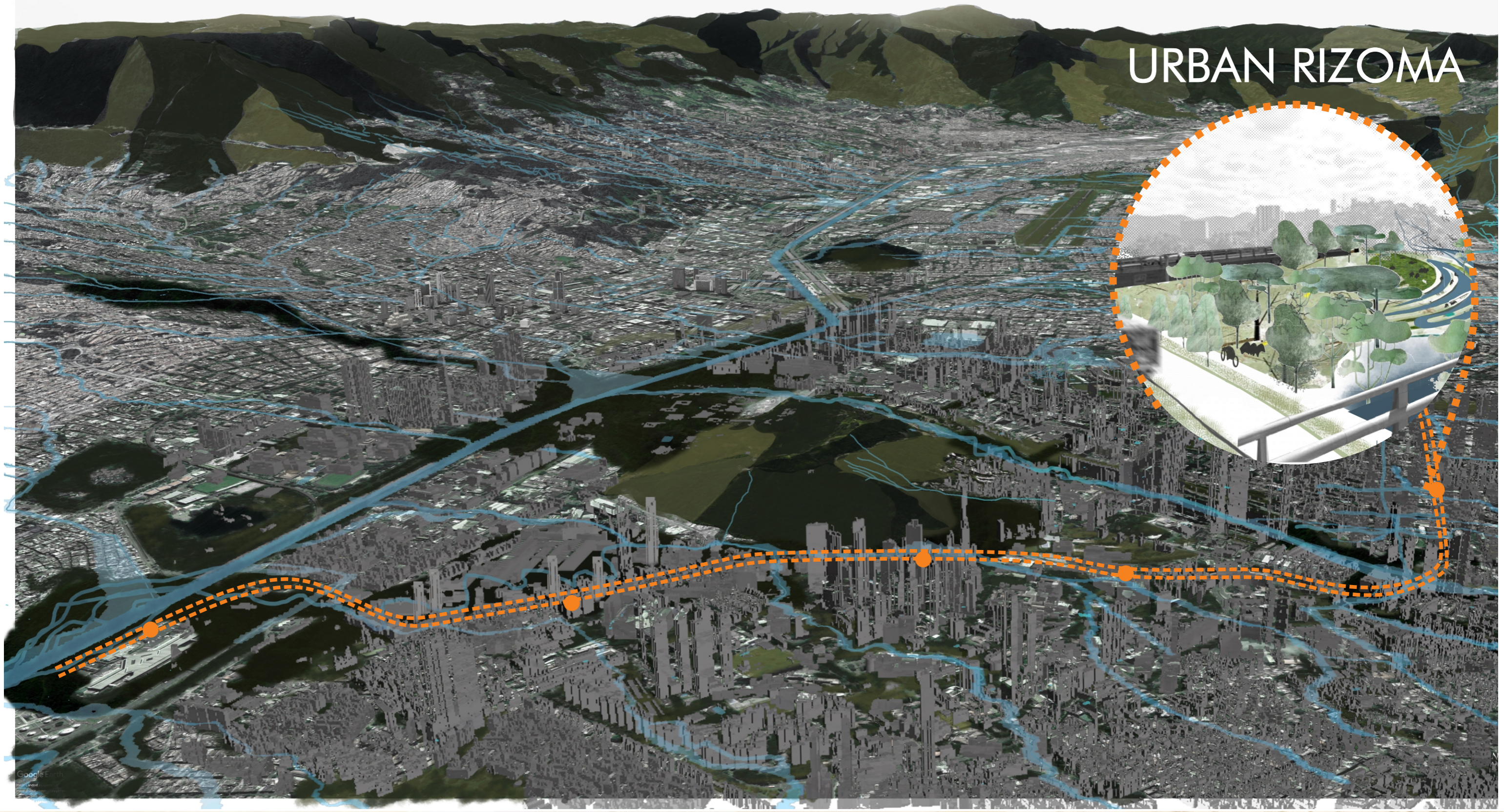


# URBAN RIZOMA



Country /City ..... Medellín, Colombia

University / School ..... Universidad Pontificia Bolivariana

Academic year ..... 2021

Title of the project ..... Urban Rizoma

Authors ..... Carla Miranda

## TECHNICAL DOSSIER

Title of the project	Urban Rizoma
Authors	Carla Miranda
Title of the course	Design Studio 2
Academic year	2021
Teaching Staff	Arch. Mg Lina María Escobar, Arch. MSc Juan Esteban Correa, Land Arch. María Bellalta
Department / Section / Program of belonging	School of Architecture and Design, Faculty of Architecture, Master in Landscape Design
University / School	Universidad Pontificia Bolivariana



Written statement, short description of the project in English, no more than 250 words

**Urban Rizoma** is an underground stem that grows horizontally, serves as a water and nutrients collector, and generates sprouts that grow upwards and roots that grow down, just as landscape infrastructure net of soft technologies such as open system nets that are sensitive to modifications.

In Colombia, the highly modified sector of the Medellín valley, we can find a prevailing natural structure of great ecosystemic value both in its urban ecological nodes as well as its guardian hills and its strategic ecosystem surroundings: eastern and western hillsides that communicate by its hydrological component through its main ravine that flow into the Medellín River. The Volador Hill with the Iguana ravine is a secular vortex where the dynamics that influence the territory cross.

The Avenue 80 light train presents an opportunity to generate a plan to organize the infrastructure system one of which is sustainable mobility, since with a light train the capacity and number of passengers moving within a short range increases and the CO2 emission decreases. On the other hand having a green and a blue infrastructure that connect to mitigate and make the city more resilient by focusing on 2 axes of the infrastructure, the Iguana Ravine and the urban runoffs of Avenue 80.

The projected strategies are to buffer the urban runoffs, and the impact of erosion, enhance cross-sectional and longitudinal water, ecological and cultural connectivity, make the water process visible, promote biodiversity, mix and hybrid uses.

For further information

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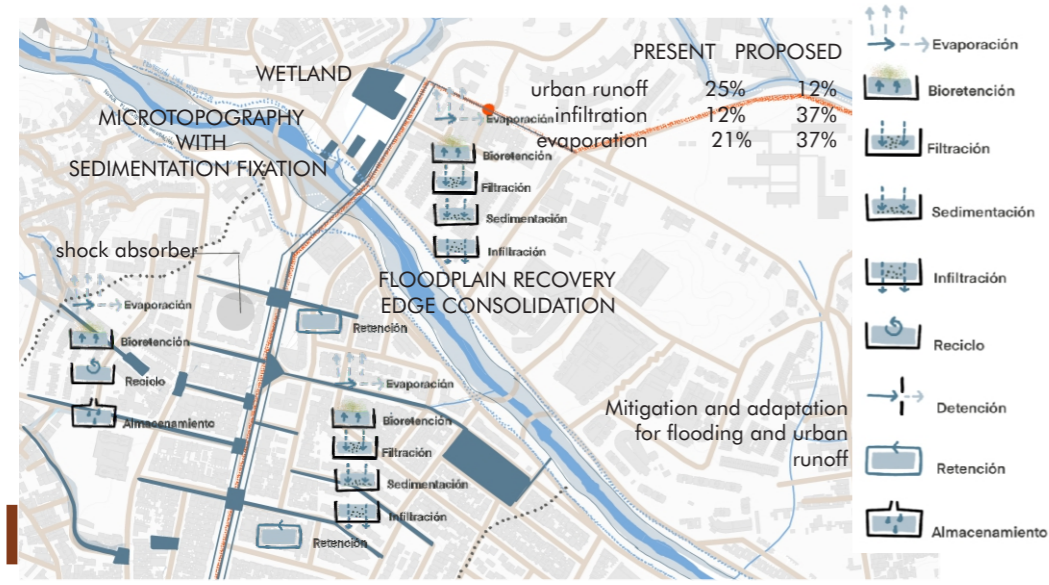
SCHOOL PRIZE



Urban structure plan.  
Network of landscape infrastructures that connect and work together to mitigate and adapt the city towards a new model.  
Three differentiated sectors are proposed at the programmatic level to show the different tools used  
**Amphibious neighborhood:** with a drainage network and urban wetland  
**Floodable Linear Park:** Iguana Ravine to slow down the flow by terracing. Furthermore, value the valley water and create a memorial landscape that raises awareness of the origins of the first human settlement in the area.  
**Building structure:** it is located at the confluence of the aforementioned axes. Resignification of open mixed uses (housing and markets) that celebrate the creek and the light rail.

**BLUE INFRASTRUCTURE**

Risk reduction through a series of interventions with nature-based solutions that replace or improve existing gray infrastructure. A toolbox for urban runoff management such as:



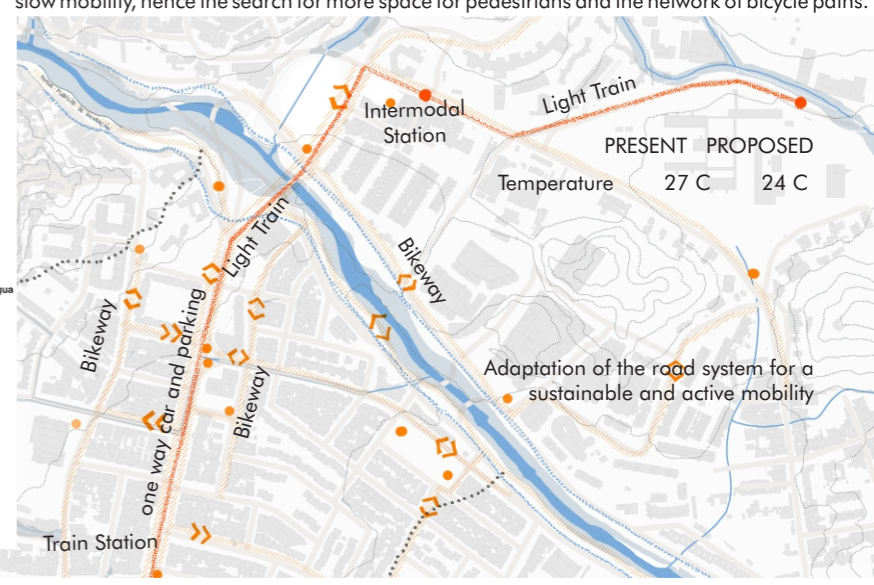
**GREEN INFRASTRUCTURE**

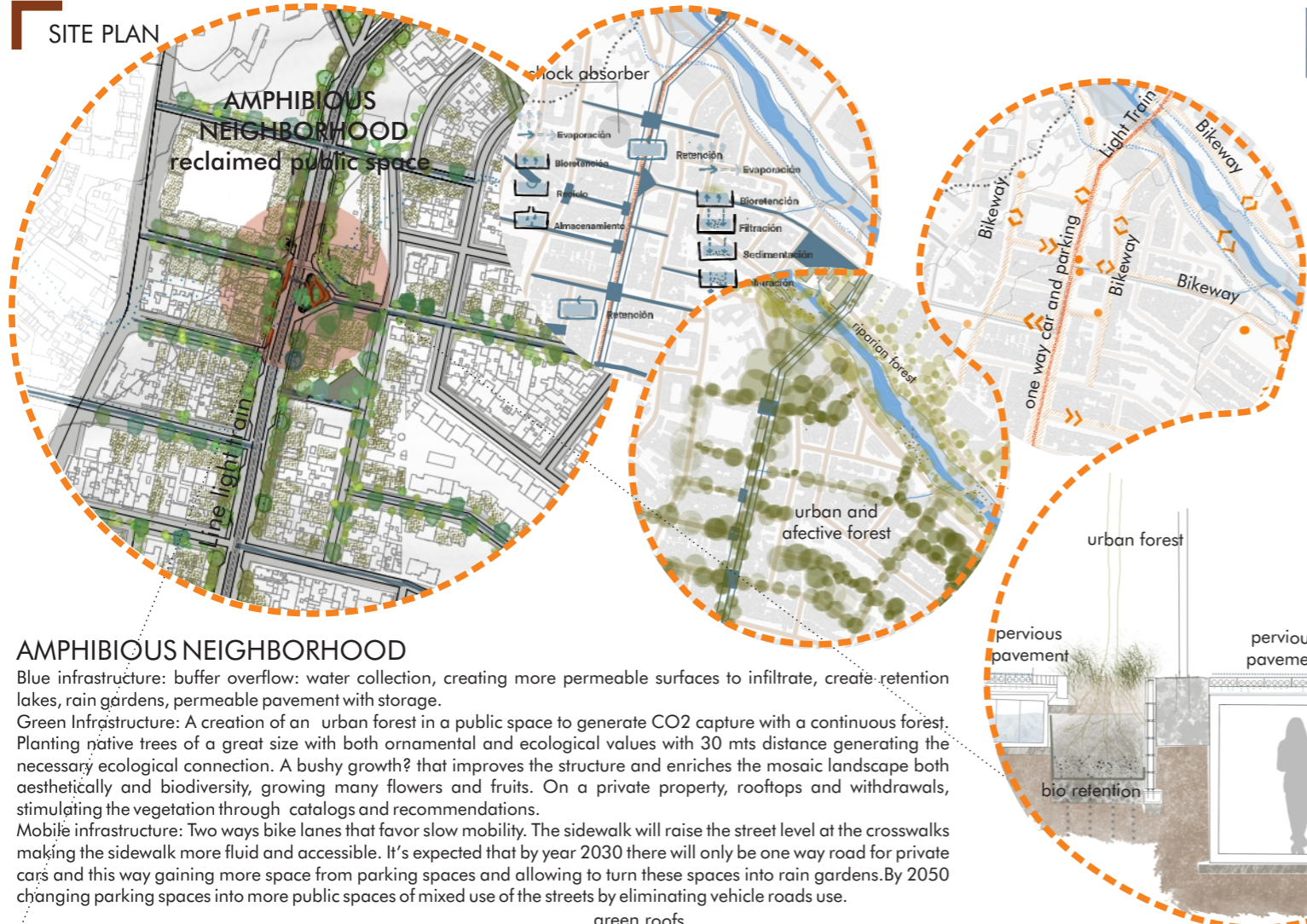
Ecological network protection through a generation of a linear urban forest and riparian forest in the recovery of the margin of the ravine seeks to consolidate ecological corridors in the city and thus favor biodiversity. As well as a toolbox for private interventions of a more public nature.



**SUSTAINABLE MOBILITY INFRASTRUCTURE**

Connect sustainability through the light train will attract a greater flow of pedestrians, favoring the collective transport of clean energies, together with a network of roads that favor active and slow mobility, hence the search for more space for pedestrians and the network of bicycle paths.



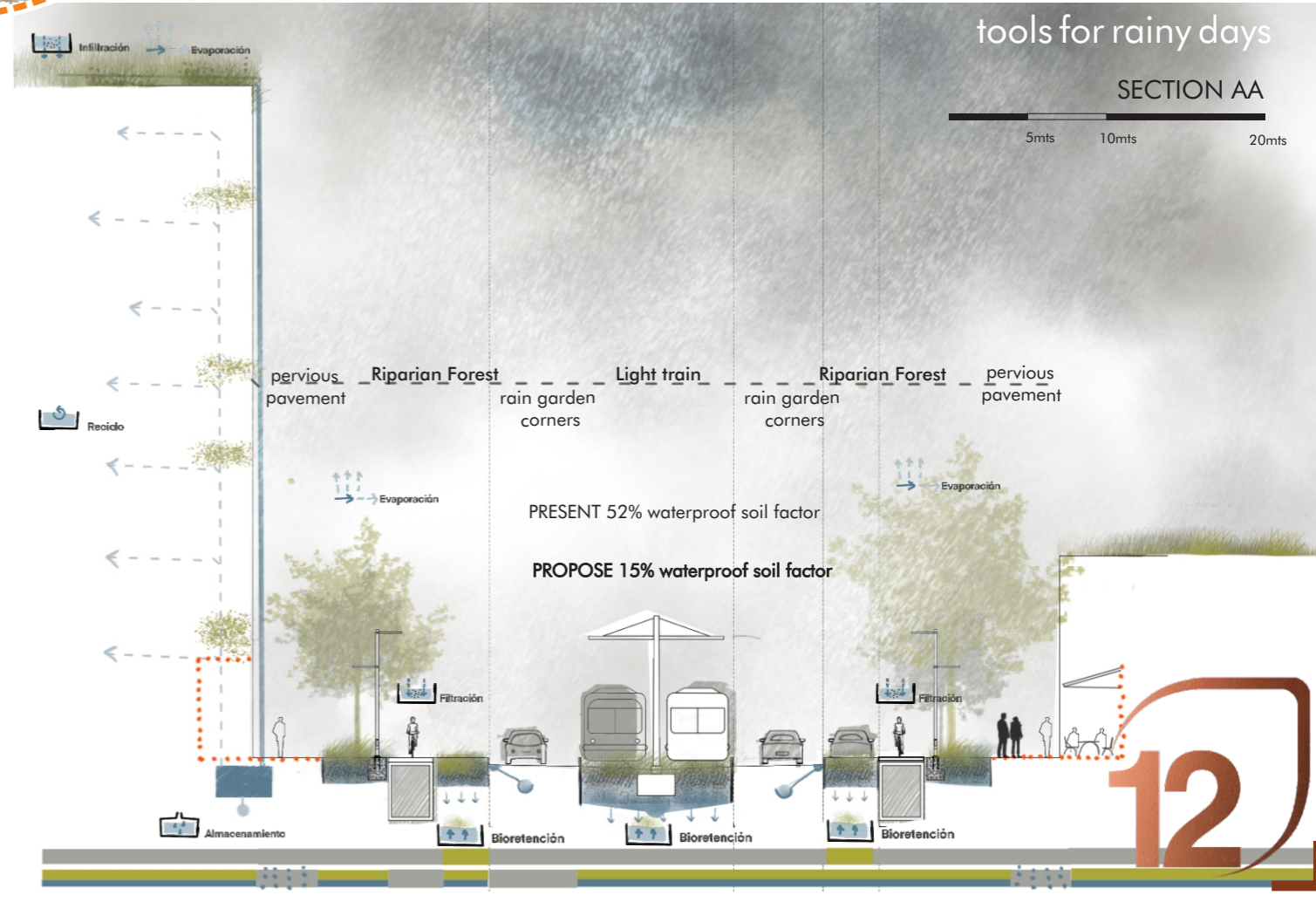
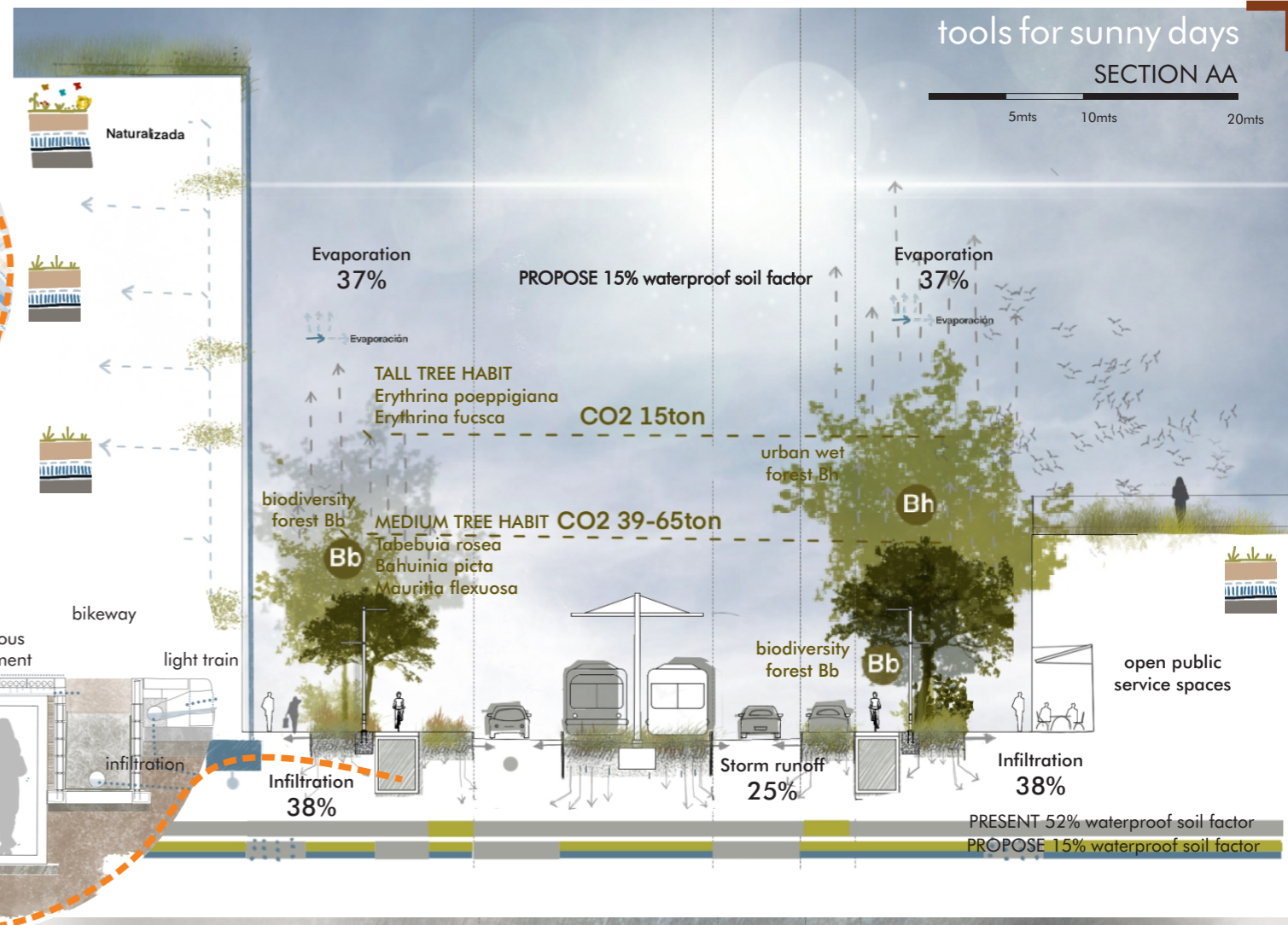
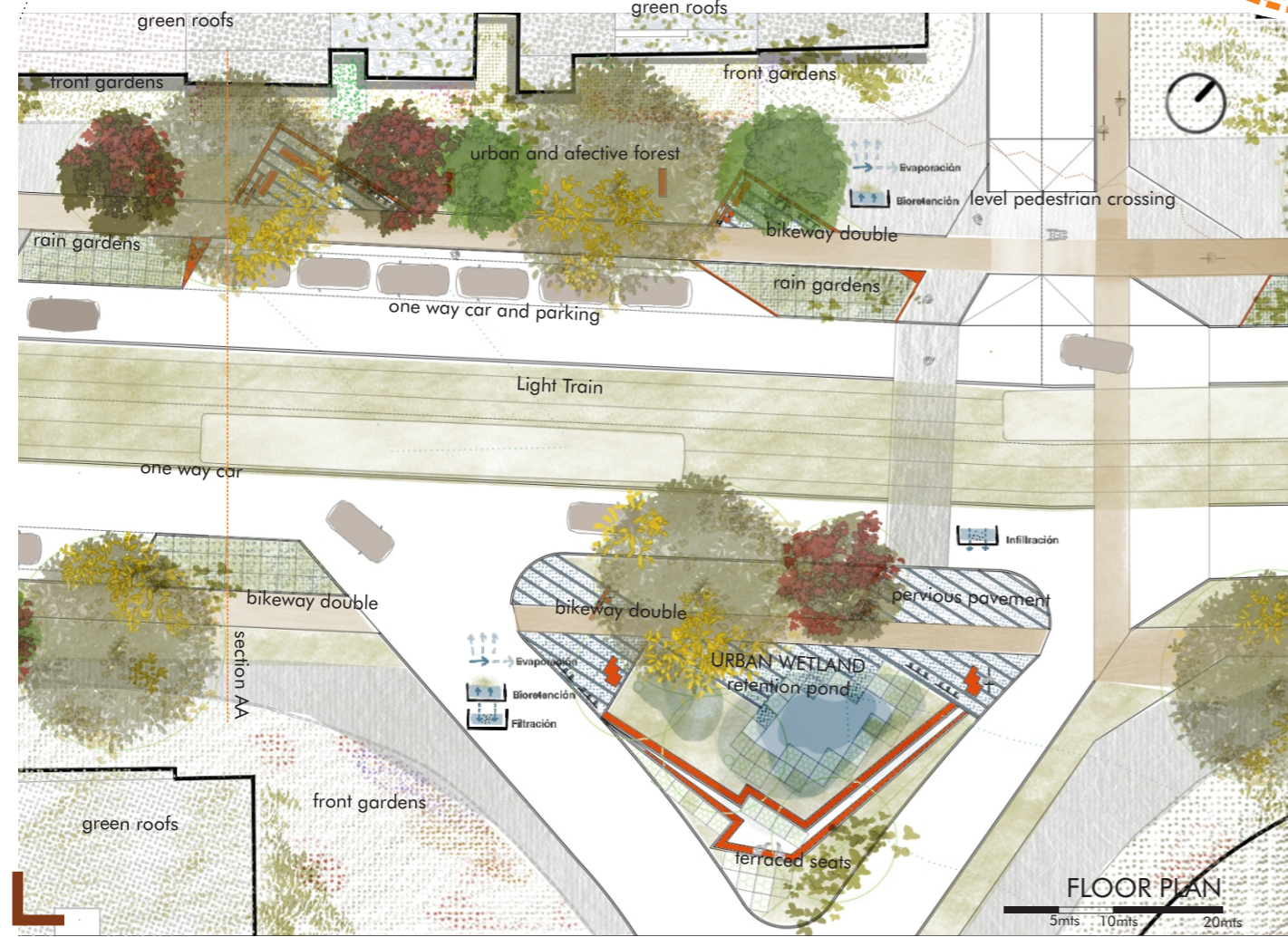


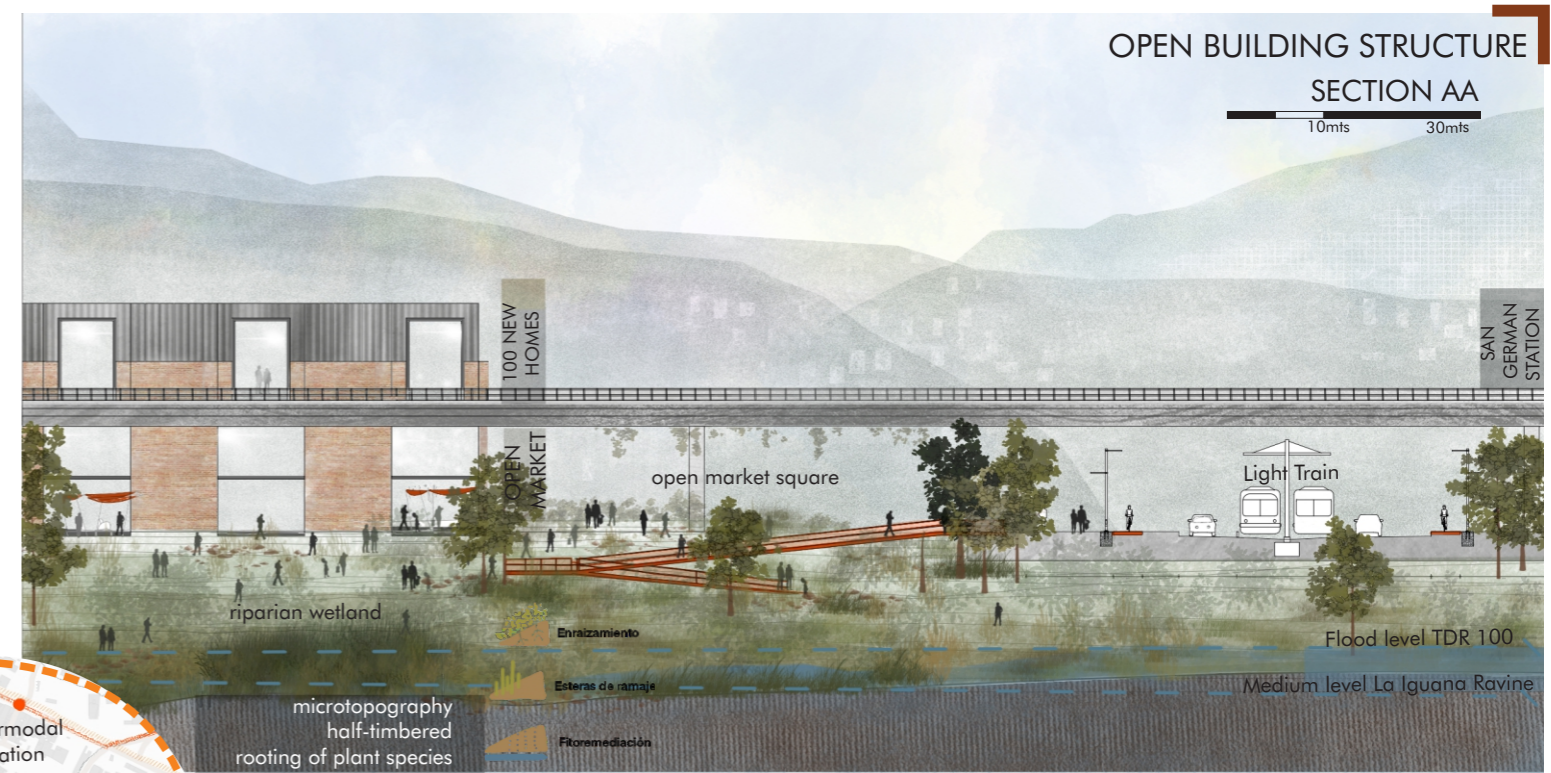
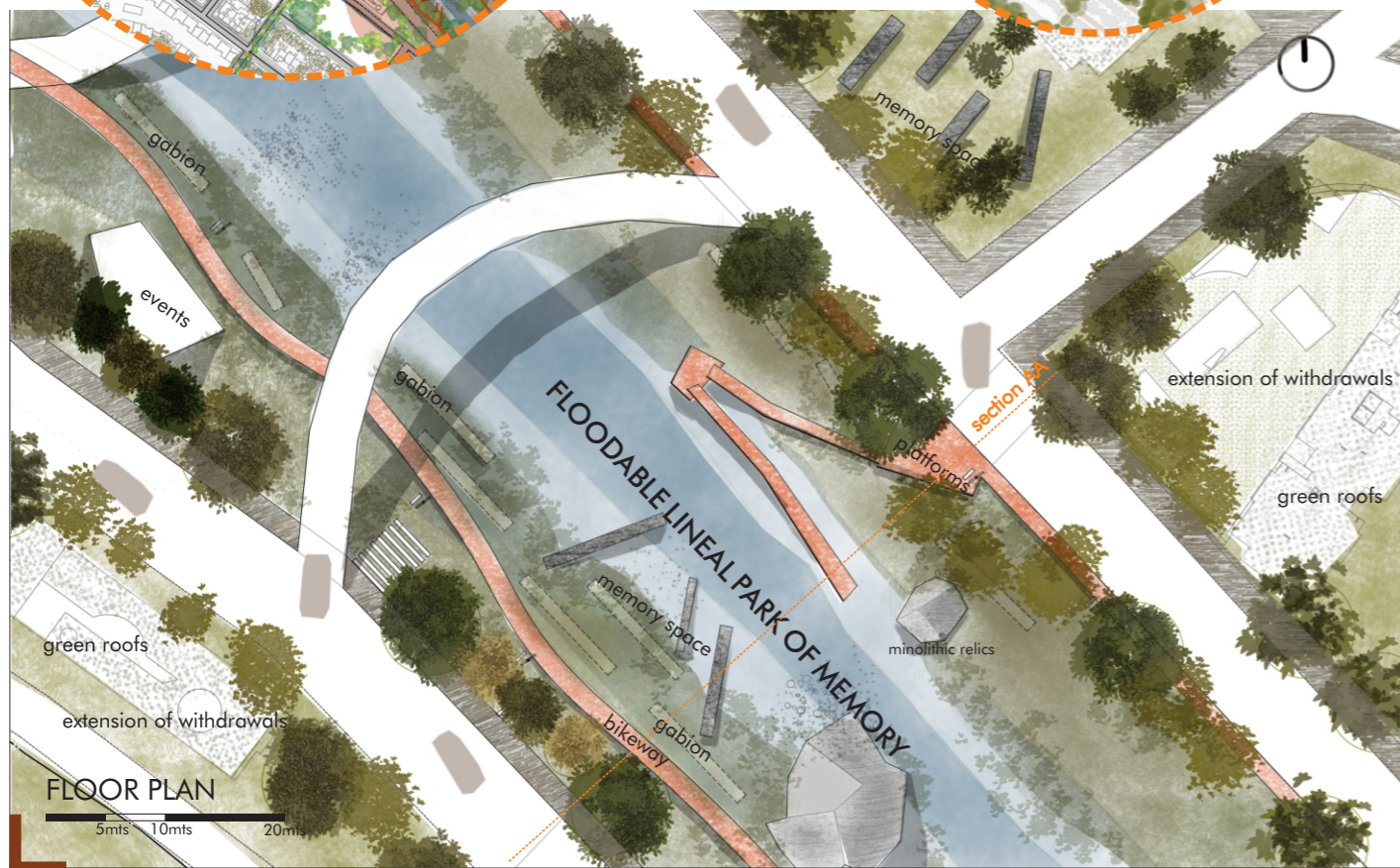
### AMPHIBIOUS NEIGHBORHOOD

**Blue infrastructure:** buffer overflow: water collection, creating more permeable surfaces to infiltrate, create retention lakes, rain gardens, permeable pavement with storage.

**Green Infrastructure:** A creation of an urban forest in a public space to generate CO2 capture with a continuous forest. Planting native trees of a great size with both ornamental and ecological values with 30 mts distance generating the necessary ecological connection. A bushy growth? that improves the structure and enriches the mosaic landscape both aesthetically and biodiversity, growing many flowers and fruits. On a private property, rooftops and withdrawals, stimulating the vegetation through catalogs and recommendations.

**Mobile infrastructure:** Two ways bike lanes that favor slow mobility. The sidewalk will raise the street level at the crosswalks making the sidewalk more fluid and accessible. It's expected that by year 2030 there will only be one way road for private cars and this way gaining more space from parking spaces and allowing to turn these spaces into rain gardens. By 2050 changing parking spaces into more public spaces of mixed use of the streets by eliminating vehicle roads use.





Dampen the volume and velocity of the La Iguana Ravine  
 Blue infrastructure: creating a flood park reinforcing its natural biological passage: a visible urban wetland that serves to educate the population and understanding of nature's dynamics. A strategic point.  
 Green Infrastructure: riparian forest, a strategic ecosystem of a flooding and non-flooding flatline, recovering margins/withdrawal that consolidate the La Iguana Ravine as a natural biological passage that connects Valodor Hills with the Baldias mountain range and the 65 road (highway).

### FLOODABLE LINEAL PARK OF MEMORY

- Expansion of the biological corridor
- Blue infrastructure: 1-urban wetland: recover the Ravine withdrawal and generating a new flooding flatland by using microtopography with sediment fixation and border consolidation by creating a riparian forest.
- 2- Margin recuperation with nature based solution
  - a - a live gabion for unstable and high flow riverbank to consolidate the slopes with steel boxes with a stone layer (monolith) including a fertile land between the layers and live pegs with the ability to intertwine the roots of native plants that are specifically from the ravine area.
  - b - Wooden structural framework for the high speed straight on the riverbed. A layer of logs that cross perpendicularly to the river flow, the spaces fill with a more fertile land and use of live pegs with vegetative species that are able to root.
- Green Infrastructure: riparian forest, a strategic ecosystem of a flooding and non-flooding flatline, recovering margins/withdrawal that consolidate the La Iguana Ravine as a natural biological passage that connects Valodor Hills with the Baldias mountain range and the 65 road (highway).

