

An aerial perspective of a modern urban development. A central waterway, possibly a canal or river, flows through the center, flanked by lush greenery and pedestrian paths. Several bridges of varying designs cross the waterway. On either side of the water, there are modern, multi-story residential or commercial buildings with balconies. The background shows a dense city skyline with various high-rise buildings under a clear sky. The overall scene depicts a harmonious blend of urban architecture and natural elements.

ADAPTIVE WATER URBANISM: REFRAMING THE FLOW

Project No:587

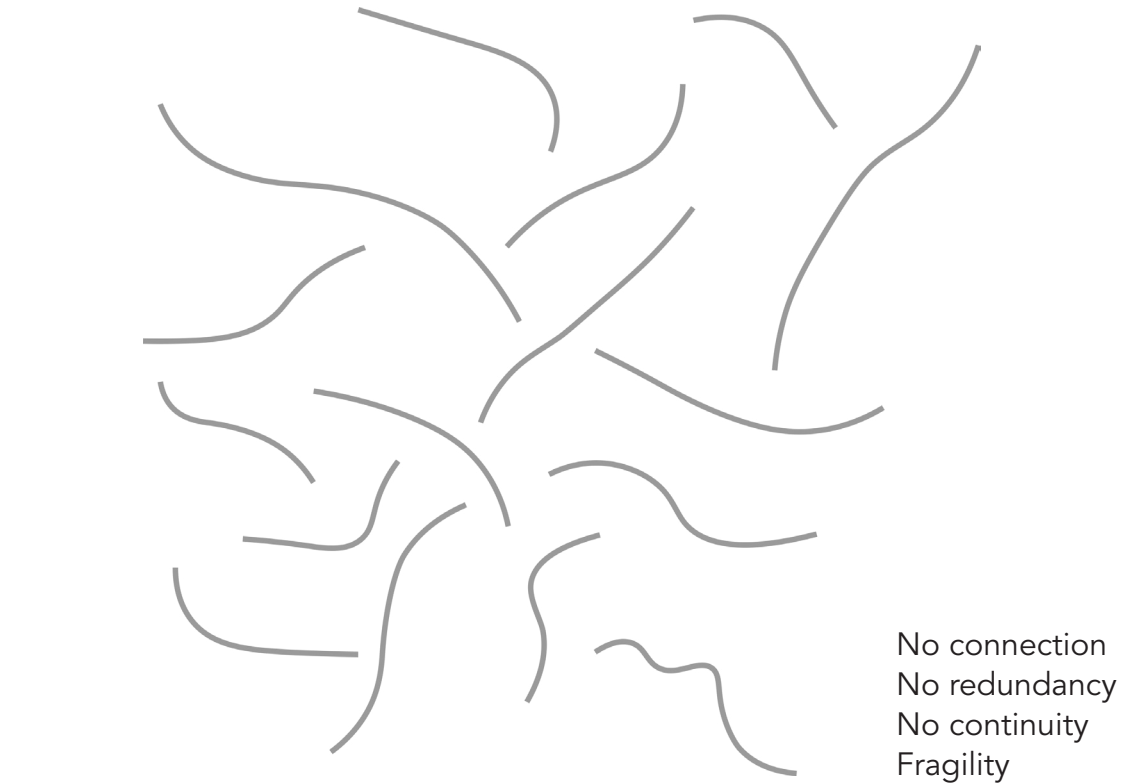
**Urban Design & Landscape Architecture dpt.
Faculty of Art, Design and Architecture**

**Bilkent University
Ankara, Türkiye**

ANASTOMOSIS

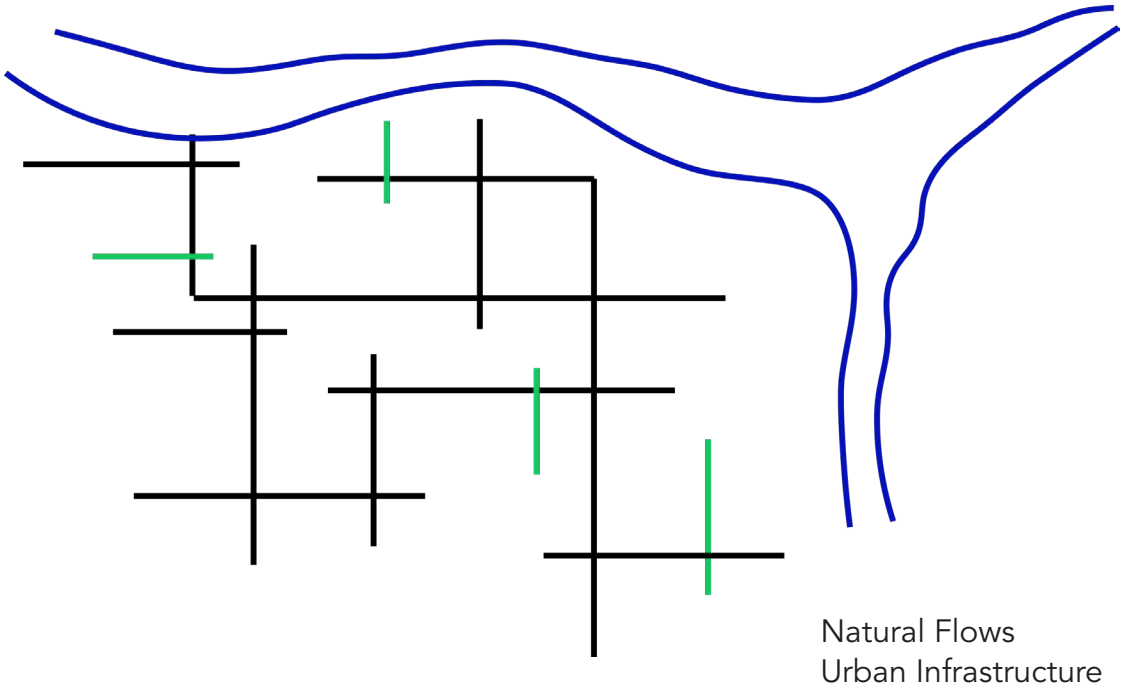
“Anastomosis is a structure in which a system can be expanded through alternative possibilities while maintaining the ability to store main components.”

DISCONNECTED SYSTEM



A system without connections cannot sustain circulation.

BELGRADE AS A MULTI-LAYERED FLOW FIELD

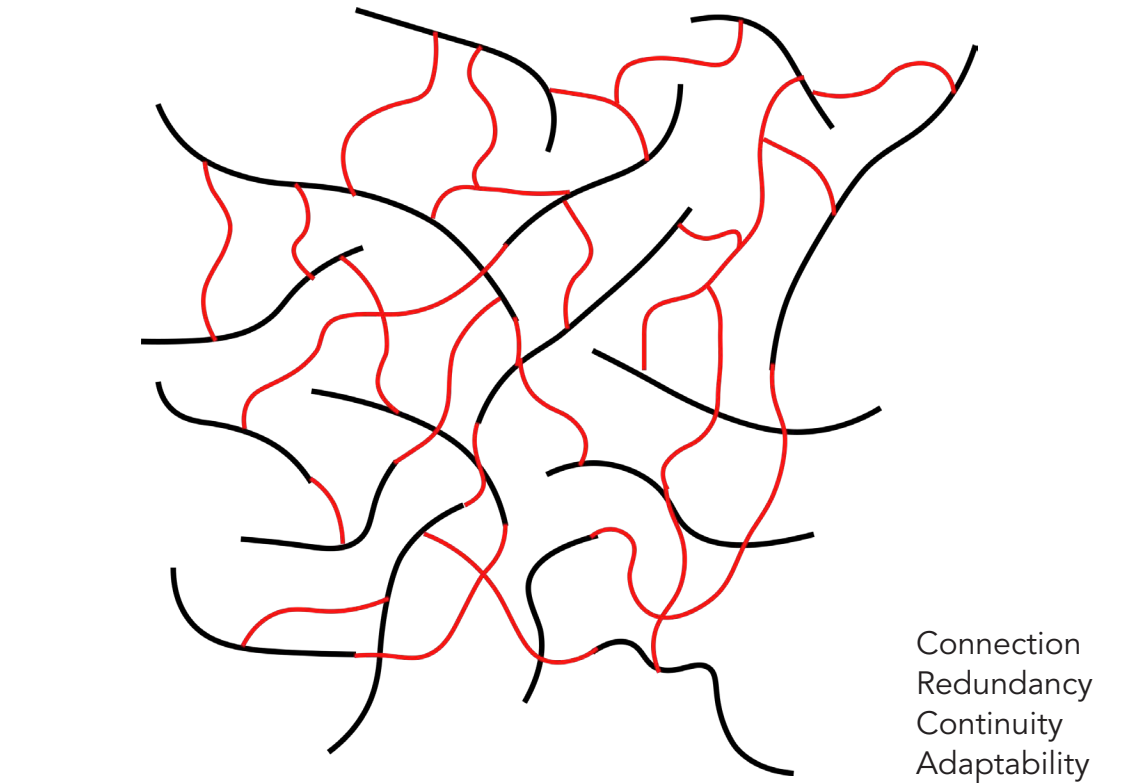


Belgrade is shaped by the overlap of river flows, urban barriers, and green areas.

ADAPTIVE WATER

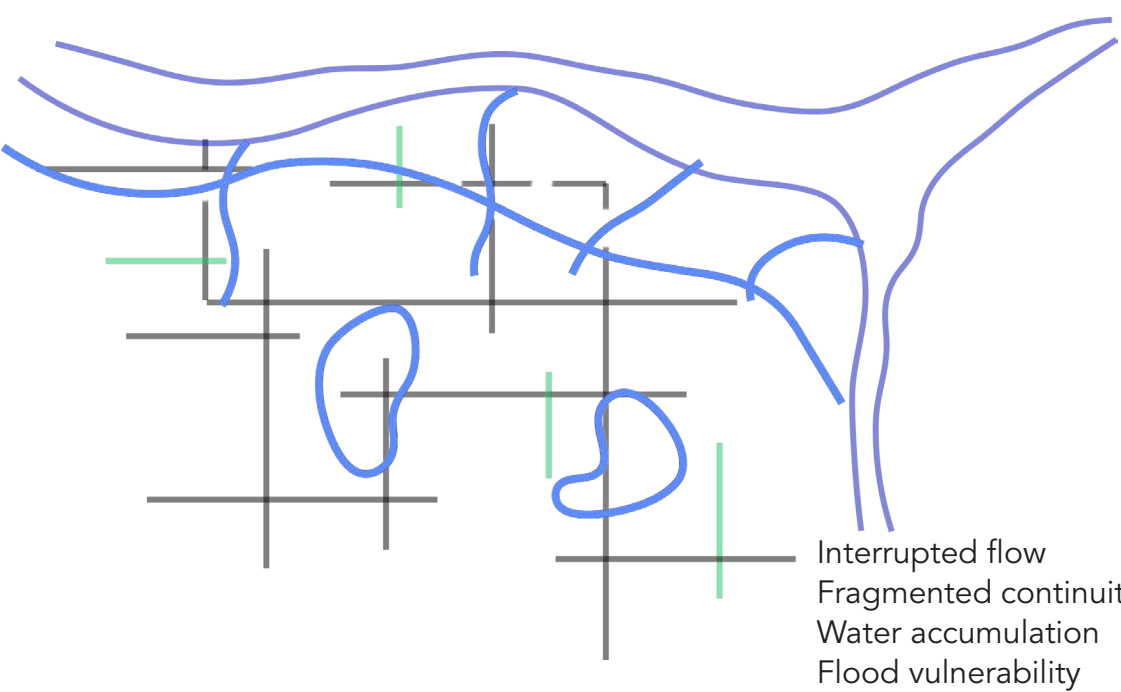
FLOW

ANASTOMOSIS AS LINKAGE



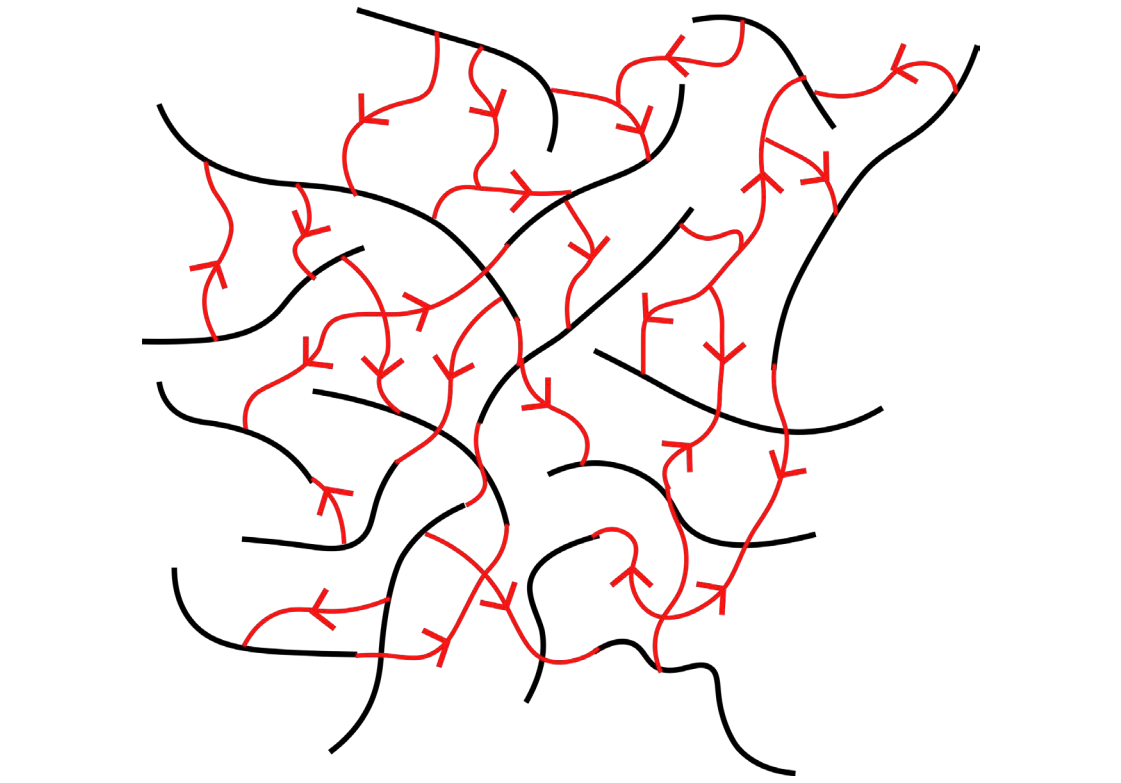
Alternative connections activate potential networks.

INTERRUPTED FLOW



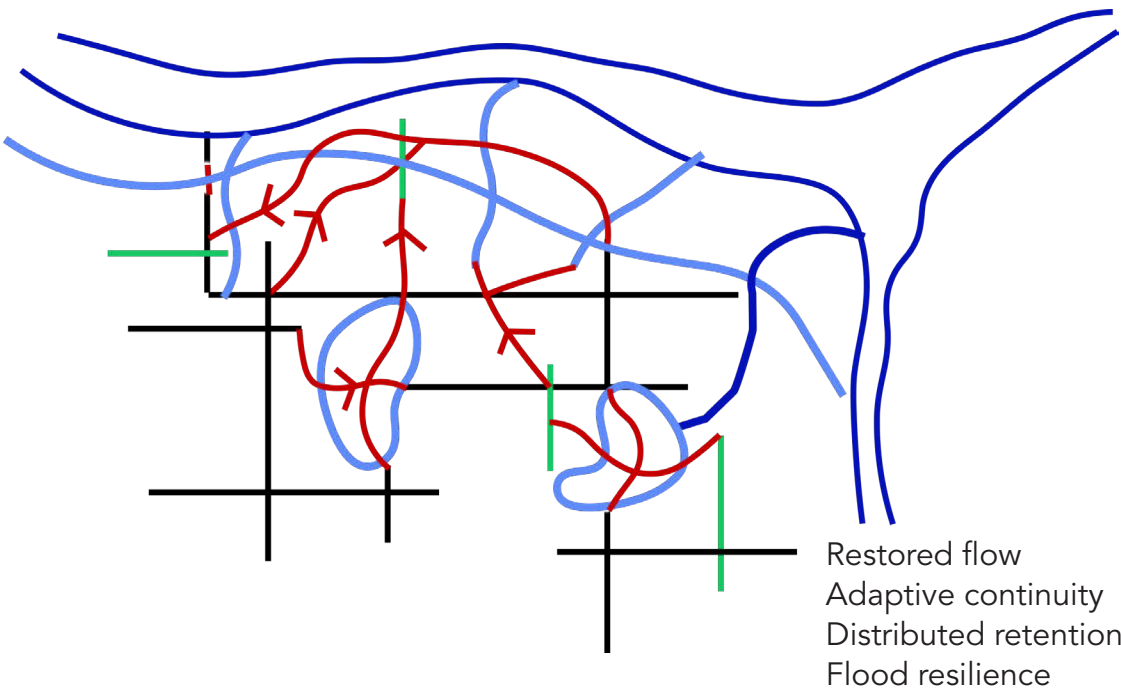
Where flows meet rigid urban barriers without adaptive linkages, circulation is interrupted.

Emergence of FLOW



Through anastomosis, the system gains flow.

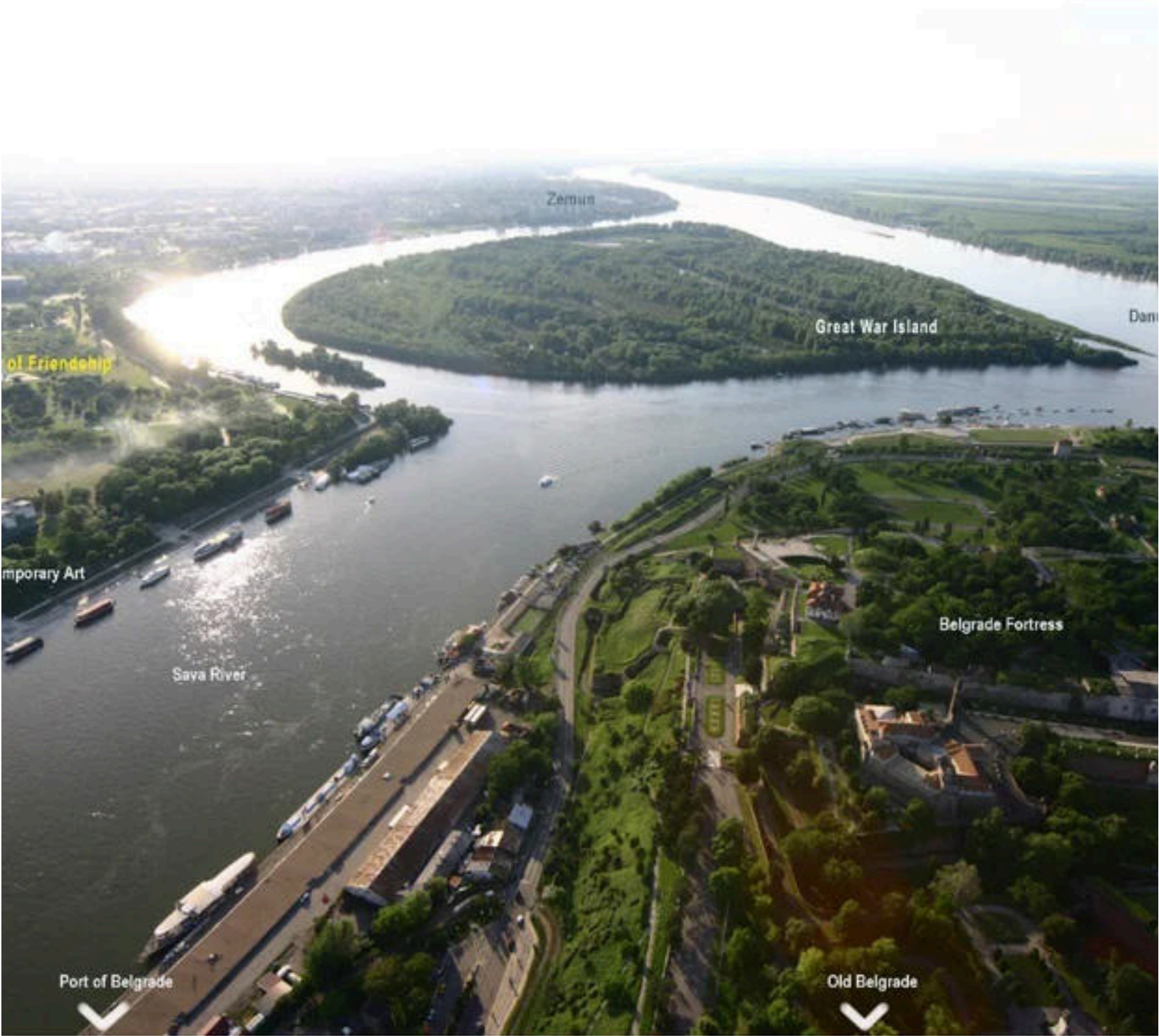
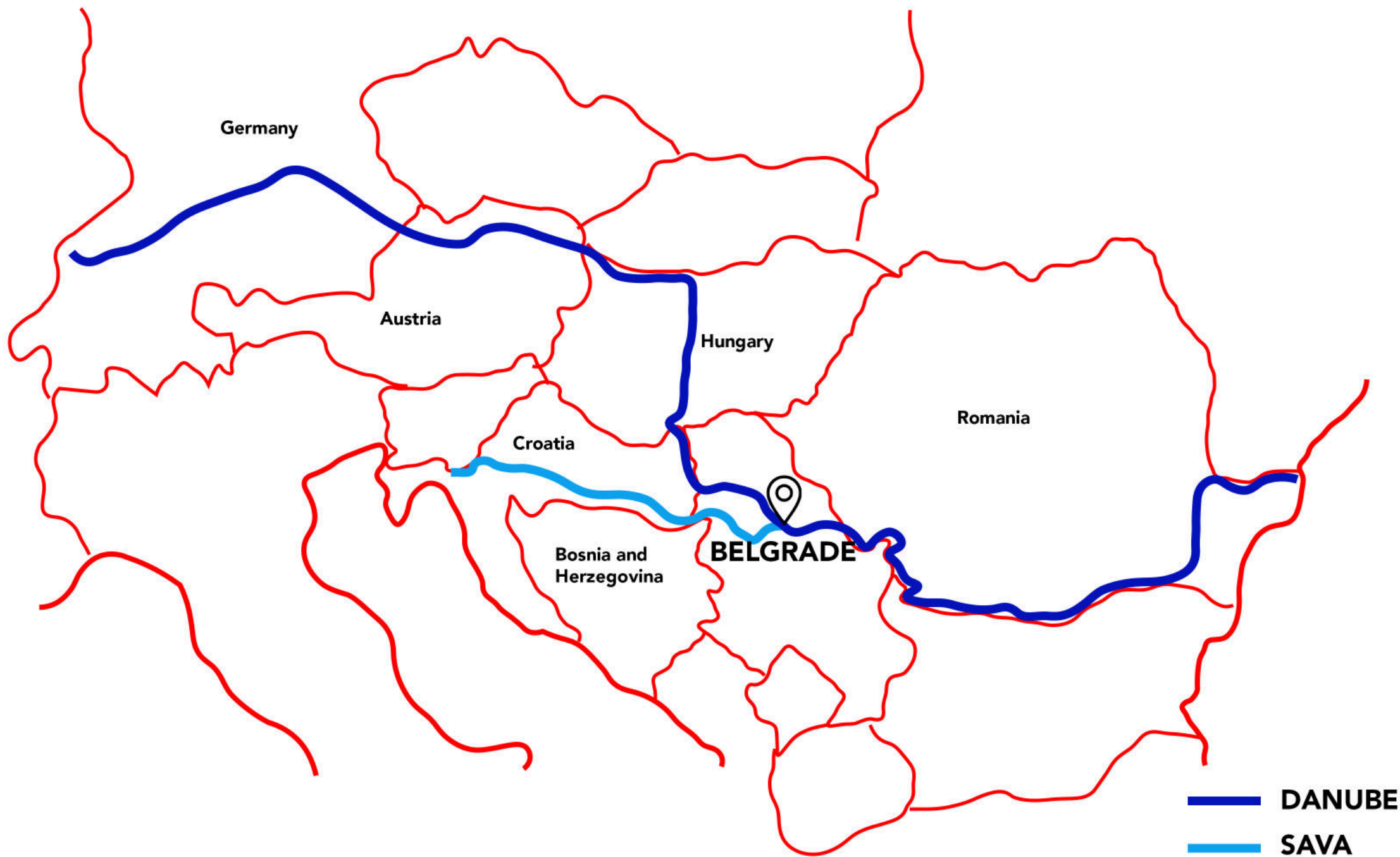
ADAPTIVE LINKAGE



Adaptive linkages reconnect fragmented systems, restoring flow, retention, and flood resilience.

REFRAMING

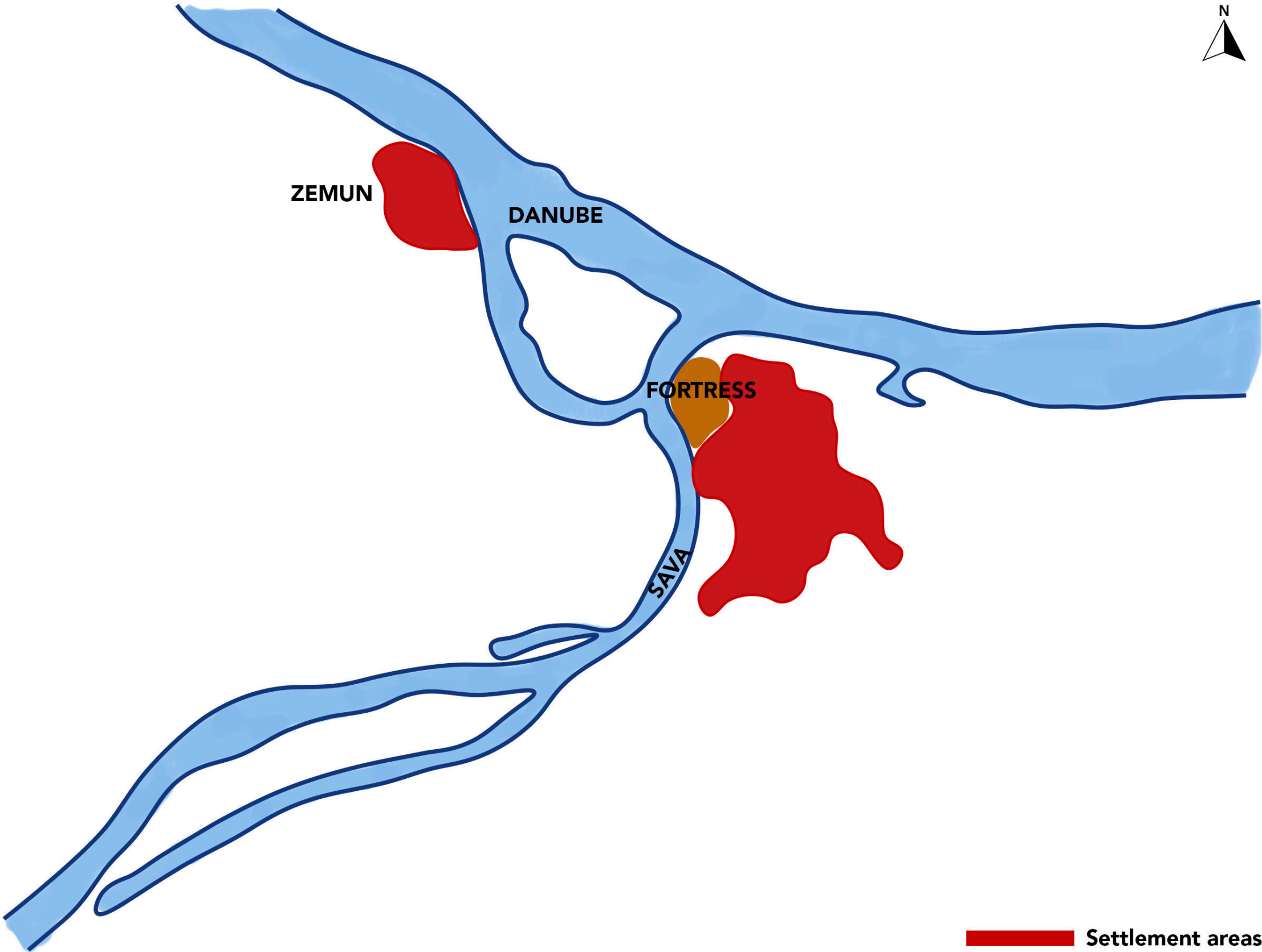
Belgrade: A City Shaped by Water



Belgrade is defined by the confluence of two major rivers: the Danube and the Sava. This meeting of waters is not only a geographical condition, but also the primary system that shapes the city's spatial formation, boundaries, and patterns of development. In this sense, water is not an element located at the edge of the city; it is the main structure that establishes and organizes urban life.

Historical Relationship Between Water and Urbanization

Water as Defense



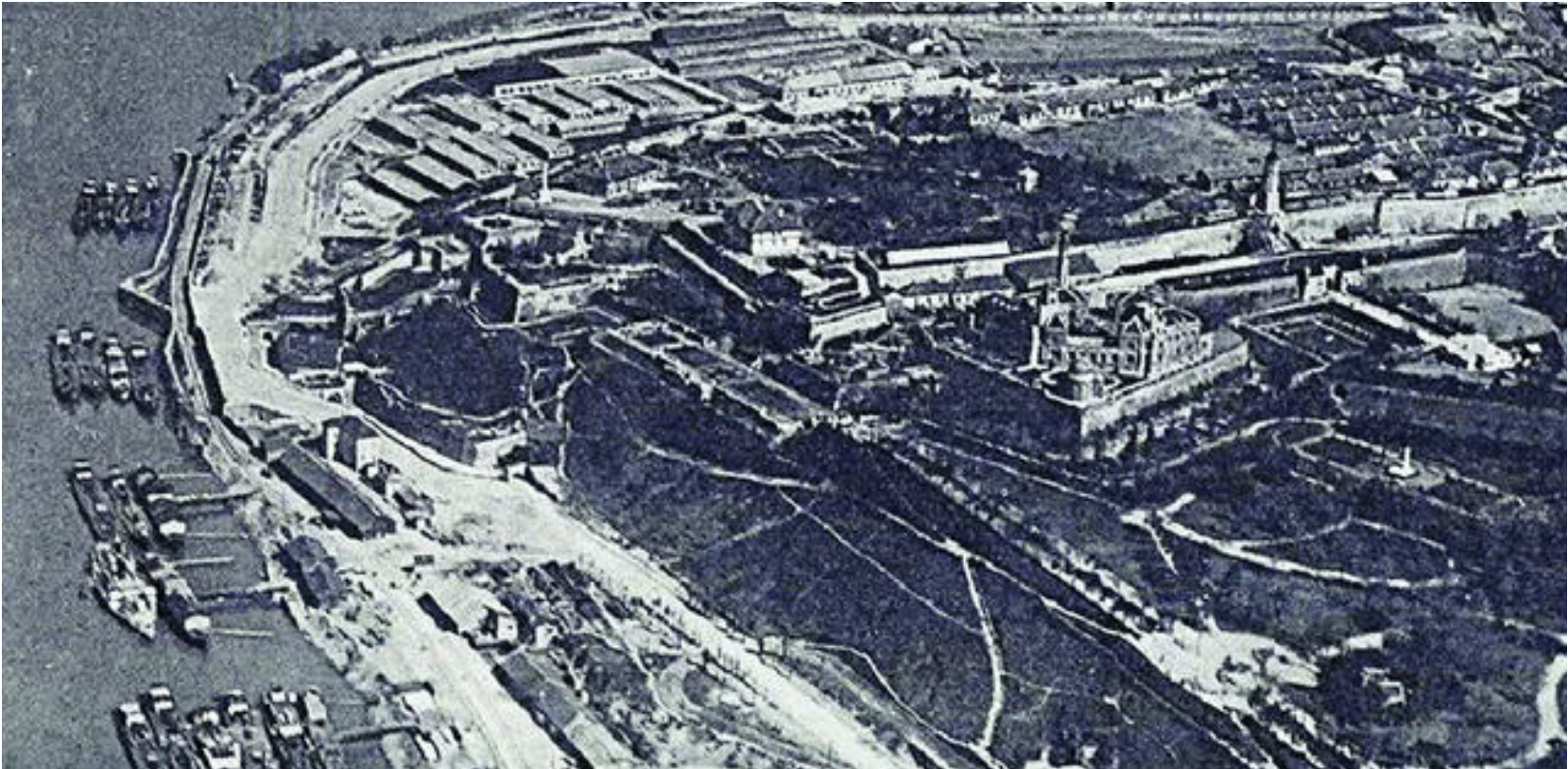
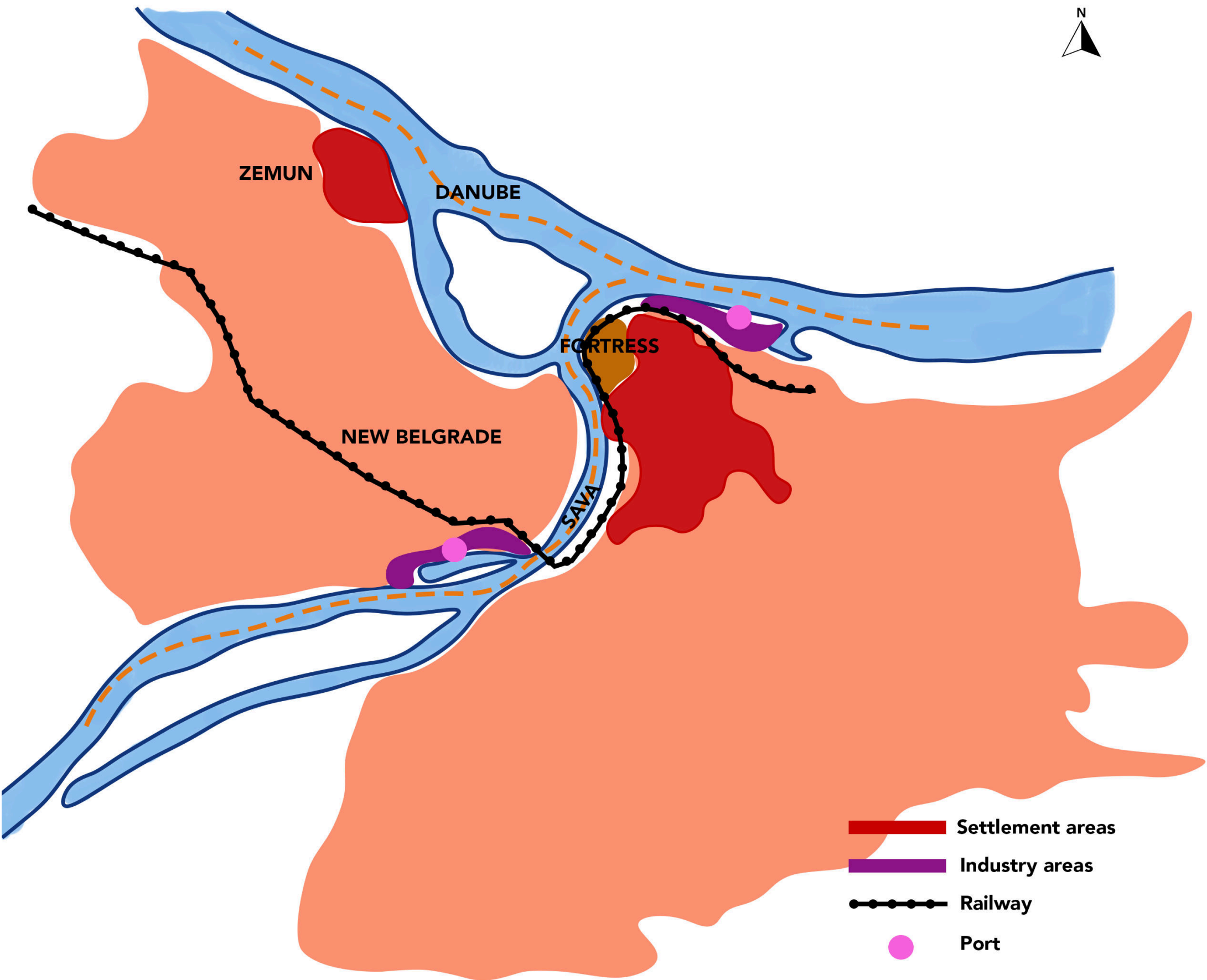
■ Settlement areas



In the earliest phase of urbanization, water functioned as a defensive and strategic system. The confluence of the Danube and the Sava shaped the location of Belgrade Fortress, while nearby settlements such as Zemun also developed in relation to water as a protective edge.

Historical Relationship Between Water and Urbanization

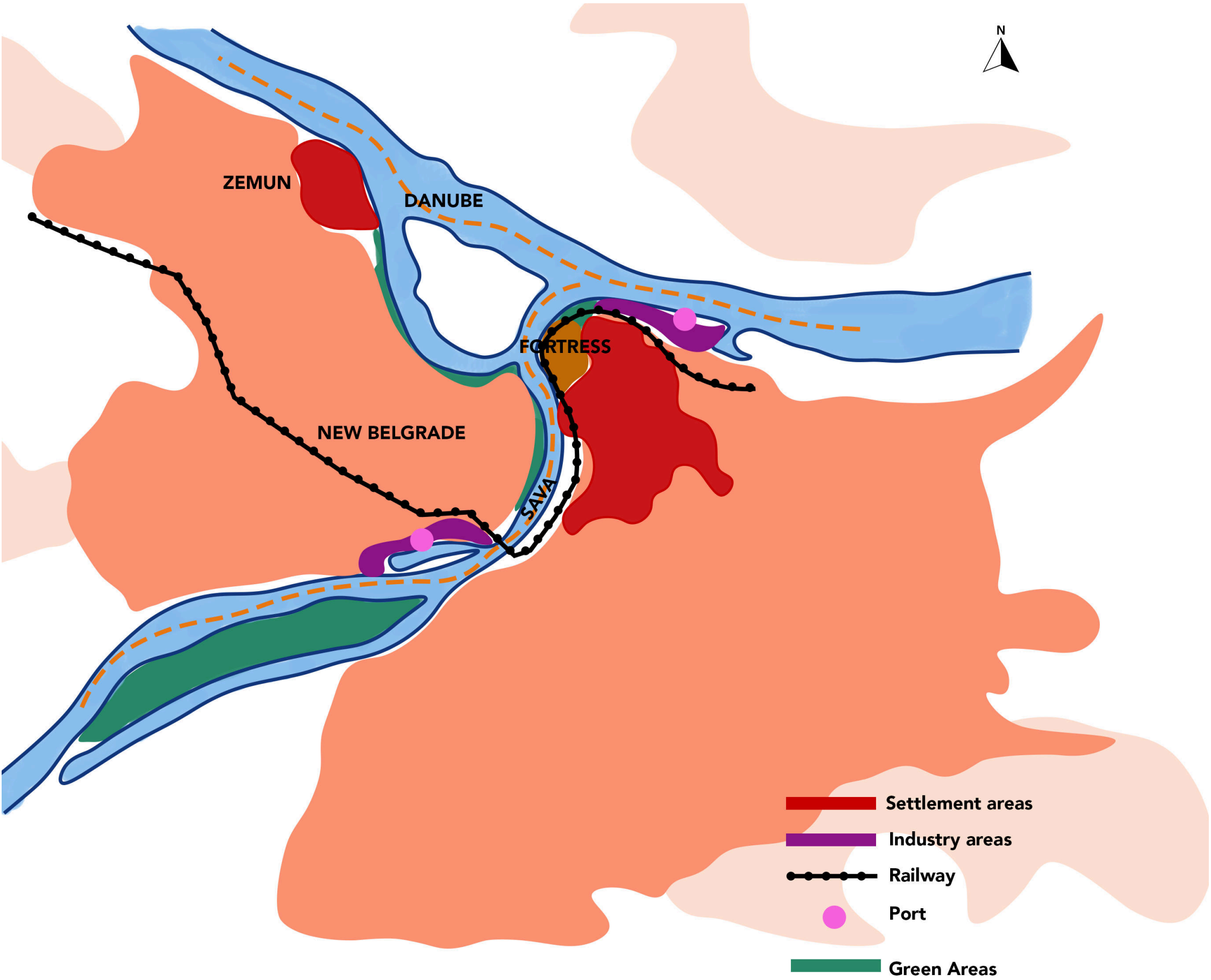
Water as Trade and Industry



As Belgrade expanded, water became a system of trade, mobility, and production. The riverfront evolved from a corridor of exchange into an infrastructural and industrial edge, strengthening the city's connection to water while making it increasingly functional and less public.

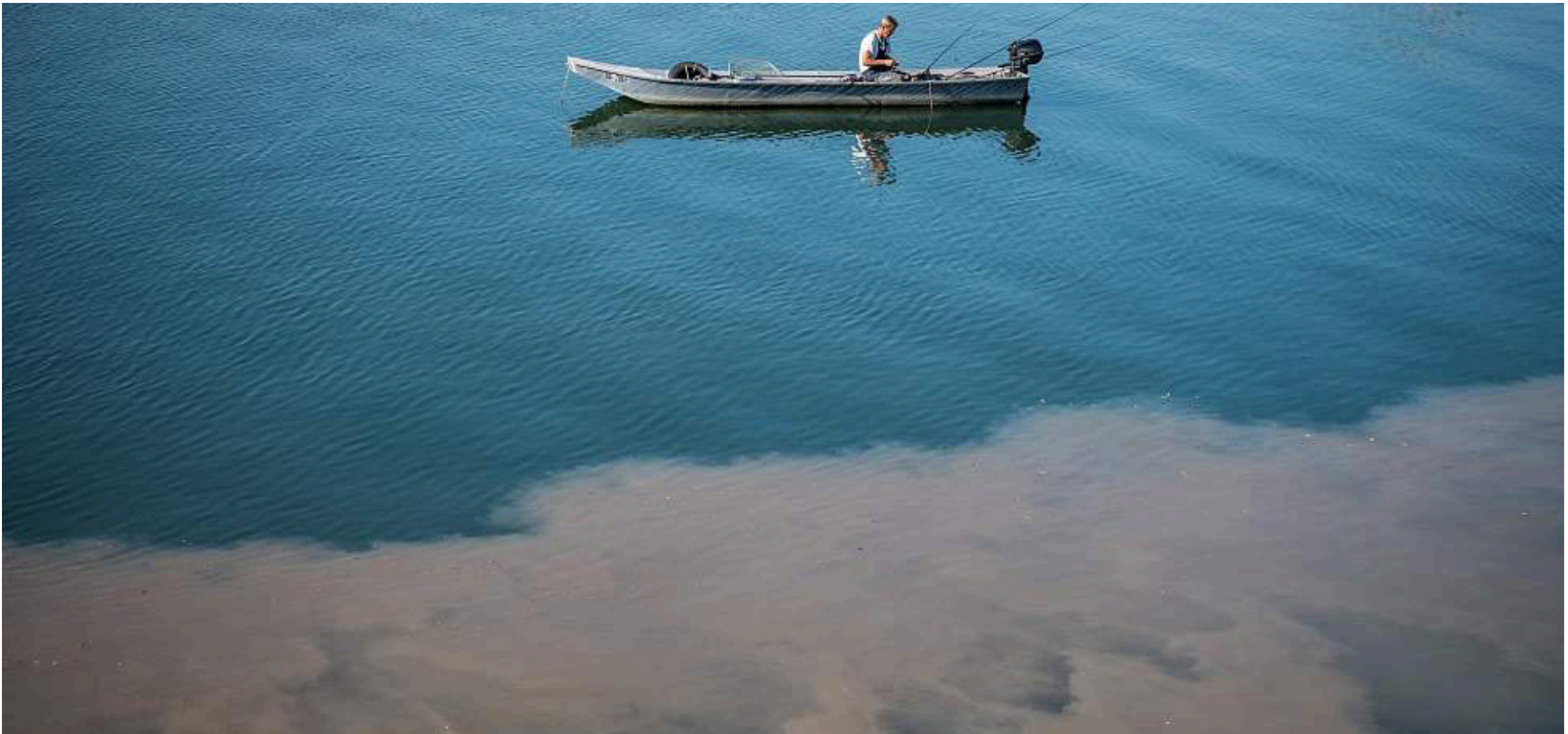
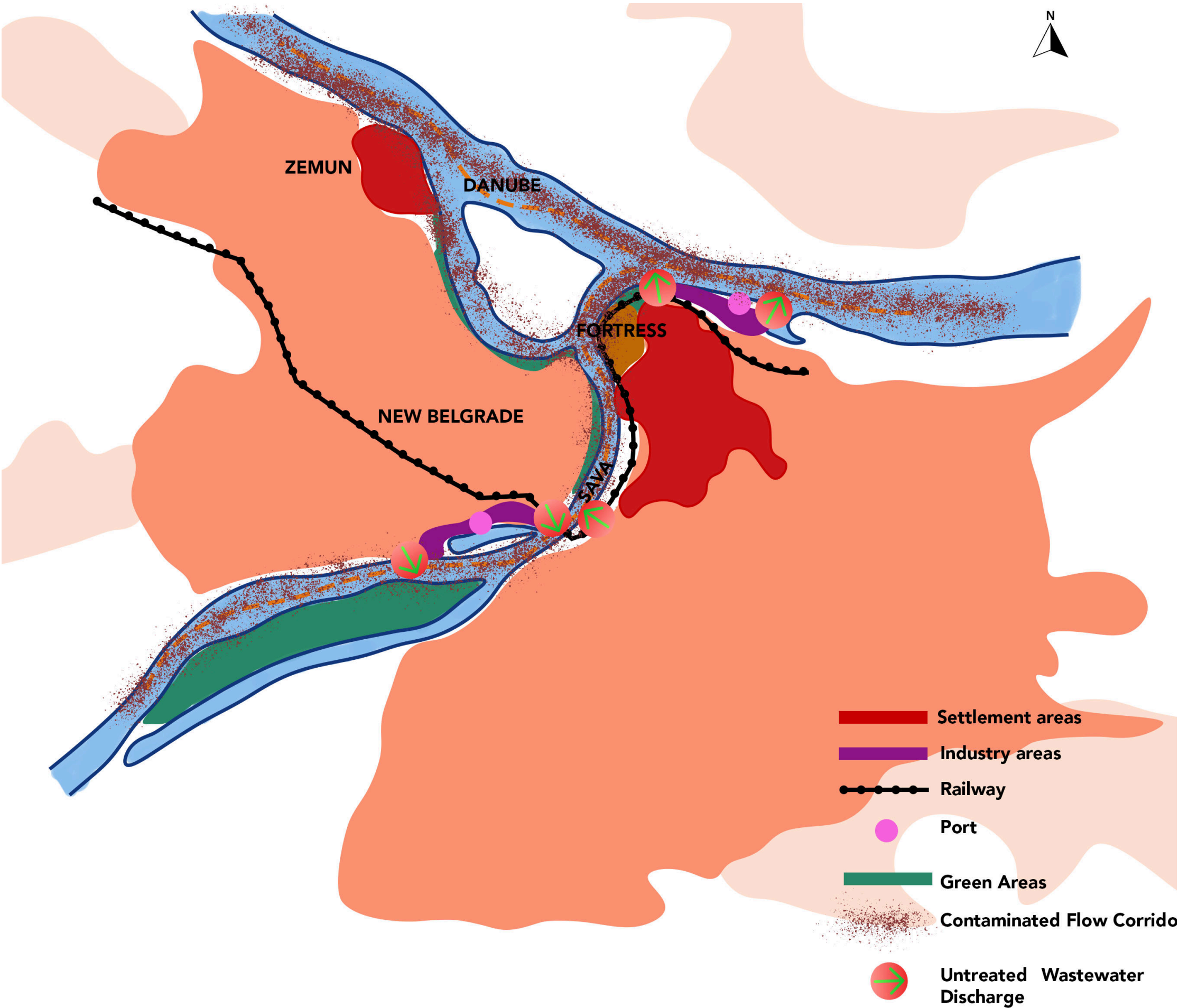
Historical Relationship Between Water and Urbanization

Water as Public Realm



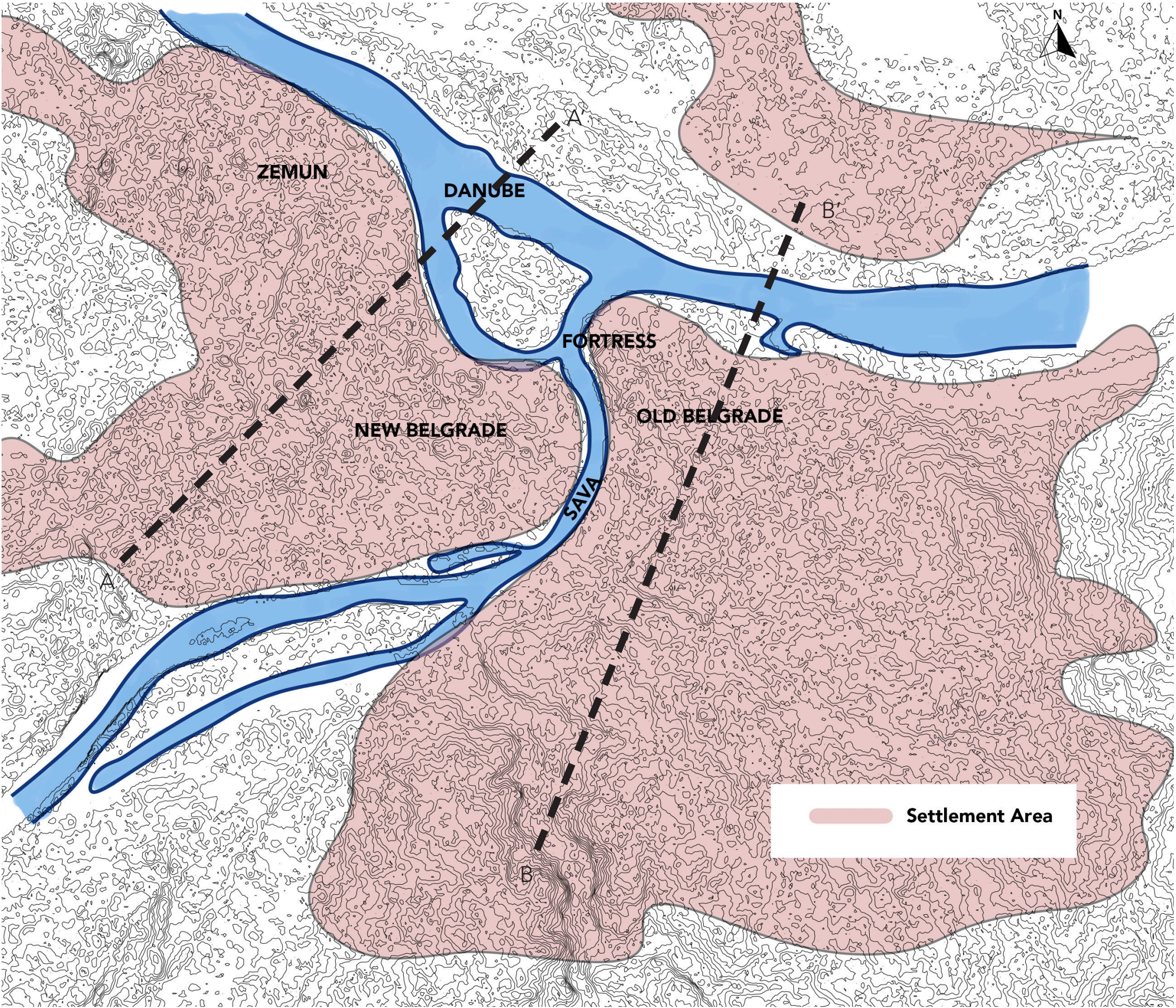
As industrial functions receded, water became a space of public life, recreation, and collective use. The riverfront evolved from an infrastructural and industrial edge into a public realm, strengthening the city's social connection to water while making it increasingly accessible and everyday.

Water as Contaminated Flow

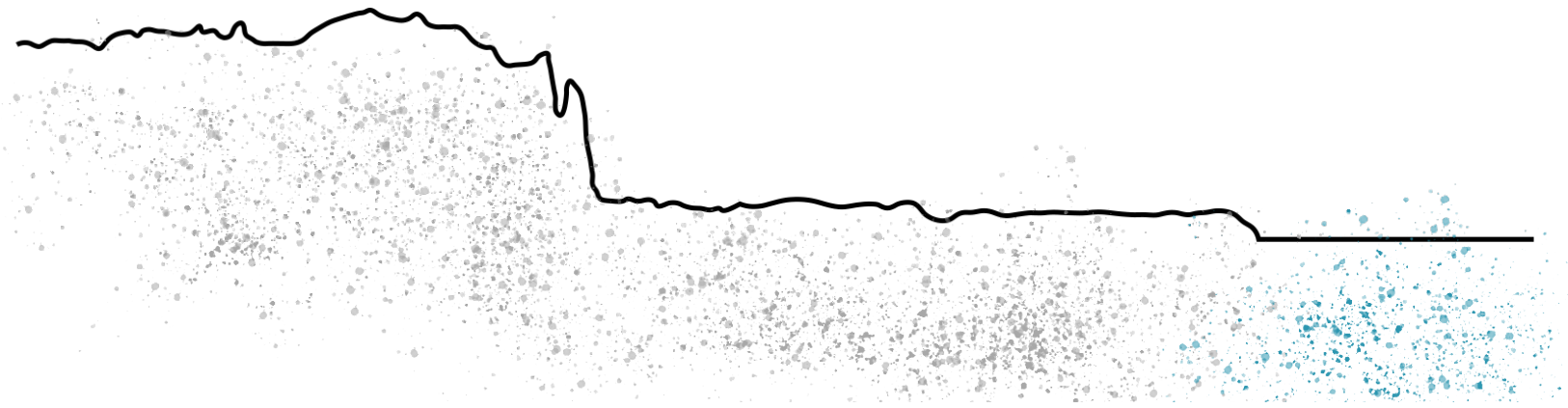


Belgrade’s rivers carry not only water, but also the pressures of urbanization. Industrial areas, ports, railways, and untreated wastewater discharge transform the Danube and Sava into contaminated urban flow corridors. This weakens ecological continuity and creates a conflict between public waterfront use and the environmental quality of the river system.

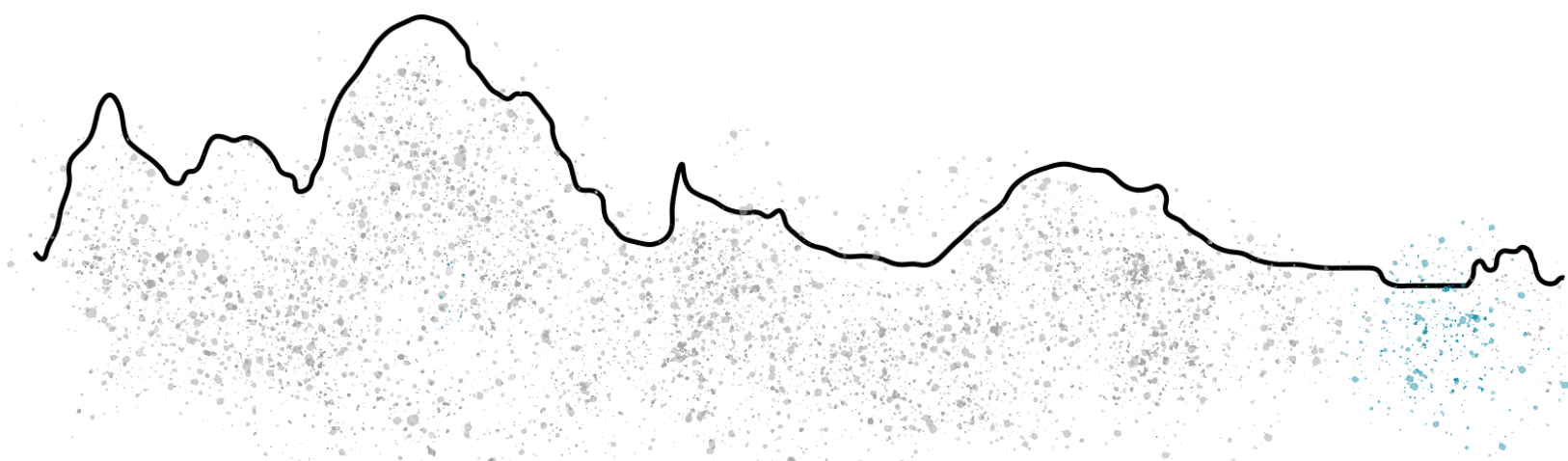
Topography as Exposure



SECTION A-A'



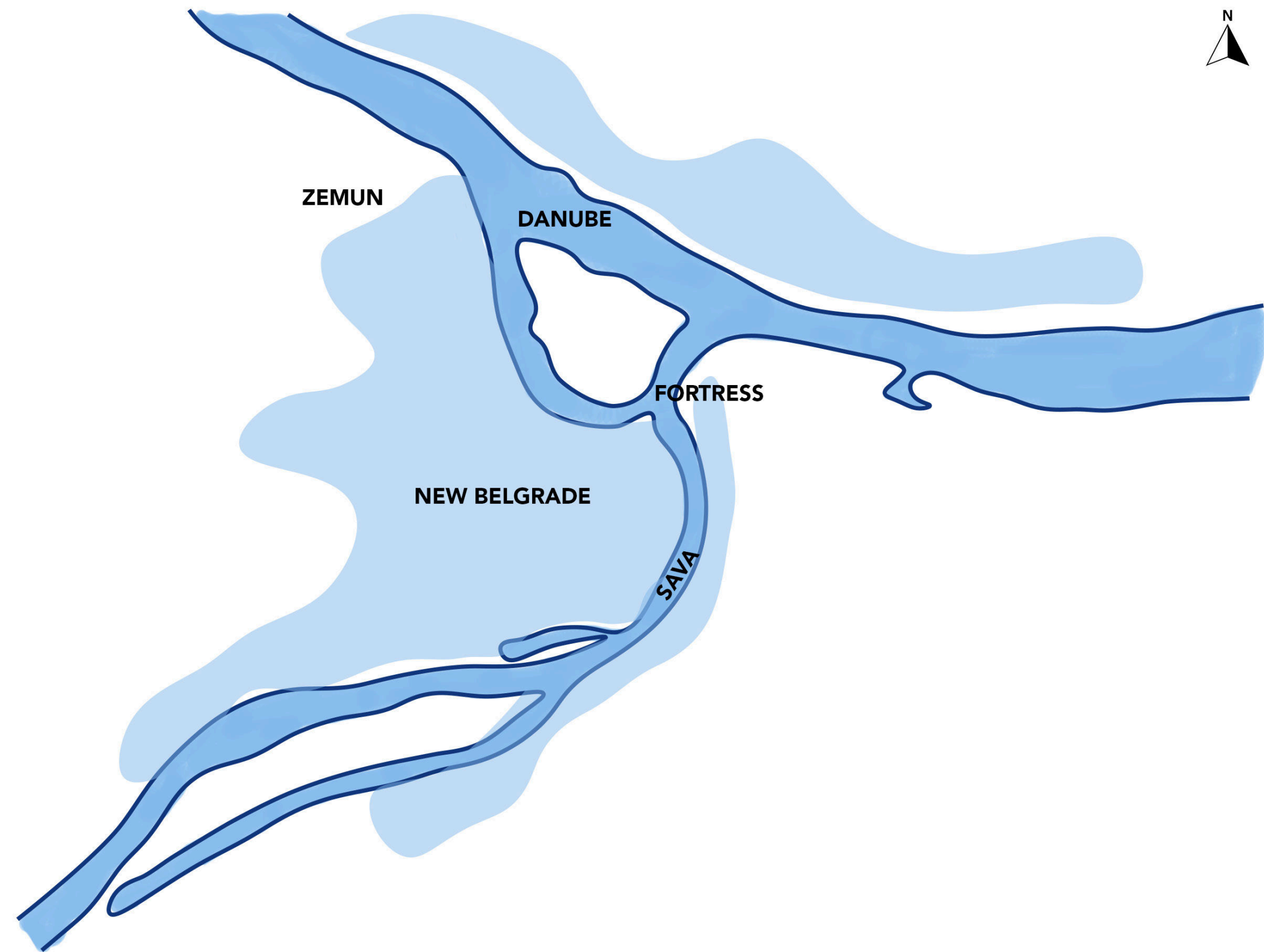
SECTION B-B'



Belgrade’s topography creates two different relationships with water. Section A-A’ shows New Belgrade as a low and almost flat river plain between the Sava and Danube. Because of its limited slope, water moves slowly across this area and the urban surface becomes more open to accumulation near the river edges.

In contrast, Section B-B’ shows Old Belgrade as a higher and more articulated terrain rising from the river system. The fortress and the historic city are positioned on elevated ground, creating a stronger topographic edge between settlement and water. This contrast reveals how exposure is not equal across the city: low and flat areas receive and hold water, while higher areas direct the flow downward.

Water as Risk



Despite Belgrade’s long-standing relationship with water, this proximity also produces vulnerability. Flood-prone areas reveal that water is not only a historical, infrastructural, or public asset, but also an active urban risk. In this sense, the contemporary relationship between the city and water remains unresolved, exposing the need for new forms of adaptation in which living with water becomes a central urban condition.

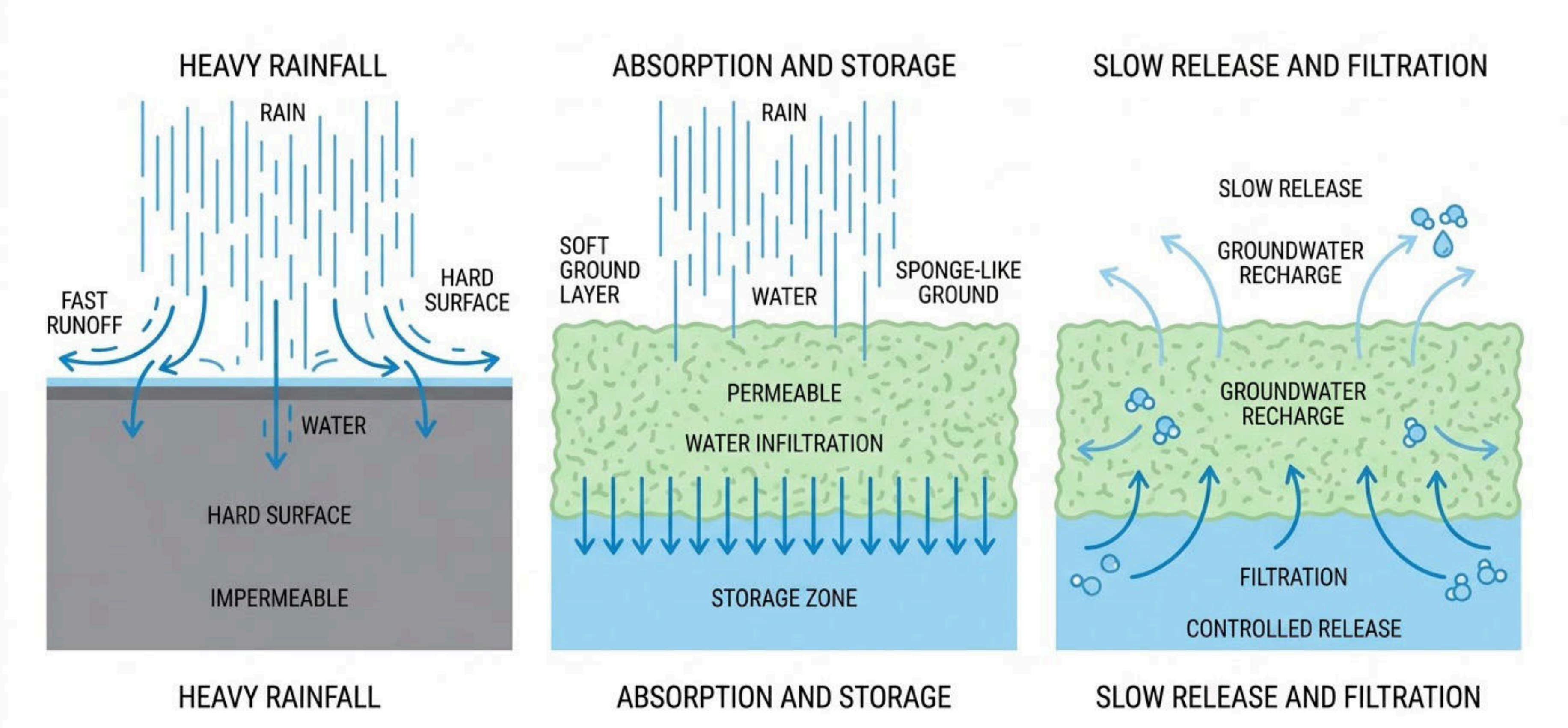
Future Urban Plan-2041 / Development Pressure



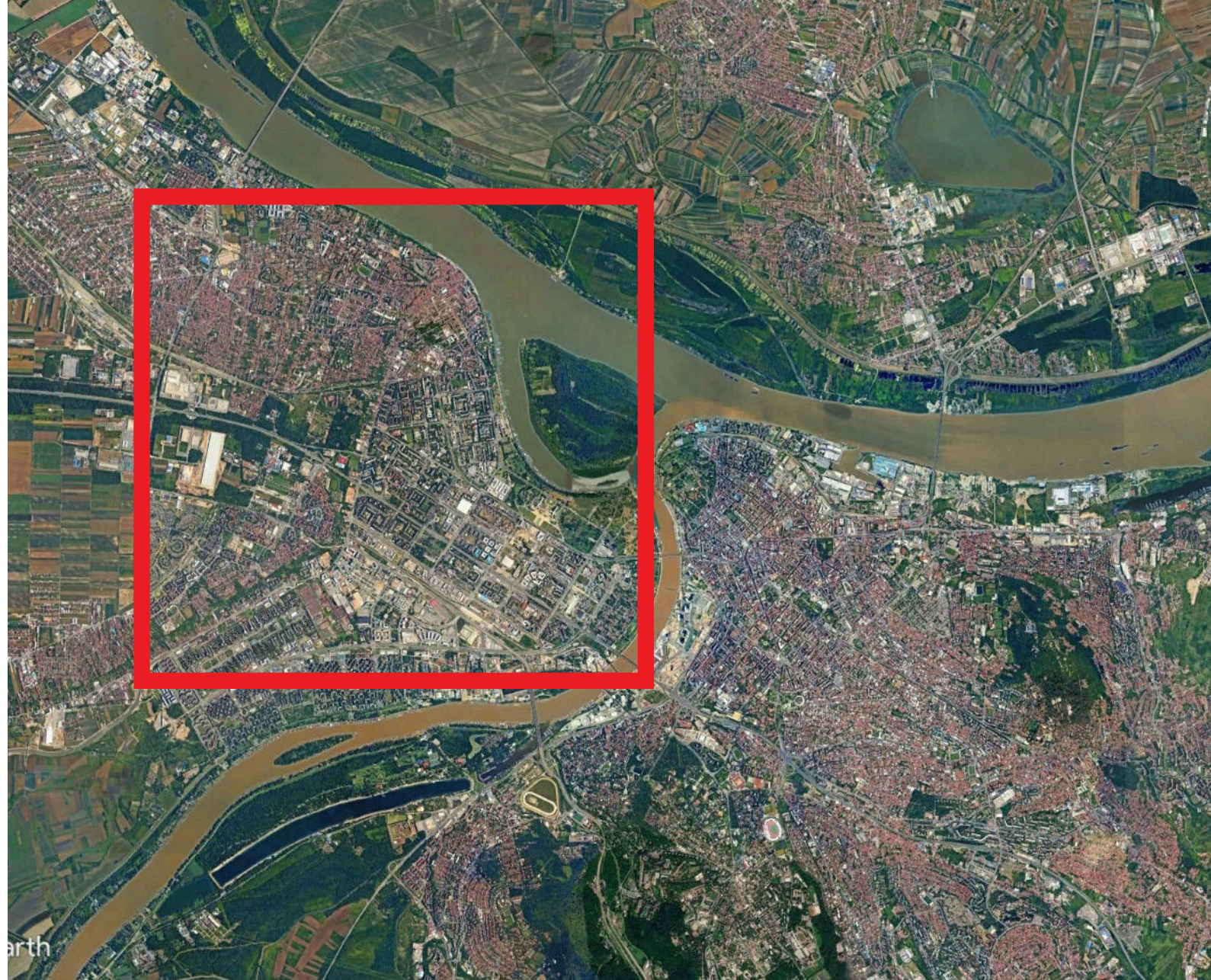
The 2041 plan shows that Belgrade will continue to use water as an infrastructural and economic system—through river transport piers, port functions, river transport corridors, and related mobility networks—while flood adaptation measures are not made equally visible. This suggests that water-related risk may persist in the future urban framework.

CONCEPTUAL STRATEGIES - SPONGE CITY

The term “sponge city” is derived from the ability of natural sponges to absorb, store and slowly release large quantities of water. This principle is being applied to urban areas by designing urban landscapes to absorb, store and release water as needed to mitigate the negative effects of heavy rainfall events.



SELECTED AREA:

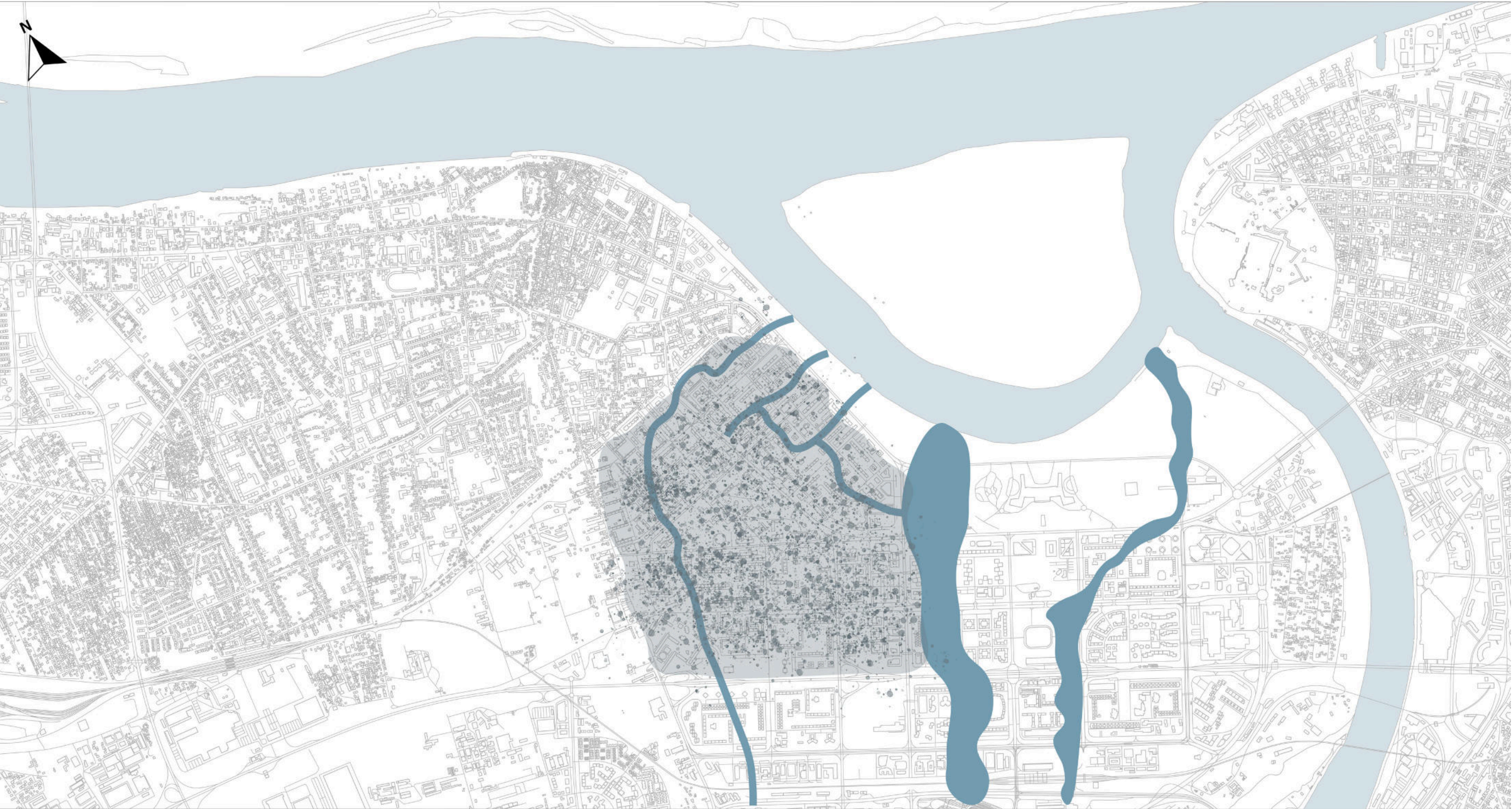


- Historically characterized by its swampy and floodplain nature
 - Having been developed through subsequent landfilling
 - The contrast between the natural terrain and the current urban fabric
 - Serving as a transitional/threshold area between Belgrade and Zemun
 - Its superblock structure allows for the inclusion of large open spaces
 - It possesses spatial potential for transformation and intervention
- The relationship between water and the city is more visibly evident in this area

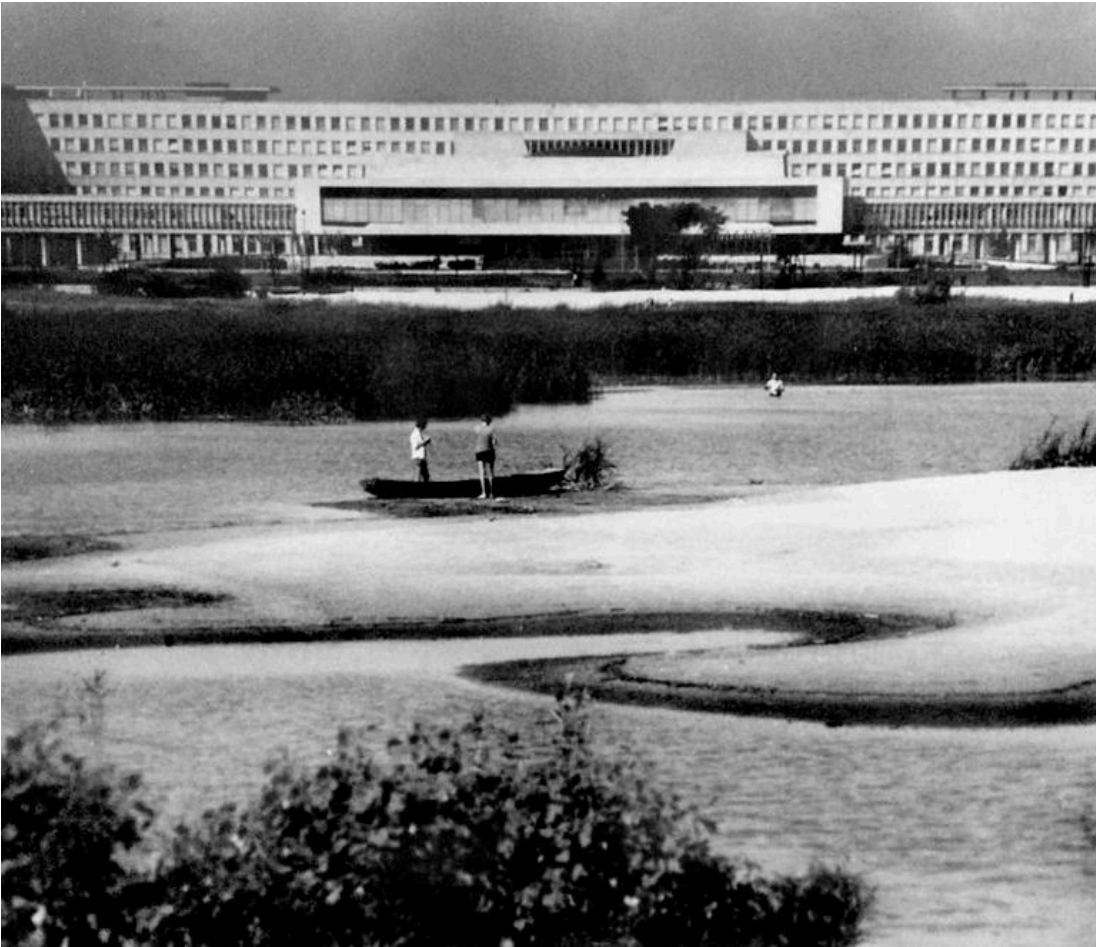
PHOTOS from SITE



Former Water Bodies



This map shows the traces of water that once existed in the project area. Although the area is now built up, the old waterways reveal that this region was historically shaped by water and retains a water-related soil character.



1948



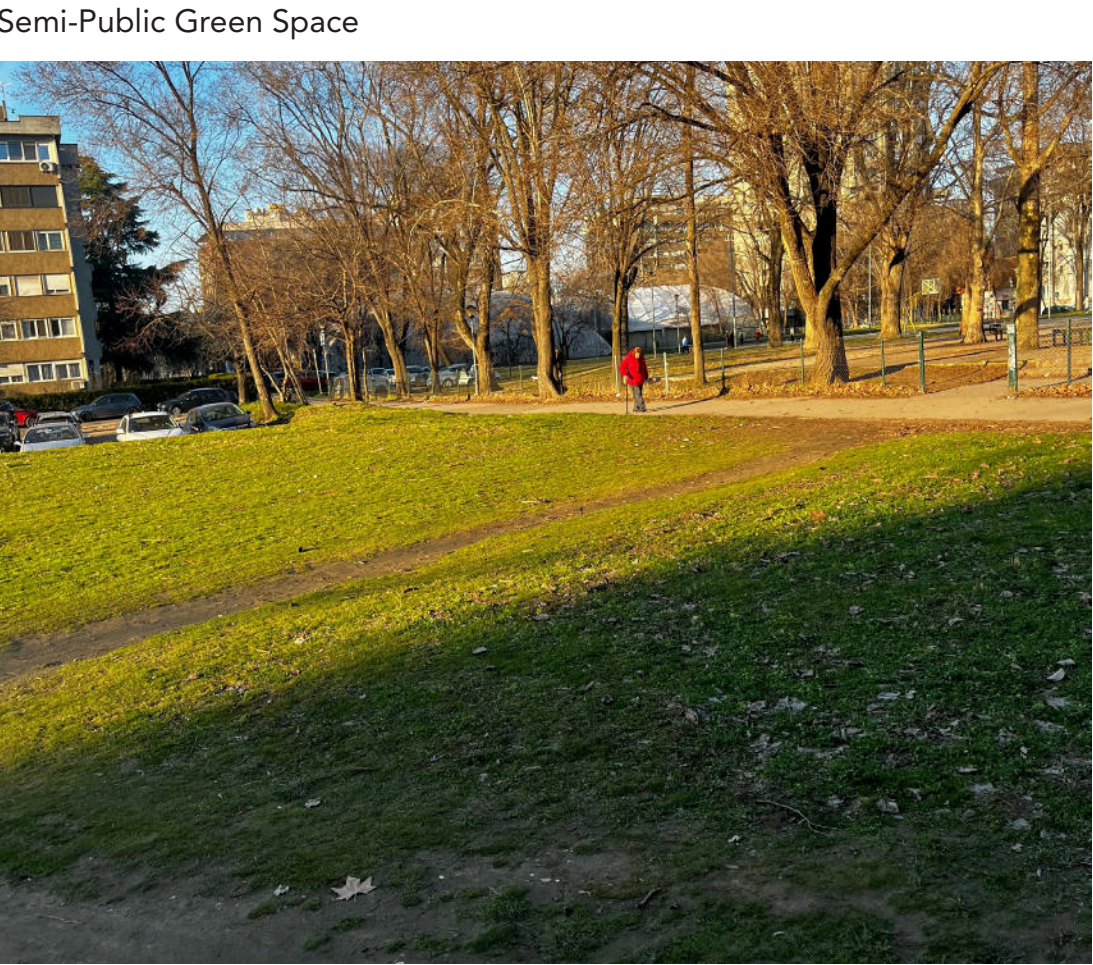
2026

Green Space Network

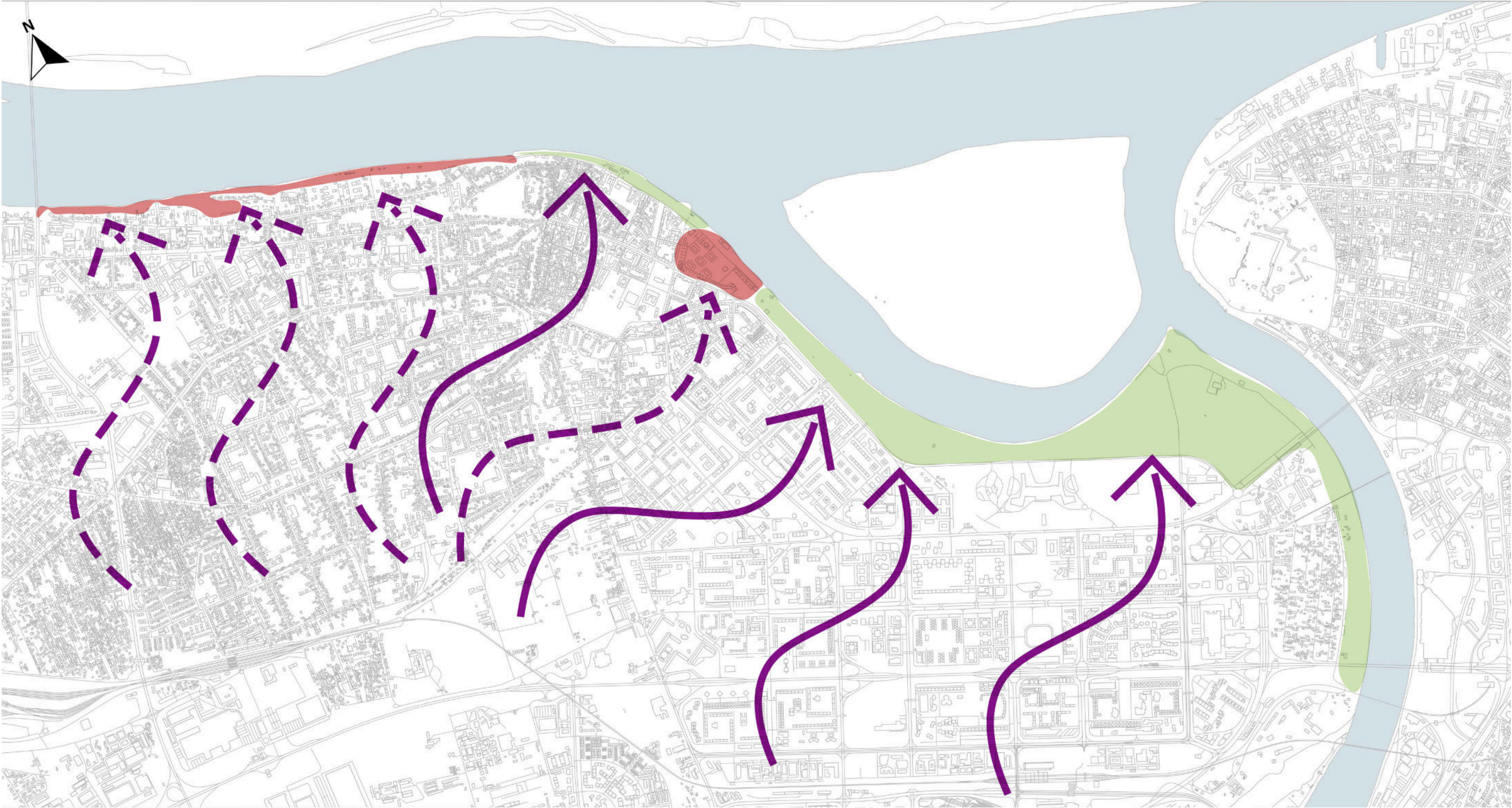


- Public Green Space
- Semi-Public Green Space
- Private Green Space

This analysis reveals the levels of accessibility and usage of green spaces within the project area. While public spaces have the potential to create continuity, semi-public and private spaces highlight the fragmented nature of the existing open space system. This situation indicates that there is potential to establish new public connections within the area and to reorganize the open space system.



Interrupted Waterfront Access



- Interrupted Waterfront Access
- Accessible Waterfront Area
- Pedestrian Access Flow

This analysis shows that the coastline is not equally accessible along its entire length. While some sections of the coastline are open to public use, access is interrupted at certain points due to development and physical barriers. This situation prevents the establishment of a continuous public connection along the coastline and also creates a vulnerability to flooding in areas built very close to the water.

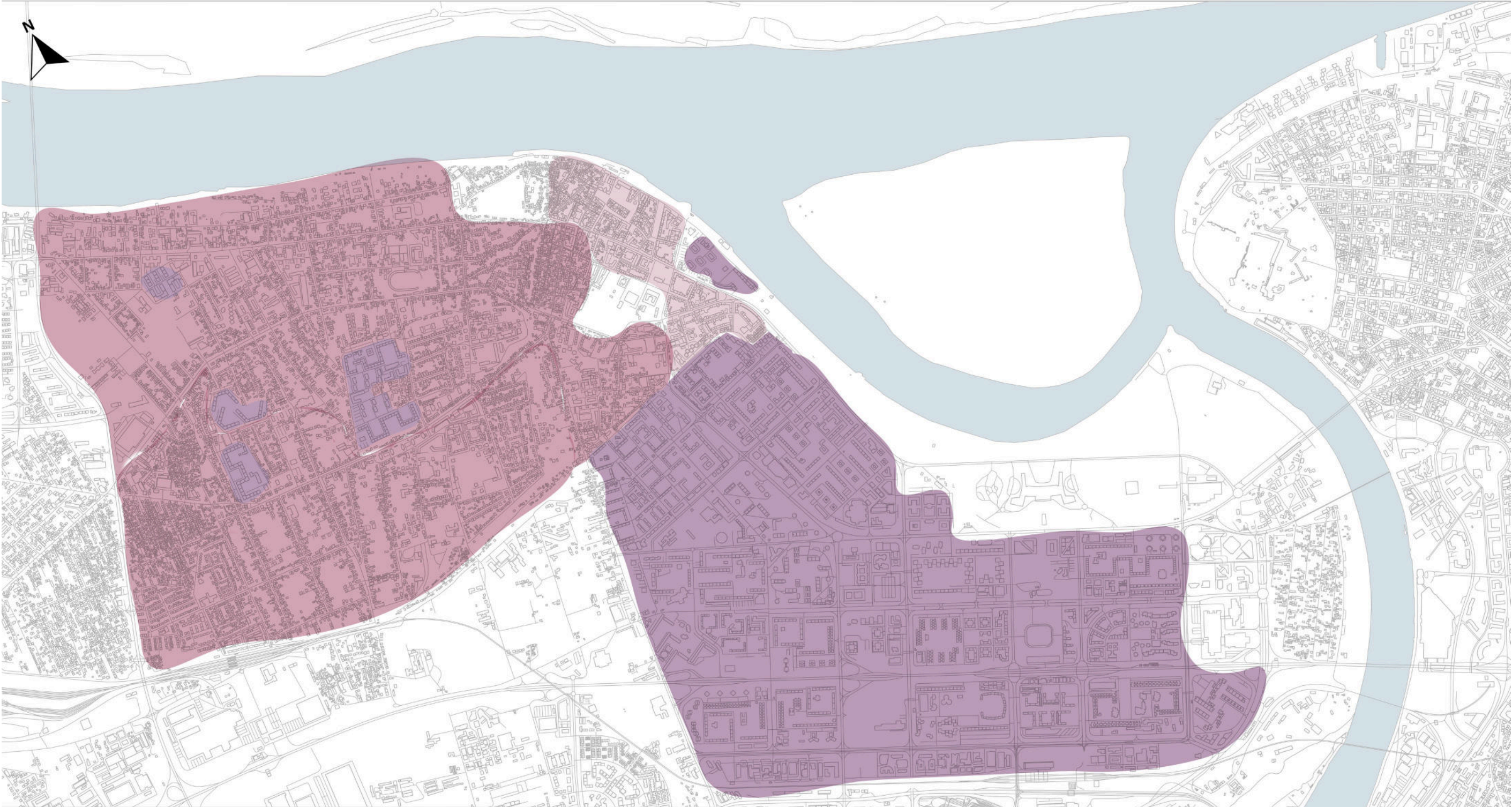
Narrow Waterfront Edge



Residential Edge Without Public Waterfront



Urban Fabric and Open Space Potential



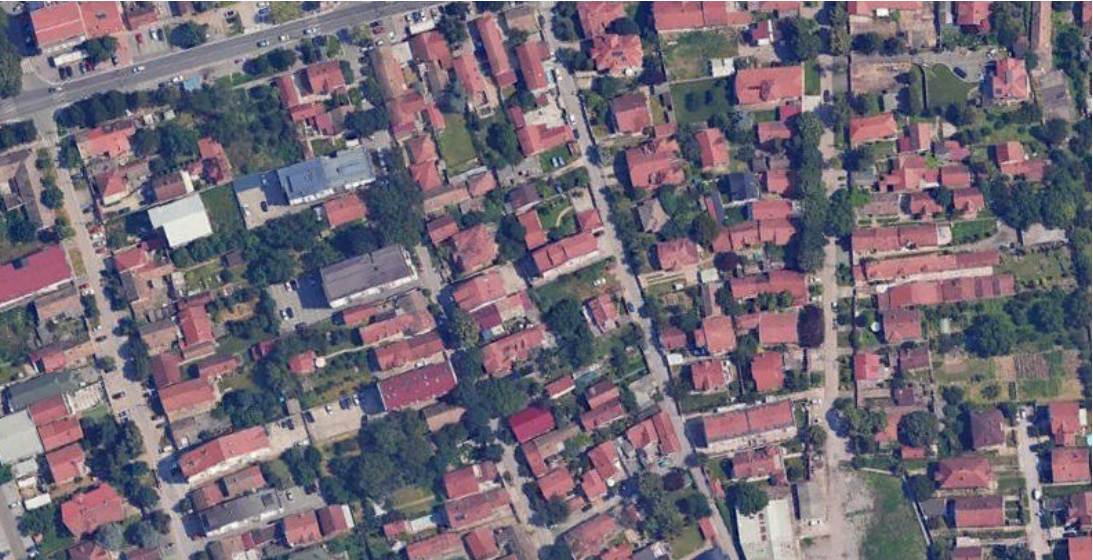
- Superblock with Open Space
- Detached Housing with Private Gardens
- Compact Urban Fabric

This analysis highlights the capacity of different settlement patterns within the project area to generate open spaces. While superblock structures offer the potential for large shared open spaces and courtyards, the low-rise residential fabric with gardens provides opportunities for transformation through private open spaces. In denser areas, however, the lack of open spaces creates potential for rooftop gardens and new small-scale green interventions.

Superblock with Open Space



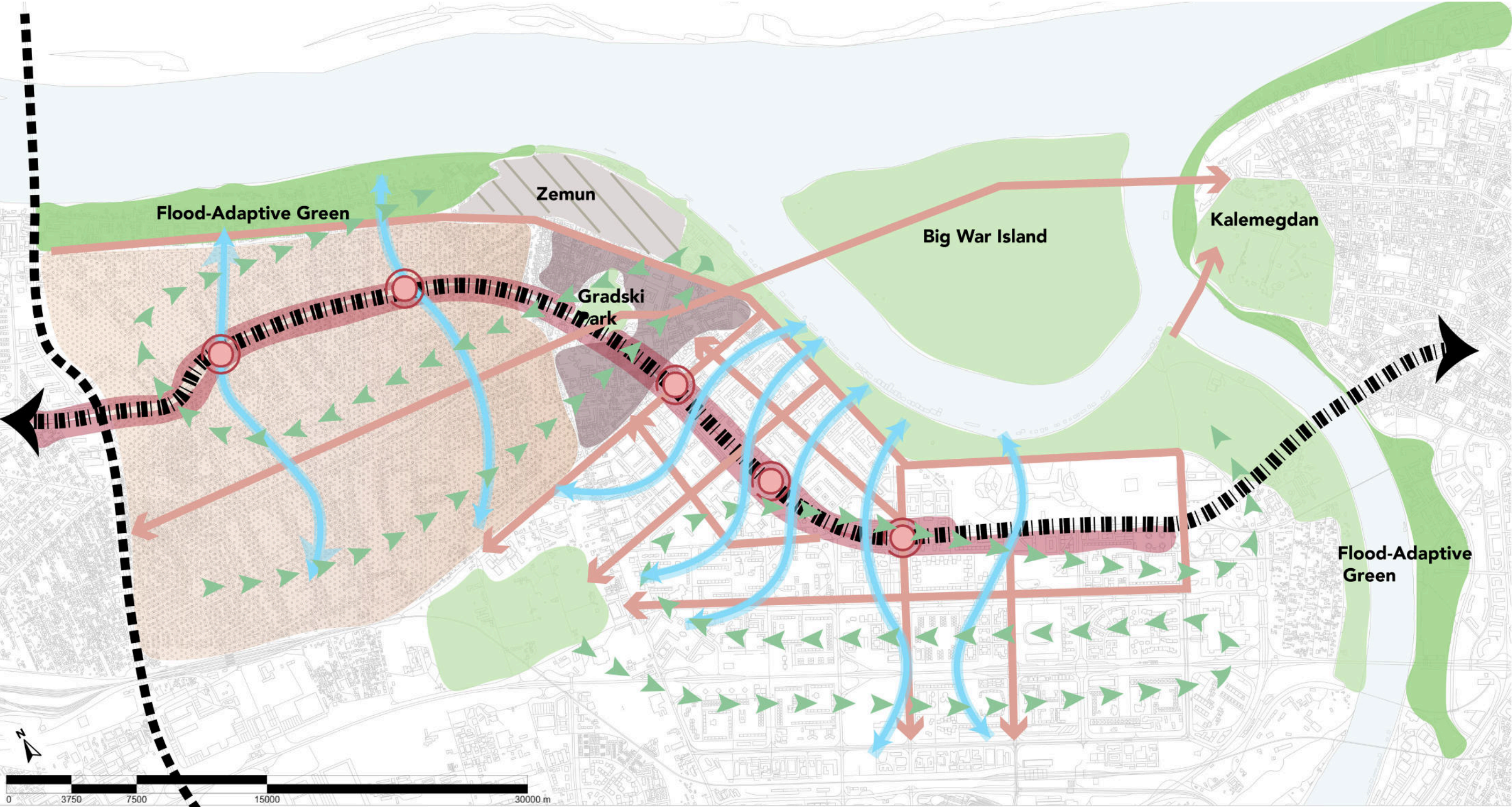
Detached Housing with Private Gardens



Compact Urban Fabric

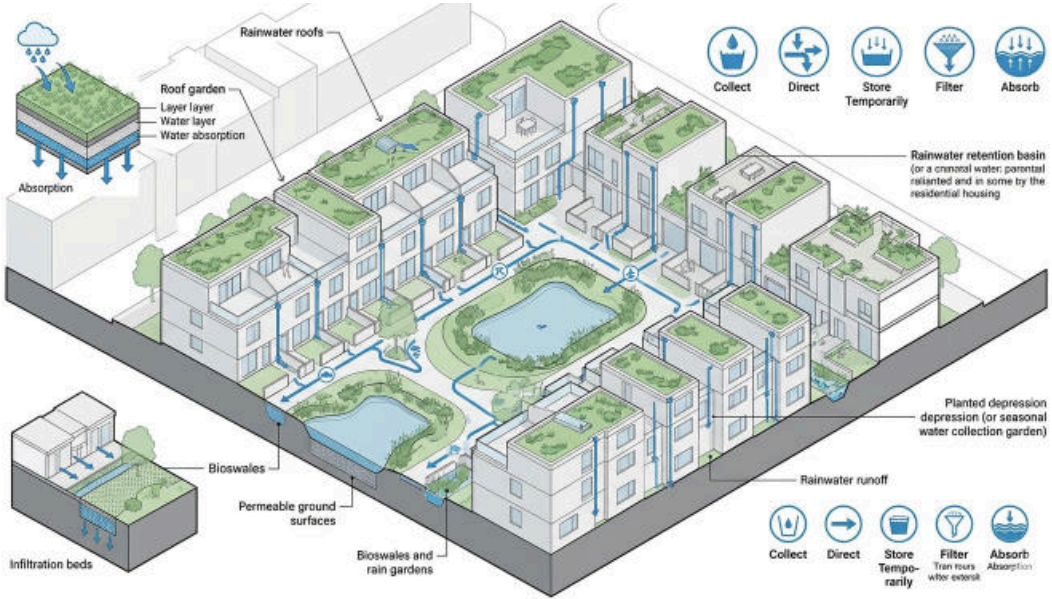
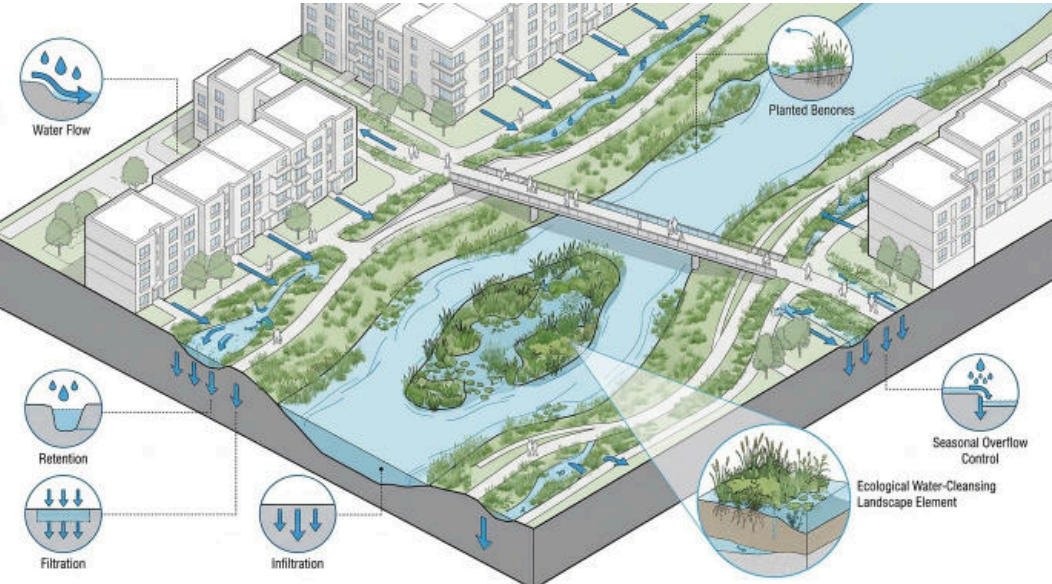
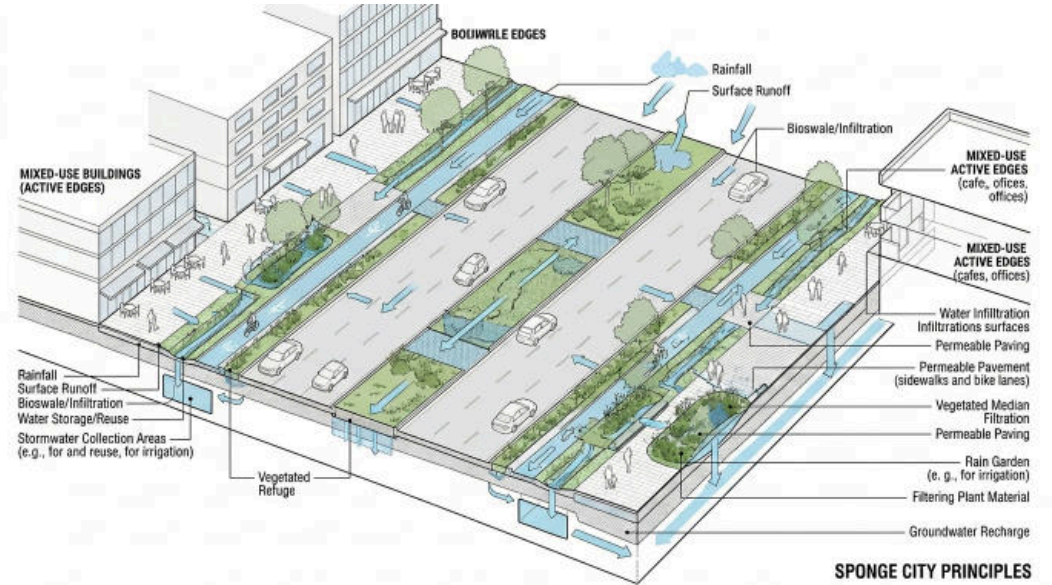


10.000 CONCEPTUAL PLAN

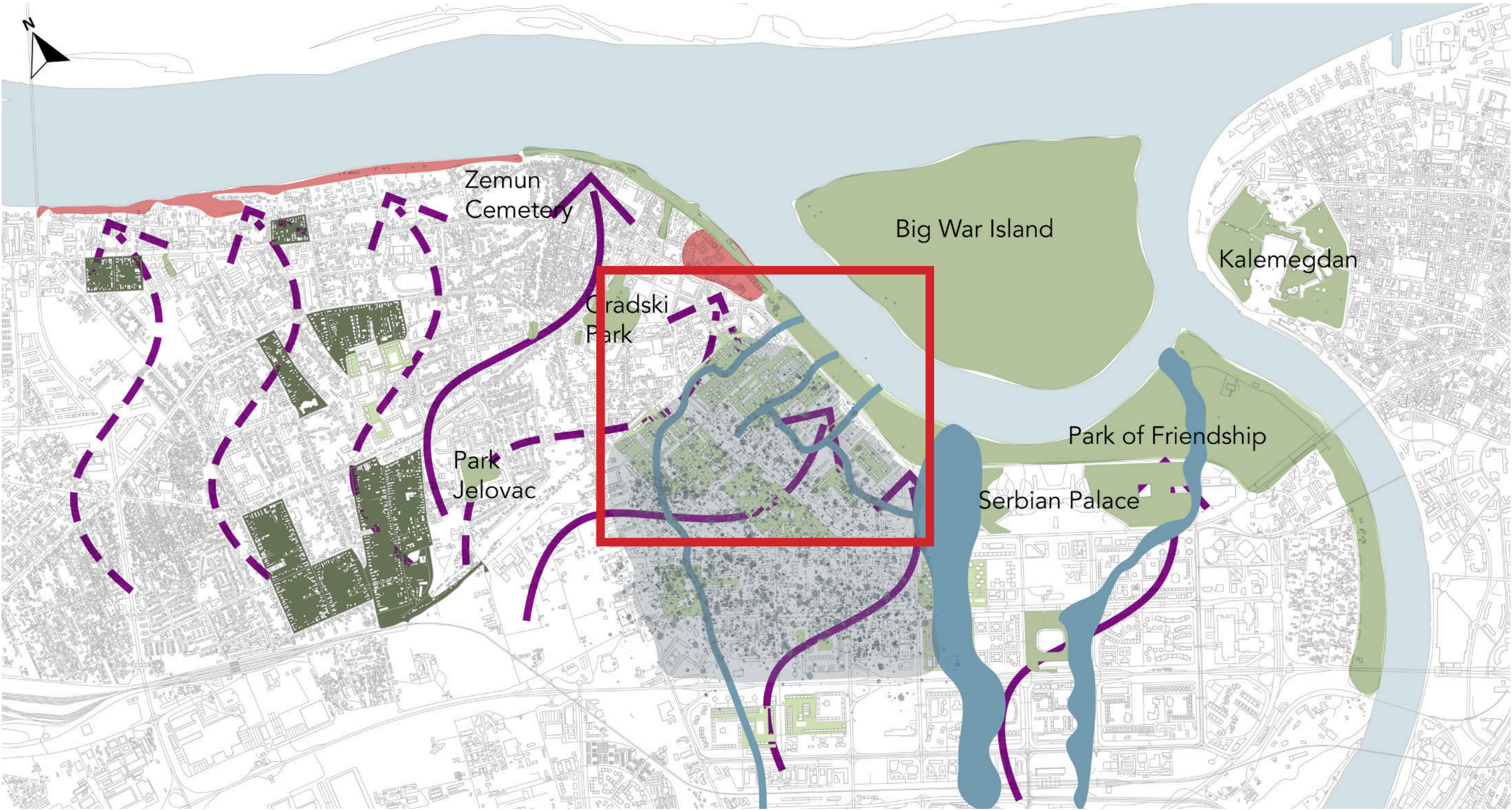


- Pedestrian Priority Heritage Zone
- Pedestrian Road
- Residential Garden Water Collection Area
- New Water Roads
- Commercial Mobility Boulevard
- Green Roof
- Public Realm Connections
- Transversal Green Corridors

The site was conceived as a backbone where the land, the city, and water coexist. My aim was not to create a system that excludes water, but rather to design a framework that integrates water into daily life. For this reason, I proposed flood-resilient green spaces along the waterfront, green corridors in the inner areas, and open spaces connected to water.



Water-Oriented Urban Synthesis



The synthesis map overlaps former water traces, green space networks, waterfront accessibility, and urban fabric potentials. The selected area emerges as a strategic zone where water memory, open space capacity, and public connection opportunities intersect.

Based on the synthesis analysis, this area is selected as the main intervention zone due to its relation with former water bodies, fragmented green spaces, interrupted public access, and its potential to reconnect the urban fabric with water.

Existing Site Condition



The existing site contains different urban patterns, including superblocks, high-rise residential buildings, hotels, and public buildings along the waterfront. Large green areas and open spaces are located between the blocks, creating potential for future connections. The southern part of the park includes low-rise houses, mostly one or two stories, which are in poor physical condition. To the north, the site is connected to the historic Zemun area, giving the area both urban and cultural significance.

1/2000 SITE PLAN



- Residential Buildings Proposed
- Existing Buildings
- Commercial Buildings Proposed
- Riparian Buffer Green Area
- Roof Garden

1/2000 SPRING VIEW SITE PLAN



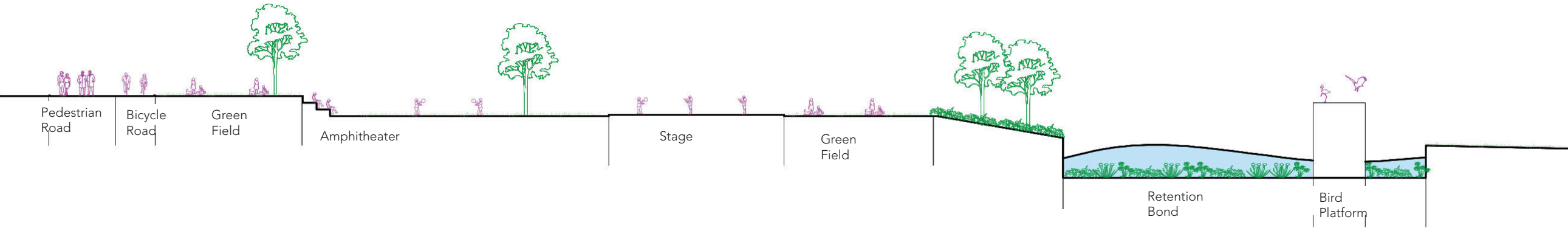
1/2000 FALL VIEW SITE PLAN



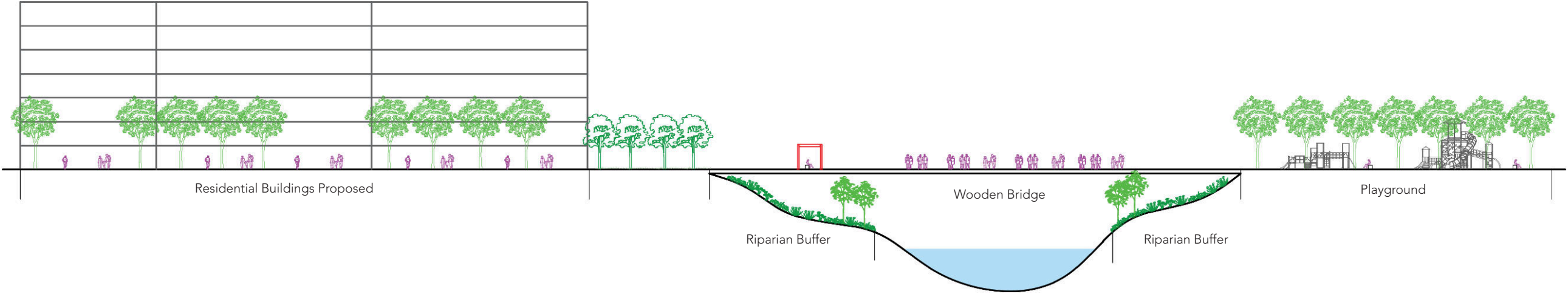
1/2000 SITE PLAN



SECTION A-A'



SECTION B-B'



SECTION C-C'



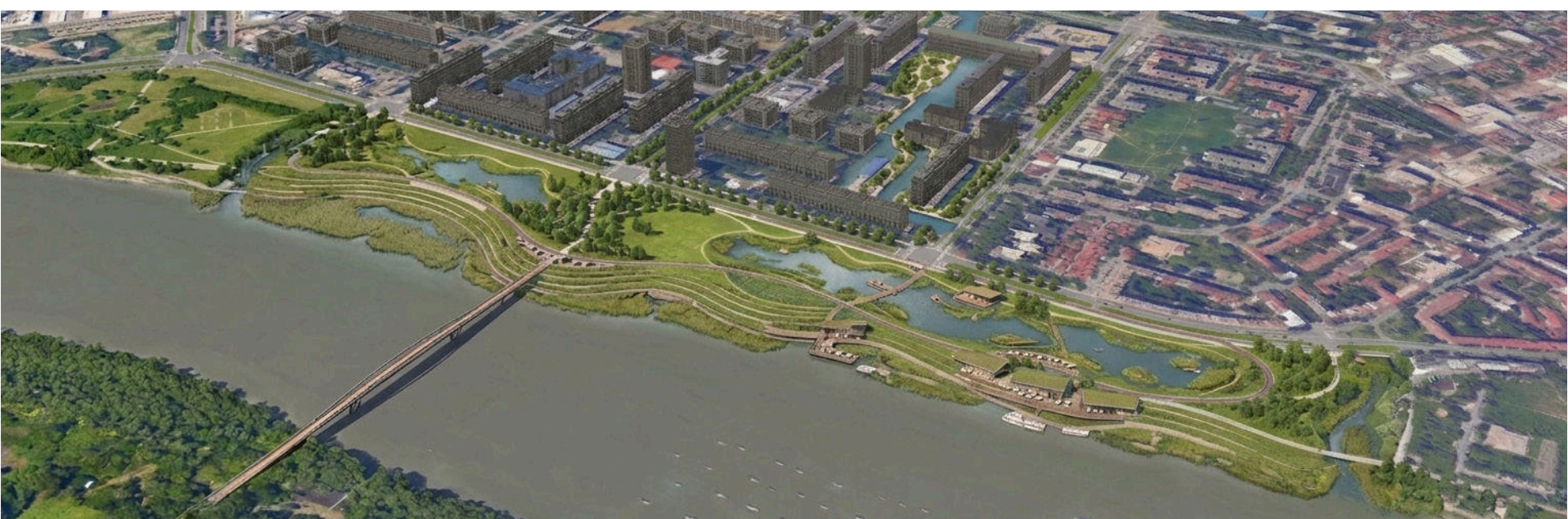
3D of 1/2000

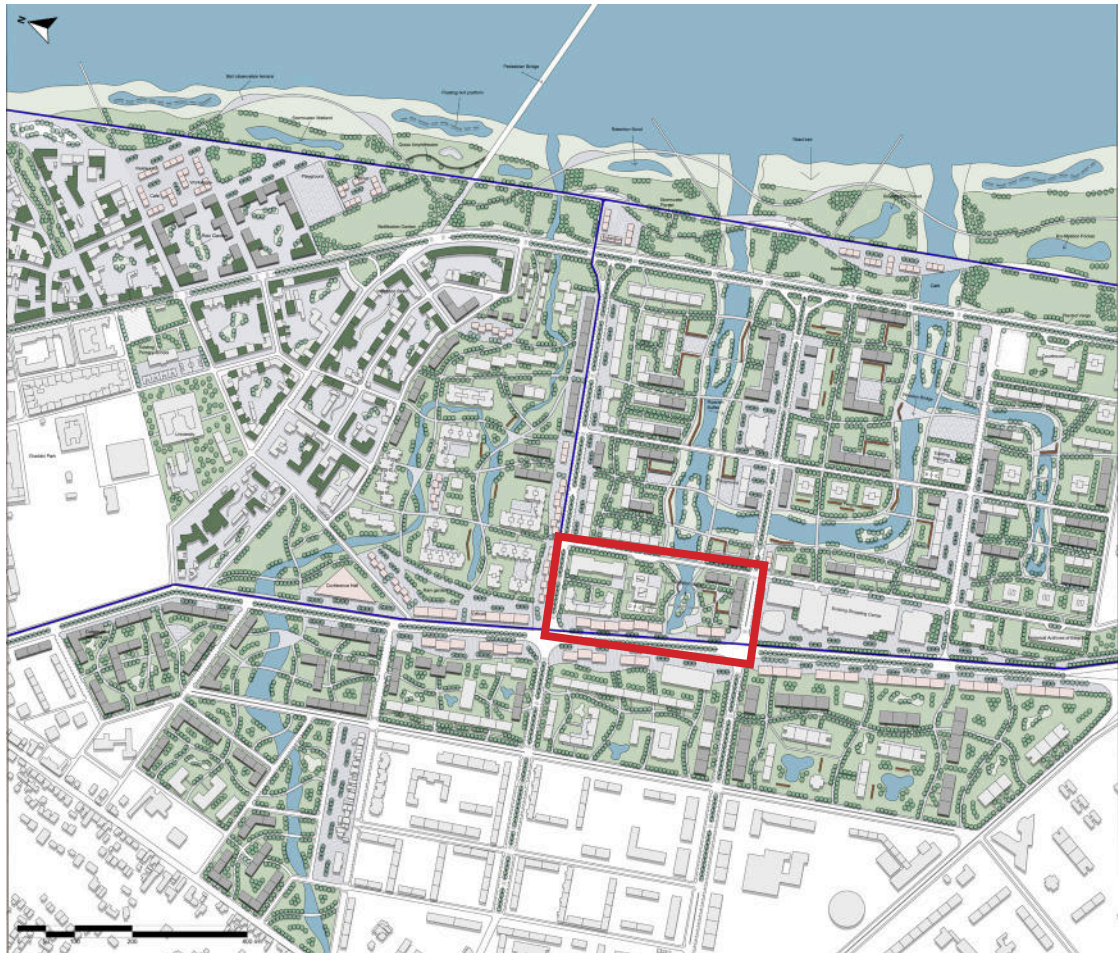
Existing Condition



Proposed Design

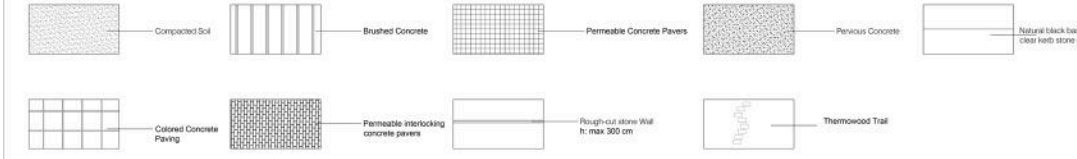
Created by AI





LEGEND

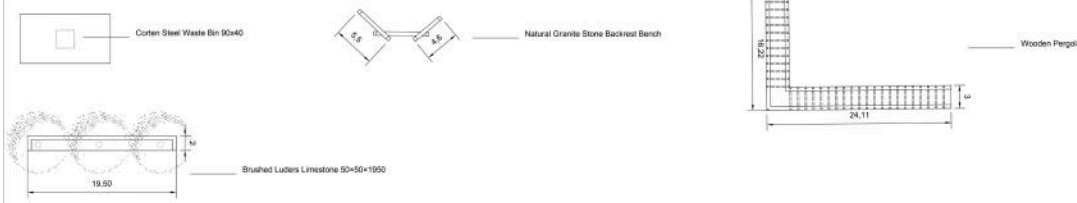
PAVEMENTS – WALLS



INFRASTRUCTURE ELEMENTS



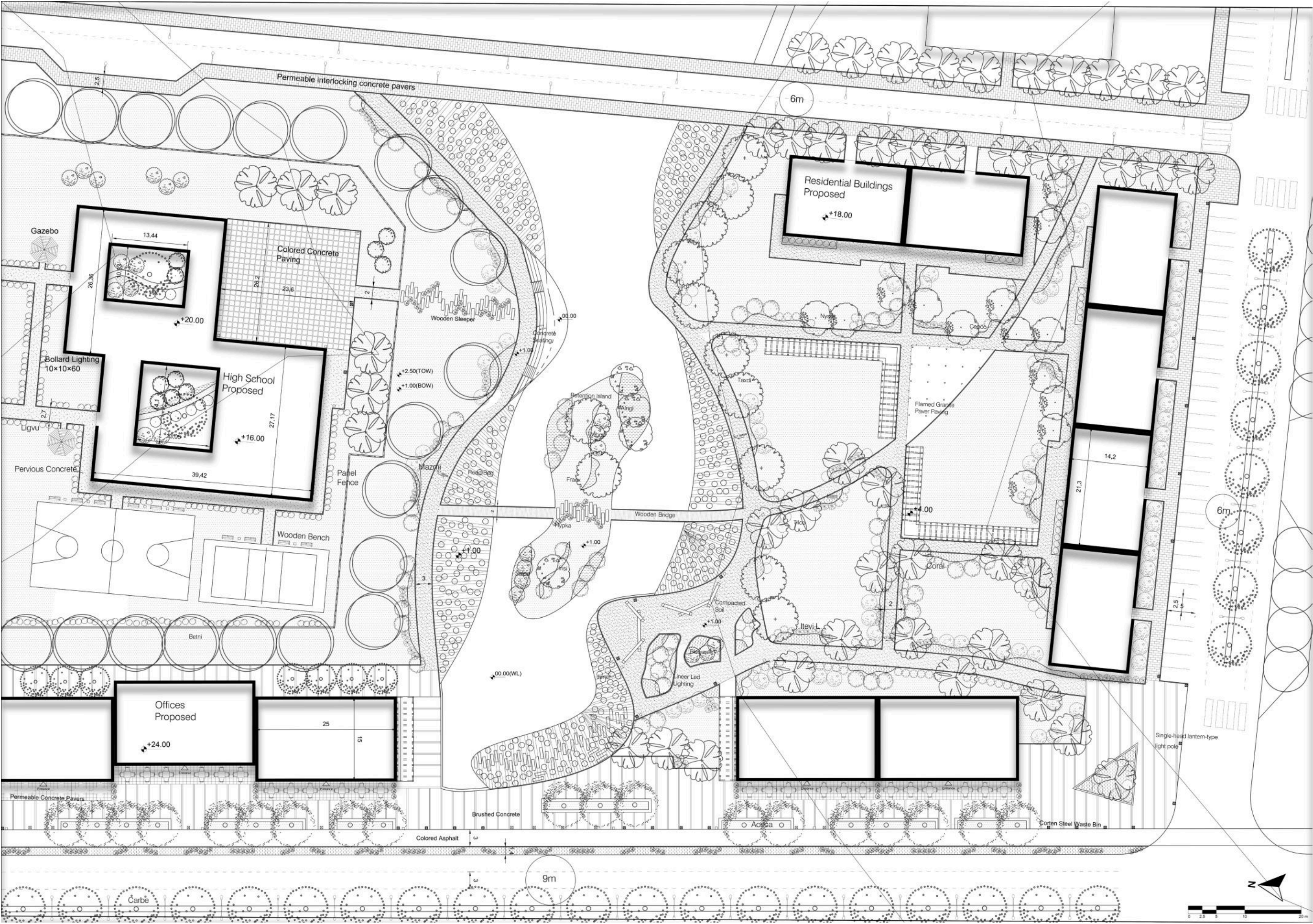
URBAN LANDSCAPE ELEMENTS



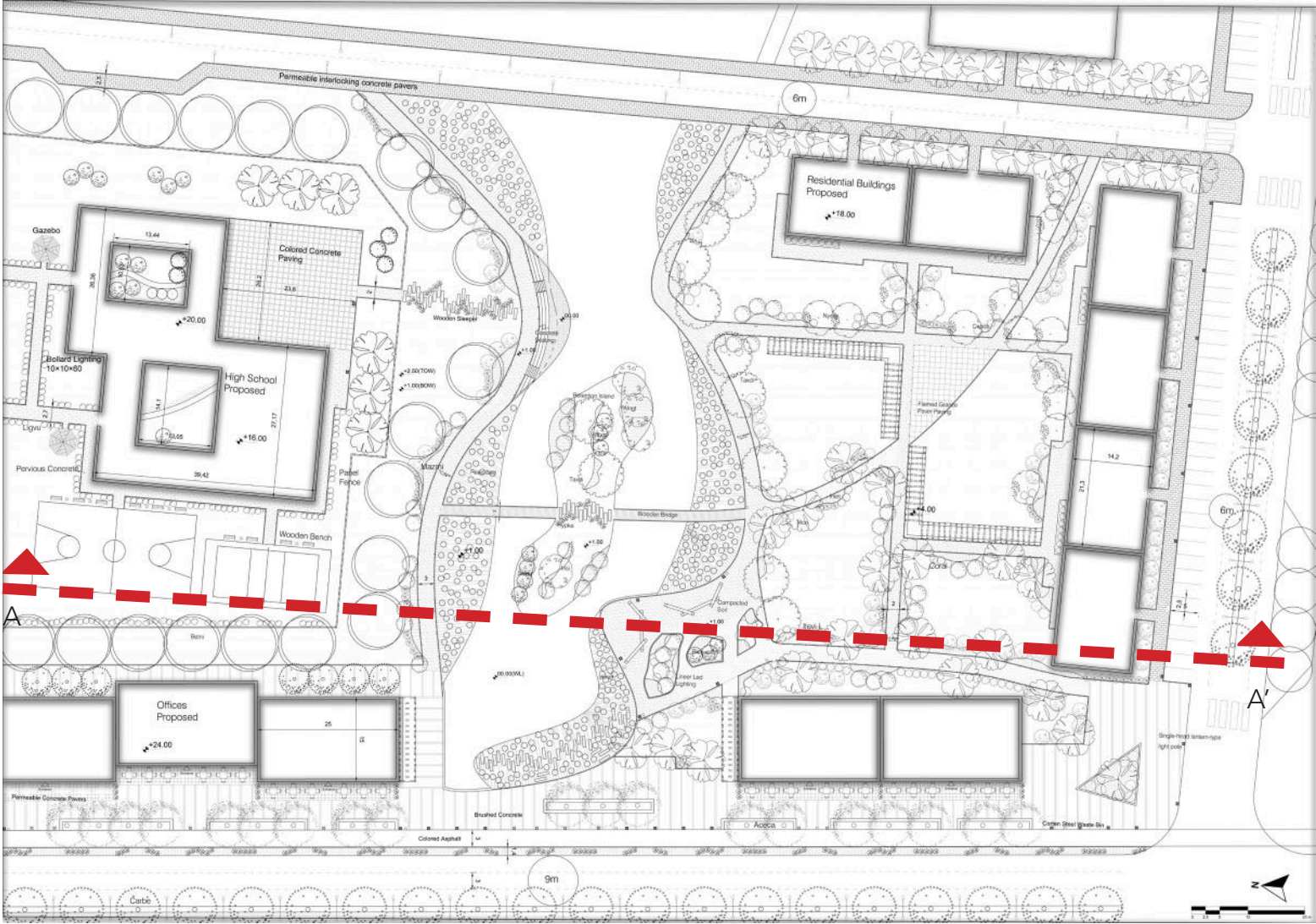
LIGHTING ELEMENTS



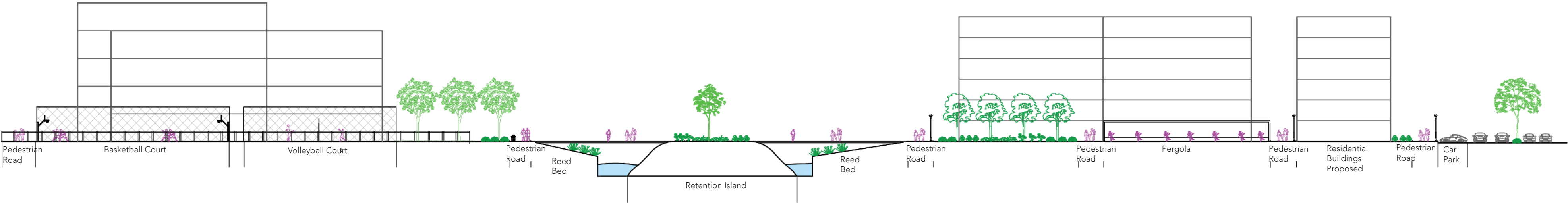
1/200 SITE PLAN



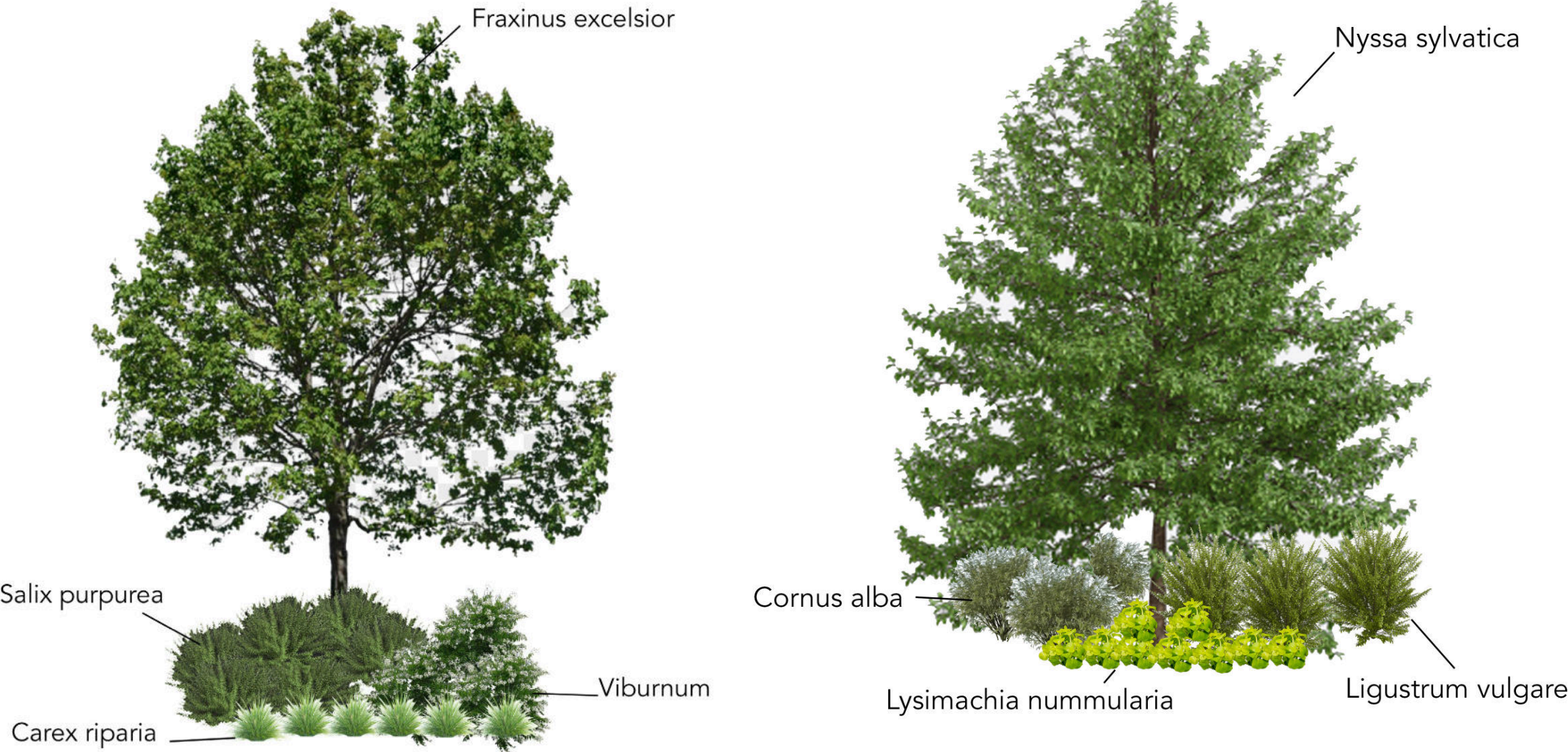
1/200 SITE PLAN



SECTION A-A'



Plant Compositions



SPRING VIEW



FALL VIEW



DAY VIEW



NIGHT VIEW



DAY VIEW



NIGHT VIEW

