suggested as critical in setting up a cooperative frame of institutional and plural vision: building up a shared imaginary and argument for a given territory, assembling connections and structural linkages to shape a coherent network of spaces, reworking the fundamental layers of the landscape as landmarks and references for the territorial transformation.

In turn, the academic exercises fostered a deeper, less constrained, and diverse engagement with design as an instrument for envisioning a forward-looking public space network in Lisbon and its metropolitan area. Key themes addressed during the curricular units included research motivations; evaluating the concept of a network – contrasting existing infrastructures with prospective designs; pinpointing gaps and devising strategies to bridge them; and adapting to change.

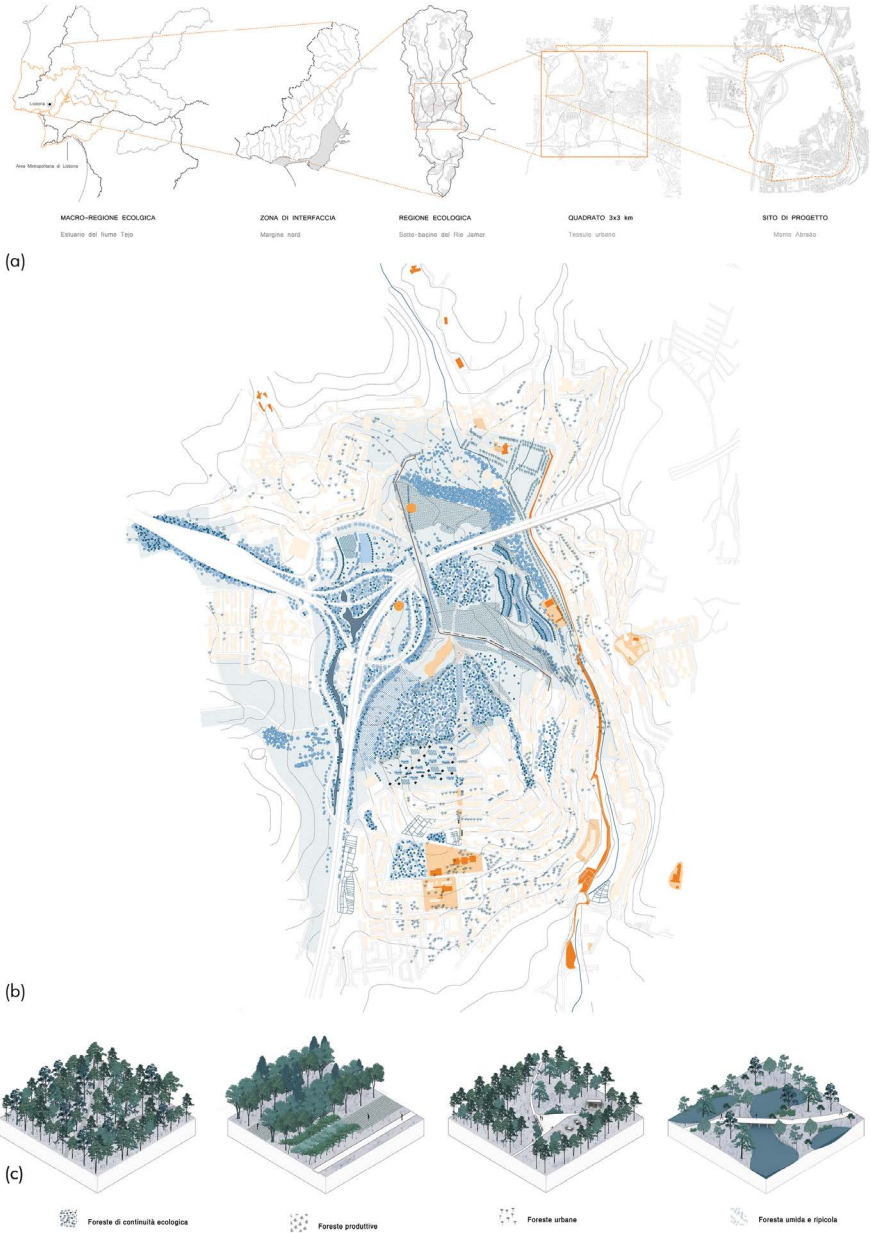


Figure 22.6 ‘Soil and water. Urban forestry as a tool for territorial cohesion’ by Matteo Cappello: (a) Methodological approach to the territory; (b) Masterplan; (c) Forest typologies; Advisors: Gianni Celestini, La Sapienza University of Rome and Maria Matos Silva, Lisbon School of Agriculture.

Source: By Matteo Cappello.

By infusing creativity and a spirit of inquiry into the narrative and visual representation of a public space network, this approach may enhance communication of the research to stakeholders and the wider community but also furnish students — tomorrow's industry experts — with innovative design methodologies and tools for the imaginative creation of public spaces, as means for a Metropolitan Public Space Network piecemeal implementation.

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23 Manifesto for a resilient, cohesive, and cosmopolitan metropolis

*João Rafael Santos, on behalf of
MetroPublicNet Team*

Principles for designing a Metropolitan Public Space Network

Public space is the mirror of our societies and metropolises, a thick palimpsest that remains open to new creative undertakings and resignifications. It is a dialectic canvas on which the tensions of conflictive interests collide to shape the form of our collective living space. Public space integrates ideas, people, technical systems, and ingenuity, but it often becomes a space of exclusion, displacement, and discrimination. Always in construction, it reacts to societal, functional, or environmental dilemmas and contingencies, built on trade-offs and circumstantial opportunities. Its materialisation is the built expression of a complex and layered process of choices and decisions in the face of multiple alternative paths.

In recalling André Corboz's definition of the territory as layered and continuously rewritten product resulting from the interplay between natural and human processes, we, today, echo his perspective that the territory is also a project. It involves the allocation of resources, its criteria, objectives, and responses to social aspirations and the quality of life. Such premises were confirmed as the MetroPublicNet research unfolded, and as the initial premises and rationales of the projects were developed, in a rich knowledge exchange among the team peers, covering a broad range of expertise. Although immersed in an academic frame, MetroPublicNet was also able to navigate between civil society and institutional spheres in a constant dialogue, and in confrontation with the concrete reality of the Lisbon Metropolitan Area (LMA).

Ideally, and as referred to by Oriol Clos, public space is an infrastructure of – and *for* – the metropolis, a project of the political, technical, and cultural plurality.

Grounded in the experience of the past 25 years on the urban qualification delivered throughout LMA and linked with the critical reflection on topical challenges and international expertise presented in this book, this chapter sets forward a conceptual contribution to explore the potential of public space at the metropolitan scale. Drafted as a collective Manifesto, it aims at contributing effectively and positively to global change within and beyond Lisbon. Building on the territorial design toolbox for a 'Metropolitan Public Space Network', the Manifesto suggests ten principles or pathways to move towards a better articulated and cohesive

metropolitan landscape, using public space as a realm for imagination, compromise, and systemic response to our societies' aspirations, demands, and challenges.

These are principles that recognise the biophysical, social, and urban diversity. That acknowledge the values and potential of the existing context. That draw upon accumulated knowledge, planning ideas, and future perspectives, bridging the physical and the cultural, the biological and the social, and the ecological and the inhabitable. Acknowledging the need to build upon specific conditions, these principles claim the central role of cities in the face of the unavoidable challenges that we face at the planetary scale. They can inspire the design of roadmaps towards a future representation of more resilient, cohesive, and cosmopolitan metropolises.

1 **Landscape:** *A layered and intertwined relationship between nature and culture*

The first pillar of a Metropolitan Public Space Network underlines the importance of acknowledging and work on the interdependent and co-produced relationships between the biophysical and the human-shaped systems. The rich cultural landscape that results from a diversity of accumulated forms of urbanisation and territorialisation, through which resources are exploited and linkages created, is an outstanding repository and a potential tool to bridge the natural, the social and the cultural within a spatialised framework. The landscape is not a static scenery but a living fabric in which public space interventions emerge and find their role. Public space can be understood as a fundamental system embedded in the most complex landscapes – those of large and complex metropolises – but essentially as a landscape device of its own, a cultural ecology of human and non-human interactions. Designing public space requires a deep awareness of the landscape figures, patterns, and processes, and a culturally embedded perspective on its continuous fabrication as a civilisational construct.

2 **Continuity:** *Weaving a metropolitan connective fabric*

As the expression of the multiple lines that bring the diverse elements of the metropolitan landscape together, continuity supports its cohesion, systemic flows, and accessibility. A public space network requires working on the continuities, not only in terms of ecological corridors and linear infrastructure but also in fostering a distributed mesh of nodes, permeating through the social fabric and supporting economic activities. Besides linear structures, such as streets, roads, or informal pathways in large open spaces, continuity can also be explored in outstanding water bodies, as the estuaries, bays, and metropolitan rivers, in which taxi boats and other navigation networks, along with the possibility of getting close to and enjoying the contact with the water, can be part of a more continuous territory. A fundamental step to designing beyond a collection of individualised parts requires a particular attention to the connective possibilities that weave the fabric of contemporary metropolitan life.

3 **Green and blue:** *The infrastructure of a biodiverse and resilient metropolis*

Green and blue infrastructure are central to the organisation of a Metropolitan Public Space Network, offering the basic elements of natural and ecological continuity as the reference for structuring a multi-purpose, multi-object, and multi-scalar territorial grid. Not only fundamental supports of biodiversity and

ecological flows, green and blue networks enable multiple activities and forms of fruition and conviviality, while providing adequate infrastructural and health conditions for urban life. Integrating the cycle of water in public space, enhancing the capacity for harvesting, infiltration, retention, or filtration, when and where suited, is an important strategy to better manage increasingly scarce water resources, and to cope with climate change and extreme weather events, while sustaining urban vegetation that offer better environmental quality to public spaces. Revealing natural elements in public space may also be a powerful tool to engage citizenship with a holistic awareness of the metabolic processes and natural cycles that frame planetary life.

4 **Mobility:** *Pedestrian, cycling, and public transport as backbones of metropolitan accessibility*

Seamless, affordable, and effective mobility is a fundamental demand and a social right on which metropolitan life is dependent. When considering the urgency in transitioning to low-carbon and more sustainable forms of transportation, active modes and transit systems are utmost priority cornerstones in future urban development policies. Public space can be a key player in such transition by laying a metropolitan scale pedestrian and cycling mobility system that articulates with the primary public transport infrastructure, forming the backbone of an alternative metropolitan mobility network. As such, metropolitan roads can be redesigned as living spaces, with porous relationships with the built fabric. A well-connected and accessible public space is also an imperative for an inclusive, shared, and cohesive metropolis. For that, the allocation of space for individual transport should be minimised in favour of promoting opportunities and spatial conditions for transit and active modes, well-articulated with convivial activities.

5 **Habitat:** *The metropolis as an inclusive living space*

An equitable and progressive approach to metropolitan design must consider the living space of the majority as a fundamental political responsibility, acknowledging the multiplicity of residential fabrics, and paying special attention to the needs of socially and economically disadvantaged. A quality public space, open for different forms of use, appropriation, and adaptation, where everyone can feel welcomed, can be a tool to act towards more inclusive neighbourhoods. On a larger scale, a metropolitan network of local amenities and of vital streets can be devised in which ground-level shops, trades, and cooperative initiatives may play a role in sustaining a plural and cohesive habitat.

6 **Resources:** *Unlocking potential in existing structures*

In cities in which the 20th-century expansive production of urban space is currently turning to more selective and coalescing transformations in already built-up areas, the resourceful use of existing and underused infrastructure is a potential tool to shape meaningful public spaces. These structures offer multiple opportunities for creative reuse, as they may be linked to relevant territorial nodes, may be charged with interesting layers of historical and heritage value, are often open to unforeseen and unexpected spatial and functional solutions. Interstitial spaces, derelict facilities, or abandoned rail lines can become wild

urban refuges of biodiversity, informal connections in new leisure pathways, or more formal elements of in broader redevelopments. Reclaiming the potential of each case and making it a meaningful part of a territorial system can also be a relevant and cost-effective contribution to the metropolitan circular metabolism.

7 **Time:** *Incremental development with long-term vision*

As the most persistent of all the variables shaping our metropolises, time is an unescapable dimension of public space design with a large territorial outlook. The definition of structural lines and strategic projects to be incrementally developed on a long term, must also be leveraged by the nurturing of experimental, bottom-up, or temporary initiatives. The extraordinary diversity and potential of public space means that it can be shaped not only in scale or type but also as a fundamentally time-modelled entity – in its programming and design but also on its rhythmic activation, everyday maintenance, or flexible adaptation. An evolutionary public space network is continuously being reinvented by the multiple players who imagine, build, and use it. Working on a balance between the long-term horizon, grounded in coherent and committed lines of action, and the shorter-term opportunities and possibilities, responsive to the multiple actors' initiatives, is a key mind-set for a proactive metropolitan public space design.

8 **Multi-scale:** *Back and forth, in-between, from the local to the global*

An engaging public space metropolitan strategy can react both to the multiplying potential of micro-events implemented at local scale and to the large-scale projects that impact strongly throughout a wide area of influence. Acknowledging that public space is often the realm where diverse planning rationales and systems converge, the need to work on the intermediary and the overlapping levels is a fundamental requirement. The same goes for a multi-level governance in which productive dialogue and compromise can be achieved at a consistent metropolitan level institutional and technical platform between local authorities and the national and sectoral bodies of public administration. Such articulation is a key step in achieving an integrated approach that incorporates as many rationales and systems as possible into the planning, design, and financing of projects.

9 **Imagination:** *Design as a catalyst for exploration*

Expanding the process of designing of public space to the metropolitan level is a challenge that overlaps the technical and governance frontiers, as it opens extraordinary opportunities to shape a civic and democratic vision for the future of a highly diverse community. Design and visualisation are powerful tools to build on informed discussion and participation, fostering critical thinking and awareness in identifying resources, expectations, and conflicts. As prospective processes they help in creating shared narratives and imagining multiple scenarios, for which different groups can be brought together – the academy by engaging in research-by-design projects; the schools by promoting public space-related learning environments; writers, artists, and other creators by developing storylines, artistic experiences, and cultural content; and the media and digital platforms to foster interactive communication and sharing of information. These contributions can play a key role in the exploration of transformative

and innovative design solutions, helping in navigating through the often conflictive and bureaucratic procedures of government and spatial planning bodies.

10 **Common ground:** *A metropolis for public life*

More than a spatial and physical network, metropolitan public space can be an open, inclusive, and democratic common ground for public life. Using it as a resource that we can name, a shared project to which one can feel attached and committed can bridge divides and foster a culture of engagement with the territory and a new, fresh, inclusive sense of belonging to a global metropolis. Monitoring and nurturing this network is a demanding task that requires innovative delving into forms of building collective imagination, debate, design, and above all a generous, progressive, and cosmopolitan perspective on contemporary life.

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