

October, 19th  
2023  
Modena

# REWRITING THE ADAPTATION NARRATIVE MODENA CHALLENGE

## GRAFTING CITIES

Cultivating

our common future





186.307



automotive industry / motor valley



food economy through intense farming and agriculture



A1 highway



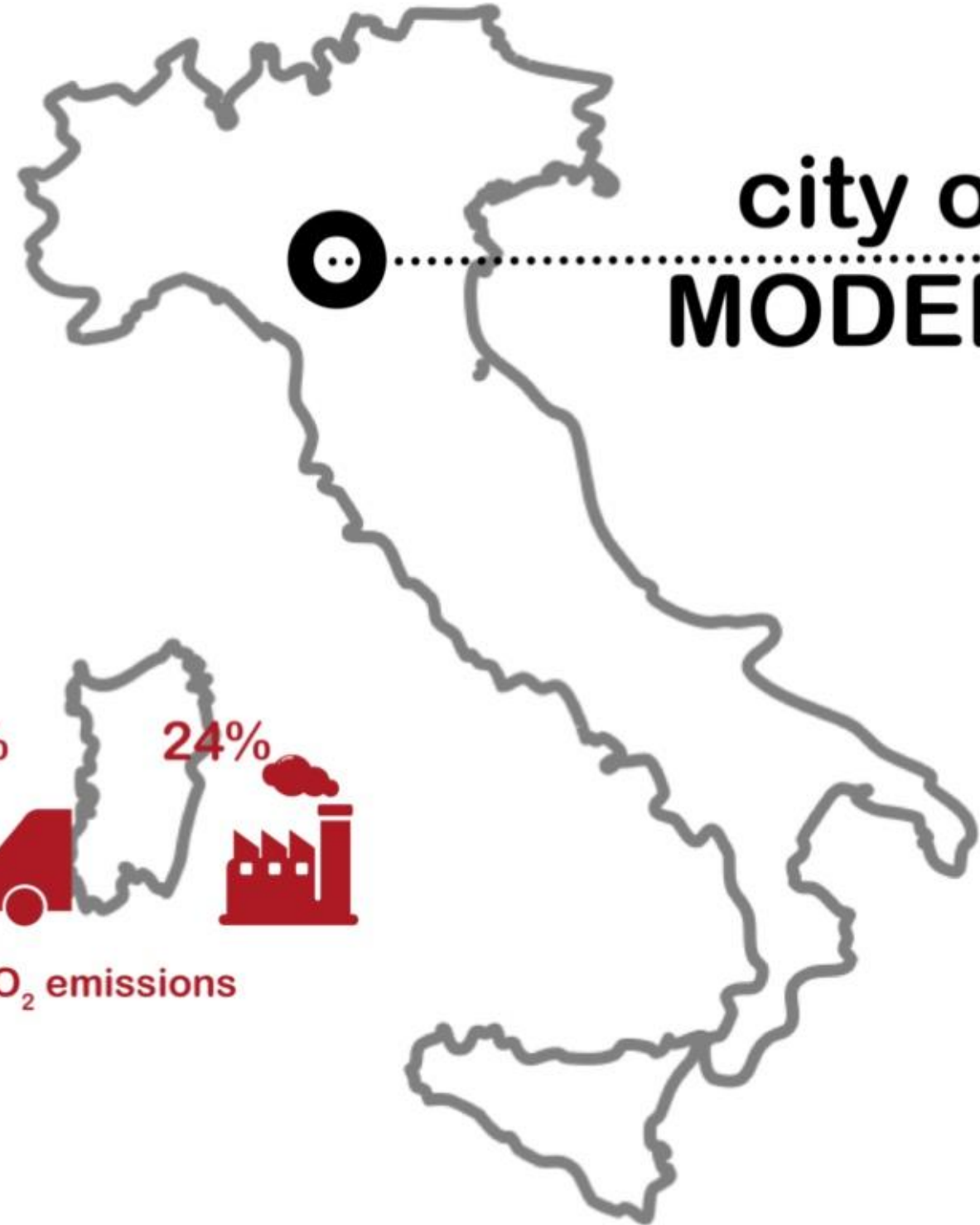
via Emilia



HS train



EuroVelo 7



city of  
**MODENA**



extreme meteorological events



37%




36%

24%

greenhouse / CO<sub>2</sub> emissions

# EMILIA ROMAGNA / extreme climate



**FLOOD IN MAY 2023 / 300-400 mm of rain [= 300 lt x 1 sqm] / in 1 week the amount of 6 months of rain**



# EMILIA ROMAGNA / extreme climate

**FLOOD IN MAY 2023 / 21 rivers flooded / 35 municipalities with flooding / 250 landslides / 9 confirmed deaths**



# EMILIA ROMAGNA / extreme climate

**HEAT WAVES SUMMER 2023 (25<sup>th</sup> August) / T max record: Bologna 39,2°C / Ferrara 38,8°C / Modena 37,8°C**



# EMILIA ROMAGNA / extreme climate


**HEAT WAVES SUMMER 2023 / 2003 +2,7°C / 2022 +2,2°C / 2023 +1,8°C compared to 1900**

# MODENA / challenges and ambitions


The city of Modena has been involved in climate change, energy and sustainability issues for many years through diverse **local actions** and participating to **numerous networks** and **international initiatives**.

Thanks to the commitments to the Covenant of Mayors first, and the Covenant of Mayors for Climate and Energy later, the City of Modena is setting its path **to reduce carbon emissions** and **draft an adaptation plan** to combat climate change.

# MODENA / climate strategies



Comune di Modena



**PUMS 2030**  
Piano Urbano  
Mobilità Sostenibile  
Modena

*Relazione di Piano*

Versione Approvata - Luglio 2020



Patto dei Sindaci  
per il Clima e l'Energia  
EUROPA

**PAESC**  
ANNO 2020  
MODENA



**PUG**  
PIANO URBANISTICO GENERALE

Sindaco  
Gian Carlo Muzzarelli

Assessora a Urbanistica, Edilizia, Politiche Abitative, Aree Produttive  
Anna Maria Vandelli

Direttrice Generale  
Valeria Meloncelli

Dirigente del Settore Pianificazione e Gestione del territorio e RUP  
Maria Sergio

PUG | Approvazione



**PUG MODENA – ELENCO ELABORATI**

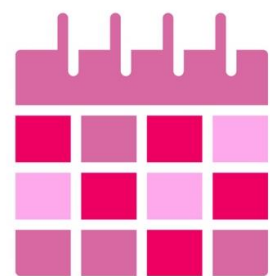
ASSUNZIONE Delibera C.C. n° 86 del 29/12/2021	ADOZIONE Delibera C.C. n° 78 del 22/12/2022	APPROVAZIONE Delibera C.C. n° 46 del 22/06/2023
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Comune di Modena



# SECAP 2018-2030



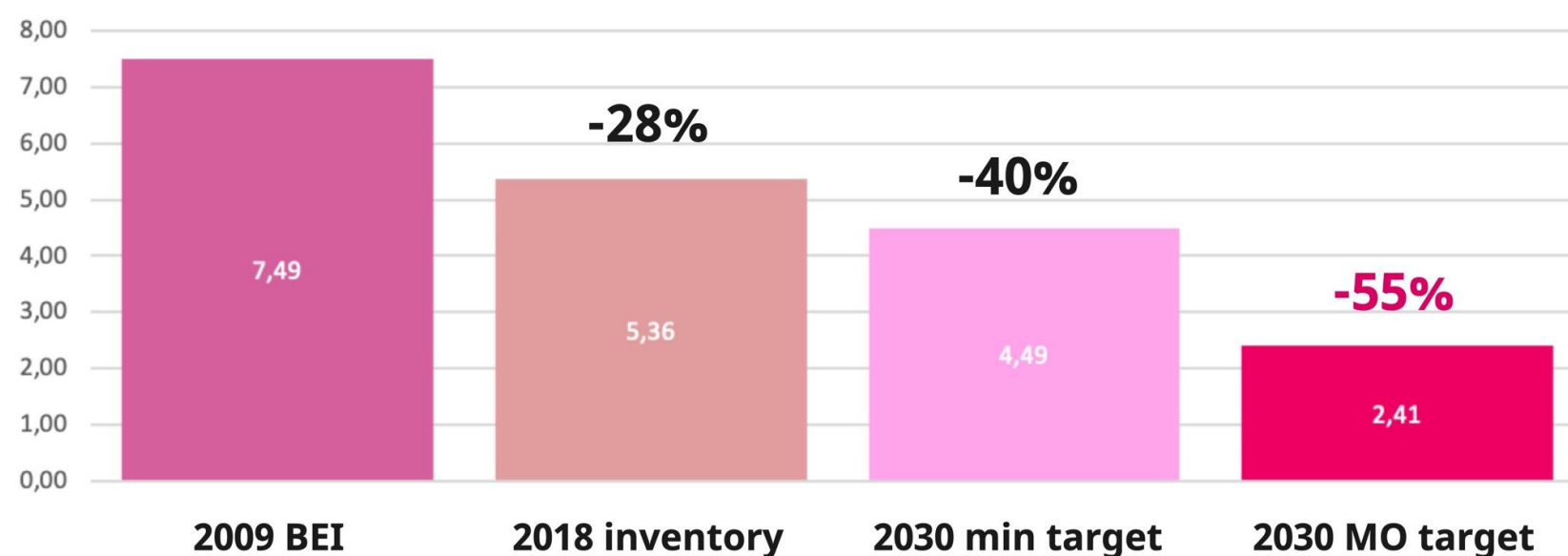
## TIMELINE

- 2009 baseline
- 2010 Covenant of Mayors
- 2011 SEAP approval
- 2018 SEAP monitoring
- 2019 Covenant of Mayors for Climate and Energy
- 2021 SECAP approval (4th February)



## GOAL -55% BY 2030

191.081 inhabitants - 680.921 tCO<sub>2</sub> - 3,75 tCO<sub>2</sub>/inh

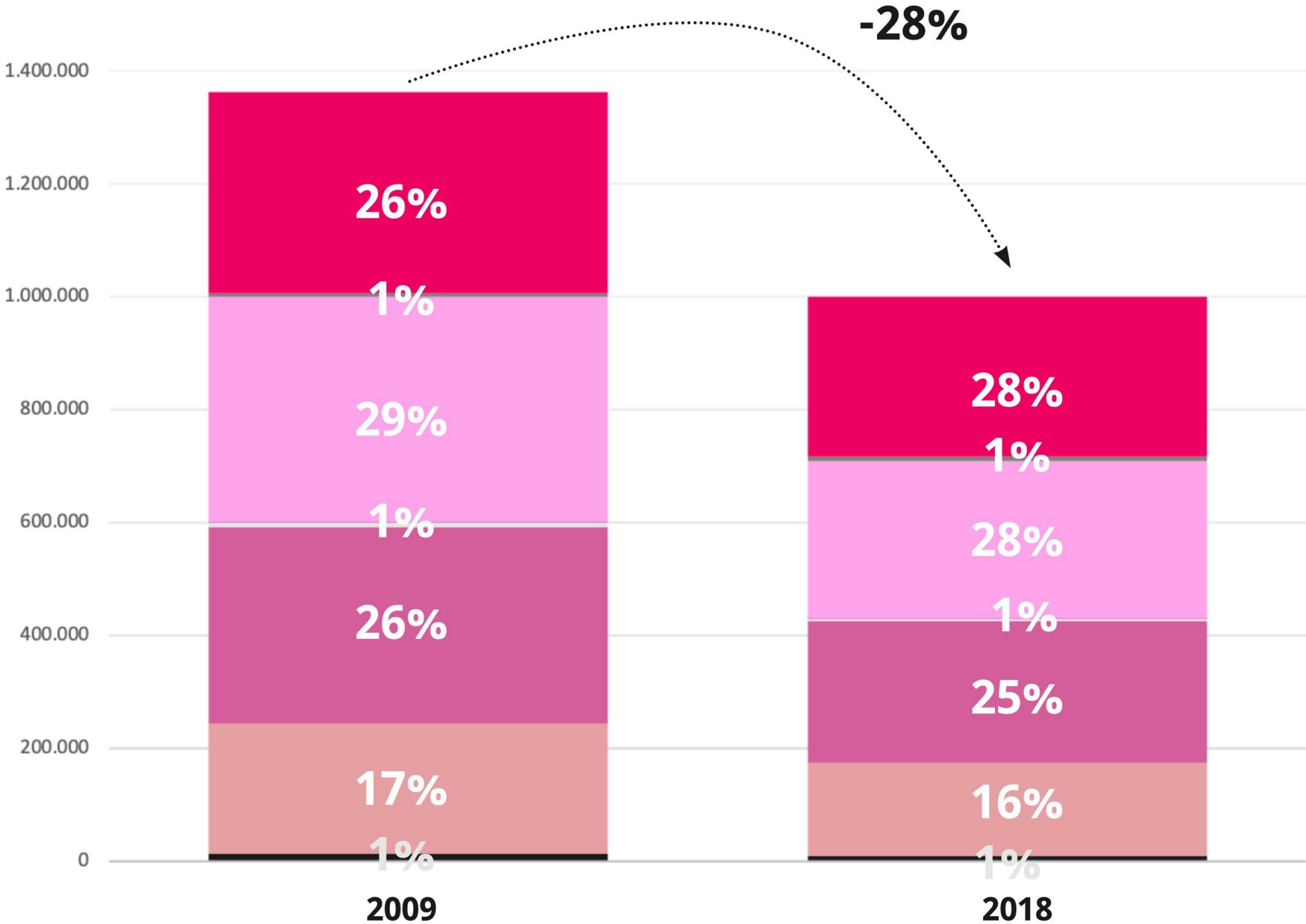


«Sustainable mobility and green&blue infrastructure for a smart, healthy and inclusive city by 2030»

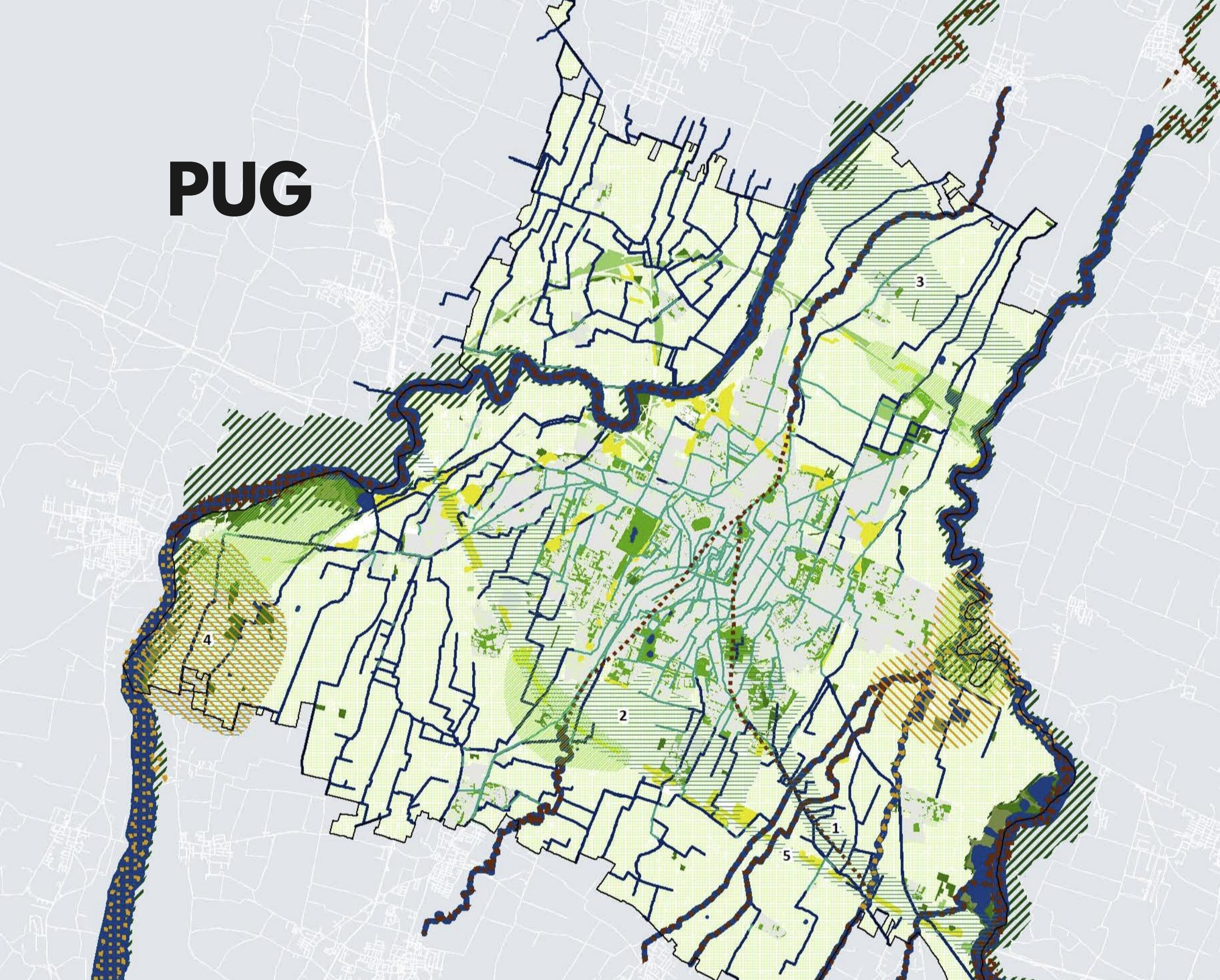
# SECAP 2018-2030

Emissions comparison by sector [tCO2/year] 2009-2018



- Public buildings -25%
- Tertiary buildings -29%
- **Residential buildings -27%**
- Public lightening -59%
- Agriculture -26%
- **Industry -30%**
- Municipal vehicles 0%
- Public transports -4%
- **Private transports -21%**








# PUG







## Progettualità strategiche di rilevanza ecologico - ambientale

-  nuovi boschi
-  nodi complessi della rete ecologica

## Progettualità di paesaggio

-  1 ecologico-fruttiva Vaciglio- Panaro
-  2 paesaggio periurbano
-  3 ecologico-fruttiva SE-PA
-  4 complessa Parco rurale
-  5 miglio agroalimentare



## Infrastruttura blu

-  reticolo idrografico e specchi d'acqua
-  canali coperti
-  stato ecologico acque sufficiente (ARPAE 2018)
-  stato ecologico acque non buono (ARPAE 2018)

## Infrastruttura verde

-  verde urbano
-  aree boscate
-  aree di futura forestazione
-  forestazione urbana
-  altre aree non sigillate

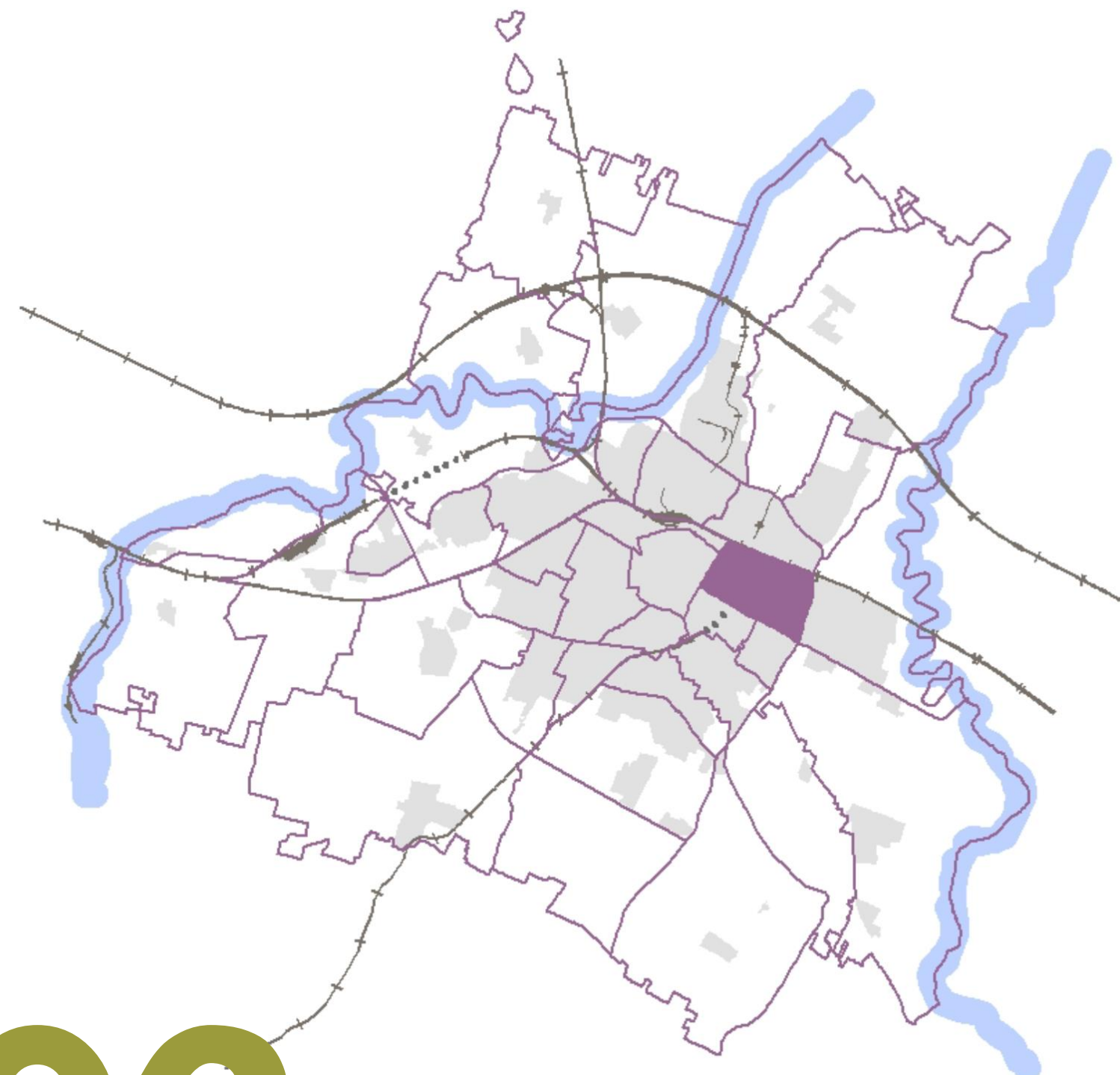
## Altri elementi da potenziare e mettere in rete

-  nodo ecologico
-  aree perifluviali di Secchia e Panaro

# CASE STUDIES



01



02

# VILLAGGIO ARTIGIANO / case study

01



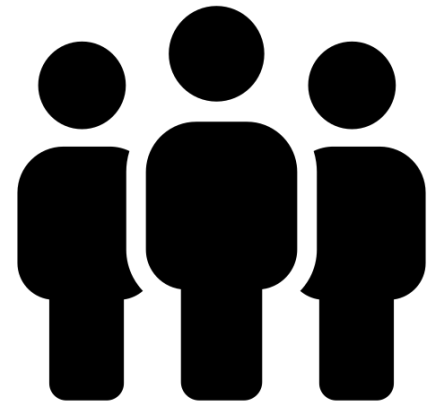
The Artisan Village is a **manufacturing district** located in the first outskirts the city that was **built during the postwar period of World War II** from an audacious political intuition.

It was the first **model of industrial site** in Italy: an area that sits **in-between the city and the countryside**, and that ties together **life and work**, know-how and industry, production chain and local community.

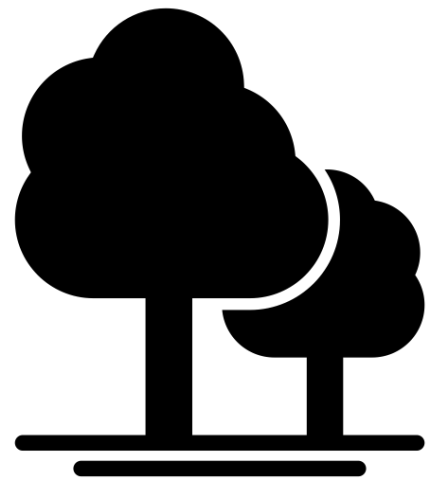


[Photo by Google Earth]

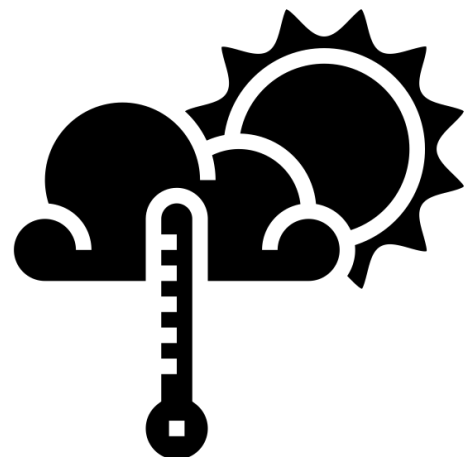
# VILLAGGIO ARTIGIANO / facts and figures



4.408 tot population  
395 children 0-18  
941 elderly over 65



110,07 ha tot surface  
52% public spaces / 48% private surfaces  
25% green areas = 273.504 mq  
25-50% unsealed areas  
05 IQ quite poor soil quality index



36°C max air temperature in summer (\*)  
53°C max surface temperature in summer (\*)

(\*) estimated data from EnviMet simulations REBUS LAB Emilia-Romagna Region

0 mq green urban

19% 51.223 mq neighborhood green areas

41% 111.920 mq environmental green

24% 65.128 mq other green areas

16% 45.233 mq overgrown fields

273.504 mq green areas  
25% of district area



**Green spaces fruition**

- urban park
- neighborhood park
- green area

**Ecological-environmental comfort**

- ecological-environmental equipments
- public wastelands
- other permeable soils
- tree-lined rows
- rural territory





↑ 10 m

[Photo by REBUS LAB Emilia-Romagna Region]



[Photo by REBUS LAB Emilia-Romagna Region]



[Photo by REBUS LAB Emilia-Romagna Region]

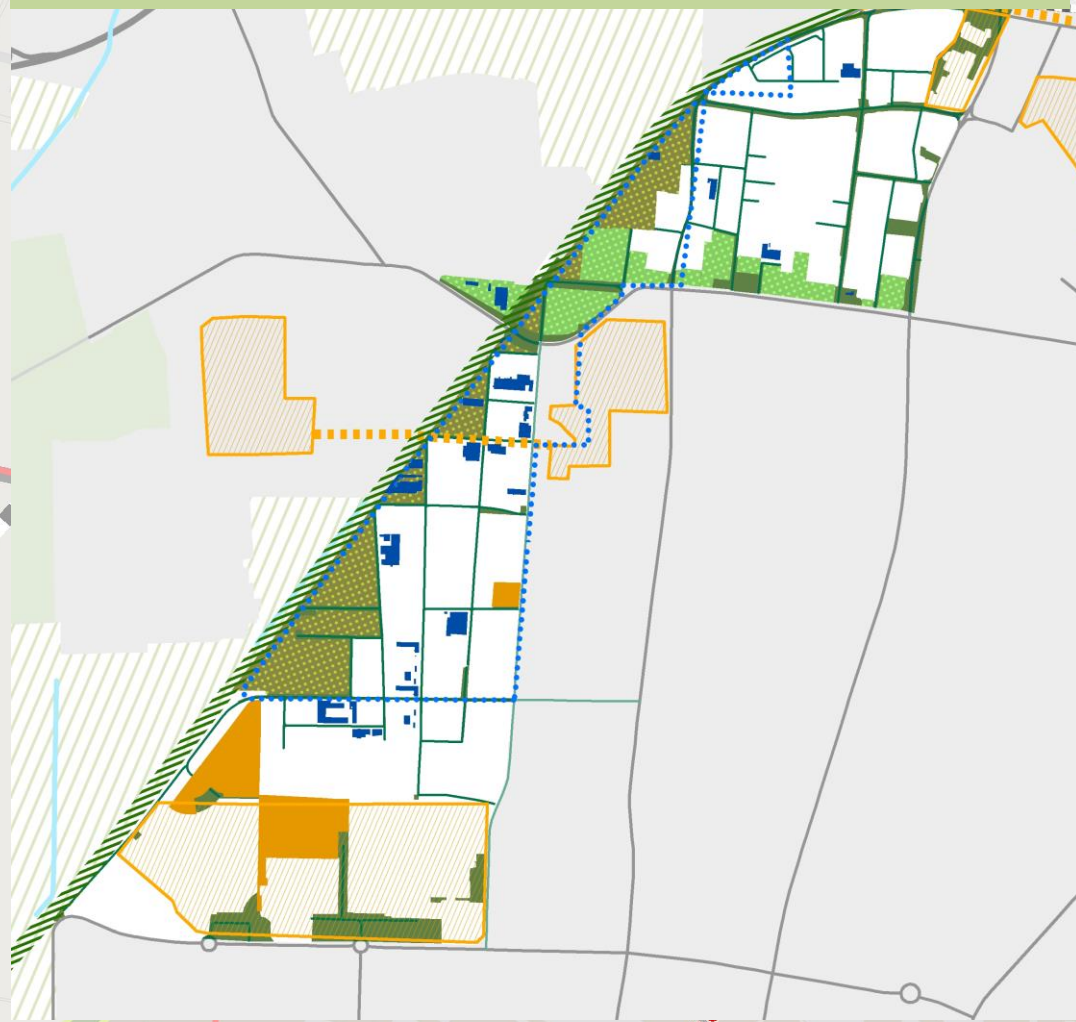


[Photo by REBUS LAB Emilia-Romagna Region]

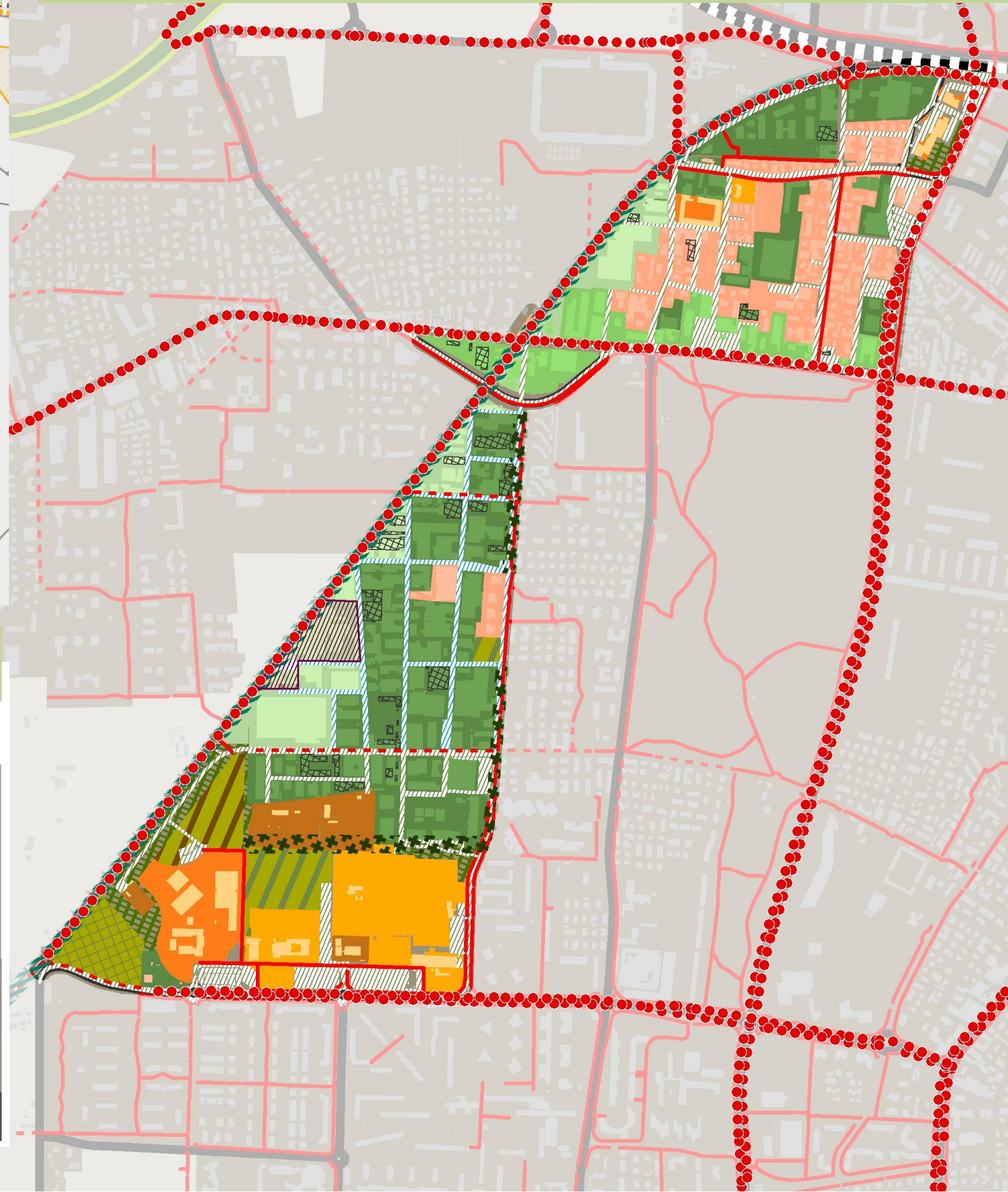


[Photo by REBUS LAB Emilia-Romagna Region]

## Public spaces, roads, identity heritage



## Work space reactivation and residential areas liveability



### AZIONI DI STRATEGIA LOCALE

#### Azioni diffuse

- mitigazione dell'isola di calore: miglioramento energetico dei fabbricati e aumento della permeabilità dei lotti
- riordino dei fronti prospicienti la via Emilia Ovest secondo regole relative ai fronti, spazi parcheggio e alle recinzioni
- riordino dei fronti prospicienti la Diagonale
- servizi urbani da connettere alla dorsale sulla Diagonale
- mitigazione dell'impatto ambientale e percettivo dell'area per impianti tecnologici
- servizi locali da valorizzare e connettere al tessuto produttivo
- verde di quartiere da potenziare
- verde pubblico incolto da attrezzare
- verde incolto da valorizzare
- manutenzione e potenziamento del verde ambientale di mitigazione
- aree residenziali di possibile conflitto con aree produttive: incentivare la mitigazione
- riassetto delle sezioni stradali per la realizzazione di marciapiedi, parcheggi permeabili e rain garden
- aumento delle aree permeabili su strade e parcheggi compatibilmente alla qualità delle acque di dilavamento

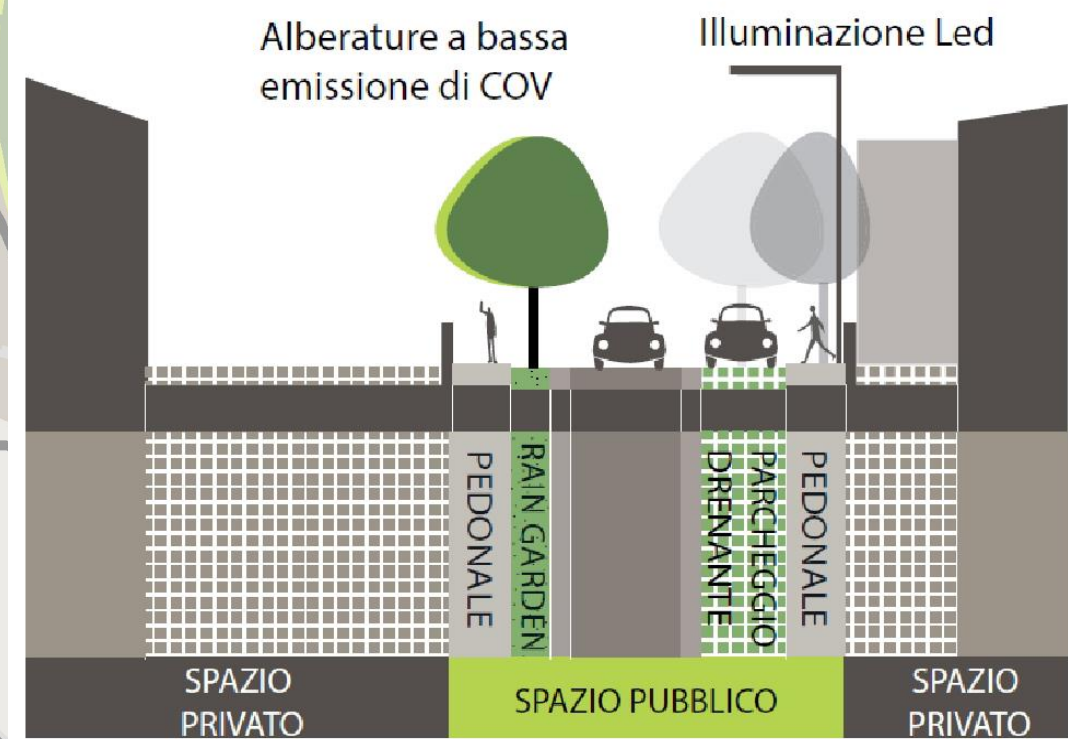
#### Azioni puntuali

- attività in corso di trasferimento
- edifici degradati da rigenerare e riattivare
- mitigazione del conflitto funzionale: inserimento di quinte verdi
- progetto di paesaggio sulla Diagonale: corridoio verde per la mobilità dolce

#### Azioni di PUMS 2030

- riassetto della sezione stradale per la creazione di dorsale ciclistica per favorire gli spostamenti veloci casa-lavoro
- rete ciclopedonale esistente: manutenzione ed aumento della sicurezza
- completamento della rete ciclopedonale

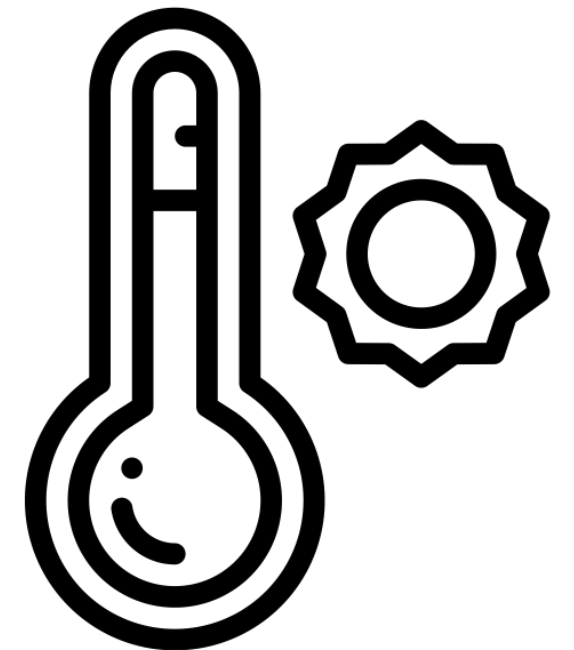
## Roads regeneration



# VILLAGGIO ARTIGIANO / focus challenge

How can we deal better with  
**extreme heat?**

01



# SAN LAZZARO / case study

02



San Lazzaro is a **huge mixed-use district**, just adjacent to the city centre.

The first residential settlements dates in the 30s, then it intensely developed from 50s, and now it has a **varied social structure, but really active and cohesive**.

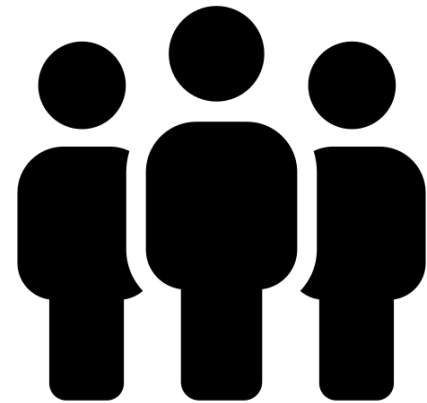
Thanks to its position and the public dotations that contains it's a really **strategic area**.





[Photo by Google Earth]

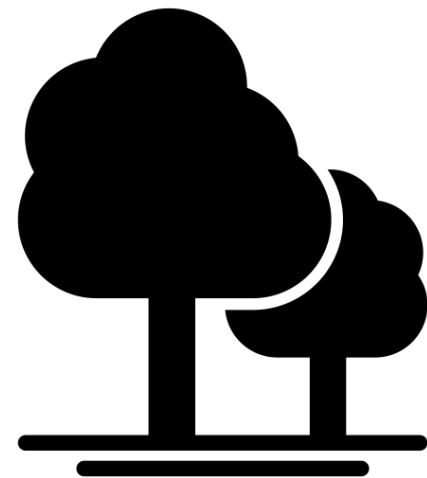
# SAN LAZZARO / facts and figures



14.968 tot population

1.861 children 0-18

3.479 elderly over 65



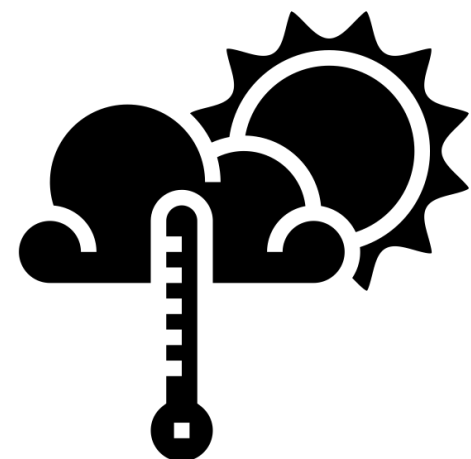
232,39 ha tot surface

55% public spaces / 45% private surfaces

30% green areas = 701.139 mq

≈ 30% unsealed areas

04 IQ quite poor soil quality index

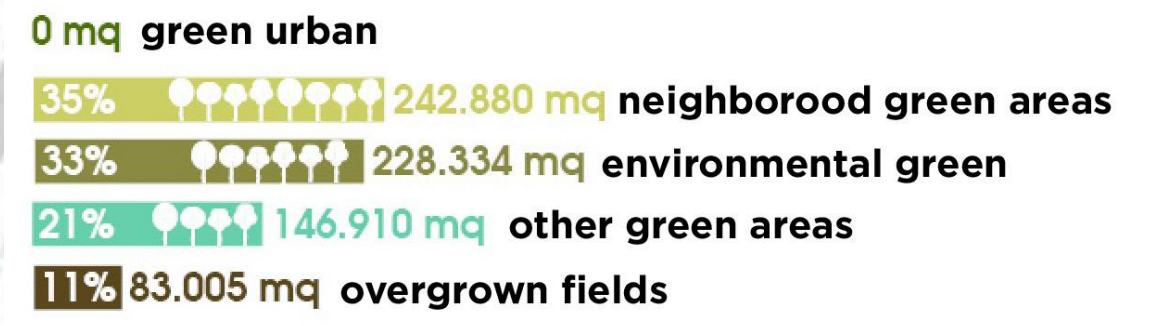
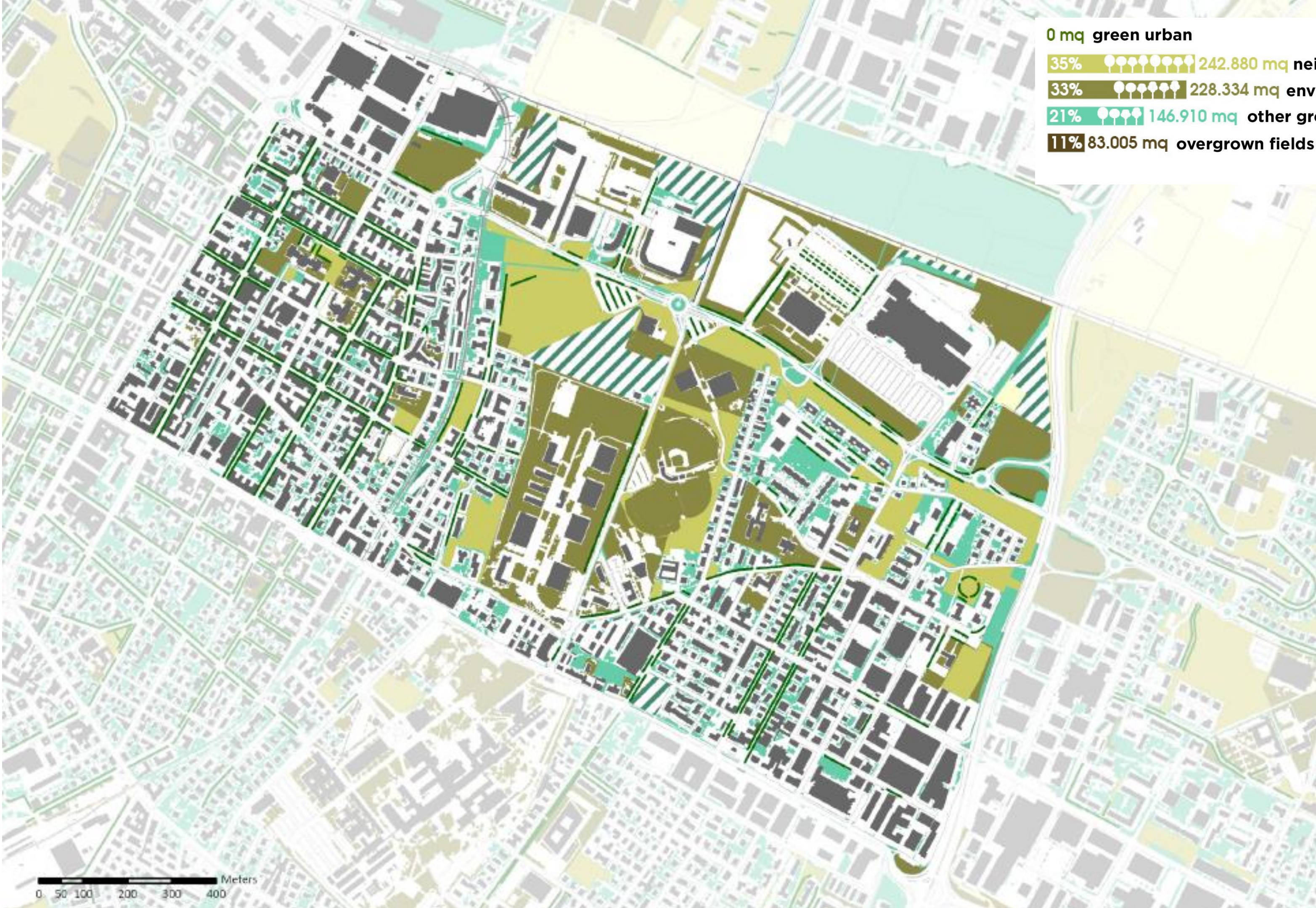


39°C max air temperature in summer (\*)

56°C max surface temperature in summer (\*)

Medium-high local flood risks (high critical level basin in the east area)

(\*) estimated data from EnviMet simulations REBUS LAB Emilia-Romagna Region



**701.139 mq** green areas  
**30%** of district area

**Green spaces fruition**

- urban park
- neighborhood park
- green area

**Ecological-environmental comfort**

- ecological-environmental equipments
- public wastelands
- other permeable soils
- tree-lined rows
- rural territory

0 50 100 200 300 400 Meters



Via Amicardi

[Photo by Google Maps]



[Photo by Google Maps]



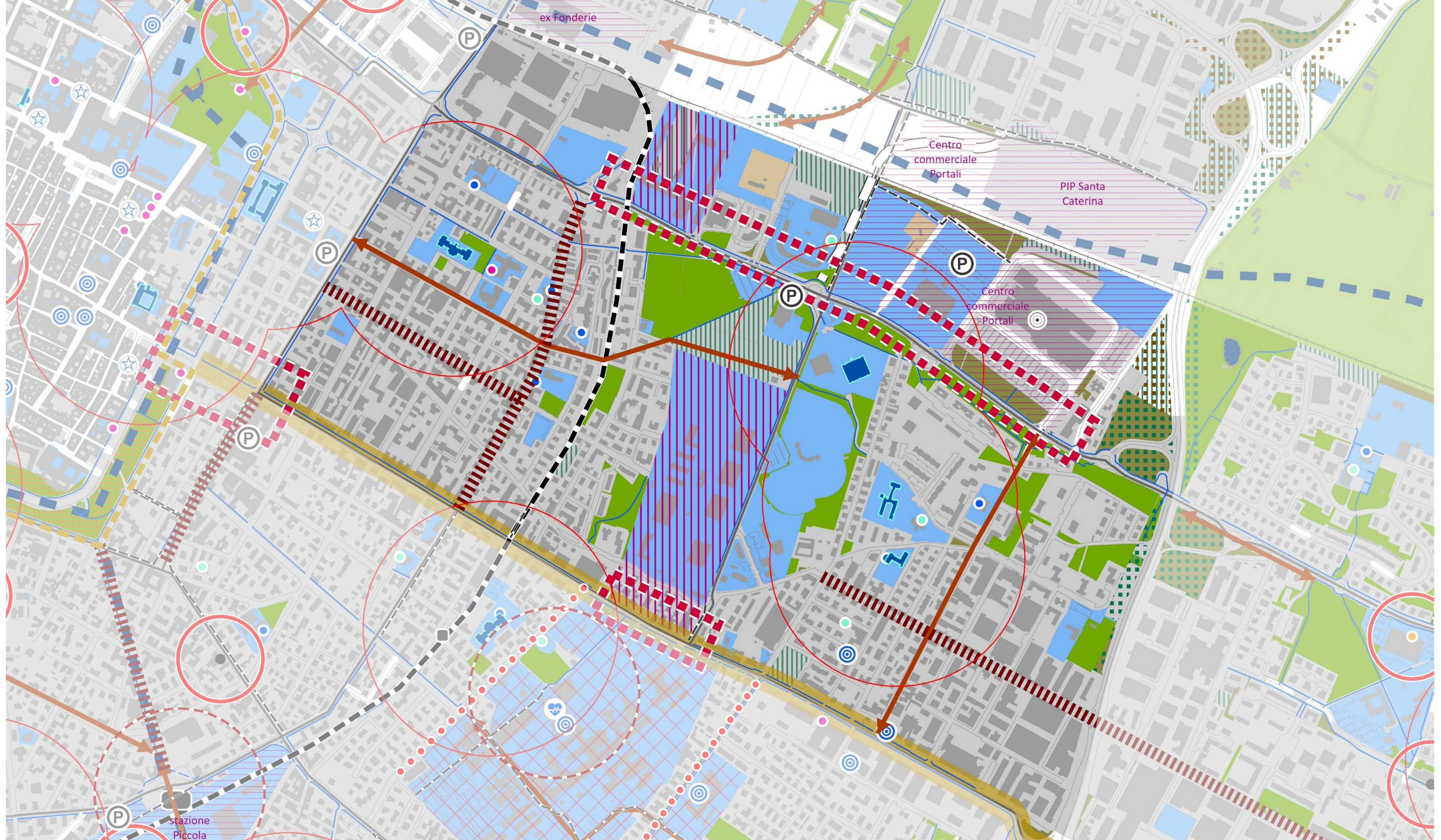
Via Giacomo Agnini

[Photo by Google Maps]



Via M. Bonifazi

[Photo by Google Maps]



ex Fonderie

Centro commerciale Portali

PIP Santa Caterina

Centro commerciale Portali

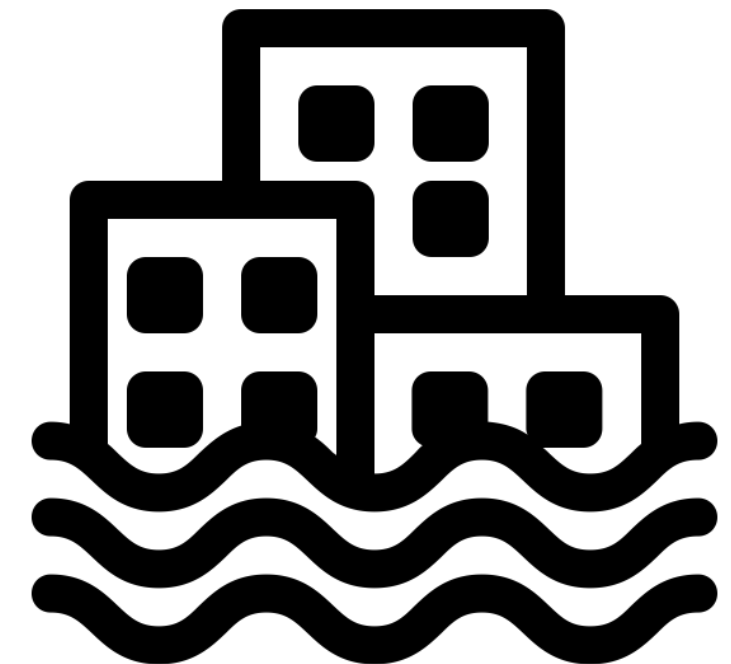
stazione Piccola



# **SAN LAZZARO / focus challenge**

How can we deal better with  
**flood risk?**

02





**GRAFTING  
CITIES**

**COMUNE DI MODENA**

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Comune di Modena



**CLIMATE  
ALLIANCE**



ENERGYCITIES



Partner tecnico