

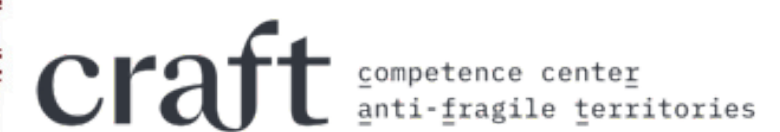
Natural Based Solutions

Experiencing Nature Outside

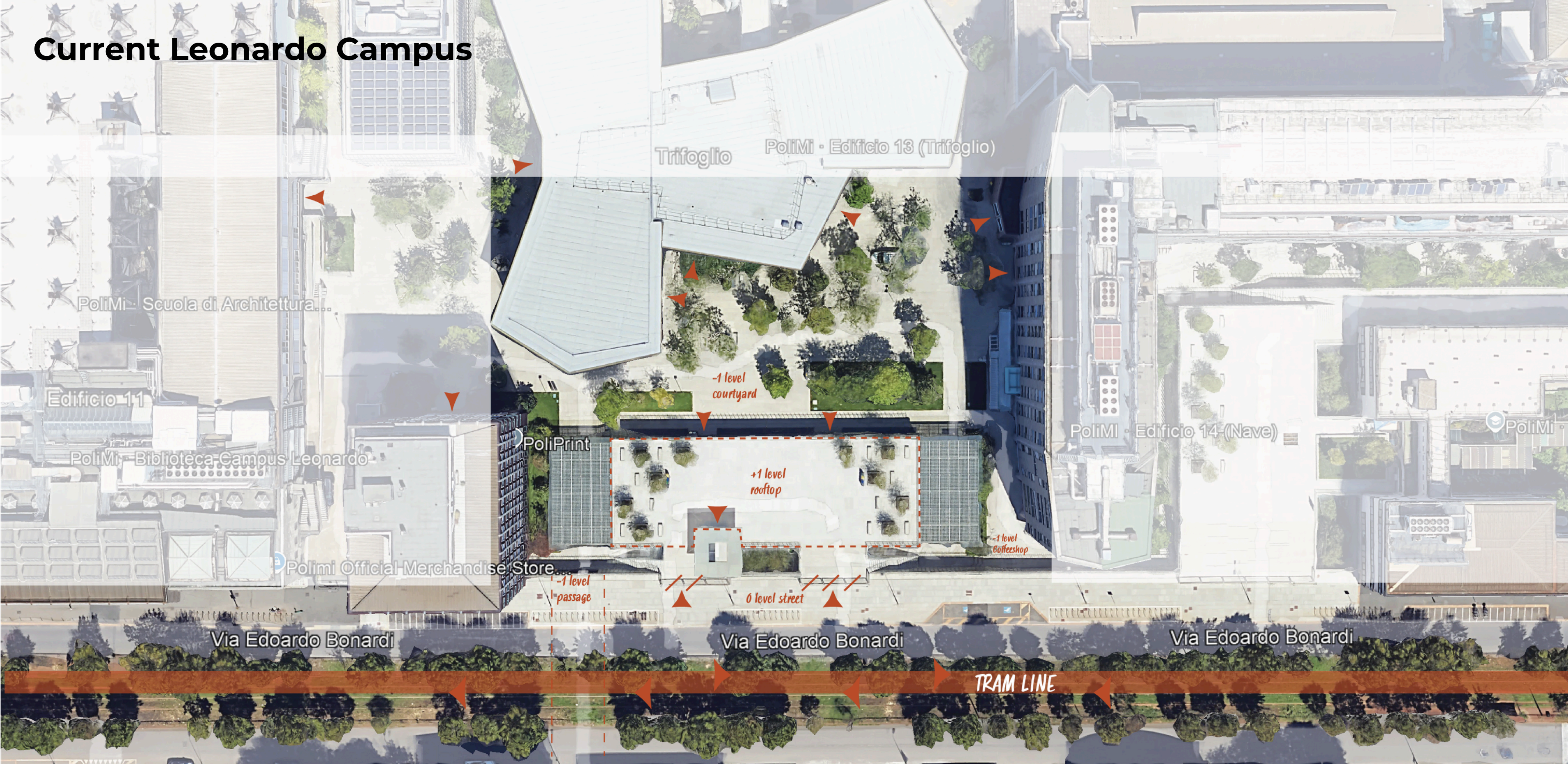
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Hend Abdelrazek

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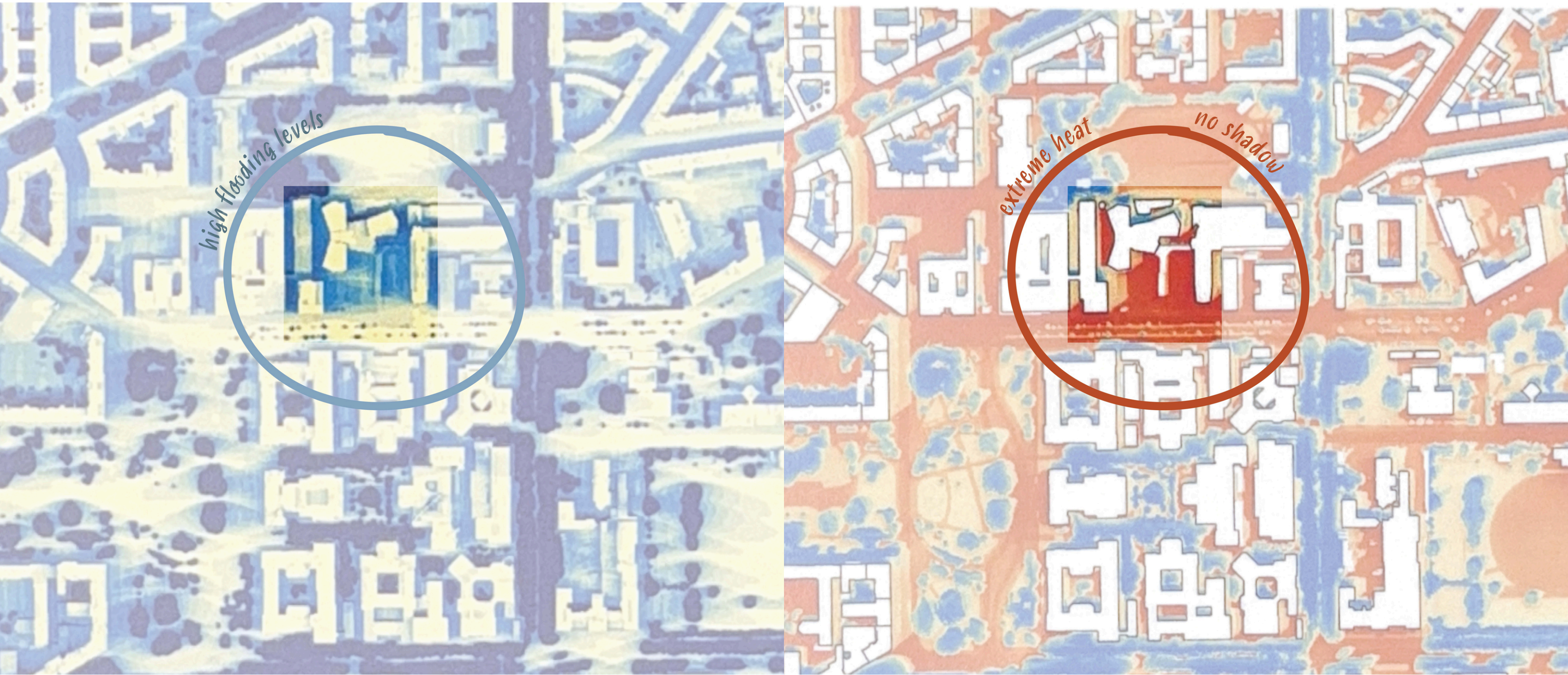
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S

1. **Transitional Space** - Lots of people goes through the spaces
2. **Multi-user**- Used for different purposes: variety of functions - services- student buildings- admin
3. **Multi-function** People use the space to have lunch
4. **Connection** point- crossway- wayfinding
5. Place for social encounters
6. **Multi-levels**

O

1. Potential for integration across **different functions – activation of the different spaces**
2. Potential **integration across mobility paths**
3. **Mitigate water runoff** / increase water absorption
4. **Introduce bio barriers**
5. **Increase biodiversity and shade**
6. **Build ecological connectivity** between tree corridor and other green areas around trifoglio

SWOT Analysis



W

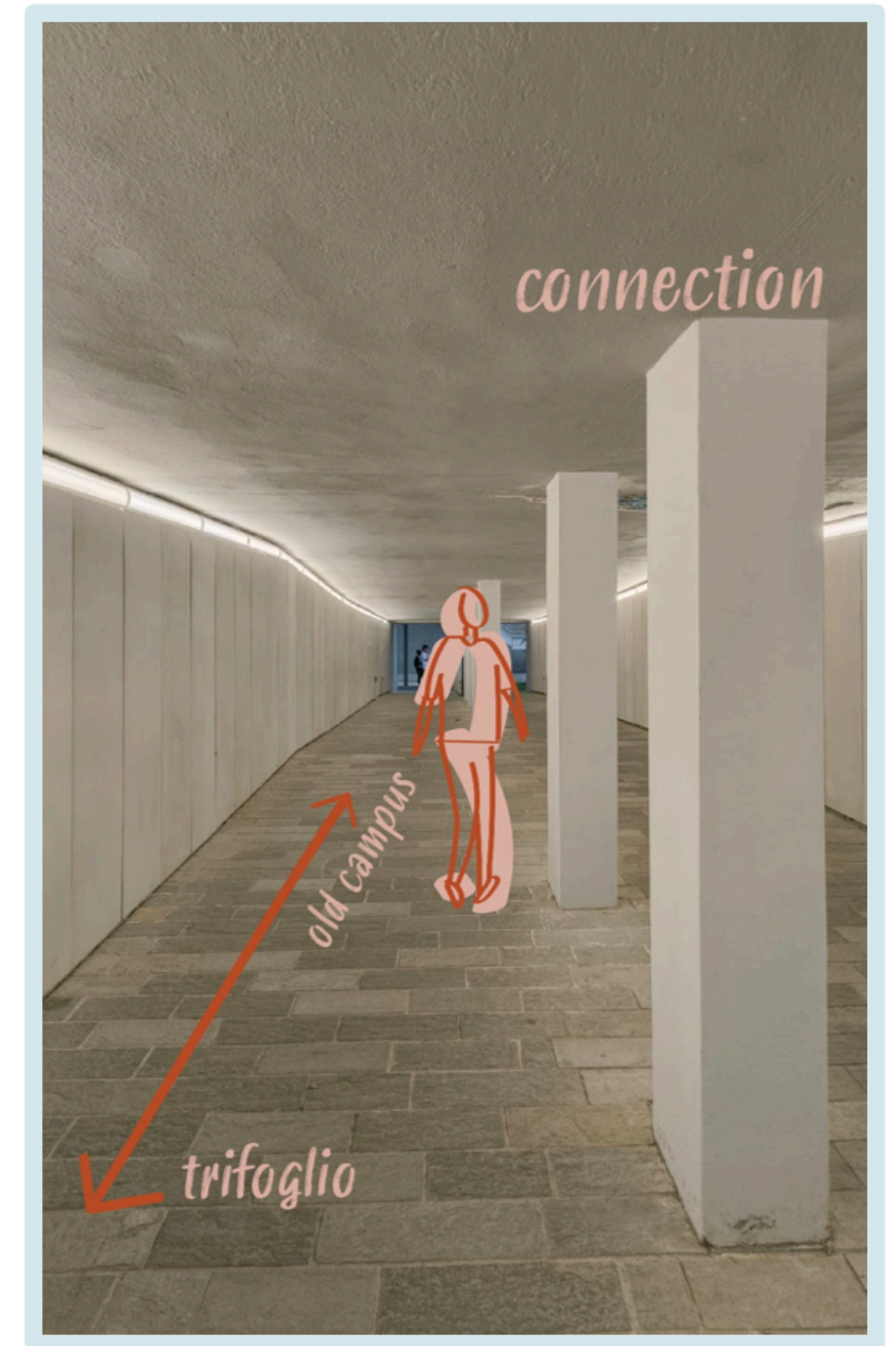
1. **Gates close at 8pm** – temporality can be an issue
2. It is a **passing through** but not necessarily a **go to point**
3. **Connects to high-risk building** areas, so safety and security issue
4. Trees and **nature under stress**
5. **Low biodiversity** – no ecosystem but just isolated trees
6. **Uncomfortable furniture** -not fit for purpose very hard
7. **Noise** from tram

T

1. **High heat**
2. The site is a **gathering point for emergency evacuation** (elevator is also used for disability access)
3. Potential **flooding** coming from the tunnel (runoff water)
4. **Tram line**

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S W O T



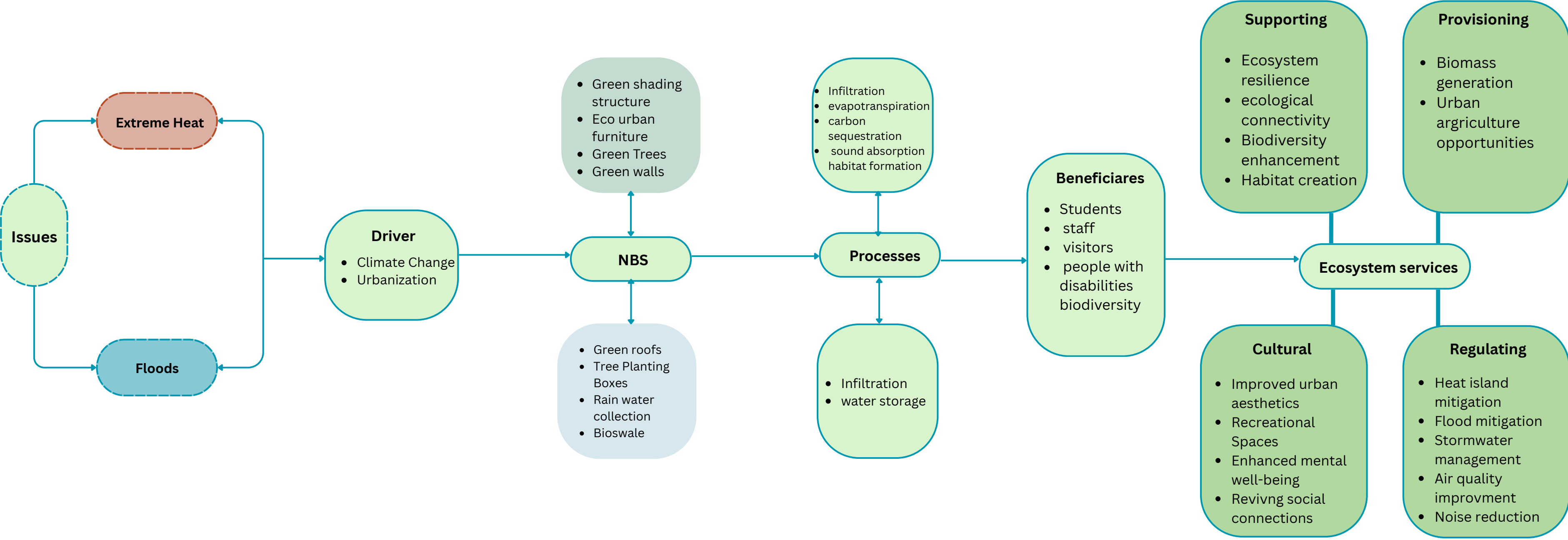
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Why NBS

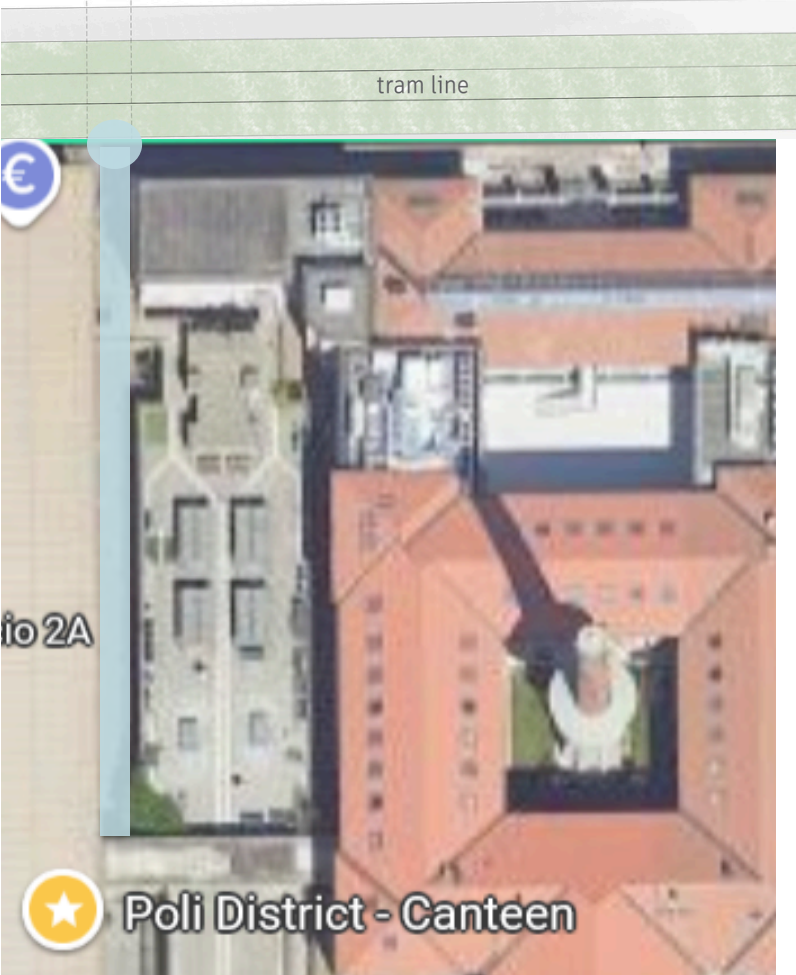
Dimension	Nature-Based Solutions (NBS)	Technical / Grey Solutions
Urban cooling	Evapotranspiration + shading reduce temperatures and urban heat island effect	Limited cooling; often stores and re-radiates heat, intensifying heat island effect
Flood management	Infiltration, retention, and delayed runoff reduce peak flows	Rapid drainage increases downstream flood risk and sewer
Cost performance	Lower long-term maintenance and provides multiple co-	High construction and maintenance costs; energy-
Biodiversity	Creates habitats and improves ecological connectivity	Minimal ecological value; habitat loss or fragmentation
Social & wellbeing	Improves mental health, walkability, and urban livability	Limited or no direct social benefits; often creates harsh
Carbon impact	Carbon sequestration and reduced emissions via cooling	High embodied carbon (concrete/steel) and operational
System function	Multifunctional (climate, water, ecology, health)	Single-purpose infrastructure (drainage, cooling, etc.)

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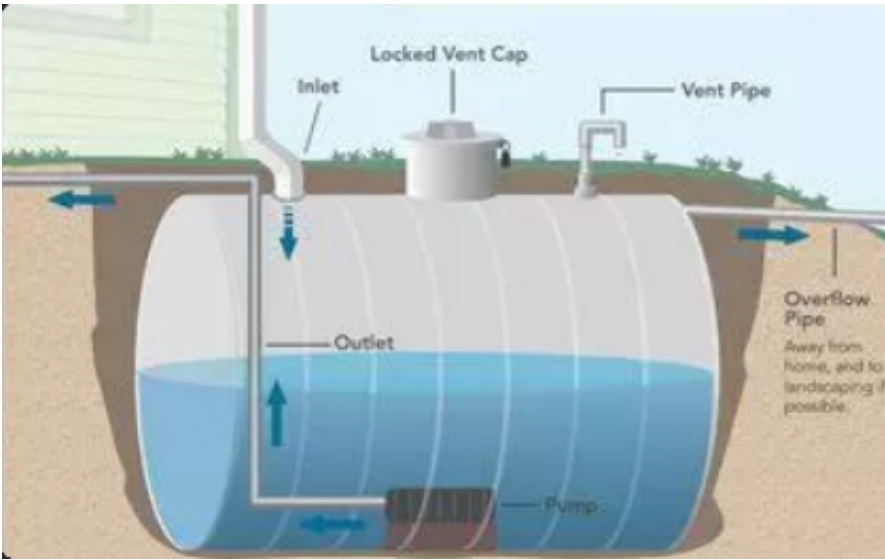
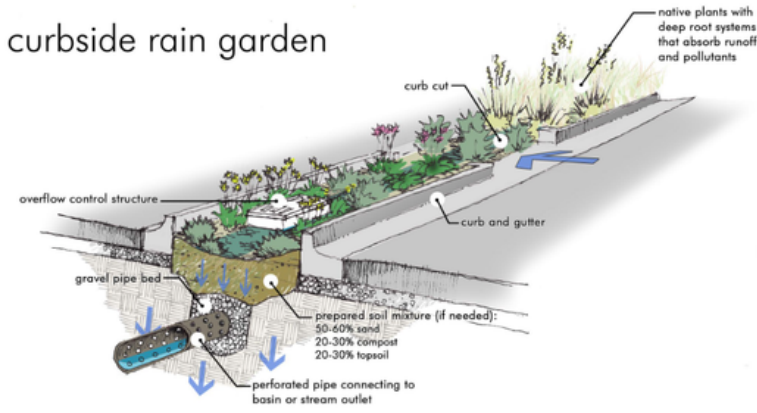
Framework



Blue NBS Strategy

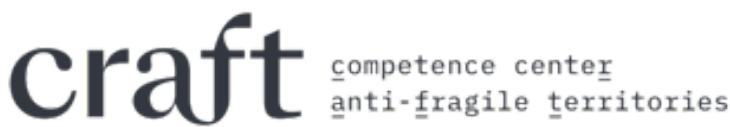


Small-scale bioswale before tunnel drains water to underground cistern (lowest point) while flower beds on plaza mitigate heat and can be watered by locally collected stormwater.



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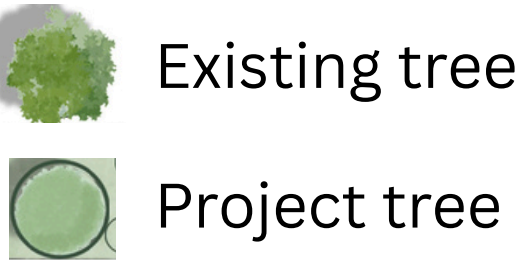


Green NBS Strategy

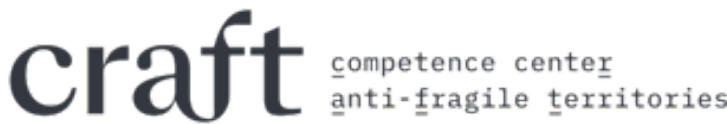


NBS STRATEGIES:

- 1. Draining Flowerbeds
- 2. Rainwater collection
- 3. Tree planting boxes
- 4. Trees
- 5. Eco Urban furnitures
- 6. Green shading structures
- 7. Green wall



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Green NBS Strategy

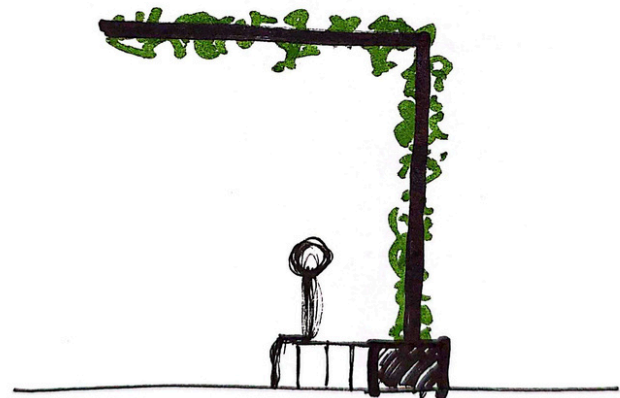
The Boston ivy is a fast-growing deciduous climber that can reach a 15–25 m in height if well-supported.

It has a seasonal character, with dense foliage in summer (providing adequate shading), red & orange leaves in autumn, and falling leaves in winter (allowing sunlight to penetrate).

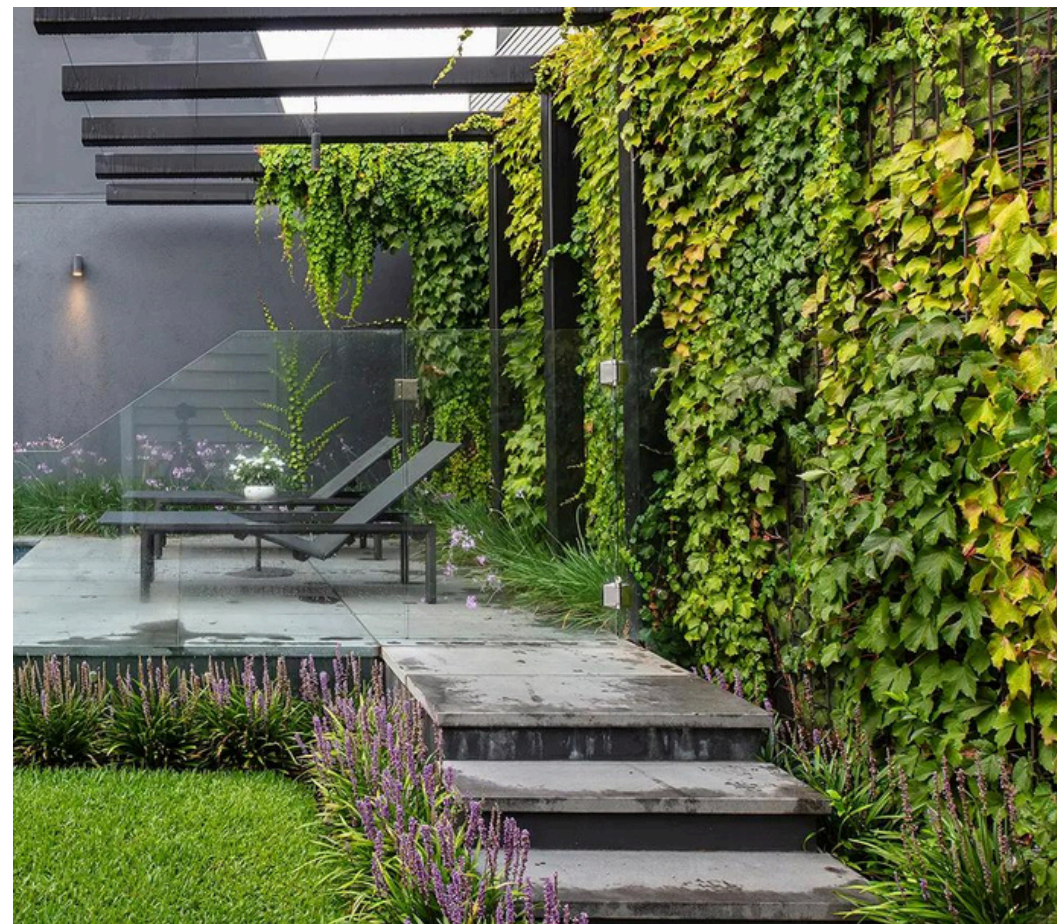
It creates a cooler microclimate through evapotranspiration.

It also tolerates urban pollution and wind.

It is also well adapted to Milan's climate, tolerating extreme temperatures.



Boston ivy (*Parthenocissus tricuspidata*)



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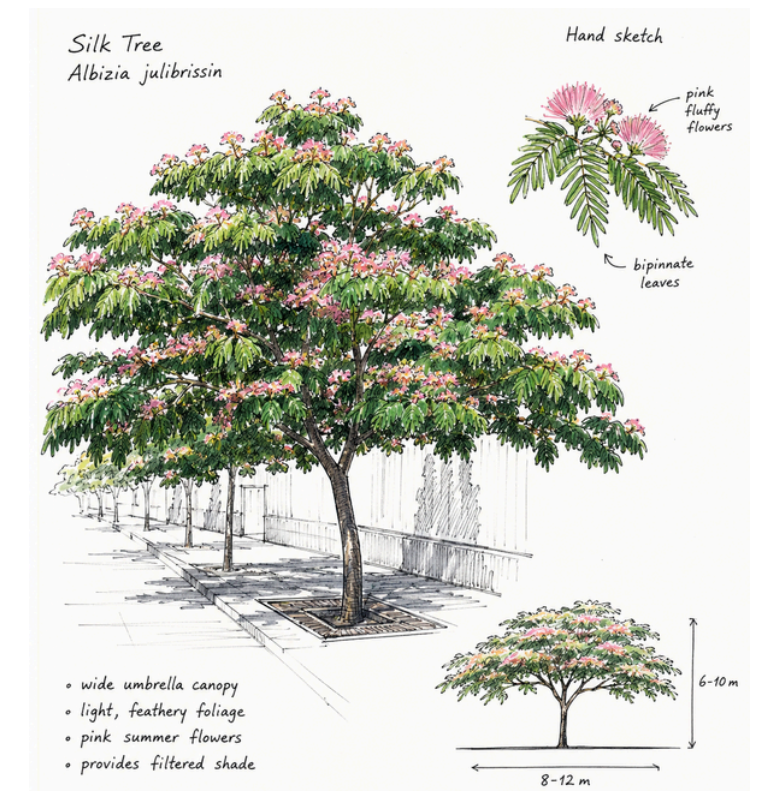
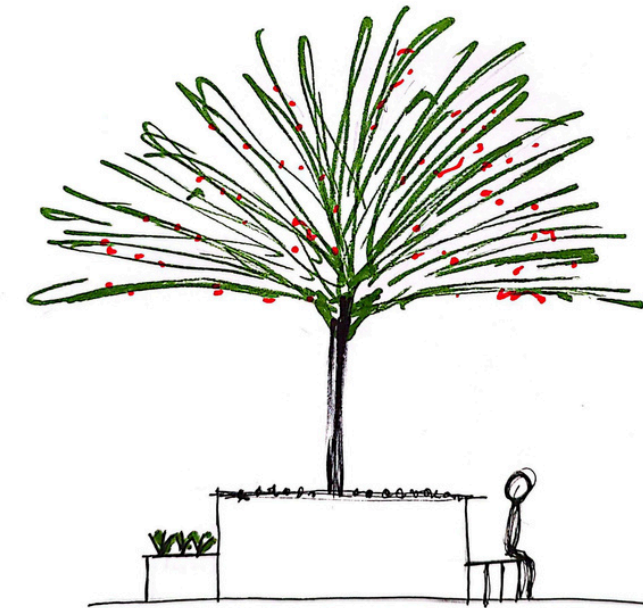
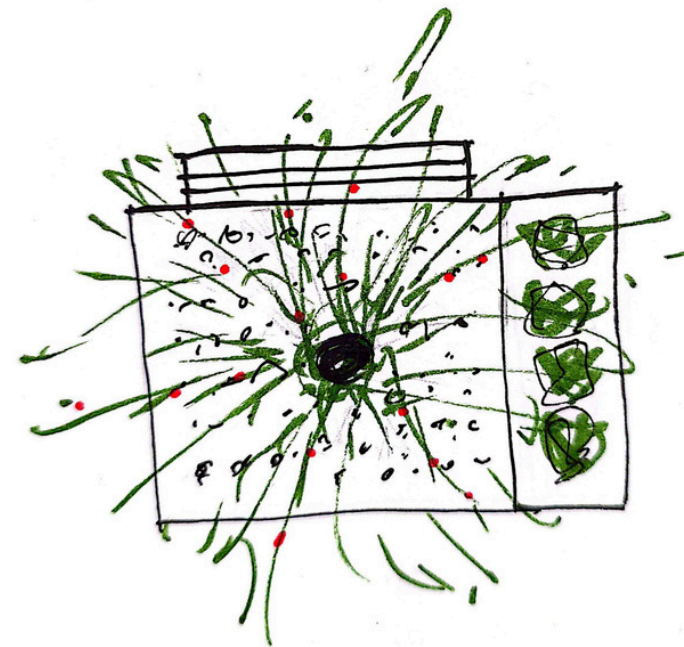
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Green NBS Strategy

- Canopy: 7–10 m (umbrella-shaped)
- Height: 5–10 m
- Root system: Mostly horizontal
- Minimum soil depth: 80–100 cm
 - Advantages: Wide canopy provides excellent shade
 - Very drought tolerant
 - Creates filtered, comfortable shade
- Drawback: Slightly less cold-hardy in severe winters, though generally suitable for Milan.

This mixed strategy provides thermal comfort, seasonal interest, biodiversity benefits, and minimizes structural loading.

Albizia julibrissin



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Co-Benefits: Ecology Enhancement



Ape solitaria



Ape domestica



Coleottero impollinatore



Bombo



ROSEMARY



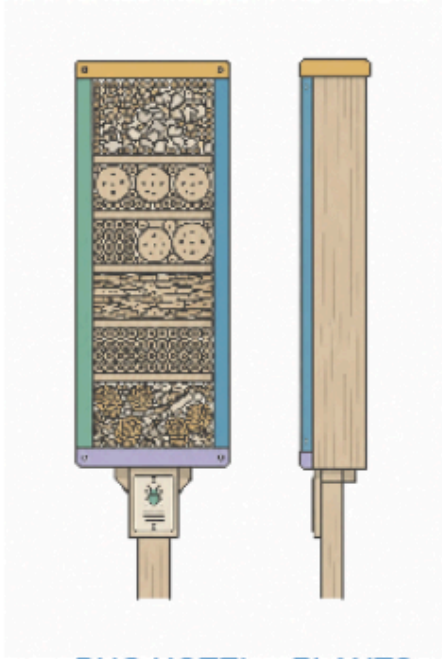
LAVANDA



BORRAGINE



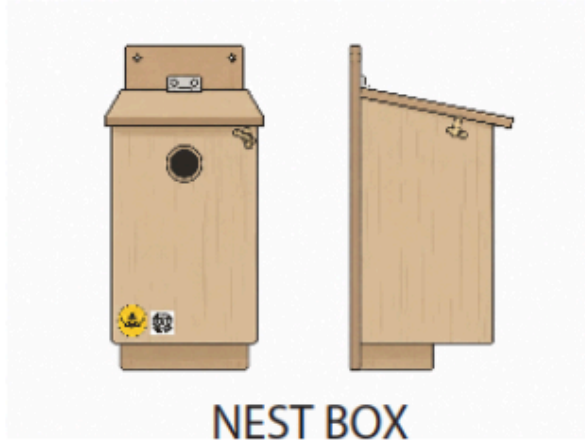
ECHINACEA



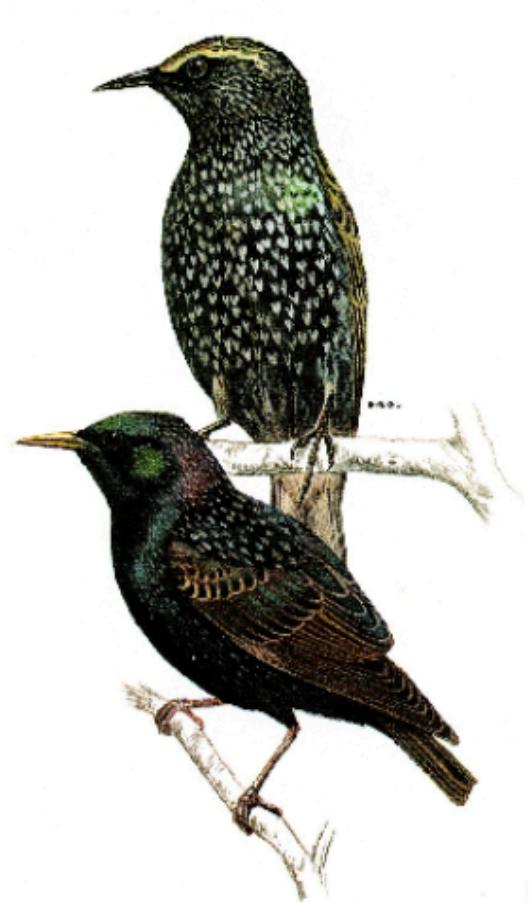
BUG HOTEL + PLANTS THAT ATTRACT POLLINATORS



MERLO



NEST BOX



STORNO



PASSERO



EMBEDDED NEST



RICONOSCERE I GECHI AUTOCTONI

tartaguida

Hemidactylus turcicus (geco verrucoso)
Gekkonidae colonizza quasi tutta la penisola.

Mediodactylus kotschy
Puglia, segnalato anche in alcune zone del Nord: Modena e Bergamo introdotti accidentalmente con gli ulivi.

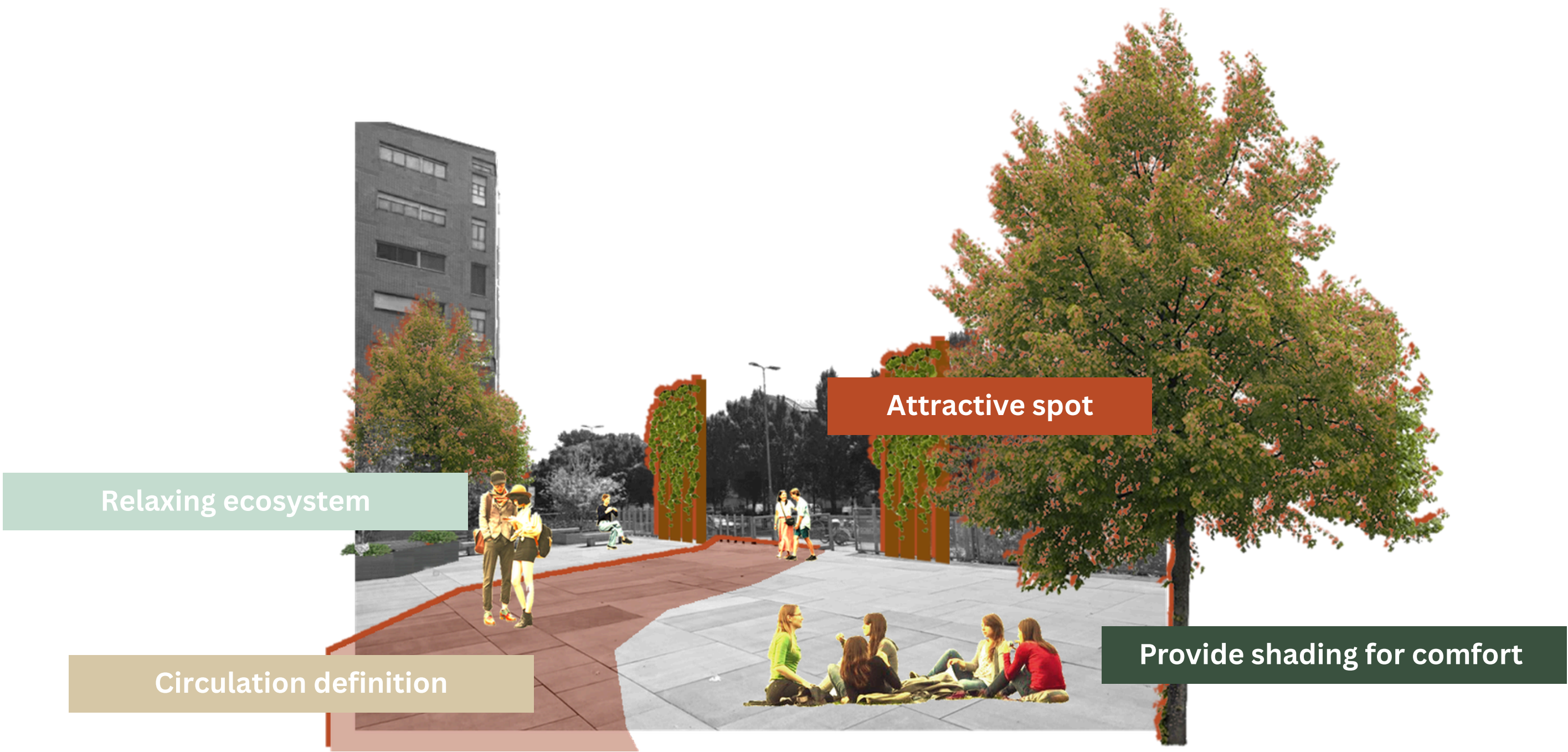
Euleptes europaea
Unico rappresentante Sphaerodactylidae in Europa.
Sardegna, Liguria e Toscana, Isola del Giglio, nord del Lazio e Liguria

Tarentola mauritanica
Unico Phyllodactylidae in Europa.
Supera i 15 cm ed è presente tutta la penisola.



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Co-Benefits: Social Revitalization



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Thank you!

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