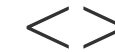
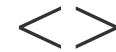


Verona ADAPT



Modeling as a planning instrument: a climate adaptation proposal for Verona South

Country / City Italy / Trento
University / School University of Trento / DICAM / School of Architecture and Building Engineering
Academic year 2018 / 2019
Title of the project Verona ADAPT. Modeling as a planning instrument: a climate adaptation proposal for Verona South
Authors Marika Tomasi

TECHNICAL DOSSIER

Title of the project	Verona ADAPT. Modeling as a planning instrument: a climate adaptation proposal for Verona South
Authors	Marika Tomasi
Title of the course	Master Thesis
Academic year	2018 / 2019
Teaching Staff	Prof. Sara Favargiotti / prof. Lorenzo Giovannini / ing. Martina van Lierop MSc / dott. Andrea Zonato
Department/Section/Program of belonging	Department of Civil, Environmental and Mechanical Engineering School of Architecture and Building Engineering
University/School	University of Trento / DICAM / School of Architecture and Building Engineering



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

For reducing the Urban Heat Island (UHI) effect, the planning process was supported through modeling the urban environment; this method demonstrated the efficiency of Urban Green Infrastructure and provided future scenarios and climate proof adaptive strategies.

Climate adaptation represents the occasion to rethink the urban space, whose vulnerability to climate change increases especially during the so-called "heat waves". After analyzing the UHI effect within the city of Verona (IT), the project focused on the industrial area in the southern part of the city where the presence of a heavy industrial urbanization represents a critical issue for the urban quality. A climate proof and energy efficient planning proposal for this area has been presented to foresee the potential of further sustainable development.

After investigating both the urban structure and the climatic potential, a specific program was developed: its aim is to propose the Urban Green Infrastructure for reducing the human footprint and improving the outdoor comfort conditions.

Accordingly, the strategic masterplan proposed an effective simulation through a mesoscale meteorological model. Even if the final scenario refers to 2040, the climate adaptation is considered a process with subsequent steps and goals that can be addressed from the short time (2022). Three main strategies were highlighted and defined: improving the natural ventilation, developing a green network and reducing the waterproof surfaces.

Designing some focus areas permitted to explain the strategies and their prefiguration. The key point of the planning proposal is to gather different local actions for achieving the general climate adaptation goal.

For further information
Máster d'Arquitectura del Paisatge -DUOT - UPC

T: + 34 93 401 64 11 / +34 93 552 0842
Contact via email at: biennal.paisatge@upc.edu

Máster d'Arquitectura del Paisatge -DUOT - UPC
ETSAB- Escola Tècnica Superior
d'Arquitectura de Barcelona
Avenida Diagonal, 649 piso 5
08028 Barcelona-Spain

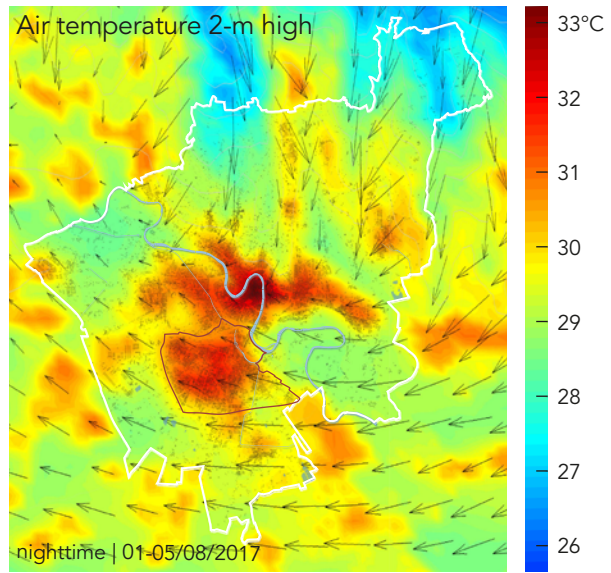


CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

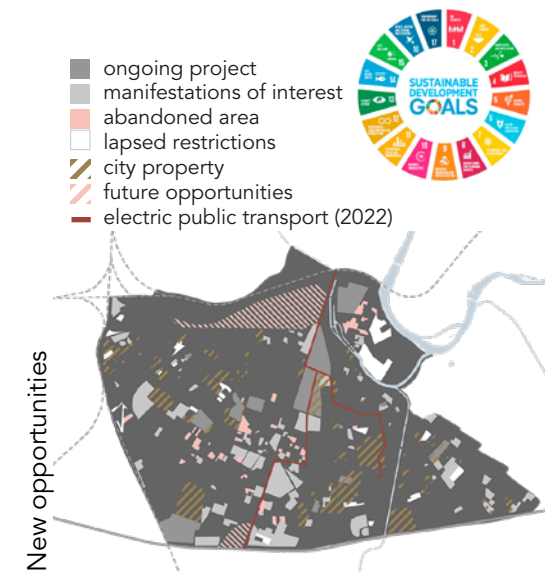
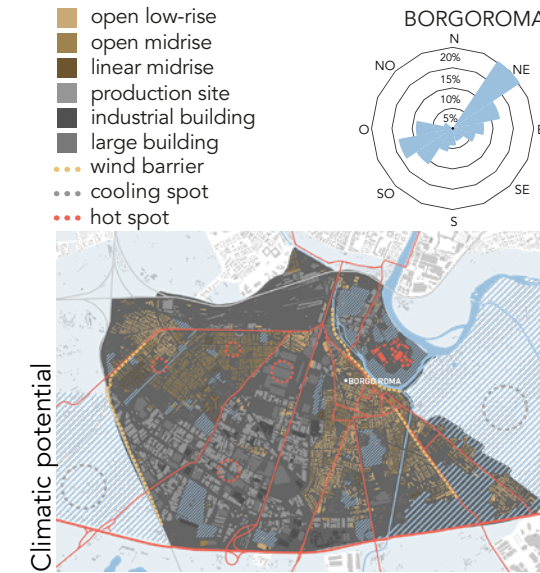
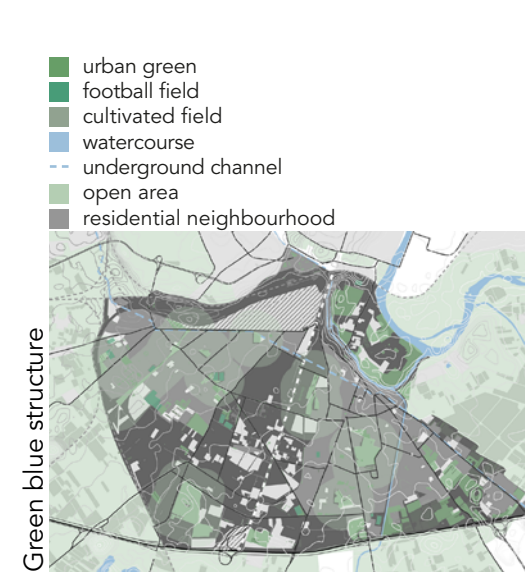
Barcelona September 2020

SCHOOL PRIZE



The Verona South area is divided from the rest of the city by the infrastructural system. The meteorological model shows that, as well as the city centre, it is heavily affected by the Urban Heat Island effect (see the figure on the left). Within this zone, two residential neighbourhoods are separated by the Agricultural Industrial Area. The climate adaptation topic can drive the spontaneous process of transformation of the area.

This project considers Verona South as a challenge case study for testing adaptation strategies and proposes a new scenario, where the climatic potential of the environment is used for improving the outdoor comfort conditions of the present and future inhabitants.



PROGRAM

>> urban structure and climatic potential



photo A



photo B

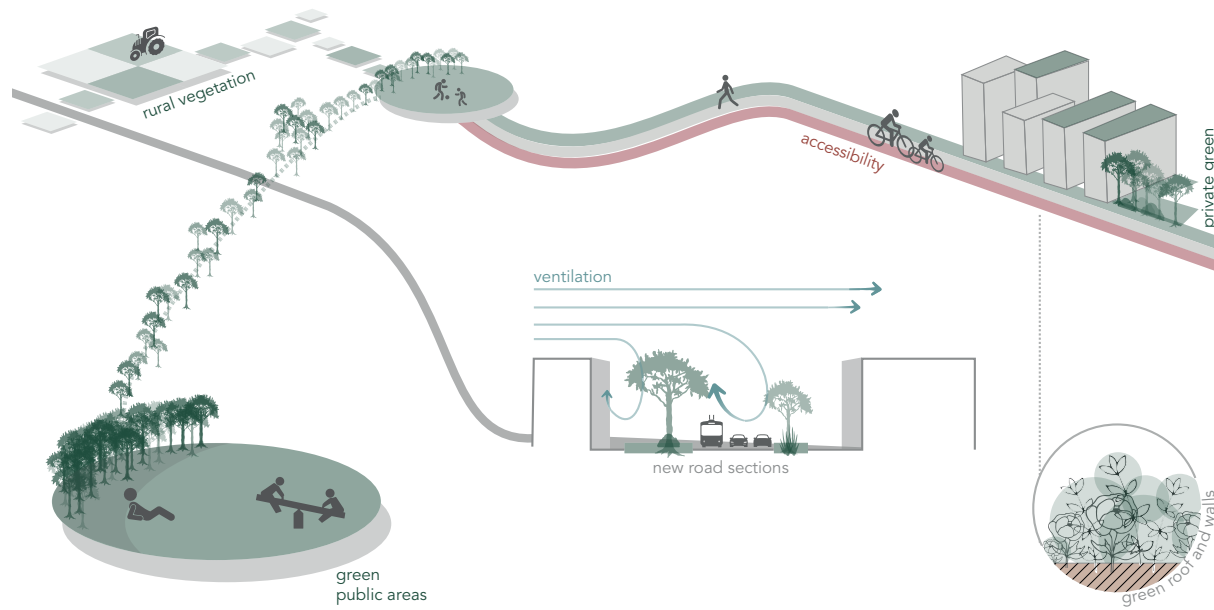


photo C



+ GREEN

For the reduction of the fragmentation of habitats and ecosystems, a continuous green network is fundamental; it also offers different microclimate conditions, in order to meet the needs of a wide range of people. In this project, a particular attention to the vertical dimension permitted to avoid tunnels or green barriers when not required. Furthermore, the SuDS systems can contribute to a more sustainable water management, through their natural draining potential.

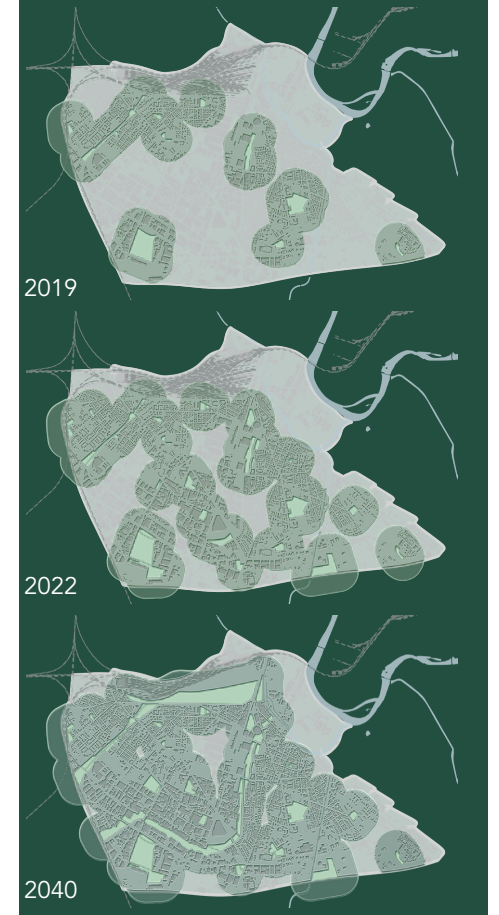


- GREY

Vegetated roofs and walls can contribute to the compensation of the human footprint within the urban environment. Through these technologies, besides the reduction of temperature and the improvement of the outdoor comfort conditions, the reduction of the energy spent for air conditioning systems can be achieved.

+ HEALTH

According to the WHO's guidelines¹, the accessibility to public green areas was detected: a 300 meters buffer zone around each public park represents the citizens able to easily reach it (only parks with a surface greater than 0,5 ha were considered).
¹Urban green spaces and health, Copenhagen, WHO Regional Office for Europe, 2016, pp.1-31



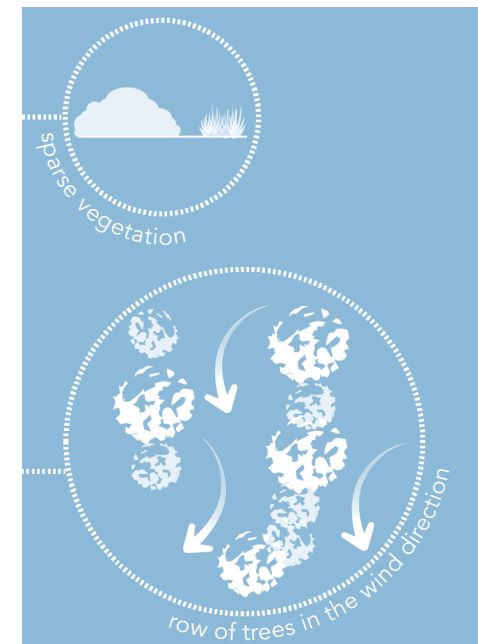
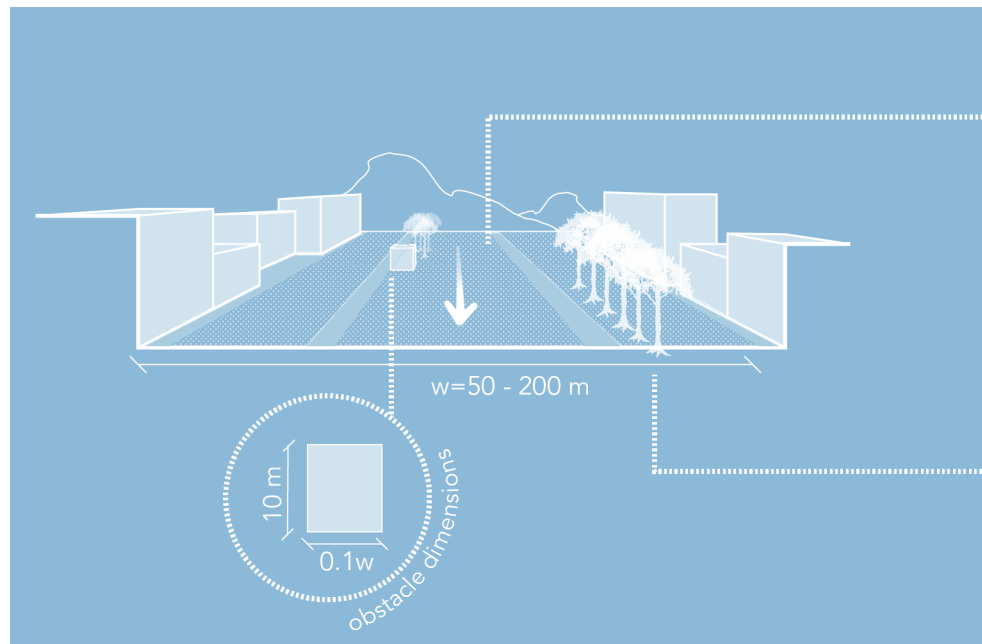
PROCESS

>> climate adaptation strategies step by step

- open public green
- close public green
- tree-lined avenue
- other green
- Adige river and channels
- buildings
- to be demolished buildings
- new development areas
- bikepath
- electric public transport

+ WIND

Cooling the city during the heat wave periods can contribute to reducing the UHI effect and preserving the inhabitants' health; for this reason, the natural ventilation needs to be implemented. Both the design and the effectiveness of the ventilation corridors are strictly context-dependent: the project simulation run through the mesoscale meteorological model shows an increase of the wind speed in correspondence of the traced paths.



THE WIND ROUTE



THE INDUSTRIAL GREEN PATH



According to the transcalarity of the Urban Green Infrastructure strategy, two microscale focus areas were designed. The Wind route is a green system built like a patchwork, that follows to current building layout and provides different type of vegetation. The Industrial green path shows how to improve the green presence within the industrial area, rethinking urban signs such as the dismissed rail tracks.

VISION

>> from the masterplan to the block

