Politecnico di Torino

Honors Thesis

Master's degree Science in Architecture Construction City

Abstract

The New Tajrish Square in Tehran
As a Resilient Built Environment:
Between Water, Topography, and Urban Space

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This thesis examines Tajrish Square, a strategic urban node in northern Tehran, located at the confluence of two streams within the river-valley system descending from the Alborz range. Rapid urban expansion, stream covering, increasing density, and infrastructural interventions misaligned with the site's geomorphology have compromised spatial legibility and public-space quality, increasing environmental and hydraulic vulnerability, perceptual fragmentation, and conflicts among vehicular flows, pedestrians, and urban functions.

The work adopts a multi-scalar framework (Tehran – District 1/Shemiranat – Tajrish), integrating historical-morphological reading and regulatory assessment (Tehran Master Plan/PRG), in-situ surveys, and targeted qualitative and quantitative checks. The theoretical background frames water as a cultural and spatial structure of Iranian cities and recalls the logic of qanats as a historical infrastructure linking geomorphology, settlement patterns, and green systems. In parallel, the analysis traces the evolution of public space and recent municipal regeneration trajectories, focusing on District 1 and the Tajrish–Rey axis. At the local scale, SWOT analysis and critical synthesis organize the evidence into three domains guiding the design: mobility, social-sensory experience, and environmental performance.

Based on this diagnosis, the design proposal treats water as civic infrastructure and the valley as a structuring device for public space. The masterplan recalibrates the vehicular ring and reclaims its interior as an open-air fluvial park, defining a continuous slow-mobility corridor separated from traffic, with gentle ramps, at-grade crossings aligned with desire lines, and a sequence of terraces and small plazas for resting and micro-uses. Stormwater management is embedded in urban form through draining terraces designed for distributed infiltration and a temporary detention basin at the confluence; the strategy is completed by a rainwater cistern and wetland-based treatment and by regulating runoff from the most impervious surfaces, reducing peak flows and improving comfort and safety. A coherent set of low-maintenance material and planting choices supports ecological and microclimatic spatial quality. The outcome reframes vulnerability as resilient landscape infrastructure and proposes a replicable method for Tehran's river valleys.

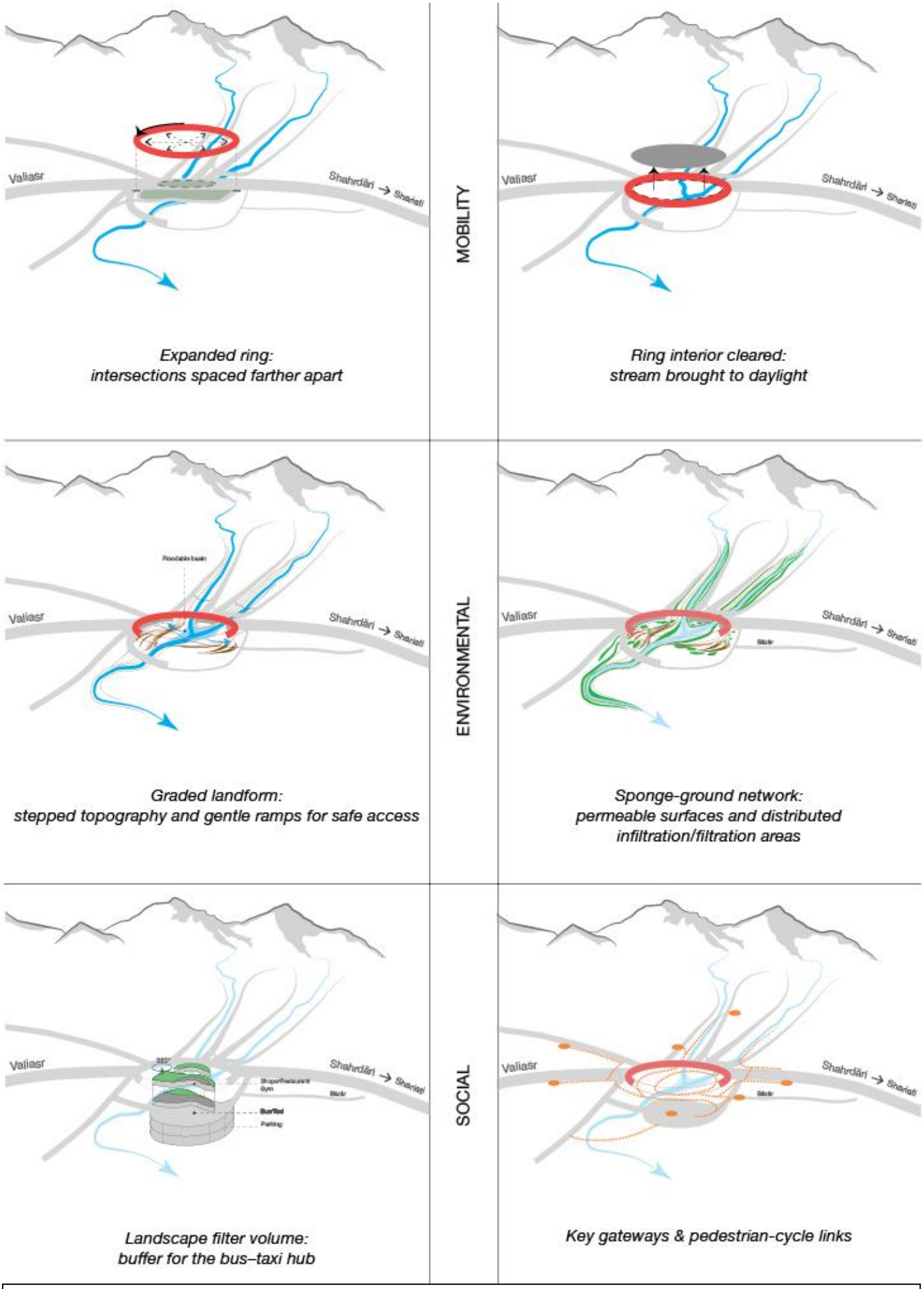

Fig. 1 – Design concept: six integrated moves (mobility, environmental, social) to bring water back to daylight and reorganize public space.

Fig. 2 – Overall masterplan.

Fig. 3 – Project perspective sections.

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