



New strategy for Renaturing Cities  
through **Nature Based Solutions**

# Welcome!

Let us take you on a journey to discover the most interesting Nature-Based Solutions (NBS) developed by the European cities of URBAN GreenUP!

You will see how nature can be harnessed to embrace urban challenges such as high temperatures, poor air quality and water management.

The purpose of URBAN GreenUP, an EU-funded project, is to make cities more liveable and resilient to climate change. It aims to:

- » Demonstrate large scale and highly replicable NBS in the “**Frontrunner cities**” Valladolid (Spain), Liverpool (UK) and Izmir (Turkey).
- » Help cities worldwide design their own “Re-Naturing Urban Plan” via the adaptable methodology developed by URBAN GreenUP. The “**Follower cities**” are Ludwigsburg (Germany) and Mantova (Italy) in Europe, and Medellín (Colombia), Chengdu (China) and Quy Nhon (Vietnam) internationally. These all work as first level replicators to test the methodology.

Learn about other URBAN GreenUP solutions in our report “Promotional material and collateral to promote EU capacities and expertise in the NBS market through specific examples from the consortium”, available on the project website. You can also follow us on social media and join our growing network of cities.

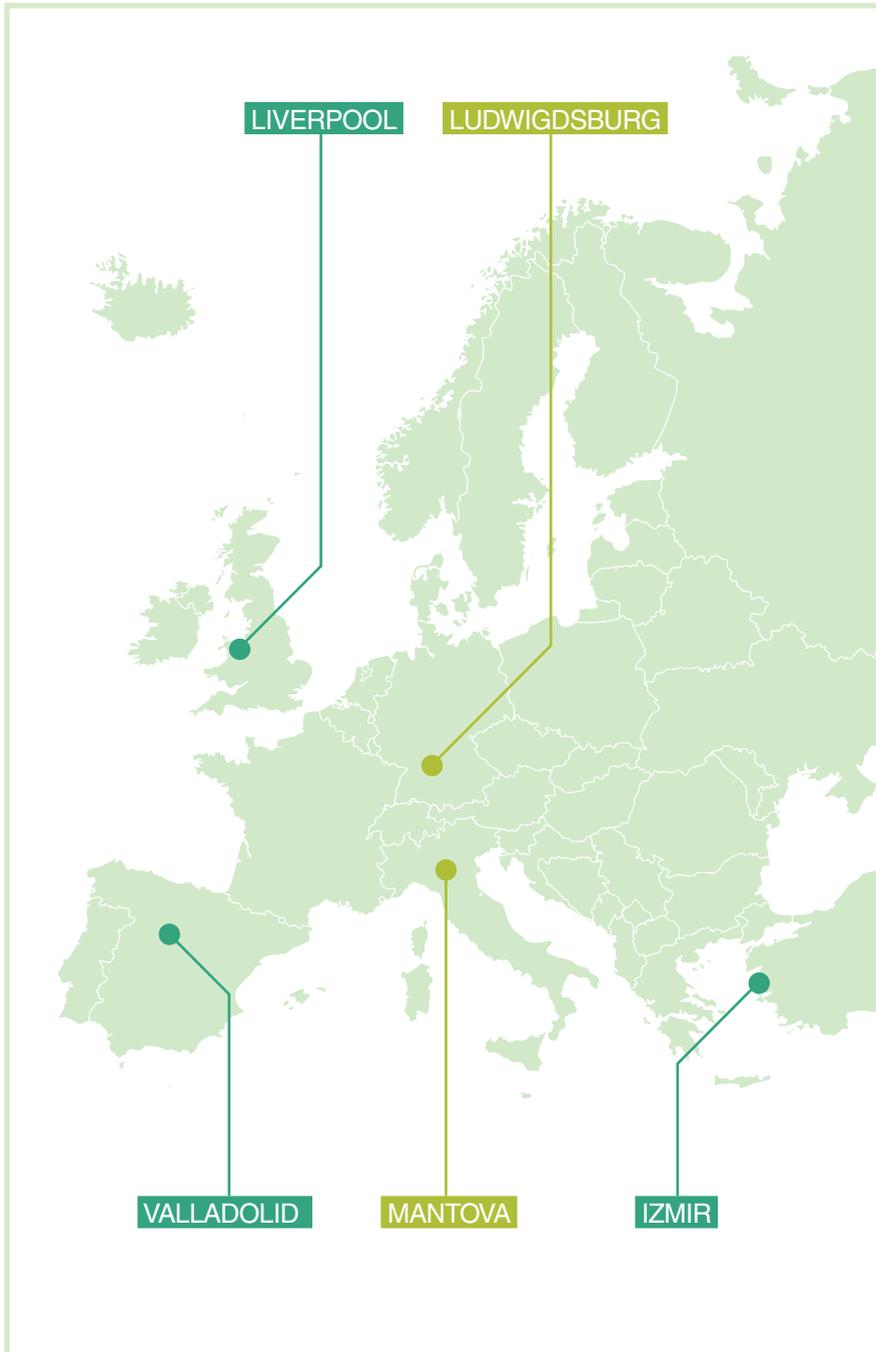
Regards

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On behalf of URBAN GreenUP



# Valladolid

## Green coverage in España Square canopies



### KEY FEATURES

- » Light vegetation (density <math>< 15 \text{ kg/m}^2</math>) resistant to site conditions (Sedum species)
- » Automatic irrigation system.
- » Substrate (stone wool panels).
- » Waterproof layer (primer)
- » System for collecting rain and excess water
- » Design adapted to existing canopies, which are old structures unable support heavy loads

### BENEFITS

- » Better air quality (less  $\text{CO}_2$ , particles and heavy metals)
- » Less rainwater runoff
- » Lower temperatures (reduces heat island effect)
- » More biodiversity
- » Less noise
- » Economic boost (more sales for the market and surrounding shops)
- » Better adaptation to climate change
- » Enhanced discussion on climate change among citizens

## Green façade in El Corte Inglés store



### KEY FEATURES

- » Metallic structure fixed to the façade
- » Waterproof layer (cellular PVC)
- » Substrate (stone wool)
- » Inside the building:
  - » Storage tanks
  - » Electrical system board
  - » First green wall on a mall in Spain

### BENEFITS

- » Better air quality (less  $\text{CO}_2$ , particles and heavy metals)
- » Lower temperatures
- » More biodiversity
- » Thermal comfort in the building
- » Better use of resources (water recirculation system)
- » Positioning the city at the forefront of urban green innovation
- » Economic boost, more sales
- » Enhanced discussion on climate change among citizens

# Liverpool

## Floating Saltwater Ecosystem Island



### KEY FEATURES

- » Surface of 63 m<sup>2</sup>
- » Made from recycled and non-toxic materials
- » 3 layered ecosystem (estuarine planting, interstitial area and below water reef)
- » Habitat features include:
  - » Underwater reef
  - » High buoyancy planters
  - » Freshwater collection areas
  - » Suspended shingle shelf
  - » Use of leca (lightweight expanded clay aggregate) for planting

### BENEFITS

- » Better contact with nature
- » Enhanced dock environment
- » New habitat provision
- » More biodiversity
- » More wildlife
- » Investment attraction
- » Route marker for green pathway
- » Enhanced discussion on climate change among citizens
- » Potential improvement of water quality and fish stocks

## Urban accessible Green Wall



### KEY FEATURES

- » 132 m<sup>2</sup> vertical green habitat in urban area
- » 23 different species of plants
- » 12.000 individual plants
- » Accessible and interactive at street level
- » Phone-controlled irrigation system
- » Monthly 'discovery' species, such as strawberries in summer, as wall constantly changes throughout the year
- » Soil-based planting system

### BENEFITS

- » Better local air quality
- » More biodiversity
- » More wildlife
- » Aesthetic addition to streetscene
- » Provision of shade and cooling for building and immediate area
- » Route marker for green pathway
- » Investment attraction
- » Enhanced discussion on climate change among citizens
- » Third party/owner engagement and partnership working

## Parklets on Girne Boulevard



### KEY FEATURES

- » 4 parklet units
- » 12 m<sup>2</sup> shadow areas for each parklet
- » Total surface of 50 m<sup>2</sup>
- » Iroko deck and acrylic solid surface used for the coverage
- » Inside parklets, trees able to live in a pot were planted
- » Pine trees planted around parklets

### BENEFITS

- » Reduction of air pollutants
- » Microclimate regulation through shading (0.5°C average temperature reduction during summer period)
- » Habitat and food provision for animals
- » More biodiversity
- » People to spend more time in green spaces
- » More recreational and public interaction opportunities

## Permeable green pavements



### KEY FEATURES

- » Applied along Peynircioğlu stream
- » Area of about 10.000 m<sup>2</sup>
- » Walkable lawns, pedestrian paths made of step stones, permeable wood and concrete surfaces
- » Recreation areas
- » Pollinator houses
- » New planted trees and fruit walls to increase impact and citizens' interest

### BENEFITS

- » Permeable surface along the riverbank
- » Increased absorption capacity and drainage surface
- » Storage areas for stormwater
- » Reduction of Urban Heat Island Effect
- » Sustainable urban water management via increased infiltration
- » Enhanced evapotranspiration
- » CO<sub>2</sub> capture and pollutants removal

# Ludwigsburg

## Green Room



### KEY FEATURES

- » Botanical structure
- » “Living” walls and ceilings
- » Approximately 30 plants species and around 6.900 plants
- » Vegetation area of 140 m<sup>2</sup>
- » Wall surface of 130 m<sup>2</sup>
- » 1 ramp and 2 stairs with steps
- » 3 rainwater tanks for irrigation (total capacity: 6.000 l)

### BENEFITS

- » Shady and cool spot in the city centre
- » Little noise penetration through the dense foliage
- » Sensory experience thanks to fragrant plants

# Mantova

## Green parking area Campo Canoa



### KEY FEATURES

- » Outside historical city centre
- » Pervious surface of 5.200 m<sup>2</sup>
- » Free shuttle to city centre
- » Connection point for cycle and pedestrian paths
- » Widespread greenery with indigenous trees and shrubs

### BENEFITS

- » Motorists discouraged from city centre
- » Improved air quality
- » Shade and cooling for cars
- » People encouraged to use alternative means of transport
- » More biodiversity



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