DESIGN PROJECT - SIE 2026

Designing quality public spaces in urban areas : a Bellinzona (TI) case study

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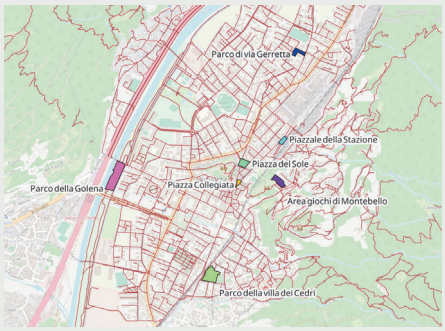
Urban open spaces are under increasing pressure from climate change, rising temperatures, biodiversity loss, and shifting social demands. This project investigates how seven public spaces in Bellinzona (TI), a UNESCO World Heritage city, can be optimised through multifunctional, ecosystem-based design strategies, simultaneously addressing environmental performance, social quality, and universal accessibility.

1 Introduction

Bellinzona, capital of Canton Ticino, offers a diverse urban fabric: a UNESCO-listed historic centre, transit infrastructure, riverside corridors, residential neighbourhoods, and cultural parks.

Seven representative sites were selected across four typologies to capture the full range of urban conditions in a medium-sized Swiss city.

7 sites



4 Typologies

- **Natural / recreational parks** — Villa dei Cedri · Golena · Montebello
- **Historic squares** — Collegiata · Piazza del Sole
- **Residential space** — Parco di Via Gerretta
- **Mobility hub** — Piazzale della Stazione

2 Objective

RESEARCH QUESTION

How can urban open spaces in Bellinzona be optimised in a multifunctional way, integrating ecosystem services while simultaneously responding to environmental challenges, user needs, and long-term urban resilience?

THREE SUB-OBJECTIVES

1- Diagnose environmental and social performance across 7 contrasting sites
2- Identify systemic patterns and site-specific failure modes
3- Develop nature-based, multifunctional proposals adapted to each urban typology

3 Methodology

1. **Field observation :** Standardised grid across 10 dimensions (vegetation, soil, water, accessibility, social dynamics, spatial quality) applied consistently across all 7 sites.
2. **User perception survey :** 82 respondents across 7 sites (27 March 2026), rated on 6 synthetic criteria: Comfort, Shading, Vegetation, Noise, Social Use, Inclusivity (scale 1–5).
3. **Typology-based gap analysis :** Observed scores compared against typology-specific performance targets (natural park / historic square / mobility hub / residential space) to identify performance deficits relative to contextual expectations, not universal standard

4 Results

Field observations and 82 user surveys (6 criteria, 1–5 scale) across 7 sites revealed strongly differentiated performance profiles. Three key divergences emerged.

Divergence 1
Social masks ecology

Piazza Collegiata: Comfort 4.0/5 despite Vegetation 1.4/5, thanks to market activity. Outside active periods, the deficit becomes fully exposed.

Divergence 2
Accessibility underestimated

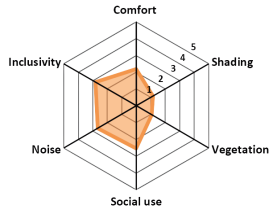
Surveys only capture users who can reach the space. Montebello records the best environmental scores but the worst accessibility gap of all 7 sites (2.4/5).

Divergence 3
Environmental poverty drives underuse

Piazza del Sole records the lowest scores of the entire study (Vegetation 1.1/5, Shade 1.2/5) despite a central location and exceptional symbolic value.

ILLUSTRATIVE CASE

Piazza del sole · User perception survey

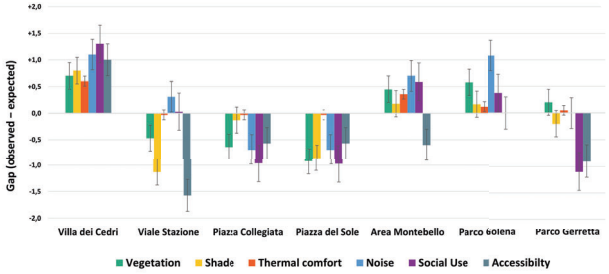


CROSS-SITE OVERVIEW

Gap to expected threshold - all 7 sites

▼ Negative gap = below typology expectation
▲ Positive gap = meets or exceeds it.

Each site is judged against its own typology, not a universal standard.



5 Design Proposals

- P1 - NATURE BASED SOLUTIONS
- P2 - MULTIFUNCTIONALITY
- P3 - THERMAL COMFORT AS PREREQUESITE
- P4 - UNIVERSAL ACCESSIBILITY
- P5 - SPATIAL ACTIVATION

Piazza del Sole · Design example

Tactical activation — 0–2 yr · Low cost
Temporary furniture, ephemeral gardens, event programming to test uses. → P5

Structural greening — 2–5 yr · Medium
Large-canopy trees, water jets, benches facing Castelgrande. → P1 · P2 · P3

Permanent structures — 5 yr + · High
Retractable shade structures, vegetated pergolas. → P1 · P3 · P4

Each intervention assessed on :

Priority · Expected benefits · Cost · Complexity · Impact · Responsa-bility

6 Conclusion

1. Nature-based solutions are the primary design lever : trees, permeable surfaces and green networks act as infrastructure, addressing thermal comfort, ecology and spatial quality at once.
2. Social quality does not follow automatically from ecology, spatial organisation, ground surface and accessibility are as structuring as vegetation.
3. Programmatic activation is a powerful low-cost complement, tactical urbanism and participatory processes deliver visible results before major investment.

LIMITATIONS
Single spring weekday, few answers, qualitative observation, findings indicative, not definitive

IMPROVEMENTS
Seasonal validation, stratified sampling of excluded groups, quantitative measurements

OUTLOOK
A transferable, low-data diagnostic tool for medium-sized European cities