

Urban Simulation Scenarios Sandyford Business District



L40 Urban Simulator

Thanks to our proprietary **AI algorithm**, is possible to **simulate** different future **scenario** starting from the current one.

Using satellite imagery, we can simulate different classes (here the legend) and see the impact of each land cover class to temperature and urban heat islands.

This tool is really powerful for urban planning since is possible to evaluate the potential of an intervention before it is implemented.

Some Considerations

- The **current scenario** is automatically retrieved by Latitudo 40 considering last satellite imagery available.
- Simulation on Land Surface Temperature (**LST**) at 10 m are an **average aggregation** along summer months. So it is possible to consider this as representative of temperatures during the summer.

Land Cover Classes

	building-brick
	building-cool-roof
	building-concrete
	street
	grassland
	tree-small
	tree-medium
	tree-big
	baresoil
	cropland
	water

Current Scenario

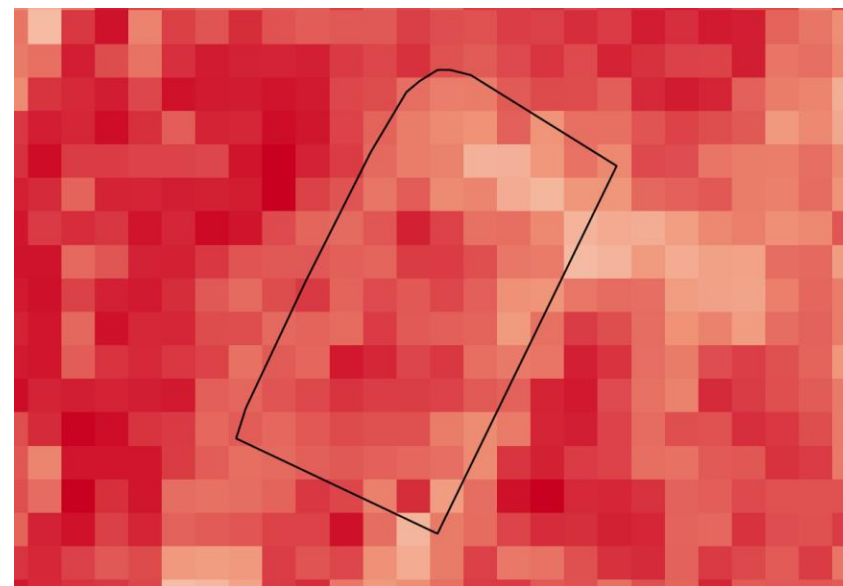


Land Cover

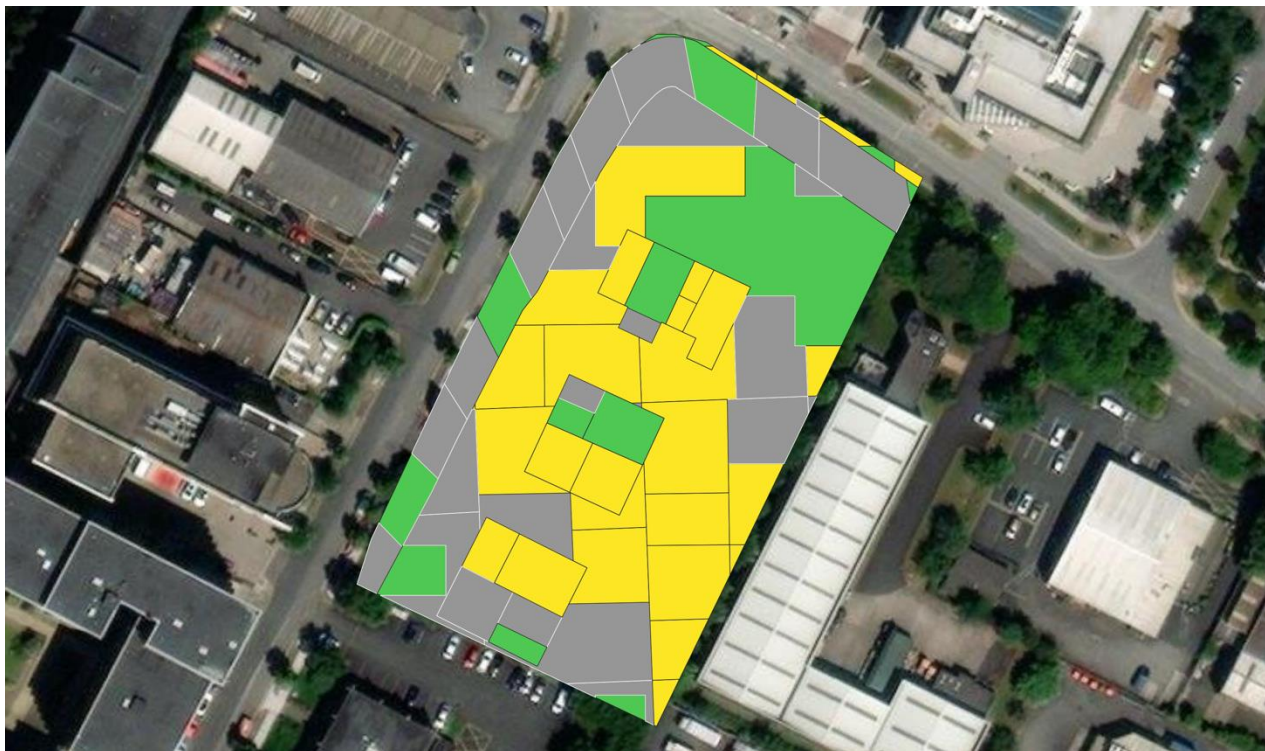
- Building Brick: **0%**
- Building Cool Roof: **5,17%**
- Building Concrete: **11,21%**
- Street: **65,56%**
- Grassland: **4,42%**
- Tree Small: **13,64%**
- Tree Medium: **0%**
- Tree Big: **0%**
- Bare soil: **0%**
- Cropland: **0%**
- Water: **0%**

Temperatures

Min: **30,88 °C** | Average: **32,93 °C** | Max: **34,54 °C**



Simulation of Scenario 1

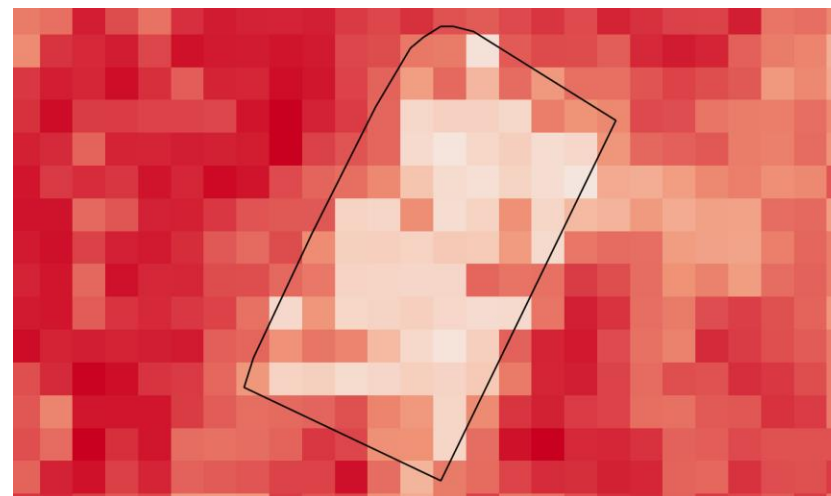


Land Cover

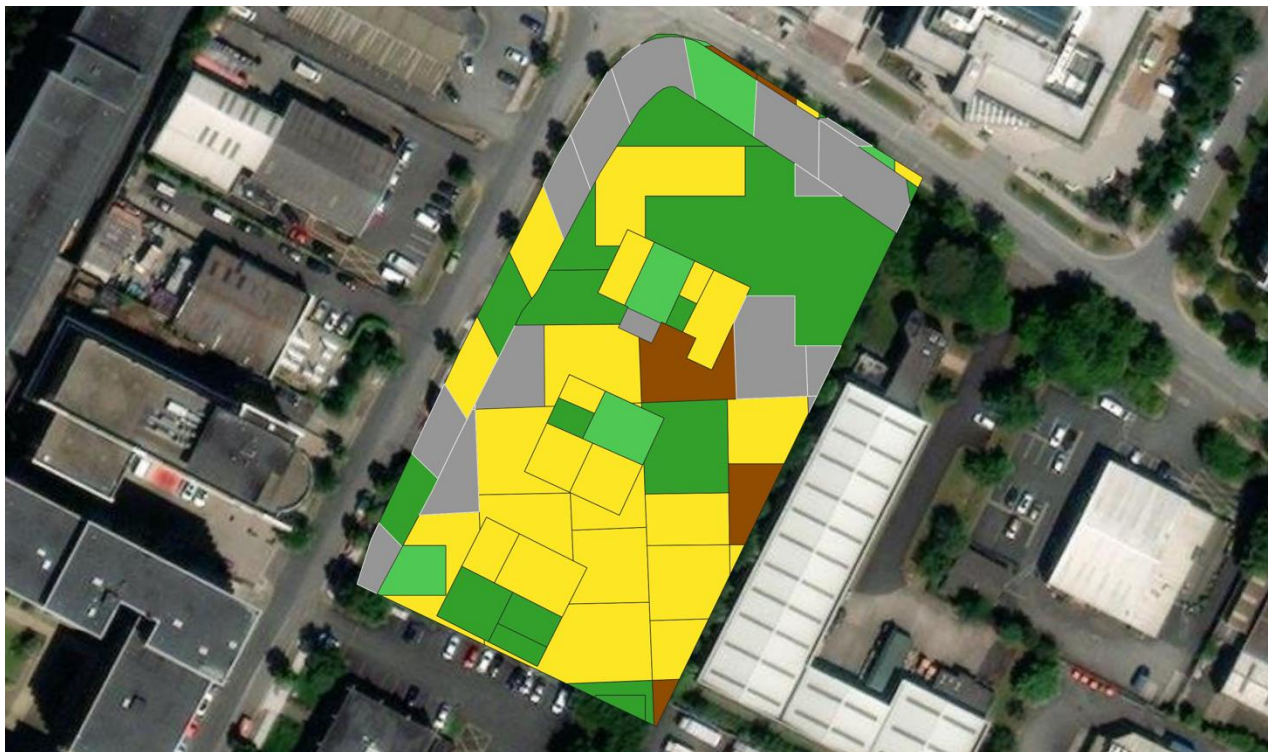
- Building Brick: **0%**
- Building Cool Roof: **0%**
- Building Concrete: **0%**
- Street: **36,23%**
- Grassland: **41,55%**
- Tree Small: **22,22%**
- Tree Medium: **0%**
- Tree Big: **0%**
- Bare soil: **0%**
- Cropland: **0%**
- Water: **0%**

Temperatures

Min: **29,10 °C** | Average: **31,35 °C** | Max: **34,05 °C**



Simulation of Scenario 2

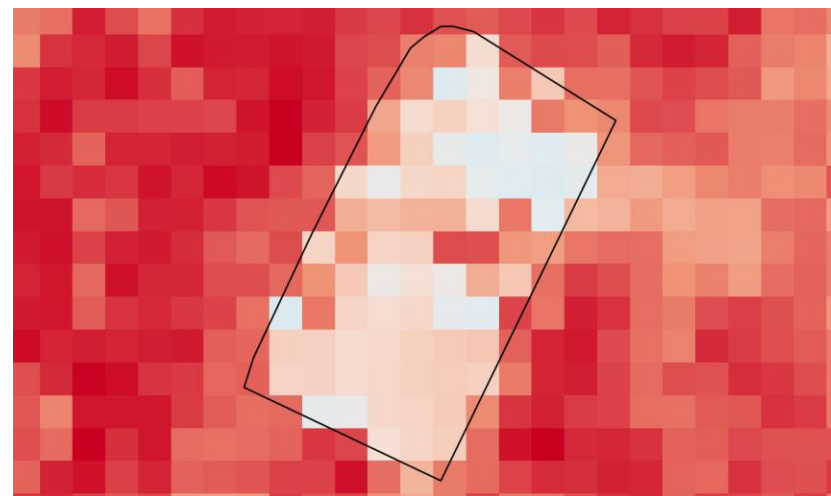


Land Cover

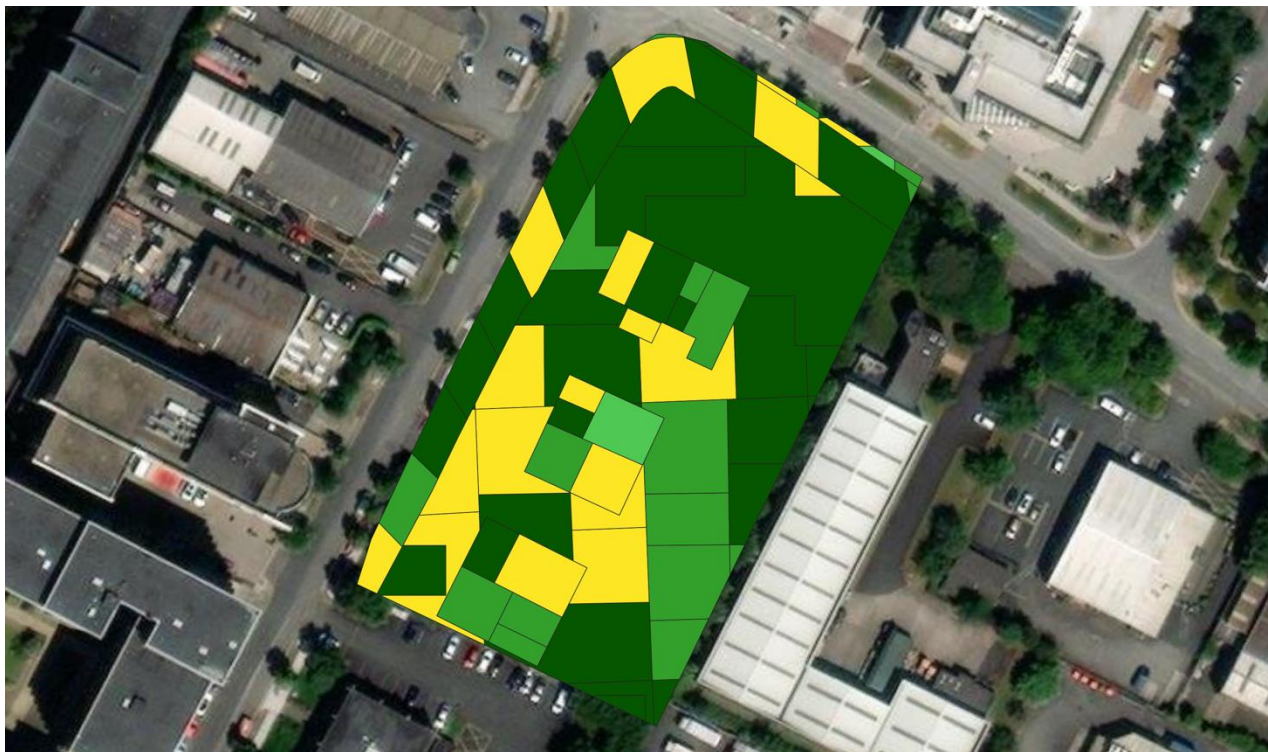
- Building Brick: **0%**
- Building Cool Roof: **0%**
- Building Concrete: **0%**
- Street: **19,24%**
- Grassland: **41,61%**
- Tree Small: **6,46%**
- Tree Medium: **28.12%**
- Tree Big: **0%**
- Bare soil: **4,57%**
- Cropland: **0%**
- Water: **0%**

Temperatures

Min: **27,62 °C** | Average: **30,83 °C** | Max: **34,05 °C**



Simulation of Scenario 3

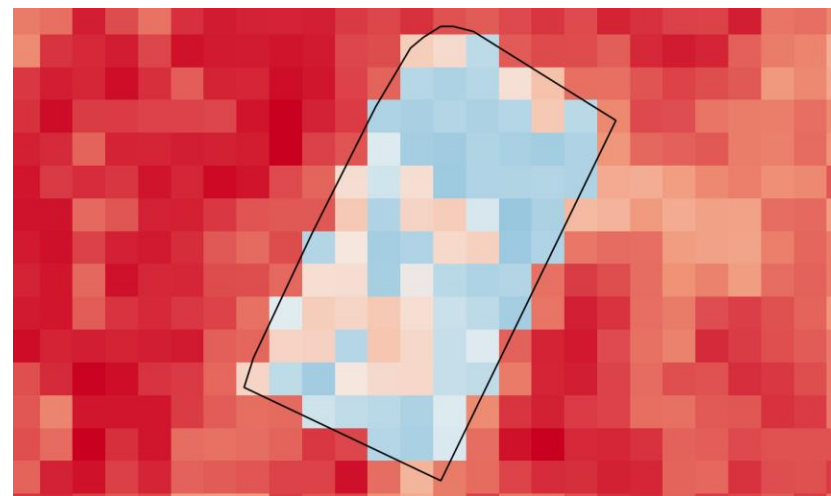


Land Cover

- Building Brick: **0%**
- Building Cool Roof: **0%**
- Building Concrete: **0%**
- Street: **0%**
- Grassland: **26,17%**
- Tree Small: **1,77%**
- Tree Medium: **18,44%**
- Tree Big: **53,62%**
- Bare soil: **0%**
- Cropland: **0%**
- Water: **0%**

Temperatures

Min: **25,54 °C** | Average: **28,97 °C** | Max: **34,05 °C**



Recap of the different Scenarios, Land Surface Temperature

Current Scenario



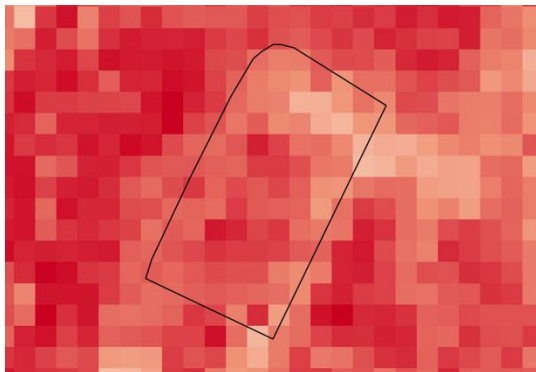
Scenario 1



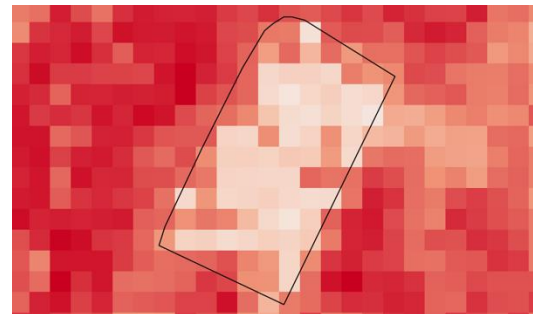
Scenario 2



Scenario 3



32,93 °C
average LST



31,35 °C
average LST

- 1,58 °C

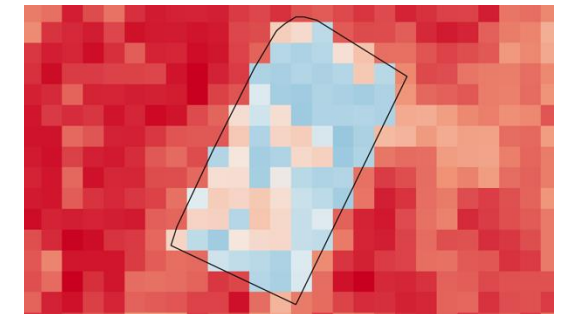
compared to the current scenario



30,83 °C
average LST

- 2,10 °C

compared to the current scenario



28,97 °C
average LST

- 3,96 °C

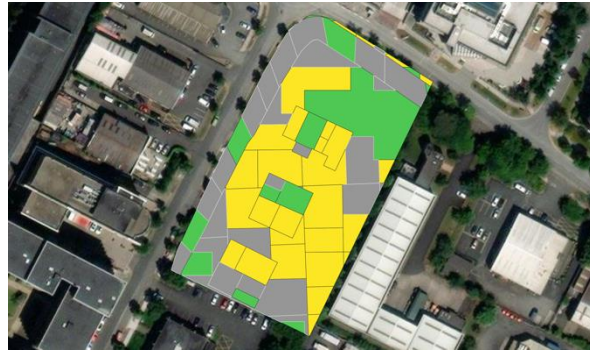
compared to the current scenario

Recap of the different Scenarios, Urban Heat Islands (UHI)

Current Scenario



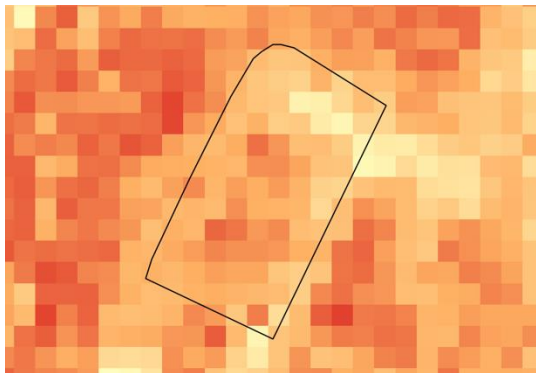
Scenario 1



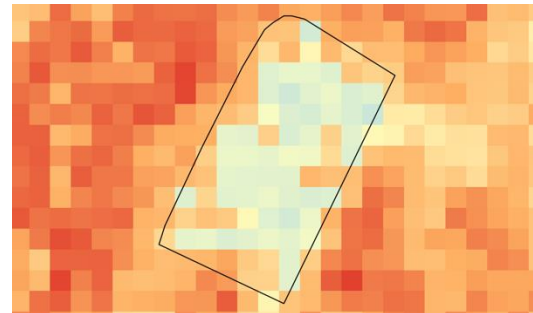
Scenario 2



Scenario 3



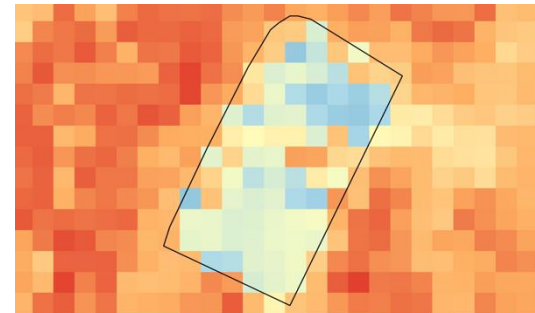
0,52 | **0,72** | 0,87 *UHI Index*
Min | Average | Max



Min | Average | Max
0,35 | **0,56** | 0,82 *UHI Index*

- 16 %

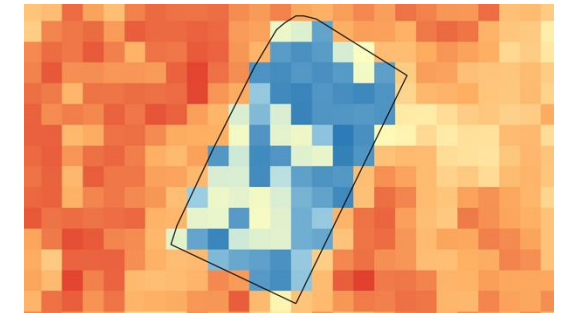
UHI effect respect to the current scenario



Min | Average | Max
0,21 | **0,51** | 0,82 *UHI Index*

- 21 %

UHI effect respect to the current scenario



Min | Average | Max
0,01 | **0,33** | 0,82 *UHI Index*

- 39 %

UHI effect respect to the current scenario