



**World Forum on
Urban Forests**
Mantova 2018

The Past + Green City
PS 1.1 Green City

M O D E N A

from green to forest city

MODENA CITY COUNCIL

SIMONA ARLETTI

President Italian Association “Healthy Cities Network” WHO

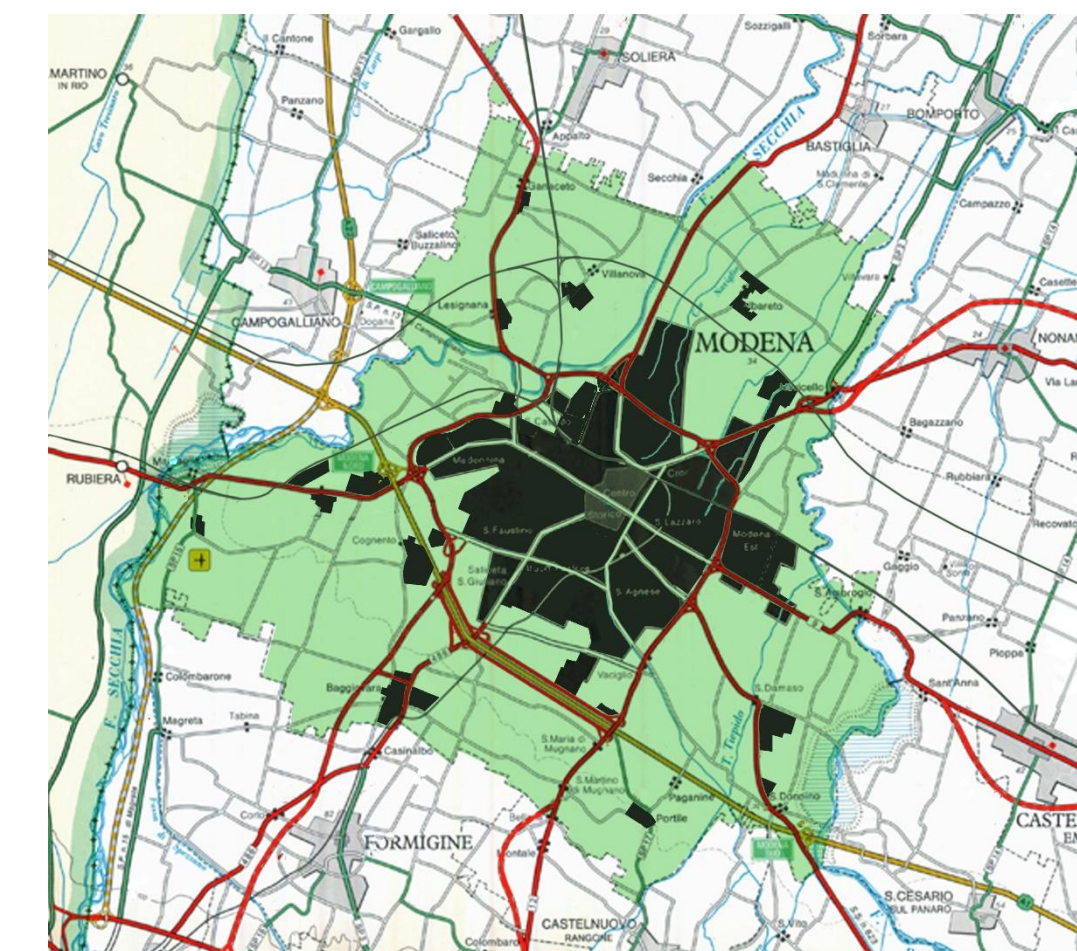
ANDREA DI PAOLO

Agronomist, AIAPP member



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MODENA town





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MODENA green city

MODENA

184,727

Inhabitants

183.19 km²

Total Area

1,008 inh./km²

Density

34 m

Altitude



Corriere della Sera Mercoledì 21 Marzo 2018

Le foreste nelle nostre città

Gli alberi ripuliscono l'aria e mitigano il caldo
così un chilometro quadrato vale un milione
Oggi la Giornata mondiale voluta dall'Onu

La missione: trasformare le giungle di cemento in foreste urbane. Il tema: se le foreste sono minacciate e scompaiono, sono le città che devono ospitare al loro interno boschi e piante in ogni spazio disponibile. La motivazione: non si tratta solo di arredo urbano, perché in città sempre più soffocate dalla CO₂, gli alberi mitigano le frequenti ondate di calore, producono ossigeno e puliscono anche l'aria. Per le Nazioni Unite il verde in città è il tema di quest'anno della Giornata delle foreste, che si celebra oggi. I benefici ricavati dalle piante in città sono sostenuti da dati scientifici. Secondo una ricerca dell'Università di Southampton, per esempio, gli alberi di Londra e del suo circondario eliminano ogni anno da 850 a 2 mila tonnellate di polveri sottili. Nelle megalopoli con più di 10 milioni di abitanti (dove

vive ormai il 10% dei 7,5 miliardi di persone che popolano la Terra) la superficie coperta da foreste e parchi è in media il 20%, passando dal 10% del Cairo al 35% di Mosca. Theodore Endreny, della State University di New York, in uno studio in collaborazione con l'Università degli studi Parthenope di Napoli che ha di recente ottenuto il premio Atlas Elsevier, ha calcolato il valore di un chilometro quadrato coperto da alberi in una città: circa 1 milione di euro.

Se nelle città gli spazi mancano, la foresta urbana deve passare da orizzontale a verticale. Chi ha cambiato il concetto di bosco urbano è l'architetto Stefano Boeri, che

con il suo gruppo ha in corso tre progetti in Cina partendo dall'esperienza del Bosco verticale di Milano. «Si tratta di intere città-foresta di 30 mila abitanti fatte di edifici con alberi sulle facciate», spiega l'architetto milanese. «È una sfida enorme. Il verde in città ha anche un effetto psicologico, oltre che ambientale ed estetico. A Milano conclude l'archistar — abbiamo verificato in estate un aumento di 30 gradi sulla temperatura esterna del Bosco verticale. Gli alberi risparmiano energia per i condizionatori. In Italia grazie anche al Bosco verticale un punto di riferimento per il verde in città. Dal 28 novembre al 1 dicembre Mantova ospiterà infatti il primo forum mondiale sulle foreste urbane organizzato dalla Fao.

Paolo Virtuani
@PVirtus
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I capoluoghi con più piante

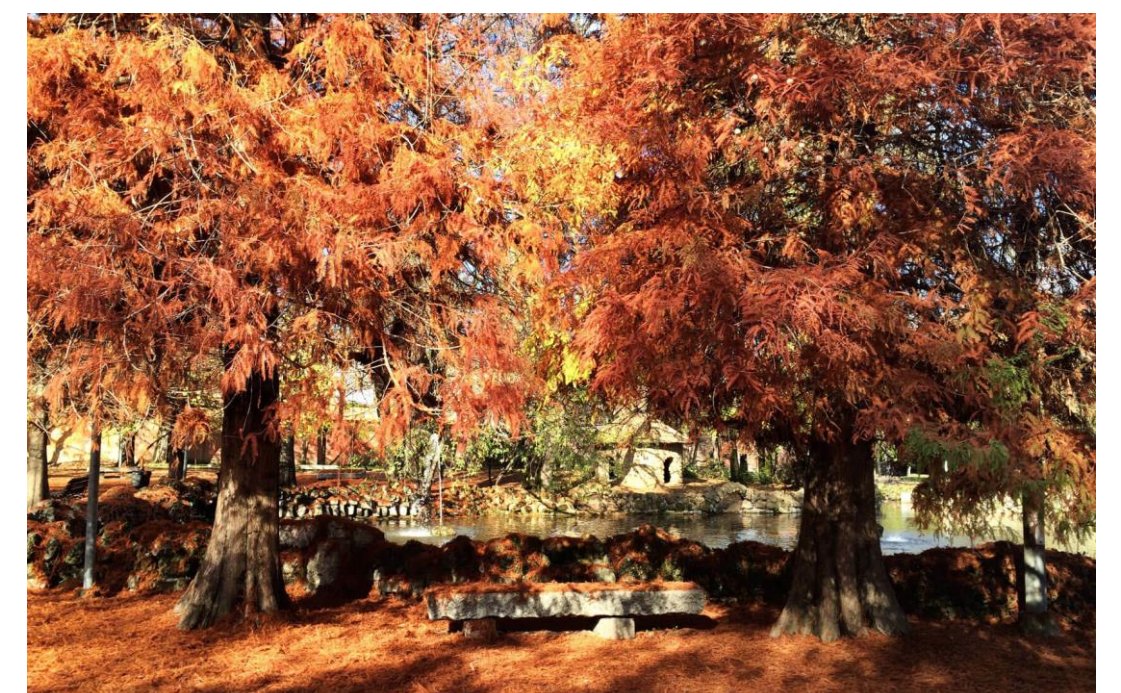
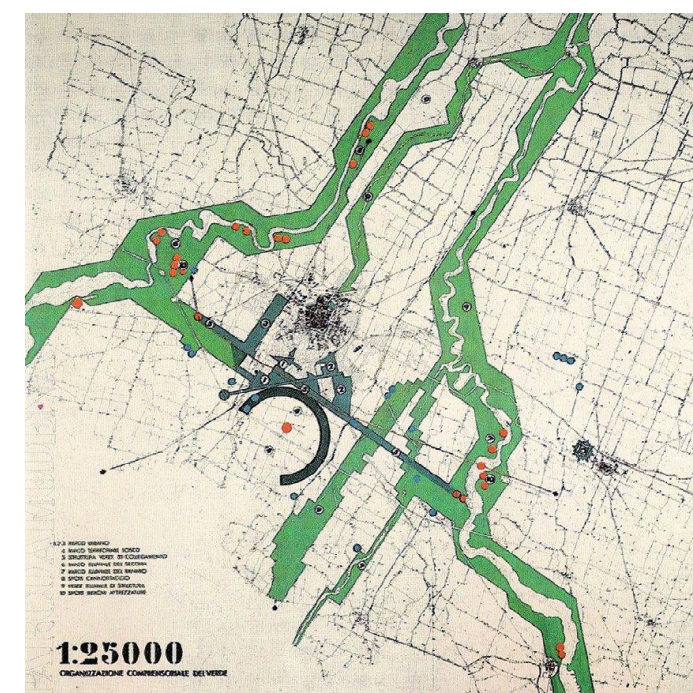
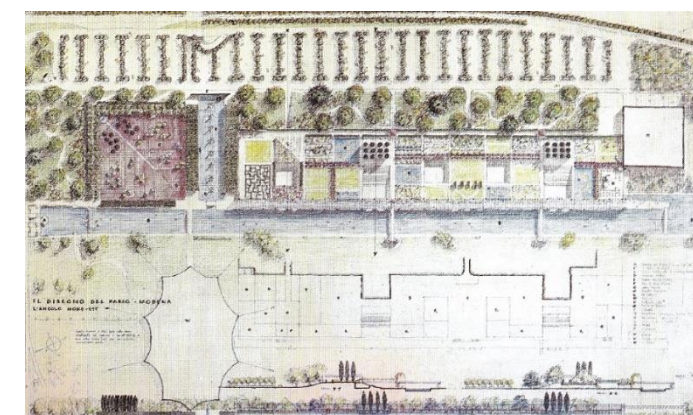
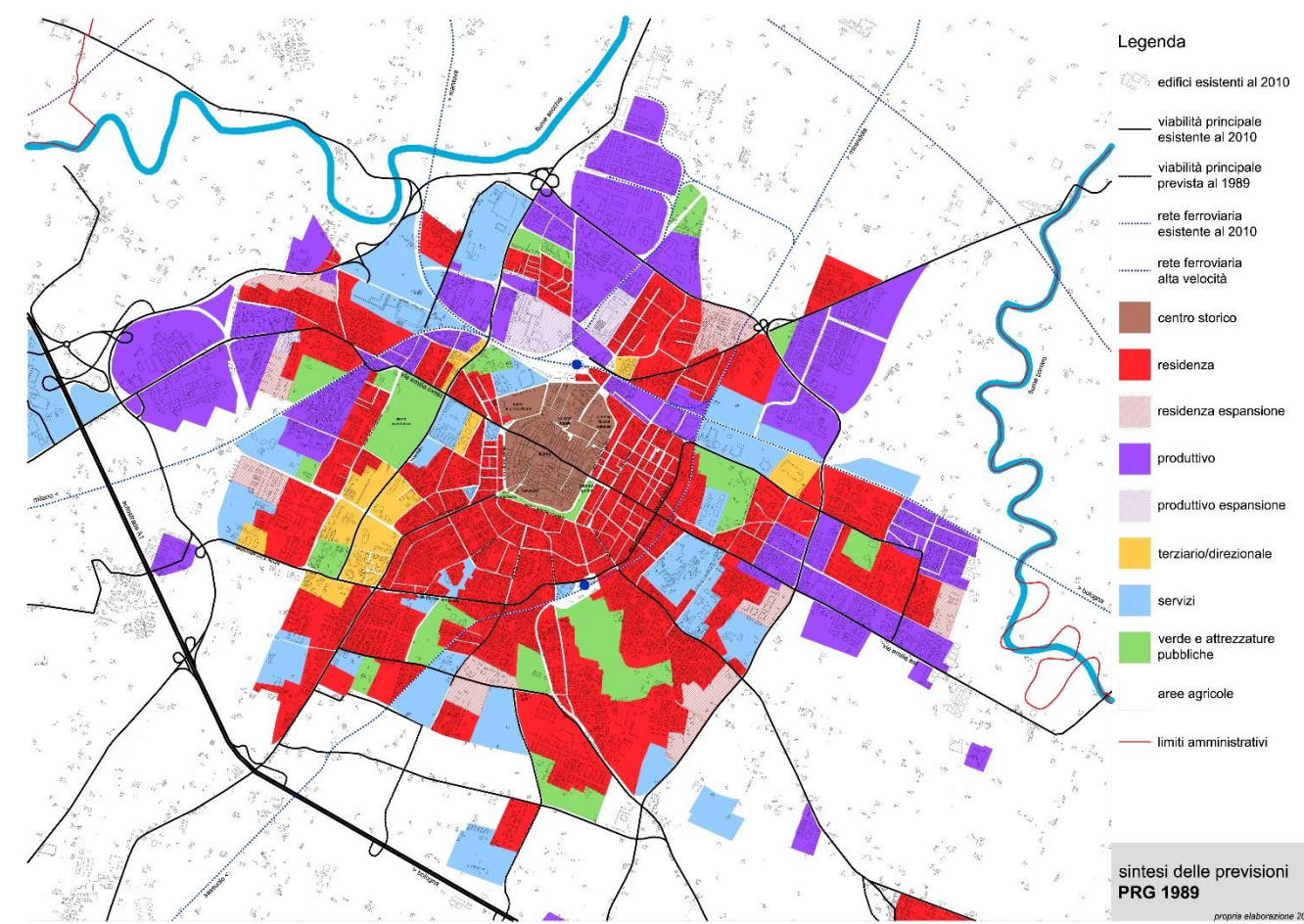
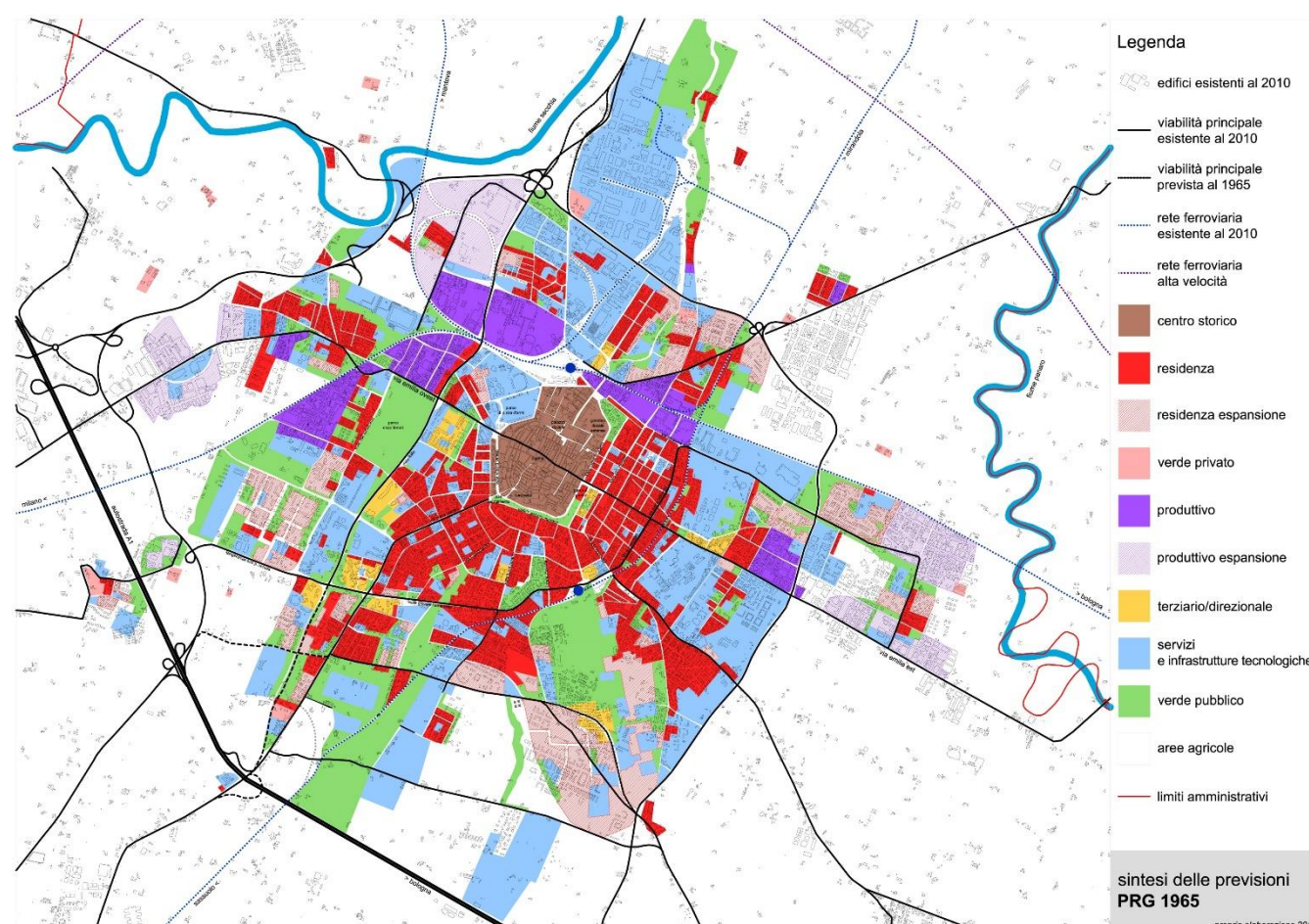
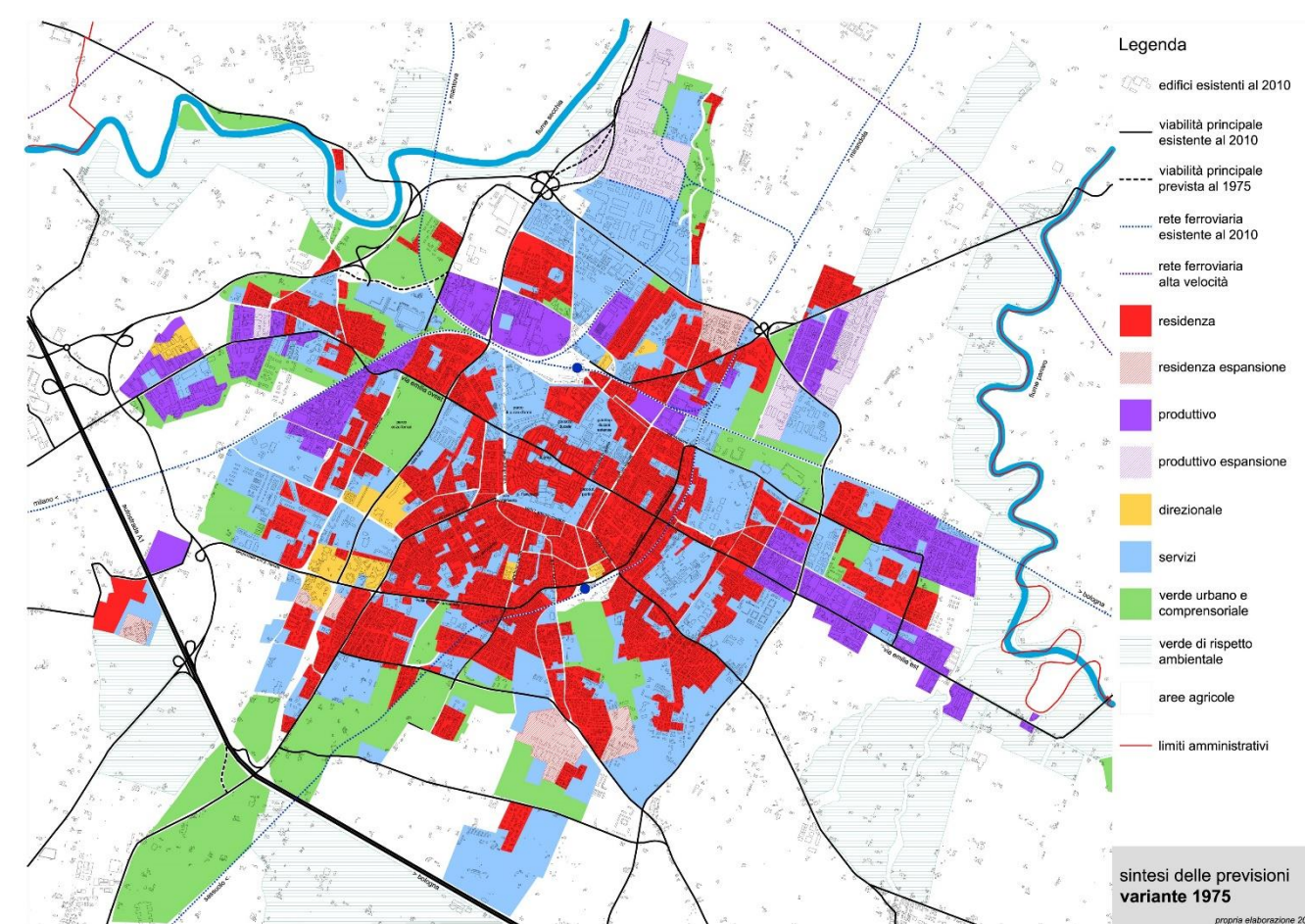
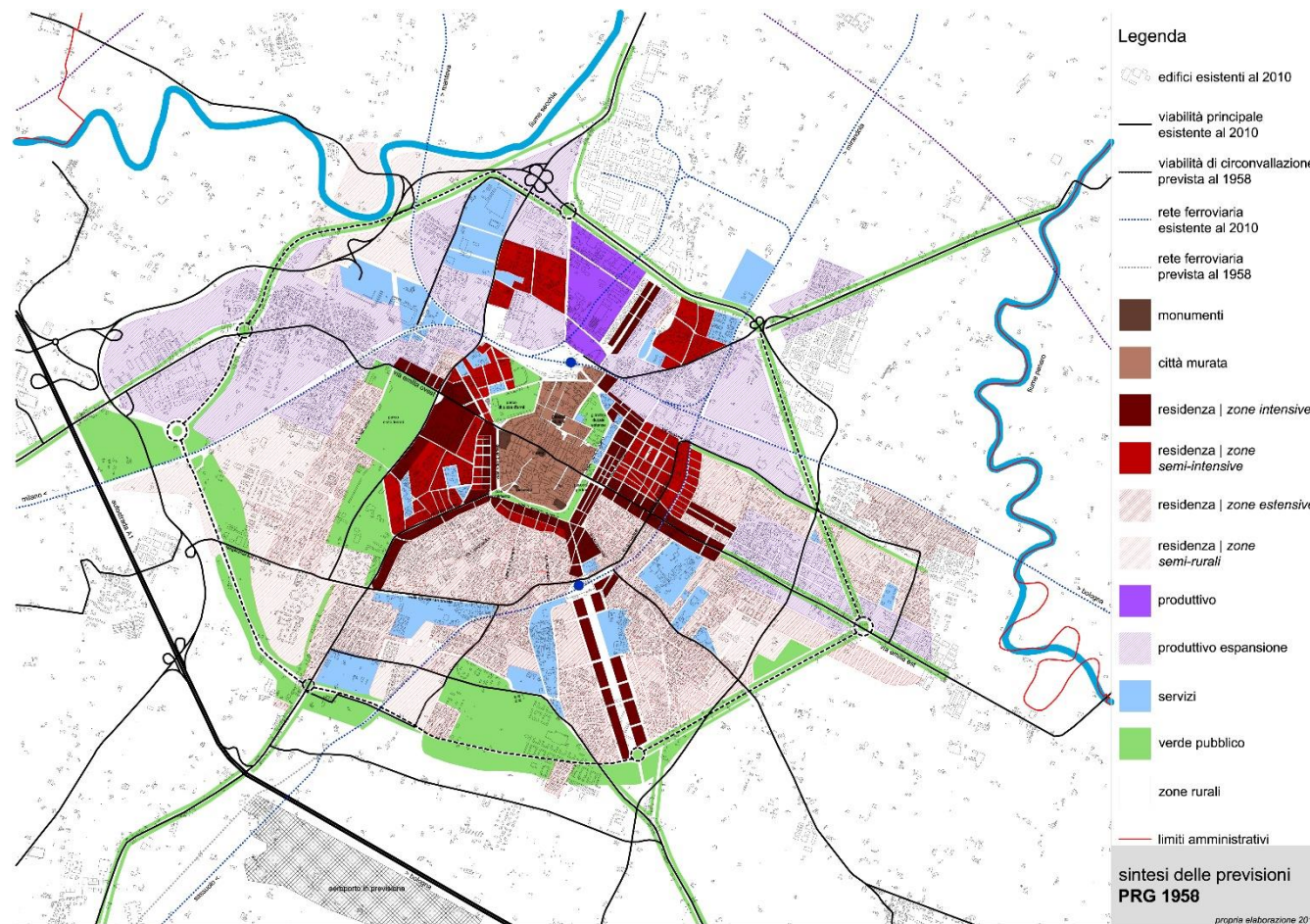
● = Alberi ogni 100 abitanti

1	Brescia	59
2	Modena	48
3	Arezzo	40
4	Rimini	33
5	Mantova	32
6	Bologna	31
7	Perugia	29
8	Pordenone	29
9	Grosseto	28
10	Ravenna	27
11	Gorizia	26

Fonte: Ecosistema Urbano 2017 di Legambiente Cds



Green political history



Source: Modena City Council



General Green System

They are present in the
municipal area:

1,100,000 m²

Protecting Europe's
biodiversity - Natura 2000
(92/43/EEC)

1,095,000 m²

Natural protected areas
(Law n.394 of 1991)

n.14

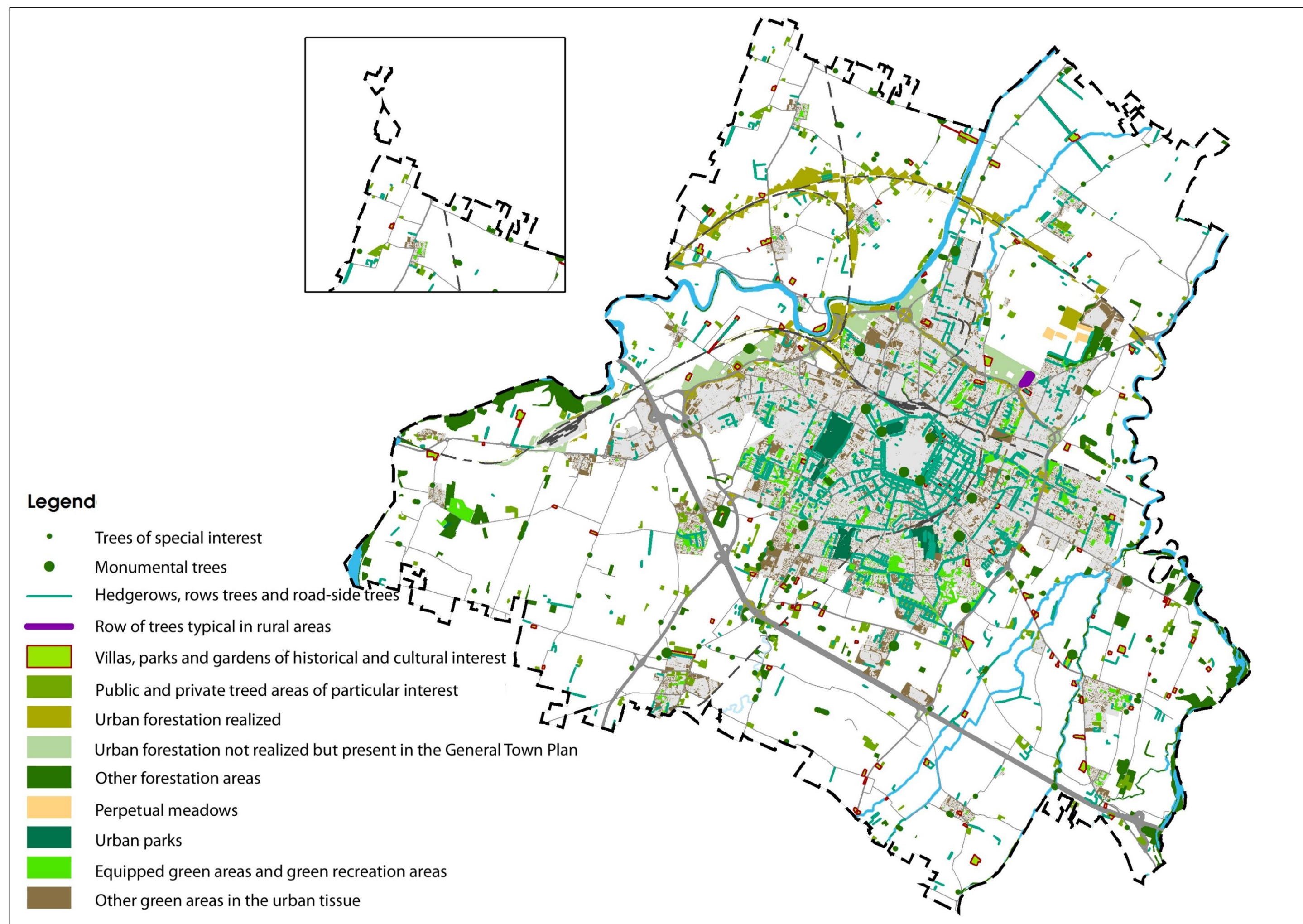
Monumental trees
(Regional Law n.2 of 1977)

n.118

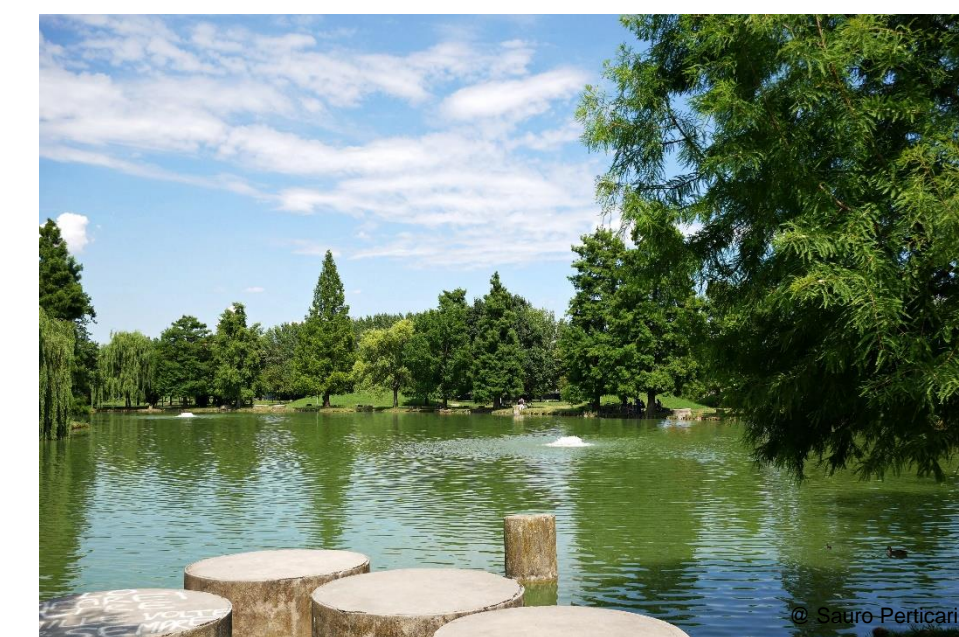
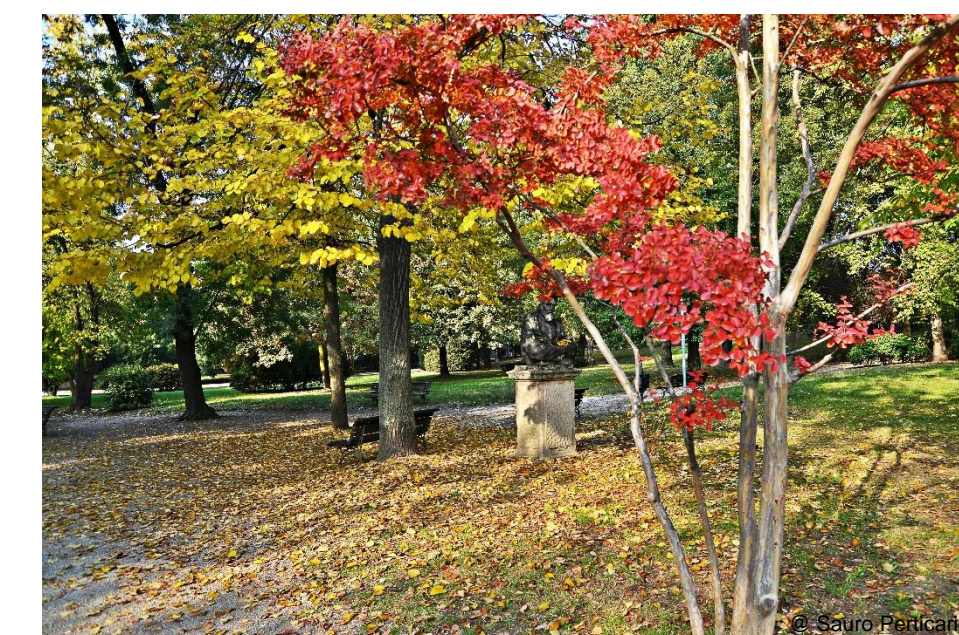
Monumental trees and
trees of special about
local interest

n.146

Parks and gardens of local
historical and cultural
interest
of which n.51
valuable gardens



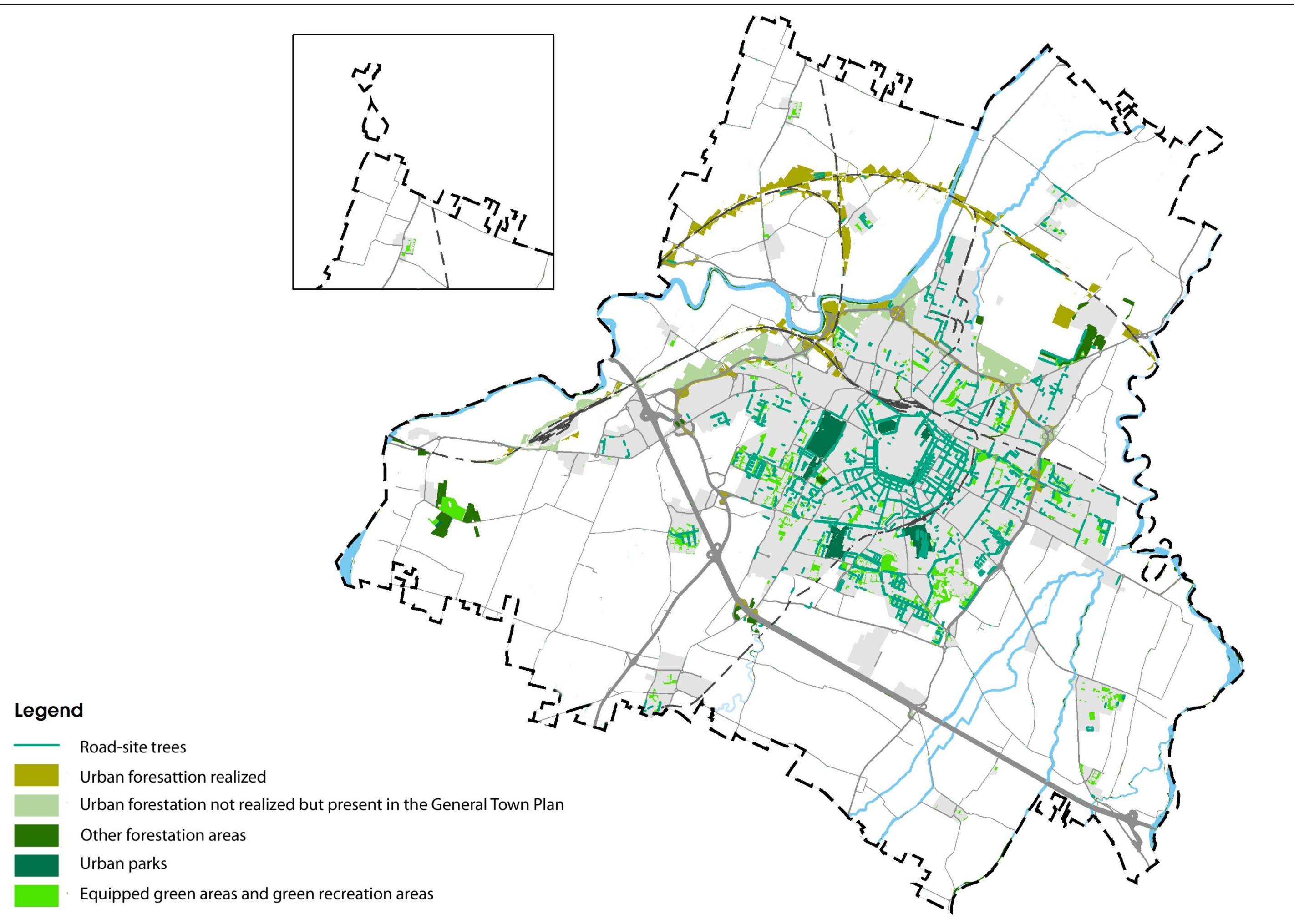
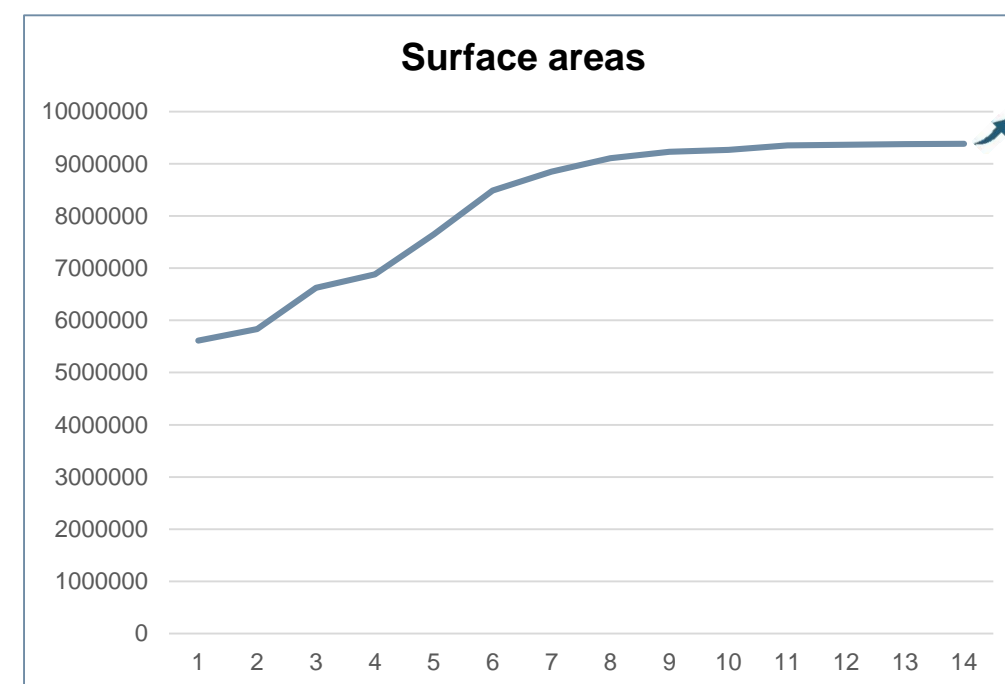
Source: Modena City Council



Public Green System

Surface areas

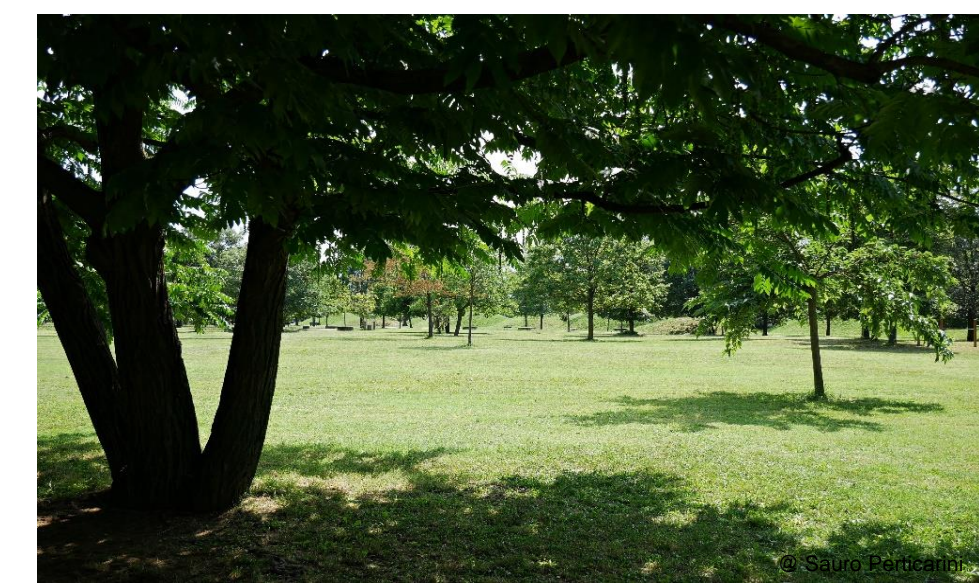
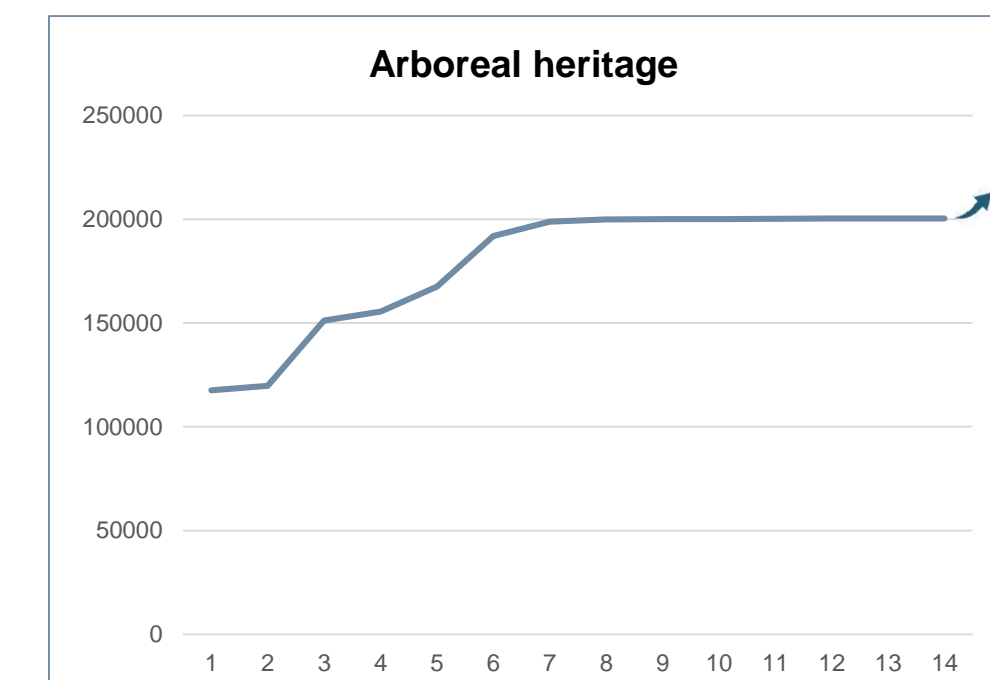
Over **9 million m²**
of which
60% parks and green recreation areas
33% areas with natural evolution
(urban forestation)
7% road-side green



Source: Modena City Council

Arboreal heritage

About **200,000 trees**
of which
86% parks, green recreation
areas and other green
urban areas
14% road-side green

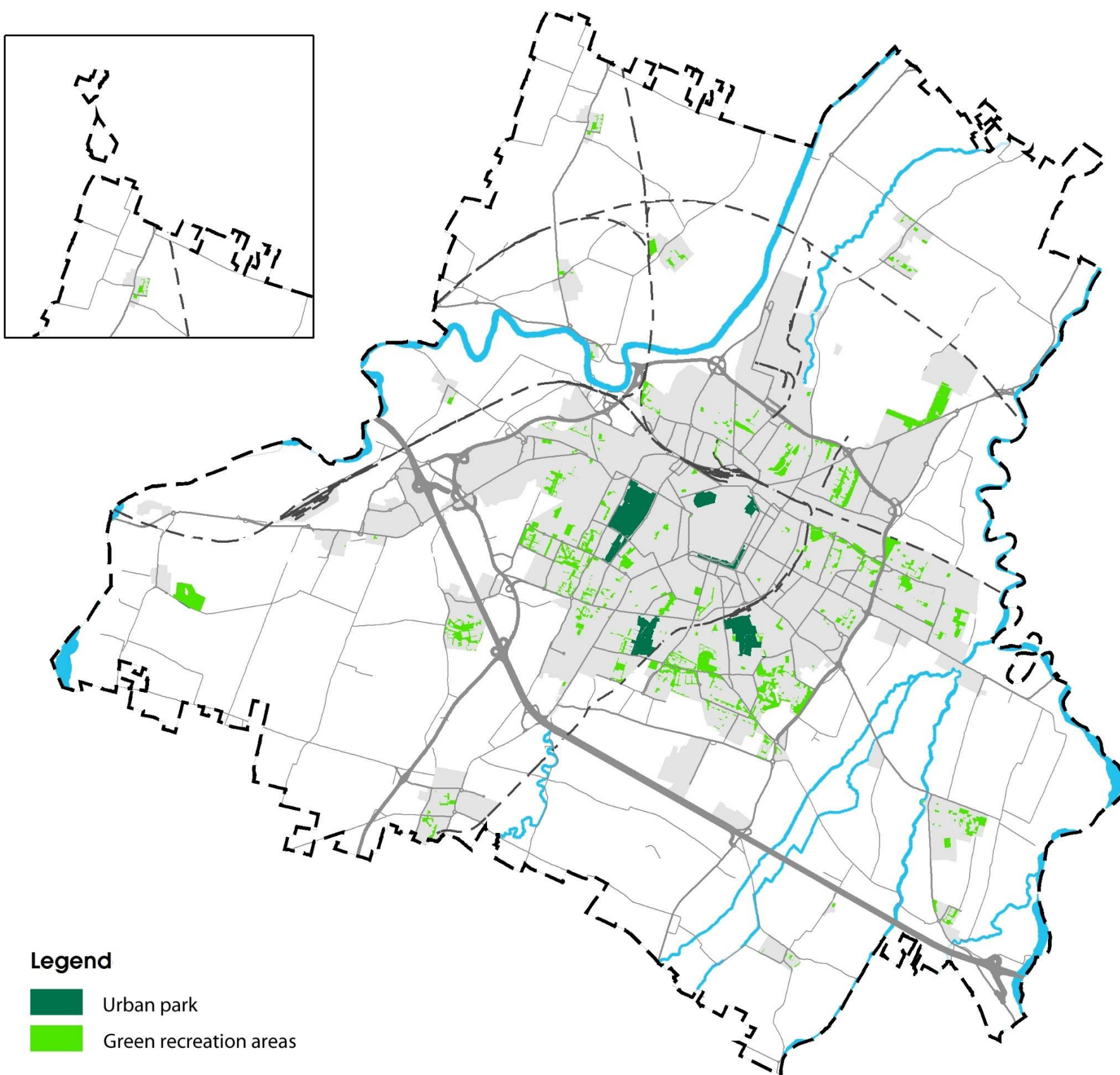




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Green urban surface

Parks and green areas



Legend

- Urban park
- Green recreation areas

Source: Modena City Council

Data ISTAT 2017

2,369,210 m²

Urban parks of a surface area greater than 8,000 m²

250,953 m²

Equipped green areas of a surface area between 8,000 and 5,000 m²

476,650 m²

Equipped green areas of a surface area less than 5,000 m²

900,000 m²

Areas of green street furniture (avenues, cycle lanes, roundabouts, traffic islands, etc..)

234,617 m²

Municipal school fields

68,367 m²

Urban vegetable gardens

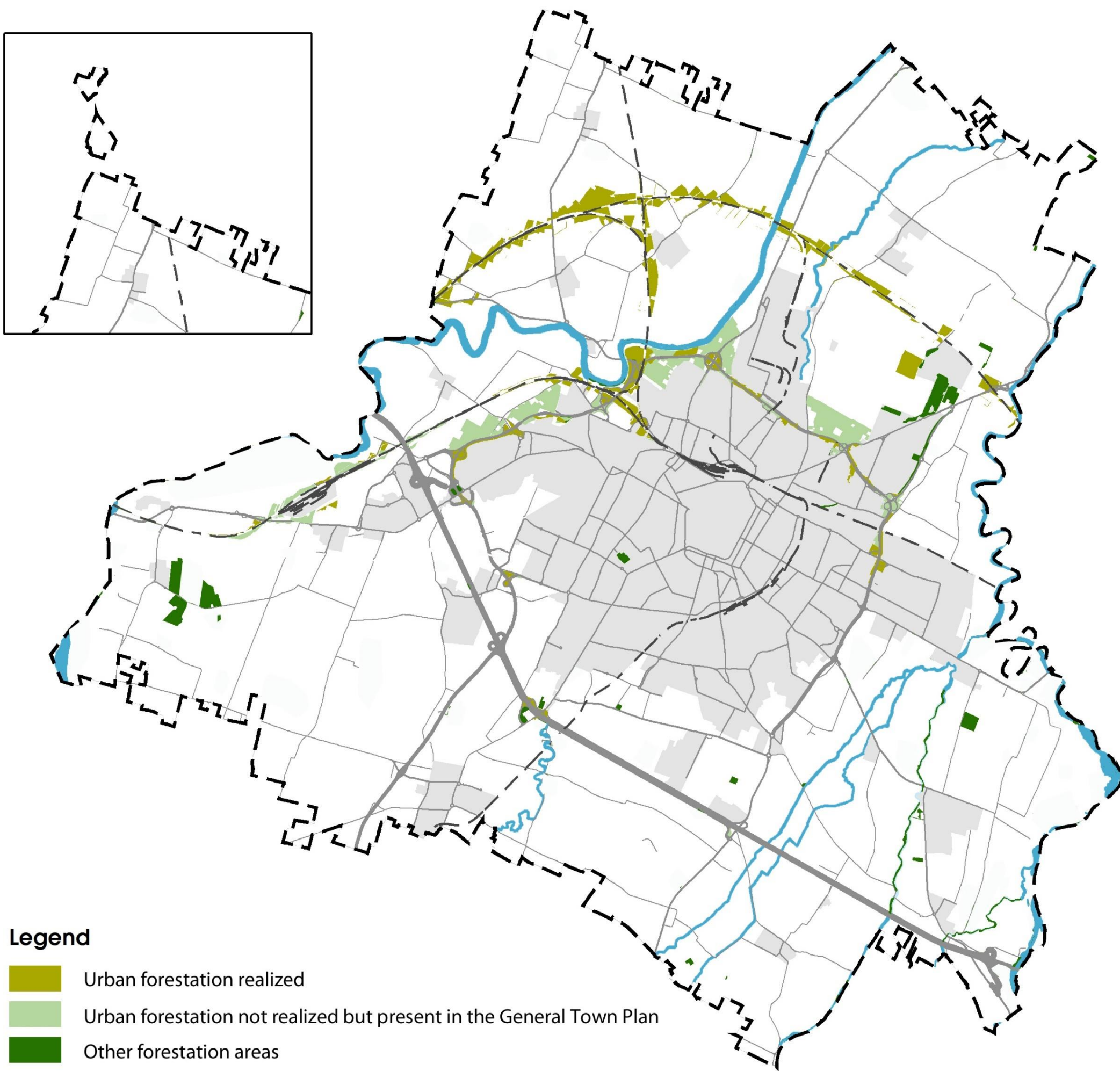
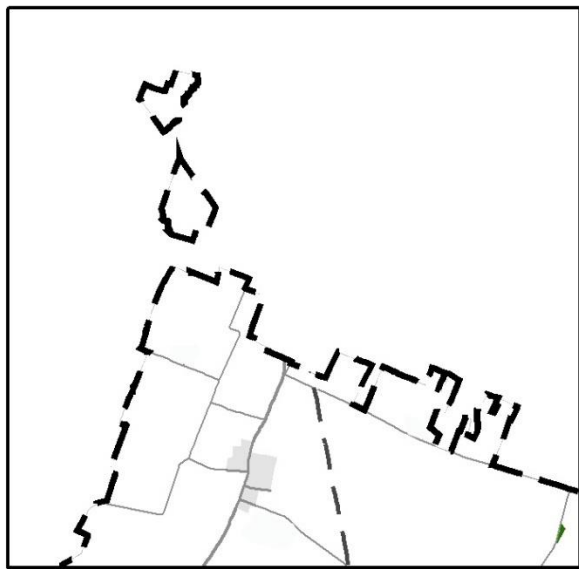
246,500 m²

Open sports fields

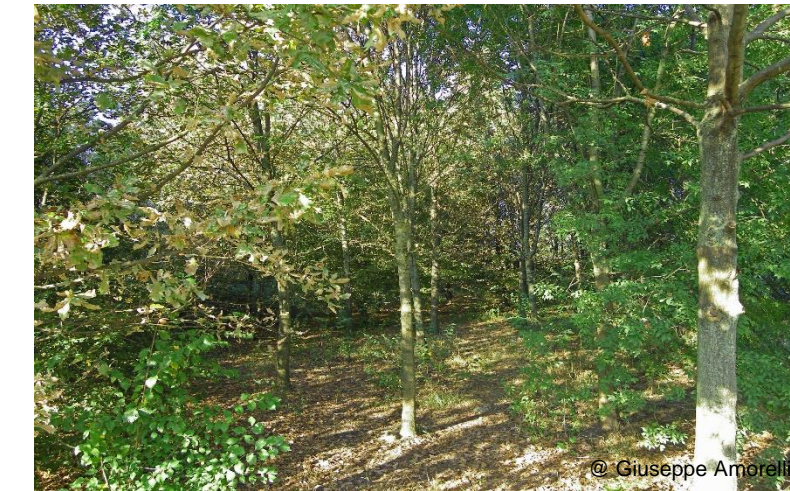
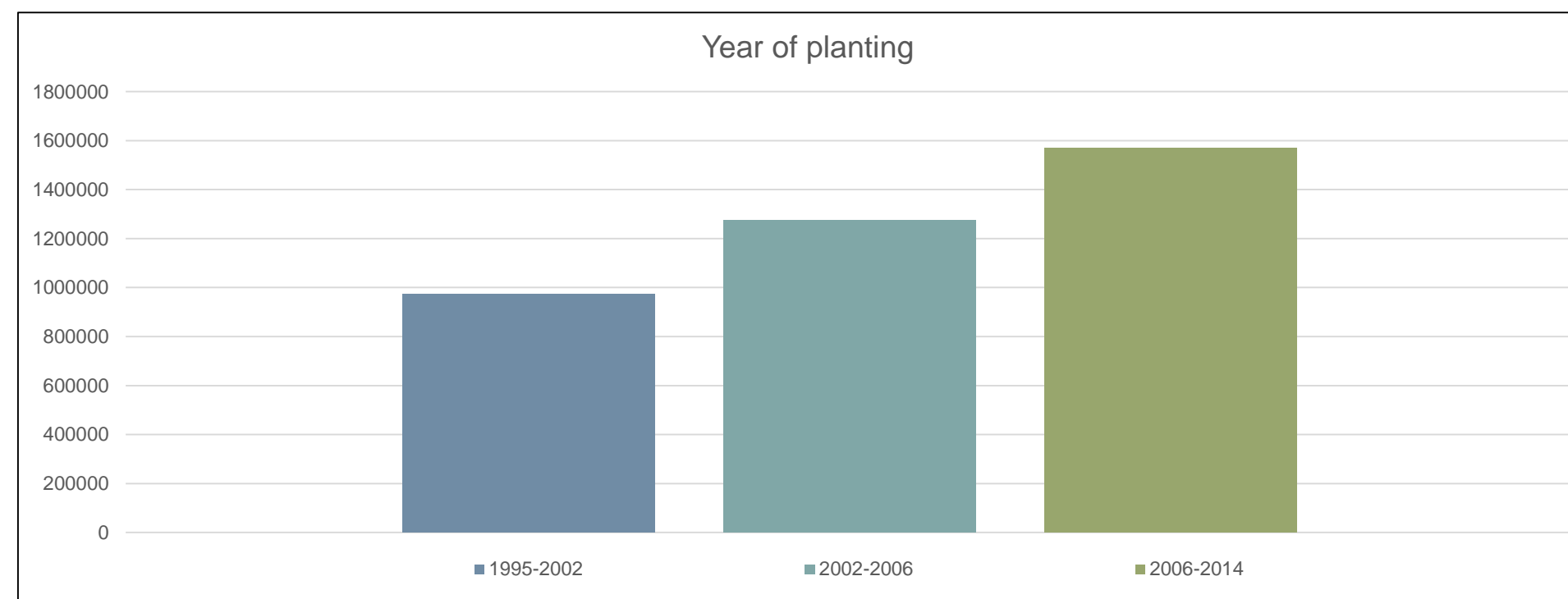
Road-side trees



Urban forestation



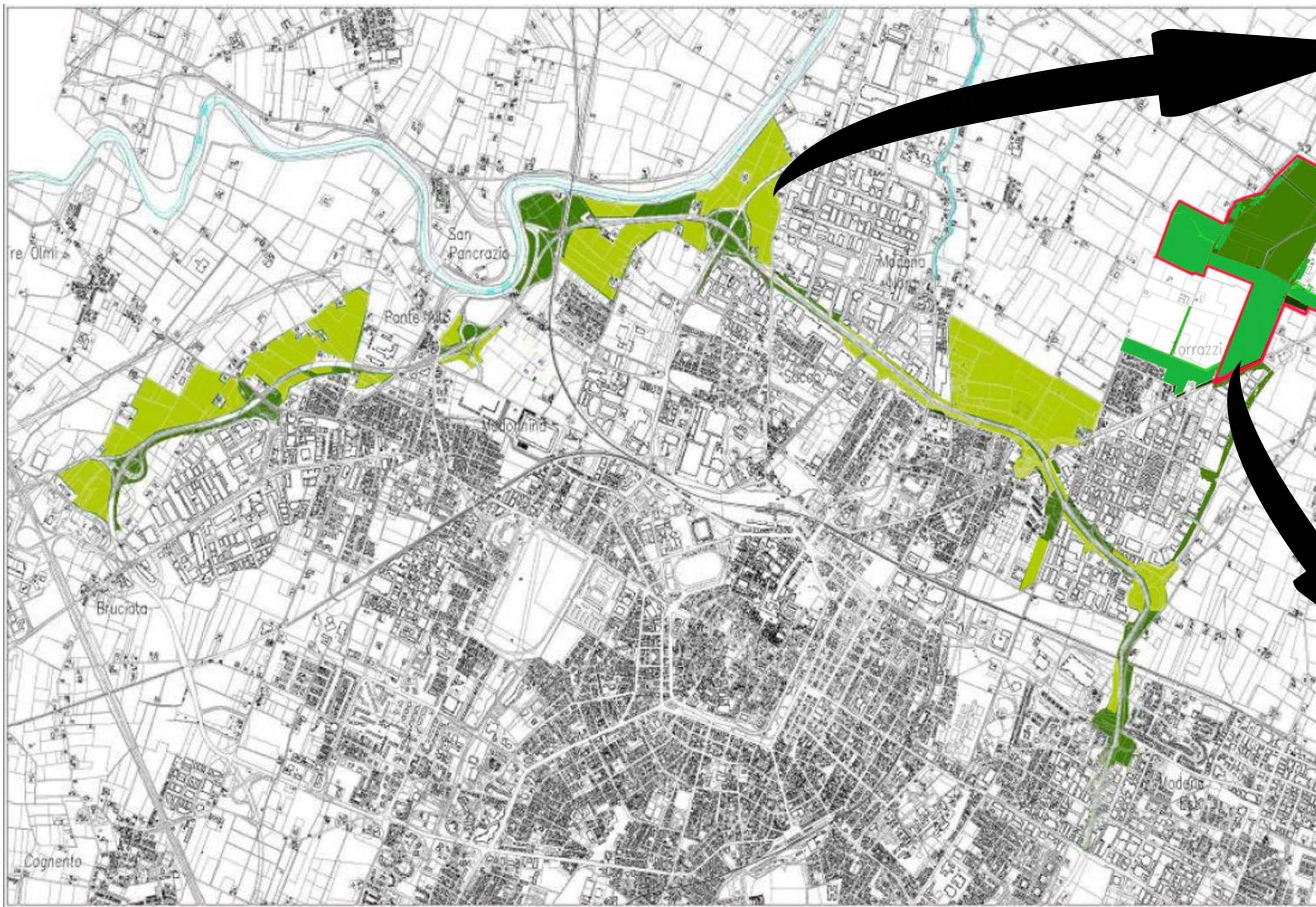
URBAN FORESTATION	Woods (m ²)	Hedgerows (m ²)	Hedgerows and rows of trees (m ²)	Total (m ²)
Ring Road	987,83	602,871		1,590,701
Landfill sites				
Marzaglia sites				
Other urban forestation	827,428	645,249	123,630	1,596,307
High-speed train Line				
New FS Line				
TOTAL	2,074,148	1,621,779	178,104	3,874,031





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Urban forestation



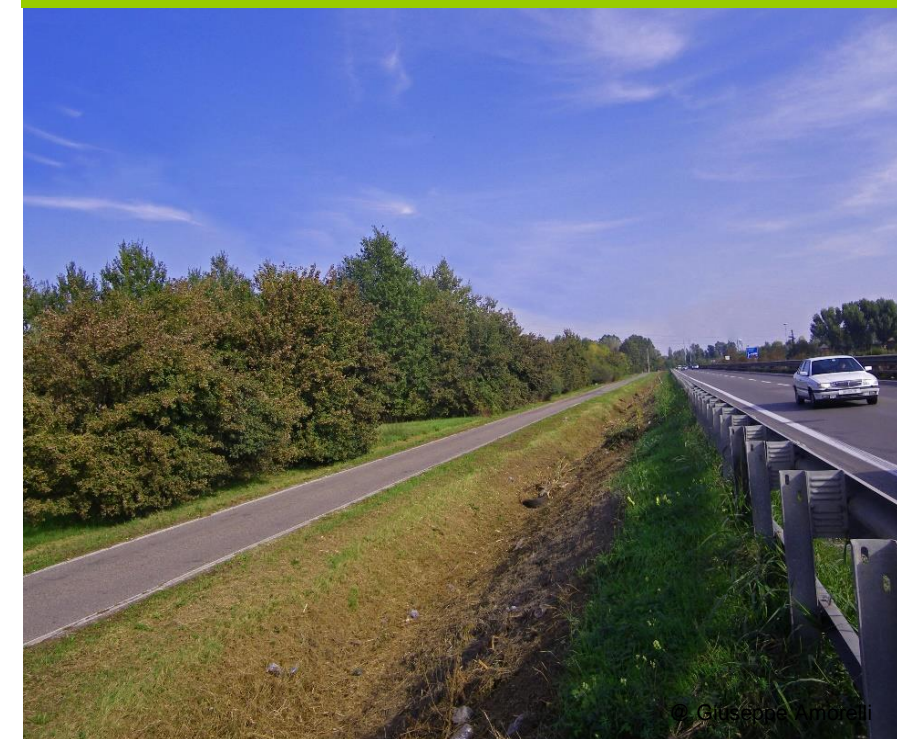
Source: Modena City Council

RING ROAD

The project regards an area of **3,200,000 m²** of which:

- ❖ **1,825,000 m²** agricultural land;
- ❖ **1,375,000 m²** with forestation and general green areas for urban use.

As of now several parts undertaken by both public authorities and privately have led to the forestation of **469,000 m²**



LANDFILL SITES

The project is to revitalize environmentally the Landfill areas located in Via Caruso:

- ❖ **980,000 m²** with forestation and general green areas for urban use.

483,000 m² have been to date realized of which **263,000 m²** with forestation.

The project is now in the phase of completion.



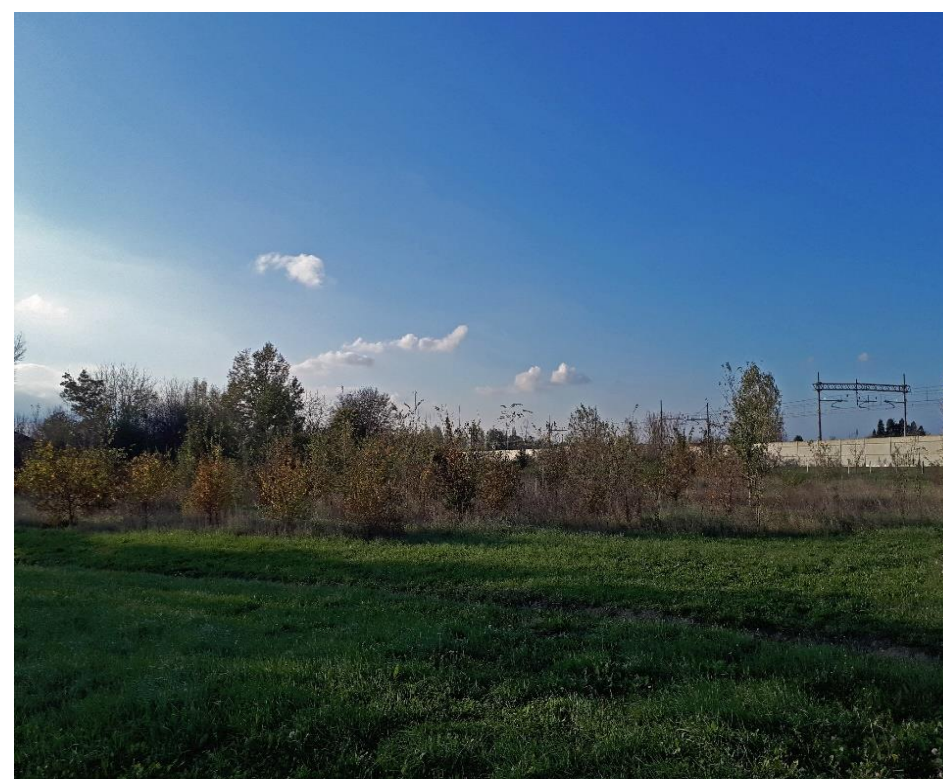
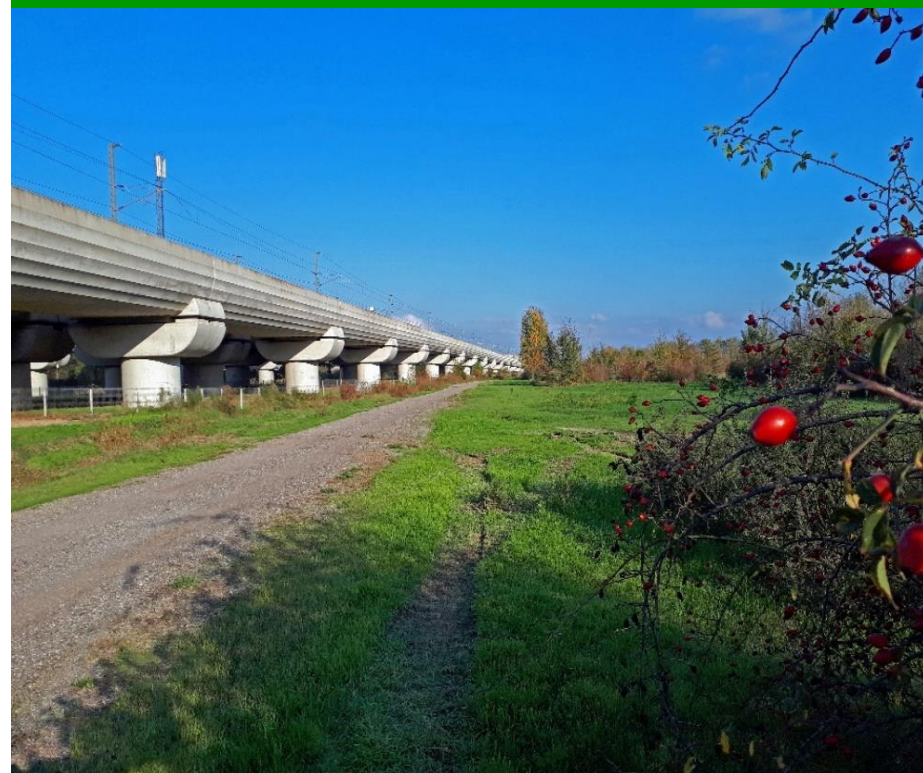
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Urban forestation

HIGH-SPEED RAILWAY LINE

Along the railway line for high-speed trains have been implemented and acquired by the local municipality:

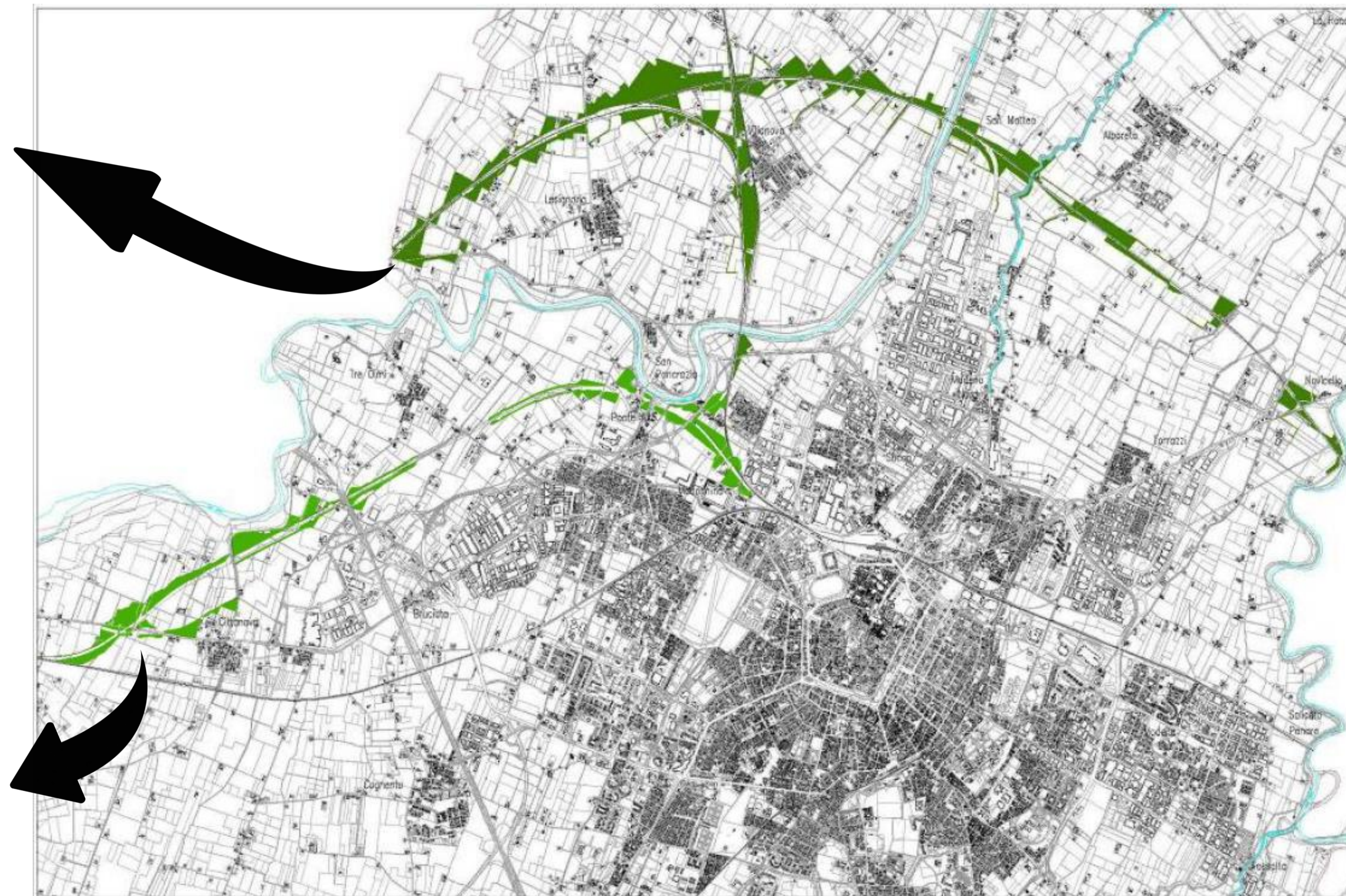
- ❖ **1,472,677 m²** forestation
- ❖ **5,146 m²** rows of trees
- ❖ **28,623 m²** hedges
- ❖ **5,608 m²** tree-lined hedges



NEW SECTION FS RAILWAY LINE

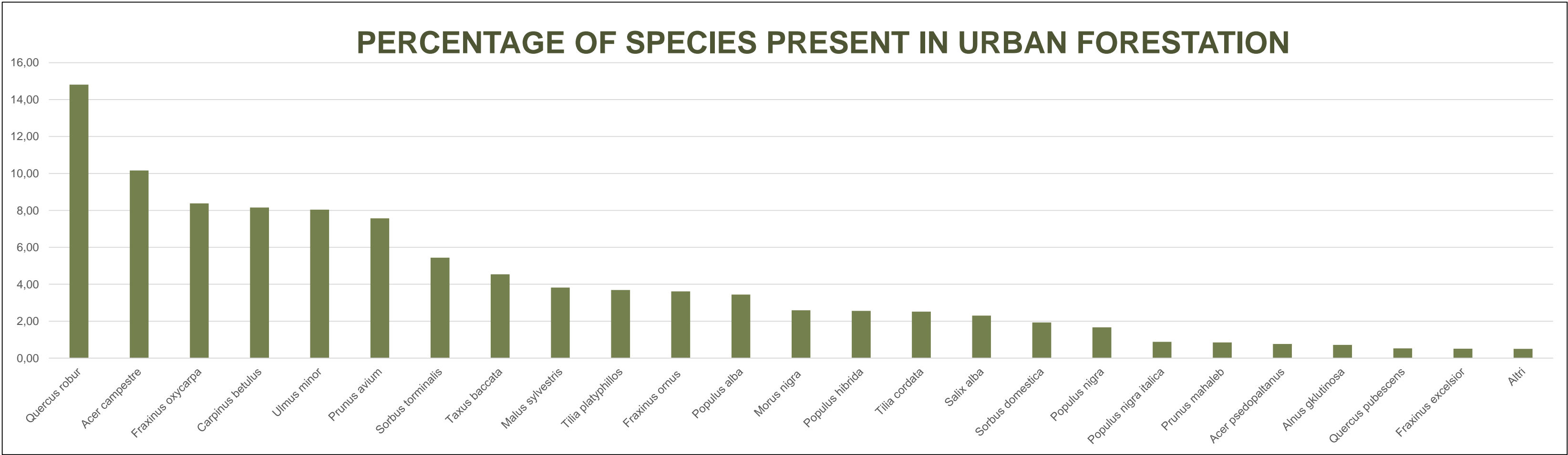
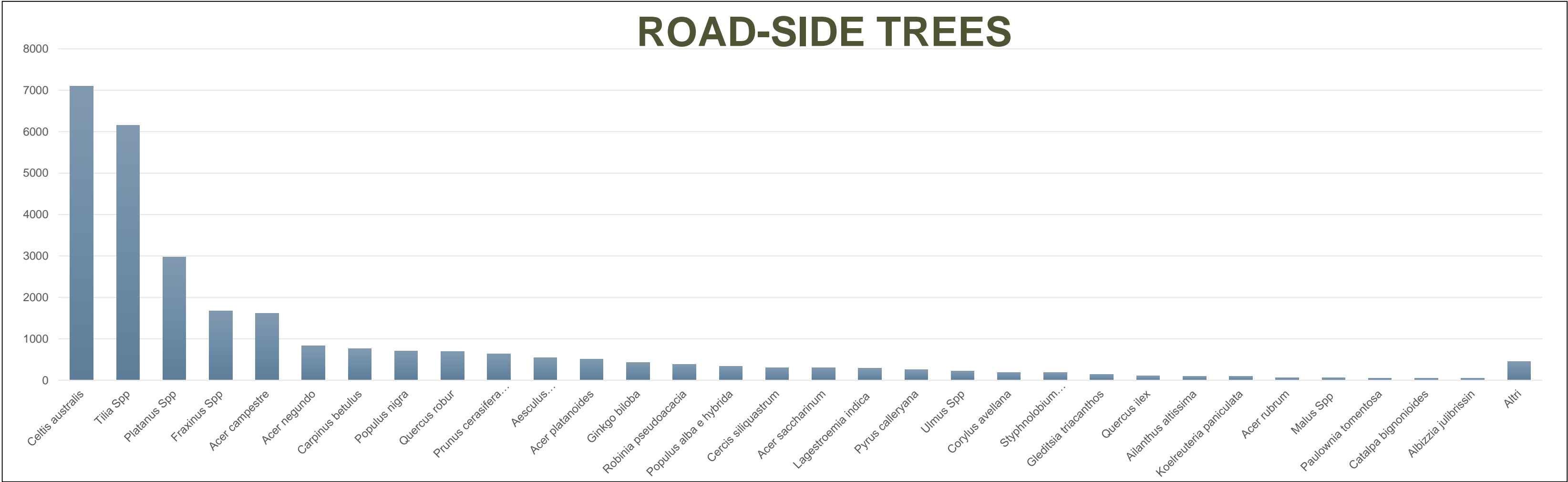
Along the new railway line that replaced the historical one have been implemented and acquired by the local municipality:

- ❖ **632,549 m²** forestation
- The total perimeter of the several areas involved is of **36,214 m**



Source: Modena City Council





Benefits

Research in progress

REBUS®

REnovation of public Buildings
and Urban Spaces

ROAD-SIDE TREES

ADULT TREES	28,291	
CO ₂ ASSIMILATED	7,794,597	kg/y
O ₃ REDUCTION	4,975	kg/y
NO ₂ REDUCTION	4,975	kg/y
SO ₂ REDUCTION	7,774	kg/y
PM 10 REDUCTION	6,609	kg/y

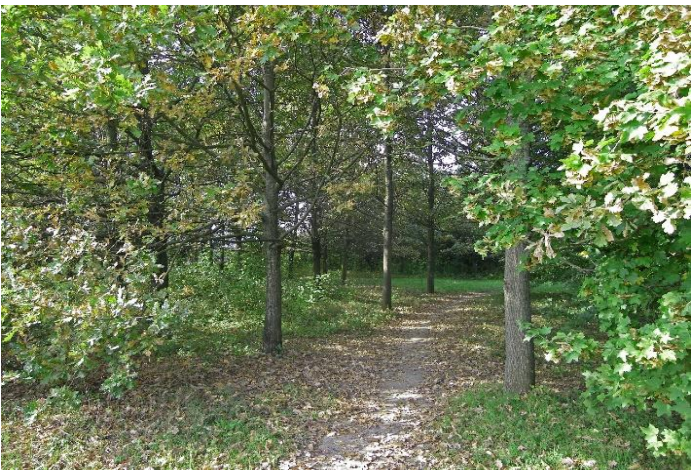


REBUS®

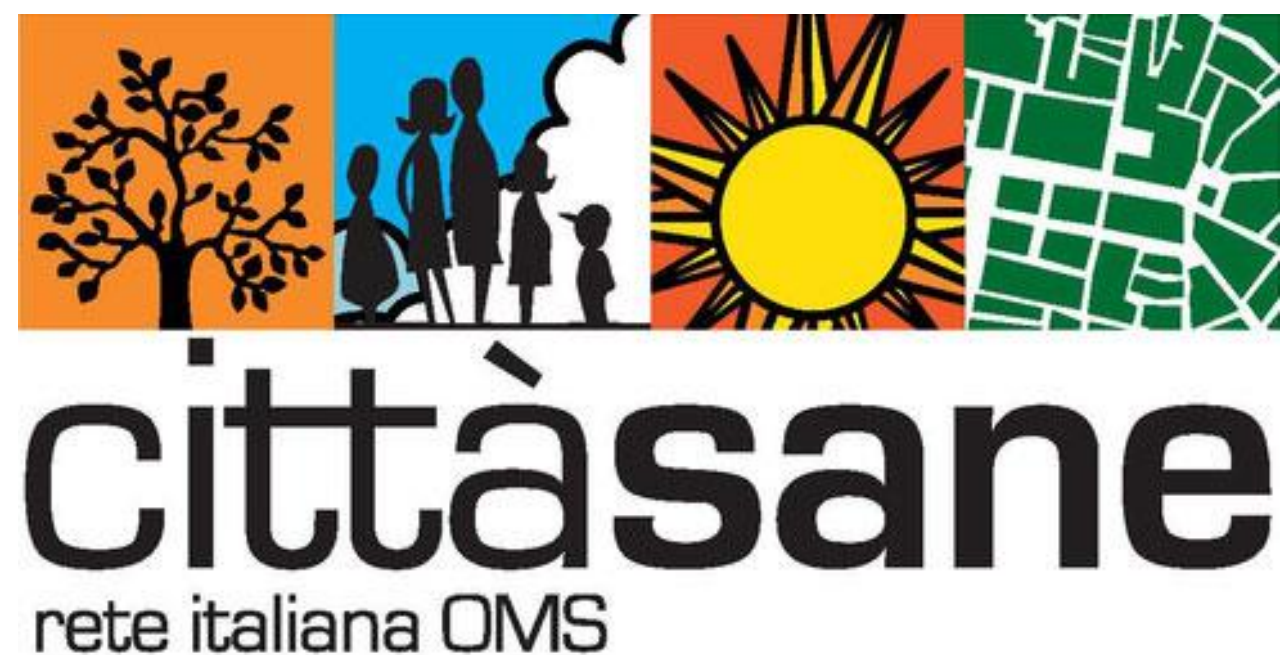
REnovation of public Buildings
and Urban Spaces

URBAN FORESTATION

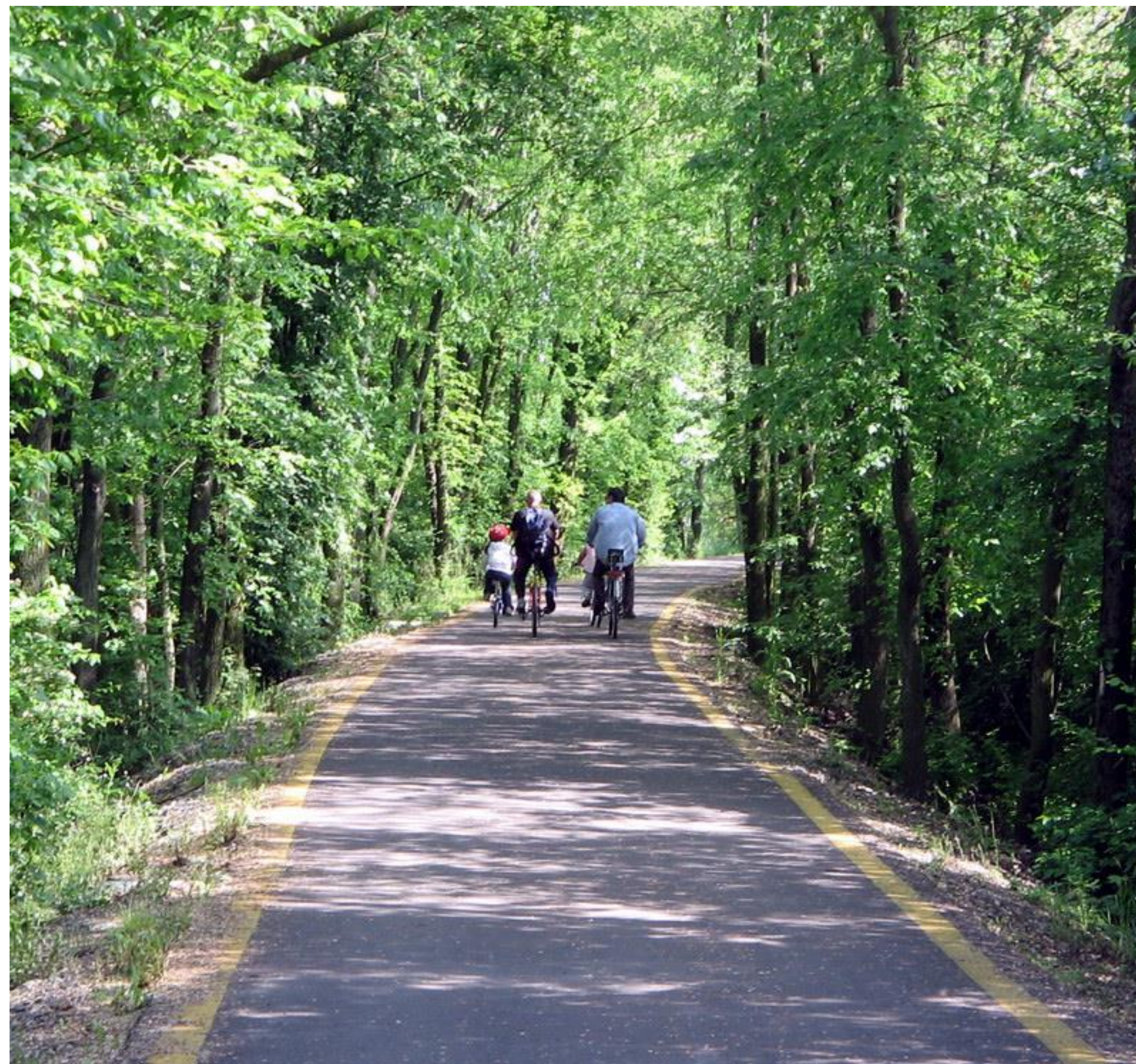
ADULT TREES	54,813	
CO ₂ ASSIMILATED	13,382,547	kg/y
O ₃ REDUCTION	7,290	kg/y
NO ₂ REDUCTION	7,290	kg/y
SO ₂ REDUCTION	11,516	kg/y
PM 10 REDUCTION	10,942	kg/y



Healthy Cities Network



The Città Sane Network is a project promoted by the World Health Organization (WHO), a United Nations Agency specialized in health matters, that since 1948 operates with the aim to secure the world population the highest level of health.



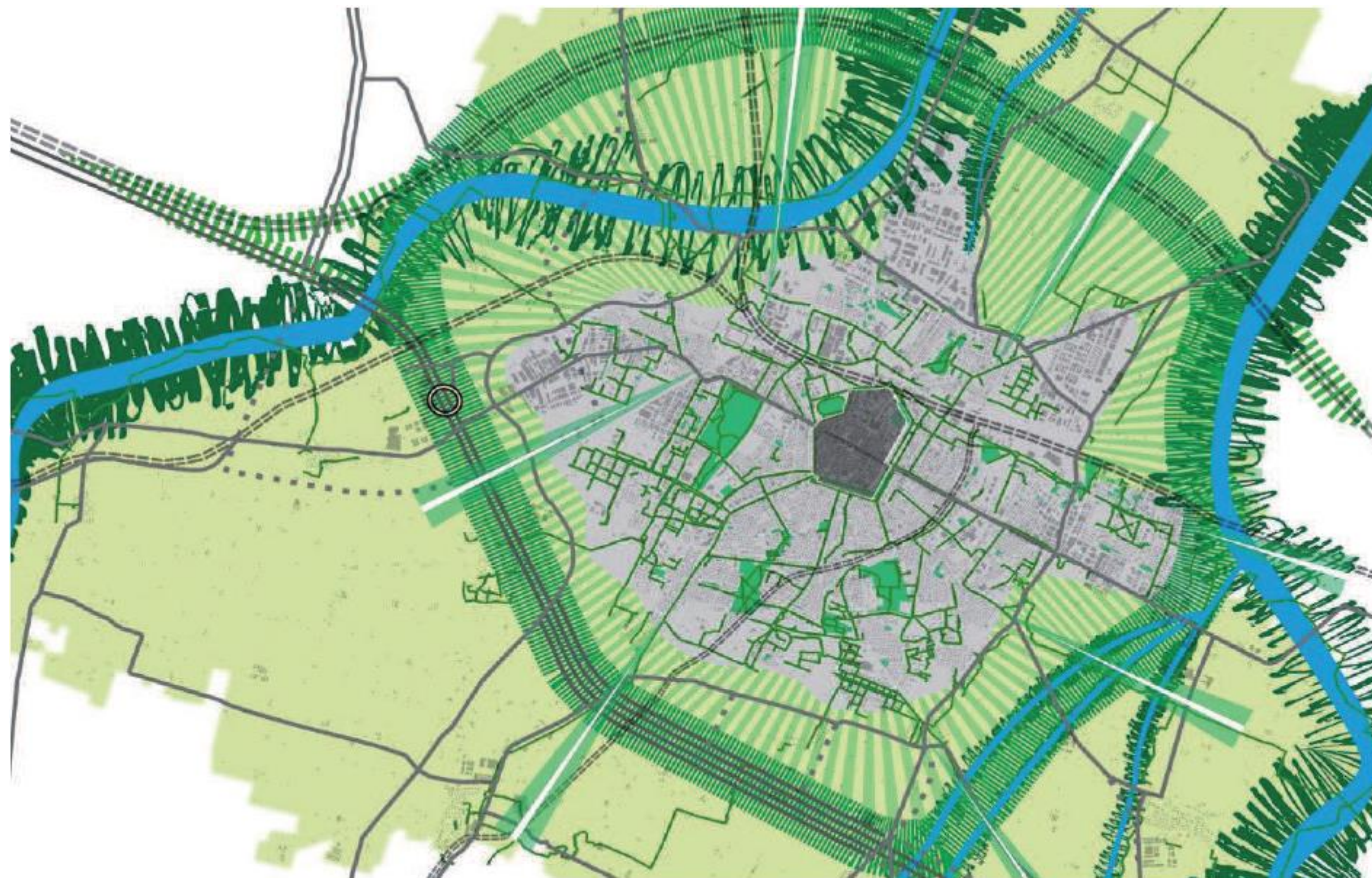
As from 16 September 2010 Modena has become a European project city within the WHO and since 2010 holds the Presidency of **Città Sane Rete Italiana OMS**.





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MODENA forest city



Source: Modena City Council



THANK YOU
for your kind attention



**I hope to
meet you
in Modena**

Andrea Di Paolo

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