



BREAK THE BARRIER: REGAINING THE WATERFRONT OF PORTO VECCHIO IN TRIESTE

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ENGLISH

This thesis investigates the spatial and infrastructural barriers created by historic port expansion along the coastline of Trieste and proposes a strategic framework to reclaim the waterfront of the Old Port area. Like many port cities, Trieste experienced progressive maritime growth that gradually occupied and privatized the coastline, physically and visually separating the urban fabric from the sea. Through a comparative analysis of international waterfront regeneration projects, this research identifies strategies adopted by other cities to transform obsolete port infrastructures into accessible, mixed-use urban districts.

The study includes a chronological diagram of the port's territorial expansion and a barrier analysis of the Old Port, examining physical, infrastructural, and perceptual discontinuities. The research identifies key “breakthrough

ITALIANO

La presente tesi analizza le barriere spaziali e infrastrutturali generate dall'espansione storica del porto lungo la linea costiera di Trieste e propone un quadro strategico per la riconquista del waterfront del Porto Vecchio. Come molte città portuali, Trieste ha vissuto una progressiva crescita marittima che ha occupato e privatizzato la costa, separando fisicamente e visivamente il tessuto urbano dal mare. Attraverso l'analisi comparativa di casi studio internazionali di rigenerazione portuale, la ricerca individua strategie adottate da altre città per trasformare infrastrutture portuali obsolete in distretti urbani accessibili e a uso misto.

Lo studio comprende un diagramma cronologico della crescita territoriale del porto e un'analisi delle barriere presenti nel Porto Vecchio, considerando discontinuità fisiche, infrastrutturali e percettive. L'indagine

points” where reconnection is spatially and functionally feasible. The primary intervention focuses on reconnecting the area in front of the central railway station to the passenger terminal pier, restoring continuity along the waterfront axis. A second strategic node is located near the convention center, where enhanced public access can reactivate the waterfront edge.

Following the opening of the northern and southern edges of the Old Port, the project proposes a deeper urban penetration through green corridors and the extension of the tram line, integrating sustainable mobility and ecological infrastructure. These interventions aim to dissolve the historical port barrier, reconnect the city to its maritime identity, and establish a resilient, accessible, and continuous waterfront landscape.

individua punti strategici di “rottura” in cui la riconnessione risulta più efficace e attuabile. Il primo intervento prioritario riguarda il collegamento tra l'area antistante la stazione ferroviaria centrale e il molo del terminal passeggeri, ristabilendo la continuità lungo l'asse costiero. Un secondo nodo strategico è individuato nell'area del centro congressi, dove il potenziamento dell'accessibilità pubblica può riattivare il fronte mare.

Dopo l'apertura delle parti nord e sud del Porto Vecchio, il progetto propone una penetrazione urbana più profonda attraverso corridoi verdi e l'estensione della linea tranviaria, integrando mobilità sostenibile e infrastruttura ecologica. L'obiettivo è dissolvere la barriera portuale storica, ricucire il rapporto tra città e mare e costruire un waterfront continuo, resiliente e accessibile.

01 — REGAINING THE WATERFRONT: COMPARATIVE CASE STUDIES

1.1 THE PORT AS A BARRIER

Throughout the 19th and 20th centuries, European port cities expanded their maritime infrastructure along the coastline to accommodate industrialization, shipbuilding, and container logistics. This expansion generated economic growth but simultaneously created a rigid physical and functional separation between the urban fabric and the sea. Rail yards, warehouses, customs zones, highways, and security fences gradually replaced public waterfronts.

In recent decades, structural changes in maritime logistics — including containerization and relocation of heavy port activities — have

rendered many inner-harbor areas obsolete. These spaces, once engines of economic production, became voids or barriers within the urban structure. Waterfront regeneration projects emerged as strategic opportunities to re-establish the relationship between city and sea.

The following case studies examine how different Mediterranean port cities addressed this transition, identifying strategies of reconnection, adaptive reuse, and spatial permeability.

1.2 ANCONA

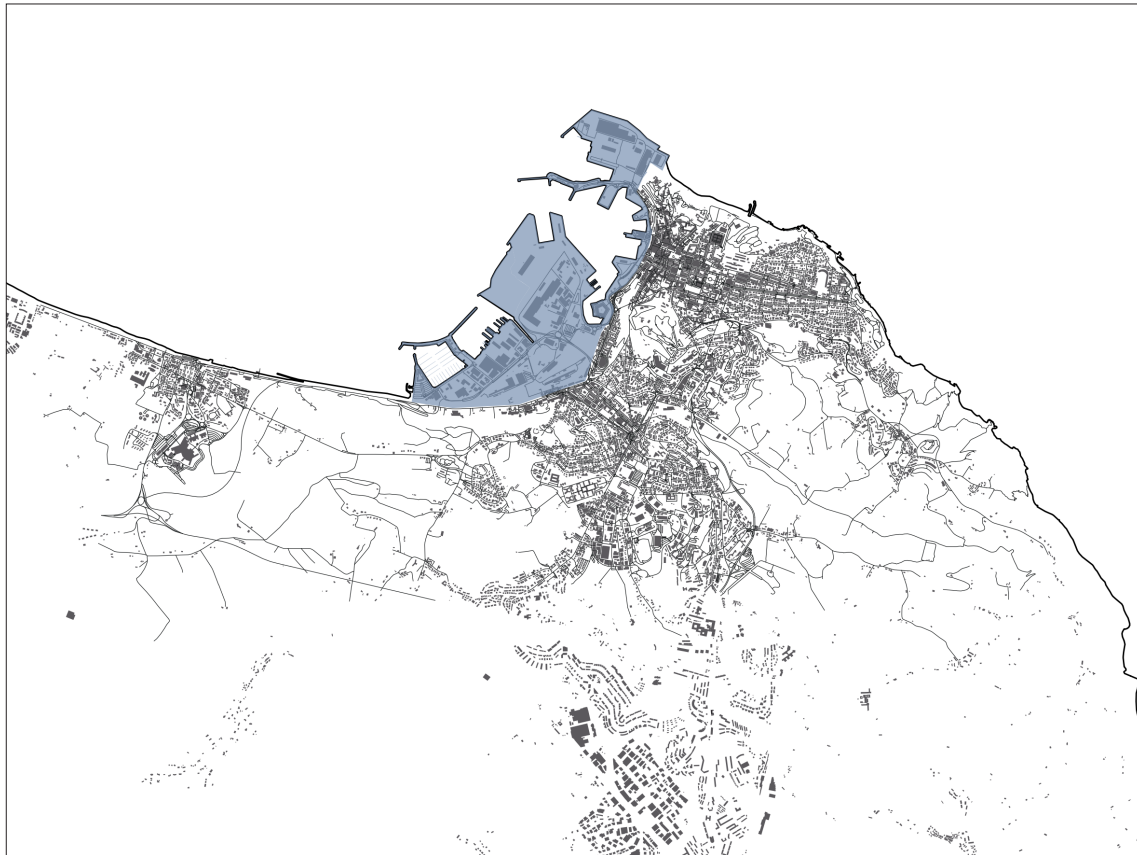


Figure 1. Map of Ancona and the port area. 1:100000

In Ancona, the implementation of the ITI Waterfront initiative has produced several tangible outcomes in recent years. The project has upgraded the public lighting and visual corridors of the Porto Antico, removing obstructive elements to reveal historic sightlines toward Porta Clementina, Arco di Traiano, and the Cathedral of San Ciriaco, and installing energy-efficient lighting along primary pedestrian routes. Additionally, a new small piazza adjacent to Casa del Capitano has been constructed, improving pedestrian connectivity and providing an urban waterfront

viewing point. Ongoing works on Piazza Dante incorporate archaeological preservation with landscape design, integrating historical remains within an expanded public space network that supports pedestrian movement and sea views. Future interventions include the adaptive reuse of an existing port building into a marine research center, further diversifying waterfront uses and reinforcing the integration of landscape, culture, and public life.



Figure 2. Porto Antico waterfront public space and pedestrian quay, Ancona.
Source: Autorità di Sistema Portuale del Mare Adriatico Centrale. (n.d.). Porto Antico di Ancona.



Figure 3. Newly constructed piazzetta connecting Piazza Dante and the old port
Source: www.centropagina.it

As shown in Figure 2, the Porto Antico waterfront is characterized by wide hardscape surfaces and open quays that enable direct public access to the sea. The preservation of historical landmarks such as the Arco di Traiano reinforces the waterfront as a layered cultural landscape where heritage and contemporary public space coexist.

In Figure 3, the newly completed Piazzetta della Casa del Capitano introduces a refined public open space that foregrounds both historic architecture and remnants of the Roman port. The design strategy uses paving geometry, raised planting beds with

integrated seats, and layered lighting to define spatial hierarchies and frame views toward archaeological elements. The repositioned pedestrian walkway and connector staircase enhance accessibility between Piazza Dante, Lungomare Vanvitelli, and the Porto Antico, resolving significant changes in elevation while strengthening the visual and physical continuity of the waterfront landscape. This intervention represents the initial built outcome of the broader ITI Waterfront regeneration program and exemplifies how landscape design can mediate between heritage, urban circulation, and public experience.

1.3 BARCELONA



Figure 4. Map of Barcelona and the port area. 1:100000

Barcelona represents one of the most influential examples of waterfront regeneration in Europe. Prior to the 1992 Olympic Games, industrial port activities and railway infrastructure isolated the city from the sea.

The redevelopment of Port Vell transformed obsolete docks into a mixed-use waterfront district, introducing promenades, cultural institutions, leisure facilities, and public beaches. Major infrastructural barriers were removed or buried, allowing continuous pedestrian access along the coastline.

Barcelona's approach demonstrates the power of large-scale strategic transformation, where global events catalyzed urban restructuring. The project emphasizes continuity of public space and strong urban-maritime identity, offering a model of complete spatial reintegration.



Figure 5. Photo of Port Vell

The transformation of Barcelona's Port Vell illustrating the transition from a "closed" industrial port to an "open" social infrastructure. Initiated for the 1992 Olympic Games, the project's primary landscape strategy was the systematic removal of physical and visual barriers—specifically the subterranean relocation of the Ronda Litoral coastal highway—to restore the city's historical and ecological dialogue with the Mediterranean.

The renewal scheme for Port Vell involved several key interventions, implemented in different phases over the years:

1. Removal of Industrial Facilities: Outdated industrial structures were demolished to make way for new developments and free up the waterfront.

2. Redesign of Marina and Breakwaters: The marina was reconfigured, expanding the capacity for luxury yachts, and improving the infrastructure to accommodate international boating events. The area was also redesigned to enhance coastal protection and accessibility. The renewal scheme sought to reconnect the waterfront with the city, creating a more accessible and integrated urban environment that enhances the quality of life for residents and visitors. Neighbourhoods and parks were set up with direct access to this area, enhancing the liveability.

3. Creation of Public Spaces: Extensive public spaces, including promenades, parks, and plazas, were developed to provide residents and visitors with opportunities for leisure, recreation, and social interaction.

4. Cultural and Recreational Attractions: Iconic landmarks such as the Maremagnum leisure complex, the Barcelona Aquarium, and the Imax Cinema were added to enhance the cultural and recreational offerings of Port Vell.

5. Easier access to the waterfront: by pushing the B-10 highway underground, increasing pedestrian friendly routes. Pedestrian bridges between the port areas were also constructed.

6. Economic Revitalization: This project was made with economic growth in mind. Through attracting tourism, investment, and job opportunities related to maritime activities, leisure, and hospitality industries an economic boom of the area can be achieved.

7. Preservation of Heritage: While some of the area became modernised, efforts were made to preserve and showcase the port's historical and cultural heritage, ensuring that its significance as a maritime gateway is acknowledged and celebrated. Some key buildings were preserved and reused.

1.4 GENOVA



Figure 6. Map of Genova and the port area. 1:100000

Genoa's historic port was redeveloped beginning in the 1990s, led by architect Renzo Piano. The intervention preserved the maritime character while inserting new public and cultural functions, including the Aquarium and exhibition spaces.

Rather than erasing industrial memory, the project reinterpreted it. Cranes, docks, and warehouses became part of the architectural language. Public platforms were inserted between existing structures, creating permeability without destroying identity.

Genoa teaches the importance of heritage reinterpretation: transformation can emerge from adaptation, not demolition. The port's industrial scale becomes a spatial resource rather than an obstacle.



Figure 7. Photo of old port of Genova

The redevelopment of Porto Antico in Genova focuses on reinterpretation rather than replacement. The historic harbor area, once central to maritime trade, had become obsolete due to the relocation of container activities.

The intervention preserves the industrial morphology of the port, maintaining cranes, docks, and warehouse structures as defining spatial elements. New cultural facilities, such as exhibition halls and the aquarium, are inserted within the existing framework. Rather

than erasing the industrial scale, the project adapts it to contemporary public use.

The design strategy emphasizes permeability through the insertion of pedestrian platforms and open plazas between historic structures. The waterfront becomes accessible without losing its maritime character. The project demonstrates that regeneration can operate through adaptive reuse and architectural precision, transforming former infrastructure into civic identity.

1.5 MÁLAGA

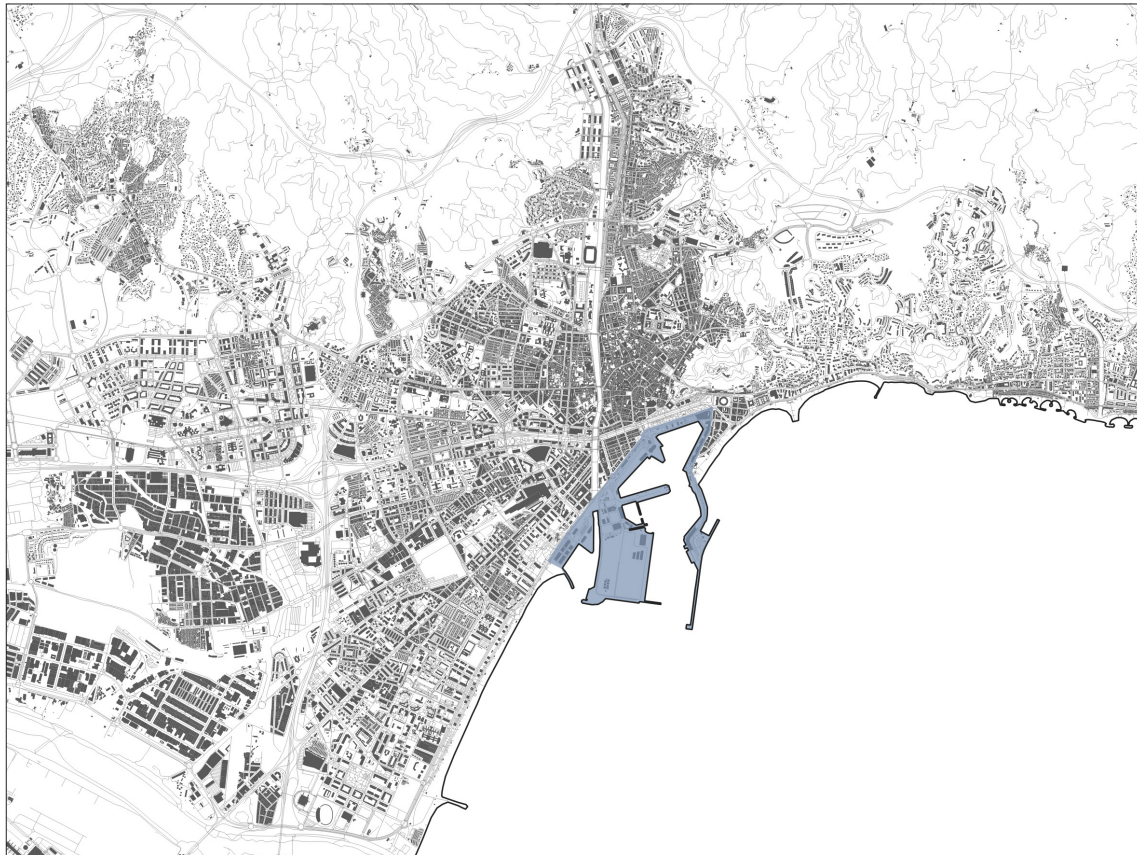


Figure 8. Map of Málaga and the port area. 1:100000

Málaga's Muelle Uno project transformed a former port area into an open commercial and cultural promenade. The intervention focused on direct pedestrian access from the historic center to the waterfront.

Light architectural insertions, shaded walkways, and visual corridors reestablished continuity between city and sea. The project demonstrates how relatively minimal structural intervention can significantly alter perception and accessibility.

Málaga highlights the effectiveness of targeted permeability — identifying key access points where breaking the barrier produces immediate spatial impact.



Figure 9. Photo of Málaga port



Figure 10. palmeral sorpresas

The Muelle Uno redevelopment in Málaga is characterized by its focused and strategic approach. The project targets a specific segment of the port-city edge, creating a direct pedestrian link between the historic center and the waterfront.

The intervention introduces a linear promenade with commercial and cultural activities, supported by lightweight architectural elements that maintain visual continuity with the sea. Rather than implementing large-scale restructuring, the project works through

spatial clarification — reorganizing circulation, reducing vehicular dominance, and enhancing walkability.

This targeted opening alters the perception of the port boundary. What was once a restricted and inactive edge becomes a vibrant public space. The project illustrates how relatively modest spatial operations can produce significant urban impact when strategically positioned.

1.6 MARSEILLE

RECONSTRUCTING THE WATERFRONT AS AN OPEN URBAN LANDSCAPE



Figure 11. Map of Marseille and the portal area. 1:100000

Marseille's Euroméditerranée project represents one of the largest urban regeneration operations in Southern Europe. The redevelopment restructured former industrial and port areas through a long-term, phased strategy combining housing, offices, cultural institutions, and public spaces.

Infrastructure was reorganized to reconnect fragmented neighborhoods, and large public promenades were introduced along the waterfront. Unlike short-term interventions, Marseille demonstrates the importance of

phased territorial restructuring, integrating economic development with spatial reconnection.

The project shows how regeneration can operate simultaneously at metropolitan and local scales.

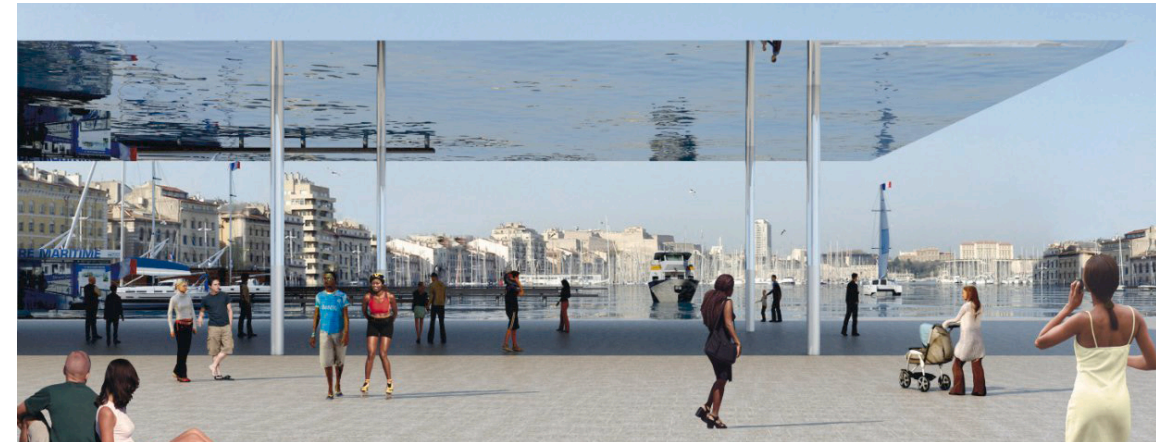


Figure 12. Discreet pavilions

02 — TERRITORIAL FRAMEWORK

2.1 THE RELATIONSHIP BETWEEN PORT, CITY, AND LANDSCAPE

At the urban scale, Trieste is characterized by a strong topographical structure. The city develops between the Adriatic Sea and the Karst plateau, producing a linear morphology compressed between water and hills. The coastline operates as both the city's front façade and its infrastructural backbone.

The port areas occupy a significant portion of this narrow coastal strip. Historically, maritime expansion extended progressively northward and southward, occupying flat reclaimed land and reinforcing the linear separation between urban fabric and sea. Rail infrastructure, highways, and storage zones consolidated this separation, transforming the waterfront into a continuous infrastructural corridor.

The territorial map reveals three primary elements:

- the compact historic city,
- the extensive port surfaces along the coastline,
- and the natural landscape of the Karst hinterland.

The Old Port lies precisely at the intersection of these three systems. It represents a hinge condition — neither fully industrial nor fully urban. This intermediate status positions it as a strategic area where territorial, infrastructural, and landscape systems converge.

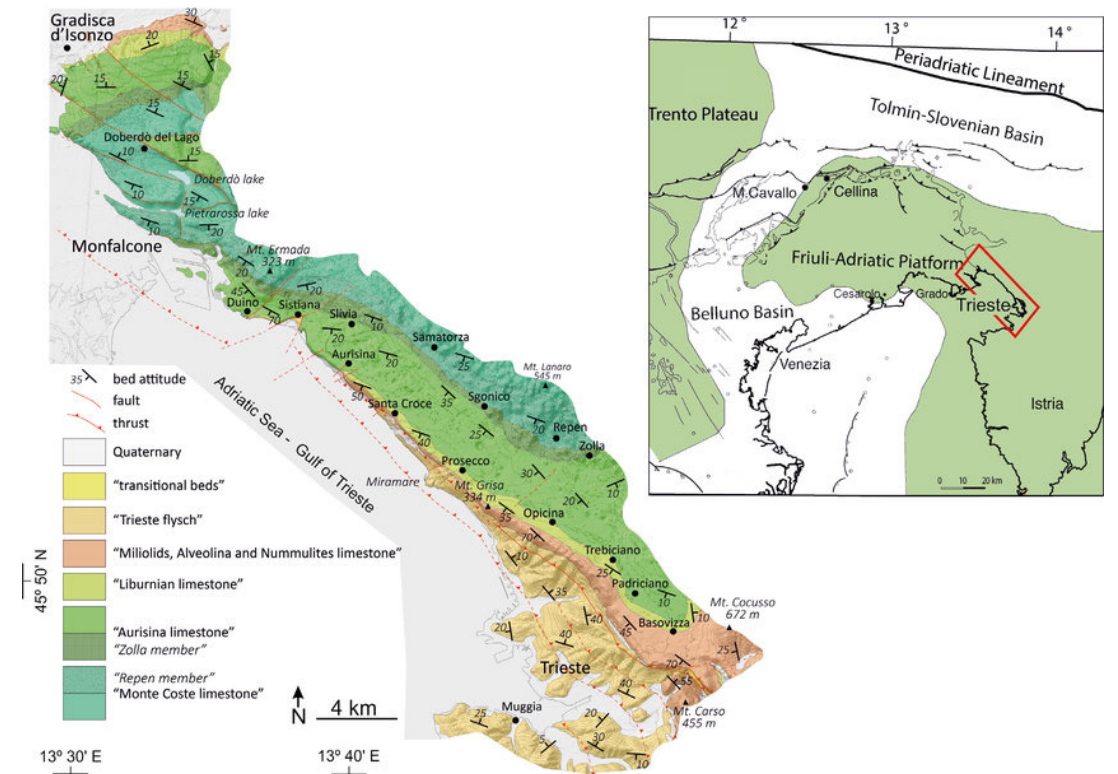


Figure 13. Geological map of the Italian Karst

At the urban scale, Trieste's morphology is strongly influenced by the Karst plateau. This limestone plateau rises sharply behind the city, limiting expansion inland and producing a narrow coastal strip where the historic city and port coexist. The topography compresses urban development along the waterfront, reinforcing a linear form. Slopes and cliffs constrain mobility and street patterns, concentrating circulation along the narrow corridor between sea and hills. This linearity amplifies the physical and perceptual presence of the port infrastructure along the waterfront, making it more dominant and harder to integrate into the urban fabric.

The Karst plateau also influences land use and ecological conditions. Its rocky terrain reduces opportunities for inland expansion, meaning that green corridors and public spaces must be creatively integrated between existing urban blocks and port areas. Additionally, the plateau acts as a natural backdrop and visual boundary, enhancing the prominence of the waterfront. The contrast between the elevated, rugged Karst landscape and the flat port surfaces creates a strong visual and spatial hierarchy that can be leveraged in

regeneration projects to frame views, reinforce public spaces, and orient circulation.

A territorial mapping of the region highlights three main components: the compact historic city, the expansive port surfaces along the waterfront, and the Karst plateau forming a steep natural edge. The Old Port occupies a central position at the intersection of these elements. Its location between the train station, passenger terminal, and other urban nodes gives it high potential for reconnection, despite its current barrier condition.

The large-scale map shows the dominance of port infrastructure over the coastline and emphasizes fragmented access to the waterfront. It also identifies opportunities for intervention, including key nodes for opening access and potential green corridors linking inland areas, the Karst slopes, and the sea. At this scale, the Old Port is not merely a local urban problem; it is a strategic territorial hinge whose regeneration can influence the relationship between city, port, and regional maritime network, while also establishing stronger visual and ecological connections to the surrounding Karst landscape.

2.3 THE BIG MAP: PORT, CITY, AND SURROUNDING SURFACE

The large-scale mapping highlights the spatial proportions between port areas and urban fabric. When visualized at the metropolitan scale, the port surfaces appear as dominant horizontal fields along the coastline, contrasting with the compact vertical density of the historic city.

The map emphasizes several critical observations:

The port forms a continuous linear barrier along the waterfront.

Major rail and road infrastructures reinforce this edge condition.

Public access to the sea is fragmented into isolated segments.

The Old Port occupies a central yet enclosed position between the train station and active port terminals.

At this scale, the issue is not merely architectural but territorial. The barrier is systemic: it is embedded in infrastructure, logistics, and land ownership patterns.

However, the mapping also reveals opportunities. The proximity of the train station, the passenger terminal, and the convention center indicates potential nodes of reconnection. The surrounding landscape — particularly the Karst plateau — suggests the possibility of ecological corridors linking inland green systems to the waterfront.

The territorial reading therefore reframes the Old Port not as an isolated brownfield, but as a strategic hinge within a larger Adriatic network. The regeneration project becomes a process of rebalancing spatial hierarchies: reducing infrastructural dominance, restoring public continuity, and re-establishing the coastline as civic landscape.

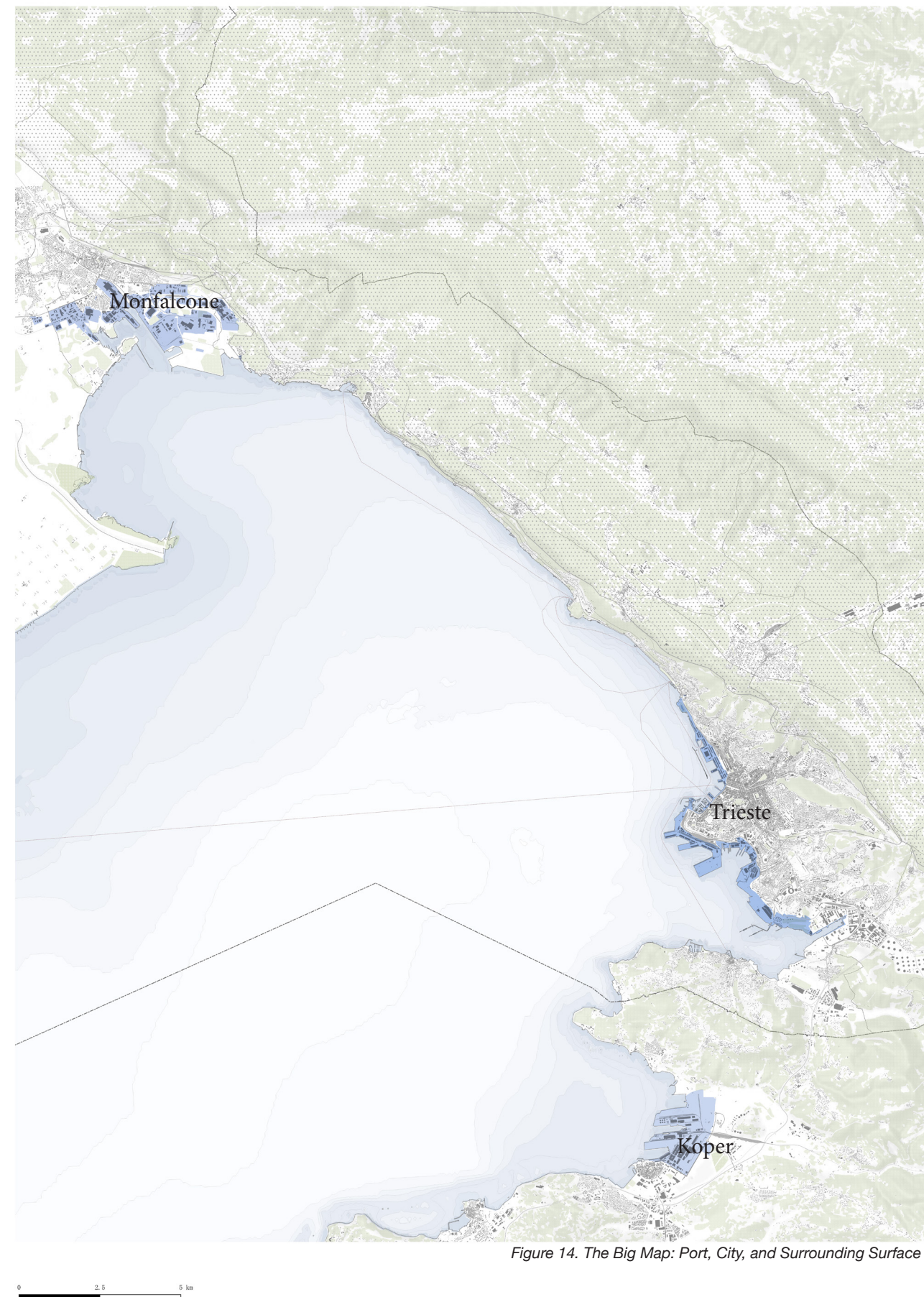


Figure 14. The Big Map: Port, City, and Surrounding Surface

03 — THE GROWTH OF THE PORT OF TRIESTE

3.1 HISTORICAL DEVELOPMENT OF THE PORT AREA

The old port of Trieste was developed between 1867 and 1887 as a monumental maritime infrastructure project driven by the Austro-Hungarian Empire, designed to support rapidly growing commercial traffic and the city's strategic role as a free port.

The development was initiated after the opening of the Suez Canal in 1869, which exponentially increased trade flows between Europe, the Middle East, and Asia, and necessitated a larger, modern port capable of handling freight transshipment and railway connectivity.

The site was chosen adjacent to the newly built Ferrovia Meridionale (Southern Railway), recognizing the urgency to efficiently transfer goods between maritime and rail modes. This integration of rail and port functions was central to the original design approach and remains one of the defining characteristics of the area's spatial organization.

The project was technically challenging, requiring extensive land reclamation and dredging, construction of five parallel piers, and an 1,100-meter long protective breakwater to create safe basins for cargo handling.

Once completed, the Porto Vecchio covered roughly 66 hectares, extended between the Canale di Ponterosso and the Barcola area, and included 3,100 meters of quays, numerous large warehouses and hangars, a hydrodynamic power station, and electric substation facilities — all connected to the

origins as a small medieval harbor to its current configuration. The first major enlargement occurred in the late 19th century with the construction of Porto Vecchio between 1868 and 1887. This phase established a modular layout of rectangular basins and finger piers (Moli 0–IV), integrated with warehouses and rail connections, reflecting a modern industrial port design. From the 1890s to the early 20th century, the port extended southward with the development of Porto Nuovo, characterized by long linear quays to accommodate larger vessels and increasing maritime traffic. During the 1920s and 1930s, further expansions added specialized infrastructure, including the Stazione Marittima passenger terminal, separating cargo and passenger operations.

Between the 1950s and 1970s, the port underwent industrial expansion, shifting operational focus southward. Deep-water industrial platforms were constructed at Molo VII for oil terminals and at Servola for bulk and steel-related cargo, incorporating pipelines, open yards, and deep-water berths. This period marked the transition from a compact, warehouse-based port to a large-scale industrial hub. In the 1980s and 2000s, the port adapted to containerization, adding container terminals, Ro-Ro facilities, and extensive storage areas, further concentrating commercial operations away from the historic city center. By the 2010s, Porto Vecchio was decommissioned for active port use and became the focus of urban regeneration, while southern industrial areas continued to host the main port functions.

The Port of Trieste has undergone a series of expansions and transformations from its

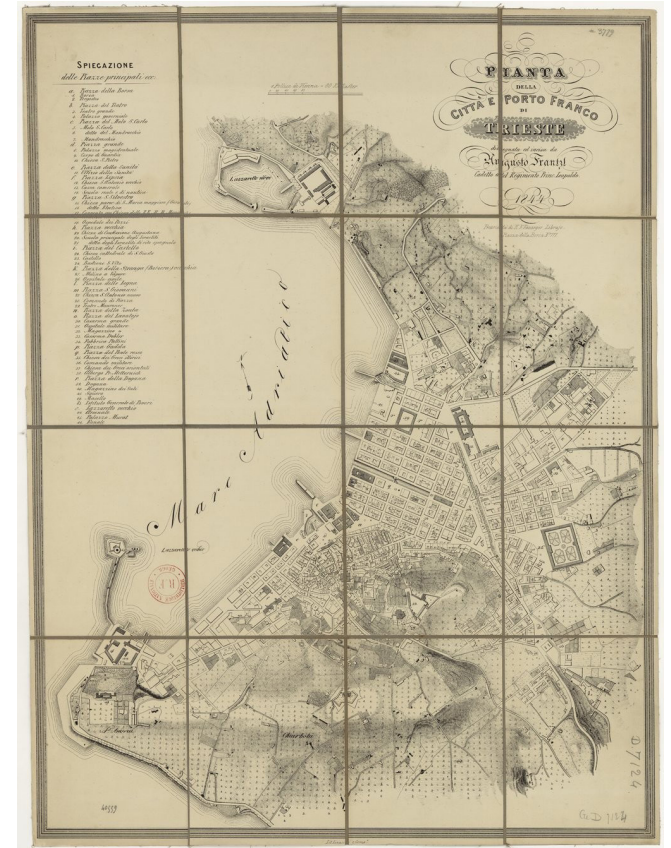


Figure 15. Historical Map of Trieste, 1844

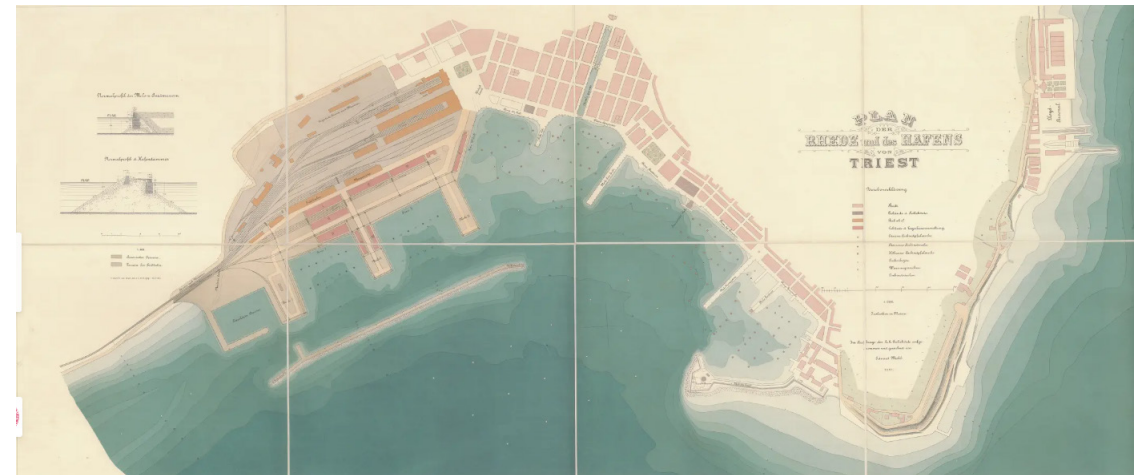


Figure 16. Historical Map of Trieste, 1881

3.2 DIAGRAM OF PORT EXPANSION OVER TIME

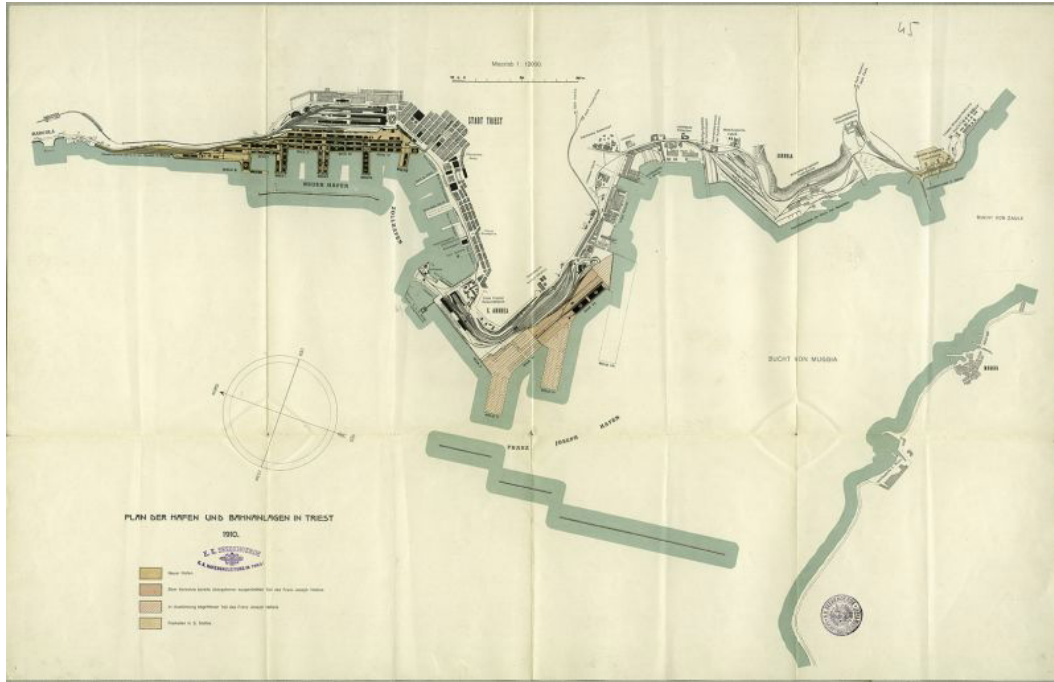


Figure 17. Historical Map of Trieste, 1910

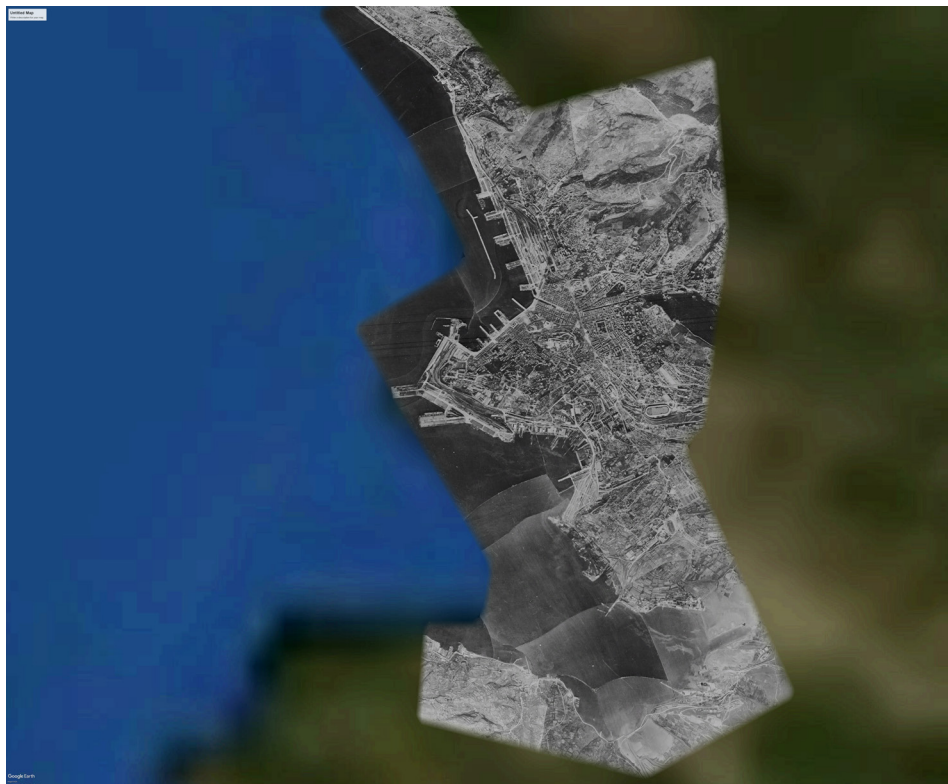


Figure 18. Historical satellite image of Trieste, 1943

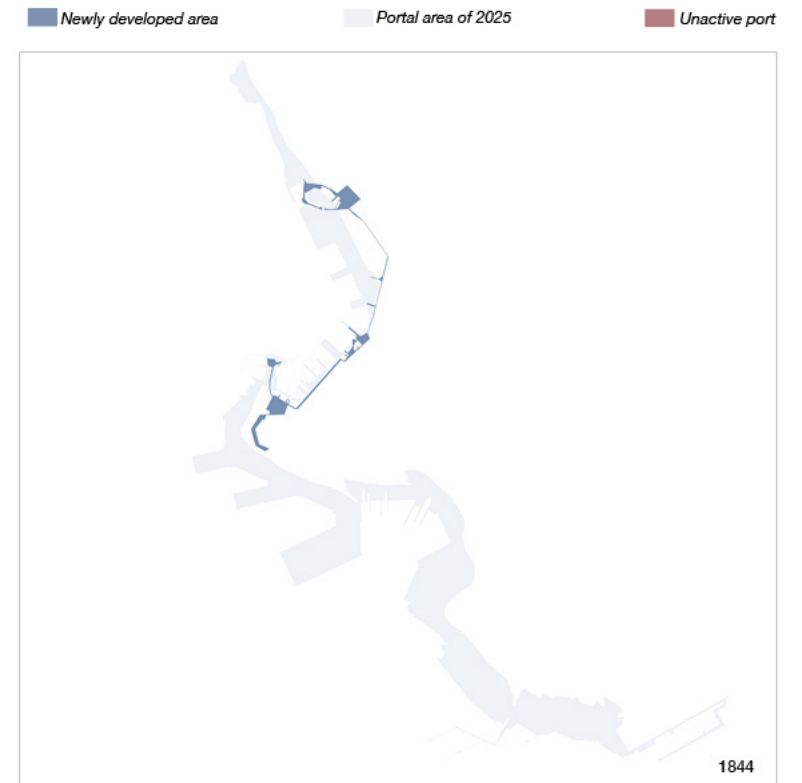


Figure 19. Diagram of port of Trieste, 1844



Figure 20. Diagram of port of Trieste, 1881

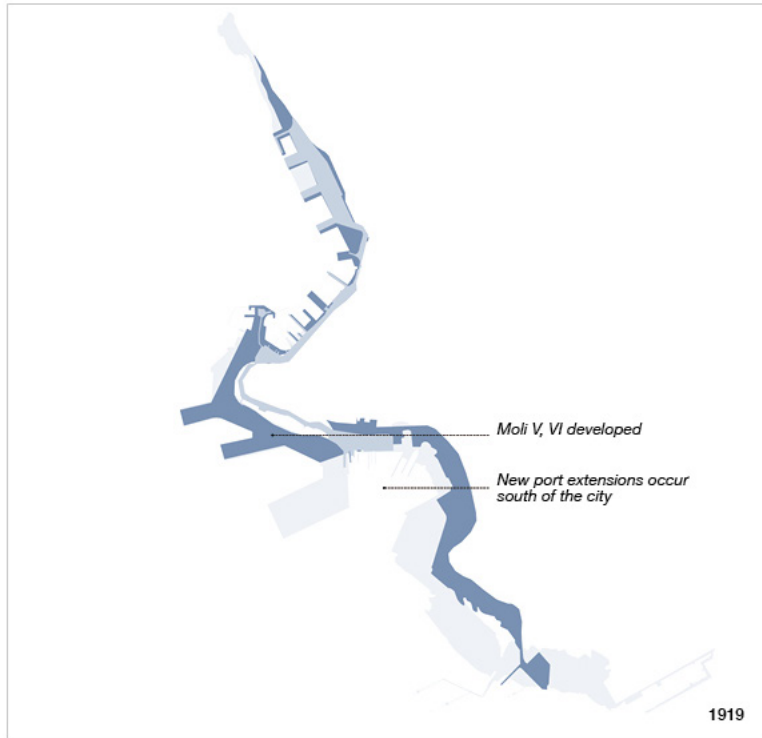


Figure 21. Diagram of port of Trieste, 1919

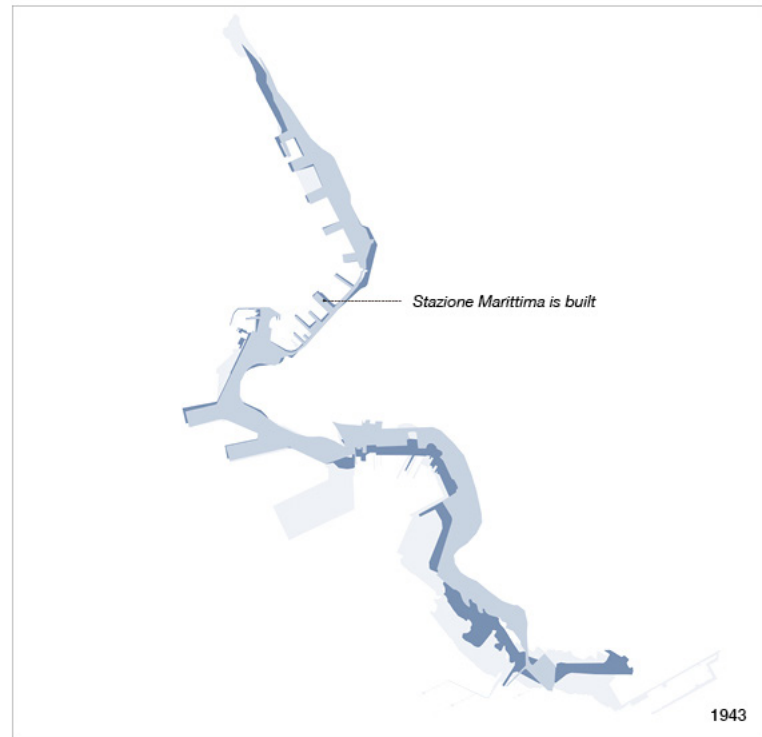


Figure 22. Diagram of port of Trieste, 1943

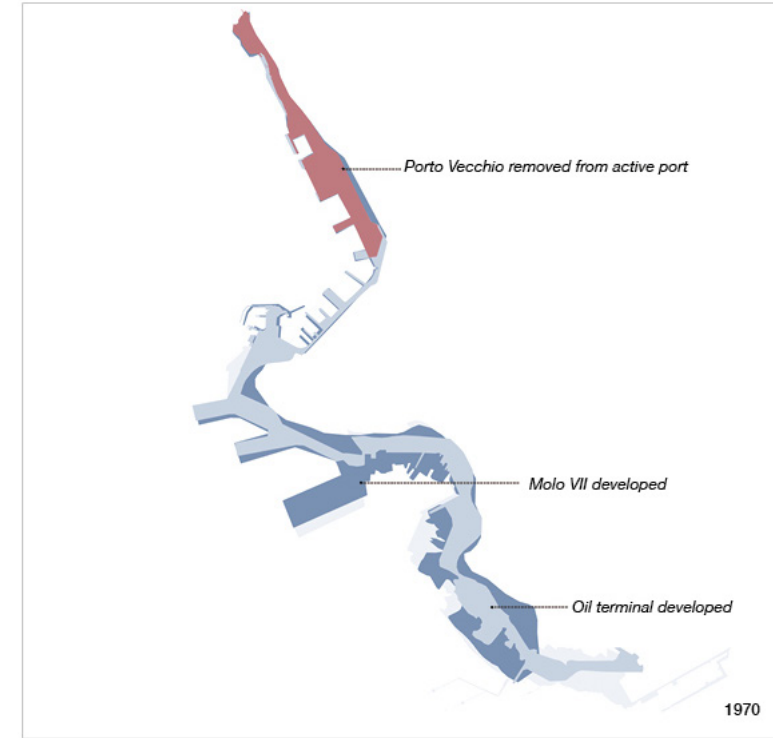


Figure 23. Diagram of port of Trieste, 1970



Figure 24. Diagram of port of Trieste, 1993

3.3 PROGRESSIVE OCCUPATION OF THE COASTLINE

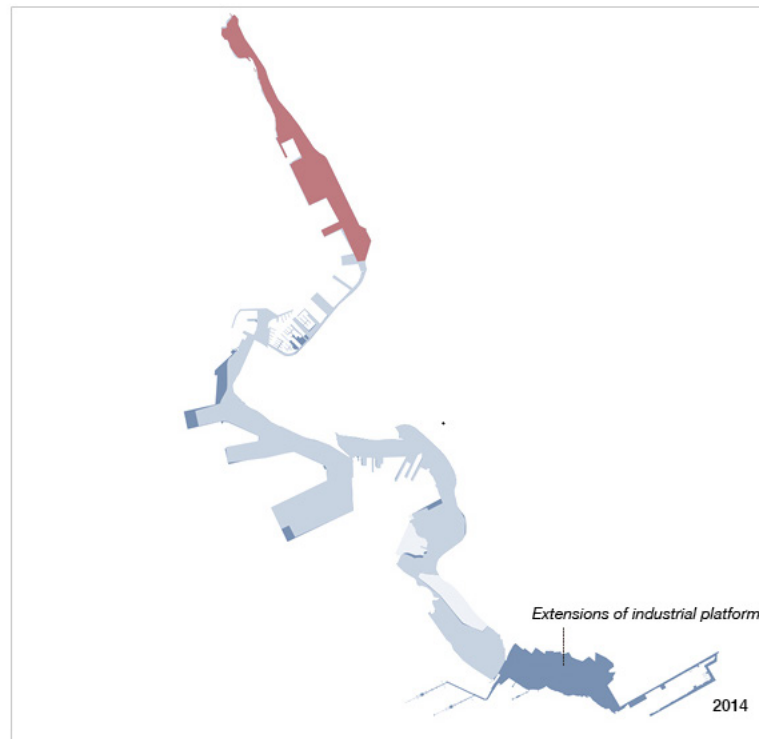


Figure 26. Diagram of port of Trieste, 2014

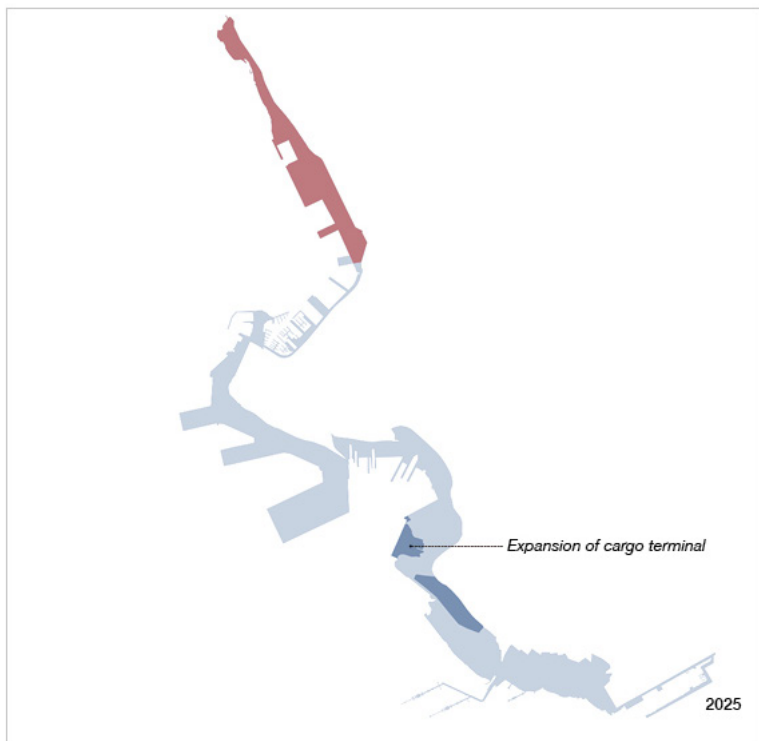


Figure 26. Diagram of port of Trieste, 2025

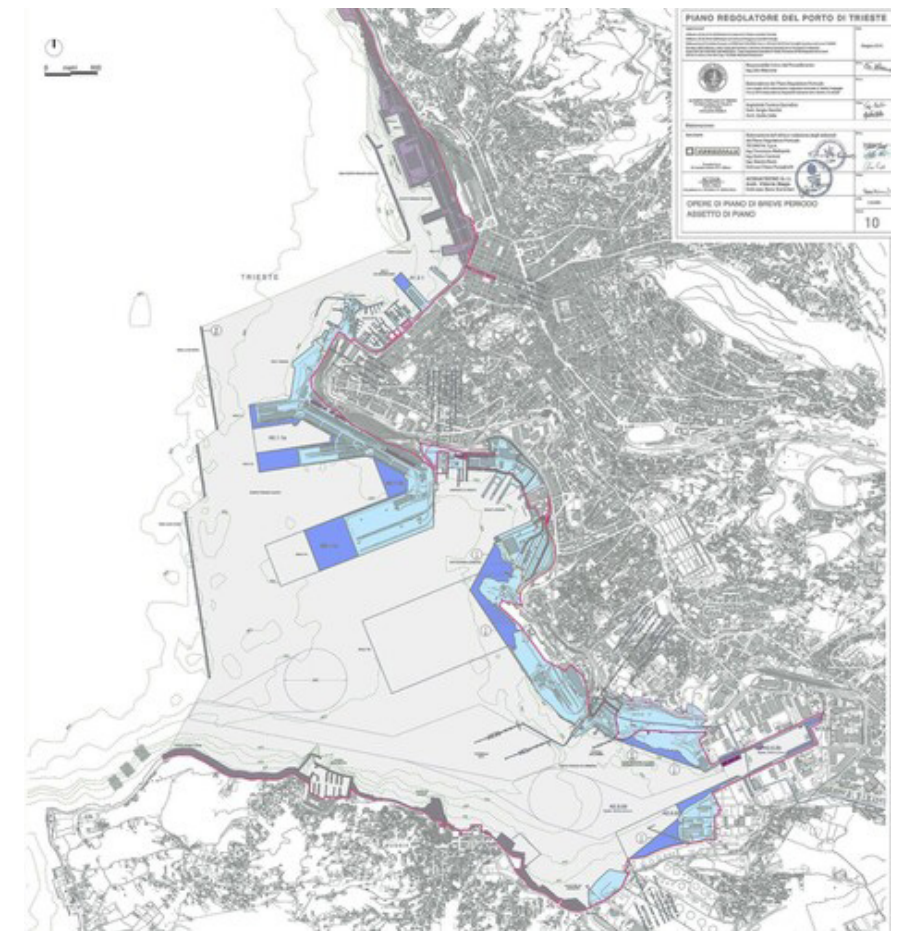


Figure 27. The Regulatory Plan for the Port of Trieste, approved in 2016

After 2010, Porto Vecchio began to attract renewed attention from scholars, planners, and city institutions due to its combination of strategic location, historical value, and post-industrial potential. Several spatial conditions triggered this shift:

Vacancy and underuse of large warehouses and former industrial facilities, especially those not functioning within contemporary logistics.

Fragmented public access, with only a few points allowing visual or pedestrian connection to the water.

Increasing recognition of the port's industrial heritage value, including historic warehouses, the hydrodynamic power station, and the early

20th-century electrical substation.

Growing interest in waterfront development internationally, stimulated by successful port-city reconnection projects in other European cities.

Municipal policy documents and strategic planning initiatives began to frame Porto Vecchio not only as a logistics domain, but as a regeneration opportunity that could reconfigure the port-city interface. The official "Porto Vecchio / Porto Vivo" programme (Comune di Trieste, 2019–2025) positions the old port as a public and civic frontier, reconnecting the city to the sea through green infrastructure, pedestrian mobility, and adaptive reuse of heritage buildings.

04 — BARRIER ANALYSIS: THE OLD PORT OF TRIESTE

4.1 DEFINING THE BARRIERS



Figure 28. The photo of Porto Vecchio



Figure 29. The photo of Porto Vecchio

The barriers between the city and the port are not solely physical fences. They are formed by a combination of:

1. Large Infrastructure Elements

- Rail tracks, cargo roads, and service lanes create linear

- separations along the coastline.
- The width of transport corridors, especially near the passenger terminal and freight yards, interrupts pedestrian continuity and visual connection to the water.
- Industrial and Logistical Areas



Figure 30. The photo of Porto Vecchio



Figure 31. The photo of Porto Vecchio

- 2. Large warehouses, container yards, and storage areas occupy wide swaths of the port, restricting access and reinforcing the perception of a closed zone.
- Many of these areas are partially or fully underused, creating vast surfaces that isolate the city from

- the waterfront but offer potential nodes for intervention.
- Topographical and Visual Gaps
- Slight changes in elevation, retaining walls, and quay levels create discontinuities in sightlines between city streets and the sea.

4.2 CROSS-SECTIONAL OBSERVATIONS



Figure 32. The photo of Porto Vecchio

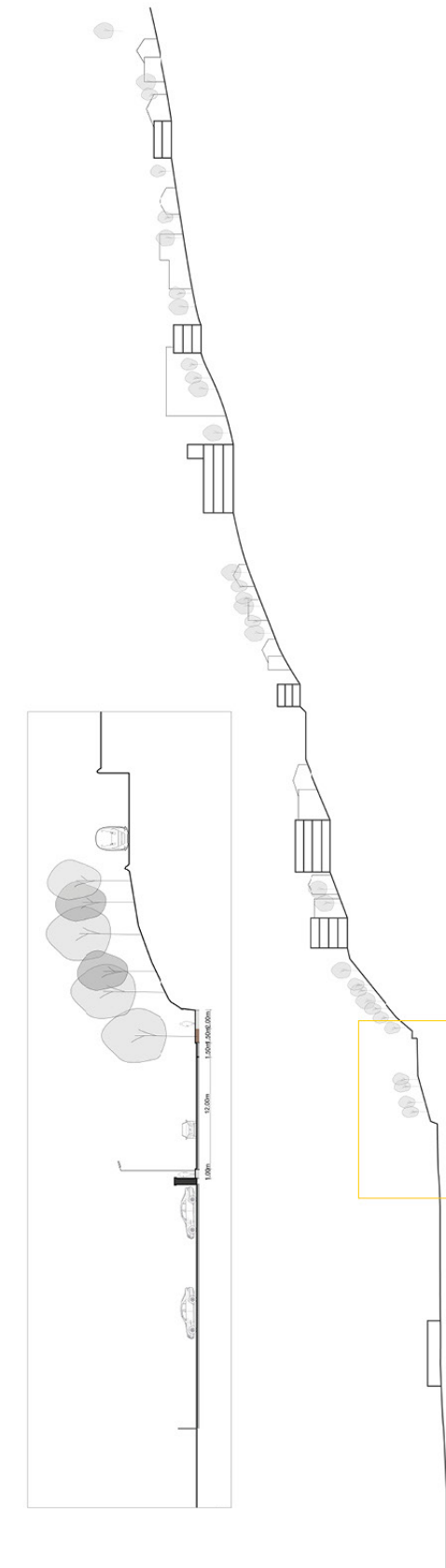


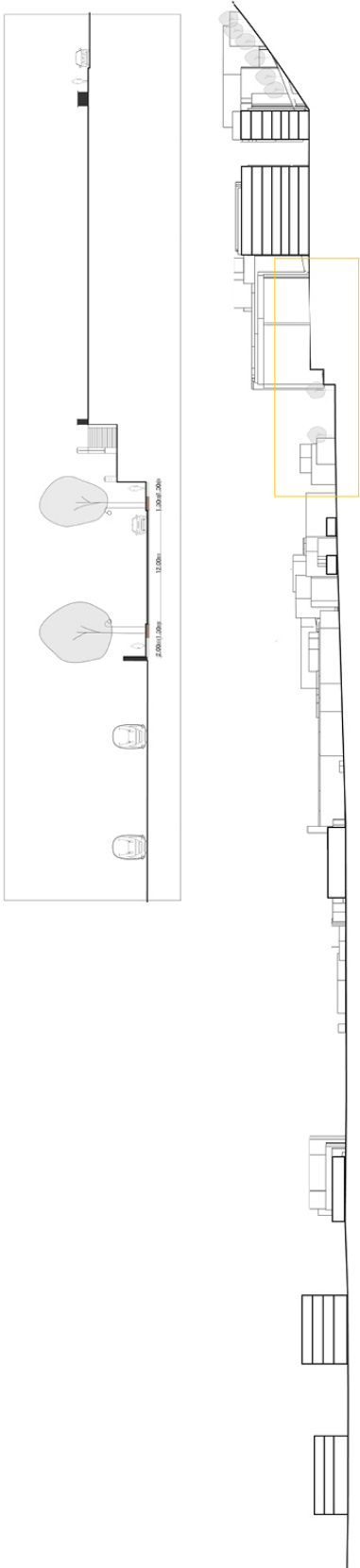
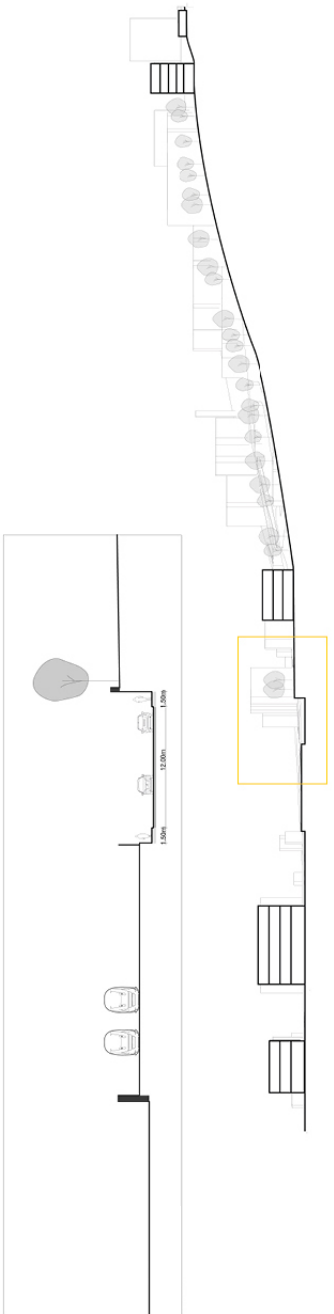
Figure 33. The photo of Porto Vecchio

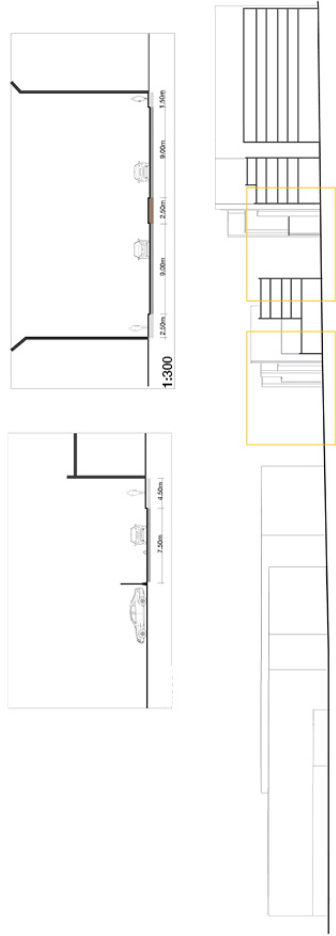
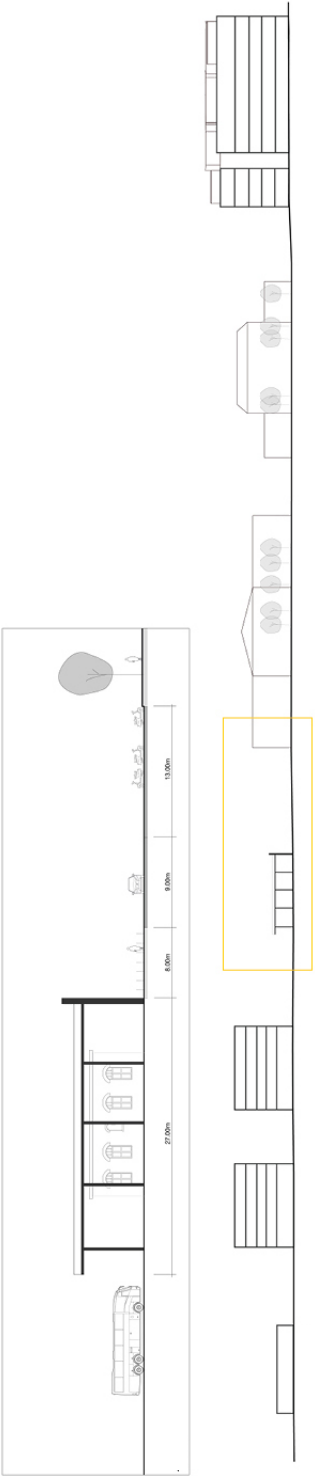
3. The orientation and scale of port buildings further reduce visibility, especially in older warehouse clusters.

- Functional Segregation
- Active port operations demand controlled access, fencing,

- and security zones, reinforcing physical separation.
- The separation of freight, passenger, and logistical operations along the waterfront fragments the urban edge and limits public permeability.







4.3 SYNTHESIS OF BARRIERS AND OPPORTUNITIES AND IMPLICATIONS FOR DESIGN

- 5.1 Opening the Northern Access: Train Station – Passenger Terminal Axis
- 5.2 Opening the Southern Access: Convention Center Waterfront
- 5.3 Establishing Two Green Corridors

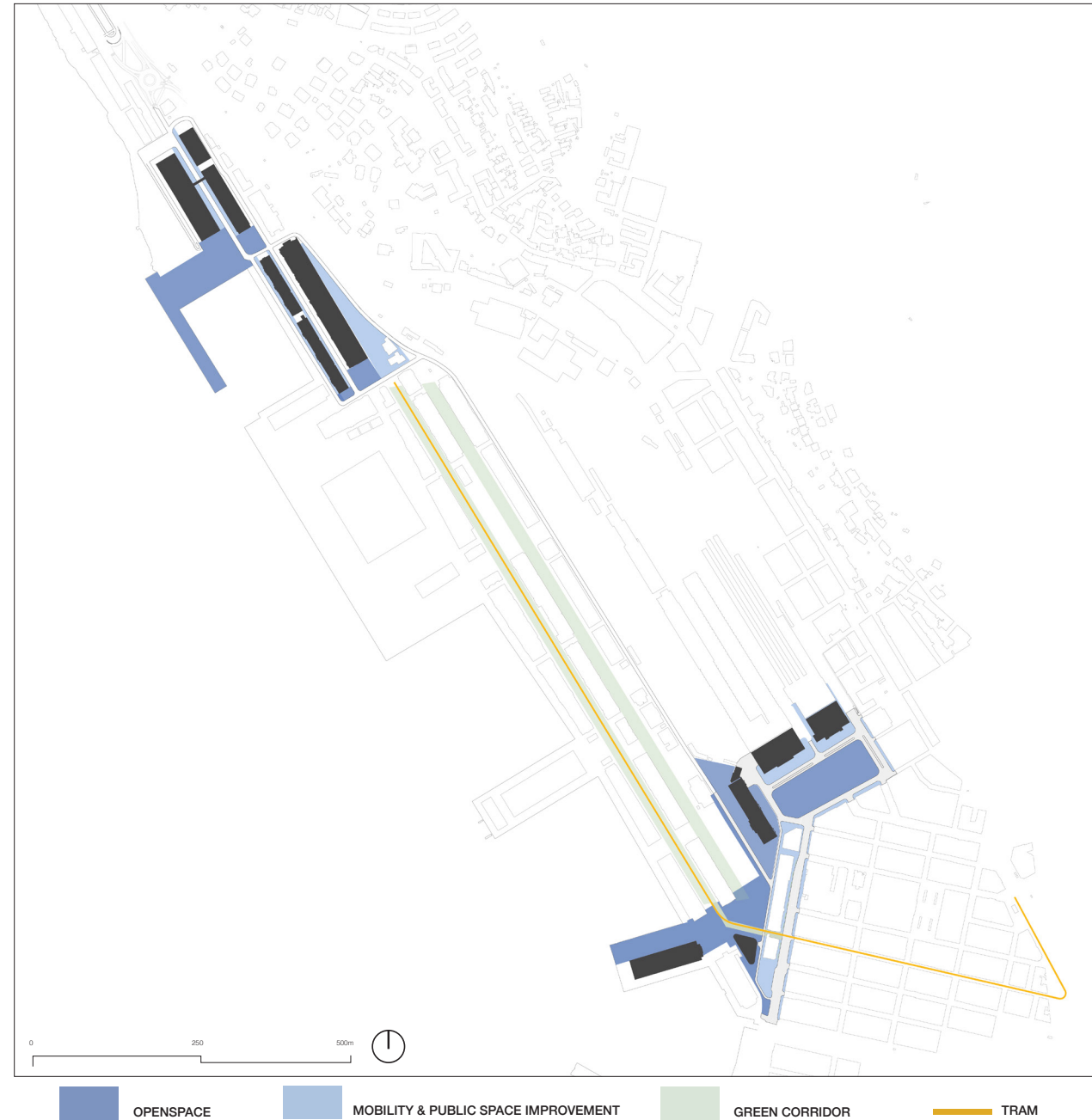
From the section analysis, several conclusions emerge:

- Barriers are layered: physical infrastructure, industrial functions, and perceptual separations combine to make the port largely impermeable.
- Opportunities exist at nodes: specific locations such as the train station front, the passenger terminal, and peripheral quays are naturally predisposed to reconnection.
- Vacancy as potential: underused port areas, wide yards, and obsolete warehouses provide space for creating green corridors, pedestrian paths, and mixed-use public zones.
- Integration requires incremental design: rather than removing the barrier entirely, a series of strategic interventions can progressively open the port to the city, respecting existing operational functions.

The section analysis directly informs the design strategy in Part 5:

- By identifying the points where the port barrier is weakest or most penetrable, the project prioritizes reconnection along two main axes:
 - From the train station to the passenger terminal, and
 - From the convention center waterfront.
- Once these initial openings are established, the design proposes further integration of the inner port through green corridors, extended tram lines, and adaptive reuse of industrial structures.
- The goal is to transform Porto Vecchio from a linear barrier into a connected, layered urban waterfront, balancing operational port functions with public accessibility, heritage preservation, and urban vitality.

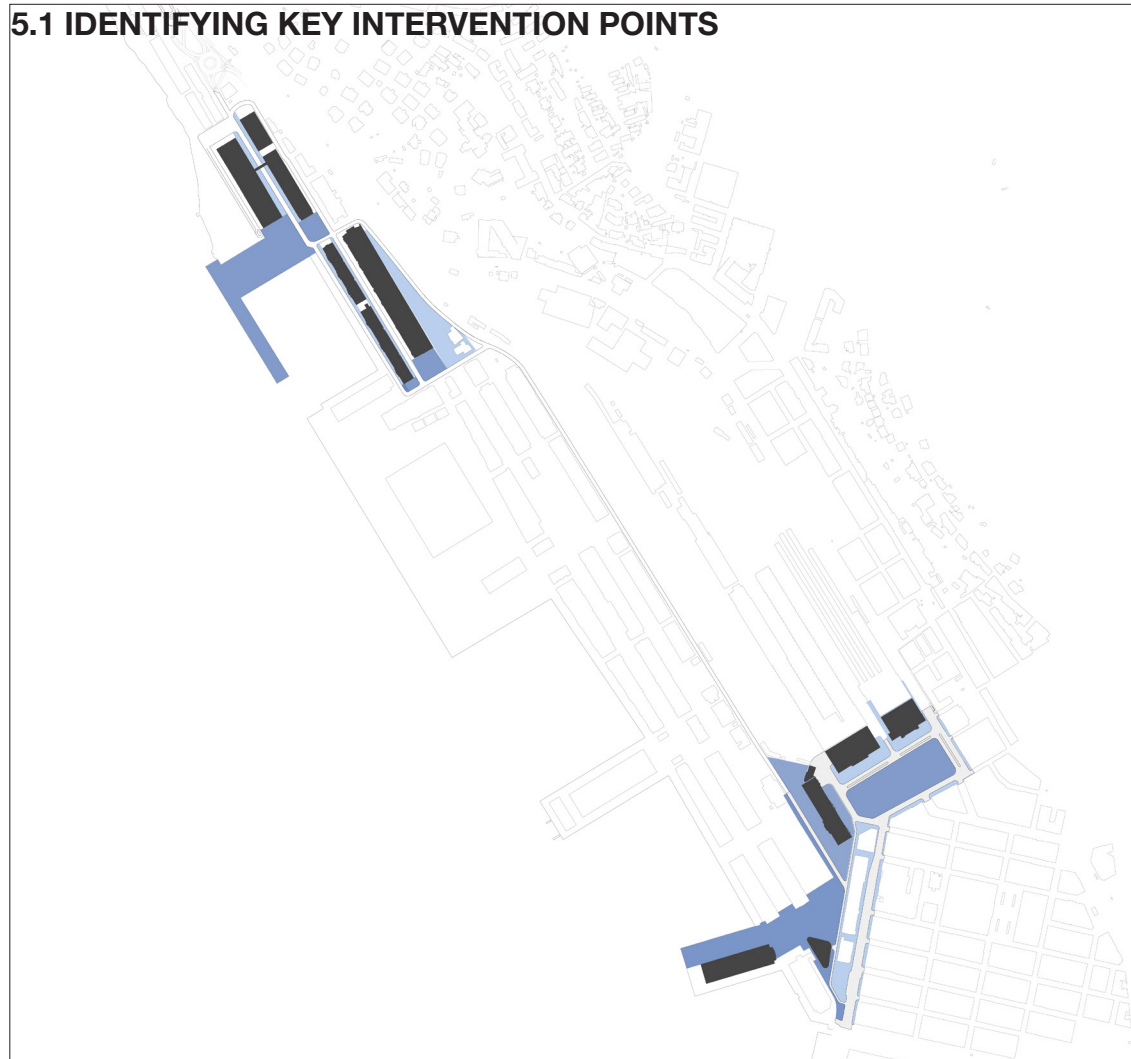
05 — STRATEGIC FRAMEWORK: BREAKING THE BARRIER



The strategy for the old port of Trieste is rooted in the principle that the port's barrier is not absolute — it is layered, permeable in some areas, and malleable through design interventions. The goal is to reconnect the

city with the waterfront, activating both the social and spatial potential of Porto Vecchio while respecting its historical and operational identity.

5.1 IDENTIFYING KEY INTERVENTION POINTS



Analysis of the port's sections revealed two primary axes where the barrier can first be broken:

1. Train Station to Passenger Terminal Axis
This axis connects the city's main transport hub directly to the waterfront. Currently, wide rail tracks, service roads, and underused storage areas obstruct pedestrian movement.

Strategy: selectively remove or reorganize redundant infrastructure, introduce pedestrian bridges and paths, and activate the adjacent warehouses with cultural or commercial functions to create a vibrant urban corridor.

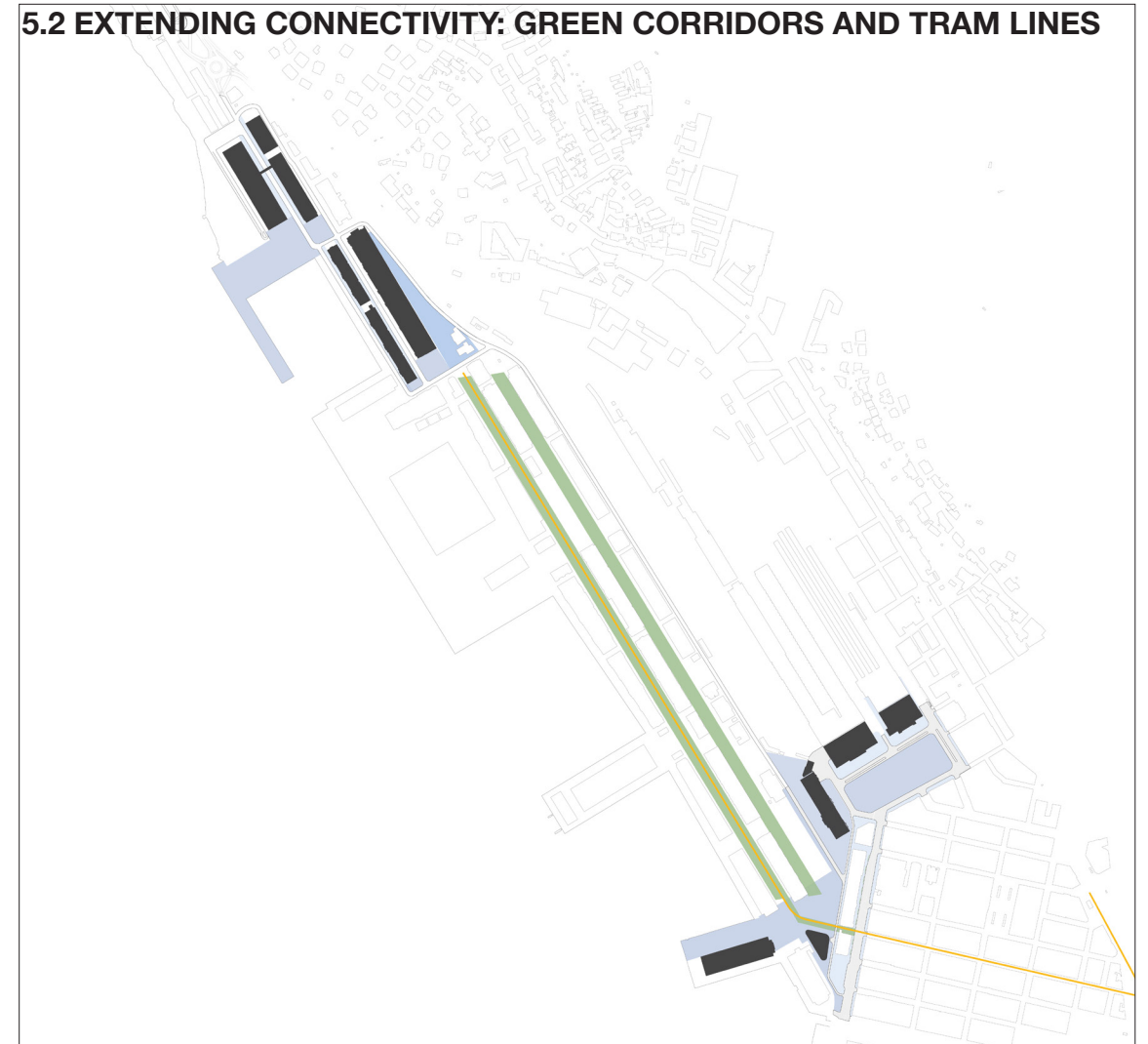
2. Convention Center Waterfront

This area is currently dominated by quays and underused industrial plots. Visual and physical access to the water is limited.

Strategy: introduce public spaces, small parks, and promenades along the edge, transforming the convention center frontage into a civic and recreational interface.

By opening these two areas first, the design creates anchor points of connectivity, reconnecting key urban nodes with the waterfront and establishing a model for incremental interventions elsewhere.

5.2 EXTENDING CONNECTIVITY: GREEN CORRIDORS AND TRAM LINES



Once the primary openings are established, the strategy proposes a network of internal connections:

1. Green Corridors: linear parks running through underused port yards, warehouses, and buffer zones. Serve multiple purposes: provide pedestrian and bicycle routes, introduce ecological functions, and visually break the monotony of the industrial edge.

Connect the northern and southern edges of the port, linking the train station and convention center axes.

2. Extended Tram Line:

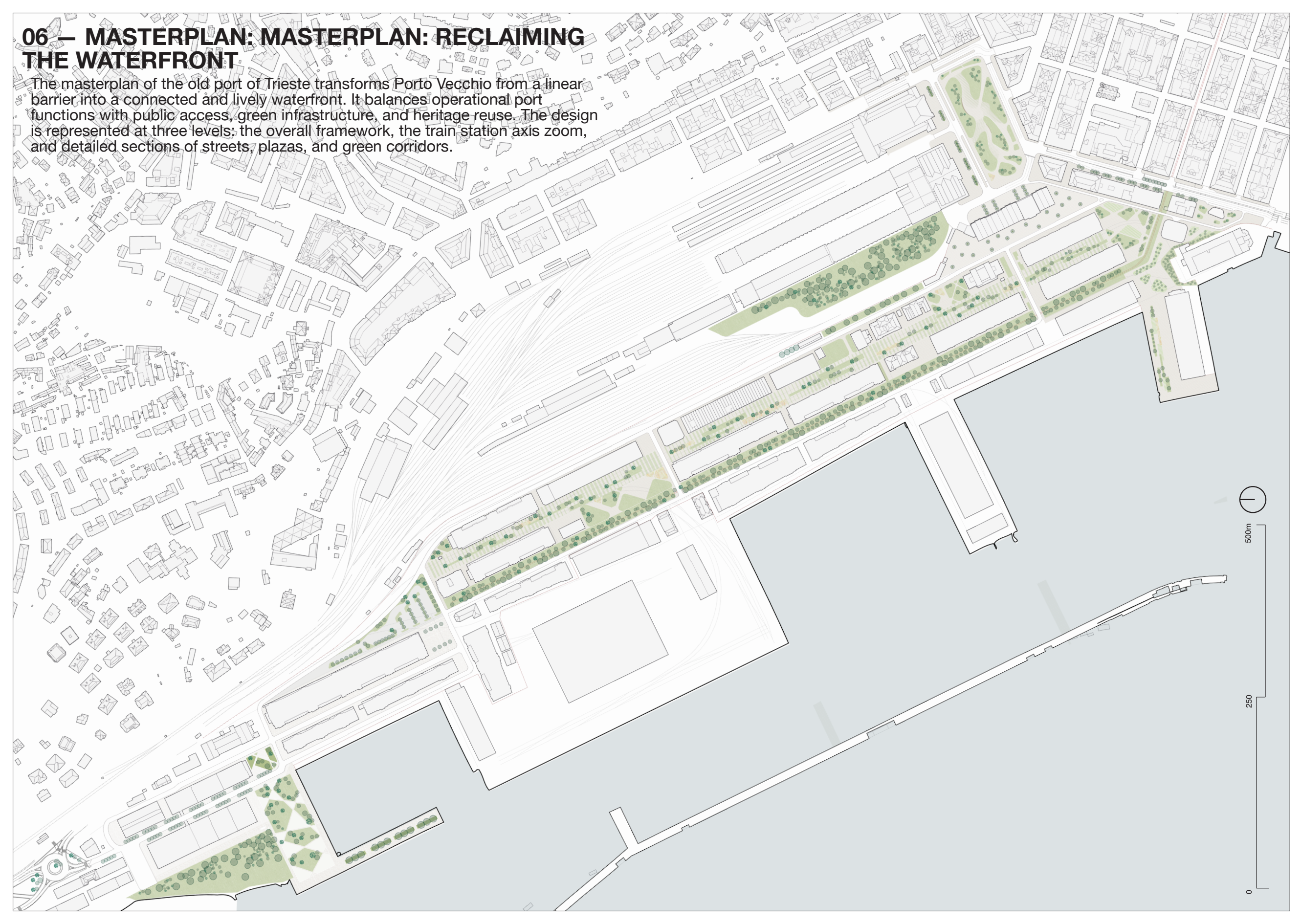
Existing public transport is limited along the waterfront. Extending tram lines through the port creates mobility continuity, encouraging public engagement and making previously inaccessible areas approachable.

Stations along the tram can anchor public spaces, recreational areas, and commercial nodes.

Together, these interventions form a continuous urban spine, transforming Porto Vecchio from a static industrial zone into a dynamic, connected, and accessible waterfront.

06 — MASTERPLAN: MASTERPLAN: RECLAIMING THE WATERFRONT

The masterplan of the old port of Trieste transforms Porto Vecchio from a linear barrier into a connected and lively waterfront. It balances operational port functions with public access, green infrastructure, and heritage reuse. The design is represented at three levels: the overall framework, the train station axis zoom, and detailed sections of streets, plazas, and green corridors.



6.2 CONCEPT: DISSOLVING THE PORT EDGE

The port edge is selectively perforated to reconnect the city with the waterfront.

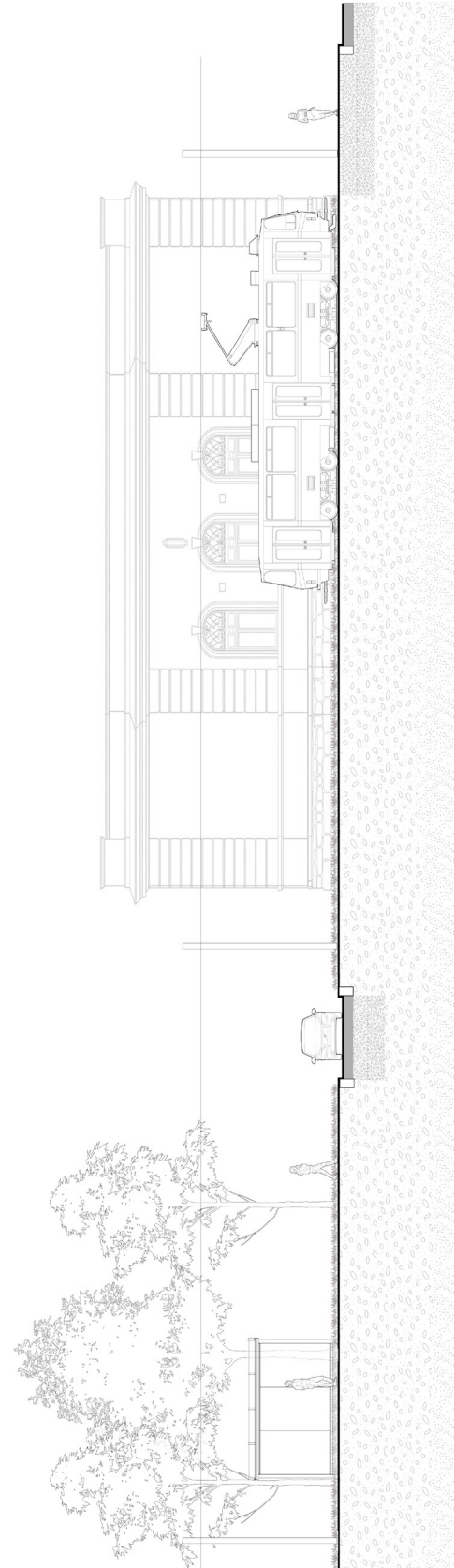
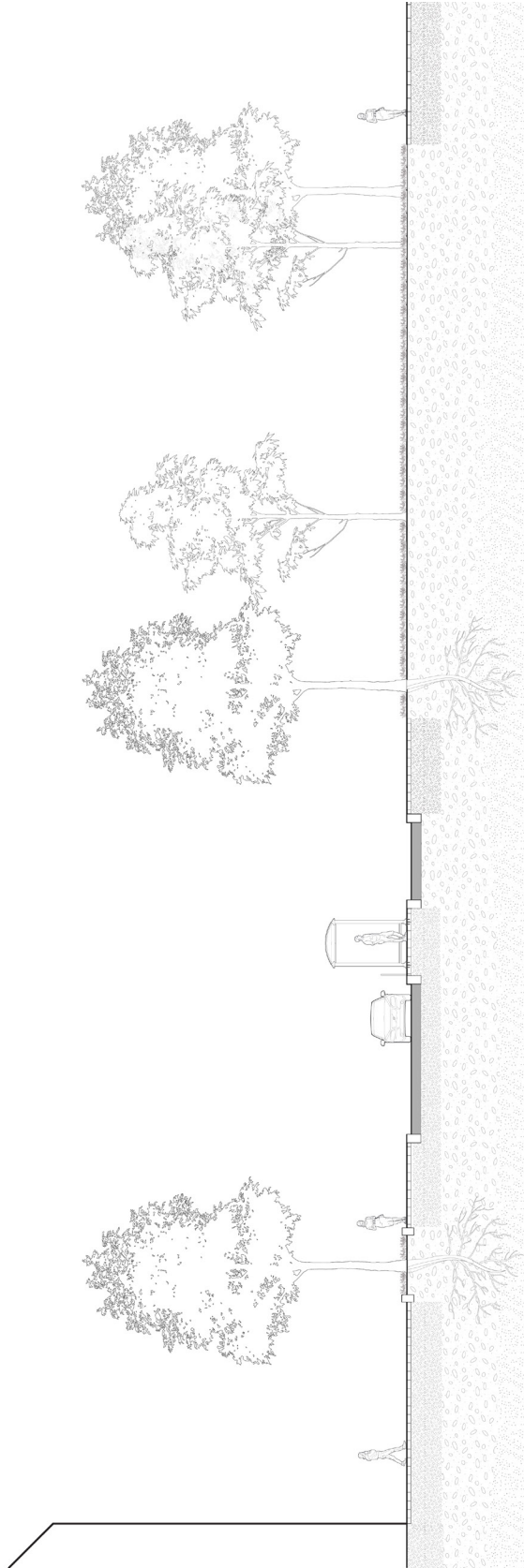
Primary intervention points: train station–passenger terminal axis and convention center waterfront.

Design logic: instead of erasing industrial structures, openings are created to allow visual and pedestrian access, forming anchors for future activation.

The train station axis zoom shows the first activated node with plazas, pedestrian paths, and connected warehouses.



6.3 PUBLIC REALM AND MOBILITY



07 — CONCLUSION

The old port of Trieste has long been a defining element of the city, shaping both its economy and its urban form. Over time, the port expanded and consolidated, creating a continuous barrier between the city and the waterfront. While early expansions prioritized maritime efficiency, the post-2000 period revealed new opportunities: underused warehouses, vacant quays, and fragmented areas provided openings for reconnection and regeneration.

This thesis demonstrates that the port's barrier is not only physical but also functional and perceptual. Through careful analysis of historical growth, spatial barriers, and strategic intervention points, it is possible to selectively break the barrier and reclaim the waterfront for public life.

The proposed masterplan implements this vision by:

- Dissolving the port edge at key axes, creating visual and physical openings.
- Structuring the port through axes, corridors, and waterfront sequences, linking city and sea.

- Activating public realm and mobility networks, including pedestrian plazas, green corridors, and tram connections.
- Phasing transformation to balance operational port functions with urban accessibility and heritage reuse.

The result is a layered, connected, and accessible waterfront, where history, urban life, and port operations coexist. Porto Vecchio becomes a space not of separation, but of integration — a waterfront that reconnects the city with its maritime identity while accommodating contemporary needs.

Ultimately, the thesis shows that breaking the barrier is not about erasing the port, but about reinterpreting it as a shared urban resource, creating new opportunities for culture, mobility, ecology, and public life along Trieste's historic waterfront.

08-BIBLIOGRAPHY

Consorti, L., Arbullo, D., Bonini, L., Fabbi, S., Fanti, F., Franceschi, M., Frijia, G., & Pini, G. A. (2021). The Mesozoic palaeoenvironmental richness of the Trieste Karst. *Geological Field Trips & Maps*, 13(2.2), 1–40. <https://doi.org/10.3301/GFT.2021.06>

Barillari, D. (2016). Porto Vecchio a Trieste: storia, architettura e tecnica. *Archeografo Triestino*, 76, 161–188.

Pirlone, F., Spadaro, I., Sabattini, M., & De Nicola, M. (2022). Sustainable urban regeneration in port-cities: A participatory project for Genoa waterfront. *TeMA – Journal of Land Use, Mobility and Environment*, 15(1), 89–110. <https://doi.org/10.6093/1970-9870/8322>

Jauhiainen, J. S. (1995). Waterfront redevelopment and urban policy: The case of Barcelona, Cardiff and Genoa. *European Planning Studies*, 3(1), 3–23. <https://doi.org/10.1080/09654319508720287>

Tanis, F., & Erkök, F. (2016). Learning from waterfront regeneration projects and contemporary design approaches of European port cities. *International Planning History Society Proceedings*, 17(3), 151–161. <https://doi.org/10.7480/iphs.2016.3.1259>

Bradaschia, Maurizio. 2015. “THE OLD PORT OF TRIESTE: A CENTURY OF PROJECTS AND PROPOSALS FOR AN UNRESOLVED ISSUE.” *THE CREATIVITY GAME Theory and Practice of Spatial Planning* 62-66.

Buslacchi, Maria Elena. 2014. “The regeneration of the Marseille Waterfront: Iconic buildings and mediterranean sea.” *Geostrategic Maritime review* 1-12.

Porto Vecchio–Porto Vivo di Trieste.” Comune di Trieste. 22 June. Accessed March 10, 2024. <https://www.comune.trieste.it/it/porto-vecchioporto-vivo-di-trieste-200976>

Valcovich, E., Berto, R., Cechet, G., Strazza, N., & Stival, C. A. (2016). Approccio metodologico per il recupero sostenibile del patrimonio edilizio storico del Porto Vecchio di Trieste [Methodological approach for the sustainable recovery of the historical building heritage of Porto Vecchio of Trieste]. Università degli Studi di Trieste.

Brunello, C. (2016). Porto vecchio a Trieste: storia, architettura e tecnica. *Academia.edu*. Retrieved from https://www.academia.edu/30668387/Porto_vecchio_a_Trieste_storia_architettura_e_tecnica

Benedetti, A., & Vieceli, G. (Eds.). (2017). *Le pavimentazioni storiche di Trieste: Analisi per una tutela* (with 2 maps). Il Poligrafo. ISBN 978-88-9387-004-7.

Lorber, M. (2022). Un’immagine variopinta di operosità. Il porto di Trieste fra storia e immagini. In *Studi e memorie dell’IRCI* (pp. 141–156). Archeografo Triestino.

Fasoli, V. (2024). Geografie di un cantiere del Neoclassicismo a Trieste. La Loggia Mercantile (1799–1806). In M. L. Barelli & M. Volpiano (Eds.), *Produrre per costruire* (Quaderni di Storia della Costruzione, pp. 205–224). Politecnico di Torino. ISBN 979-12-81583-06-1.

Fiore, Mina, interview by Leonardo Zuccaro Marchi. 2022. *The Trieste of the Future: City, Sea and Nature* (10 November).

Valcovich, E., Berto, R., Cechet, G., Strazza, N., & Stival, C. A. (2016). Approccio metodologico per il recupero sostenibile del patrimonio edilizio storico del Porto Vecchio di Trieste. Università degli Studi di Trieste.

Caroli, A., Barillari, D., Parisi, F., & Zubin, F. (Eds.). (2024). *Il Distretto Storico Portuale di Trieste*. Italia Nostra Onlus. (historical research and architectural documentation of Porto Vecchio)

Ministero della Cultura – DiAG MiC (n.d.). Trieste – Porto Vecchio. Programmazione e Attuazione Strategica Nazionale e Comunitaria.

Caroli, Antonella. 2002. *Il Porto di Trieste. Cronaca e storia delle costruzioni portuali*. Trieste: Libreria Editrice Internazionale Italo Svevo.

Marin, A. (2021). 30 years for the Conservation and the regeneration of the Old Port of Trieste – diachronic reading of multiple regeneration proposals (Kenzo Tange, Gino Valle, Manuel de Solà-Morales, Norman Foster, Stefano Boeri, etc.), historical context of Porto Vecchio and its potential.

Botteri, Guido. 1988. *Il porto franco di Trieste. Una storia europea di liberi commerci e traffici*. Trieste: Società Editoriale Libreria.

Valinger Sluga, M., & Ažman Momirski, L. (2024). Planning ports in proximity: Koper and Trieste after 1945. *Planning Perspectives*, 39(3), 725–745. <https://doi.org/10.1080/02665433.2023.2301411>

Ramondetti, L. (2024). Untangling infrastructure networks through critical cartographies: Mapping the Port of Trieste, Italy. *Annals of the American Association of Geographers*, 114(8), 1805–1818. <https://doi.org/10.1080/24694452.2023.2289985>