

Green transition in Zagreb and Croatia

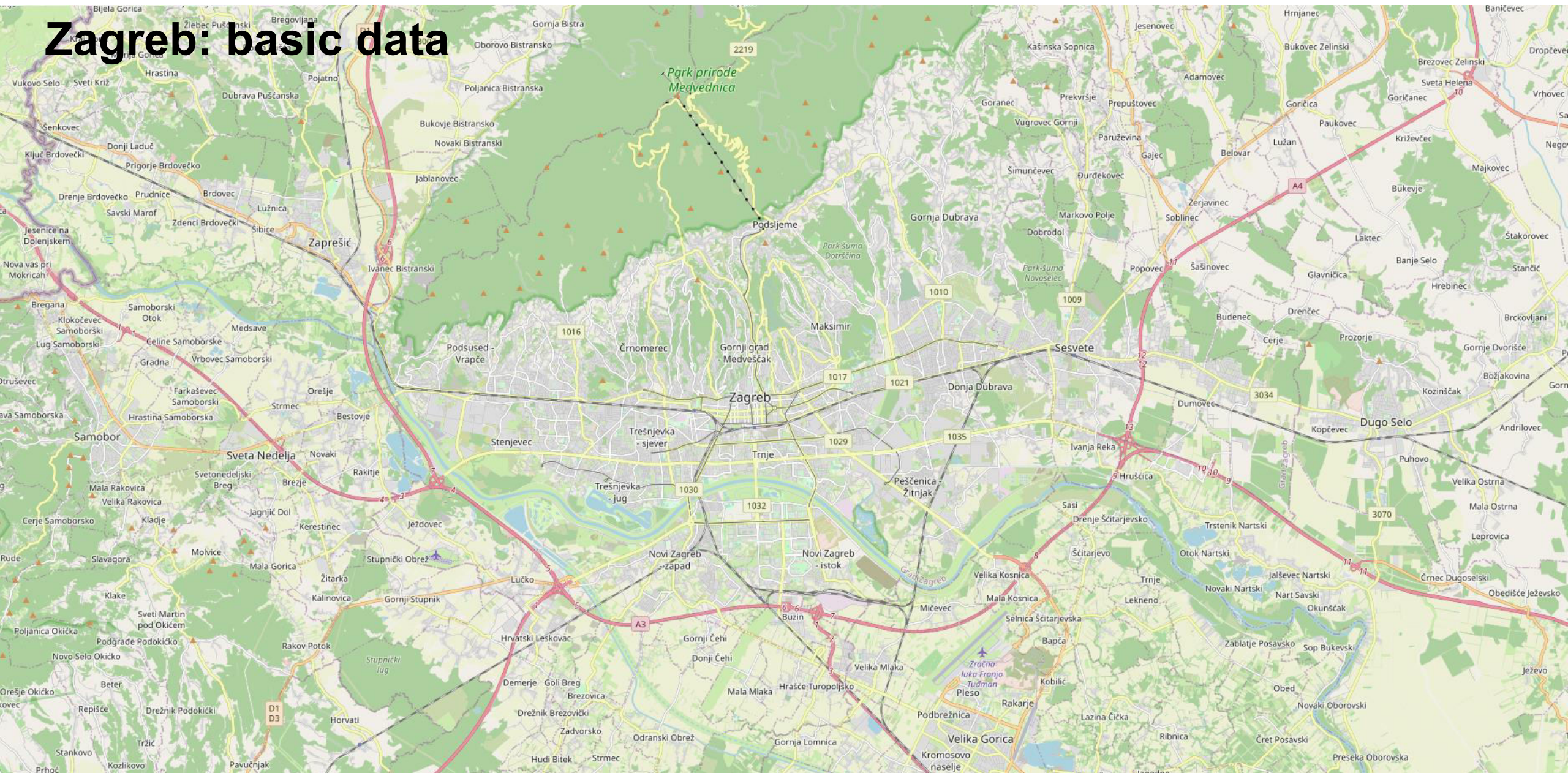
Nikša Božić, dipl.ing.arh.
Institute for Spatial Planning of the City of Zagreb

proGlgreg Final Conference, Zagreb, 12-14 September, 2023

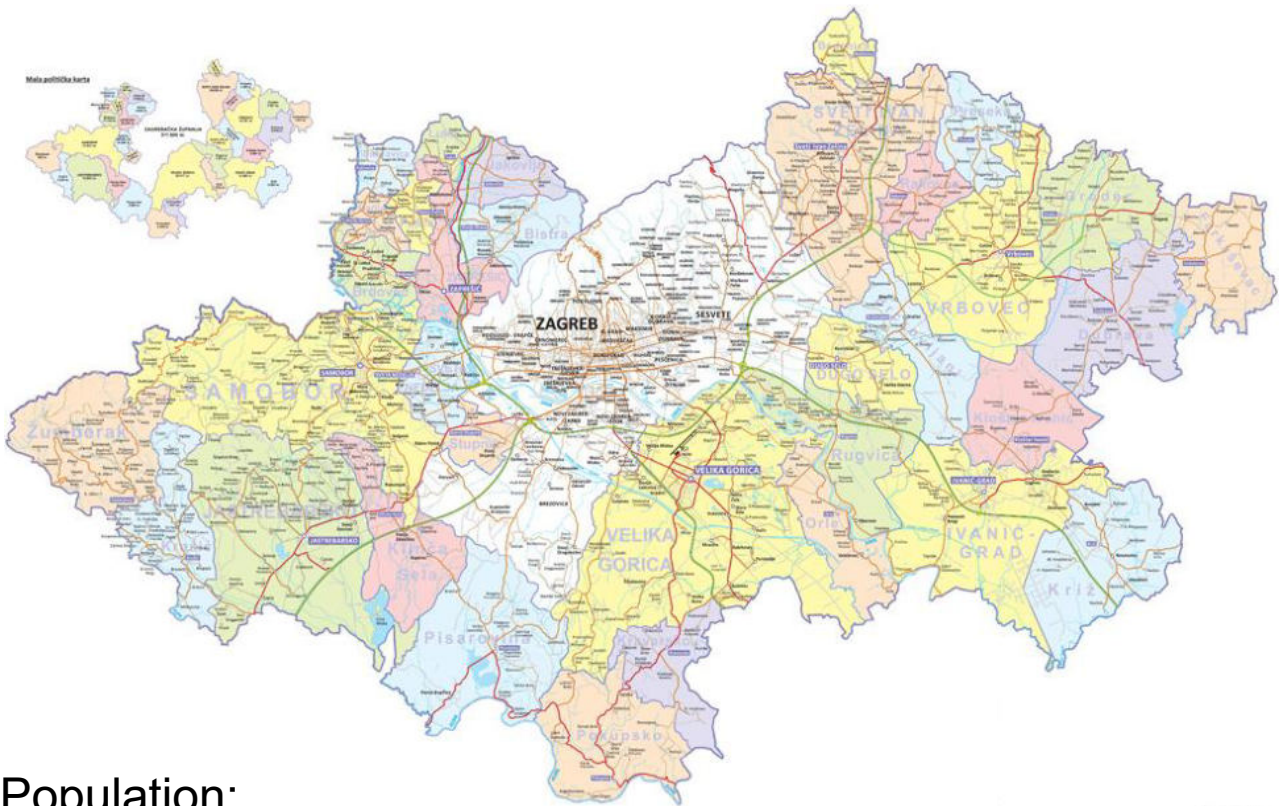


zavod za
prostorno
uređenje
grada
zagreba

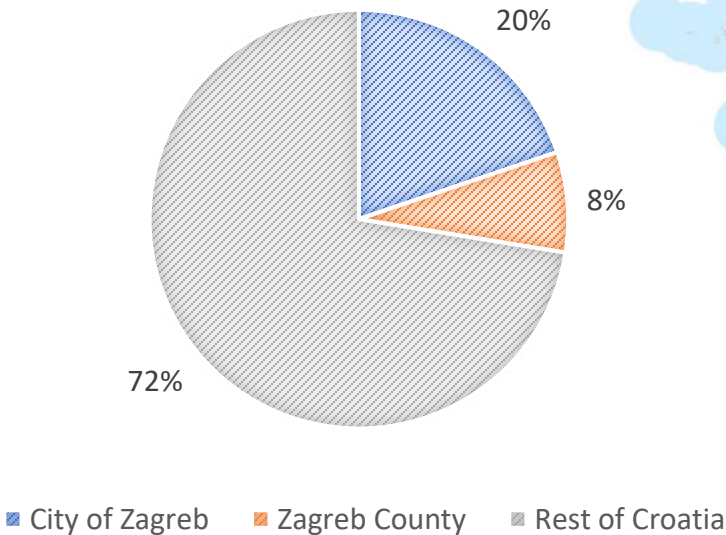
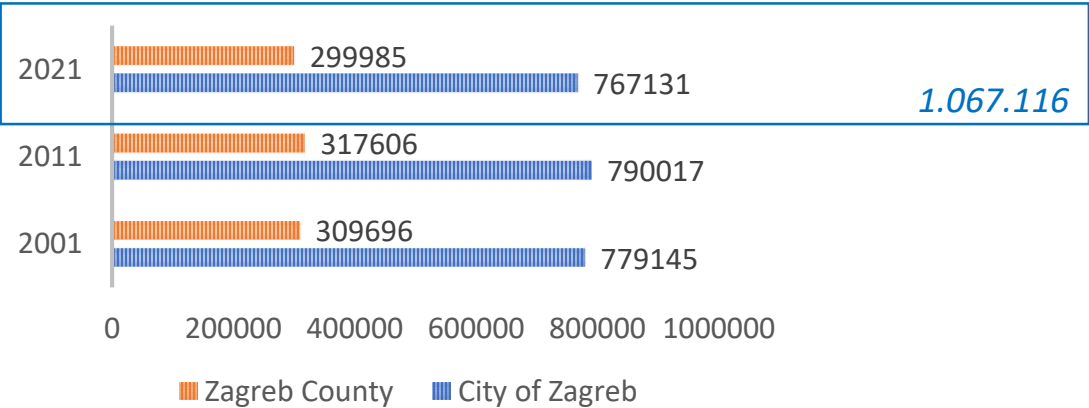
Zagreb: basic data



Zagreb: basic data



Population:



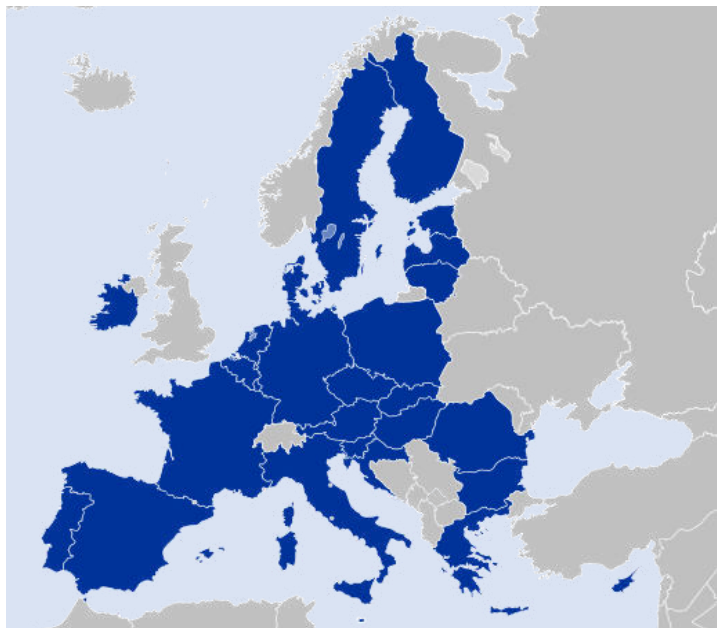
Croatia: historic context (challenges of constant transition)



Austria-Hungary (until 1918)



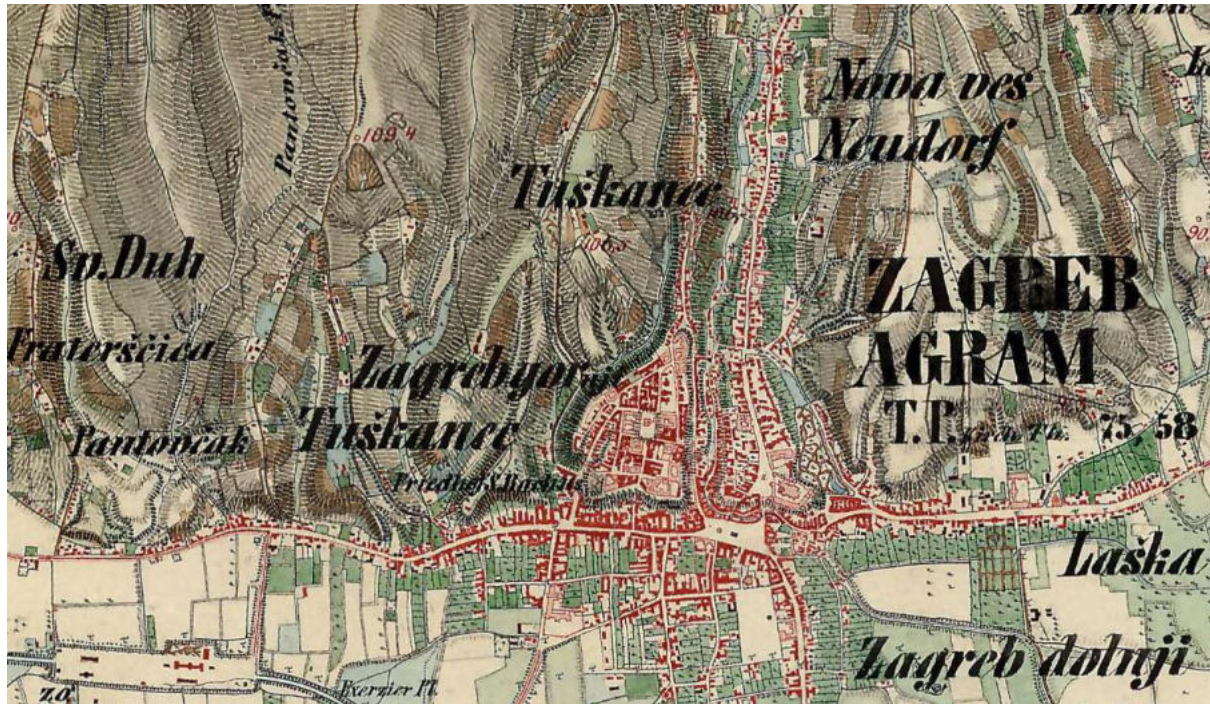
1918 Kingdom SHS / Yugoslavia
1945 Socialist Yugoslavia



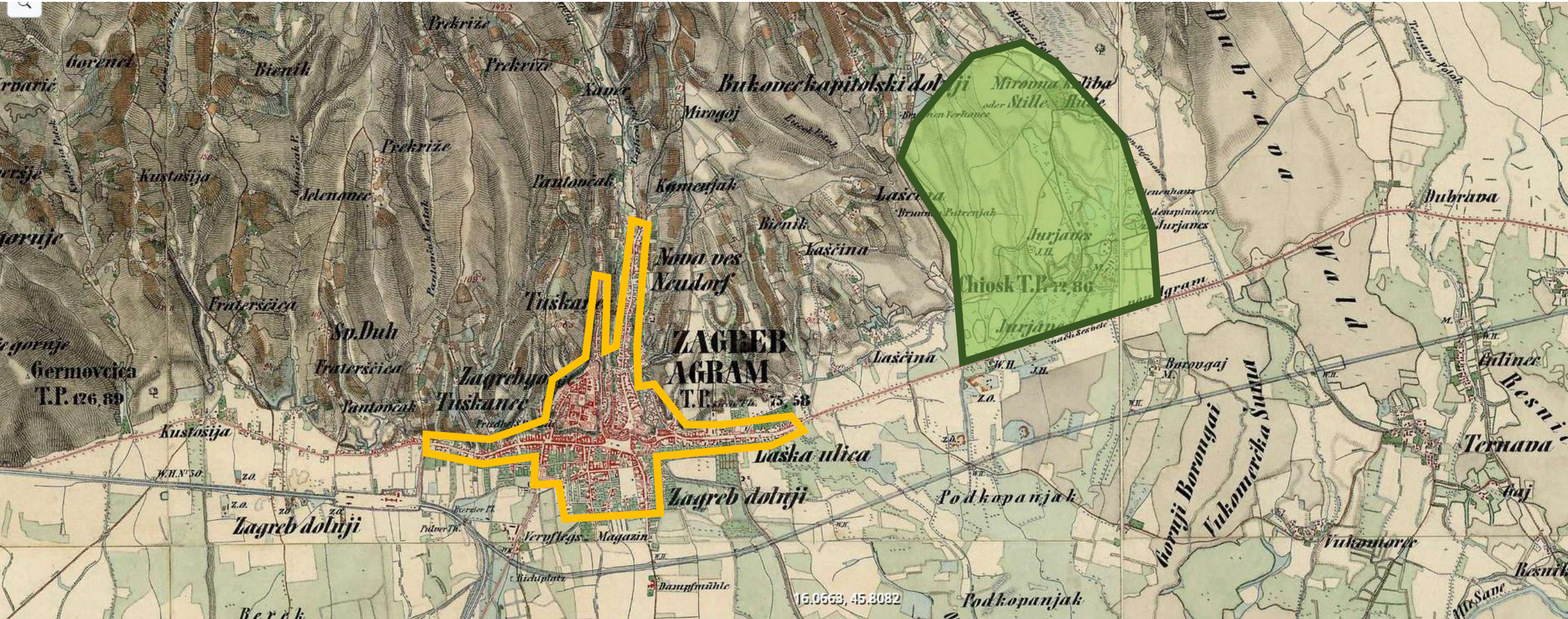
1991 Republic of Croatia
2013 Member of EU

**Tradition of urban
planning &
landscape
architecture**

Landscape architecture and urban planning



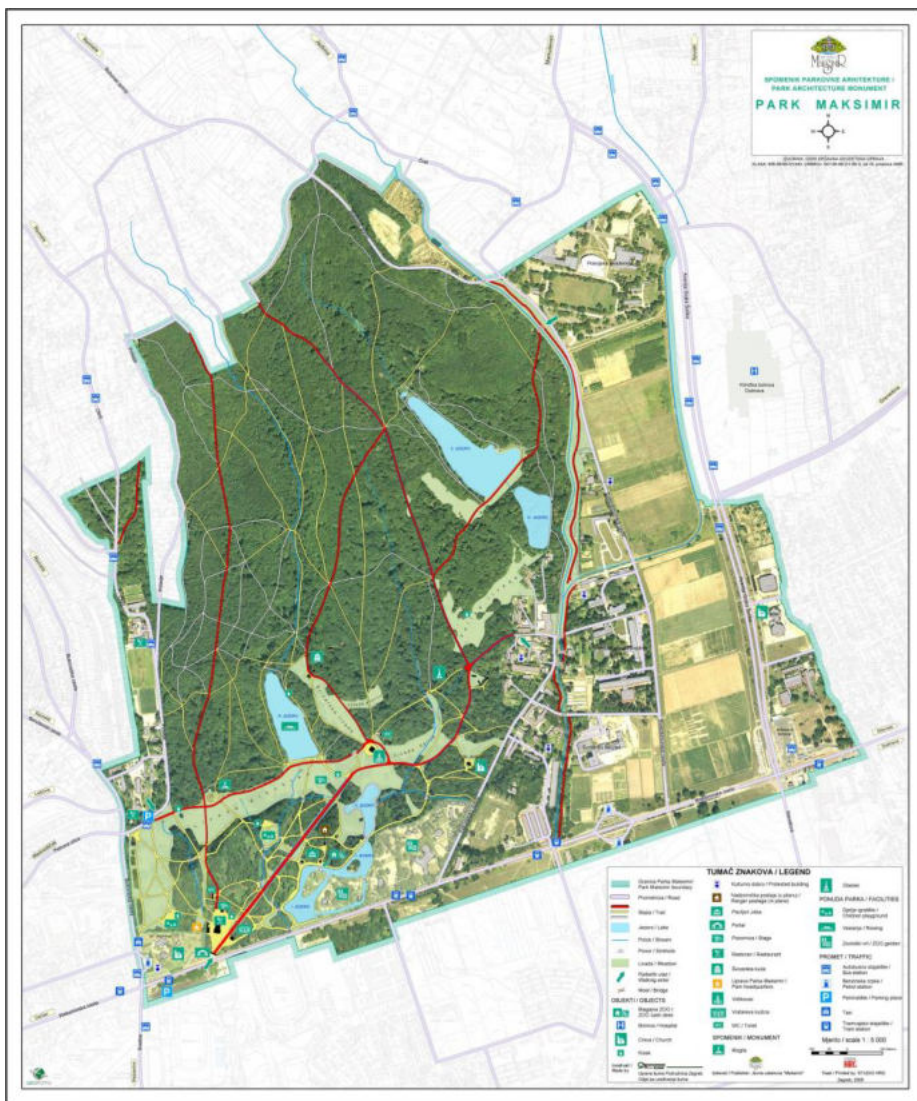
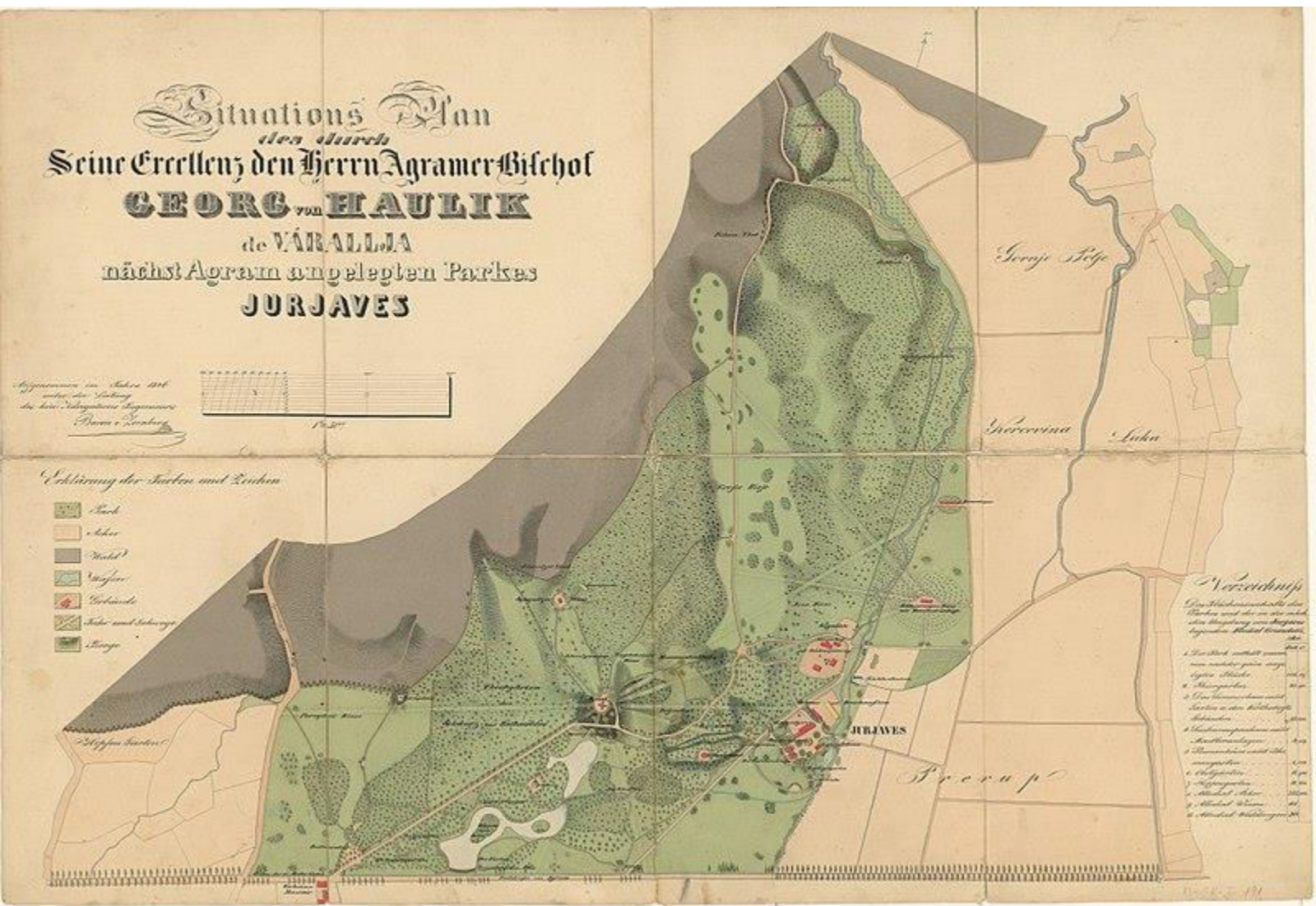
Landscape architecture and urban planning



Zagreb: 15 000 inhabitants
(mid-1800s)

1787: Jurjaves / Maksimir park
400 hectares

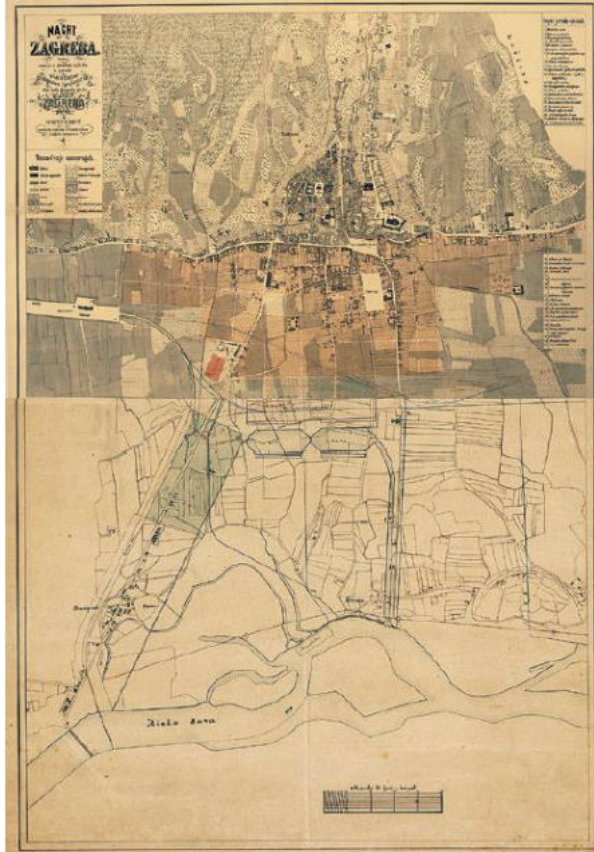
Maksimir (Jurjaves) park



Maksimir (Jurjaves) park



Landscape architecture and urban planning



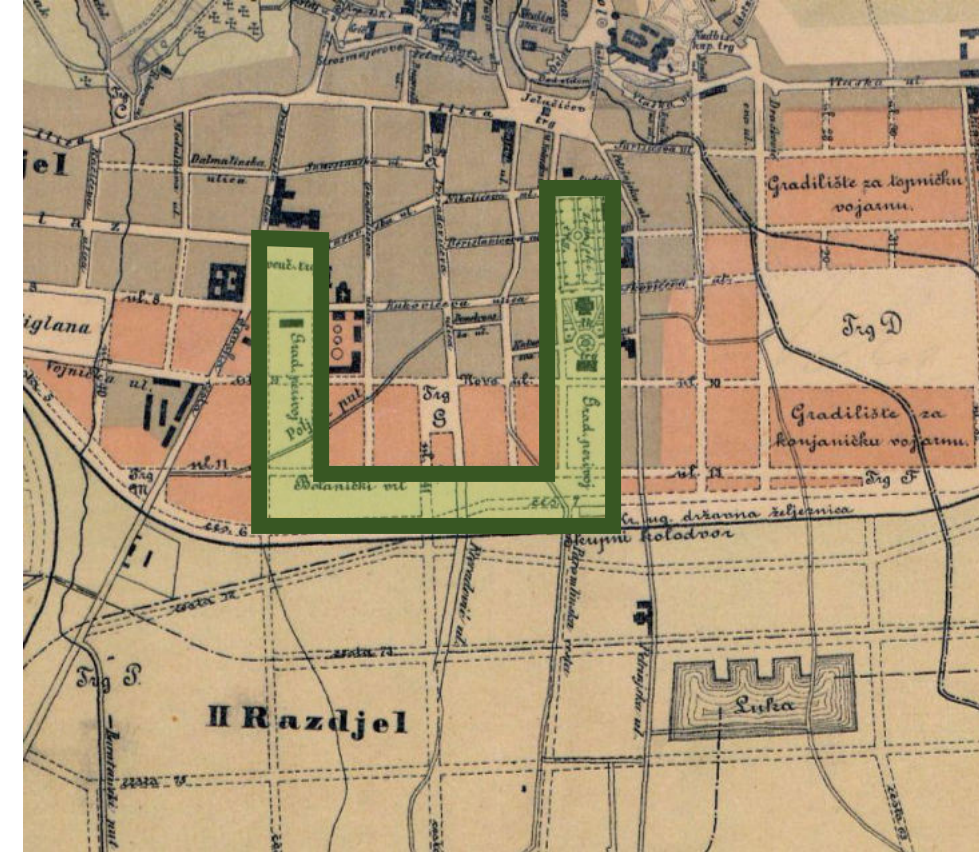
1865

The first regulatory plan of Zagreb



1887

The second regulatory plan of Zagreb



„The Green Horseshoe”



Landscape architecture and urban planning

1930/31

International competition
for regulatory plan

1937

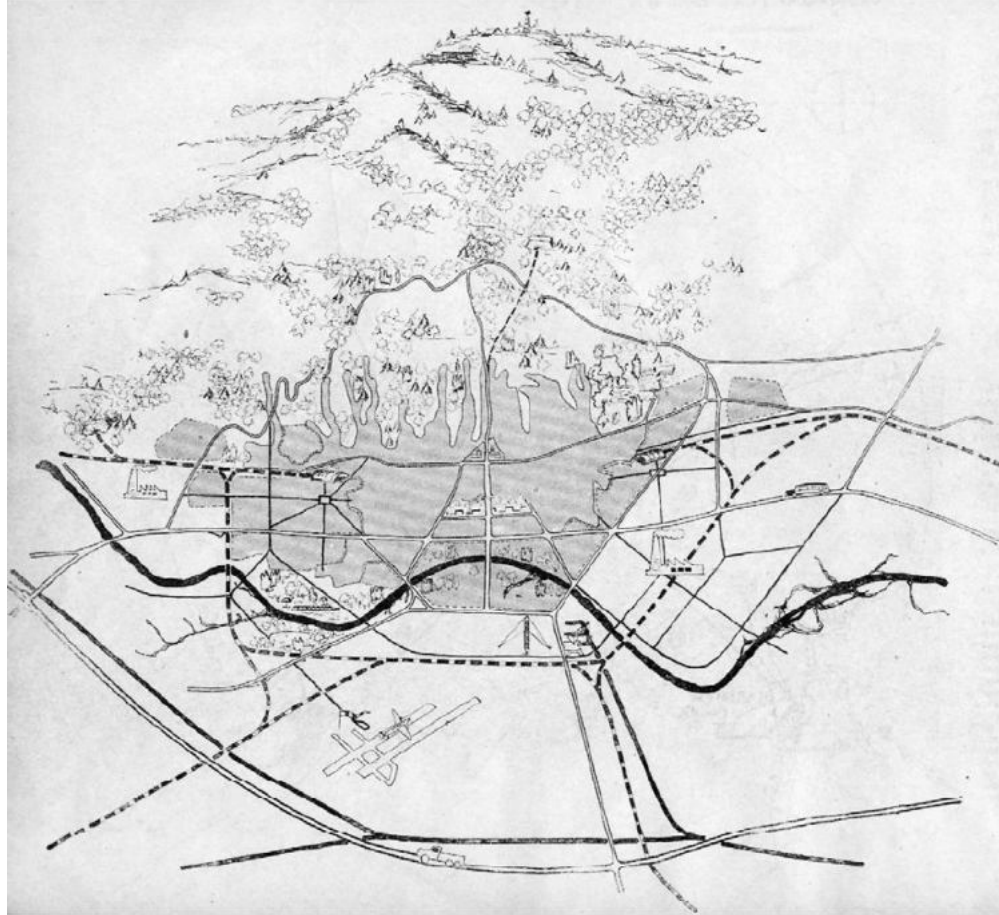
Regulatory plan

1948

Conceptual regulatory basis

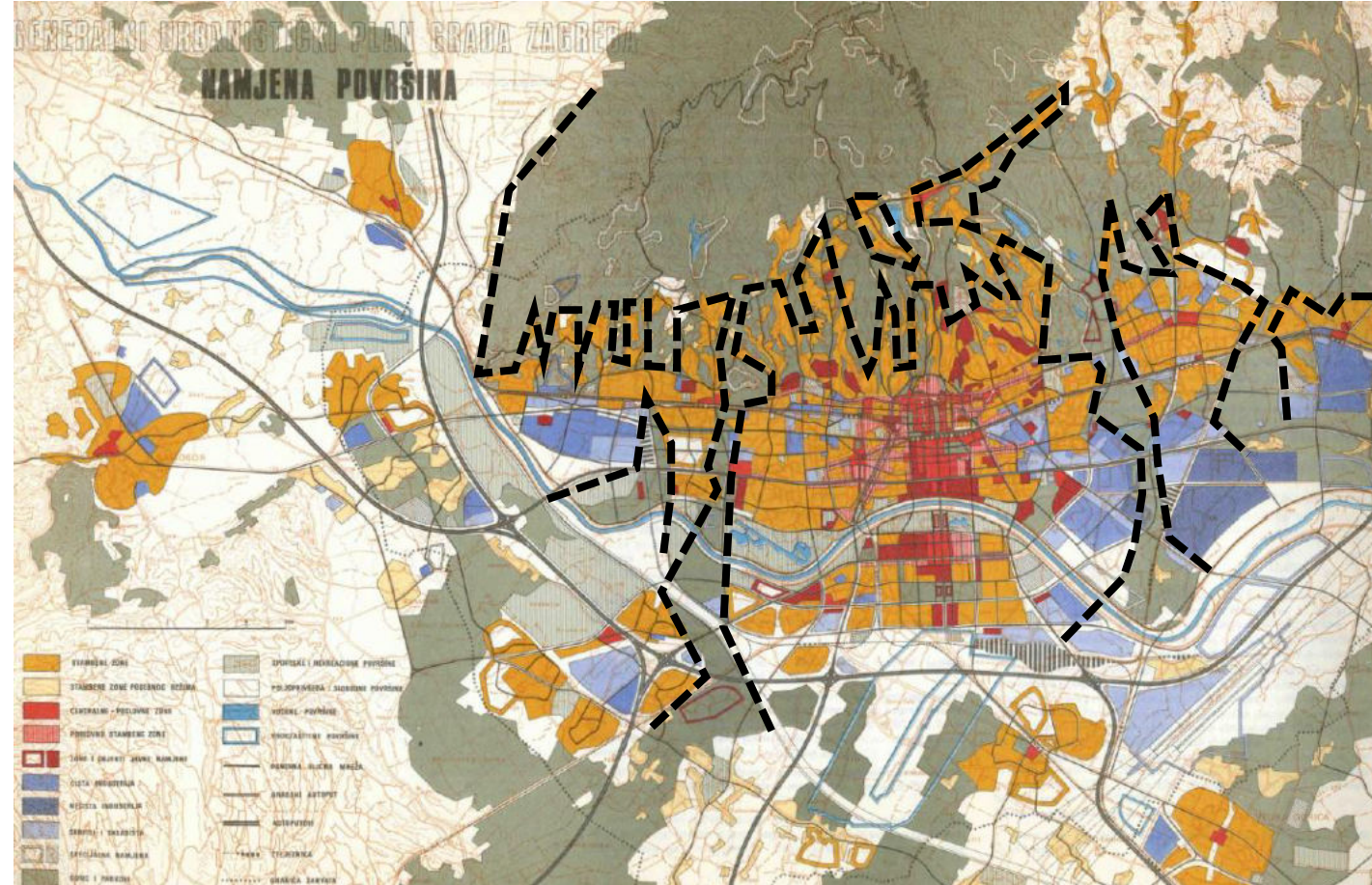


Landscape architecture and urban planning



1947-1953

Directive regulatory plan



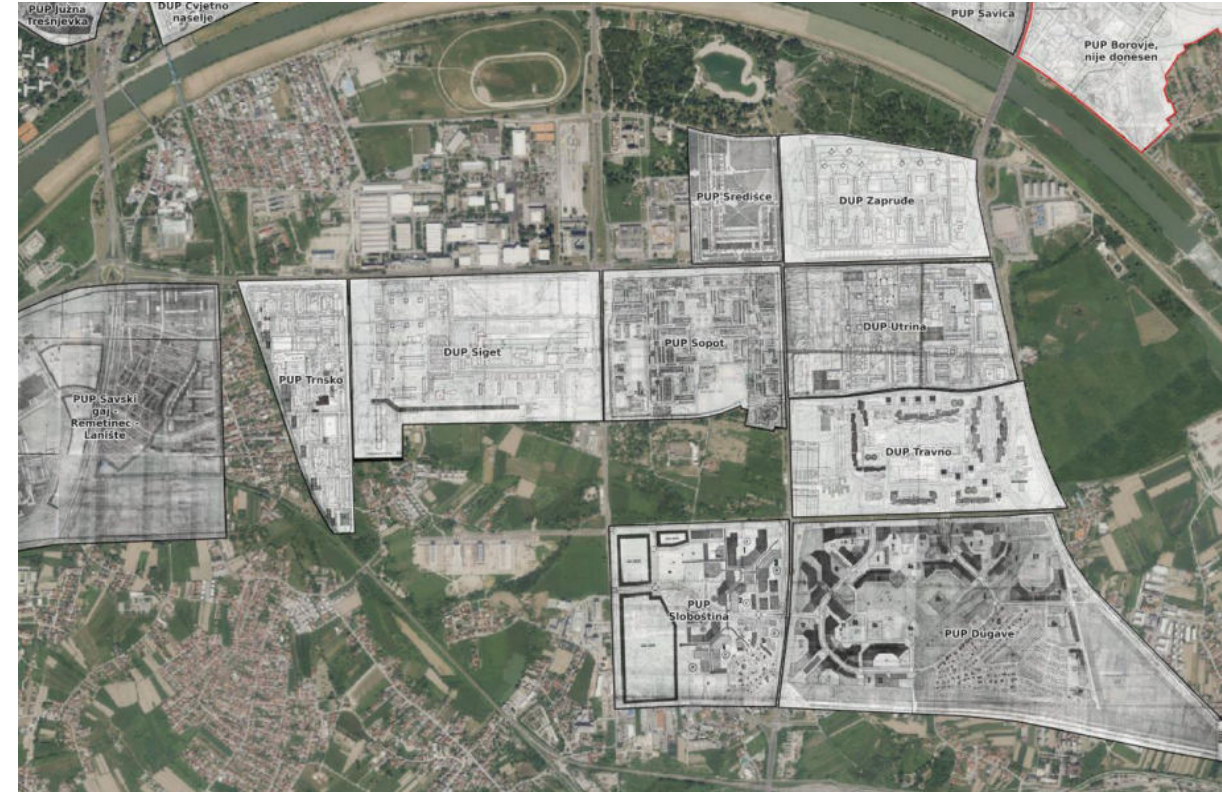
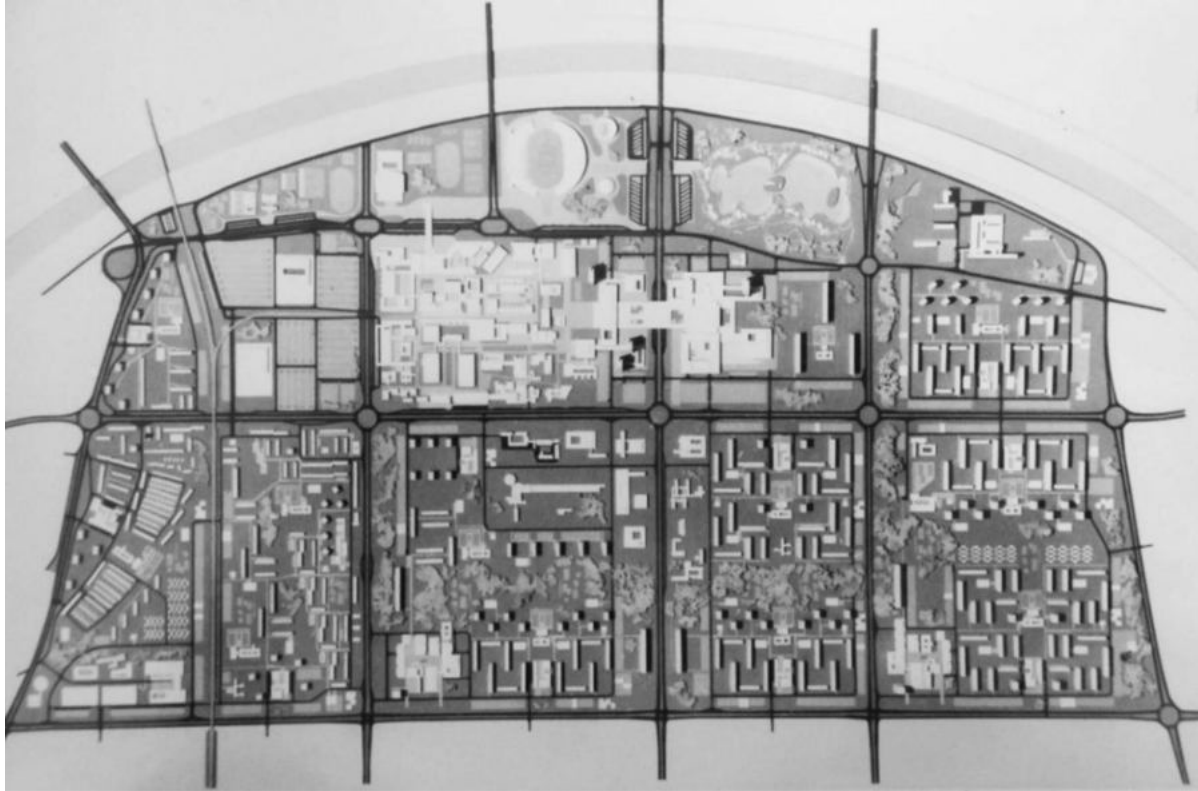
1971

General urban plan

„Green corridors”



Urban planning in the 2nd half of the 20th Century



Landscape architecture and urban planning



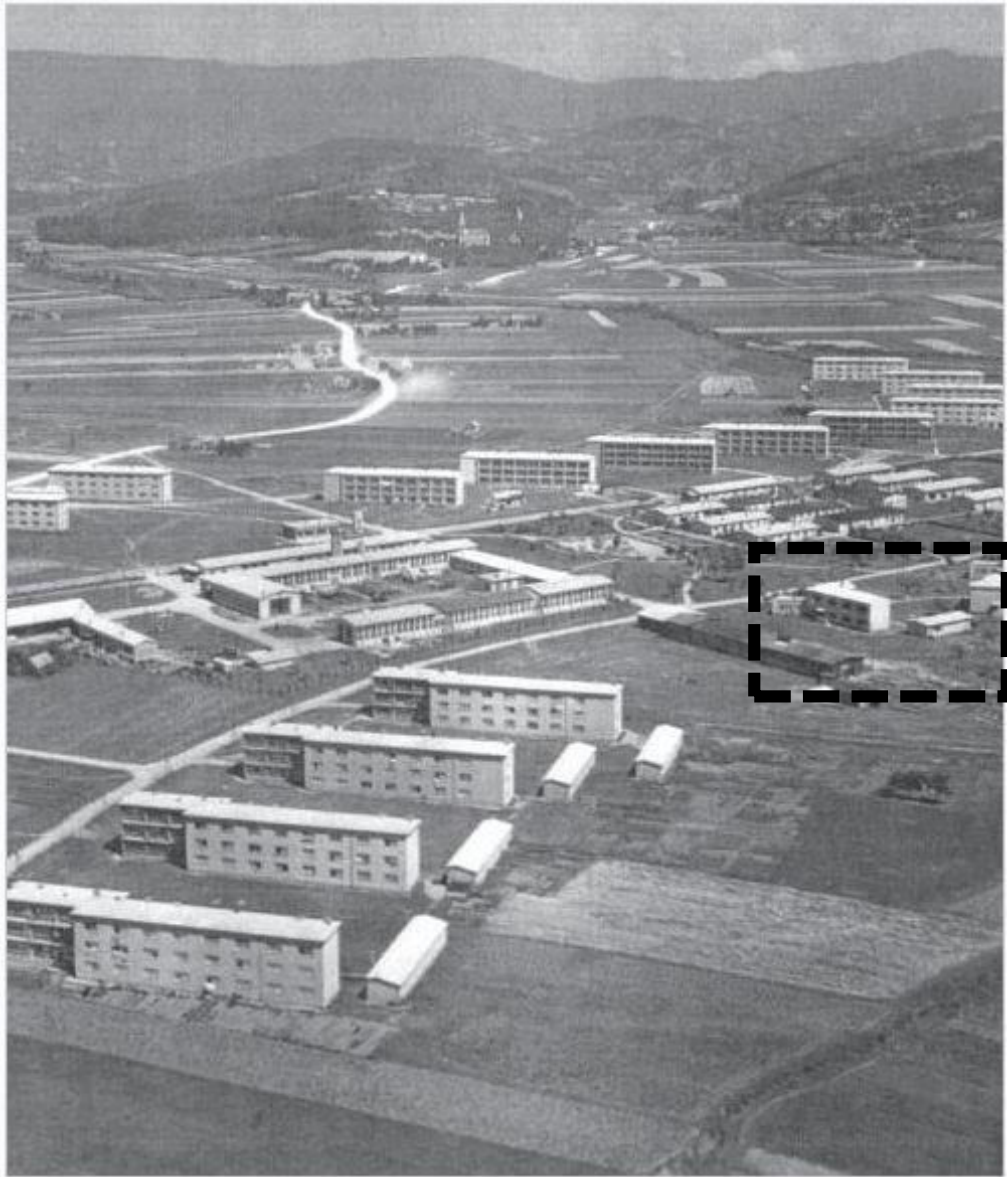
Landscape architecture and urban planning



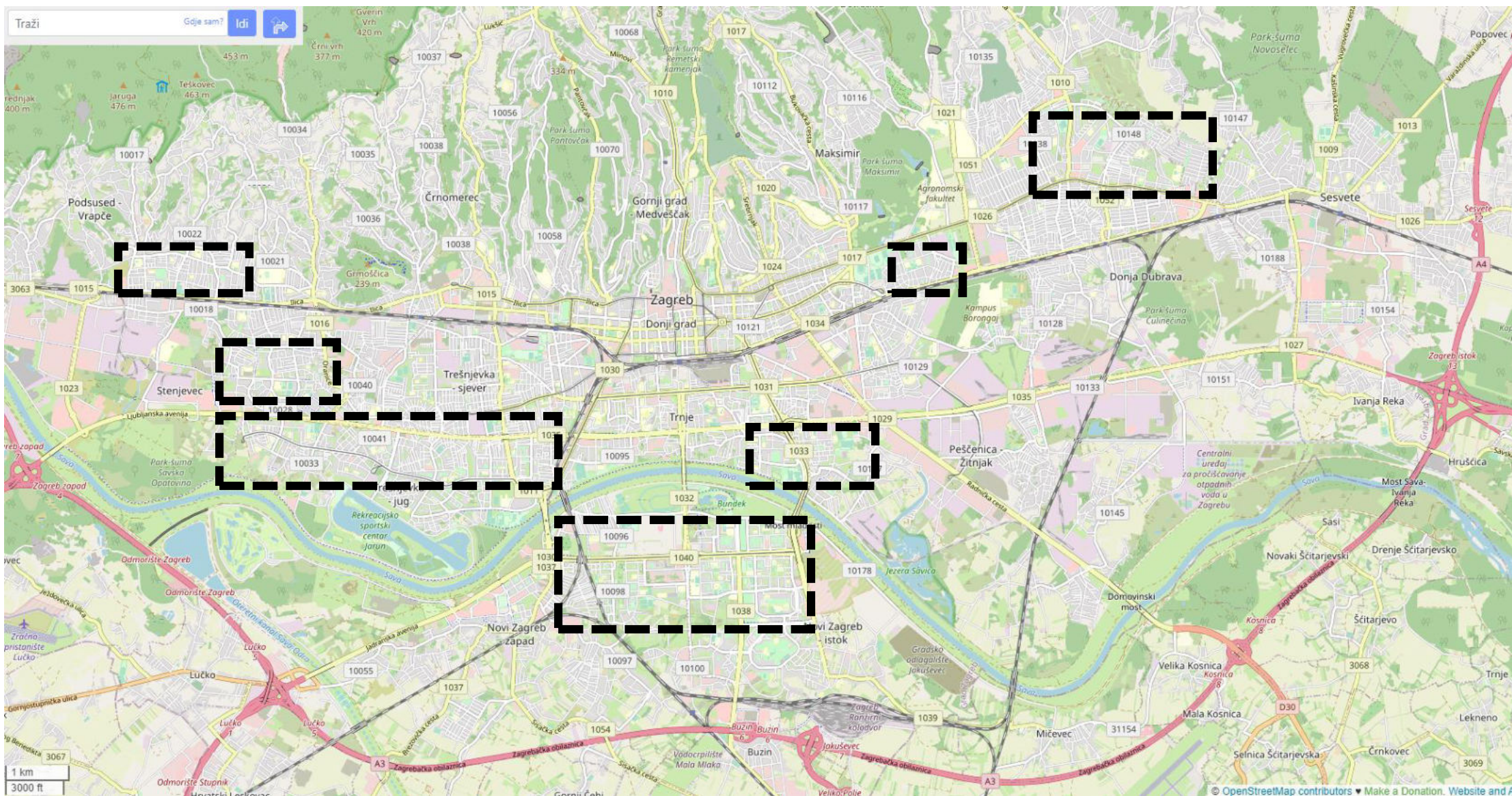
Landscape architecture and urban planning



Landscape architecture and urban planning



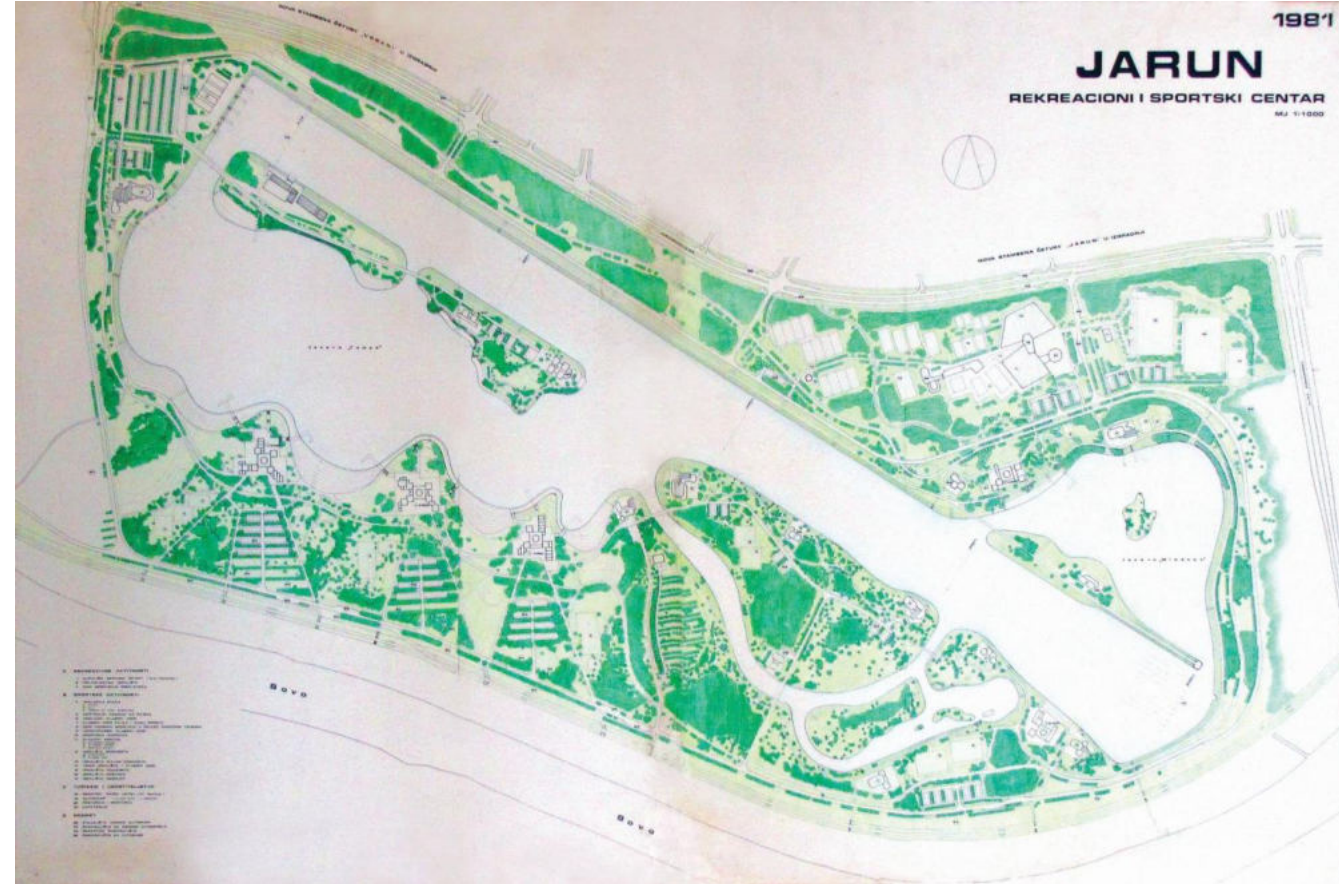
Landscape architecture and urban planning



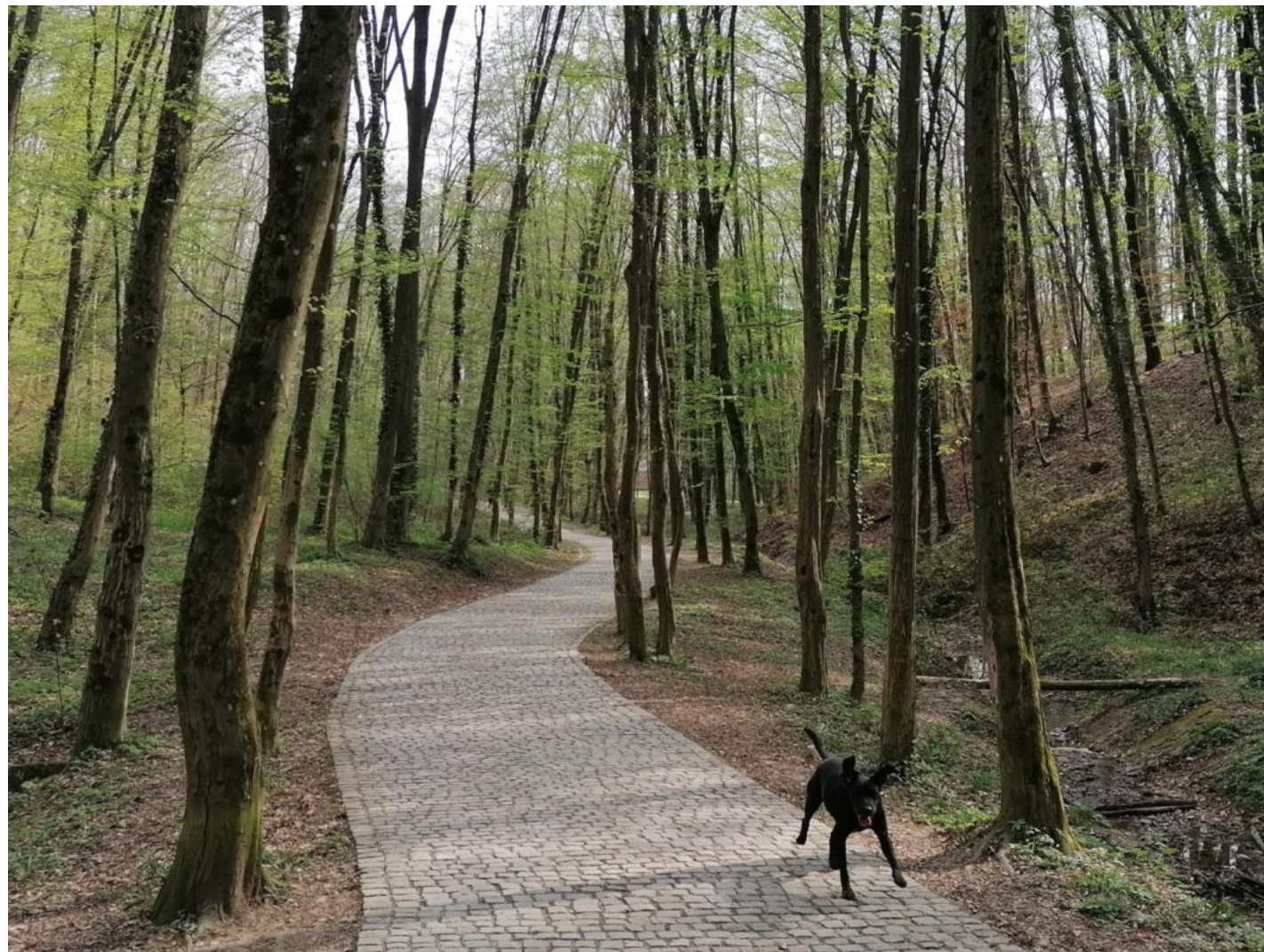
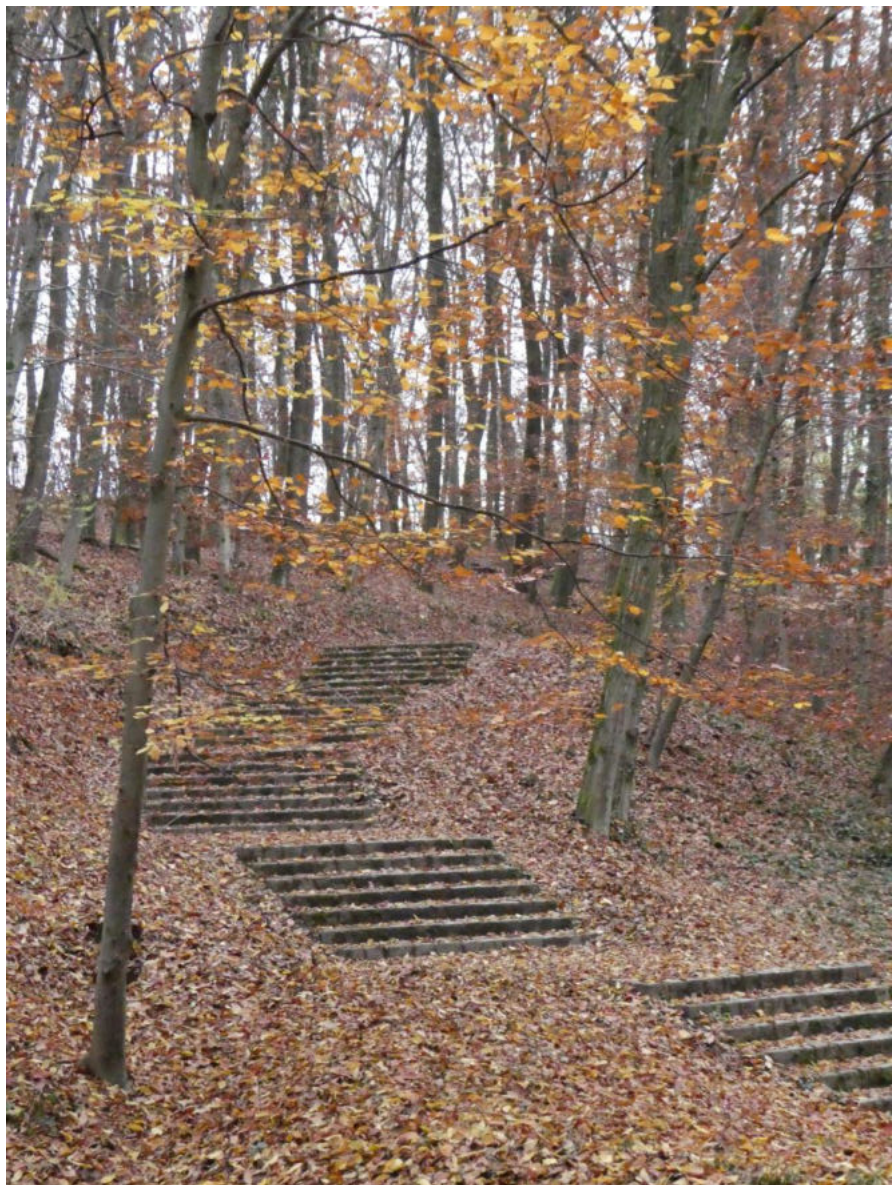
Landscape architecture and urban planning



Jarun park (recreation centre)



Dotrščina memorial park



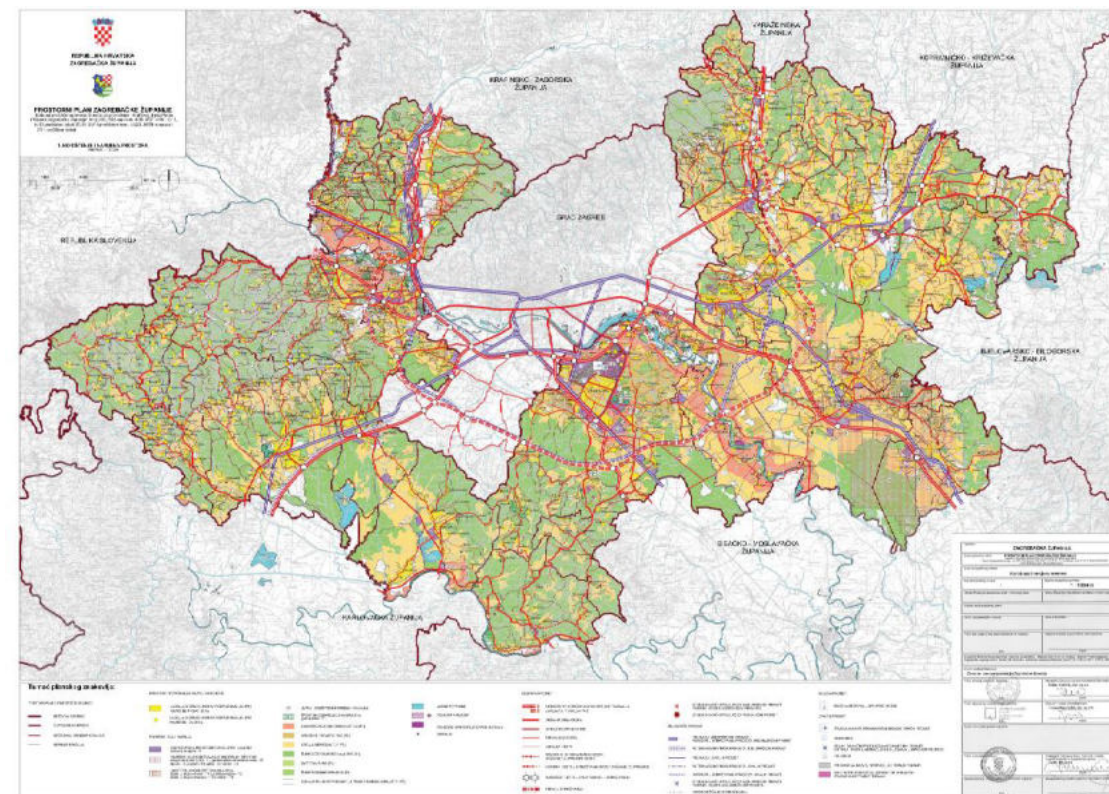
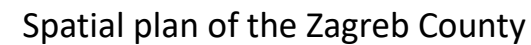
Dotrščina memorial park



Challenges of the current planning system



Spatial plan of the City of Zagreb



Main planning documents of Zagreb

STATE LEVEL

Spatial plan of Medvednica Nature Park
180 km² (three counties)

Scale
1:25.000

REGIONAL LEVEL

Spatial plan of the City of Zagreb (PPGZ)
641,2 km²

Scale
1:25.000
1:5.000

LOCAL LEVEL

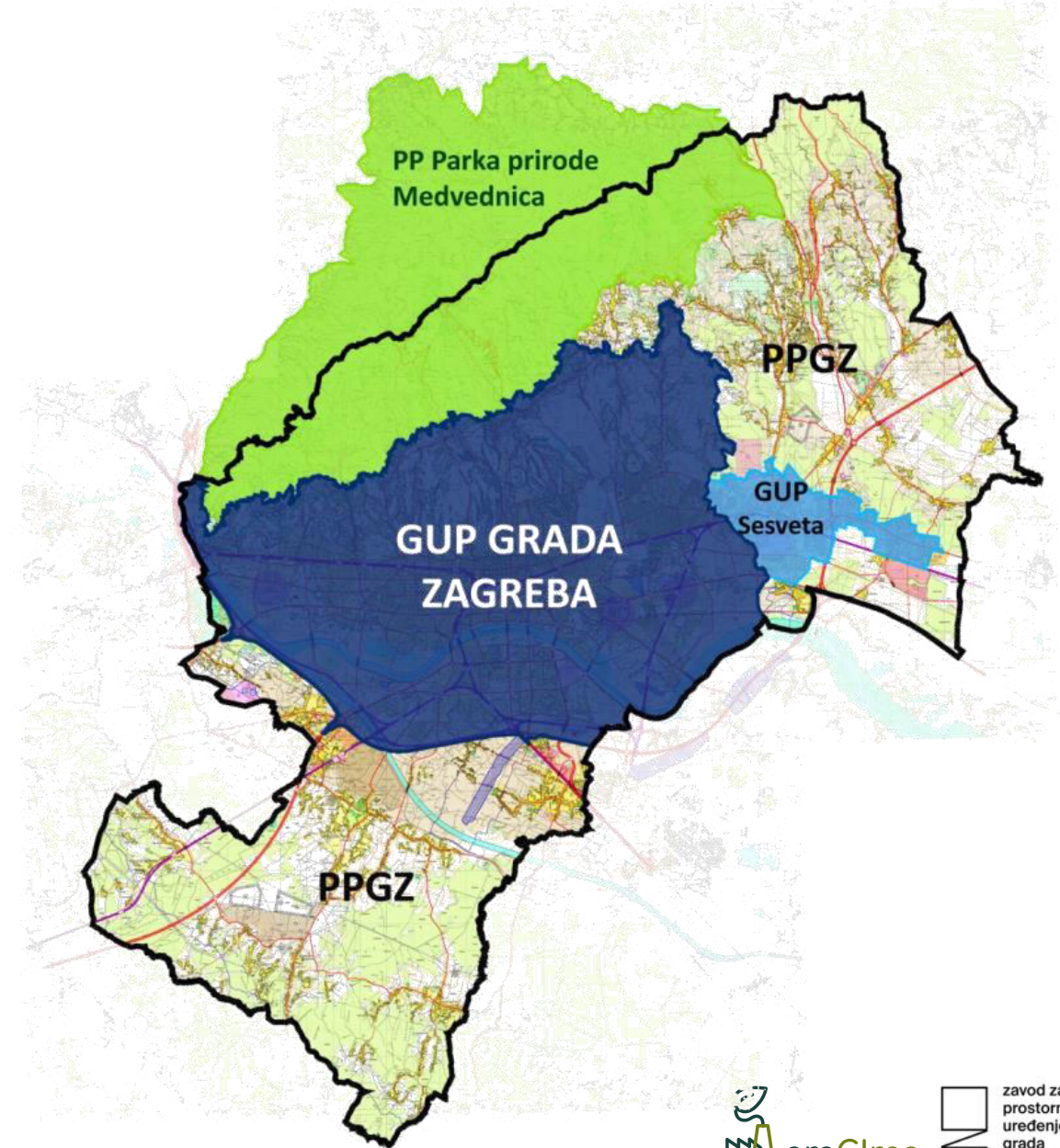
General urban plan of Zagreb
217,7 km²

General urban plan of Sesveta
18,2 km²

Scale
1:5.000

Urban development plans

Scale
varies



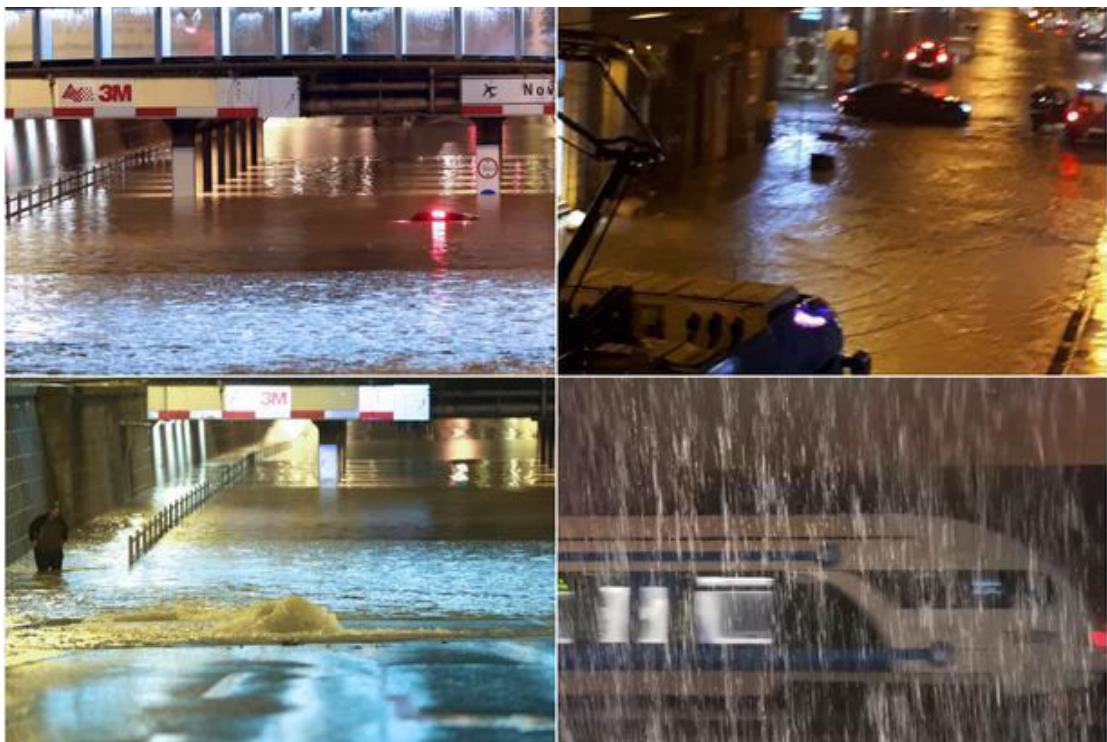
Urban planning in times of transition



Wake-up calls



Wake-up calls





**proGInreg project
and the new
planning paradigm**

**From green to
greener**

The link between spatial/urban plans and climate change

	VODNI·RESURSI	POLJOPRIVREDA	ŠUMARSTVO	RIBARSTVO·I·AKVAKULTURA	BIORAZNOLIKOST	ENERGETIKA	TURIZAM	ZDRAVLJE	PROSTORNO·PLANIRANJE	UPRAVLJANJE·RIZICIMA	OPĆE·MJERE
VODNI·RESURSI			X			X	X	X	X		
POLJOPRIVREDA	X		X		X						
ŠUMARSTVO	X					X	X	X	X		
RIBARSTVO·I·AKVAKULTURA		X				X	X		X		
BIORAZNOLIKOST			X				X	X	X		
ENERGETIKA							X				
TURIZAM		X				X			X		
ZDRAVLJE	X	X									
PROSTORNO·PLANIRANJE·I·UREĐENJE	X	X	X	X	X	X	X	X		X	
UPRAVLJANJE·RIZICIMA	X	X	X	X	X	X	X	X	X		
OPĆE·MJERE											

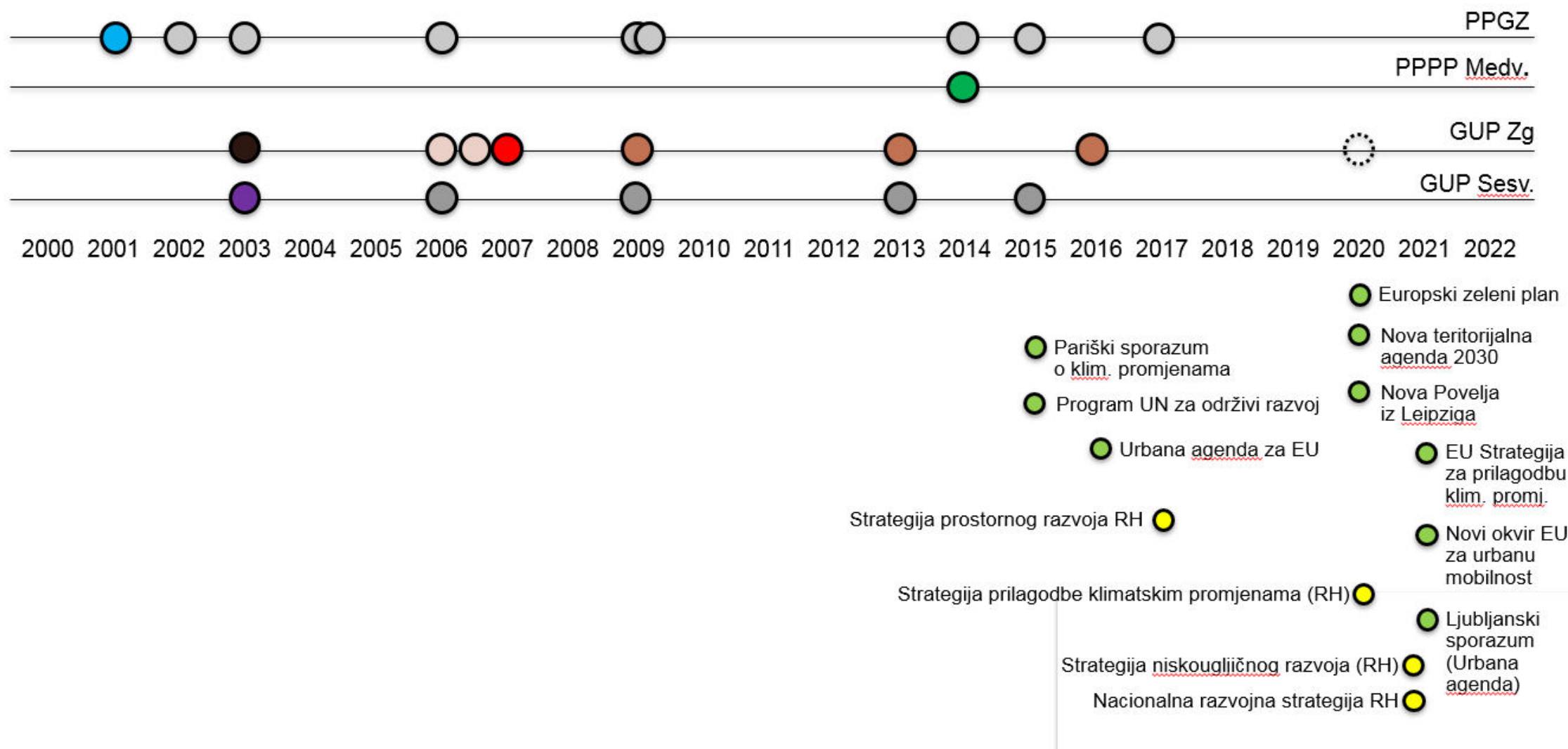
Napomena: Narančasta polja s oznakom X predstavljaju jače izražene međusektorske utjecaje, dok u području zelenih polja međusektorski utjecaji postoje, ali nisu izražajni.

Page Break

Action Plan for the Implementation of the Strategy for Adaptation to Climate Change in the Republic of Croatia from 2021-2025_draft

Urban planning documents are one of the main instruments for enforcement of climate and sectors policies since they cover all spatial aspects and fields.

Main planning documents of the City of Zagreb



The New Planning Paradigm



- **simplification of NBS implementation** through improvements of the development strategy, regulations at the state level (Act on Spatial Planning) and spatial planning documents
- NBS are part of a broader vision of the future that includes **low-carbon development, decarbonization** of all sectors along with **risk assesment and management, climate change adaptation and mitigation, energy transition and renaturalization**

NBS 7 proGlgreg – platform for a new planning approach



NBS 7_Embedding NBS into urban planning

Activities on NBS 7



from grey to green infrastructure

- citizens – active participants in transitive planning processes
- fundamental starting points of development:
 - the transition from fossil to renewable energy sources
 - the transition from grey to green infrastructure

Low Carbon Development Guidelines for Spatial and Urban Plans

Low Carbon Development Guidelines Proposition for Spatial and Urban Plans

Priloge prikazuje razpisni list za izdajo prostora v urbanističnem planu

1

„Simboli poremećaji pripadaju s teku od nepredviđenih izvora našeg života. Inače izgleda FCC-ov upravljački tim ne za potrebu drastičnog smanjenja emisije stakleničkih plinova, nastavi li iste razne emisije, onda bi svakako nastojao za smanjenjem istih i izvanili razmatranje“

Rekla je da je u skladu s ciljevima Pariškog sporazuma o klimi potpisanih krajem 2015. godine, gradovi će u velikoj mjeri morati odustati od fosilnih goriva do 2050. Mnogi veći preustroji odgovornosti, osobito putem ambicioznih ciljeva smanjenja svojih emisija. Na primjer, grad Amsterdam se zalaže za smanjenje emisija za 75% do 2050. godine, dok će Berlin i Pariz pokušati neutralizirati ušjeđ do 2030. godine.

U tom kontekstu, ugovor otenih politika barbe protiv stvarnih promjena velike snage o sposobnost gradova u promicanju mikougljiknih promjena (fleksibilnog manje). Učinci istom: odnosa donesenih donos općnosti (u se ujedno 20 do 50 godina i više) Stoga danas moramo planirati gradove uvažavajući to.

Jedini od navedenih instrumenata za provođenje ključnih politika je prostorni i urbanistički planiranje. Zbog toga prostorni uređenje Grada Zagreba naglo je u središtu i stajalo u prostoru Grada Zagreba 2011.-2016. (Sl. gl. 4/18) plaćanje europske dekarbonizacijske planirane paradigme i istanovno važnost definiranja politika razvoja razvoja za sve različite prostorne planove Grada Zagreba kako bi se osigurala odgovornost na promjene i prilagodbe i učitala europska ključna odredila.

[illegible]

Dizajnerska kancelarija i stručna podružnica integrirano-energetskog i urbanističkog planiranja i/ili projektiranja prema odredbama i kriterijima energetskog sustava, kao i suradnja na svim fazama poslova obuhvata se u Fakultetnom strukturnom i budogradnje Sveučilišta u Zagrebu, Katedra za energetska postrojenja i energetiku.

Prijedlog politička i ekonomskog razvoja za treću prostornu i urbanističku planovnu zonu čine planerski paradigmi koji su od početka i bitno građani kao aktivni sudionici različitih planerskih procesa, a temeljna politička stavova prelazi se izvanjski prema obnovenim izvorima energije i prelazi se izvanjski prema izvanjski infrastrukturni u funkciji prilagodbe i ublažavanja klimatskih promjena odgovarajuće kostrukcije Dvora.



- recommending that when amending documents special attention be paid to planned green infrastructure as an element in the organization of space

- topics:



early participatory process



green mobility



energy transition



use of sustainable materials and circular economy



green infrastructure & NBS

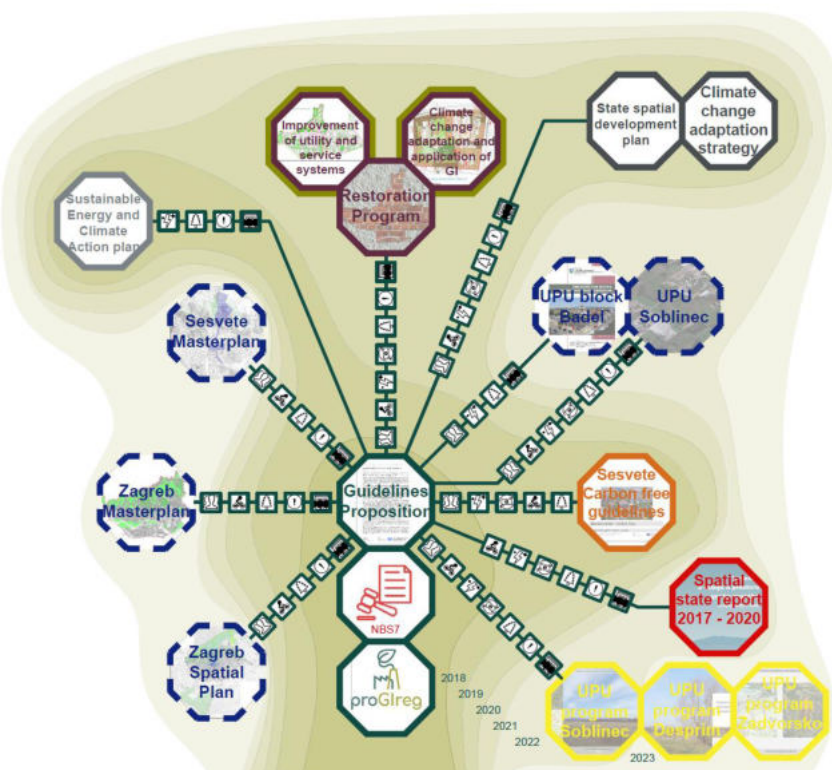


risk assessment and management, resilience and adaptation



urban regeneration and renaturalization

Replication



Source: ZZPUGZ

state and city development documents

State Spatial Development Plan	Proposals made
Climate Change Adaptation Strategy	Proposals accepted
Sustainable Energy and Climate Action Plan	Proposals accepted

spatial and urban plans / including their amendments

Zagreb Spatial Plan	Decision on the development of the Spatial Plan
Zagreb General Urban Plan	Decision on the development of the Spatial Plan
Sesvete General Urban Plan	Decision on the development of the Spatial Plan
UPU Block Badel	Plan Proposal
UPU Soblinec (Sesvete)	Decision on the development of the Spatial Plan

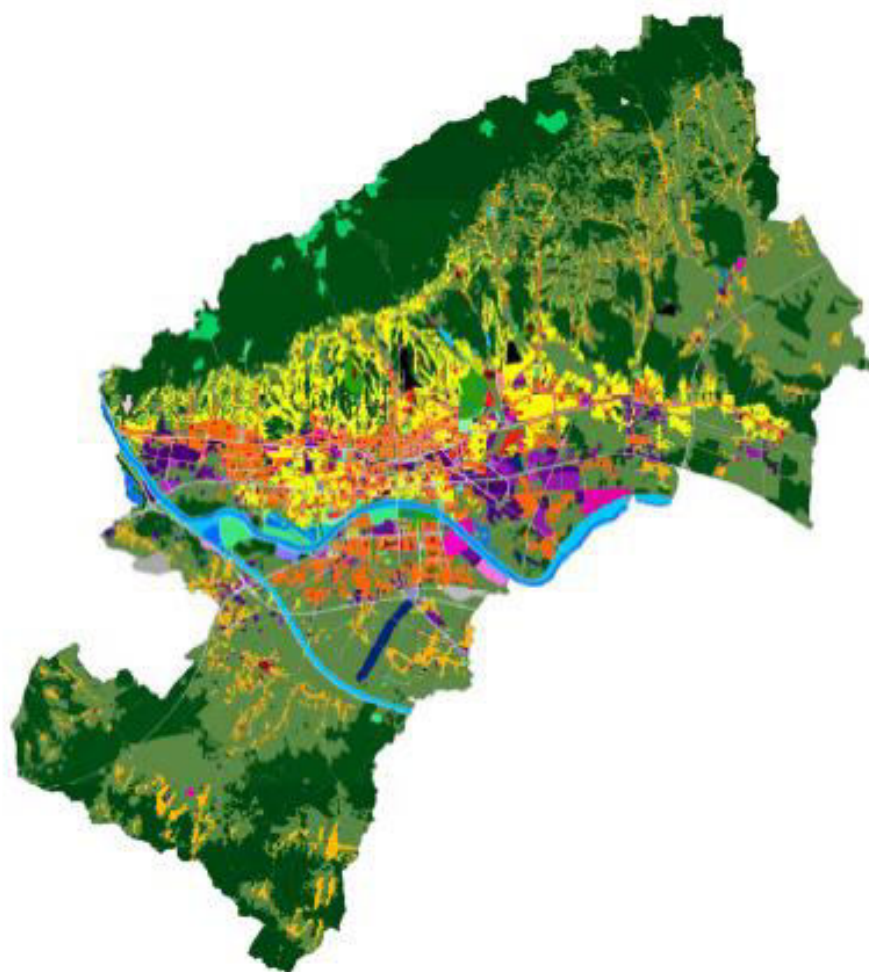
other

Programs for UPU Soblinec, Desprim and Zadvorsko	Completed
Spatial state report 2017-2020	Completed
Sesvete Carbon Free Competition Program guidelines	Completed
Pilot-project Comprehensive restoration program of the historical urban core of the City of Zagreb	Completed

Replication: Amendments to Zagreb Spatial Plan

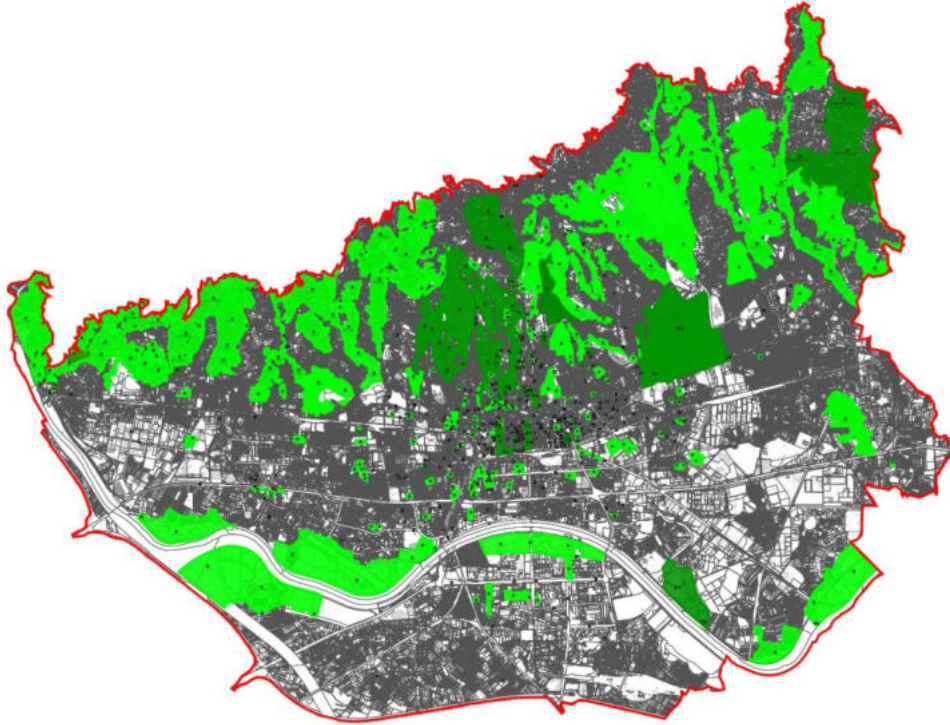


- Aims:
- improvement of green infrastructure
- circular management of space and buildings with the aim of adapting to and mitigating climate change



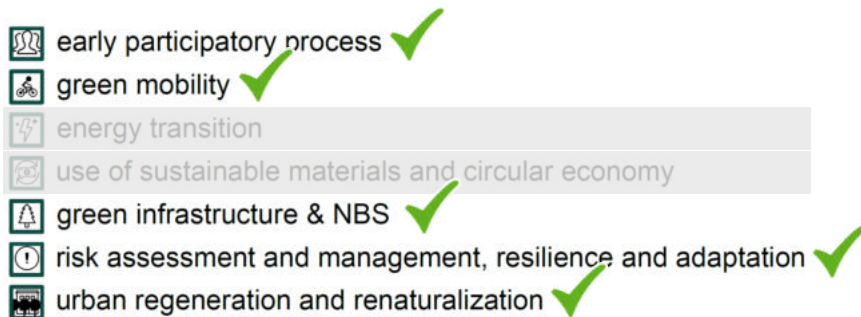
	early participatory process
	green mobility ✓
	energy transition
	use of sustainable materials and circular economy
	green infrastructure & NBS ✓
	risk assessment and management, resilience and adaptation ✓
	urban regeneration and renaturalization

Replication: Amendments to Zagreb General Urban Plan



Aims:

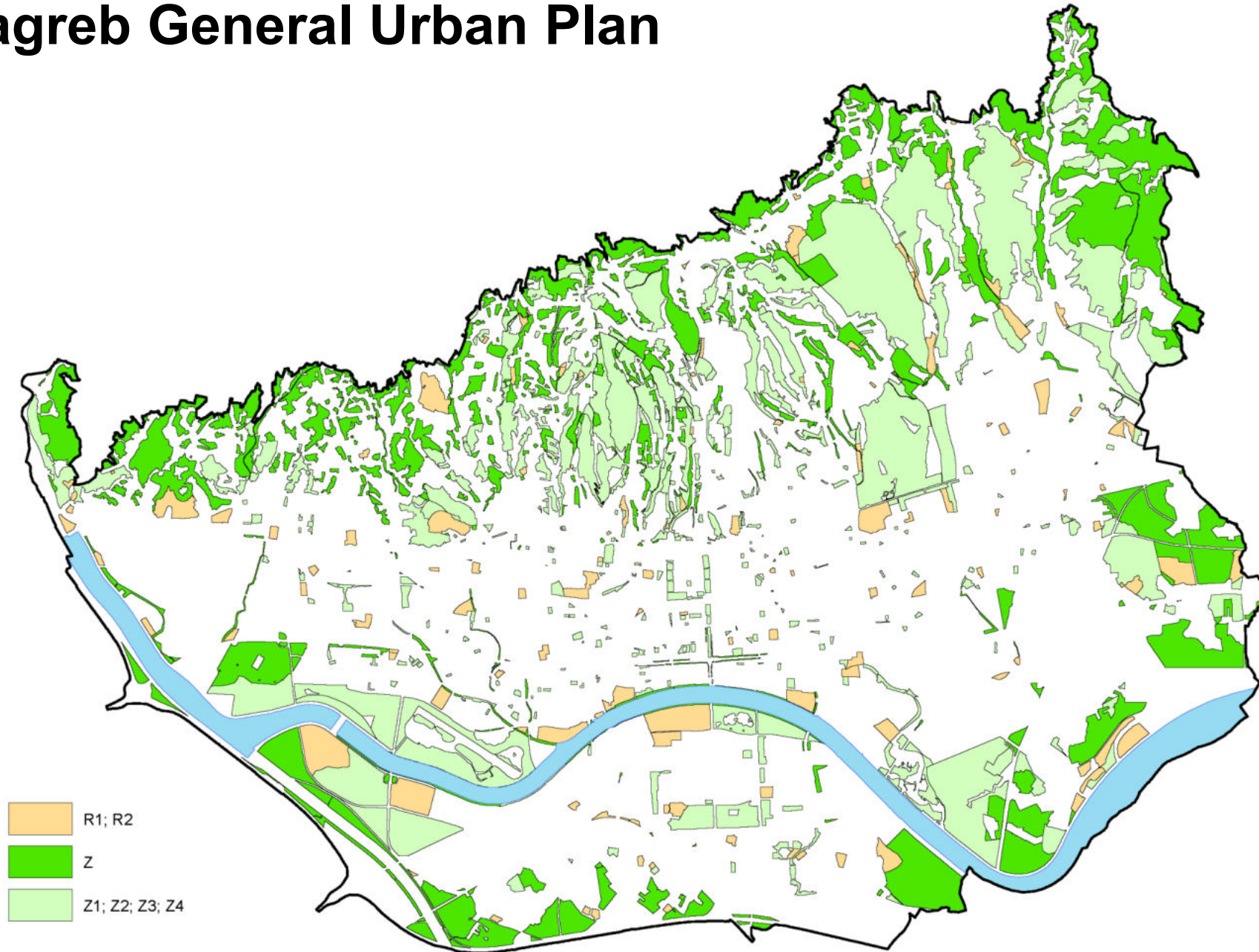
- improvement of green infrastructure
- circular management of space and buildings with the aim of adapting to and mitigating climate change



Replication: Amendments to Zagreb General Urban Plan



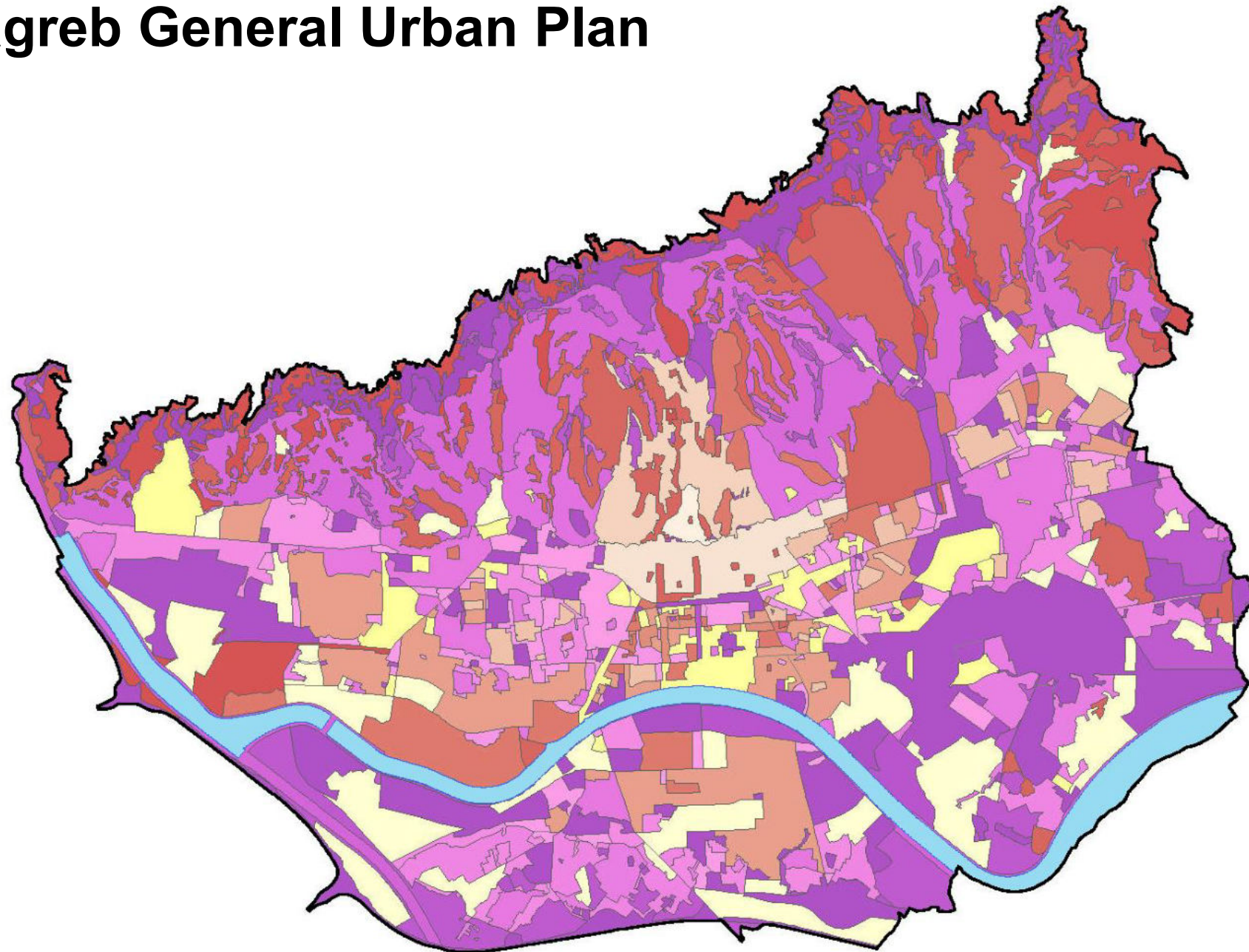
Zagreb General Urban Plan



Zagreb General Urban Plan



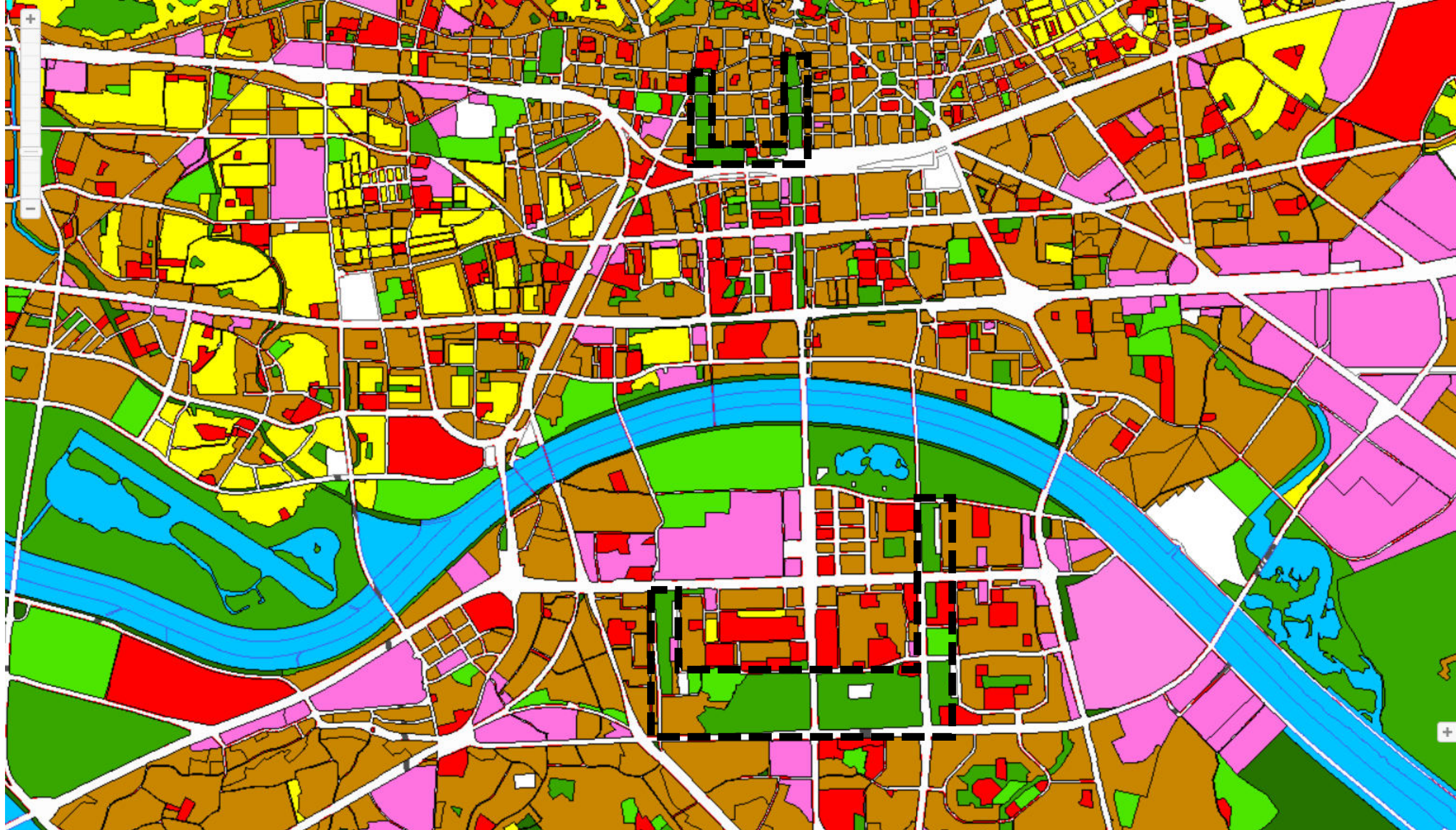
Zagreb General Urban Plan



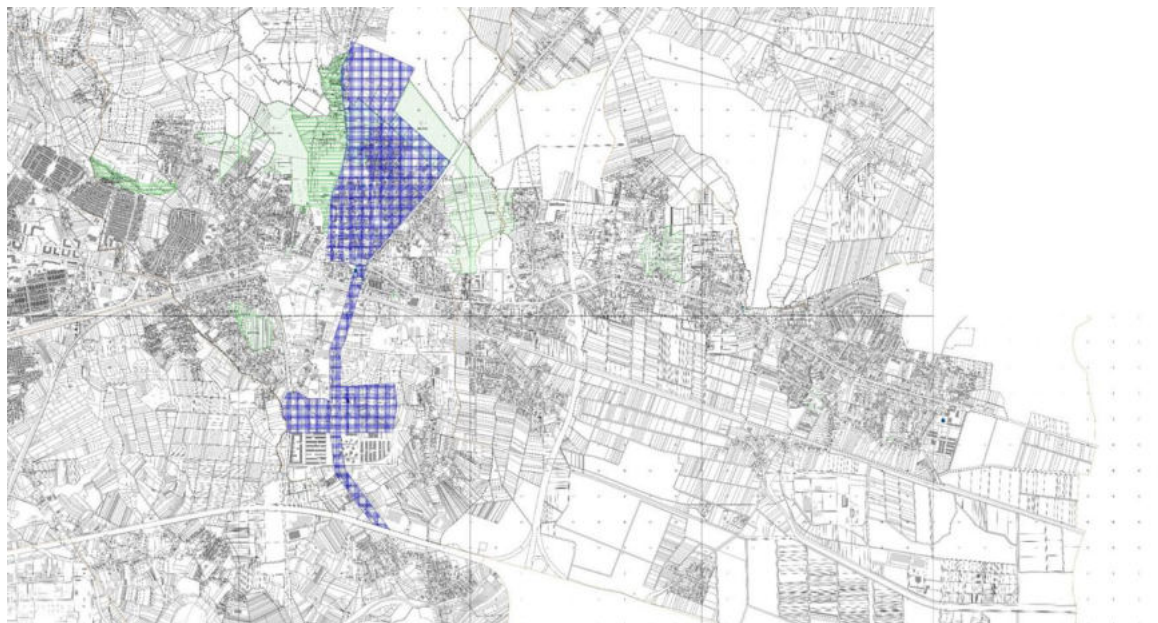
Rules for an unbuilt part of a building plot ranges from 0 - 10 - 20 - 40 % with many exceptions



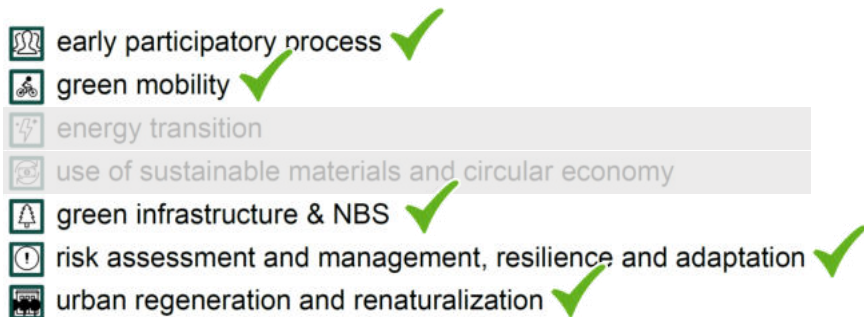
harmonisation



Replication: Amendments to Sesvete General Urban Plan



- Sesvete Masterplan – map of green and archaeology areas



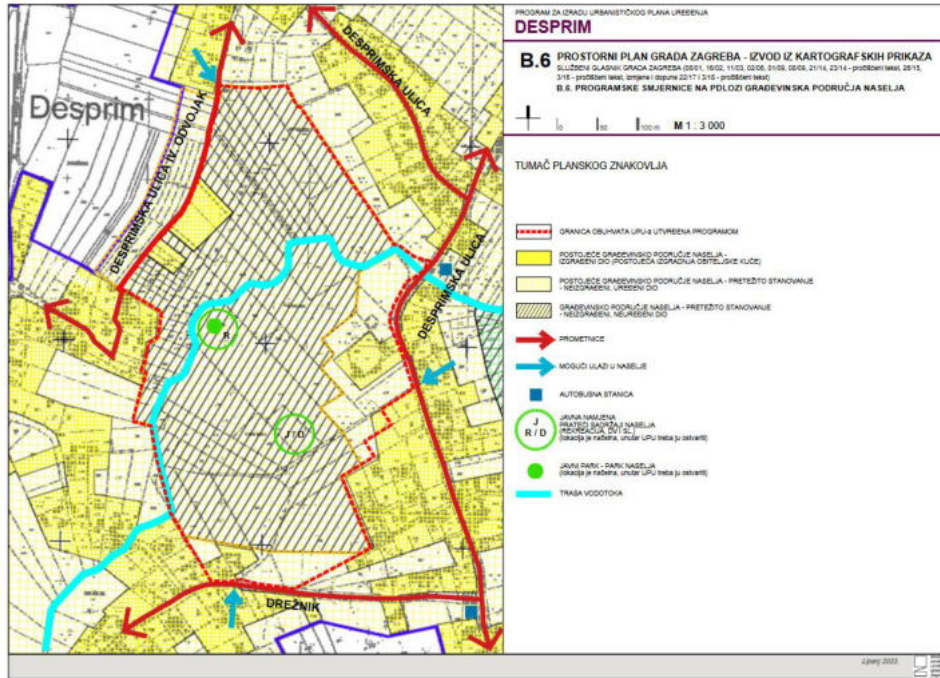
Goals defined by the Decision on the development:

1. Public needs and **public interest**
2. Urban regeneration of Sesvete - transformation of the center and **development of former industrial areas;**
3. Alignment with **EU green policies** - adaptation to climate change, green infrastructure, application of NBS, circular management of space and buildings, use of alternative fuels and renewable energy sources;
4. Revaluation and improvement of spatial qualities

Particularly:

- adaptation to climate change by **increasing green areas and natural terrain**, preserving water areas and preserving the continuity and integrity of public green areas to form a network of **green infrastructure** of the city
- enabling the **application of NBS**, especially at the location of Sljeme Sesvete
- ensuring the spatial and planning prerequisites for arranging the public space in the center of Sesvete

Replication: Programs for Urban Development Plans (UPU)



- predominantly **residential** use (family houses with 1-2 apartments, population density 60 – 80 inhabitants/hectare)
- promote the development of **green infrastructure**
- **green construction** (low-energy buildings)
- recommended use of **renewable energy sources** – solar collectors and heat pumps are the minimum
- green areas should be planned so that they are accessible to as many users as possible, while using domesticated species
- the plan will **contain the basis of landscape design** - the greenery plan
- reducing the required amount of materials for the construction of buildings, support of the use of local building materials, technologies and services, reducing the amount of waste, efficient management of water resources, placing emphasis on recycling, etc.

- early participatory process ✓
- green mobility ✓
- energy transition ✓
- use of sustainable materials and circular economy ✓
- green infrastructure & NBS ✓
- risk assessment and management, resilience and adaptation ✓
- urban regeneration and renaturalization ✓

Replication: UPU Block Badel



- re-use of rainwater
- underground parking spaces
- **central heating system** or use of **renewable energy** sources that do not include combustion that produces greenhouse gas emissions and/or other pollutants
removal of the existing natural gas distribution infrastructure
- **100% of the energy from renewable sources** for new buildings
- mandatory use of **green and blue infrastructure solutions**
- **green roofs** mandatory on all ground floor roofs and are recommended on the roofs of higher floors

-  early participatory process ✓
-  green mobility ✓
-  energy transition ✓
-  use of sustainable materials and circular economy
-  green infrastructure & NBS ✓
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-  urban regeneration and renaturalization ✓

Replication: Sesvete Centre: Carbon-free Competition Program Guidelines



Sesvete Centar - Carbon Free

Inovativni Bezugljični Projekt - polazišta



ZAVOD ZA PROSTORNO UREĐENJE GRADA ZAGREBA
Ulica Republike Austrije 18, 10 000 Zagreb
www.zrpgg.hr, lipanj 2019.



-  early participatory process ✓
-  green mobility ✓
-  energy transition ✓
-  use of sustainable materials and circular economy ✓
-  green infrastructure & NBS ✓
-  risk assessment and management, resilience and adaptation ✓
-  urban regeneration and renaturalization ✓

Competition guidelines for Sesvete Center as an **innovative resilient carbon-free urban project**

Goals:

- improvement of the quality of life for the citizens of Sesvete
- improvement of the planning paradigm of the City of Zagreb
- a proposal for improving the regulatory framework at the national level

Proposals:

1. A **new center south of the railway** line based on carbon-free development principles;
2. Renewal and attractiveness of the old center;
3. Public buildings and spaces, **mixed residential and commercial buildings** of a sustainable urban standard;
4. Renaturalization of the post-industrial zone by introducing **NBS**;
5. Safe and undisturbed **pedestrian traffic**;
6. Economic solutions that do not compromise quality and the environment;
7. Finding solutions related to **energy efficiency, resilience, water management**, mobility, waste management, sustainable building materials and other

Post-earthquake reconstruction and renewal

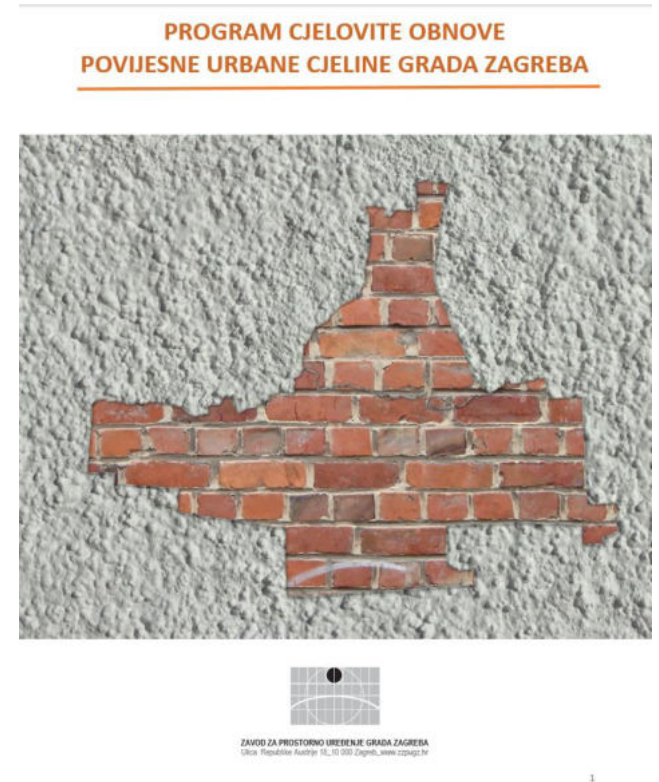


Replication: Comprehensive Restoration Program of the Historic Urban Core of Zagreb

- An innovative planning approach triggered by a natural disaster and based on the experiences of working on the proGlgreg project

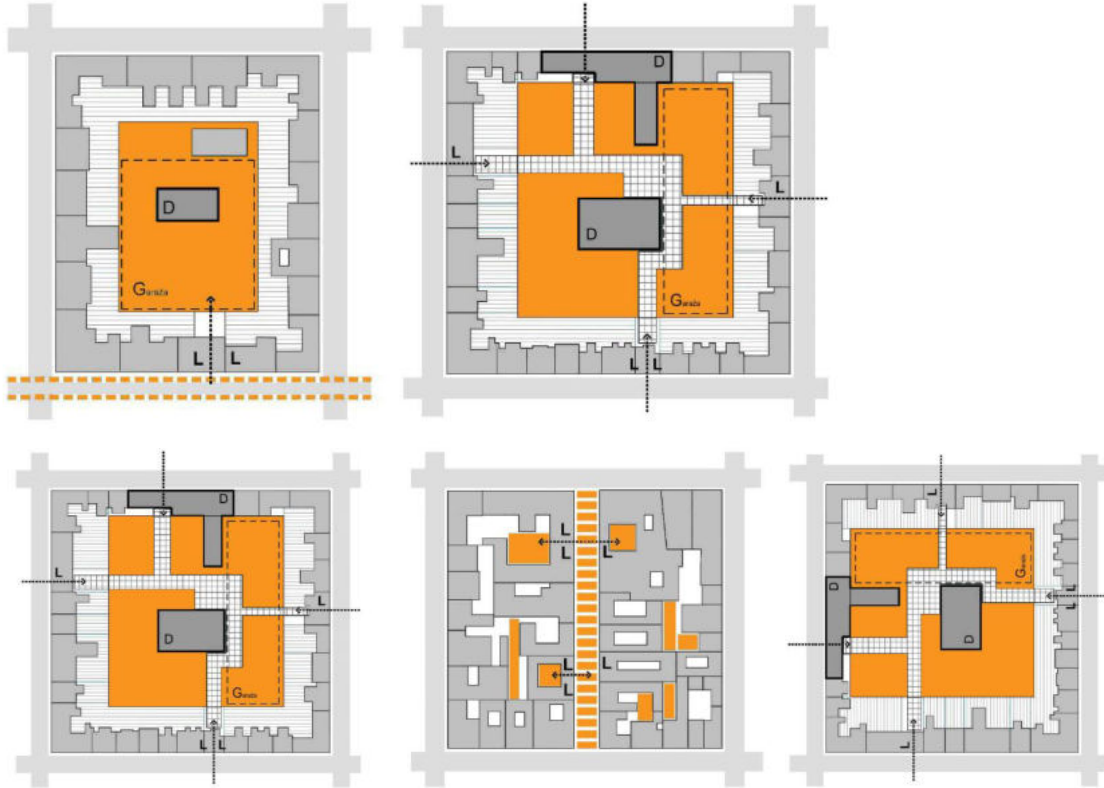
- Situation and context
- Methodology – innovative urbanistic approach / green urban renewal
- Results of basic analysis - development problems, risks and needs
- Vision of urban renewal - **GreenCenter 2050**
- Objectives of urban renewal
- Sector modelling
- Recommendations, guidelines and conditions for the implementation of complete urban renewal
- Action plan
- Sources of financing
- Proposals for improving the regulatory framework

-  early participatory process ✓
-  green mobility ✓
-  energy transition ✓
-  use of sustainable materials and circular economy ✓
-  green infrastructure & NBS ✓
-  risk assessment and management, resilience and adaptation ✓
-  urban regeneration and renaturalization ✓



- Source: Complete restoration program of the historical urban core of the City of Zagreb

Replication: Comprehensive Restoration Program of the Historic Urban Core of Zagreb



-  early participatory process ✓
-  green mobility ✓
-  energy transition ✓
-  use of sustainable materials and circular economy ✓
-  green infrastructure & NBS ✓
-  risk assessment and management, resilience and adaptation ✓
-  urban regeneration and renaturalization ✓

Vision 2050 & Key goals

- Urban renewal_Circularly and innovatively renovated and transformed
- Sociodemographic vitality, social cohesion and social justice
- Identity, ambiental characteristics and recognisability of the city center
- **Climate change resilience and climate neutrality using NBS**
- Energy transition and economy development and circular economy development of a smart and green City
- **transit freight and car traffic restriction for the historic core;**
- **(renewable sources) electrification of transport systems**
- **redefining the traffic network with the aim of forming individual traffic calming zones for vehicles**

Replication: Comprehensive Restoration Program of the Historic Urban Core of Zagreb

Slika 6-8: Vizija uređenja Dalmatinske ulice

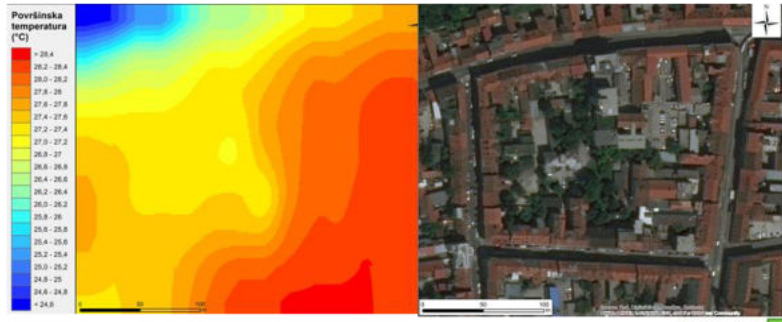


- research of possible capacities and economic models for parking for residential population in blocks;
- favoring and improving surface standards for **pedestrian and cycling mobility** and public city transport;
- humanization of street surfaces by expanding space for pedestrians, cyclists and green spaces instead of areas for cars, while planning block garages as a solution for parking issues of the resident population

- Source: Complete restoration program of the historical urban core of the City of Zagreb

-  early participatory process ✓
-  green mobility ✓
-  energy transition ✓
-  use of sustainable materials and circular economy ✓
-  green infrastructure & NBS ✓
-  risk assessment and management, resilience and adaptation ✓
-  urban regeneration and renaturalization ✓

Replication: Comprehensive Restoration Program of the Historic Urban Core of Zagreb

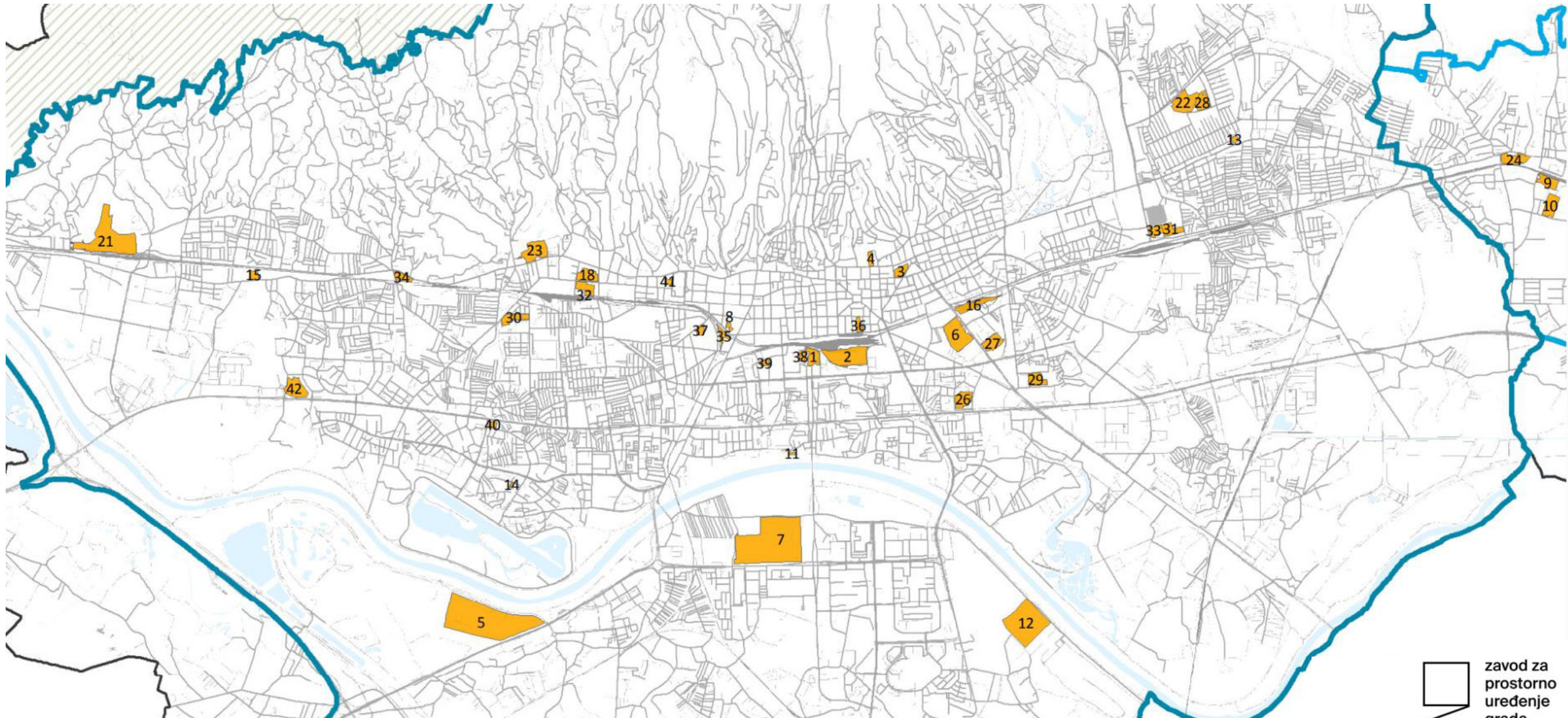


- recording and preservation of existing and planting of new trees (tree canopy cover);
- **biodiversity increase** (biosolar roofs, canopies, public city transport stops);
- **water management** (rain gardens, green roofs, public fountains,...);
- introduction of **natural terrain standards** on the plot and construction of green roofs and green facades;
- enabling **temporary shading of public areas** (in the summer)



- early participatory process ✓
- green mobility ✓
- energy transition ✓
- use of sustainable materials and circular economy ✓
- green infrastructure & NBS ✓
- risk assessment and management, resilience and adaptation ✓
- urban regeneration and renaturalization ✓

Brownfield areas in Zagreb



Brownfield areas in Zagreb: priorities for development



Blok Badel
(former distillery)

Gredelj (former railway works)



Zagrepčanka (former slaughterhouse)



Urban planning | Rehabilitation, Reaffirmation, Repositioning



- risk scenarios as a basic starting point
- **early participative processes** and a broad public discussion of all stakeholders in the development of the City
- **urban planning + elements of strategic planning**
 - projects and activities with a dynamic framework and an economic component in order to be implemented
- integrating energy and climate policies
 - **decarbonization** of existing neighbourhoods
 - energy transition towards **renewable** energy sources
 - climate change adaptation and mitigation using **NBS**
- planning activity directed towards the **urban renewal** of existing cities and neighbourhoods

• Source: proGgreg

Green transition in Zagreb and Croatia

Thank you for your attention

zavod.prostorno.uredjenje@zagreb.hr
www.zzpugz.hr

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proGlgreg team:
Nives Mornar
Mirela Bokulić Zubac
Jelena Bule
Nikša Božić



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prostorno
uređenje
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