

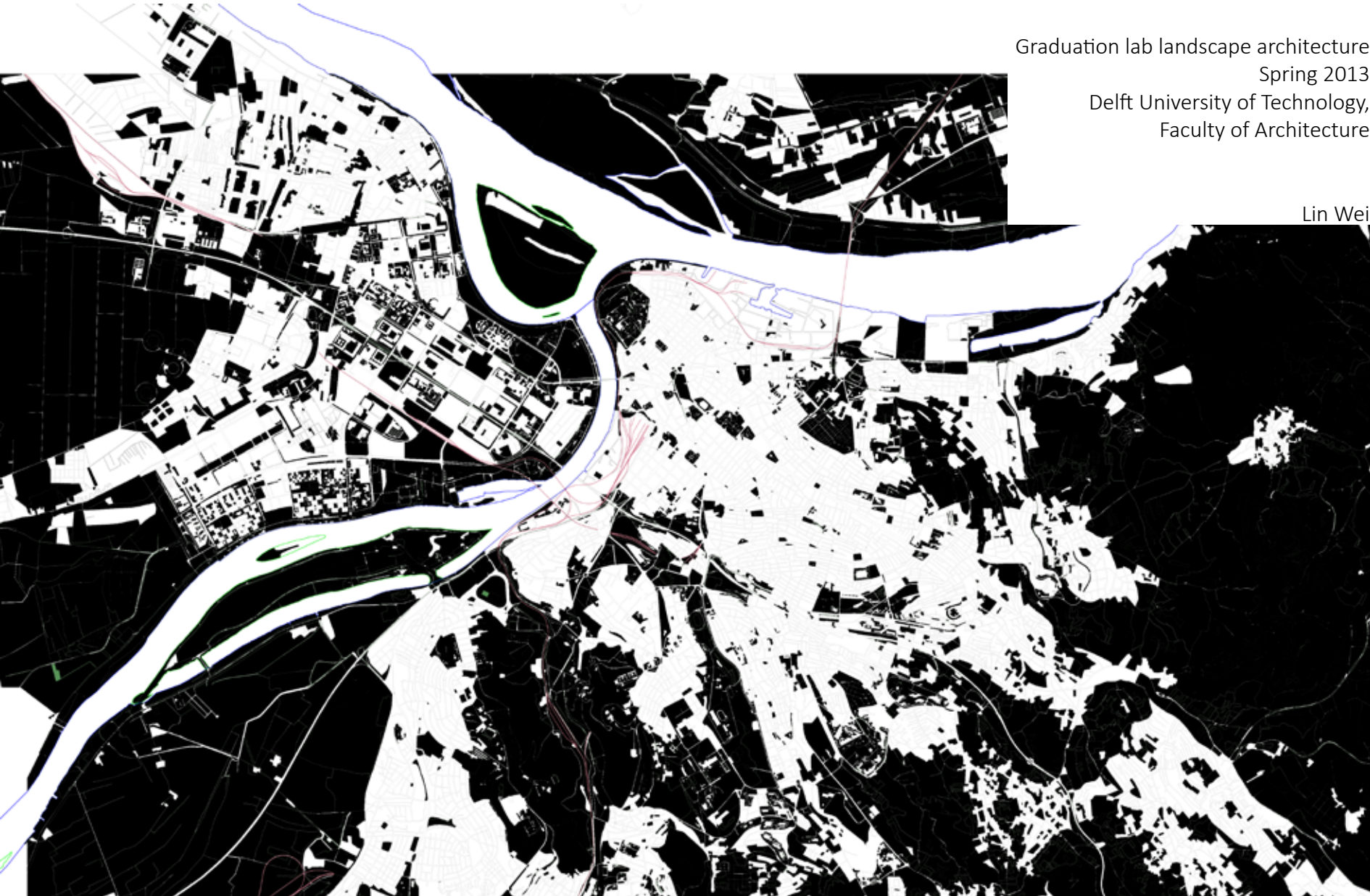
RECLAIMING OPEN SPACE IN NEW BELGRADE

A case study of designing for local demands via means
of landscape architecture.

INFRASTRUCTURE AS LANDSCAPE /
LANDSCAPE AS INFRASTRUCTURE

Graduation lab landscape architecture
Spring 2013
Delft University of Technology,
Faculty of Architecture

Lin Wei



FLOWSCAPES:

INFRASTRUCTURE AS LANDSCAPE /
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Graduation lab landscape architecture Spring 2013
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RECLAIMING OPEN SPACE IN NEW BELGRADE

Open space as design strategy for urban transformation and (re)development in New Belgrade

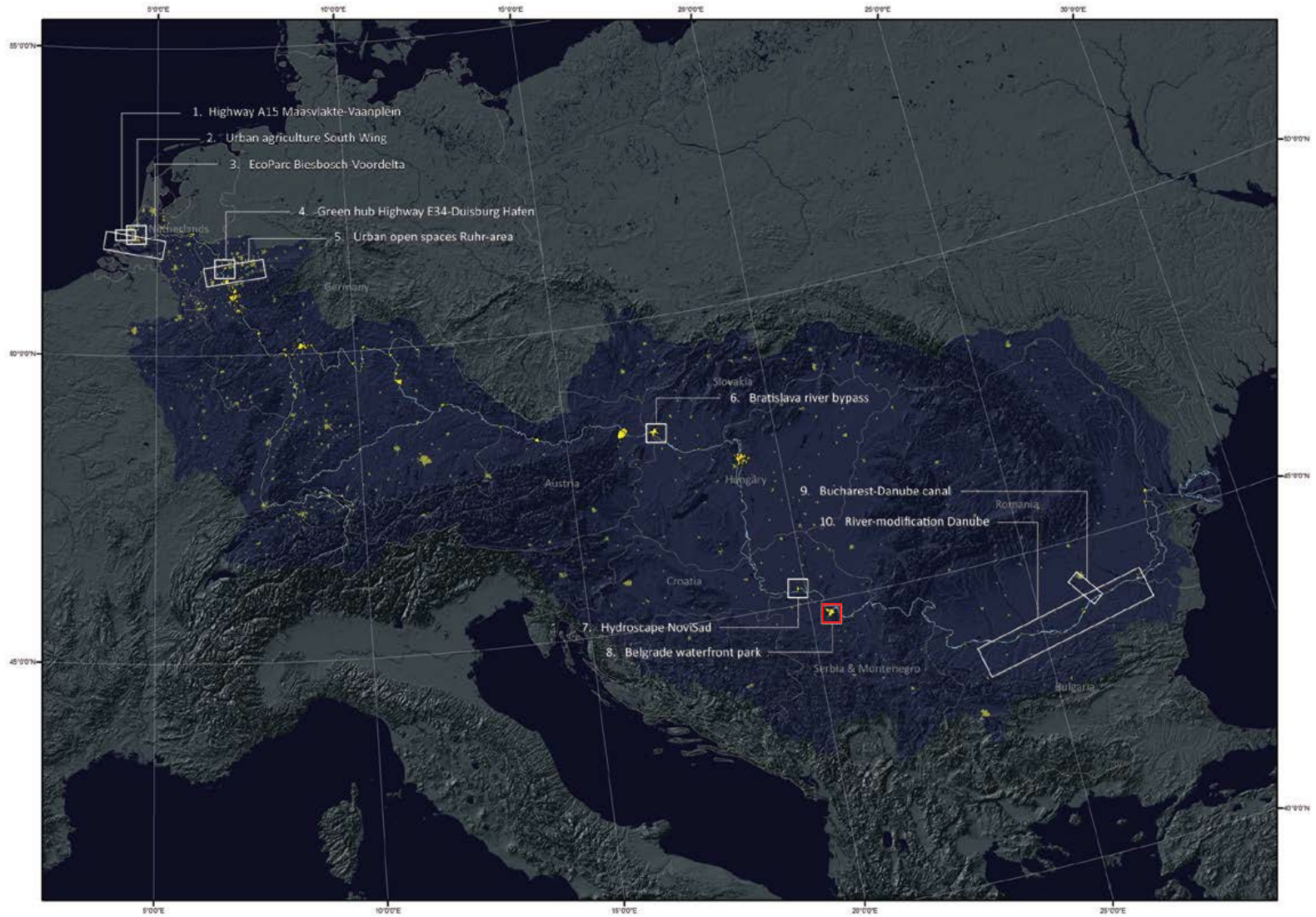


Figure 1: Ten projects in the Rhine-Danube Corridor which explore flowscapes as landscape architecture design assignment through the lenses of transportation infrastructure, green infrastructure and water infrastructure (map by S. Nijhuis, TU Delft)

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INTRODUCTION

- 1.1 Motivation- Open Space of Modernist Urbanism
- 1.2 Open Space in New Belgrade
- 1.3 Problem Statement
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- 1.5 Research Goal & Hypothesis

SOCIOLOGICAL URBANISM UNDERWENT A TRANS- FORMATION

Flowscape studio takes the position of referring to all the flows in living environments as a new starting point to review landscape and city. Landscape as infrastructure, or infrastructure as landscape, provides a new chance to rethink post-socialist urbanism in a new era.

Socialist Urbanism underwent a spatial transformation in decades. The political actor, as we can observe in post-socialist countries, plays an important role in urban spatial environment. Different comprehension of urban environment and corresponding physical space tore up landscape and public open space.

Specifically speaking, fast-growing urbanization that drives by commercial markets is expanding in the post-socialist urban environment. More and more spaces that belong to various commercial companies and communities are emerging on the base of Socialist urban environment. Only the ones, who works in or could afford their new apartment in these new buildings, have the very rights to enjoy newly built open space environment. As a consequence, more and more public space and nature environment are being threatened, spontaneous neighborhood and room for original landscape are being pushed out from our globalized cities.



Figure 3

People walk in an area where newly built commercial zones in New Belgrade.
(source: author owned)

On the other hand, due to the delay of comprehension and blocked socio-economic transformation, illegal strategies and privatisation have flourished, confronted by a predominantly reactive political response.

The influence of citizens on urban planning and development is negligible, except for the cumulative effect of widespread illegal construction practices. Open space means informally occupied by the retail sellers and private economic stores. It can meet the daily demands for residents, but cannot provide proper quality to living environment. So the residents are always the ones compromised in this 'battle field' for their living environment.



Figure 6

'Illegal' constructions are mix-used as detail shops and apartments
(source: owned by author)



Figure 5

Illegal constructions used as a free market that meets daily needs for residents in Block 70, New Belgrade (Source: Photo by E. Dimitrov, Urban Planning Institute, Belgrade)



Figure 6

'Illegal' constructions are mix-used as detail shops and apartments
(source: onwed by author)

While the influence of economic actors increases in importance, political voluntarism fuels corruptive behavior that leads to rather chaotic spatial development. New Belgrade, as a typical socialist city in Yugoslavia period, is one of these countries that under the pressure of transition and transformation.

Open space and landscape are under threatened in this circumstance. The quantity and quality of open space, for the dwellers who really live in the city, cannot satisfy a liveable environment requirement.



Figure 5

Shopping malls and churches in New Belgrade
(Source: Photo by E. Dimitrov, Urban Planning Institute, Belgrade)

Landscape architecture or landscape urbanism brings new opportunities to review the current situation of urban development. Not only examining existing urban qualities and emerging problems of current days from a technological or ecological perspective, but from an organizational dynamic view. The role of landscape architecture, is not just a strategy that fills the gaps between urban built/unbuilt areas but in the other way around, seeing it as infrastructure to organize a livable and efficient medium for urban (re)development. As James Corner stated, 'paradoxical and complex, landscape urbanism involves understanding the full mix of ingredients that comprise a rich urban ecology'. Landscape architecture is the new approach to achieve that goal.

Polity is always one of the most dominant factor that influences how the urban structure can archive administrative political goals and represent powers. With unavoidable political climate changing, the previous structures are under the pressure of review and challenge. Socialist urbanism transformation is the dilemma that some post-socialist European countries are facing. The strong eager for democracy of socialist urbanism drove planners and designers to using the urban structure as political formula years ago. Spontaneous growth of city is more or less suppressed. Global economies, mass-mobility and frequent communication throughout the world are calling for spontaneous market-driven climate for these countries' further development. New Belgrade, as a typical socialist city in Yugoslavia period, is one of these countries that under the pressure of transition and transformation.

Flexibility and dynamic view from landscape architecture perspective is a smart alternative to explore the potentials that solve the conflicts between historical political orientations and the demands for new needs during transition period. The emphasis now switches to endless movement, circulation and an open-ended network, rather than regulating the urban circulation from top-to-down side.

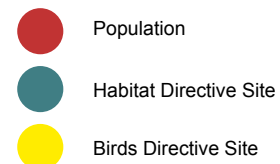
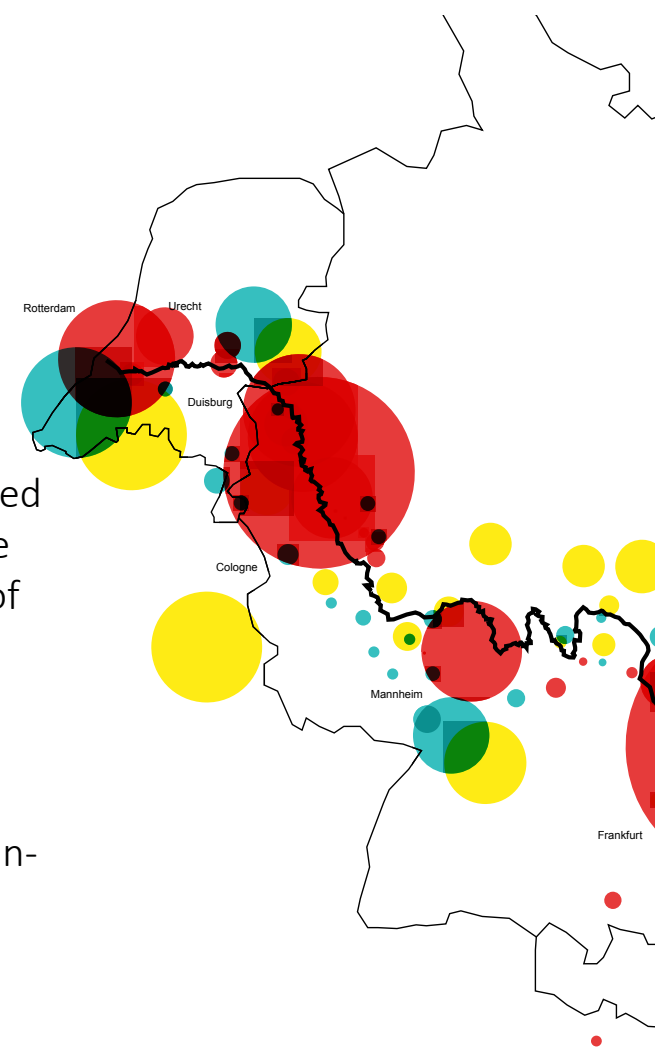


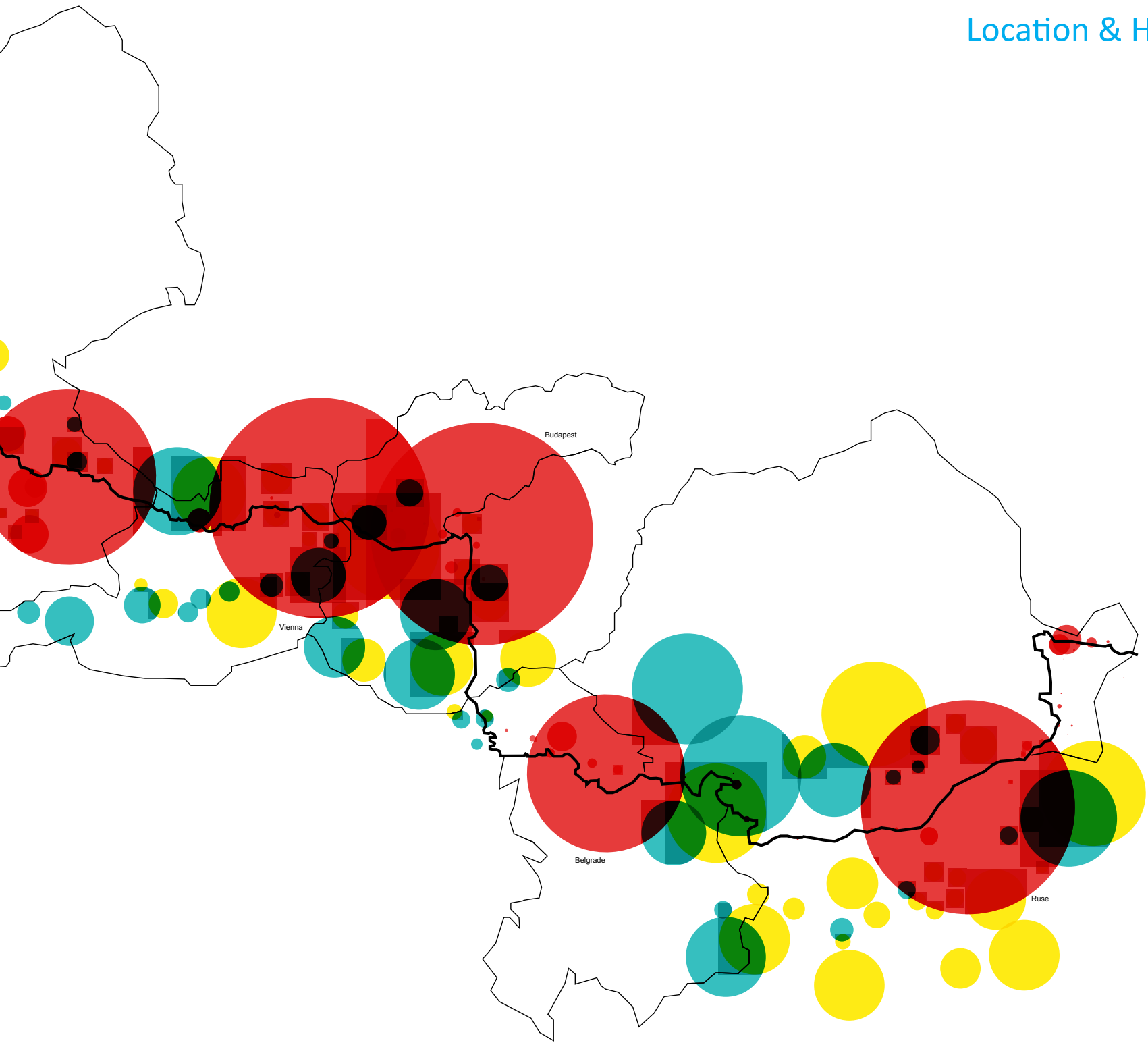
Figure 4

A pedestrian with his suitcase just got off from taxi and stands on the middle of a busy street
(source: <http://totallycoolpix.com/2013/05/chinese-urbanization/>)

Belgrade is the capital and largest city of Serbia. It is located besides the conjunction of the Sava and Danube rivers. The population of Belgrade is over 1.2 million, making it one of the largest cities of Southeastern Europe.

Belgrade lies 116.75 metres above sea level. After World War II, Novi Beograd (New Belgrade) was built on the left swamp bank of the Sava river, connecting Belgrade with another historical zone Zemun.





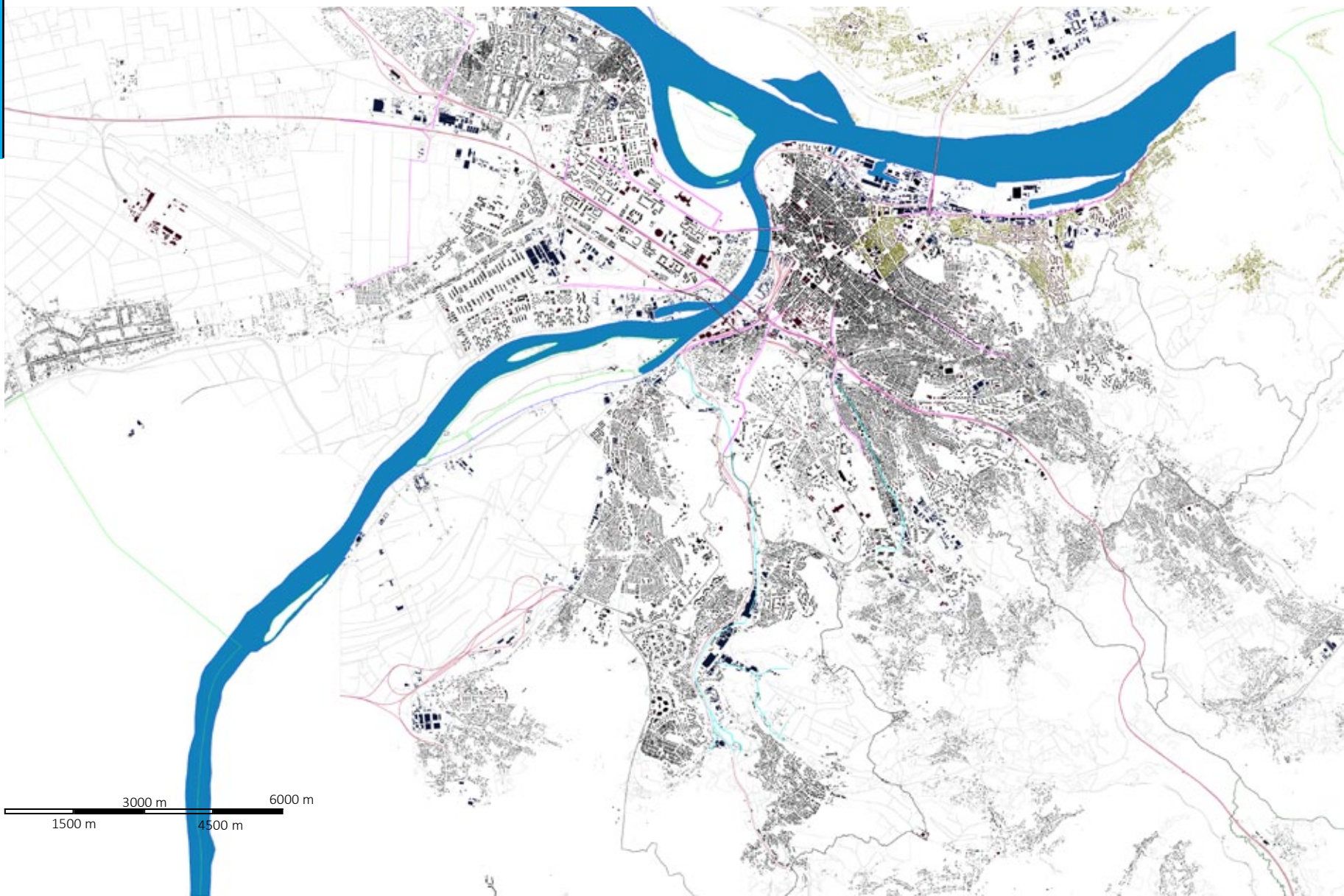
Belgrade was the administration center for Yugoslavia until 1997. So the city plan was based on that vision. But as a living city, the scale and leftover vacant spaces are oversized as a living environment for local residents.



Figure 8
Location of Belgrade .author owned



Figure
Flag map of Yugoslavia



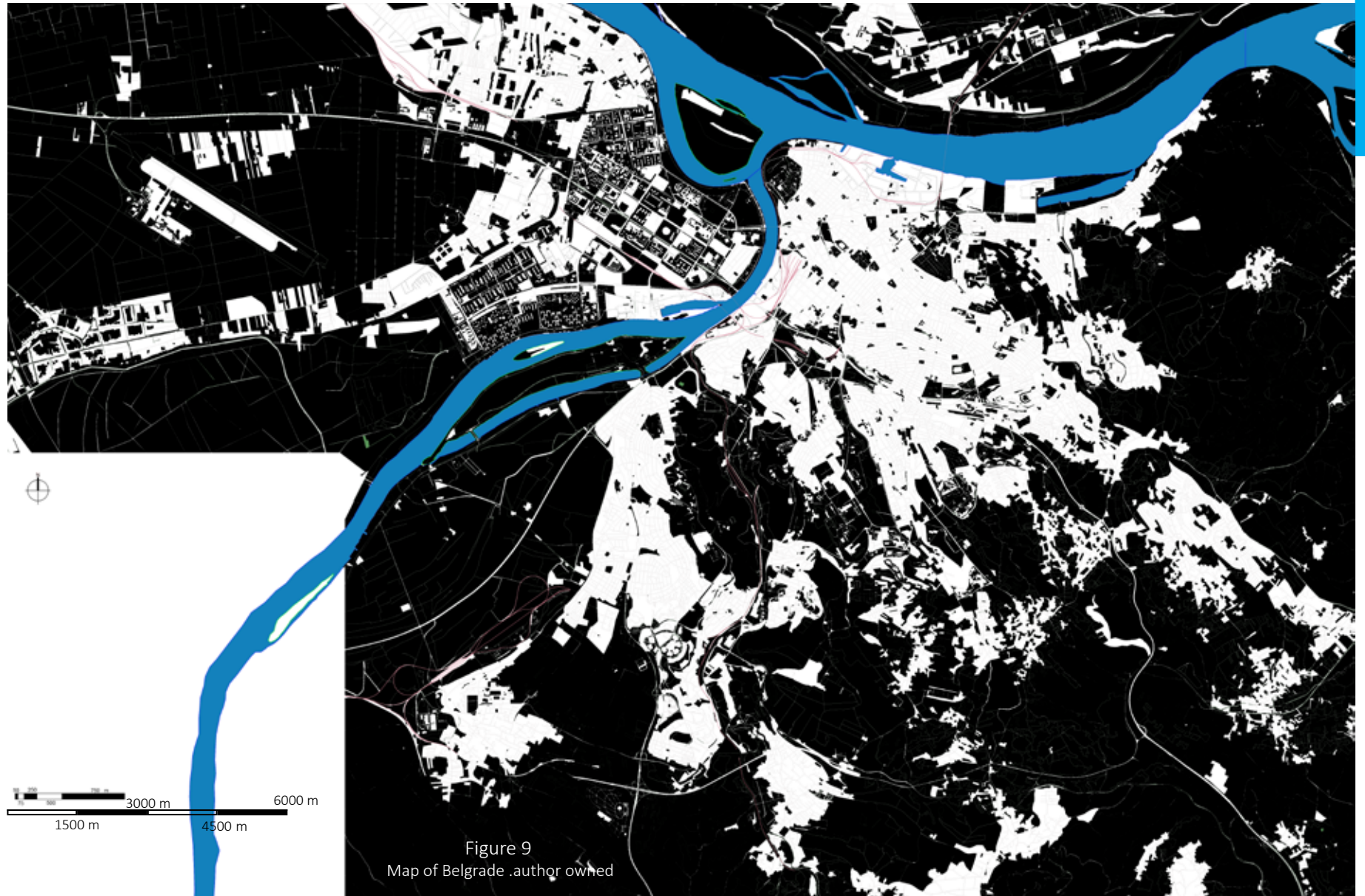


Figure 9
Map of Belgrade .author owned

Coloured open spaces illustrate a striking contrast between New Belgrade and Old Belgrade.

Two kind of city, modern high density and traditional low density city. The open space structure have different definition: in New Belgrade, open space is defined as a base for buildings; but in Old Belgrade, open space is defined by buildings' edges. So there is a great contrast of density and areas in New and Old Belgrade.

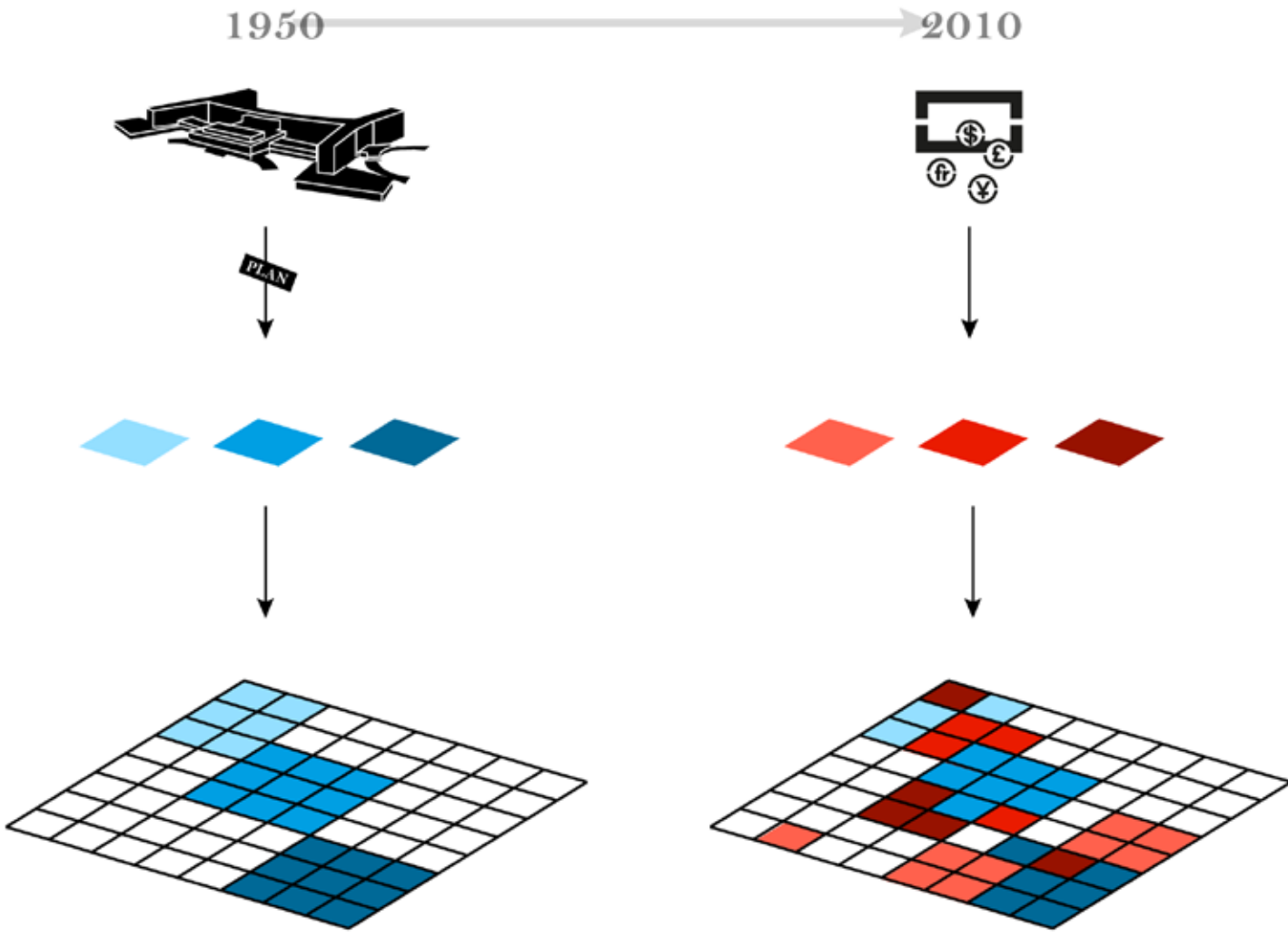


Figure 10
Coloured open space in New Belgrade.author owned

Problem Statement

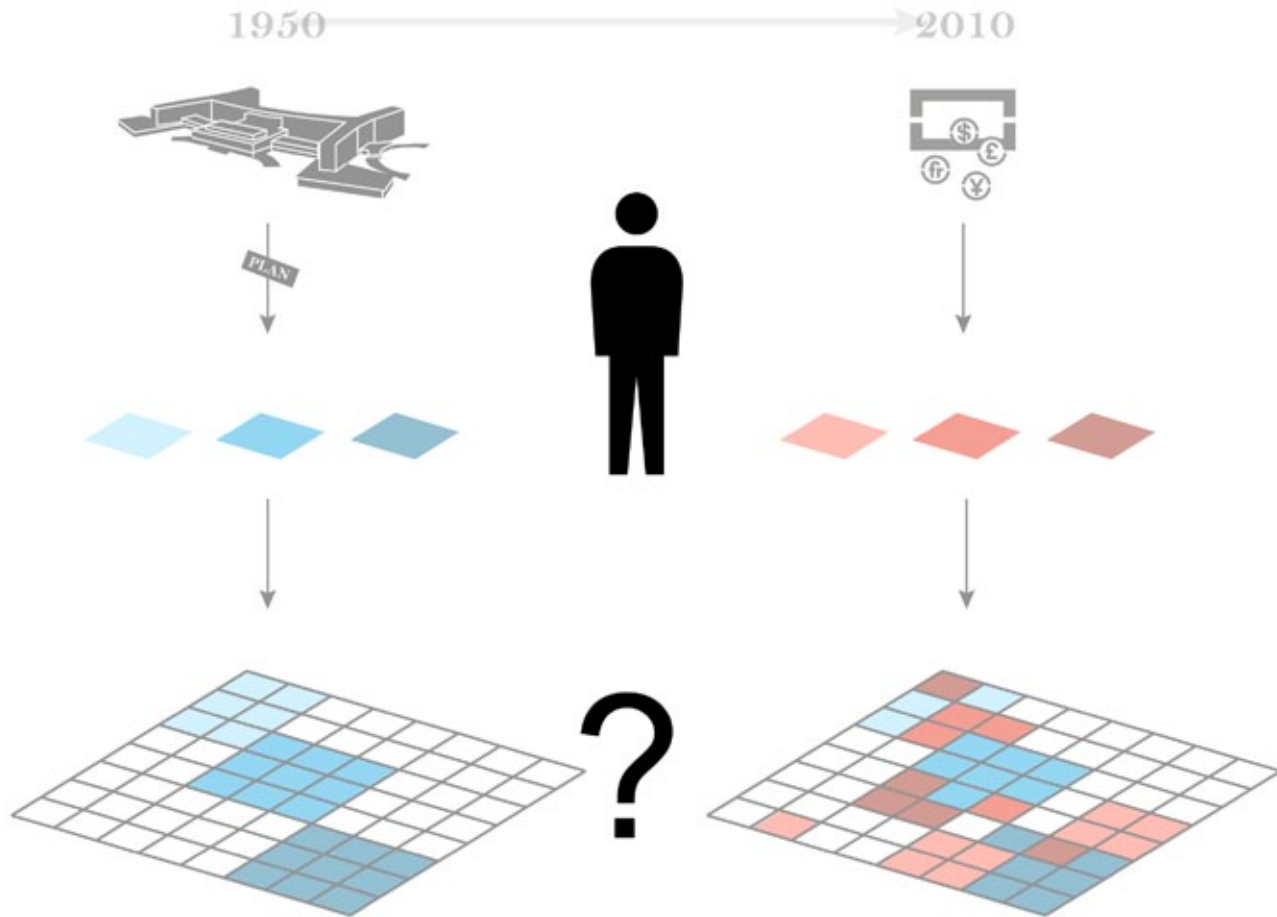
Polity is always one of the most dominant factor that influences how the urban structure can archive administrative political goal. The strong eager for democracy of socialist urbanism drove planners and designers to using the urban structure as political formula years ago. With unavoidable political climate changing, the previous structures are under the pressure of review and challenge. Spontaneous urbanism growth is more or less suppressed.

Open space are not defined their users as the residents in New Belgrade in socialist and market-driven urbanism. So there's a disconnection between people's real demands and the space. The portion of landscape architecture will be focused on public interests to make a livable urban environment. An urban landscape framework will be established to give an answer to the chaotic urban environment and spatial conflicts.



New meaning of open space

Globe economies, mass-mobility and frequent communication throughout the world are calling for more space. Planted new economic areas in the previous city unfinished structure result in diverse leftover space. The meaning of open space for residents are not the same in old days. **But does it mean open space are the materials that capitalists occupied for their economy growth? Would open space can really be the foudation for a better living environment? By exploring with landscape architecture perspective, can we find a solution for this exhausted city?**





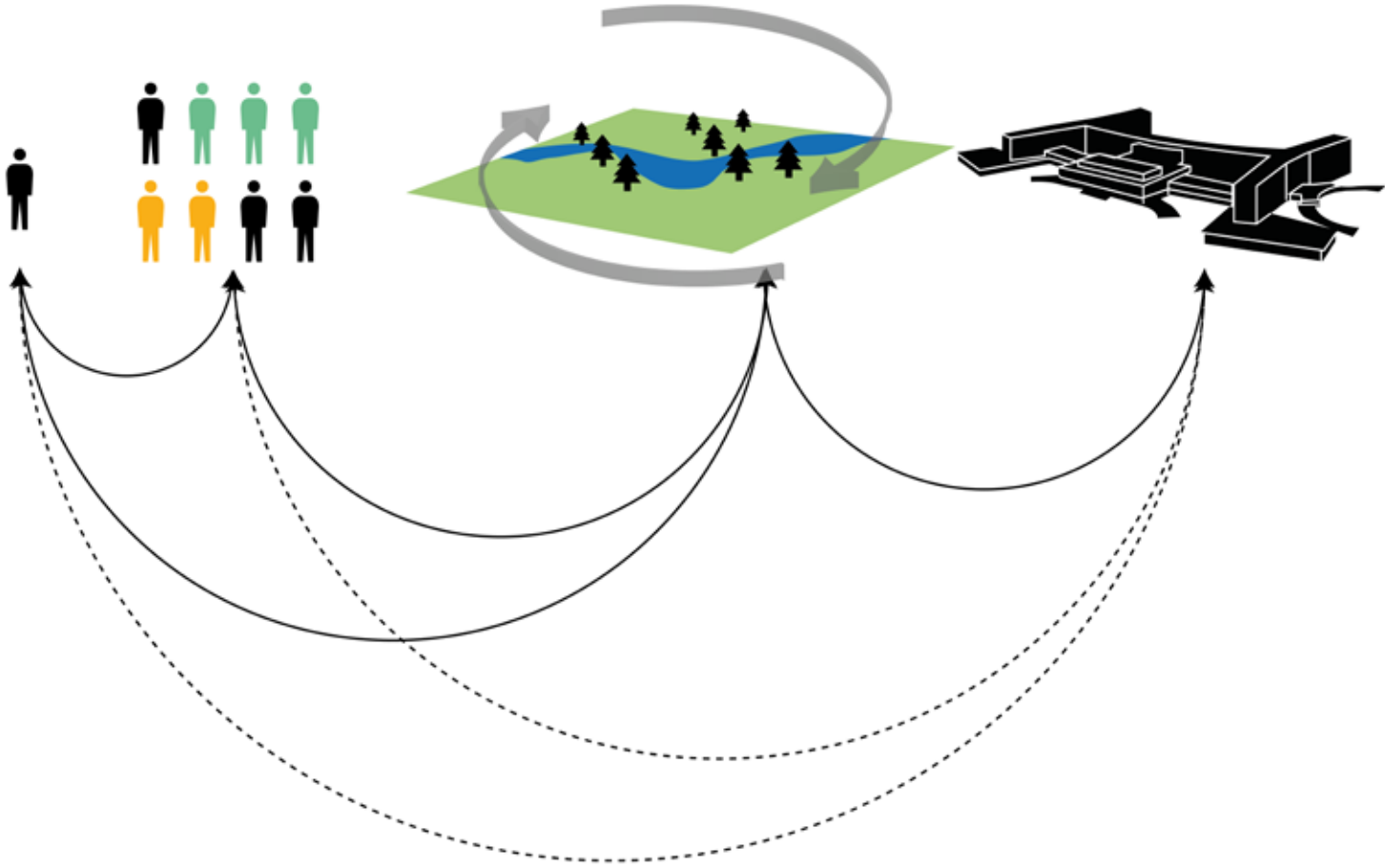


The position of landscape architecture intervention will be focused on public interests to make a livable urban environment. An urban landscape framework will be established to give an answer to the chaotic urban environment and spatial conflicts.

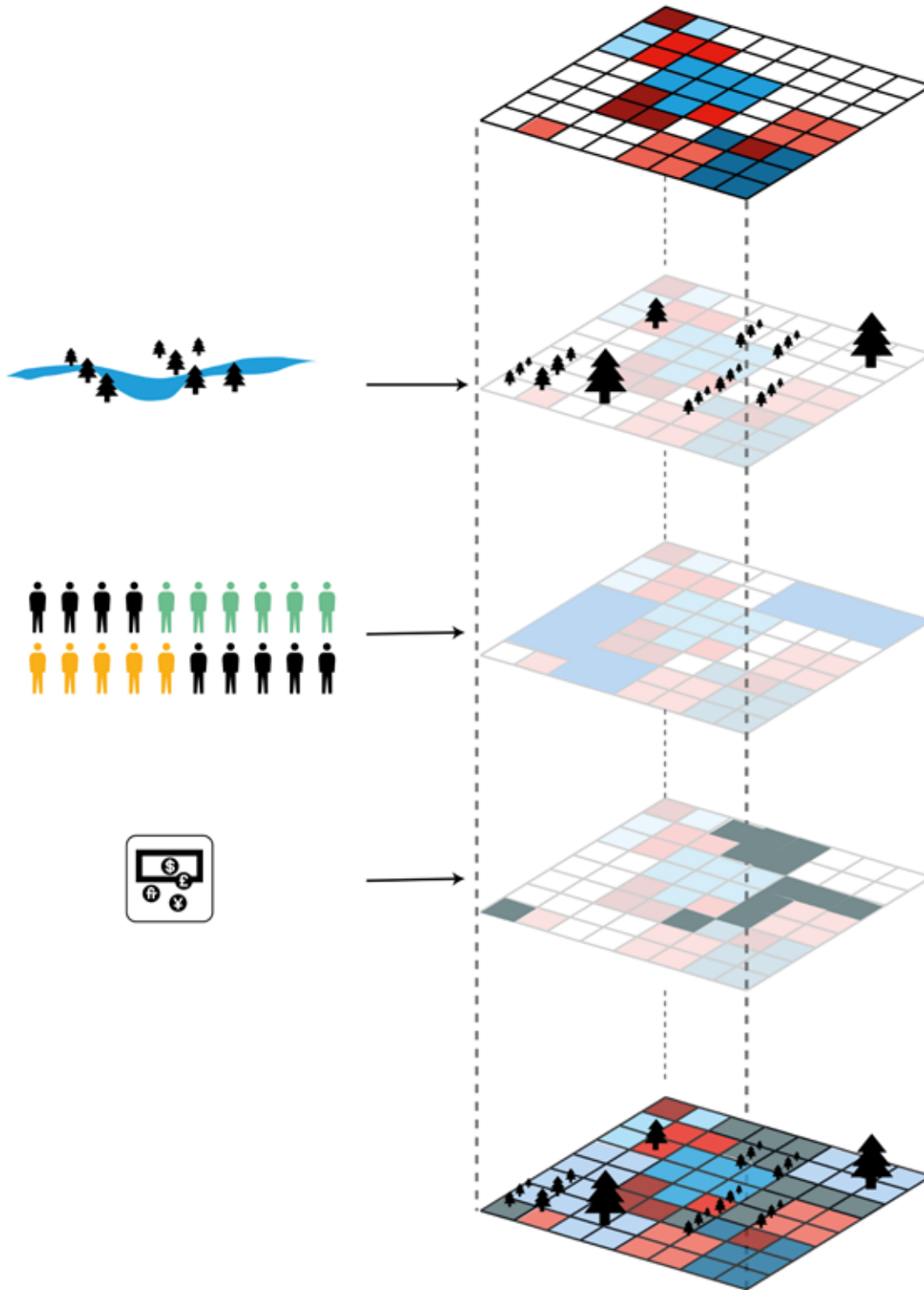
So my research question is: How to establish a systemic open space structure to solve the spatial chaotic conflicts caused by different interests and provide a better living environment for residents in the post-socialist New Belgrade and learn a lesson for solving similar problems in other post-socialist cities?

Research Question

During transition period from Modernist Ideology Urbanism to Market-driven Urbanism, how to establish **a systemic open space structure**, which based on current physical conditions, to **fulfill people's demands** and **provide a livable environment** ? By which **principles and strategies** can we **reclaim the open space**?



Flexibility and dynamic view from landscape architecture could be an alternative to explore answers for solving this spatial problems. Firstly, a panorama from landscape view will be provide as a structure for urban development and more potential demands. Then local engagement and multiple economic and political decisions can be involved. As a sequence, the communication of open space and people, city, state will be established. The value of open space will be enhanced in city.



PANORAMA
from the landscape view

LOCAL PARTICIPATION
from cultural spatial view

MUTIPLE DECISION
from the economic and
politic view

LITERATURE RE- SEARCH

2.1 Open Space Definition & Typology Study

2.2 Historical Perspective -- A Review of *City of Tomorrow*

2.3 Landscape Theory Study

2.4 Human Activity Study

2.5 Case Studies

2.6 Methodology



Urban open space is the space in urban unbuilt areas that can open itself to surrounding open landscape. The landscape of urban open spaces can range from playing fields to highly maintained environments to relatively natural landscapes. Open space usually refers to public open space, but it can also be privately owned. Through the scale from city, intermediate to residence, open space can be divided into six main typologies, based on the research on B. A. Sandalack and B.W. Stanley(2012).

There are 6 types of open spaces:

1. Transportation Incidental Open Space,

e.g. harbours, airports, and train station squares and parking;

2. (Walking) Streets and Squares,

e.g. central boulevards, formal squares, street space, pedestrian alleys, path, interior yards;

3. Parks, Gardens, Recreational Areas;

e.g. central parks, private gardens, playgrounds;

4. Urban Wilderness;

e.g. national park, nature reserve areas;

5. Productive Space;

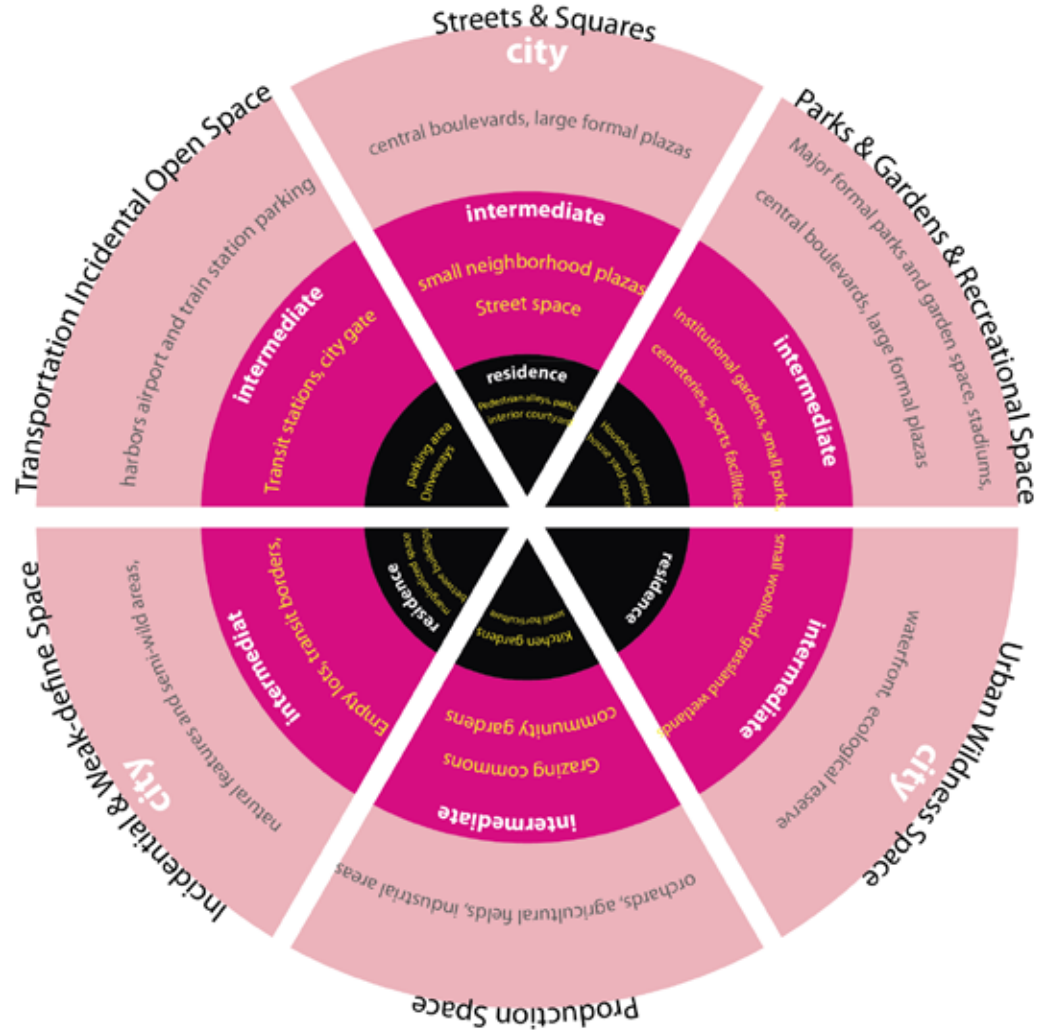
e.g. agriculture areas, industry areas;

6. (Buildings') Incidental and Undefined Space.

e.g.

6 types of open spaces are through scales of **City, Intermediate and Residence**

Open Space Definition & Typology Study



2.2 A Review of *City of Tomorrow*

New Belgrade underwent a radical, paradigmatic reversal: from a space shaped by the socialist state as a focus of political interest to a space shaped by private economic interests; and from a planned city to a city where no urbanist concept are required. (Milica Topalovic, 2012)

*“The whole city is a **Park.**”*

“Every window of every room looks on to the open spaces.”

“The street would be reorganized on a human scale.”

----- *Le Corbusier*



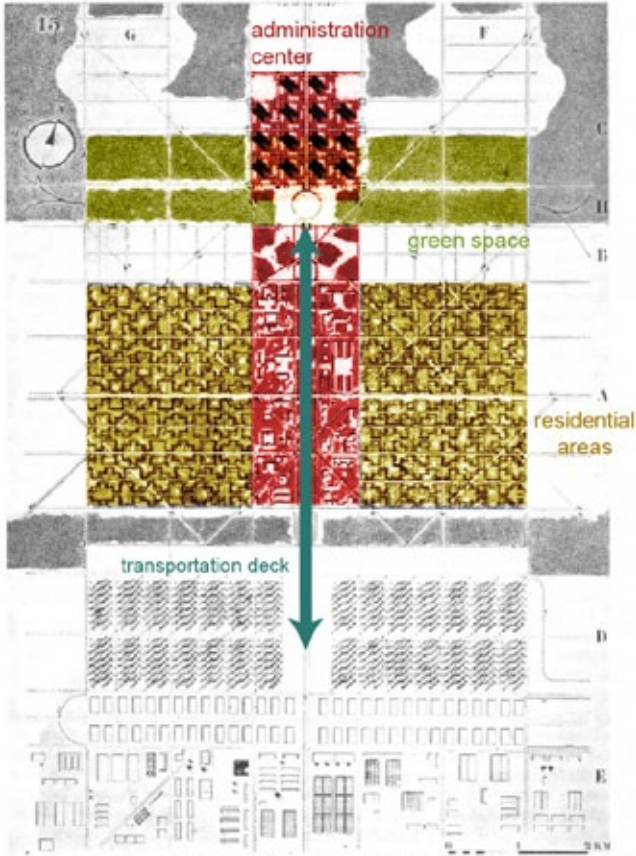
1. A notion of 'zoning'

Commercial, business, entertainment, residential
areas

2. 'Living machine'

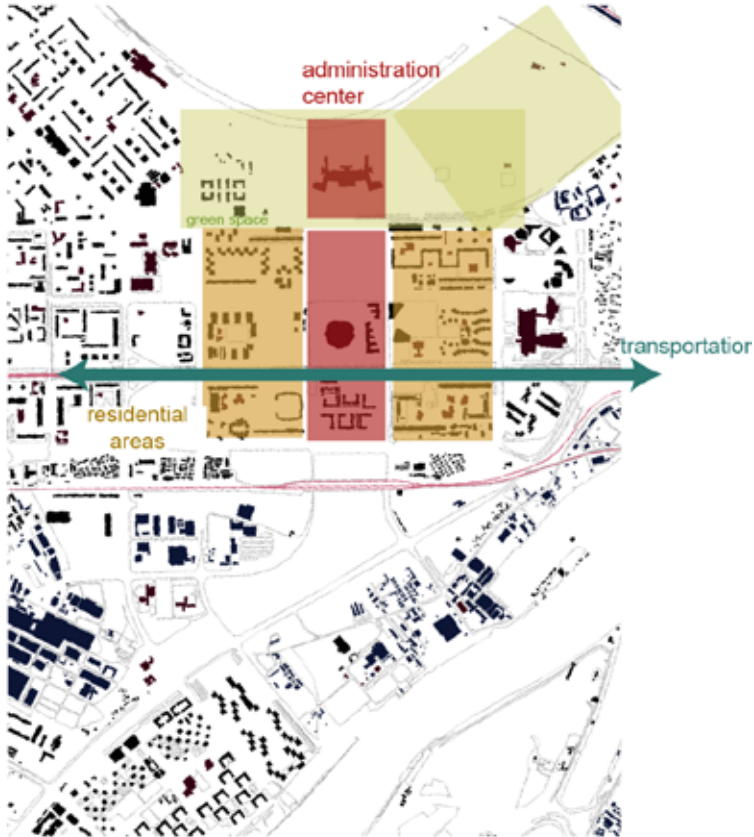
High density of skyscrapers, a vast of green areas, in
Cartesian grid

The Radiant City



La pianificazione della Ville Endimée (Le Corbusier).
 A, abitazioni; B, alberghi e uffici; C, verde degli affari; D, industria; E, industria pesante (tra le due è disposto il parco e il bosco); F, il nucleo urbano con caratteri speciali (scuole, chiesa, teatro, ecc.); G, stazione ferroviaria e aeroporto.

New Belgrade



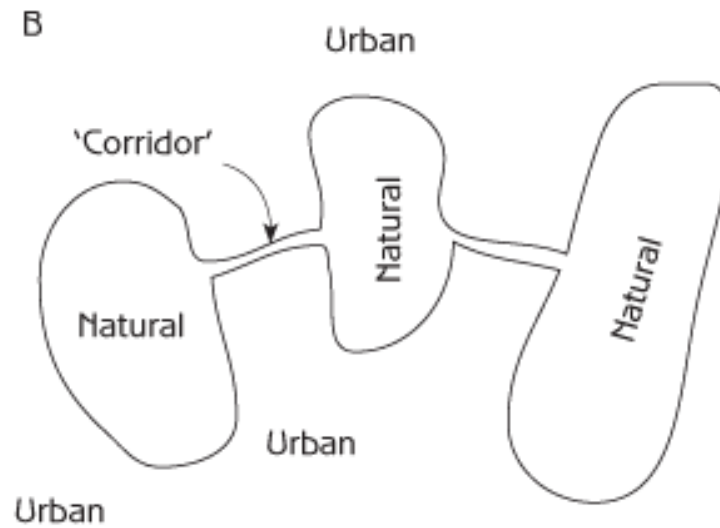
I. What is the land mosaic patterns and what will be discussed in this review

Land mosaic patterns, like the word 'mosaic' indicates, are the patterns that consist of different combination of dots, stripes, and matrix, etc. in ecologic concept. It does not mean that it is just the graphic pattern that could be observed from a high point of view. It should be understand by the very foundational reason, dynamic movements and changes.

Landscape is always growing and changing. The mosaic patterns are the results caused by natural and artificial movements and flows. Dynamic and heterogeneity are the main characters of mosaic patterns. Spatial process in the landscape development is the foundation to understand land mosaic. It has to be understood from the time dimension of the spatial process. Heterogeneity is the result of the spatial arrangements and growing process, either natural or artificial intervenes.

The spatial process can be generally defined into 5 steps: perforation, dissection, fragmentation, shrinkage and attribution. These five steps are the process that break up and transform a large content into small pieces of habitats. Land mosaic transformation and fragmentation also have a strong influence on the species' extinction and loss of biodiversity, as well as water and other ecosystem process.

theory: landscape mosaic

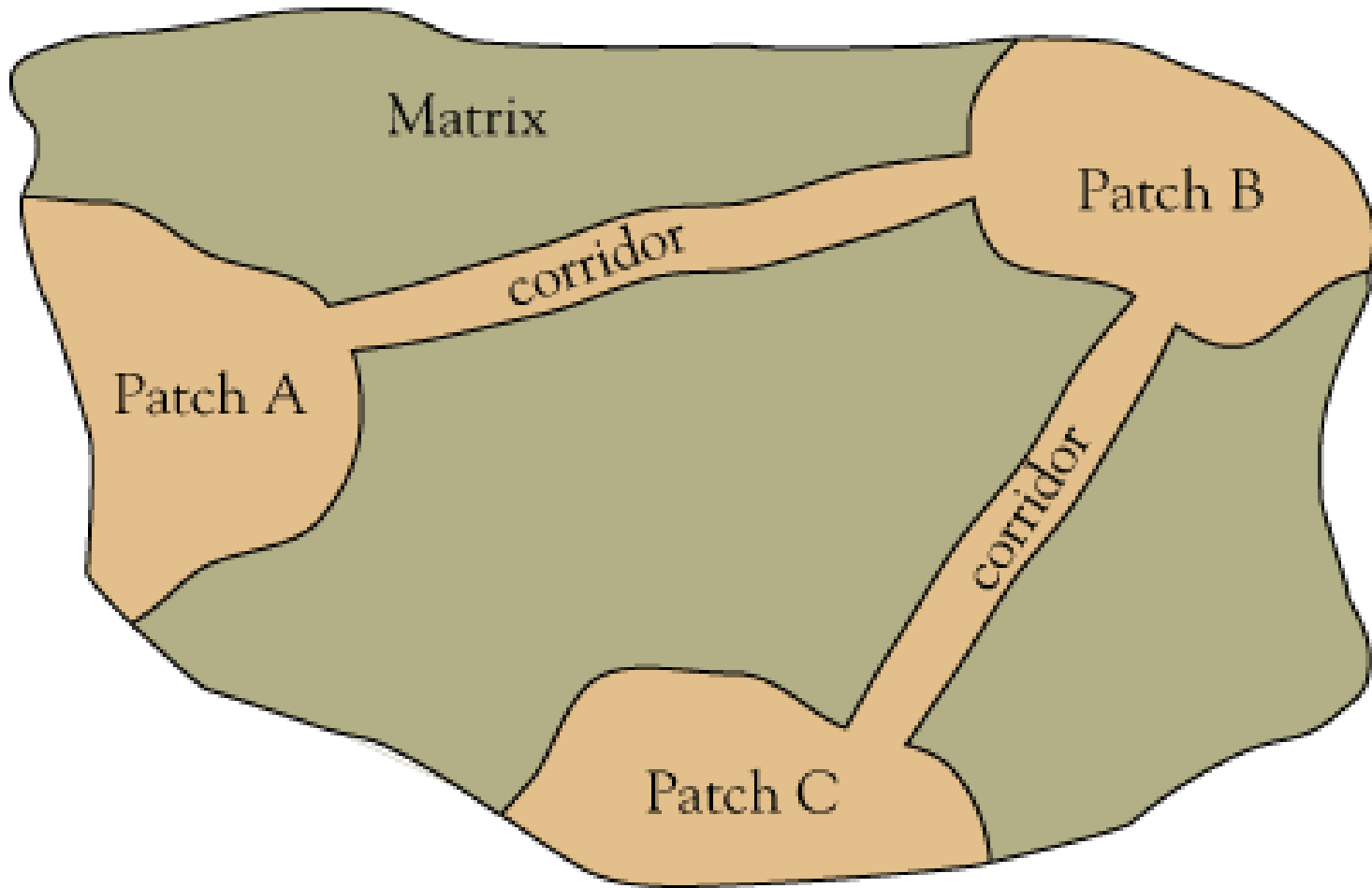


Corridor- matrix- patches model

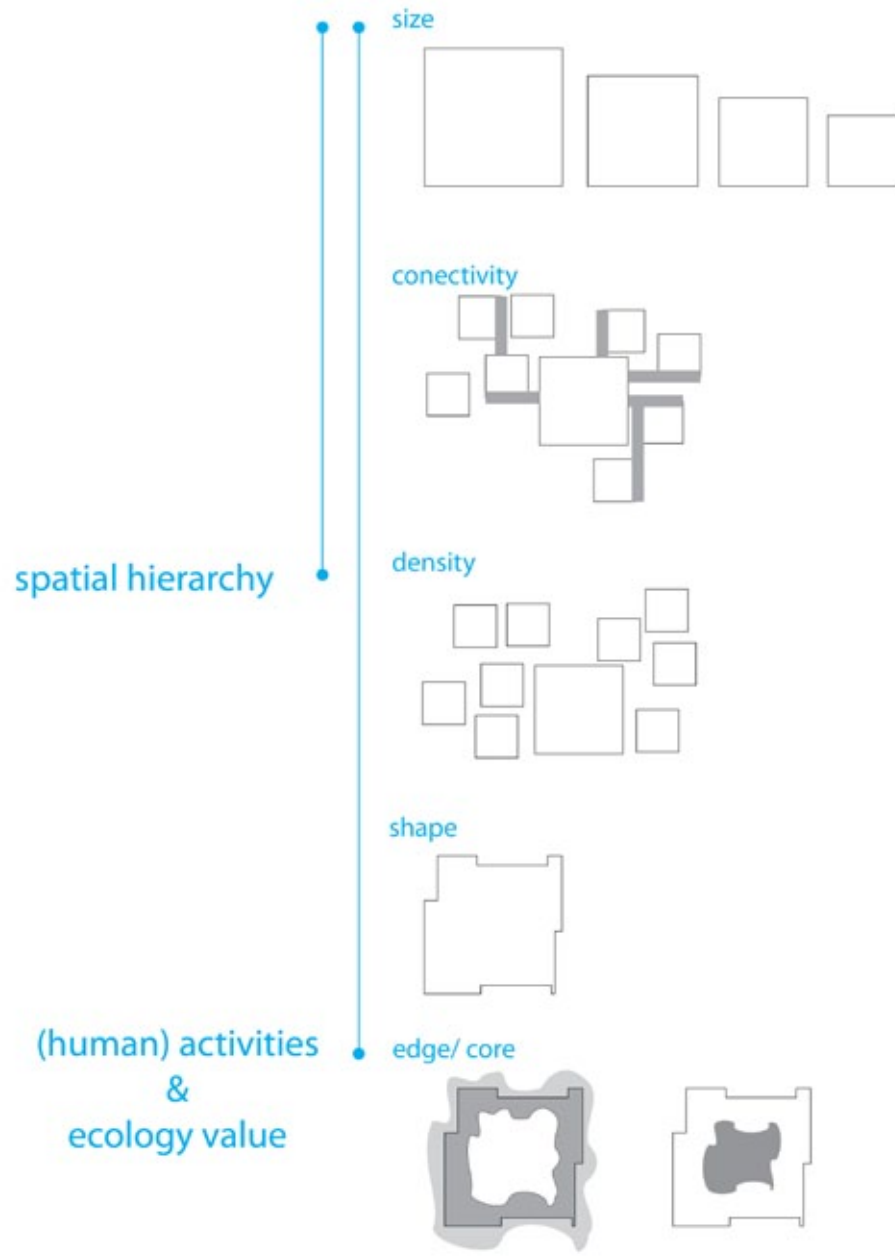
Landscape mosaic is caused by ecosystems in a cluster. An ecosystem cluster can be recognized as a spatial level of 'hierarchical organization'. According to the spatial- flow principle and ecosystem science, R. Forman gives rise to the conclusion that the movement's and flow's rates are changing remarkably due to the distance. The closer distance, the more similar habitat environment can be, the more movement and flows are from one habitat to another. So an ecosystem cluster consists of flows and changes, which can be 'somewhat predictable in the relative rate', not only for species, but also for energy, mineral nutrients in the whole system. However, the flows are not just linear downward. For instance, animals can give rise to unpredictable flowweb, which is the network of flows in the ecosystem.

Because of the complexity of the flowweb and unique unrepeated configurations of ecosystem, it is not possible to get a straightforward comprehension of how the mosaic patterns formed, and how the ecosystem works. Conforming to the research of R. Forman, the corridor- matrix- patches type is one of the most efficient way to understand how they work and make predictions for molding. So after a general theoretical review of the quality of each element in the corridor-matrix-patches model, it will be used as a checking list. Six predominant spatial pattern types will be under evaluation of the current situation in New Belgrade.

Patch- Corridor- Matrix Model



Patches have different influences on the ecosystem and species. The influence is decided by patches sizes, numbers and shapes, as well as the boundaries and edges of patches. It is also necessary to define the patches' sizes before any in-depth discuss. A large patch can be a small spot when we inspect it in a larger context. For different parts of any particular patch, there are different conditions and potentialities that can meet the requirements for various species' habitat environment. Corridors are the strips or network structures that differ from their surroundings, for instance, stream and river corridor, plants corridors. Corridors are in the form of flows, such as 'streams, ridges, animal trails' and even human constructed 'roads, power lines, ditches and walking trails'. So it could function as a connection 'bridge' for different habitats.

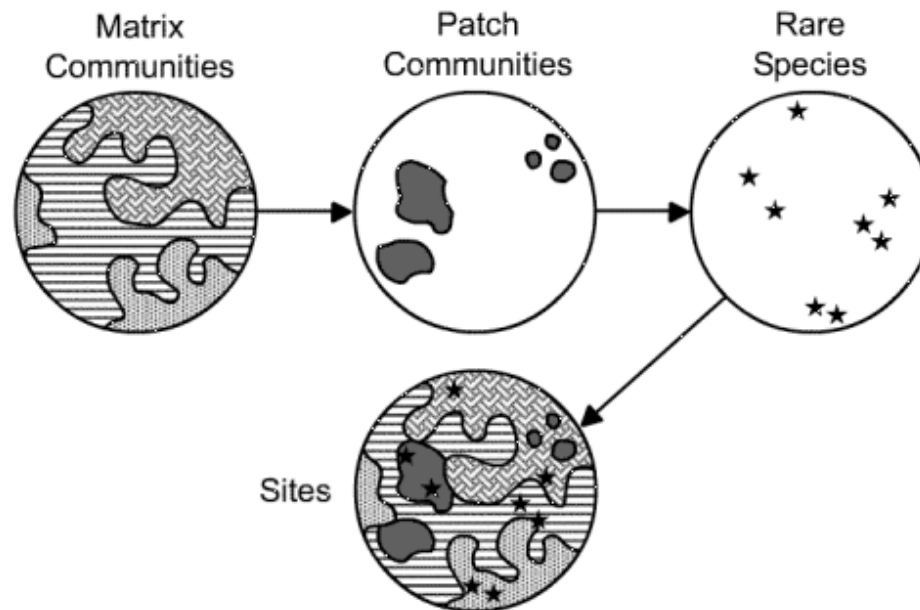


III. What are the principles for molding the mosaic patterns in New Belgrade? How to apply principles theories from professional reference?

Four major ecological categories are production, biodiversity, soil and water. It has already been discussed the introduction and evaluation of New Belgrade landscape mosaic in previous parts. As a general problem statement for further discussion, I list a few questions for New Belgrade zones. First of all, the green area has restricted ecology value for an operative landscape because of the historical decisions. So the green spaces usually are just grass land that stays open and empty. As the ecology principles shows, the more layers in the nature system, the more complex and stable the eco-system will be. Secondly, the Danube and Sava river provides the most important ecology chance for both new and old Belgrade, but it was not be appreciated in the urban environment and the ecology value was ignored. Thirdly, the ecology consideration is lacking of an overall consideration, for example, flood problem, agriculture, green woodlands, and etc. are separated from each other, but not in a workable system.

To get a grip on the New Belgrade's ecology problem, I will catalog them into several ecology principles to discuss with. There are some principles that from professional voices for molding mosaic landscape. However, before discuss into detailed categories, principles in total should be set for molding mosaic. Otherwise, numerous principles cannot be guiding but misleading factors for planning.

First of all, build up a corridor-patch-matrix spatial structure. There are a lot of potentialities in the New Belgrade. To be specific, the Danube and Sava River corridor and the large vegetation patches along the river banks, and they have a perfect biologic connection with each other. The two islands are in a special location for ideal nature reserve habitat environment. Green networks could be updated by designed green patches on the middle zone of the oversized street. For a larger context, the green networks are the corridors as well. The spaces are the perfect small habitats for small patches. (Figure2) Specific speaking, the tree communities provide multiple layers for different species' habitats. And the green infrastructure system, which will be introduced into the existing urban pattern, can be the corridor for energy and creatural flows.



The overall surface ground is the matrix for large and small green patches, as well as other diverse creature species. The green patches, big and small, are one of the easier starting points with the spatial adjustment. As shown in the figure 4, the green patches are enough in quantity, which is a potentiality for a hierarchic vegetation patch system. So according to the current functions and surrounding context, different types and size of the green patches should be emphasized. For instance, large areas of open spaces function as large patches along the river banks, where the water is working as an ecology corridor.



Parks, Gardens, Recreational Areas



Buildings' Incidental Space



Urban Wilderness Areas

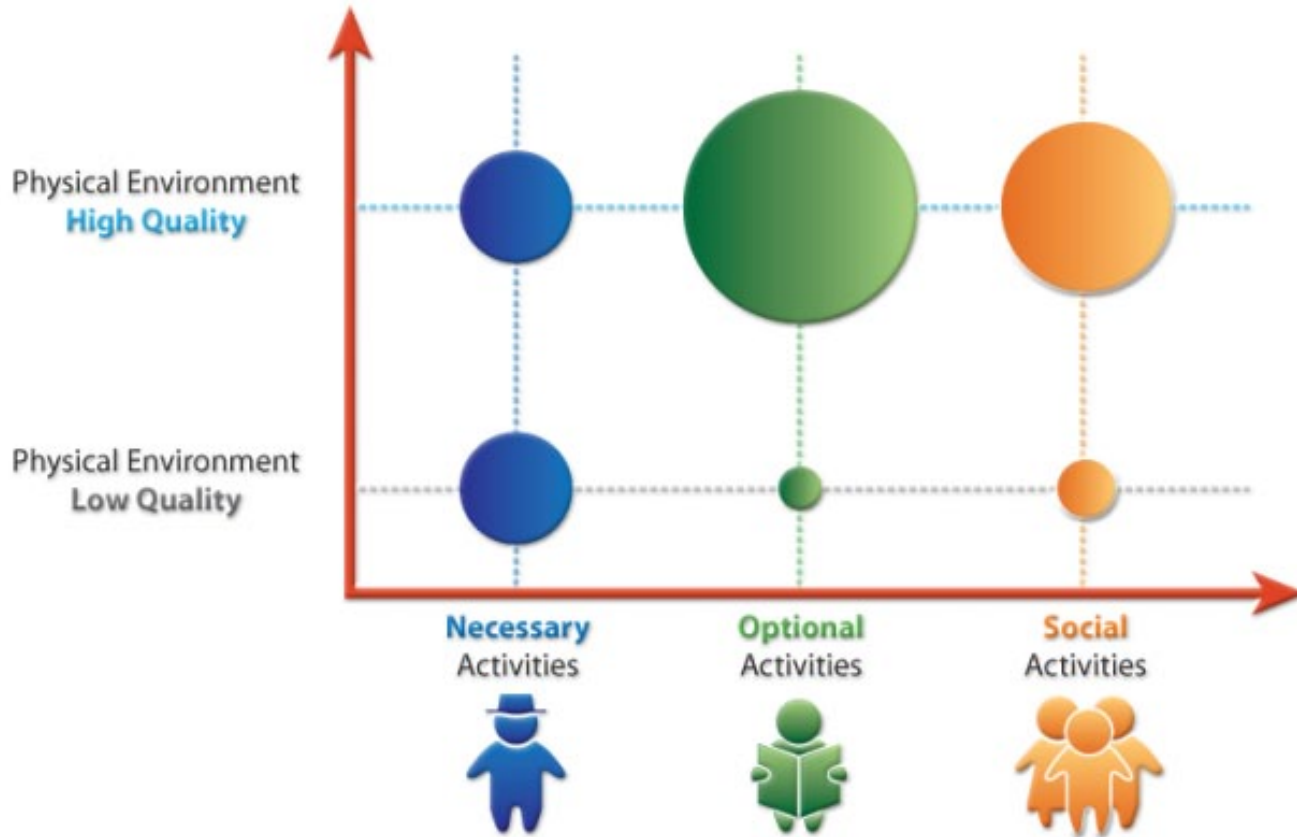


Undefined Space



People can use and enjoy their open space easily. (Photo: elder man in New Belgrade)

Interplay Between City Life and the Quality of City Space



Jan Gehl, Images source: Cities for people

The open space in Bijlmermeer is constructed based on the Modernist Urbanism, which results in a similar situation in New Belgrade: Excessive open spaces are undefined.

Case study- Amsterdam Bijlmermeer

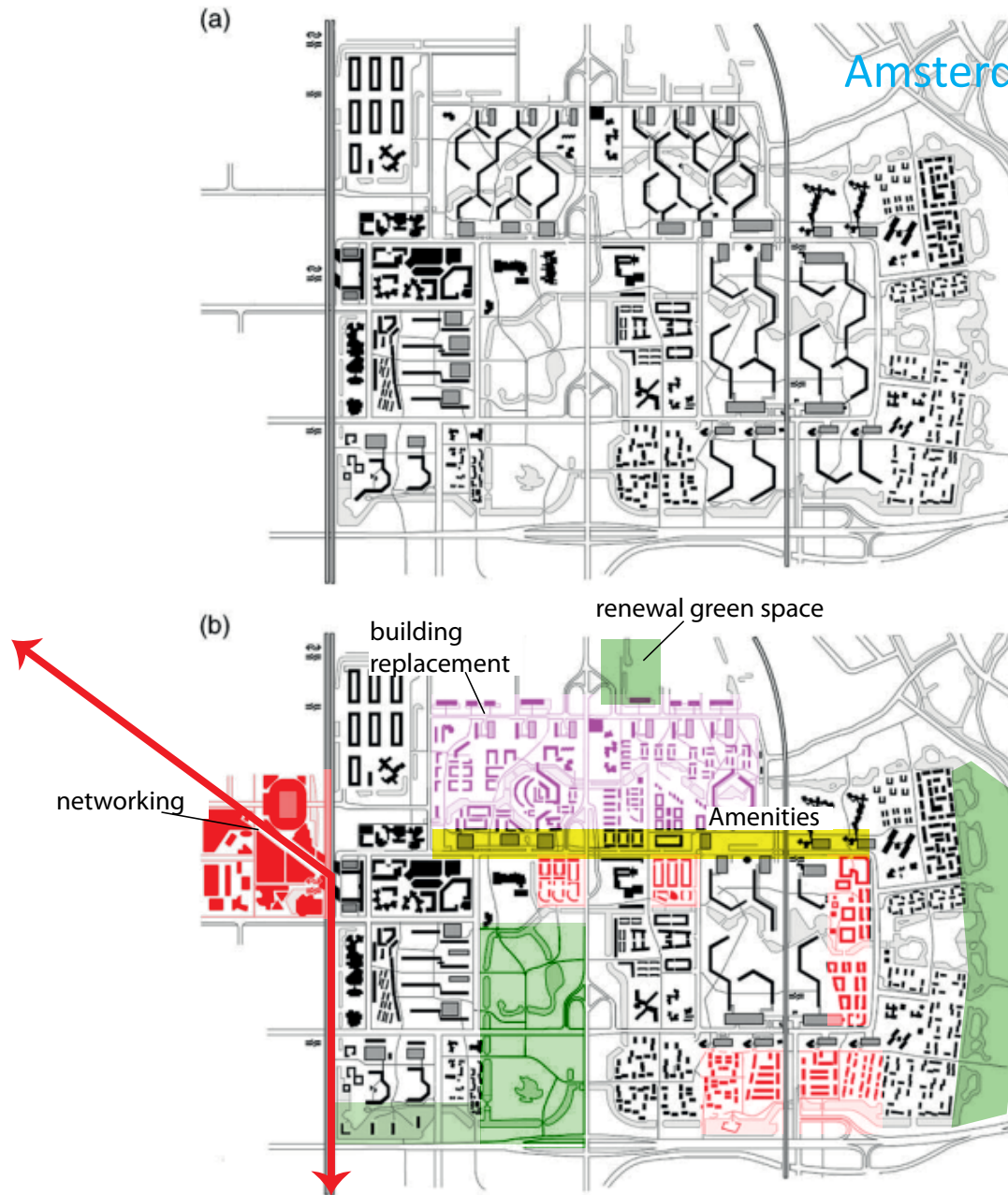


source:kei-centrum.nl

How they solve the problems?

1. Spatial Hierarchy- reintroduced a series open space in different hierarchy
2. Network in a bigger context- The improvement of the surrounding Amsterdam ArenA area is being used as a catalyst to improve the nearby problematic high-rise area;
3. Replacement- low-rise flats and ordinary single-family houses will replace half of the high-rise blocks;
4. Local Participation- inhabitants have an important role in the whole process;
5. Amenities- amenities, e.g.. Small retail shops, were introduced in to the community space

Case study-
Amsterdam Bijlmermeer



The situation in 1992 (above) and in 2010 (renew),
Before and after physical renewal

Landscape Contribution:

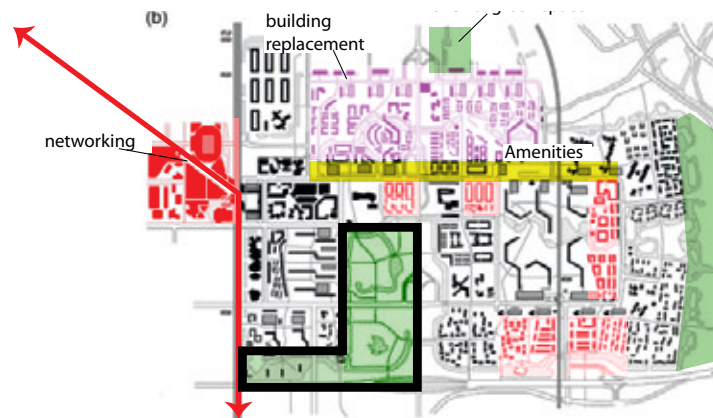
1. Spatial hierarchy

The transformation of the main park redefined the open space in the neighbourhood as well as in the city.

2. Fulfil Local Needs

By adding new facilities, the locals have new play fields

3. High quality environment and good atmosphere



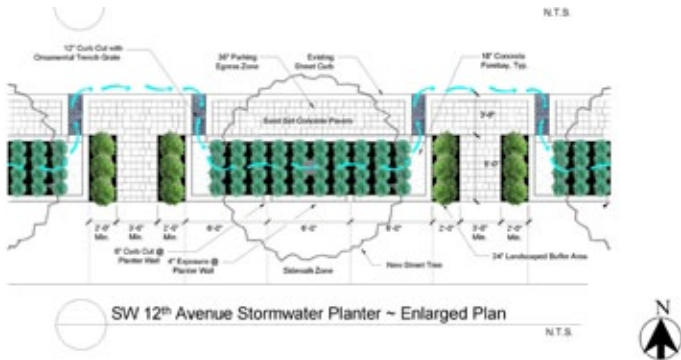
Case study- Amsterdam Bijlmermeer



Literal Research

Case study- SW 12th Avenue Green Street Project & Bottière Chênaie

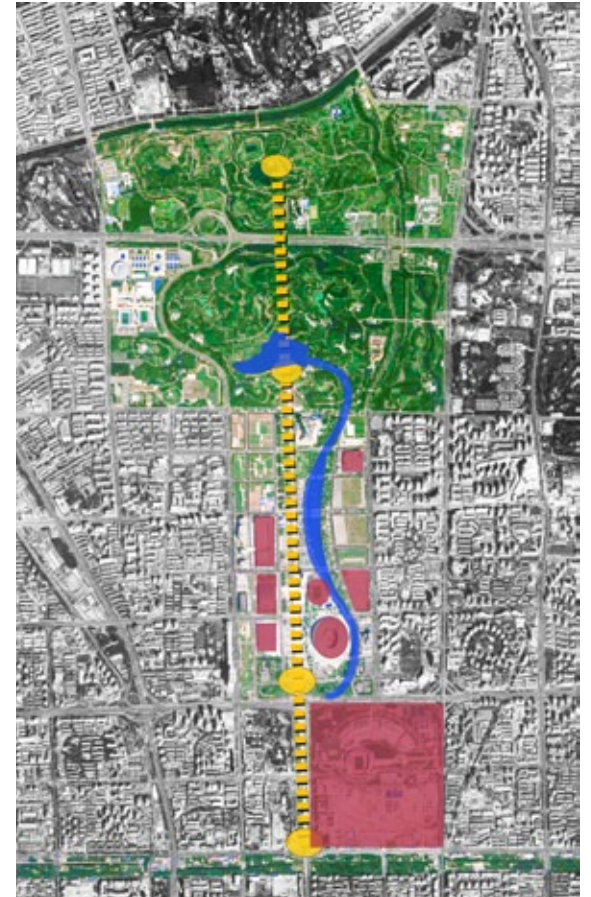
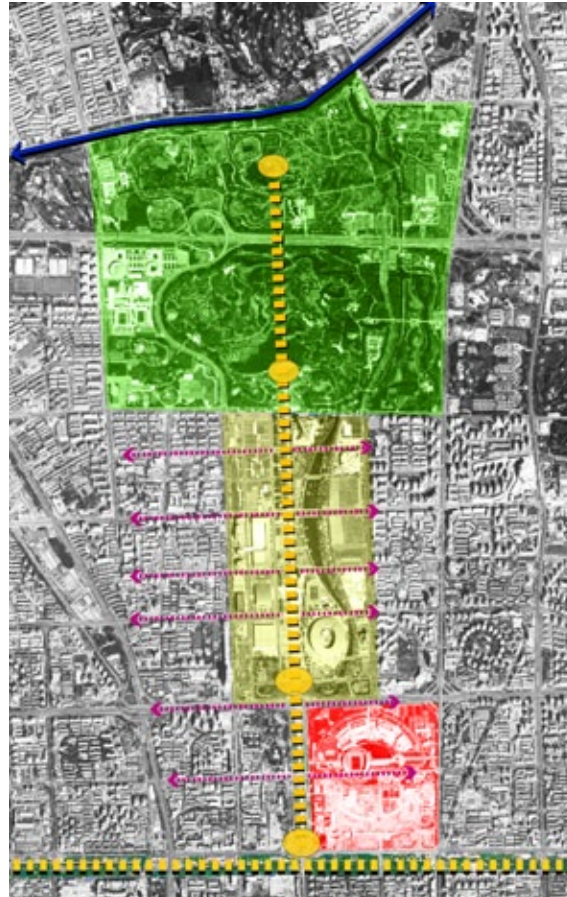
Literal Research



Recreational function
(source: Bottière Chênaie, France)

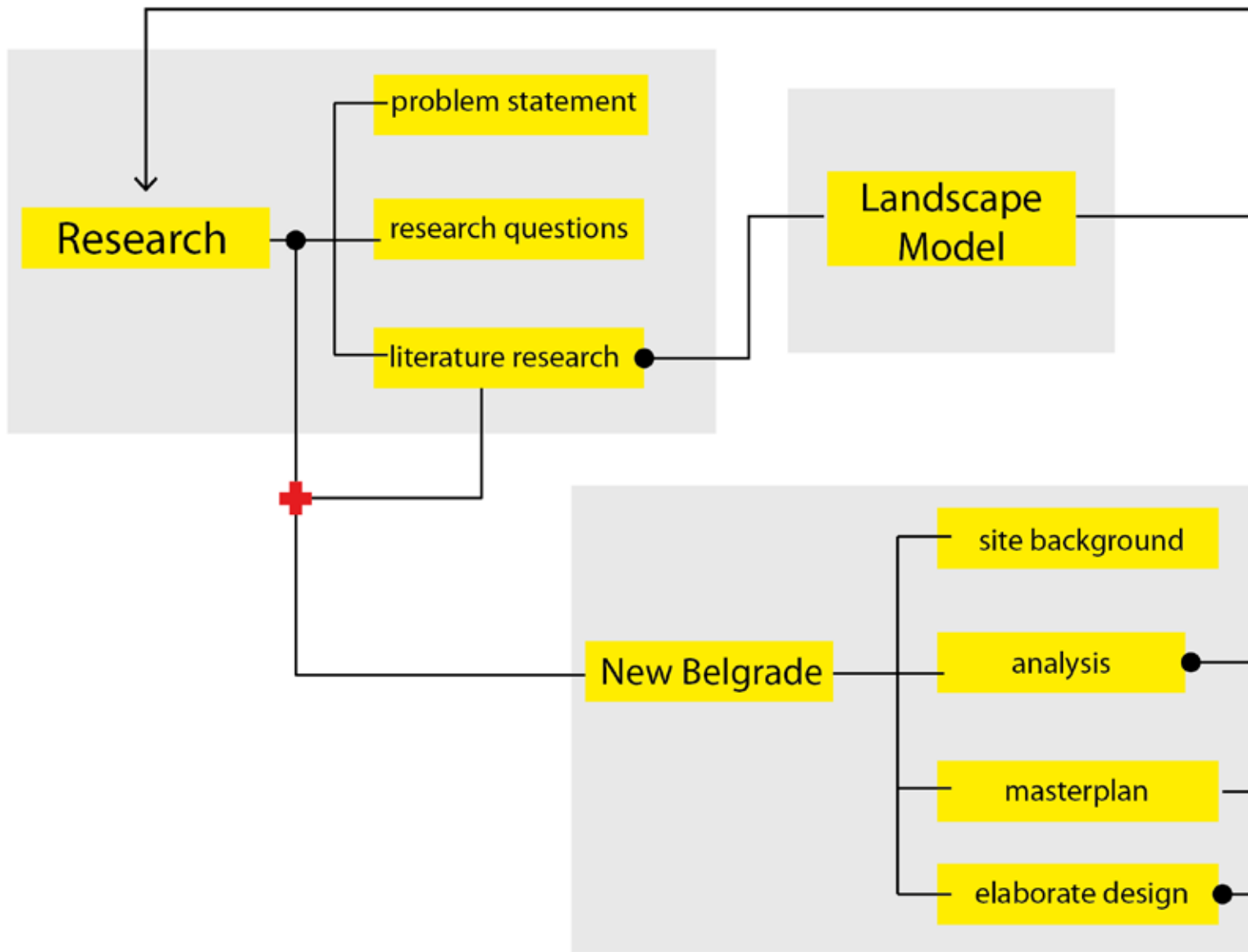
SW 12th Avenue Green Street Project

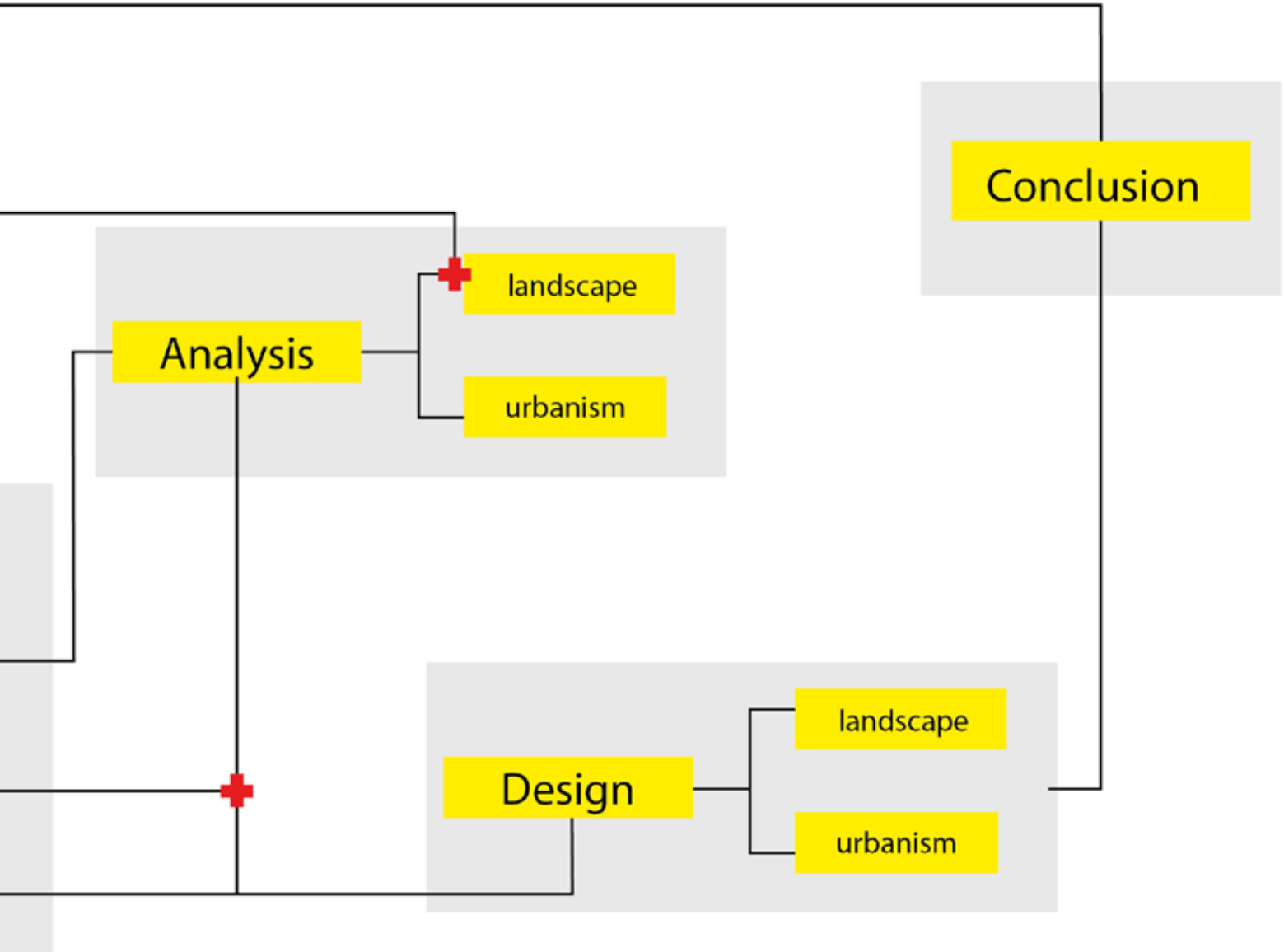
Case study- Beijing Olympic Park



Literal Research







An Application of a Framework for Theory Applicable to the Education of Landscape Architects (And Other Environmental Design Professionals) in the Case Study of Reclaiming Open Space in New Belgrade

I. Introduction

Environment design thinking has been under discussion for decades. Because an extensive amount of knowledge is required as a fundamental background, as well as a thorough comprehension and consideration for landscape design, there are needs to establish rational design frameworks for each landscape architect to organise all the knowledge and apply what they obtain into practise. Even stemming from architecture theoretical framework, there are still slight differences in the field of landscape architecture design thinking from classic architecture. Various frameworks of theory have been elaborated by diverse genres for recent years.

Carl Steinitz of Harvard University proposed a theory framework that helps to organize 'applicable knowledge—models' (C. Steinitz, 1990) 1. The entire framework is a looping logic system that consists of six alternative models. Each requires different aspects of consideration and evaluation, even critical experiment. To get a better this theoretical structure, I will not only take a position to review the methodology itself, but also try to comprehend, apply and test it as a theoretical basis for my thesis methodology. Then I will come to critical reflection and conclusion at the end as one of the possible interpretation.

II. An overview of C. Steinitz's theoretical thinking process

There are three main fundamentals for studying and research (Steinitz, 1990): design competence, design experience, and theoretical knowledge. The first two aspects are achieved by academic activities, practical projects, etc., while the theoretical knowledge mainly gained by academic communication, self-studying and introspection. To achieve a better comprehension and manipulation of design process, these three aspects should be operated together for each landscape architecture student and researcher.

The core of this design thinking system is that every model is flexible enough to be circulated more than one time. And the sequence will keep going on with the process of understanding and design. There is no rule for an official end because the landscape is an endless operation. Attached is the diagram that originally from the theory and explain how the models should work in a general aspect.

Specifically speaking, the framework of design process is a significant logic thinking system for applicable knowledge and design practice. It consists of six logic integrated models: representation models, process models, evaluation models, change\ projection\ intervention models, impact models, decision models (C. Steinitz, 1990). Each can be comprehensive and applied as a level of inquiry¹. As some genres of landscape design thinking, C. Steinitz's theoretical frameworks agrees with 'questions'-'answers' design mode. Due to an alternating sequence of thinking, six models do not simply function in a linear structure. Each can interact with others and help to manipulate design process.

It is necessary to understand that the theoretical and design application process are in reverse sequence and how they could work efficiently and sufficiently. Theoretical framework process is in the order of: Representation (what and how) —Process understanding (why) — Evaluation (why) – Change (what and how) —Impact Analysis and Prediction (what and who)—Decision (what and where). It's a sequence to understand a design and transform the knowledge into an insightful comprehensive. Each step might even be repeated endless in different stage when necessary. But for educational and practical design process, the reverse order is the logic sequence that comes to proper design outcomes. So in both sequences, the process can support understanding, studying and gaining insightful comprehension about design.

For education purpose, the framework can be a guideline for students to get a grip on the design thinking and method. Firstly, understand what the design decisions are about and what to change in a current situation (Decision). Decisions will have influence on, for

instance, human and environment, so the learner needs to know what the impact factors are and who will be involved in (Impact Analysis and Prediction). In Change Model, it comes to the core and specific questions and problems to focus on, for example, what have to be changed and how to change. Even though there might be thousands of solutions that can match Decision Models. The efficiency, potentiality, even invisible problems and risks have to be critically evaluated. Evaluation can be a very significant step for rethinking and test the decision model in extreme situation to get an insightful diagnosis and reflection. With a critical perspective, the students can have a chance to understand and rethink the design. A diagram will explain the circulated sequence.

As a reverse order of theoretical process, the process of design starts with decisions or visions with the purpose of changing current situations. With the on-going process of research and design, Design Model will be more and more precisely, from simply a vague vision to a concrete spatial design result. The model itself could function as the final direction and general principles that going through the entire process, from initial ideas to final design outcome. Decision Model is the very starting point where a landscape design begins, so it requires being questioned by different aspects. Any decision has to be cautiously considered by a comprehensive understanding of the problems that need to be solved and under particular context, what should and could be done. Every model has to work in a more intensive and complex way than in education studying. Due to the complexity of landscape and urban circumstance, the models have to go back and forth throughout the entire model process. With this conscious, the Change Model helps to question spectacularly what and how to do. After testing about alternative possibilities and optionality, Evaluation Model can help to manipulate design results based on Process Model. Representation Model, as the name indicates, is the technical model that helps to visualize ideas and outcomes, as well as in practical construction and details. As the diagram (figure 1) shows how it works in a continuing circulation.

III. Application and reflection in research of open space structure in New Belgrade

'Landscape architecture ...acts as the leading organizational device to shape and direct urbanism, develop adaptable and resilient ecologies, capitalize on innovative technologies, advance eco

conomic reconstructing, reclaim, and remediate spoiled lands, improve and reimagine antiquated and over-engineered infrastructure'.² In short, the physical conditions are the medium that provides a stage for social activities and nature replacement. So the open space structure will not just be considered in spatial aspect, but also will be involved with local engagement, for instance, retail markets, events, all kinds of activities and further development. It is necessary to design a landscape that could provide the requiring conditions for today and future.

For the TU Delft architecture education system, design is conceived as a process of solving problem. For two years' training, what is the urgent problem is the essential starting point for a design. However, what is the assignment is one of the most challenging parts in graduation design. Unlike usual design courses, the assignment is explored and defined by student researchers. So the assignment is based on the aspect that student interested in. And at the same time, the assignment is restricted by the studio study field— Flowspace. So the decision goal is fit into my study process from the starting point. Defining what to do within the study field should be set in the early stage to help to manipulate the following design steps.

The very starting point of my graduation study is from the observation from my interested landscape subject: landscape under a particular political climate. What is the role of landscape in the socialist urbamism? The initial problems studies should be the part before the decision model, though the decision model also includes a part of in-depth problem studies.

An amount of basic knowledge of the site is required as well. To get a grip on the site's particular problems and the qualities, design analysis is an essential step. For the analysis part, it takes a sequence from general analysis to particular problems analysis. So the general analysis is the way helps the designer to understand the site condition and find a set of problem. In fact, the in-depth analysis should go with every model because the in-depth understanding always comes with unexpected problems. So after a series of the 'analysis- problem definition' circulations, the core of the problem will be set before decision model operates.

SITE ANALYSIS

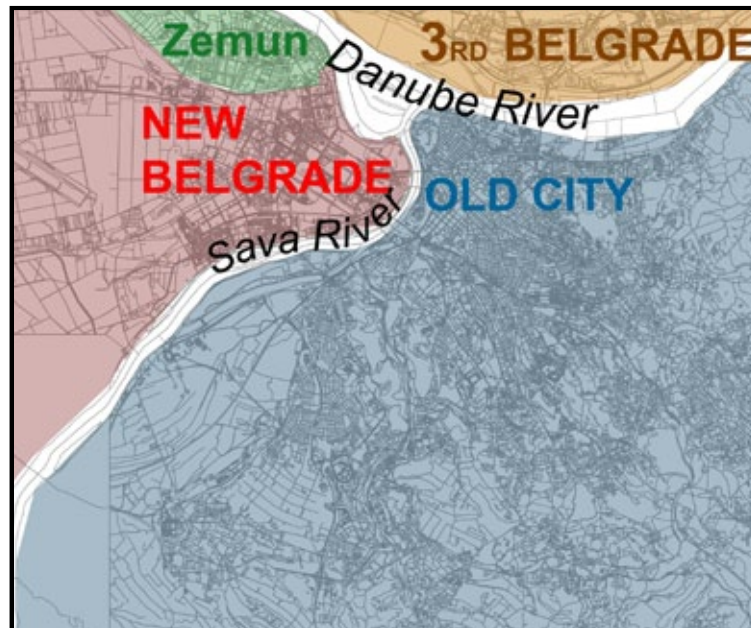
- 2.1 Political Timeline & City Development
- 2.2 Open Space Condition Overview
- 2.3 Landscape Constructional Element Analysis
(big patch)
- 2.4 Residential Area Analysis
(small patch)
- 2.5 Urban Flows Analysis
(corridor)
- 2.6 Landscape Flows Analysis
(matrix & corridor)
- 2.7 Local Needs Analysis
- 2.8 Analysis Conclusion



Belgrade consists of at least 4 parts of
mainlands:

1. Old City;
2. New Belgrade;
3. Zemun
4. 3rd Belgrade

And two rivers: Danube and Sava



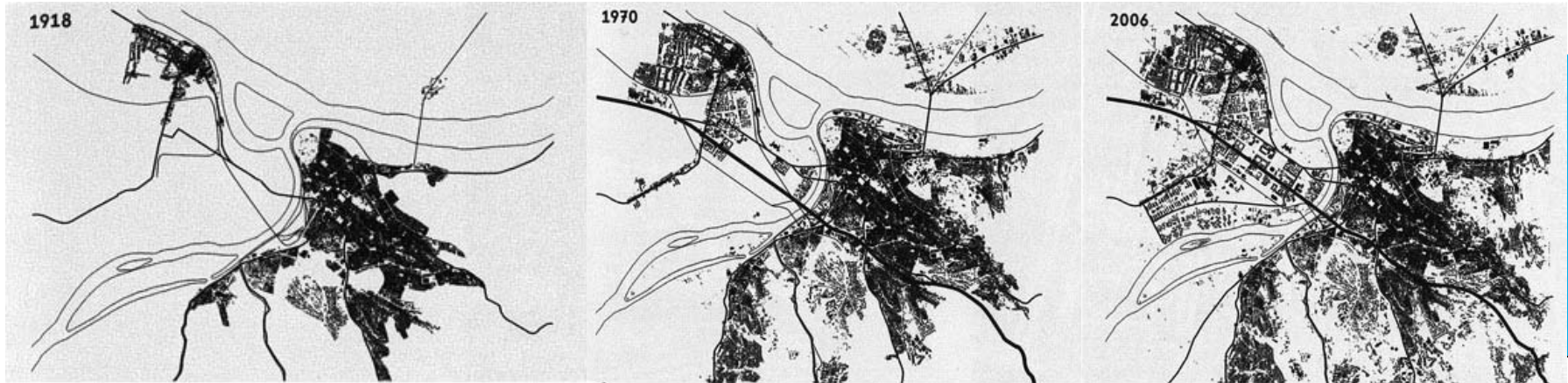


Figure ?
City Development
By ETH Belgrade Research studio

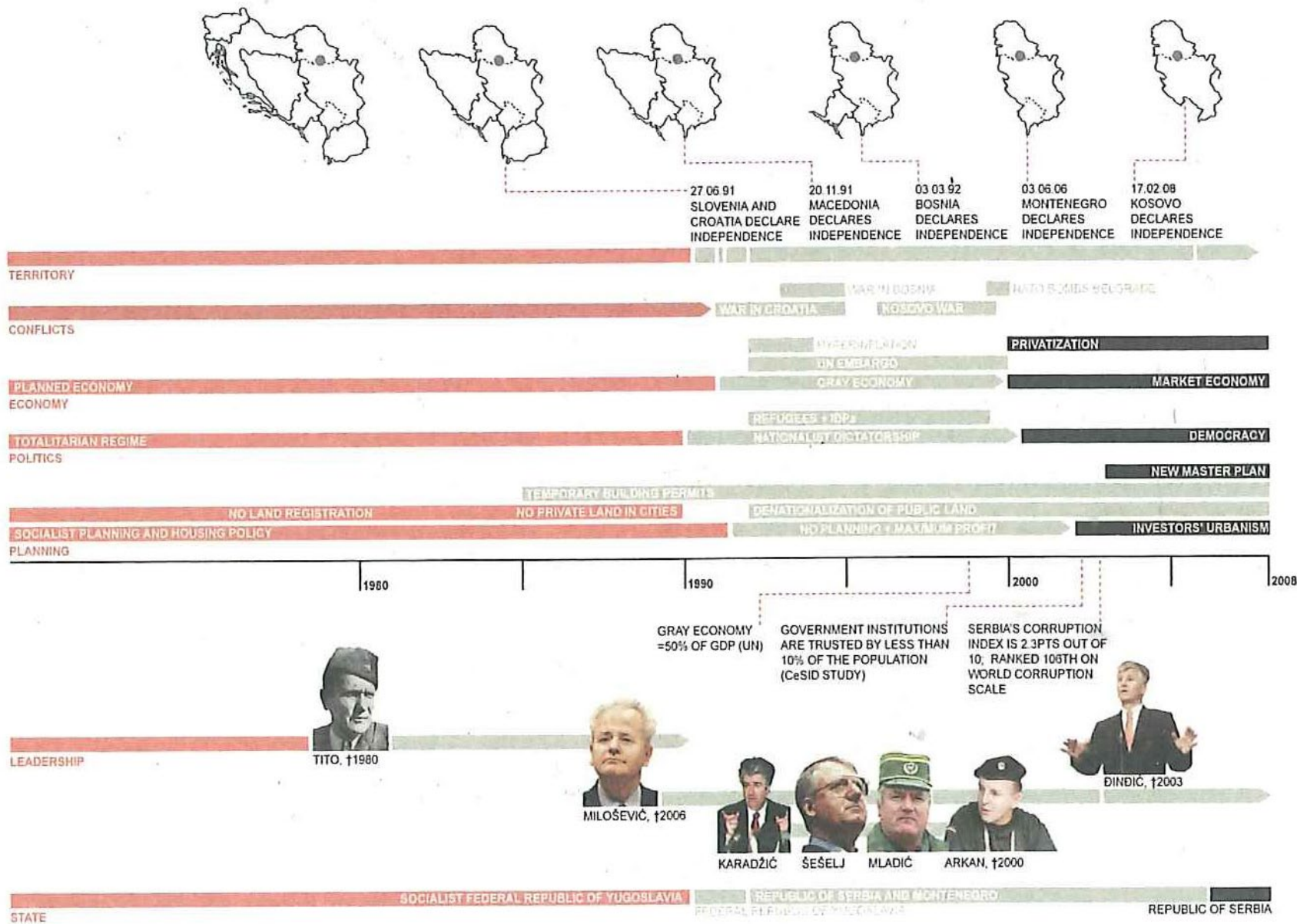
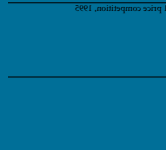
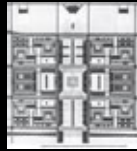
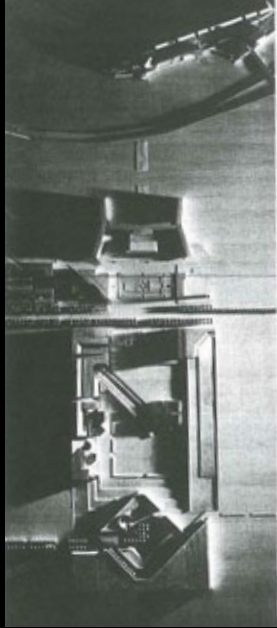


Figure ?
 Political timeline
 By ETH Belgrade Research studio

Political Timeline & City Development

City plan

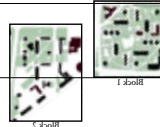


Residence building development

1950



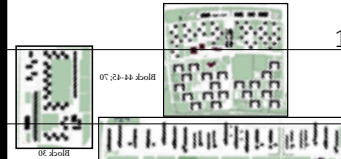
1960



1970



1980



1990



2000

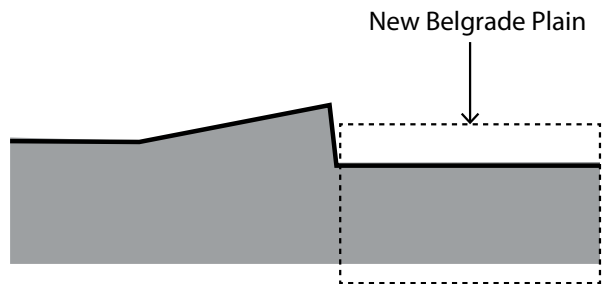


**SOCIALIST PLANNING
& HOUSING POLICY**

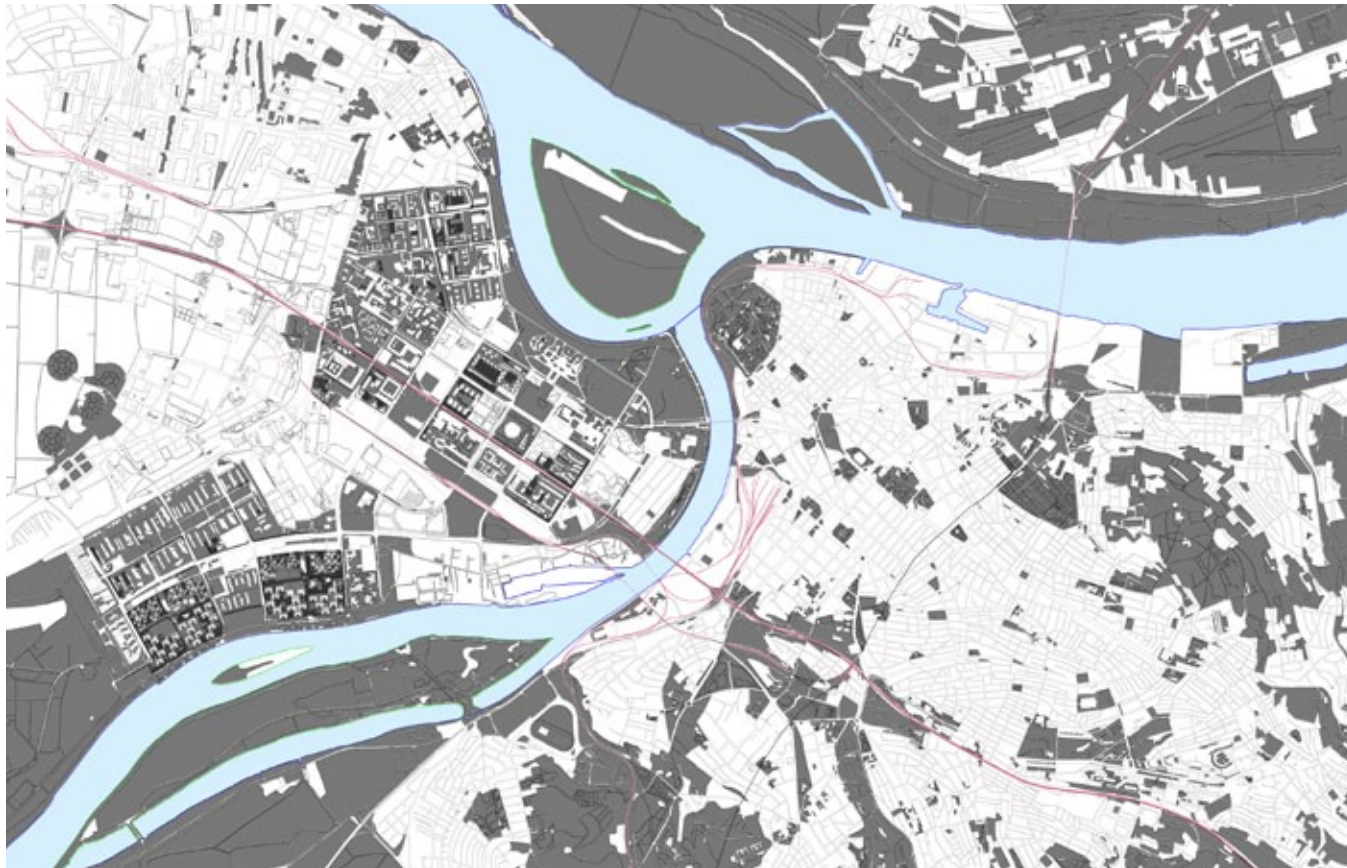
MAX ISM PROFIT

SITE ANALYSIS

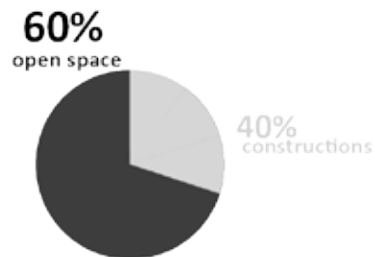
open space condition overview



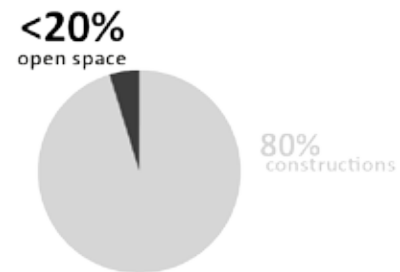
open space contrast



SITE ANALYSIS



New Belgrade



Old Belgrade

open space condition

SITE ANALYSIS

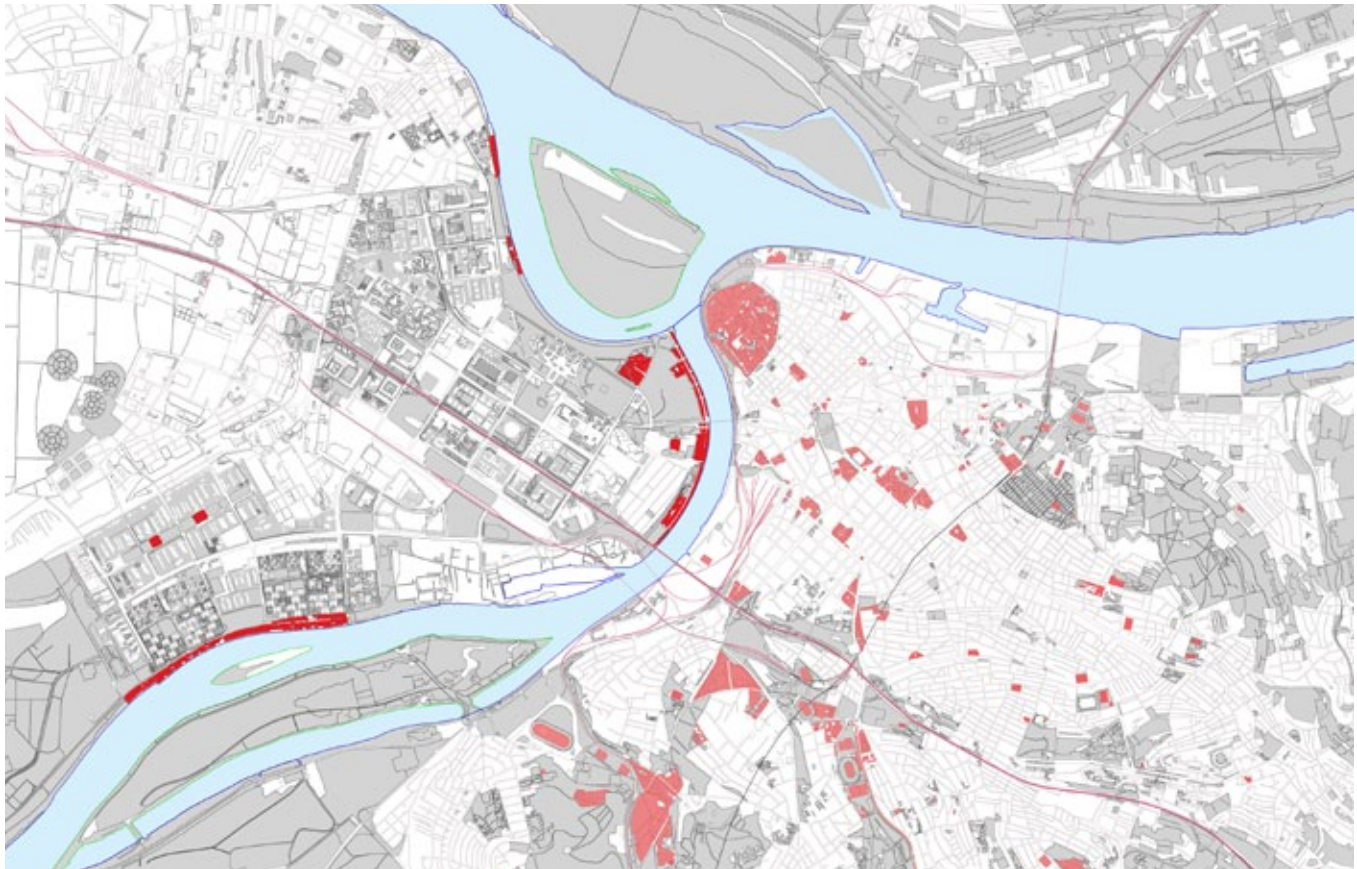


parks

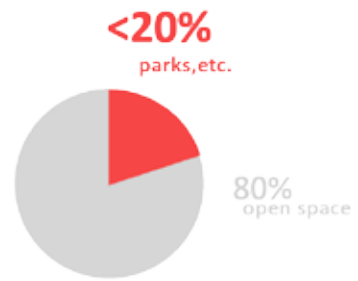


public open space

open space contrast



SITE ANALYSIS



New Belgrade

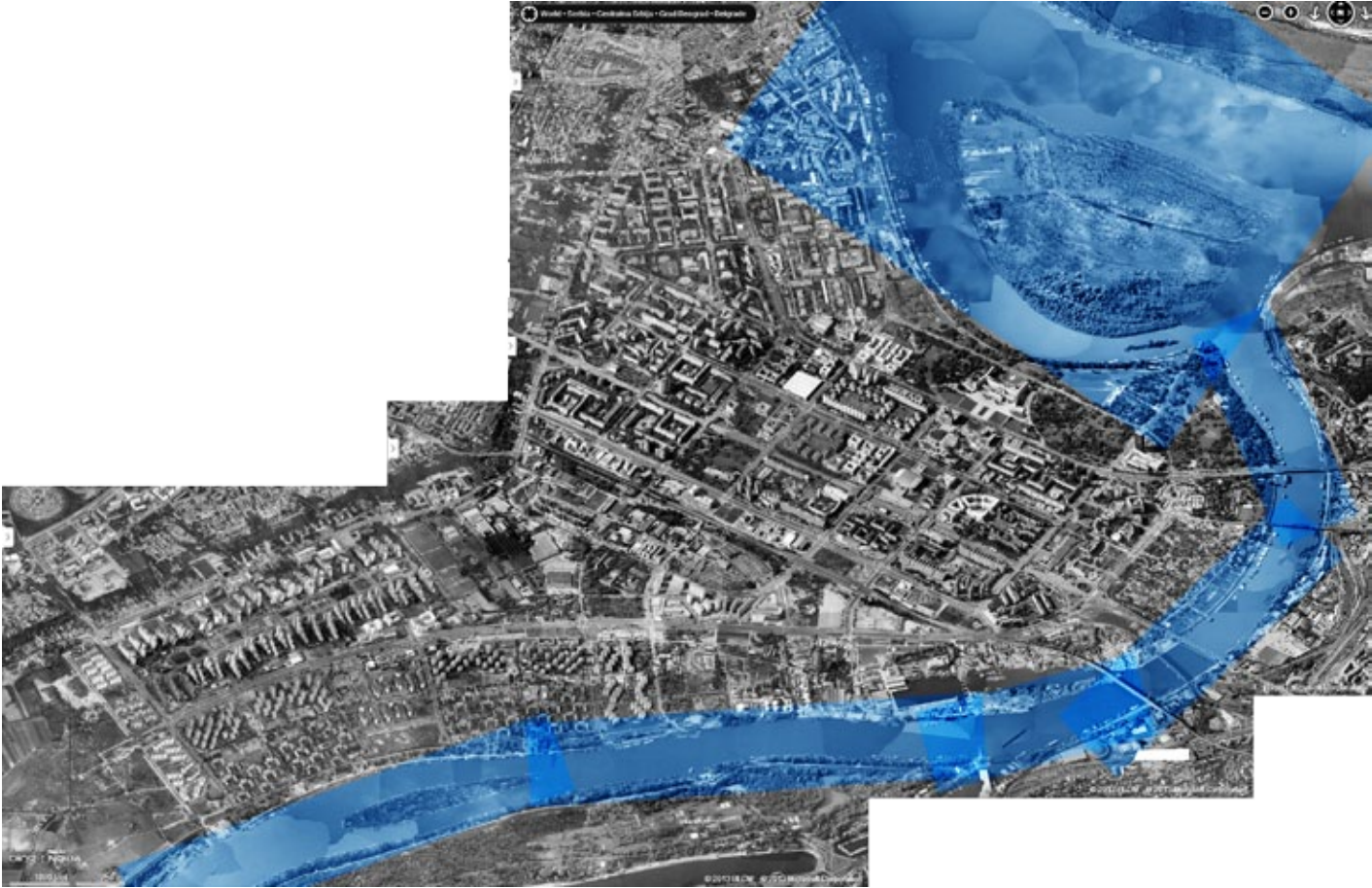


Old Belgrade

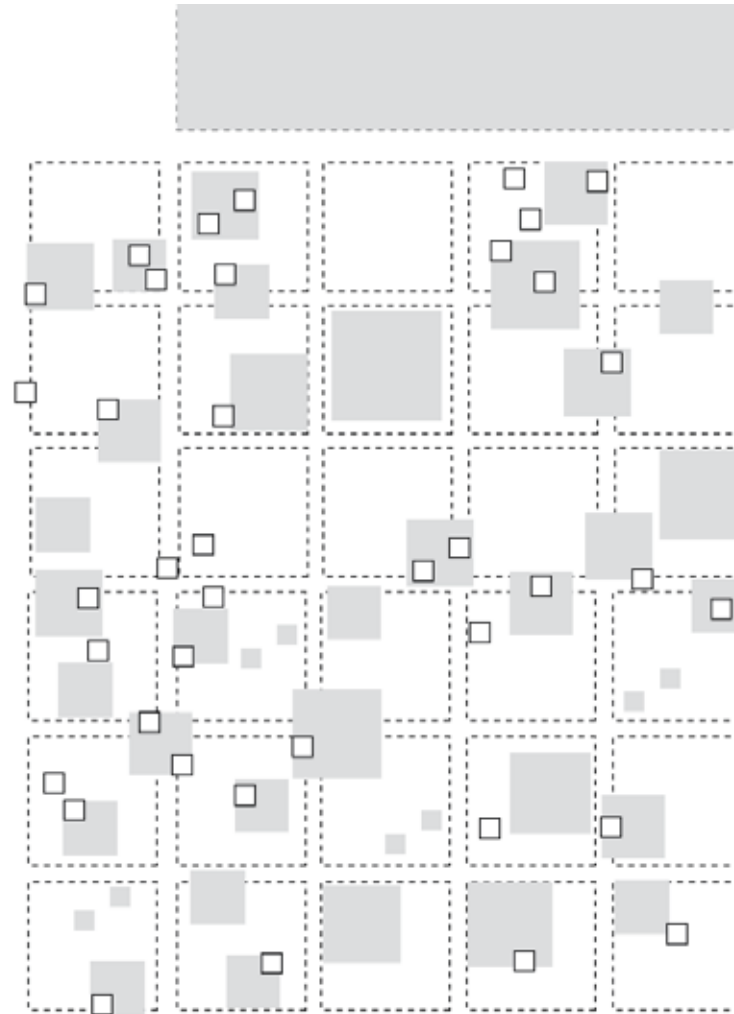
landscape constructional element
analysis
(big patch)

bloks as basic units

SITE ANALYSIS



bloks as basic units

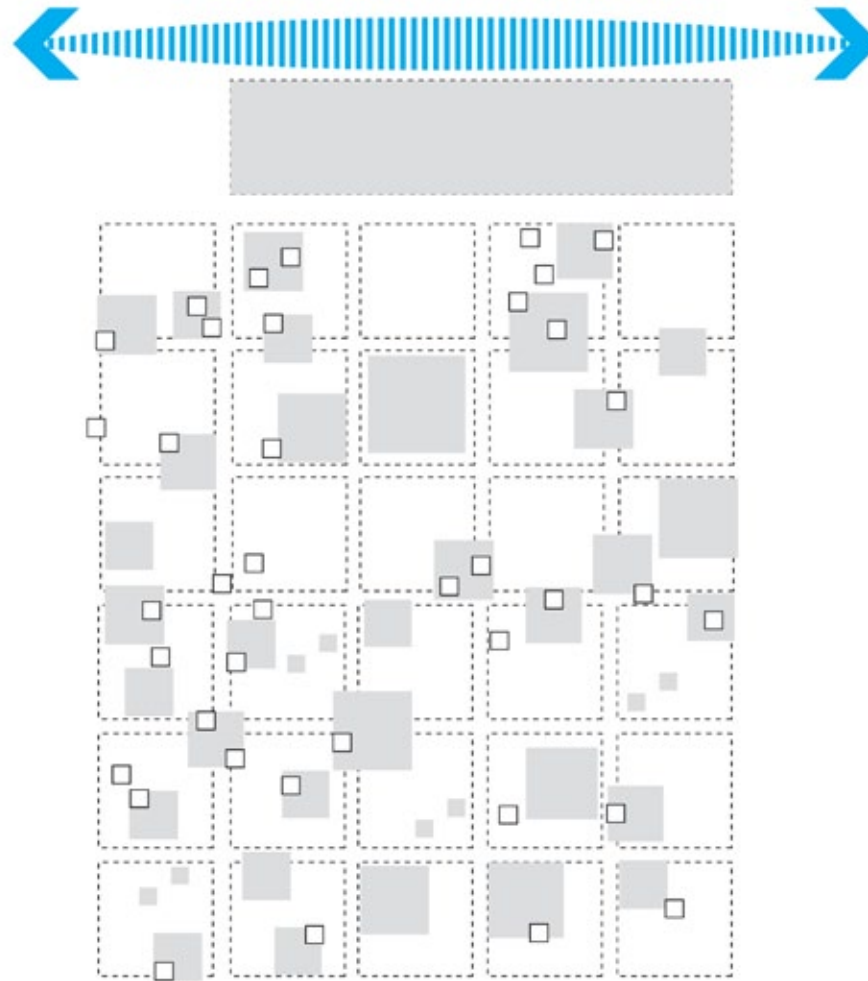


II. Understanding and evaluation of New Belgrade:
What is the configuration of New Belgrade's ecosystem
land mosaic based on the theories?

It is interesting to discover that almost all kinds of the mosaic pattern types are found in the New Belgrade. Most of the mosaic has been under discussion in the field of the physical landscape and plant types. The animal movements are not the emphasis in the following discussion due to the complexity of their flowweb. However, the particular history of the New Belgrade growth makes the landscape condition and mosaic patterns differ from the natural growth in the region of Old Belgrade.

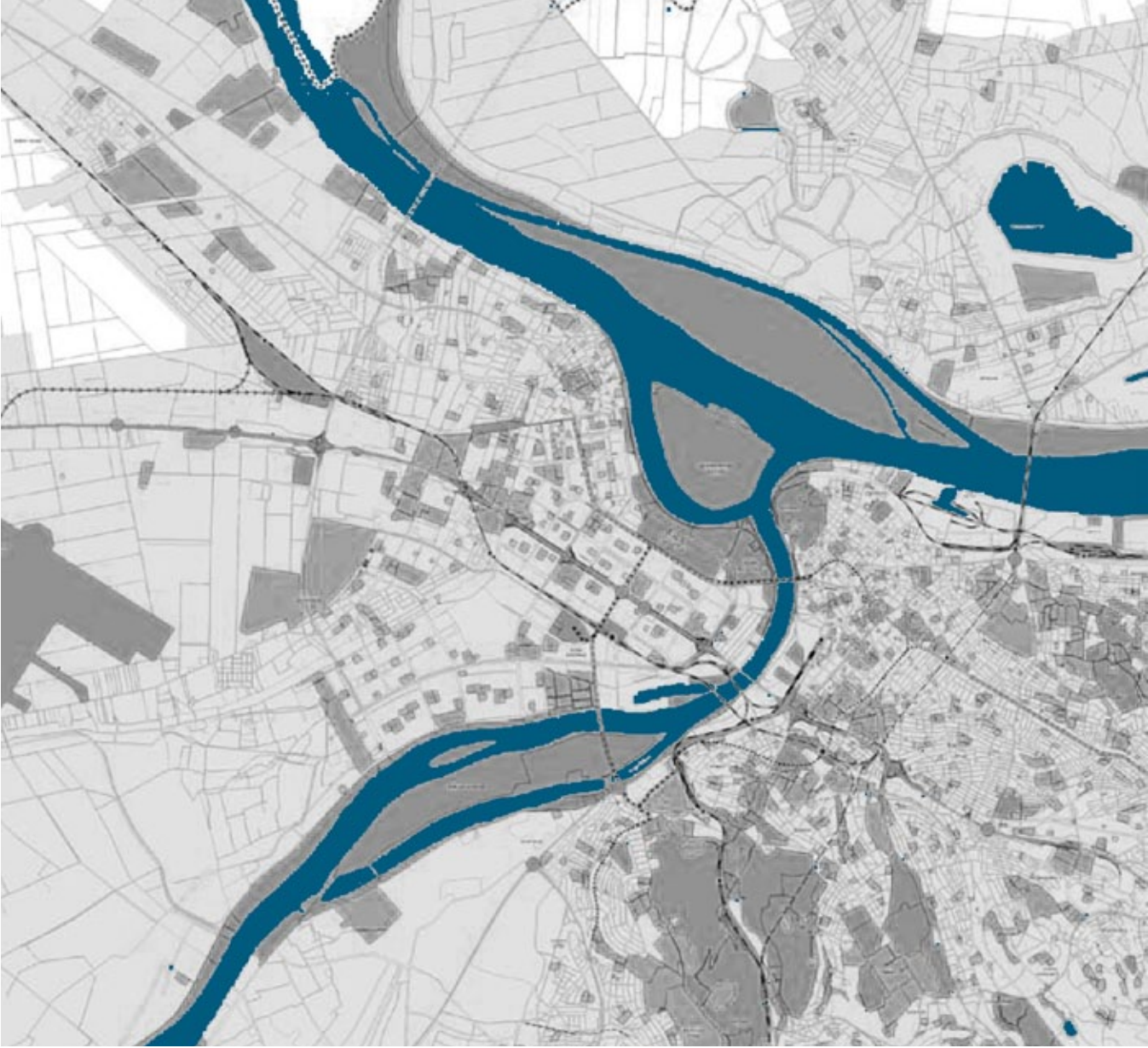
It is necessary to introduce the New Belgrade's natural condition and construction history in the first place. With a conscious of the natural and man-made mosaic, then the ecosystem conditions can be understood better and the principles of molding New Belgrade's mosaic can be practical and efficient.

+ Nature Corridor

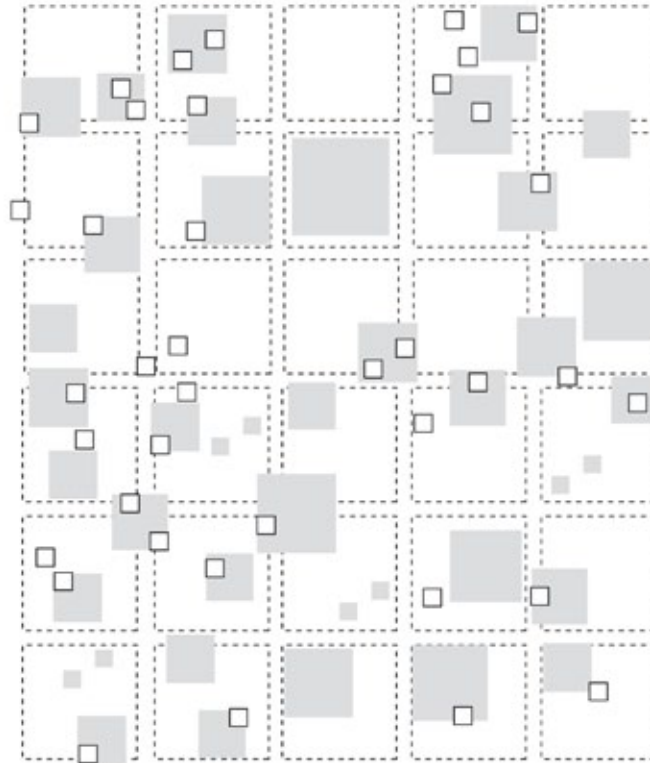


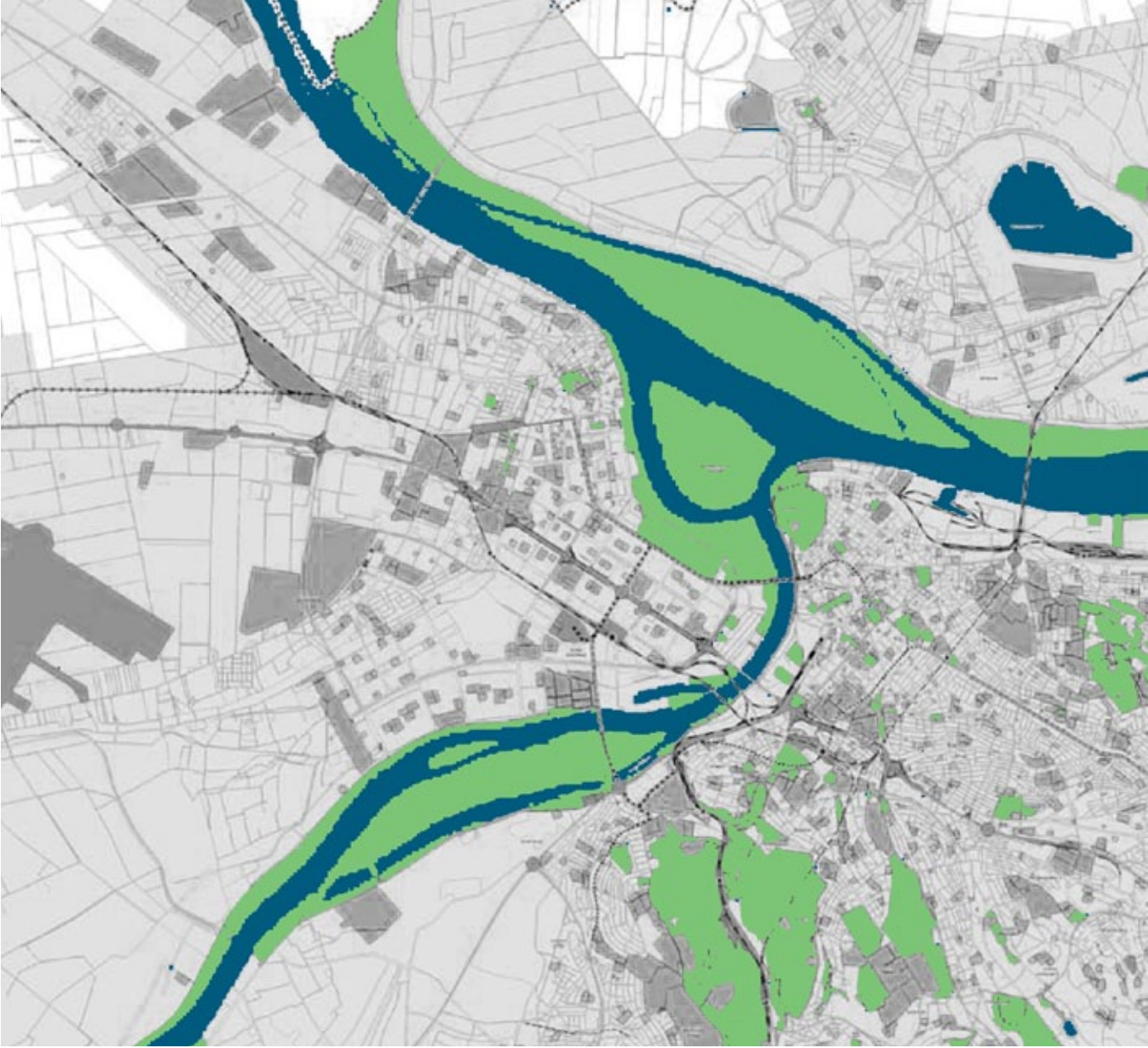
New Belgrade was the swamp land located in the waterfront of the Danube River and Sava River. Thanks to the height of the terrains, Zemun and Old Belgrade were developed quickly as two ends in Belgrade region. Surrounded by two high ground terrains, the New Belgrade were once functioning as a flood buffer zone due to the force of two rivers, Sava and Danube. Politically, the undeveloped land was the ideal option for the Yugoslavia authority capital for the whole region of States of Yugoslavia. Man-made construction for the terrain was the unavoidable choice. So the landscape mosaic is a cautious decided matrix planning that consists of infrastructure road system, political and economic skyscraper, residential buildings and large range of green spaces. So the very influential elements in ecologic terms are:

- Two rivers: Danube and Sava;
- Green islands: The Great War Island and Sava River Island, as two dominant biodiversity hotspots;
- Green infrastructure: Large amounts of green space along the river banks, as well as tree networks.

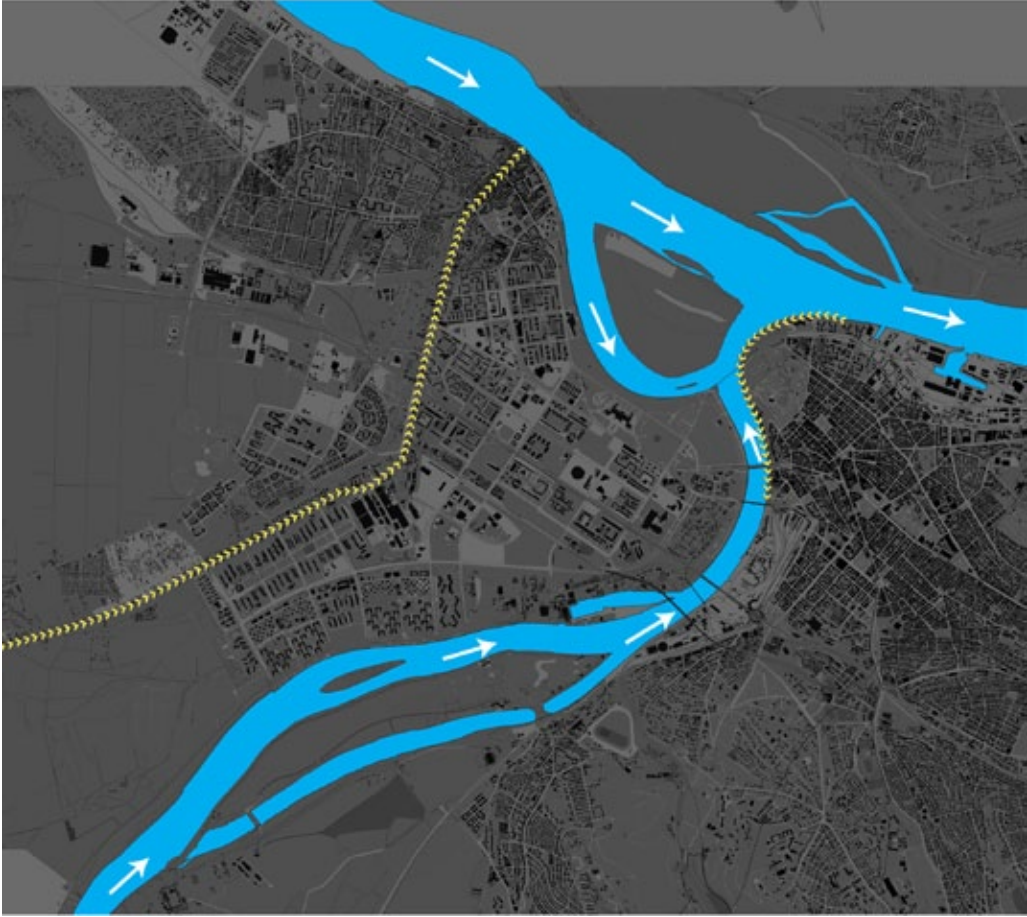


+ Nature Corridor





SITE ANALYSIS



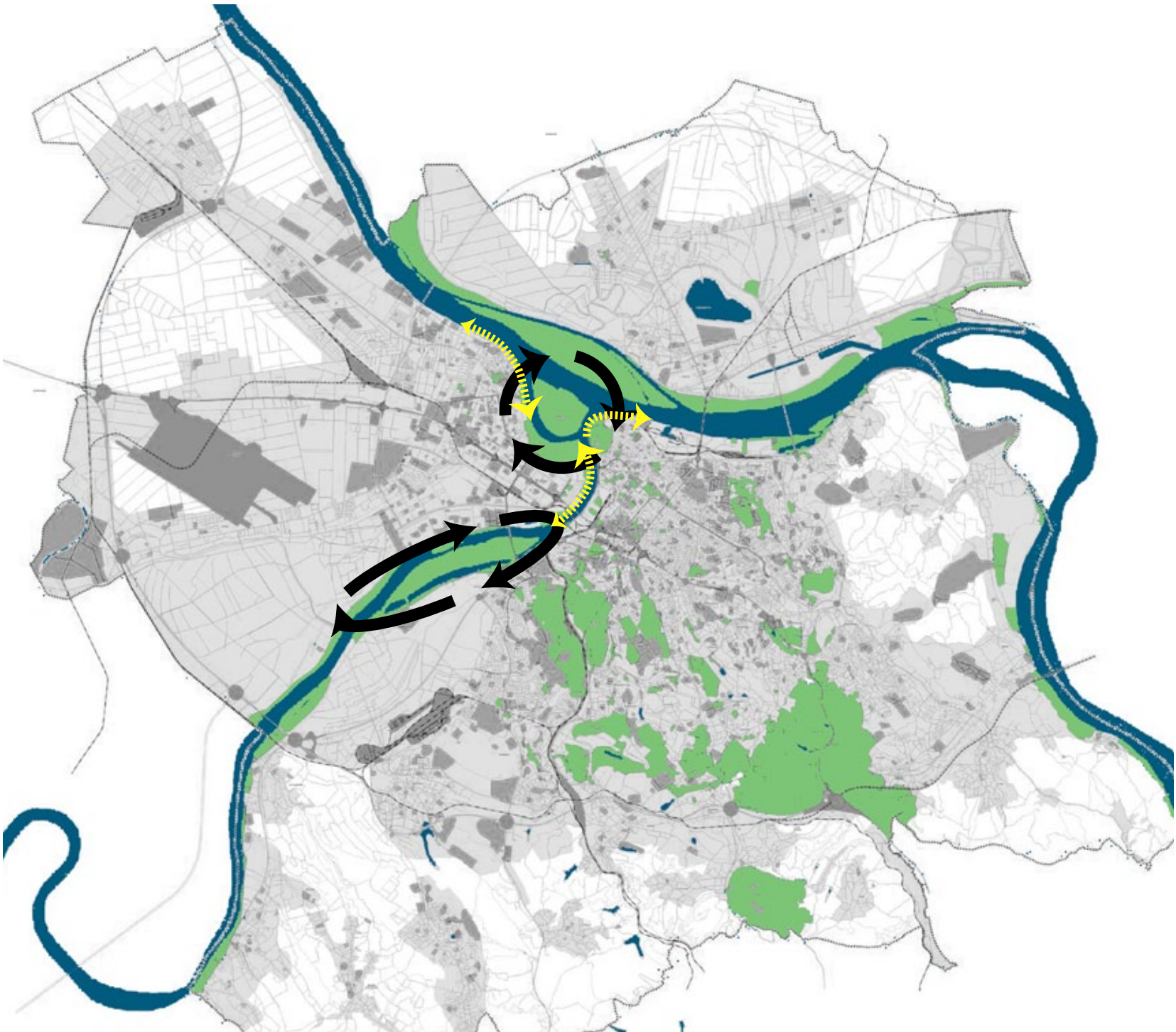
Nature River Bank



SITE ANALYSIS

Large patch is one or more dominant patches surrounded by a matrix. There are complex large patches in the range of new Belgrade. On one hand, large areas of green land were cautiously planned in the early historical construction period. Even though it's not based on the ecology benefit purpose, it is still the essential foundation for large vegetation patches. For instance, green waterfront plants, floodplain grassland and agricultural plants are the distinguish patches.

It's quite clearly illustrated in the map that the large patches in New Belgrade are located beside water corridors. Because of the special situation of the New Belgrade, the great advantage is that the big patches are connected with the corridors. Two islands are located in between with both river banks, so the corridor and the large patches are the biodiversity hotspot for numerous kinds of habitat. Especially for the two islands on the river, which keep distance from the urban terrier provides the best conditions for a non-disturbing environment? But the problem is, the big patches were planned as political 'green carpet' so the ecologic value was not took into consideration. Large areas of fine meadow are not ideal habitat for biological flows.



Land Marks & Identical Open Space

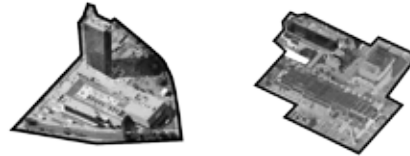
Heritage



Culture



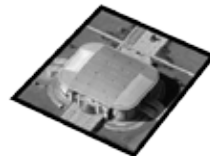
Commerce



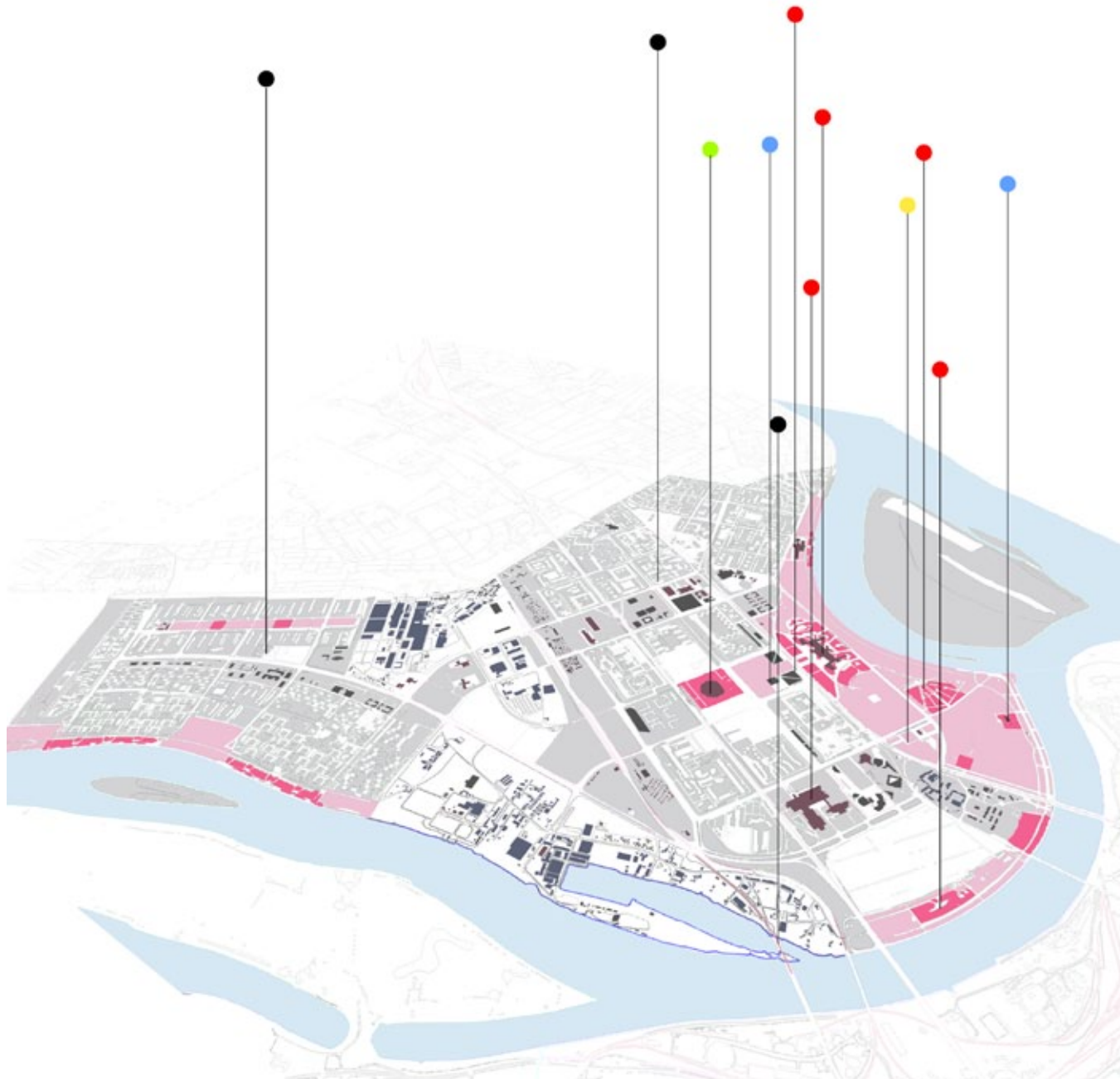
Residence



sports



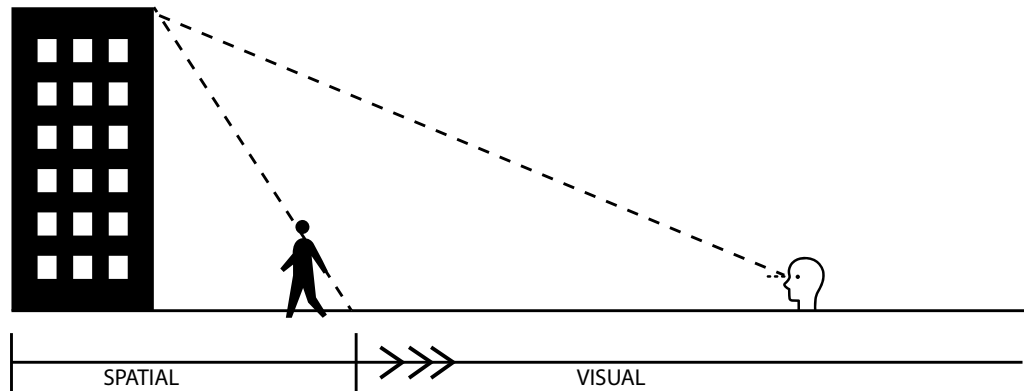
S - heritage & landmarks

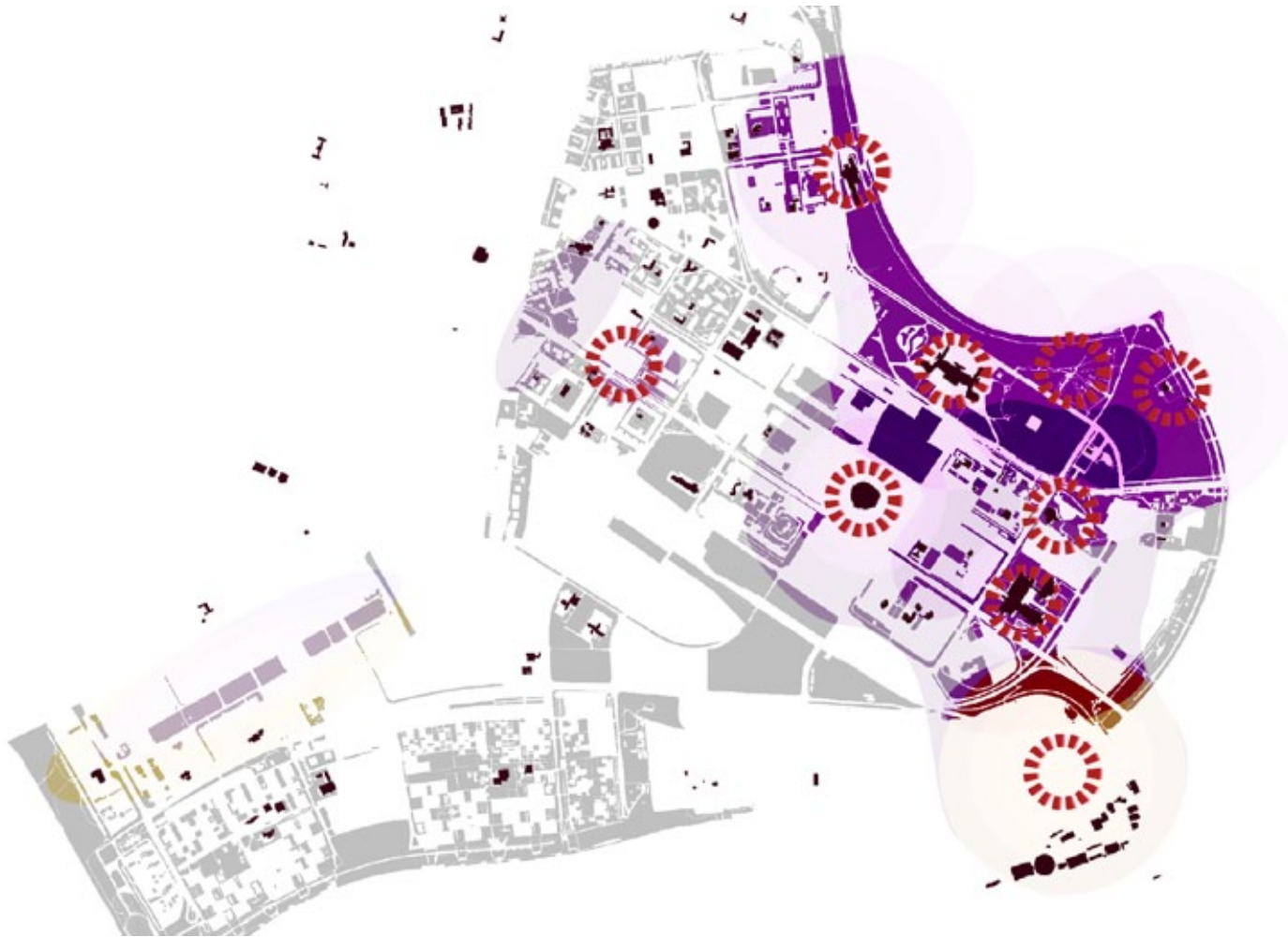


2/3 landmarks located in the big patch area

An imaginable or legible city can make one feel more secure by providing cues for orientation and way finding. In addition, through understanding imageability, practitioners can better predict pattern of use

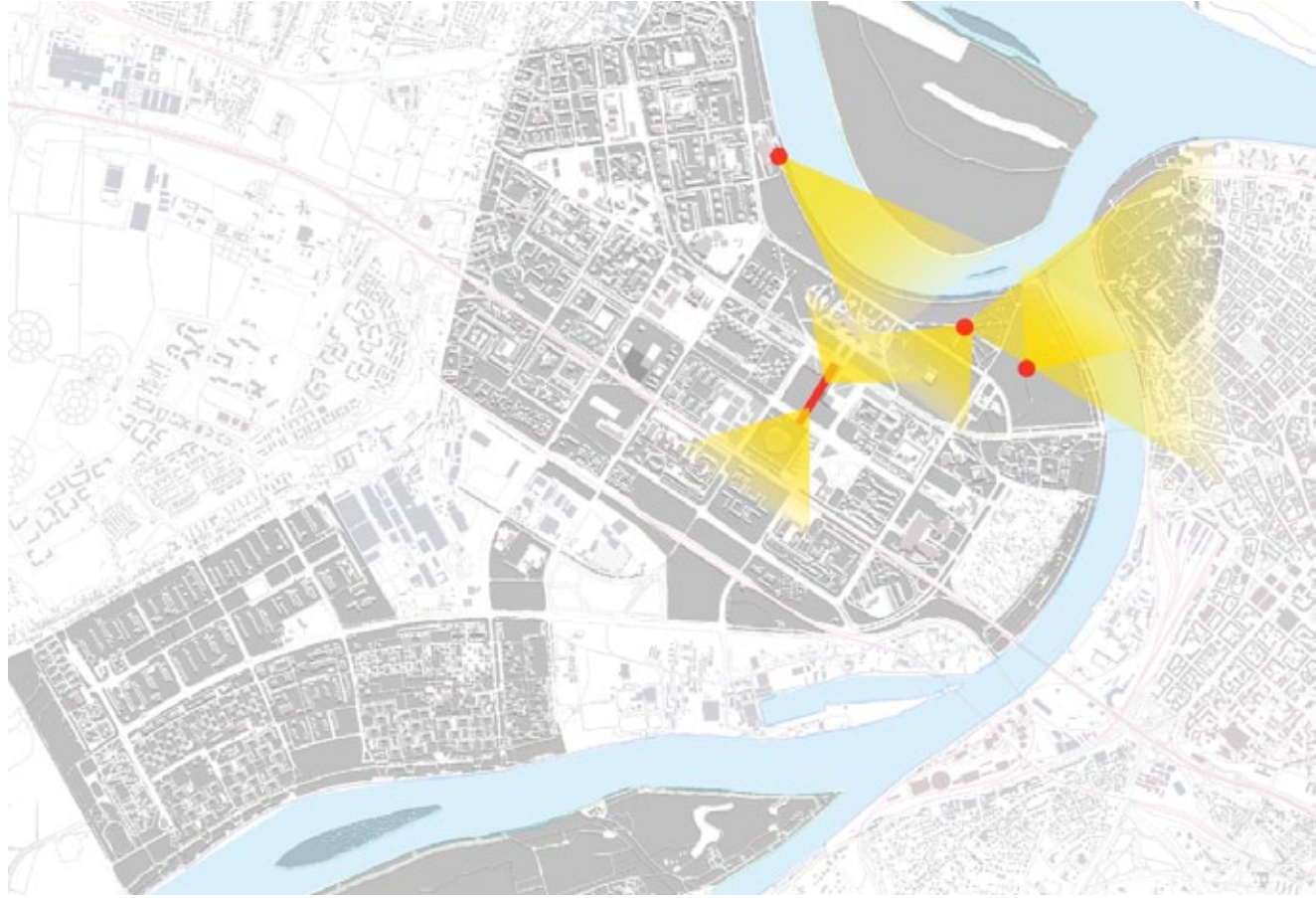
Perception, cognition and evaluation of urban places(1989)
- Jack L. Nasar



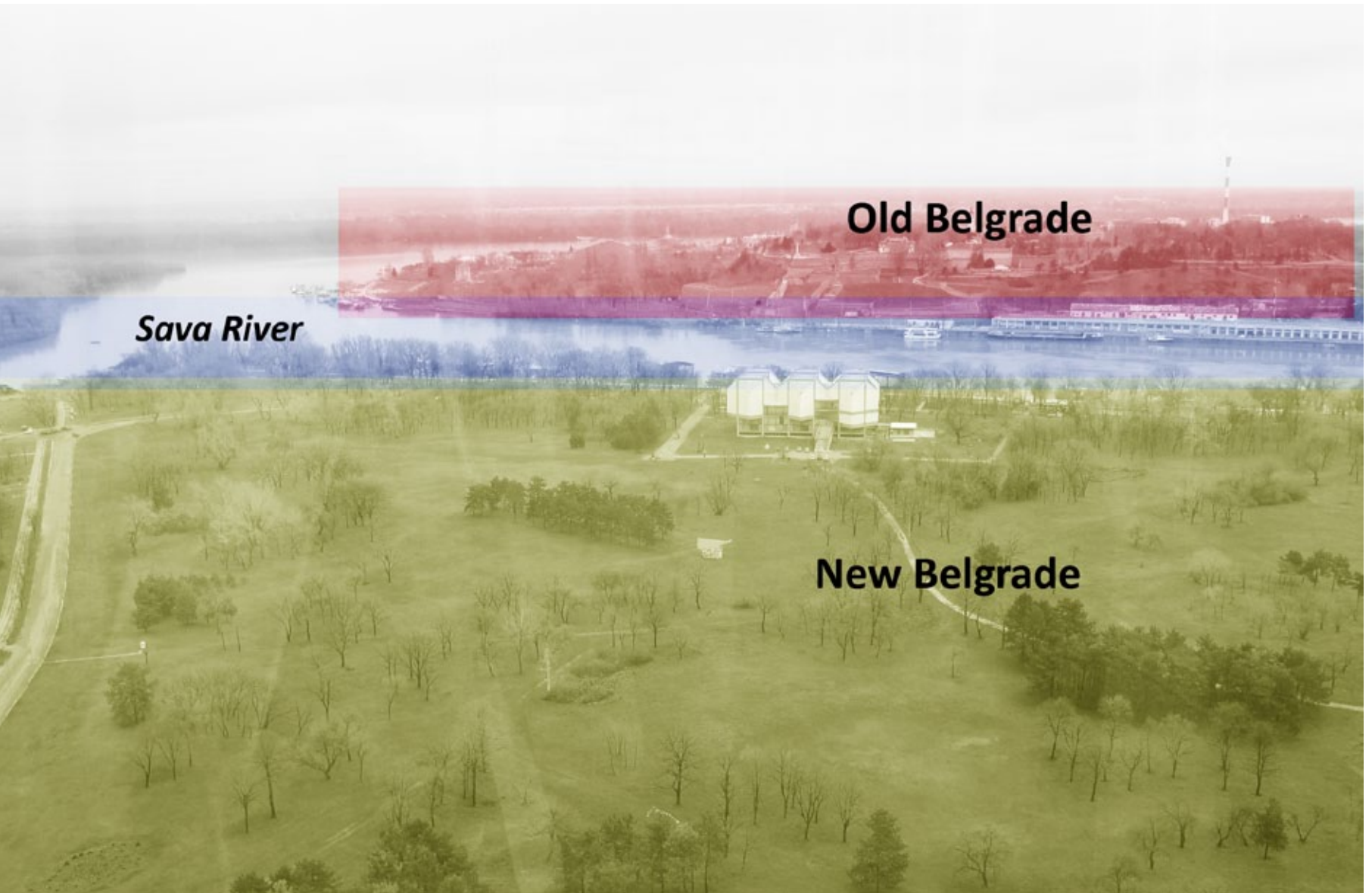


The most valuable landscape with landmarks influence

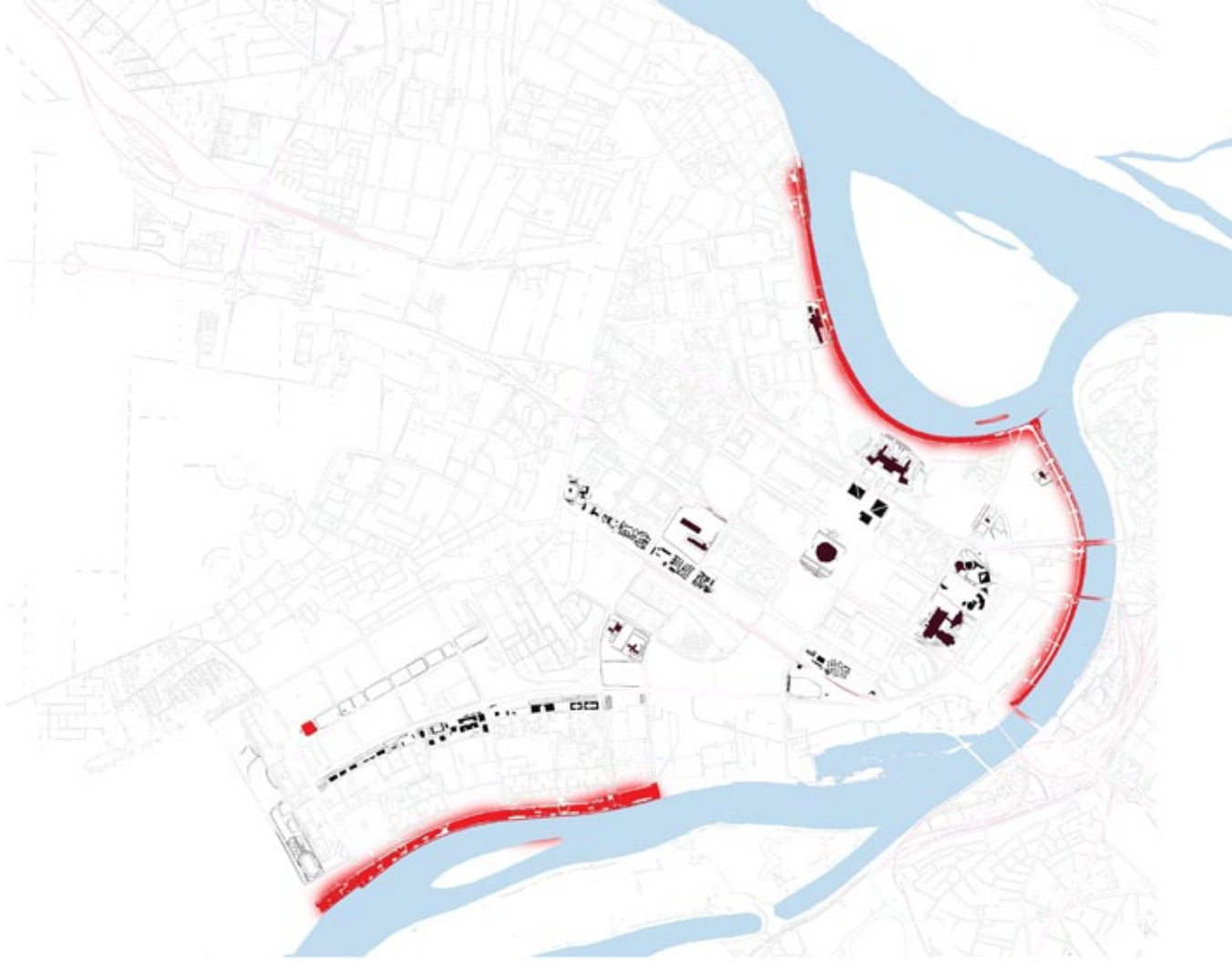
SITE ANALYSIS



S- visual connection



SITE ANALYSIS



S- spontaneous activity & programmes



historical axis

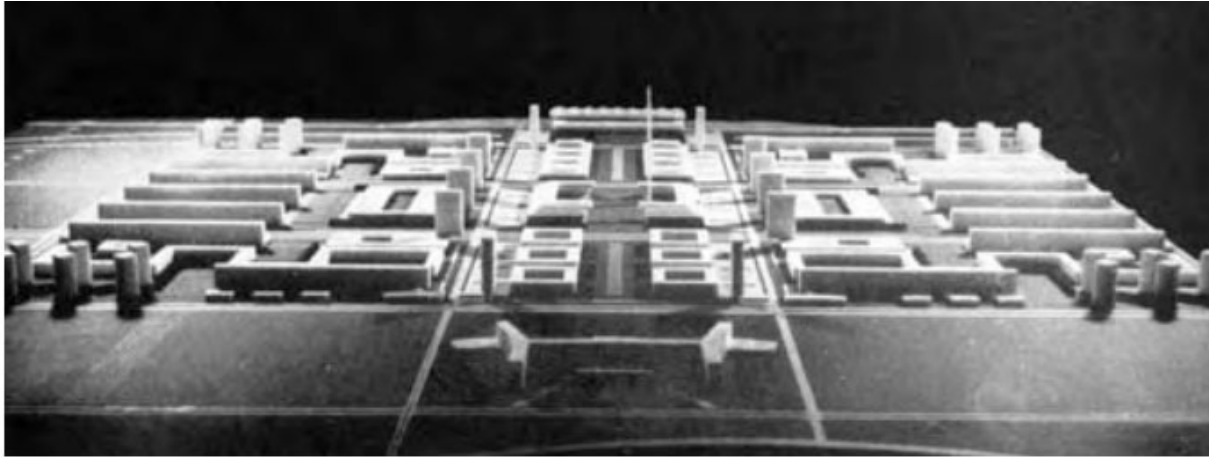
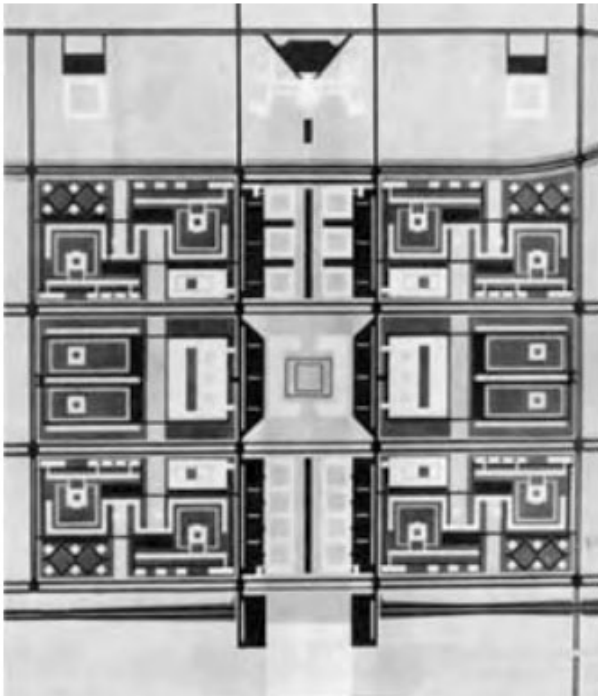
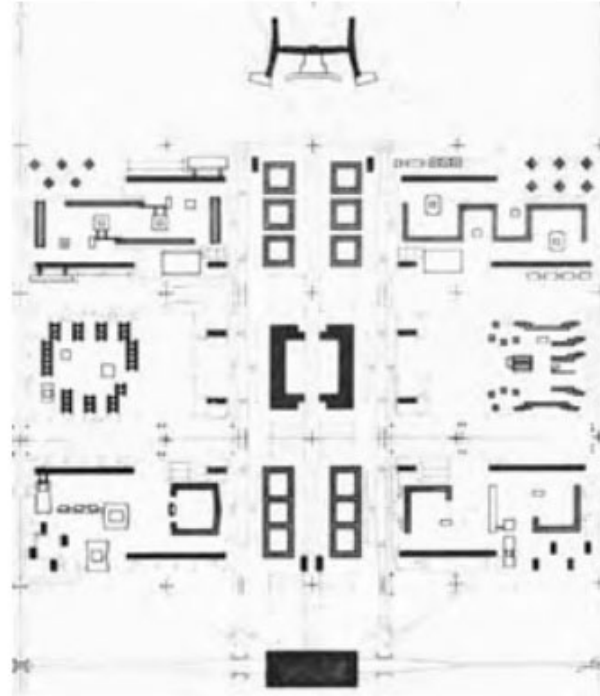


Photo of the Regulation Plan Model, 1960



Regulation Plan, 1960



Building Plan, 1962

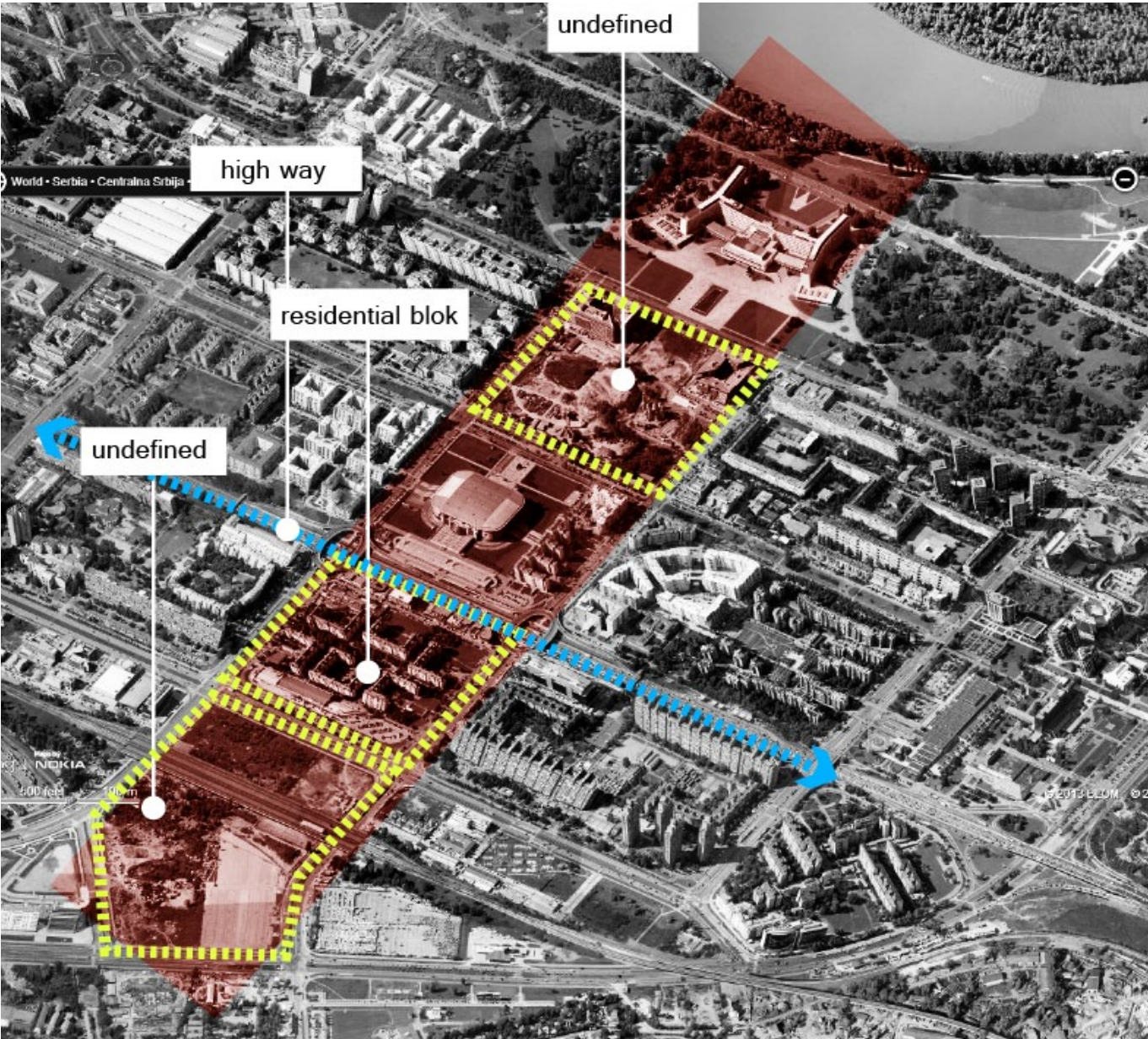


Even though the T-area has a precious designable potential, it is still necessary to evaluate its current influence in the surrounding context and even larger areas for a further development. What's the exact role in the surroundings, city, and even possibly, in region?

Value of the site

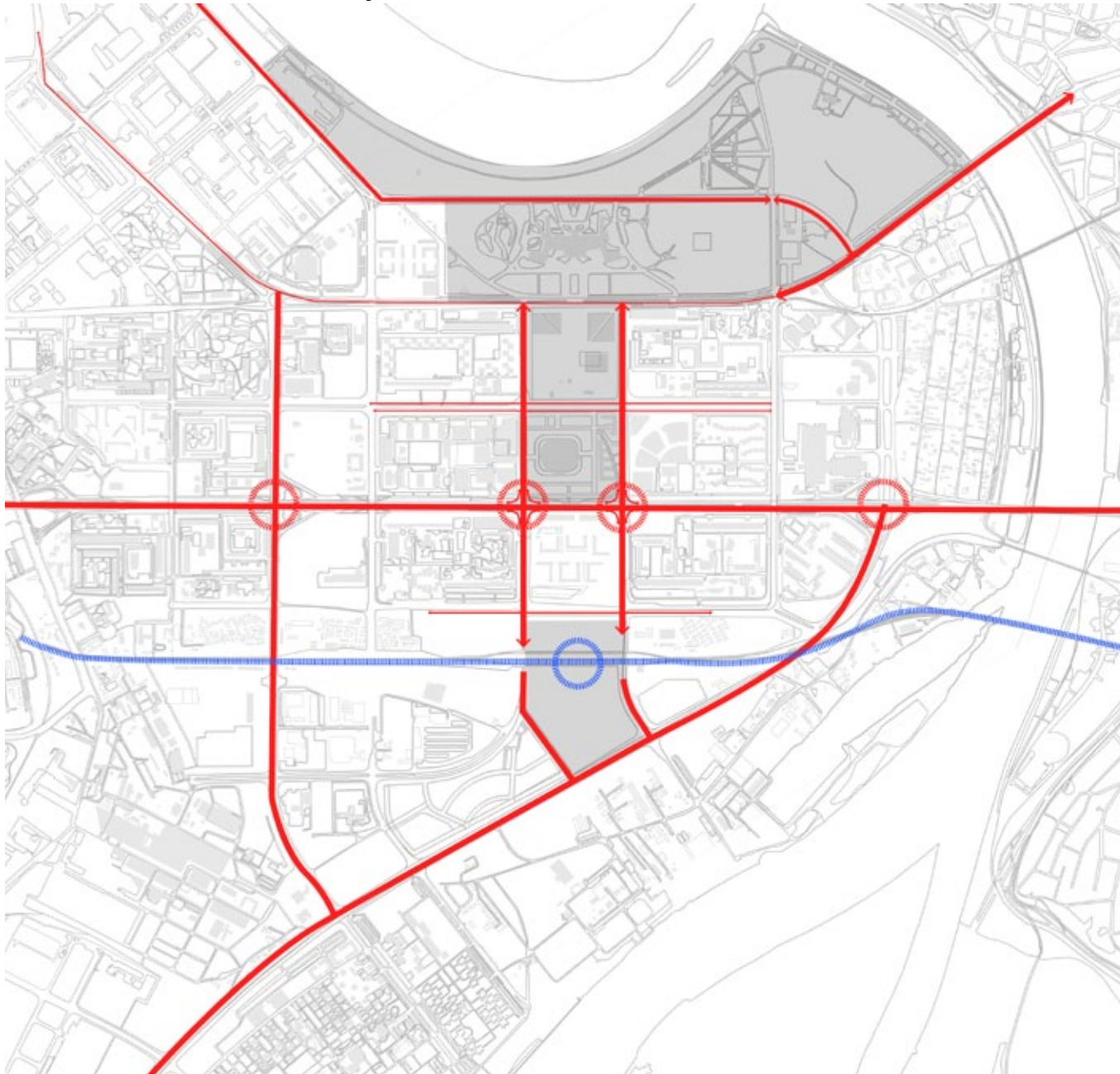
Most of the importation elements in New Belgrade are located in the golden axis. Serbia Palace in Blok 27, and a newly built Arena in the Blok 25 and the train stop besides the Blok 24. As well as the both ends of the Golden Axis is continuing to the Danube River bank and industrial zones. It is the site that continuing from one river bank to the other, and always is the continuity for east-west and north-south directions.

weakness & potentials

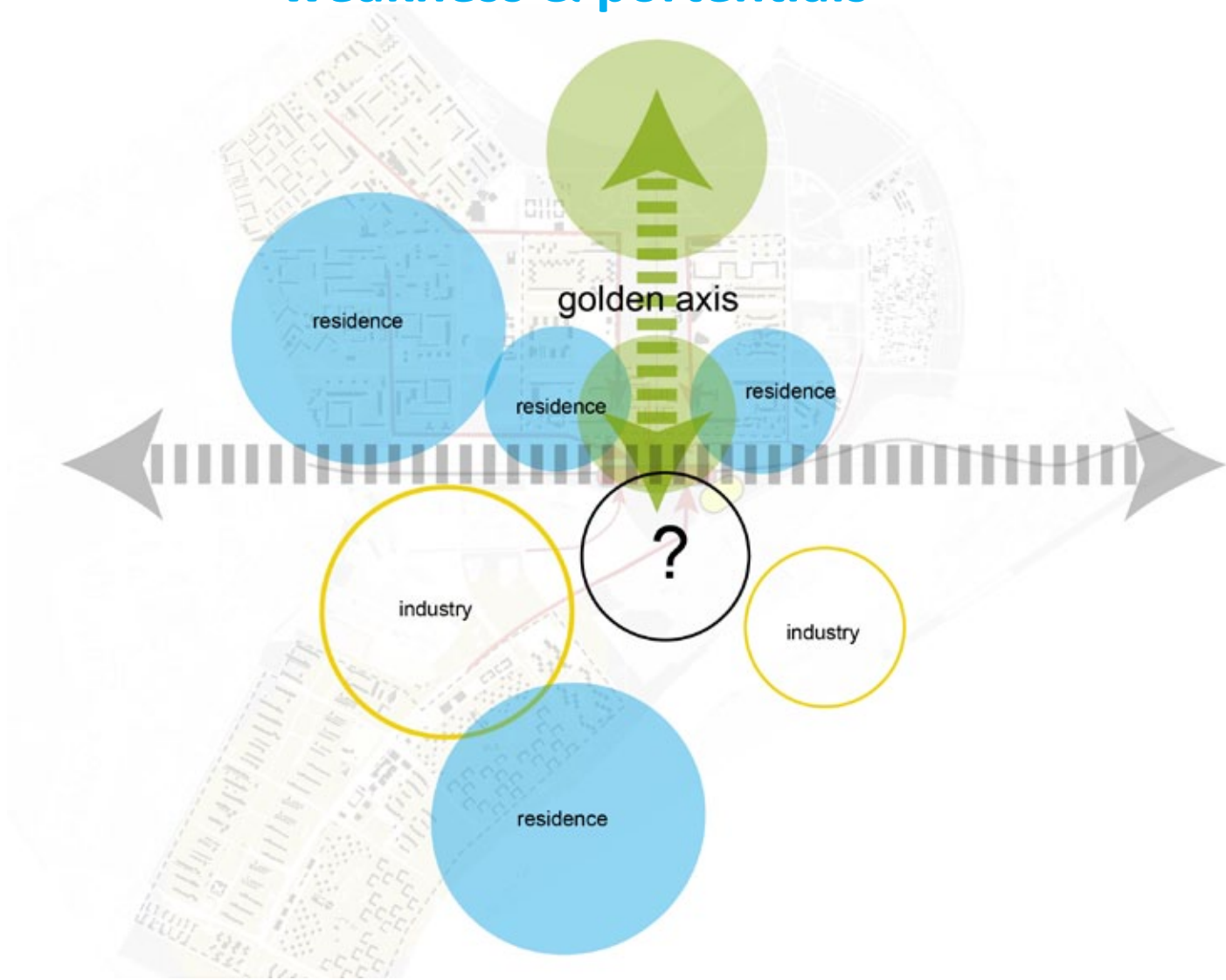


Road networks are planned in grids of approximately 500 meters* 500 meters because of the historical city plan. The tree networks commonly planted along the road networks. They are the linear functional corridors that connect between urban patches. Nevertheless, the extreme wide streets were not taking into enough consideration from an ecological point of view. As the figure shows, the green spaces in between the streets are non-functional or even occupied by parking cars. It reduces landscape connectivity. It is promising that based on the survey of automobile daily flow, there is still potentiality for more ecology investments, see the figure shows.

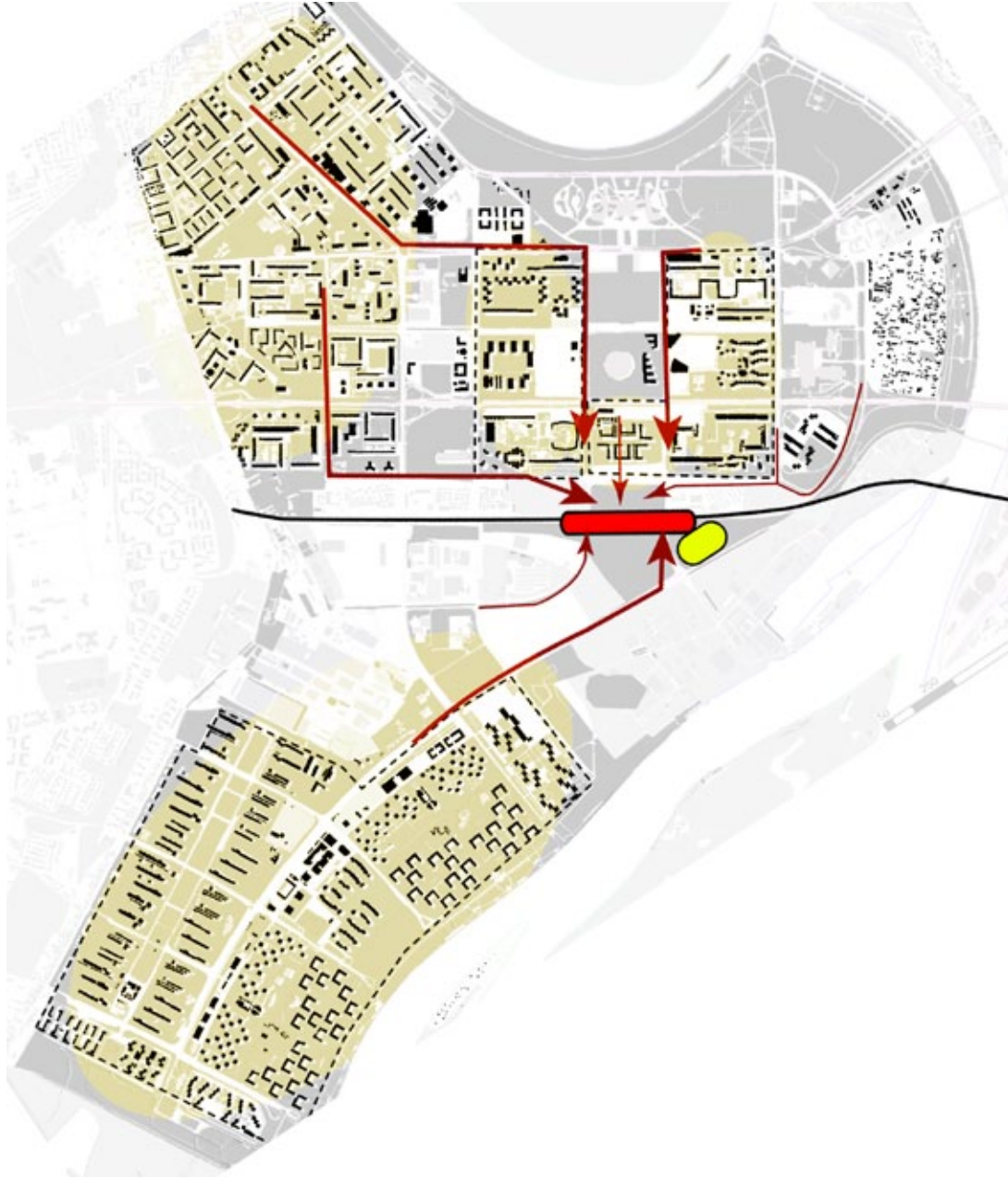
location & accessibility



weakness & portentials

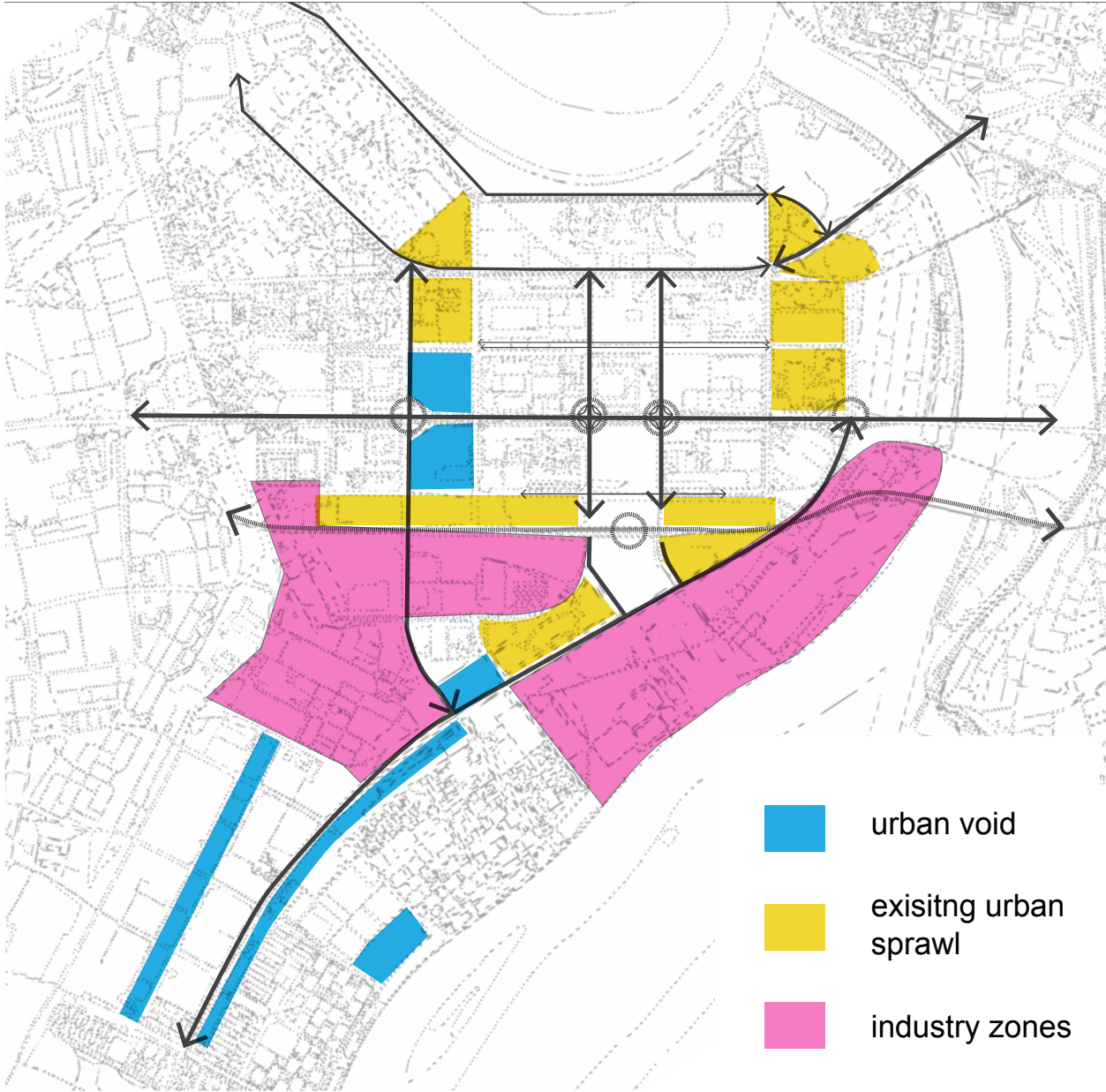


urban structure



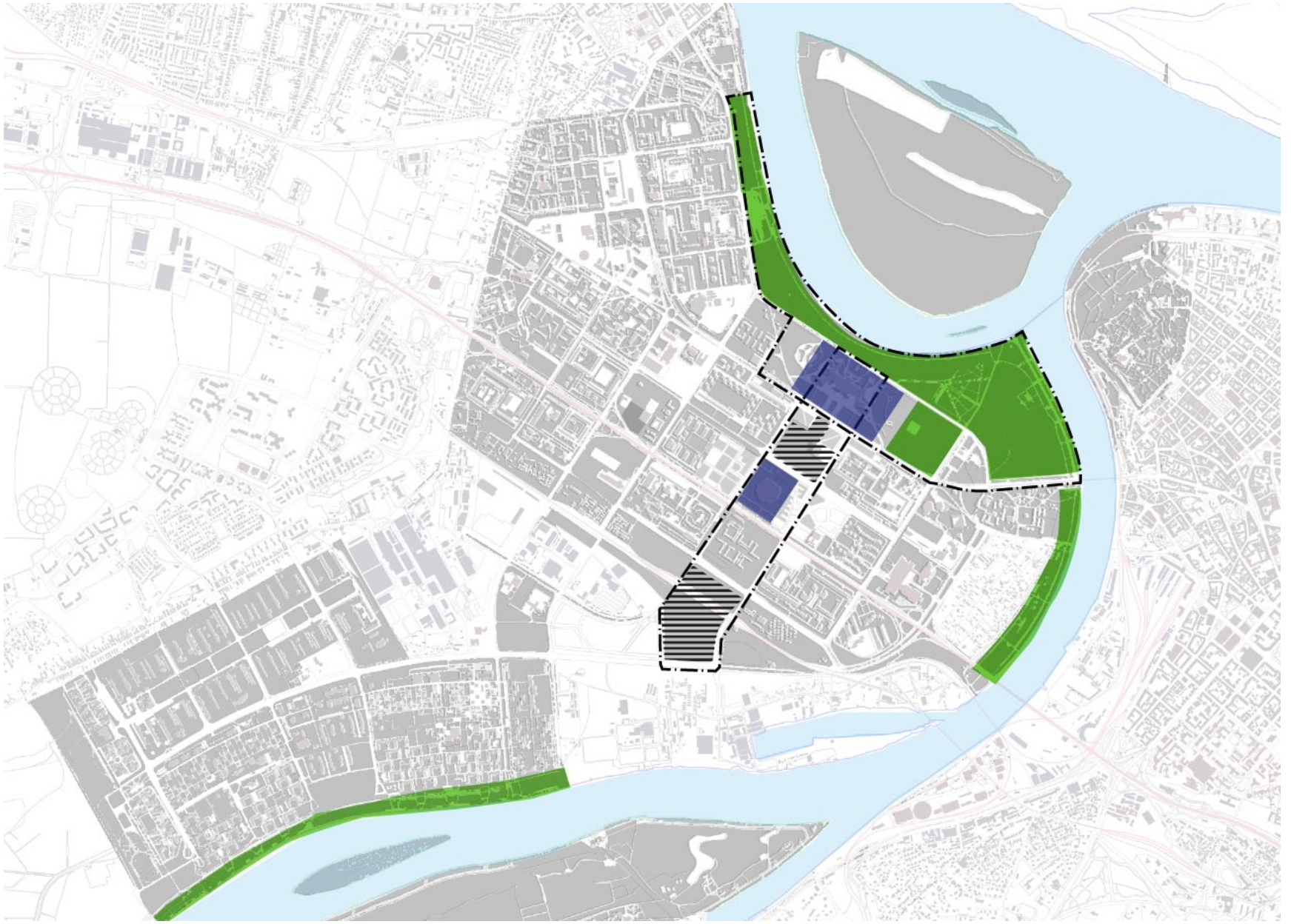
- + Transport lines & nodes
- + Urban densification bloks
- + industry zones





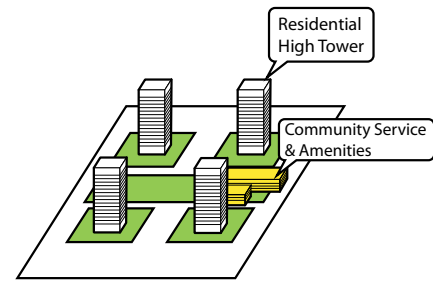
conclusion

By reorganize and emphasis on the T-structure, an old structure will be introduced into a new relationship with its actors- local residence and the nature. Old structure with new meanings and functions will be the hot spot of overall open space. Based on the new backbone, a systematic network of open space will be established in different scales and layers. For instance, new pedestrian boulevards, new parks, squares, etc.

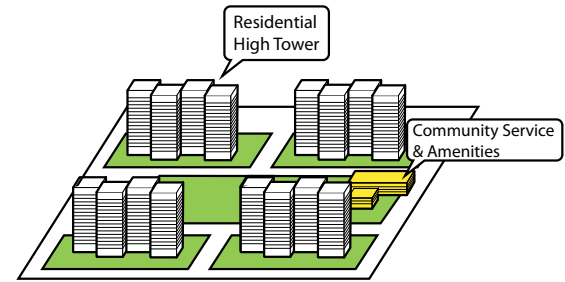


great potential for major reclaim & regeneration in the T-zone!

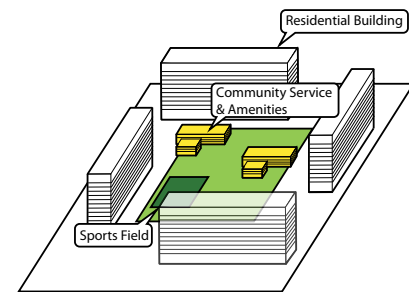
residential area analysis (small patch)



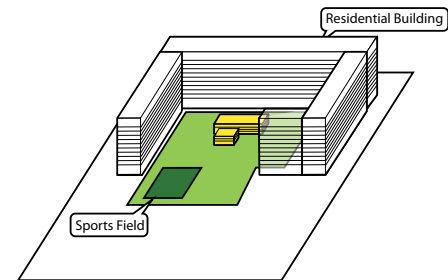
1. High Tower Building - Open Space



2. Compact High Tower Building - Open Space

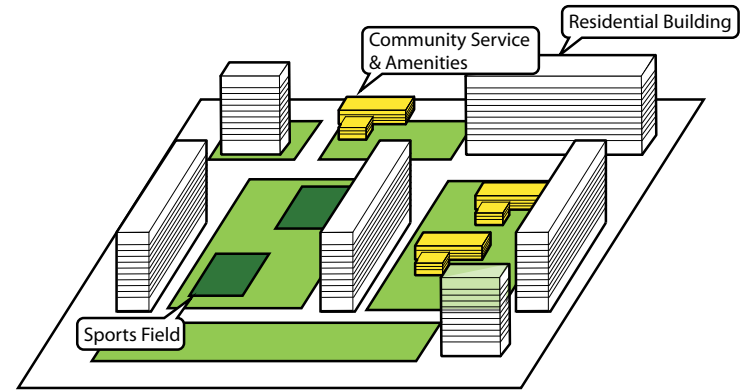


3. Collective Buildings - Open Space

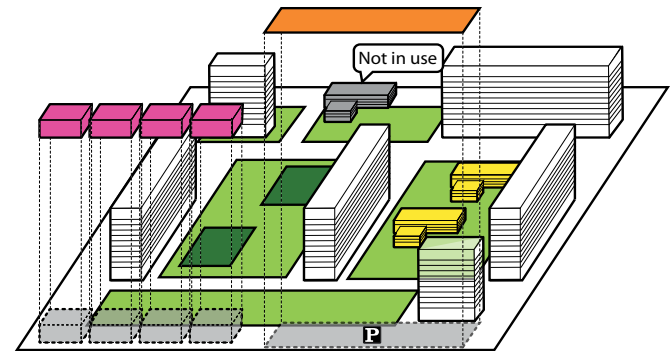


4. 'Set Back' - Open Space

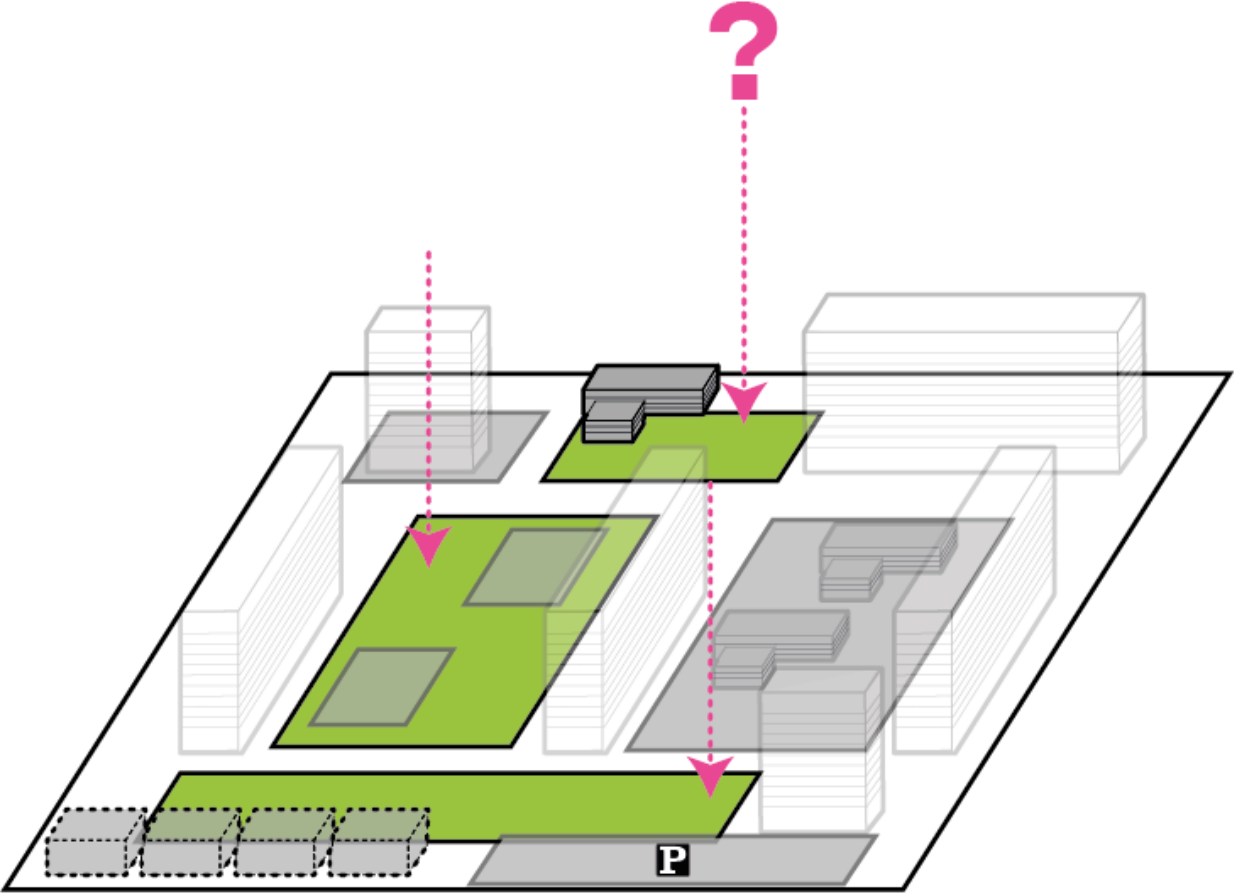
Community (walkable) Open Spaces

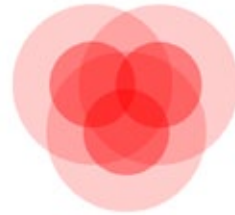


3. Combination - Open Space

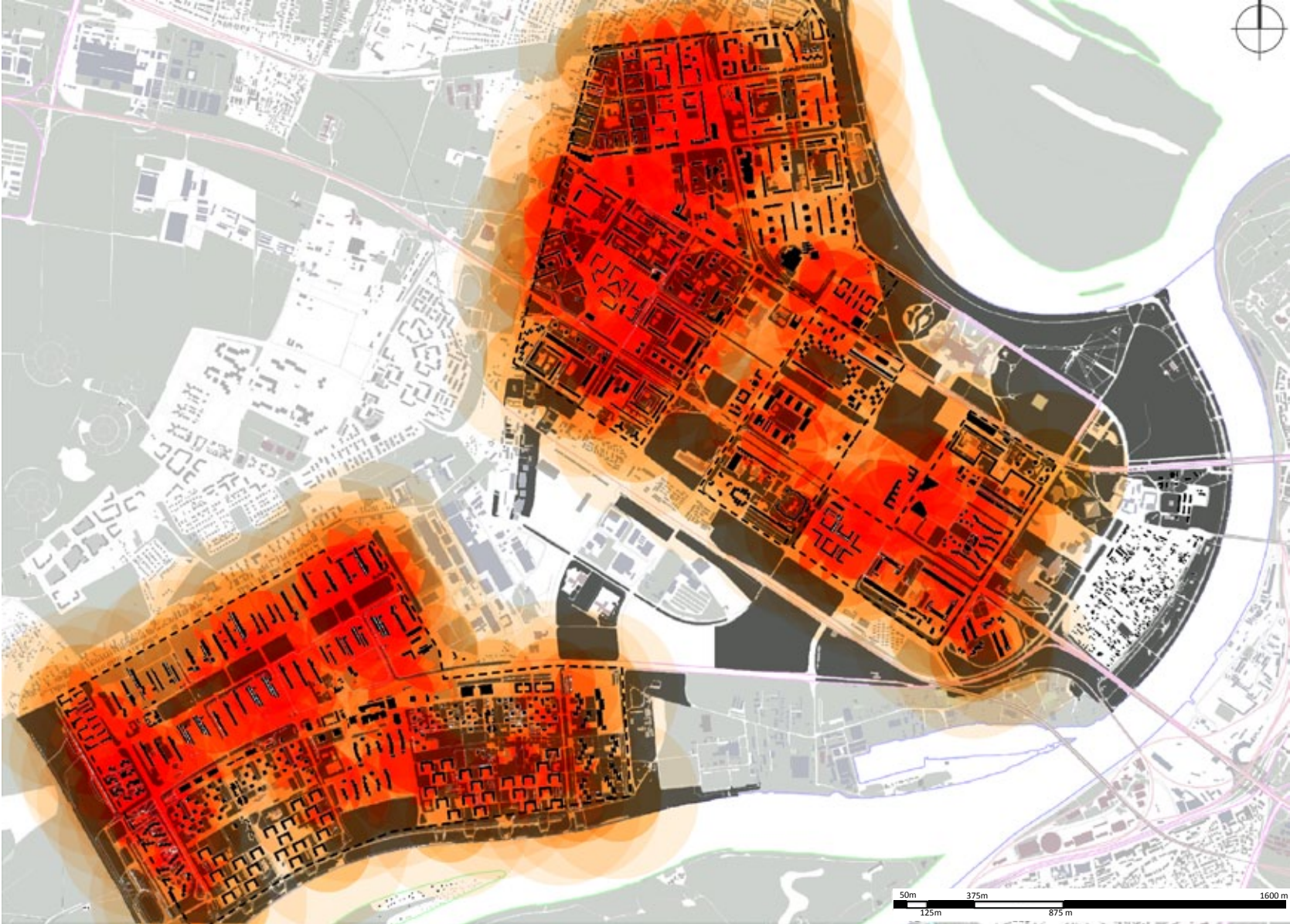








Walking distance
5 mins- in block
10 mins - between blocks



SITE ANALYSIS

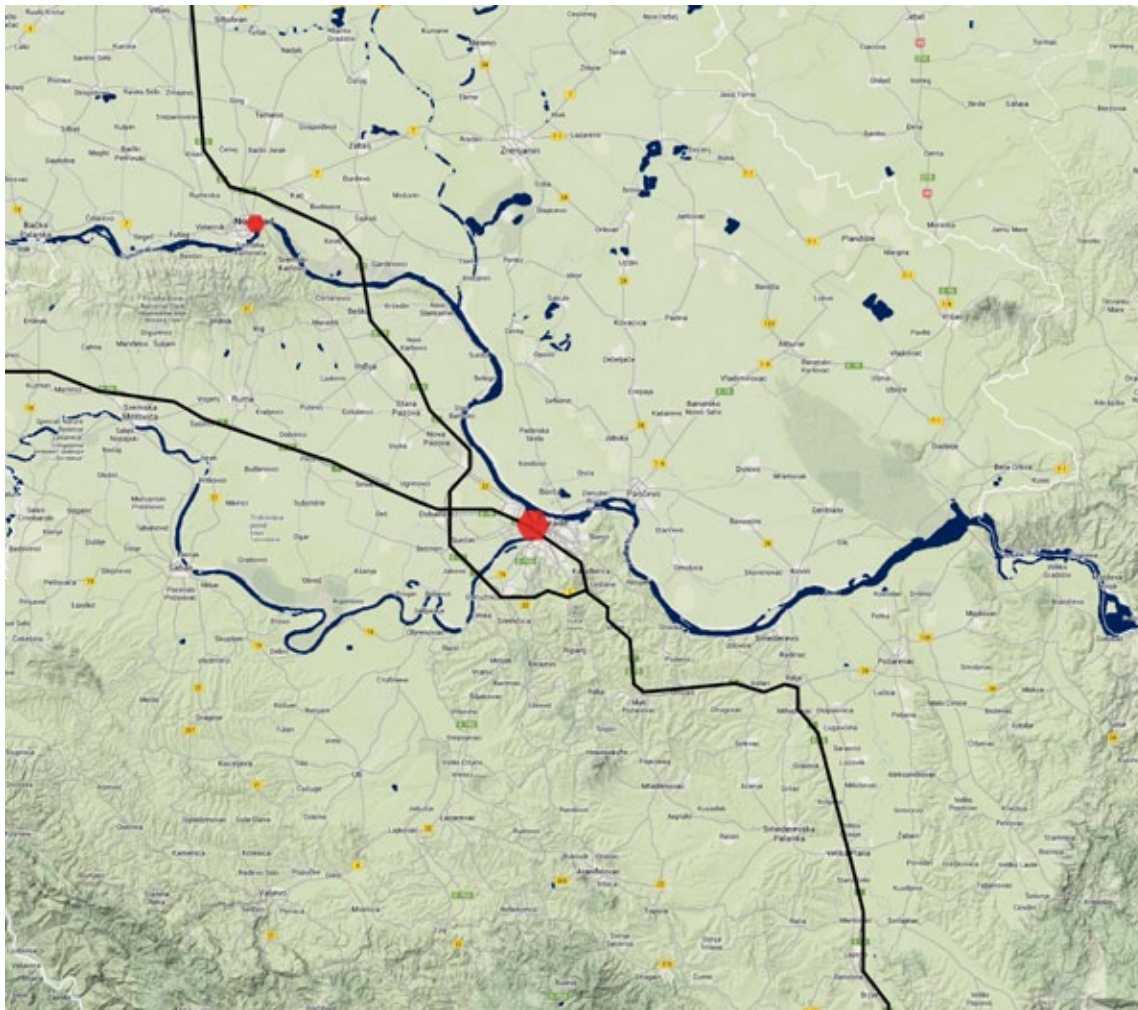
In the inner land areas, high towers, skyscraper, and large amount of housing areas are also consist of the anthropic habitat mosaic patterns. They are the dominant patches that all over the region of New Belgrade.

Small patches of vegetation can be easily traced in the New Belgrade due to the man-made landscape. As mentioned before, according to the ideology of former Yugoslavia, open space is the very elementary units that consist of the urban environment in New Belgrade. Contrasted with the traditional European cities, the urban open space is not defined by the outlines of buildings. Individual buildings are surrounded by open space. So green patches in similar zones are commonly found all over the areas, for instance, trees groups in the living community blocks. Because the oversized road systems make the matrix into fragments, even though the green spaces are in a large scale, trees groups are not the dominant patches in the matrix. So I still defined it as small patches in the range of New Belgrade. This kind of small patches is planted and intervened by human. Small mammals and birds patches are also influenced by the vegetation patches, corresponding nutrient and energy condition. For the mosaic patterns in anthropic zones, community parks are also fragmental for city scale, and the biology value is not efficient to fulfill people's demands. So they are the patches that in sufficient quantity but need to be improved in ecologic value.

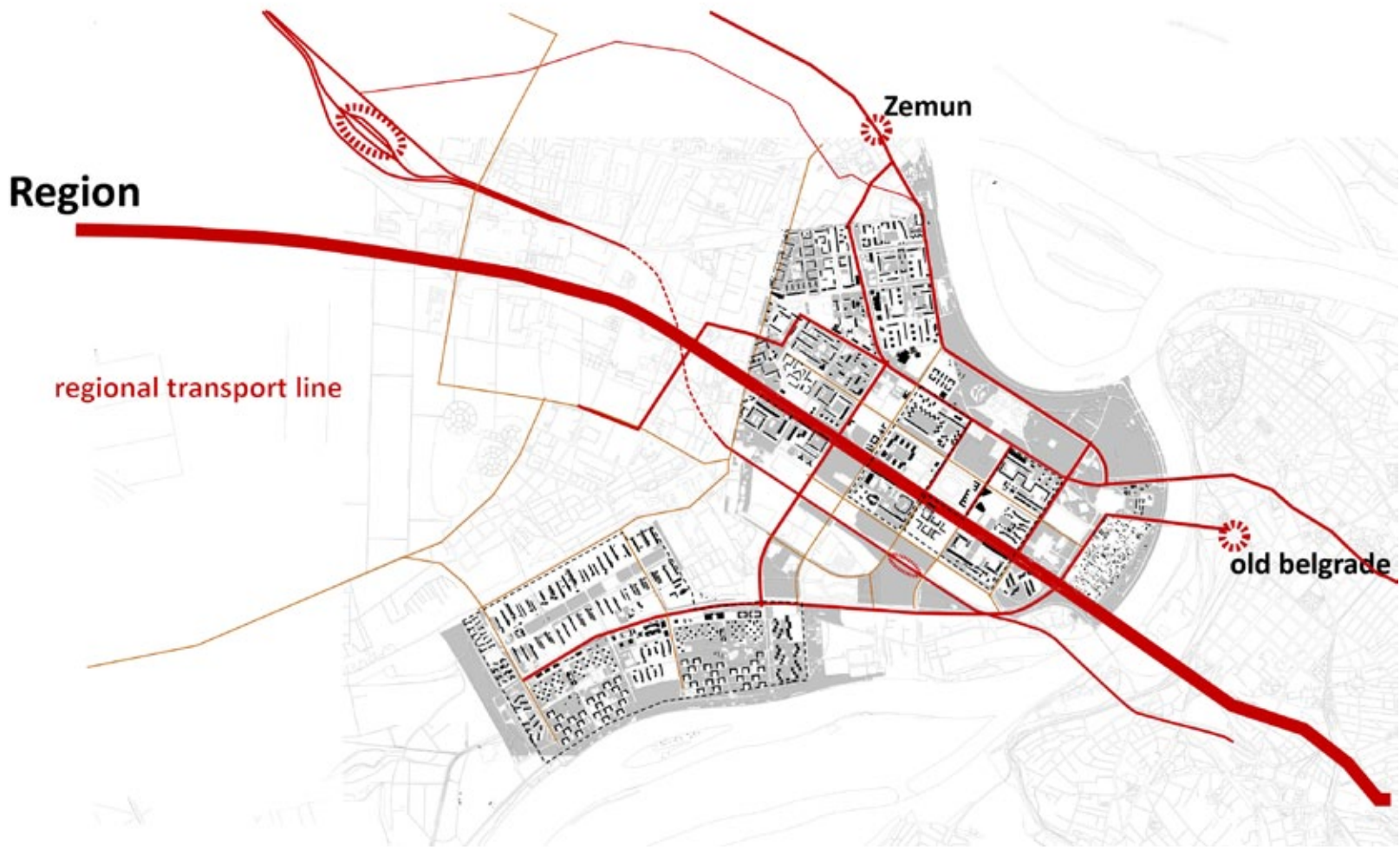


Selected Leftover Open Space= open space in walking distance - existing functional fields

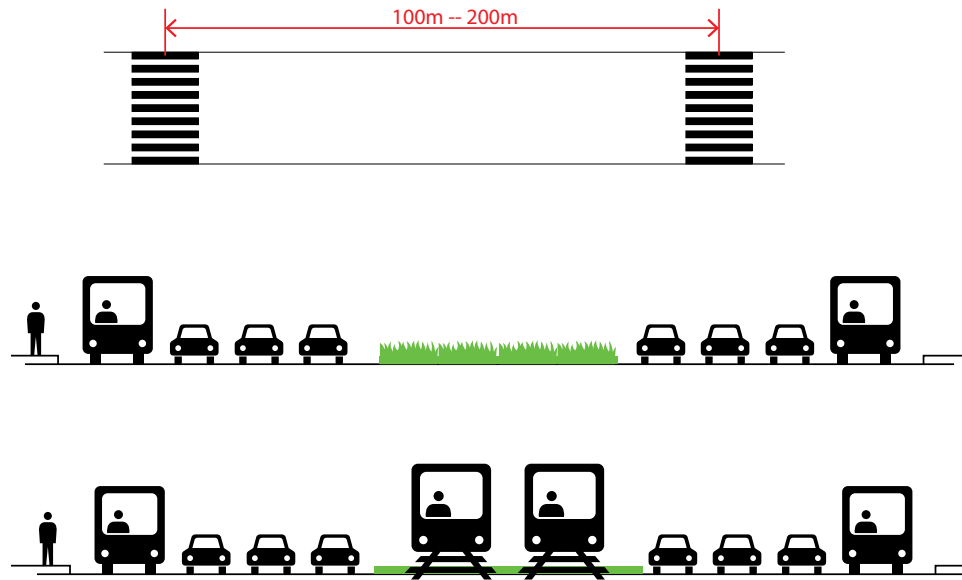
urban flows analysis (corridor)



new belgrade is an important regional transport node which connected to Novi Sad and other cities



street flow analysis

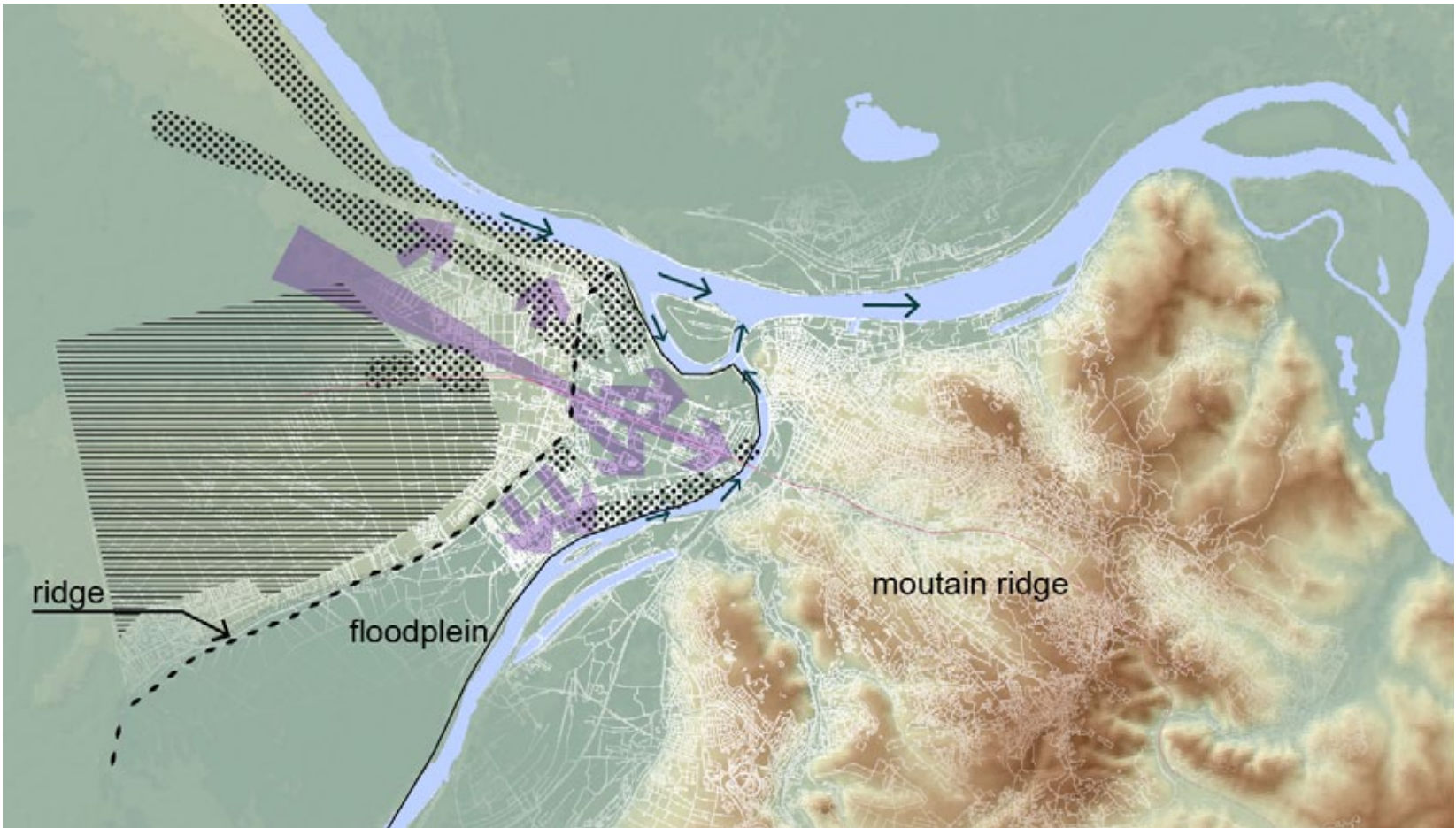


the oversied street is kind of barrier for locals to go across to other bloks

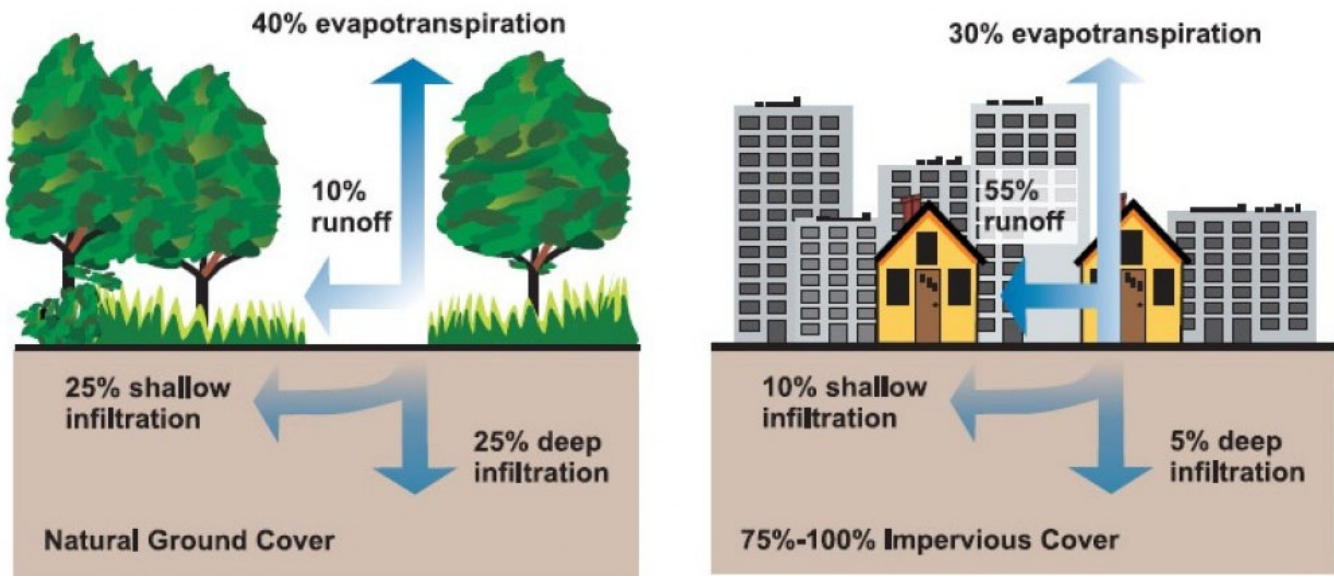


landscape flows analysis (matrix & corridor)

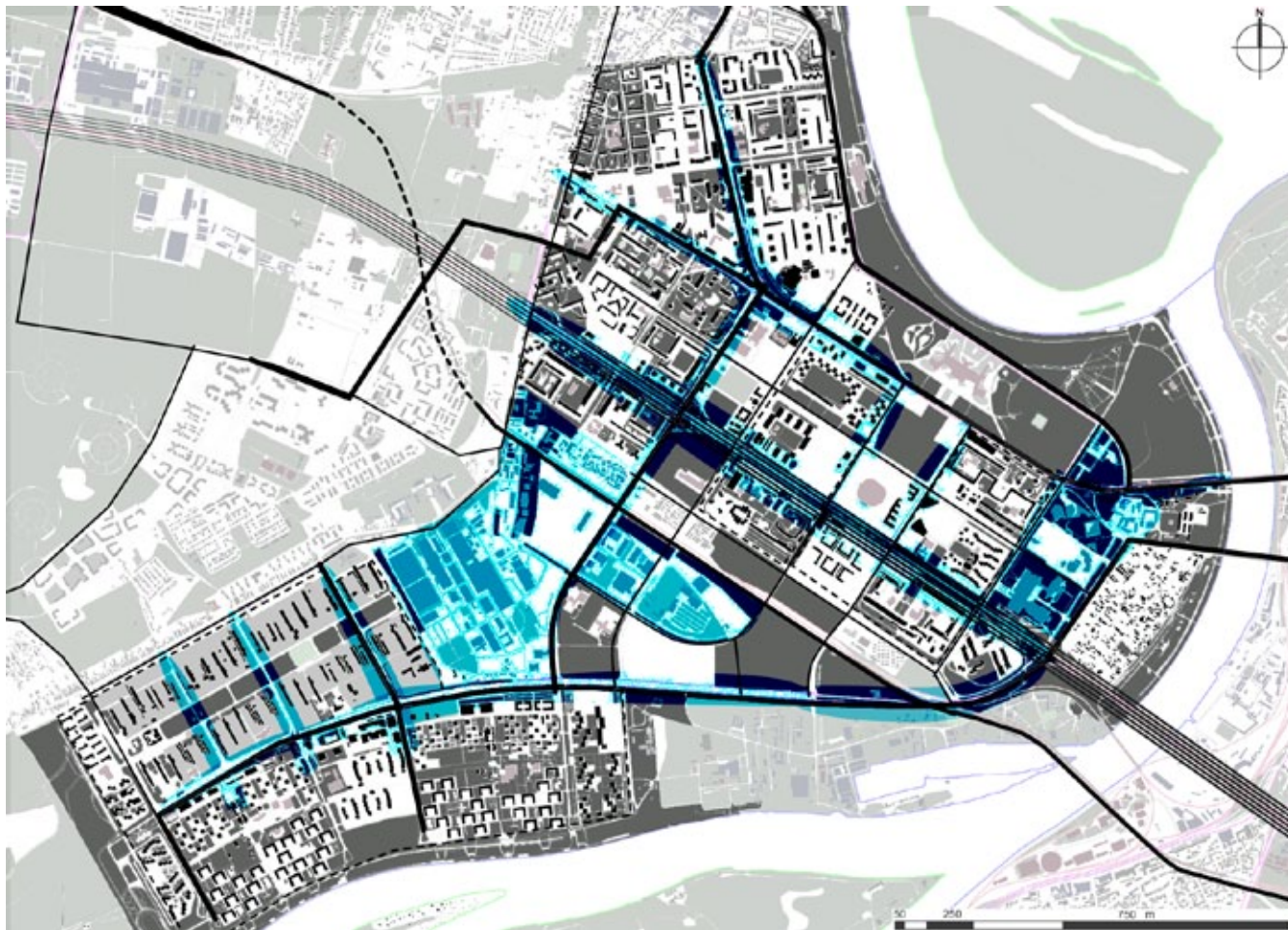
1. Waste- large amount of storm water was directly led to the rain and waste water system
2. Pollution for river water - the run off water directly goes into river, which is one of the main resource for local drinking water



Height section

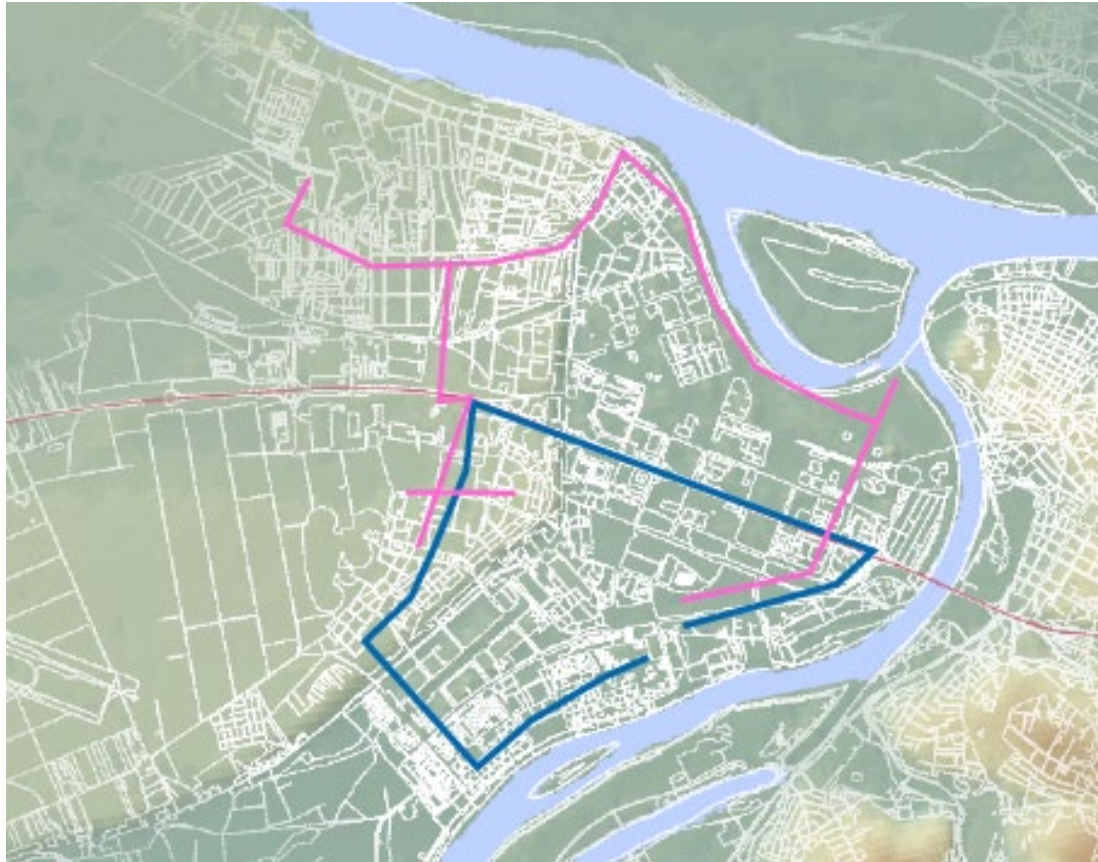


Storm water run off

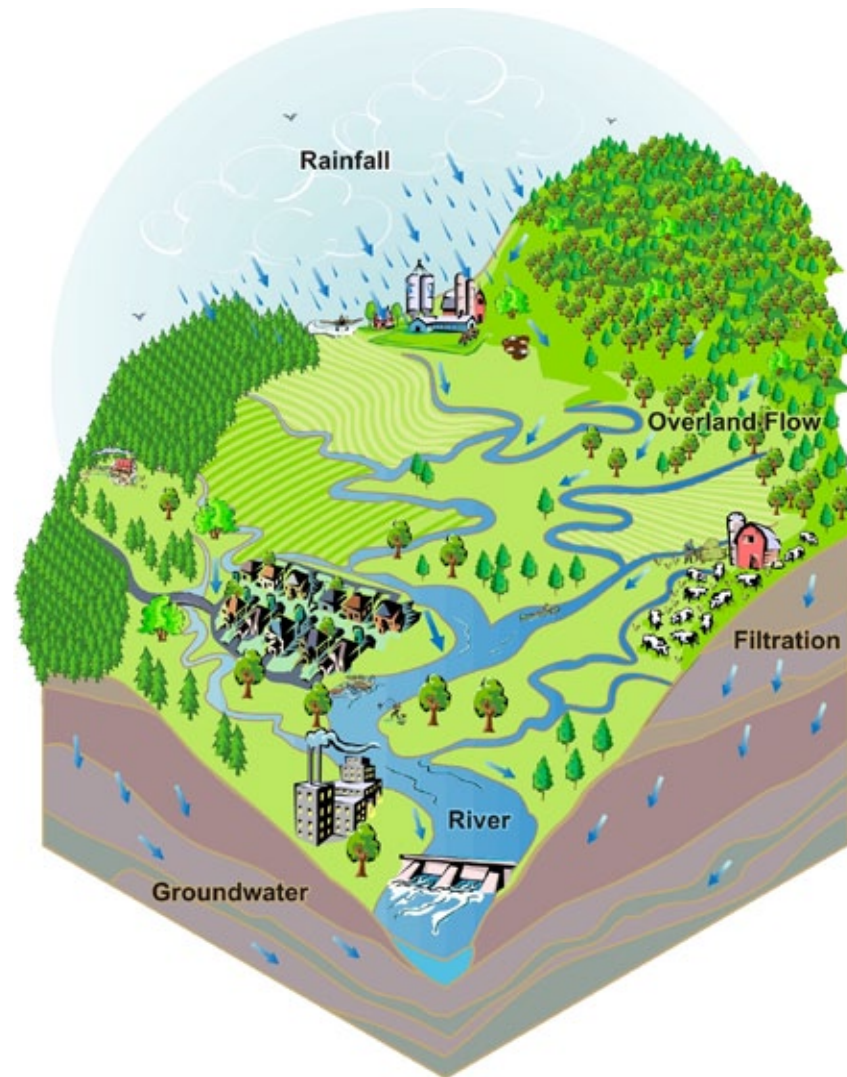


Over-sized street & industry zones

Existing rain and waste water system



Run-off storm water can be a resource of initial purification water for recharging rivers and underground water



local needs analysis

search 'where to go' on the Internet

Beograd- 8,690,000 results

Novi Beograd- 41,700 results

Daily migration in New Belgrade

Workers

dispersion 47,004 highest *

absorption 26,980 highest *



Students

dispersion 19,313 highest *



“
These movements have considerably been directed towards the central urban municipalities of Belgrade, because significant economic facilities are located there...
”

Environment for Spatial Hierarchies



Leisure & Social Activities

SITE ANALYSIS



a better defined environment is required in New Belgrade

3 kinds of informal



necessary activities



retail (social) activities



optional activities

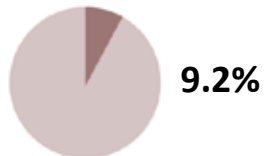
“ More than 13,535 buildings built without permits in Belgrade since September 2009. , Which means that under current regulations can not be legalized... ”



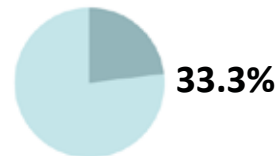
a productive landscape will be an alternative for the locals

Job Opportunities & Self-sufficiency

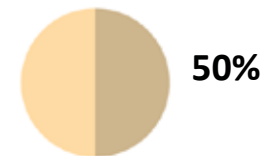
Challenges VS Opportunities



Number of poor people below the poverty line, **more than 680,000 people**. The absolute poverty rate rose to 6.9 percent in 2009, and even to 9.2 percent in 2010.



A third of families in Serbia now living in **cramped conditions**. A disturbing fact is that a large percentage of grandparents and retirees serving whole families of their children because no one has a job.

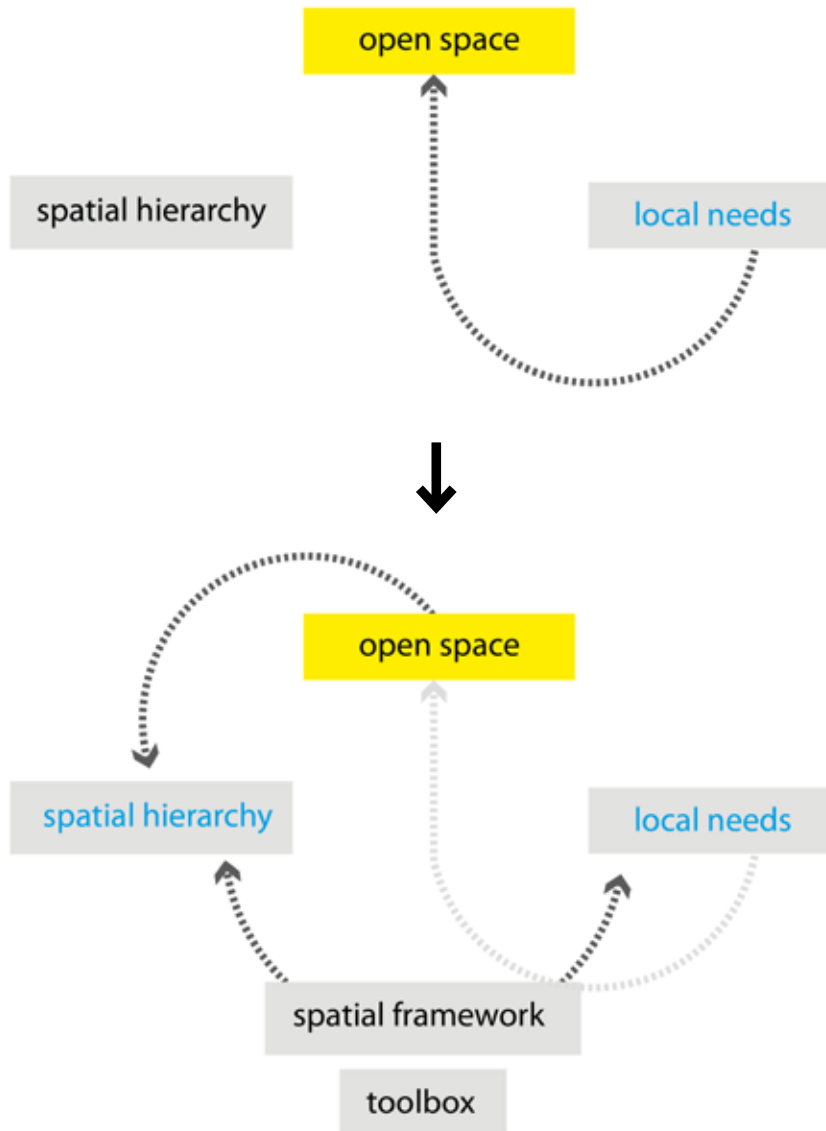


Half of young people in Serbia believe that their independence more appropriate, but **for the moment no conditions**.

By fully understanding the whole landscape picture, namely the nature and urban flows, we are encouraged into specific spots that have to be rethought about the landscape's role in current urban environment.

The local needs and the consideration for landscape matrix are the emphasis on current urban open space structure. The role of landscape should be rethinking in the current urban issues.

It would be a waste that large amount of open space cannot be an active and operative landscape to fulfill the local's demands and enhance ecological values. By reclaim the open space in Belgrade, the
Then a model is established from Belgrade experiment.



DESIGN VISION

- 4.1 Master Design Vision of New Belgrade
(Landscape + Urbanism)
- 4.2 Bottom-up Intervention
- 4.3 How they work together?
(Edge Condition)

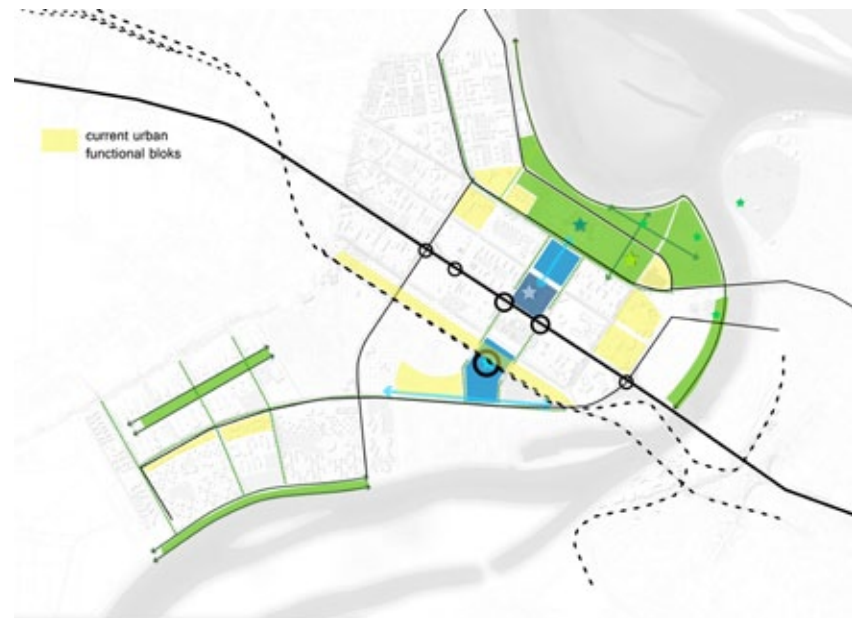
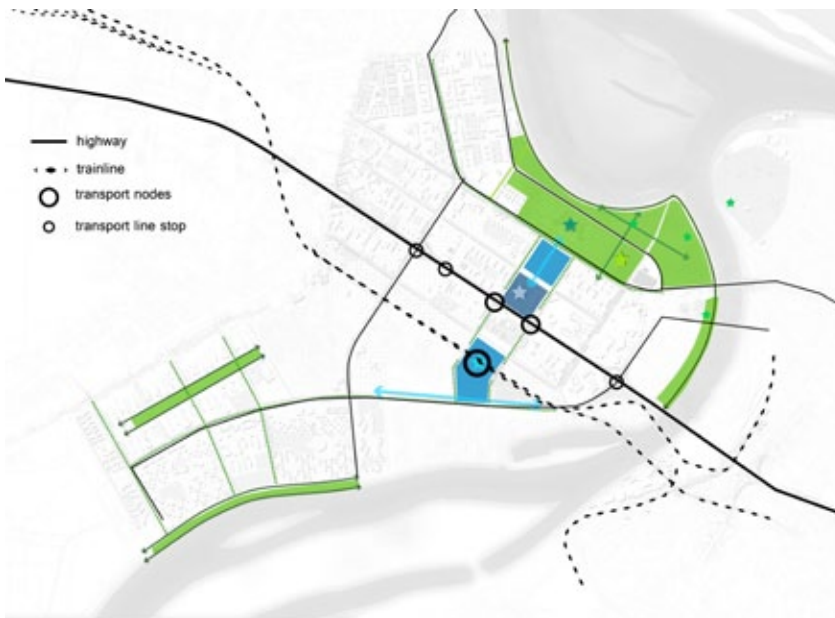


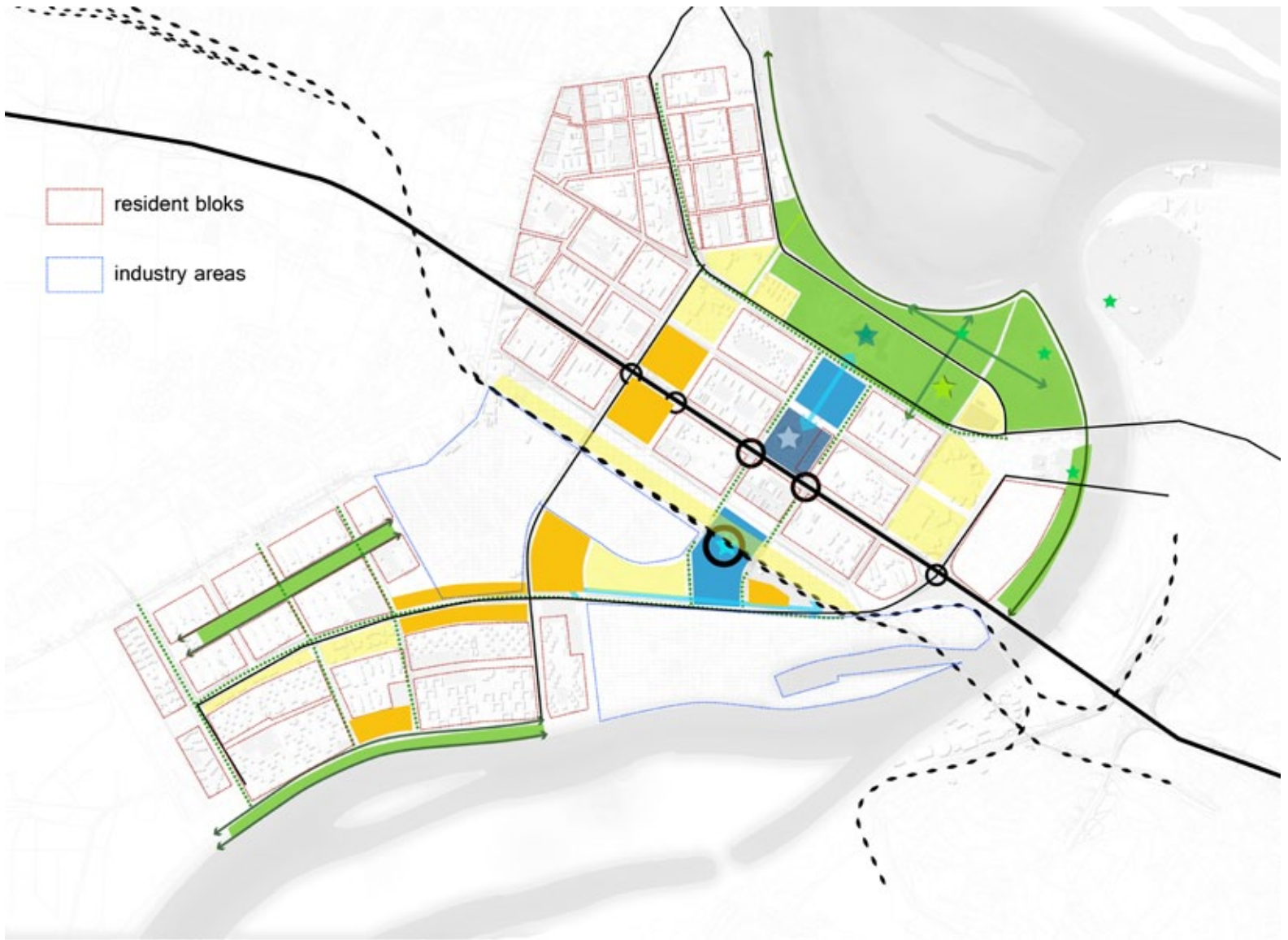


Corridor X, the highway, goes across the golden axis. The T and X structure is the functional backbone for the New Belgrade and even larger areas. But the collapse of the ideology urbanism and the current economy situation make the T structure is not recognizable anymore. Because of the influential cultural and historical value of the T-structure, there are a lot of potentialities for a new backbone for the urban open space structure. So the spatial hierarchy can be established with the T-structure and then connect to an entire spatial structure in New Belgrade.

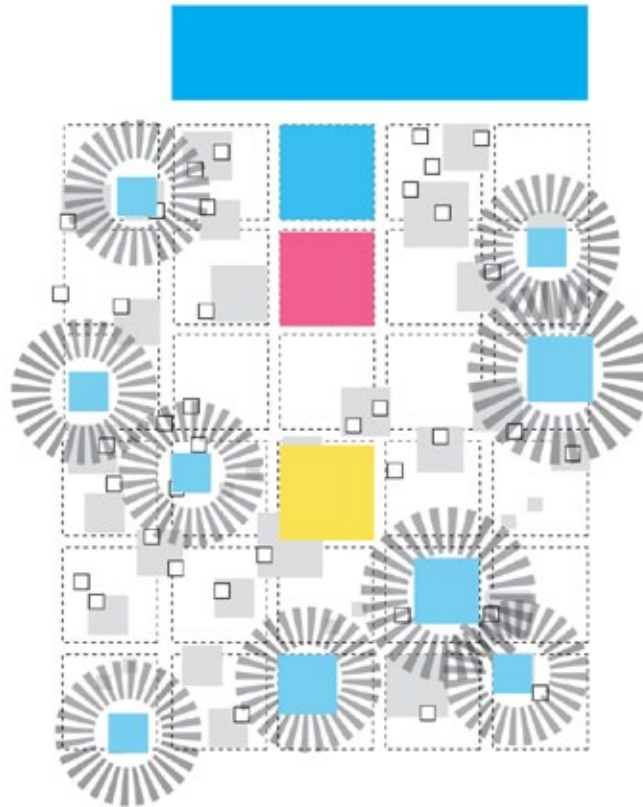
nature + urban landscape





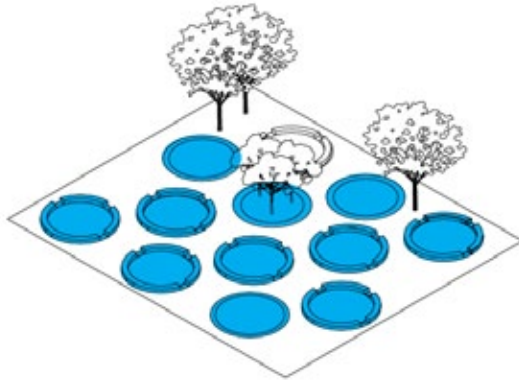


bottom up!

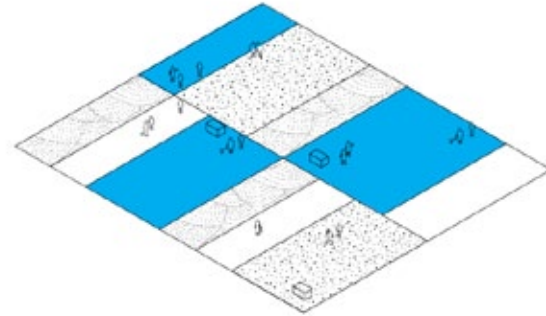


What can the locals do with THEIR open space?

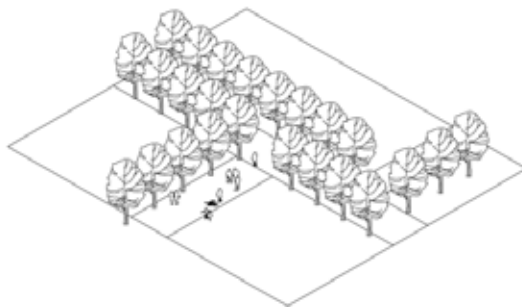
Suggestive toolbox for community landscape interventions



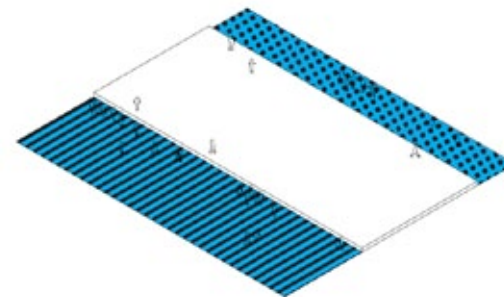
Private gardens



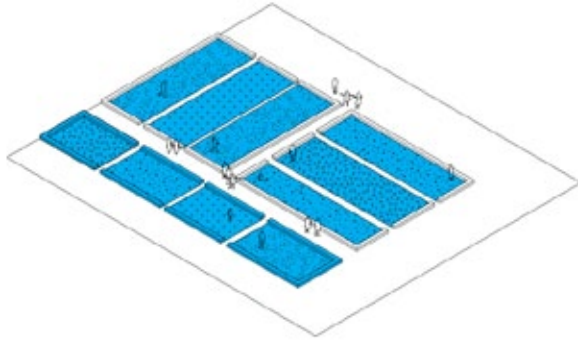
Parcelling



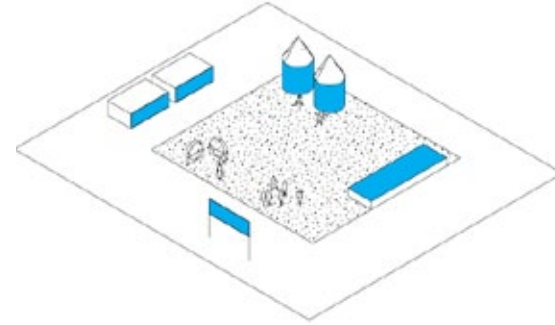
Path & tree lines



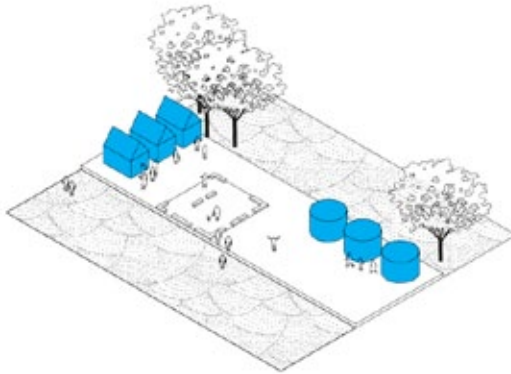
Surface treatment



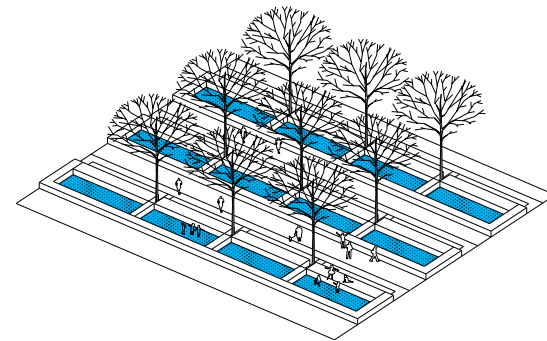
Urban farming



Art + design intervention



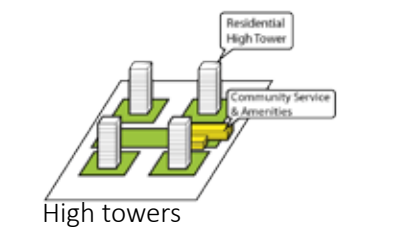
Civic amenity



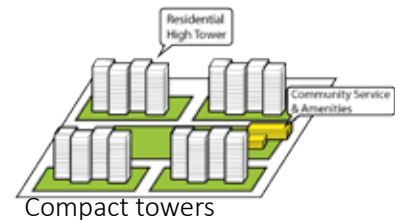
Water treatment

DESIGN VISION

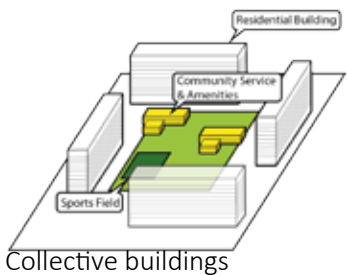




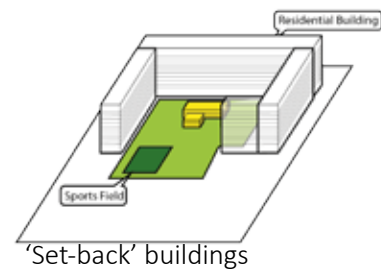
High towers



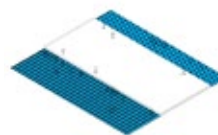
Compact towers



Collective buildings



'Set-back' buildings



Surface treatment



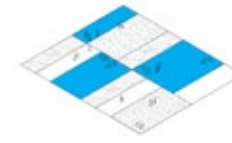
Civic amenity



Path & tree lines



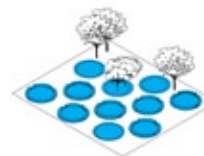
Art + design intervention



Parcelling



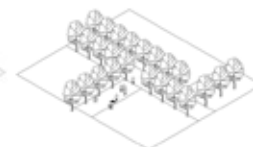
Civic amenity



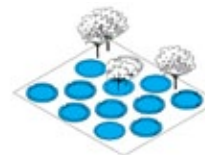
Private gardens



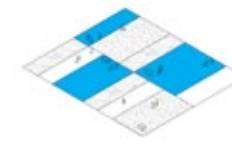
Urban farming



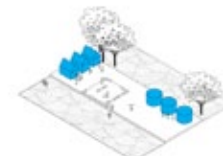
Path & tree lines



Private gardens



Parcelling

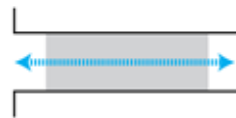


Civic amenity

How do the open space work together for human scale?

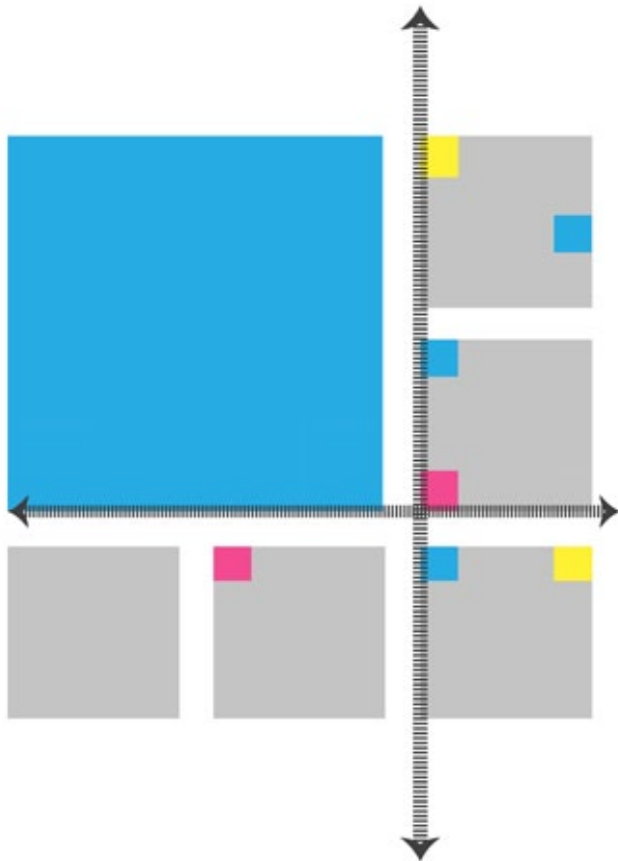
Edge condition is also a very important aspect that should be taken into account. For instance, because of the distinctive condition of Karst topography, there is a striking edge between the New Belgrade and outside (figure 8). According to the survey and statement by R. Forman (1995), the soil edge fits the 'habitat interspersions, adjacencies and convergence points' description. In the view of biology, the edge is to 'produce convergence points ("junctions" or types of "coverts") where three or more habitats converge'. So in the model, I define the edge as a corridor-patch mixed matrix for biodiversity.

The mosaic patterns also provide clues and new perspectives for the social aspect. The ideal community collapse threatens the residential patches flow circulation. So my strategy is taking advantage of each community edge and introducing more small cultural, natural and social patches habitat. So in this way, the communication between residential living patches will be established. (Figure 6)



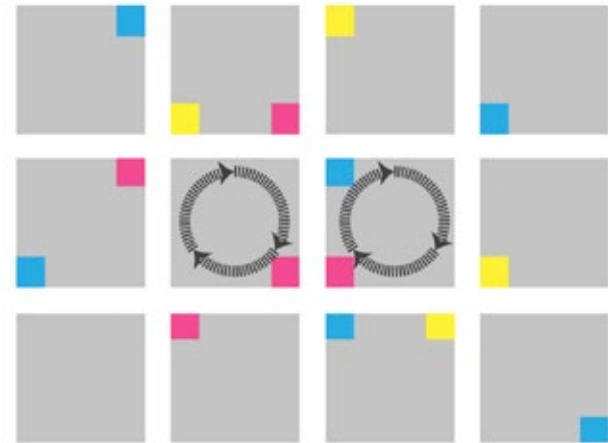
edge

nature



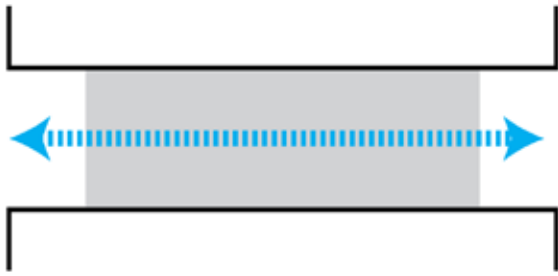
edge connectivity

+ urban landscape

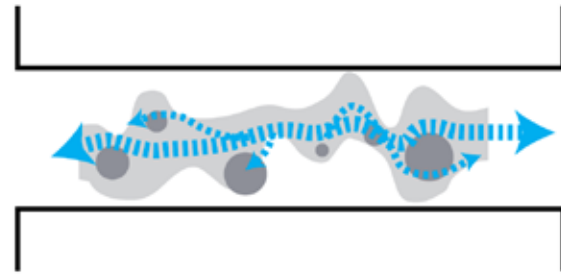


edge program densification

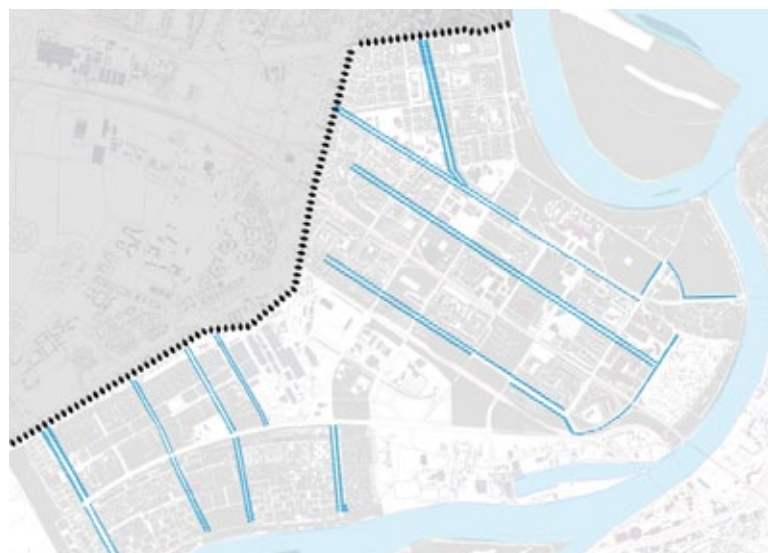
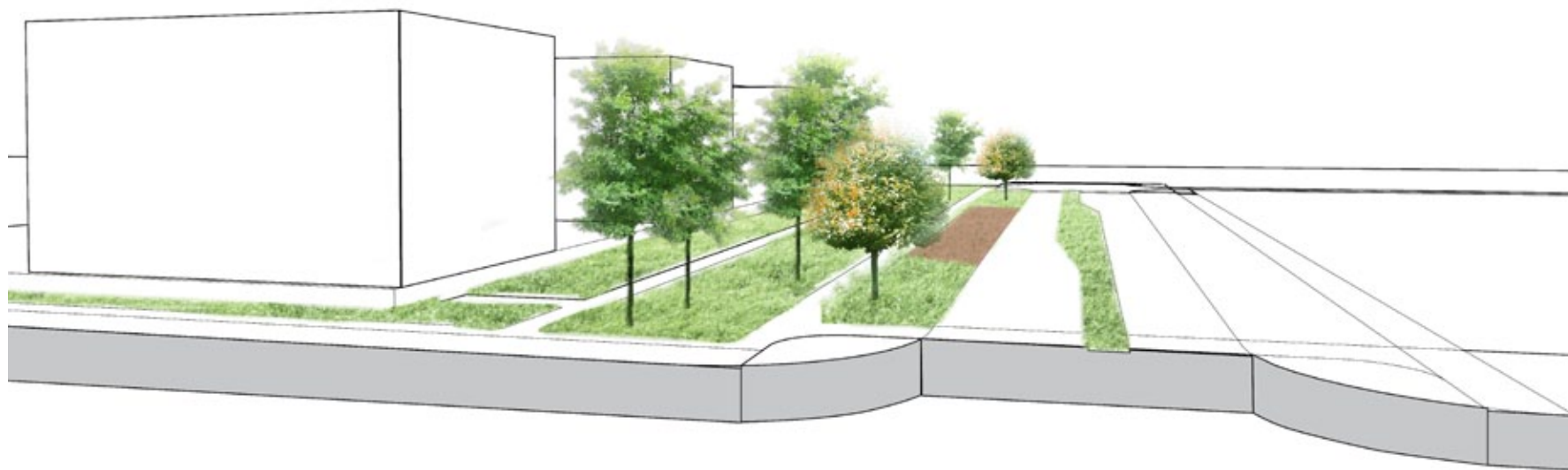




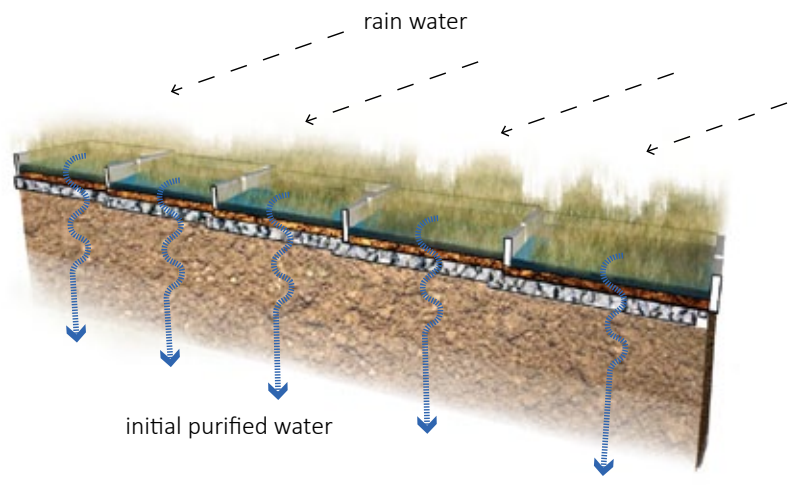
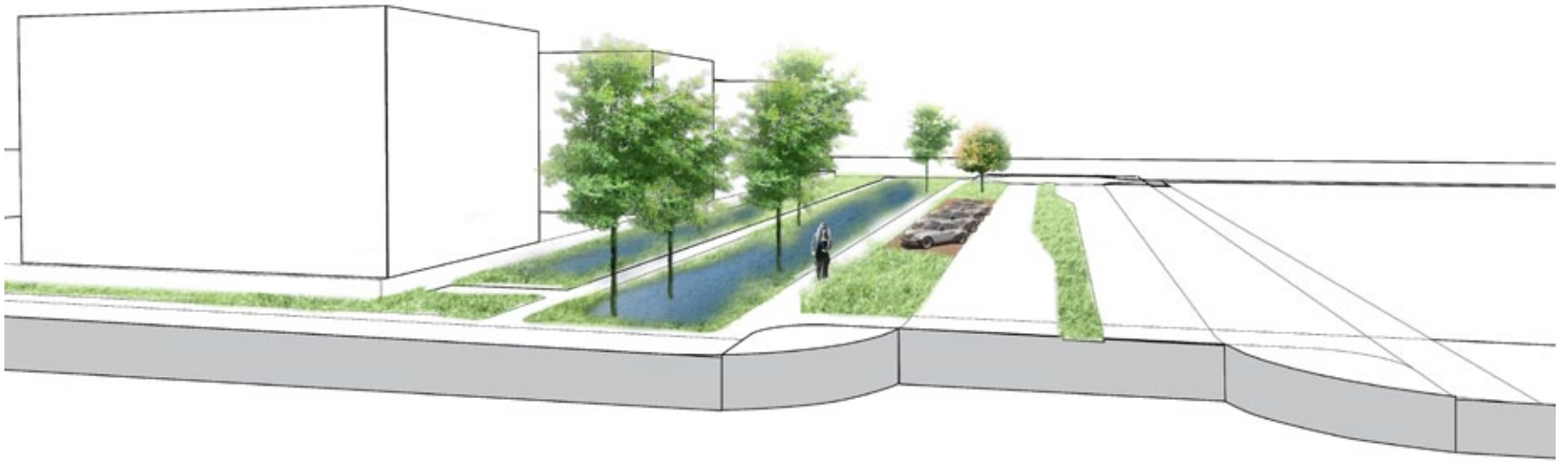
indifferent



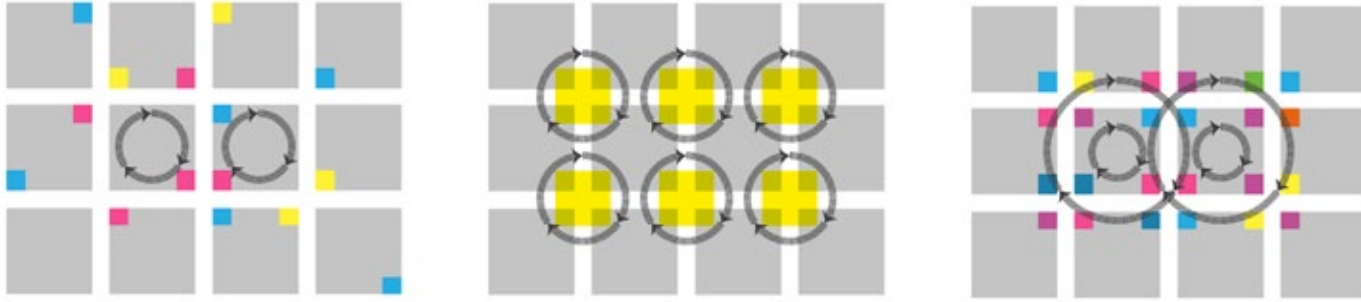
pedestrian friendly



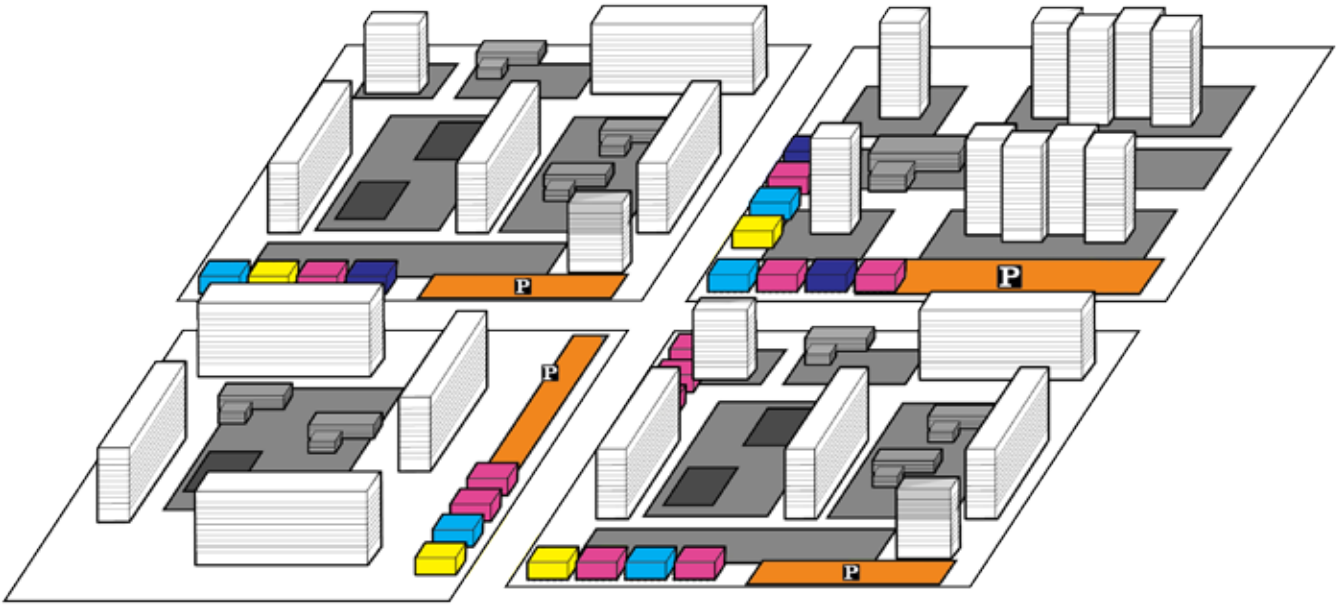
Existing streets as landscape contribute corridor



Collected rain water purification



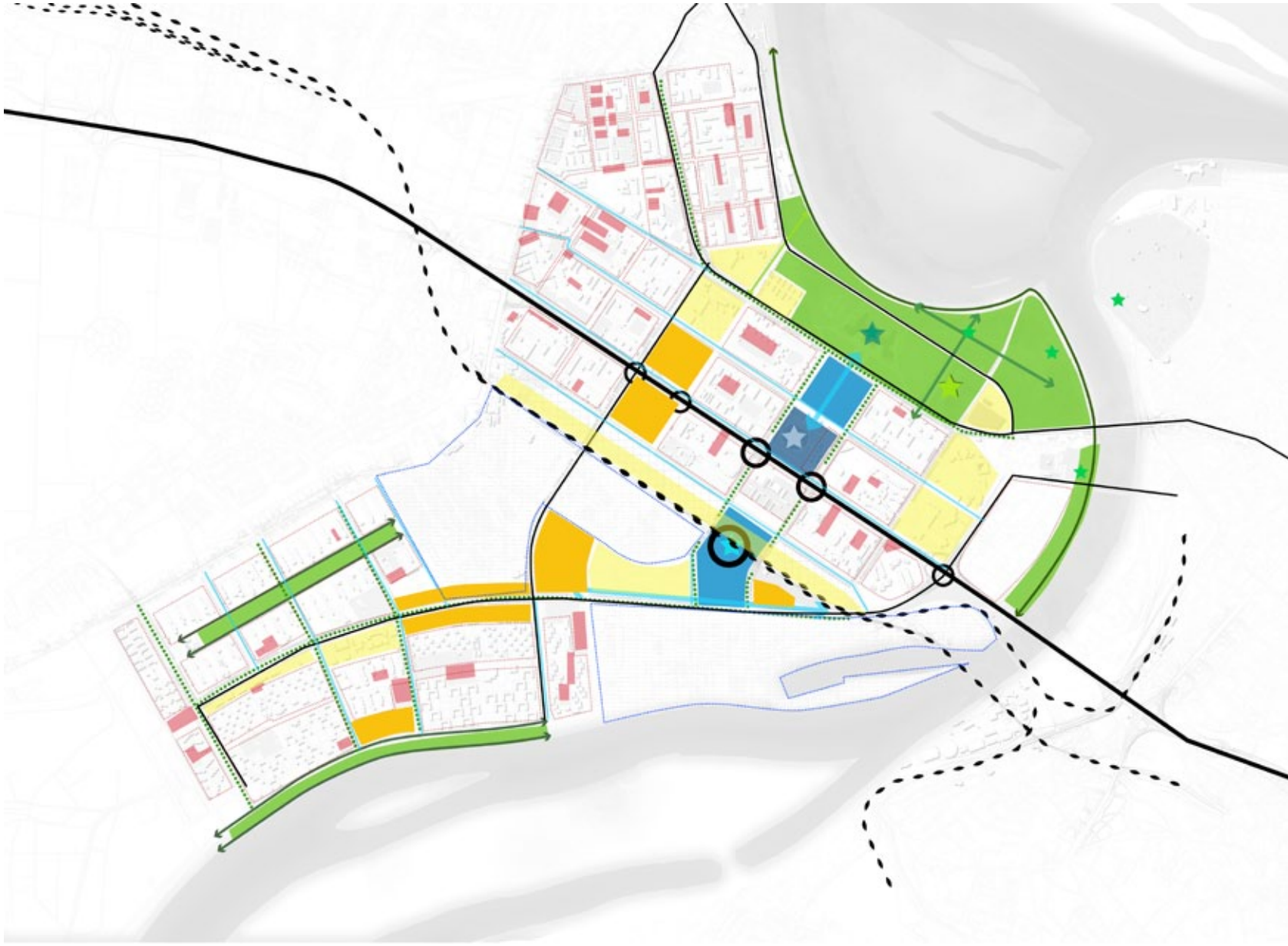
new urban constructions & programs







DESIGN VISION

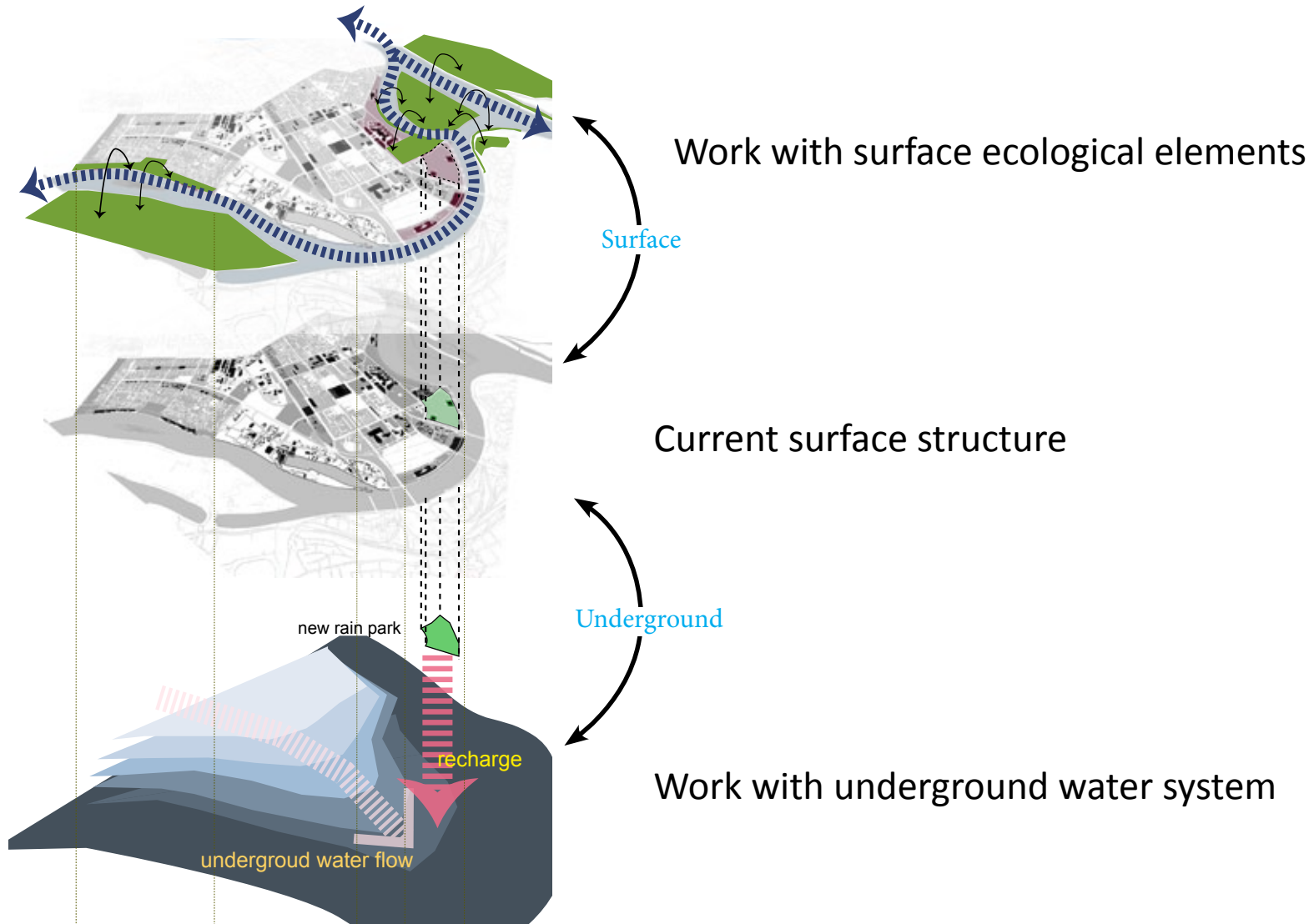




As a result, naturally developed mosaic should be encouraged in the urban environment, instead of keeping the natural spots out of the mainland. Man-made mosaic patterns, for instance, cluster of high-tower buildings is always the dominant patches in the matrix, then the strictly arranged green open space without spontaneous growth space could not be strong enough for a livable environment and a circulating network. On one hand, it is a method to build up an operative network for biodiversity and energy circulation. On the other hand, a strong natural edge can be established along the river bank of the mainland, so flood risk could be reduced in a sustainable way. Last but not the least, consider human's movements in a dynamic view. In my initial design and proposal, flowweb of citizen's daily movement is also taking into consideration. According to a survey, around 40% of local people in New Belgrade have to commute to Old Belgrade every day. Job opportunities, retail shops and social activities are maturely developed in Old Belgrade.

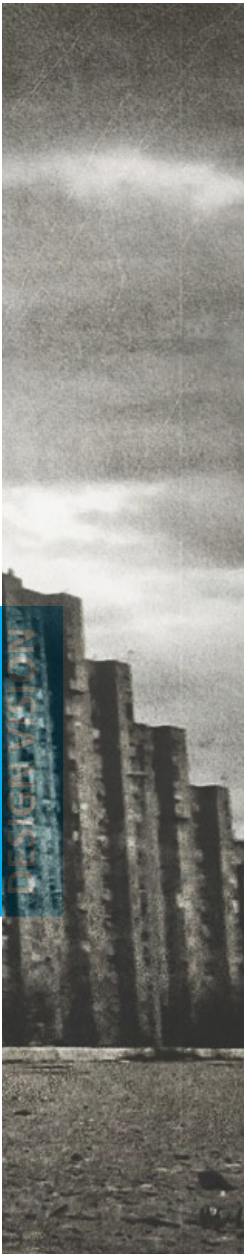
Matrix - subsurface intervened by surface landscape

How the patches & corridors interact with the matrix

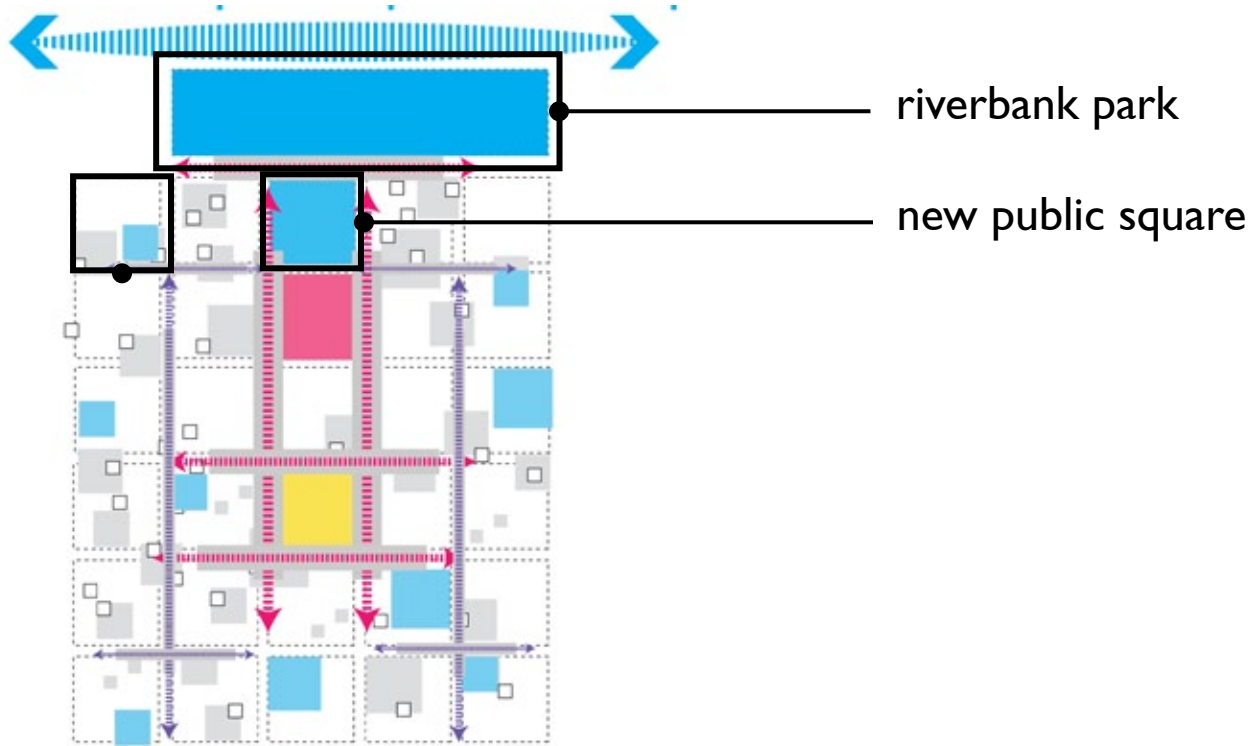


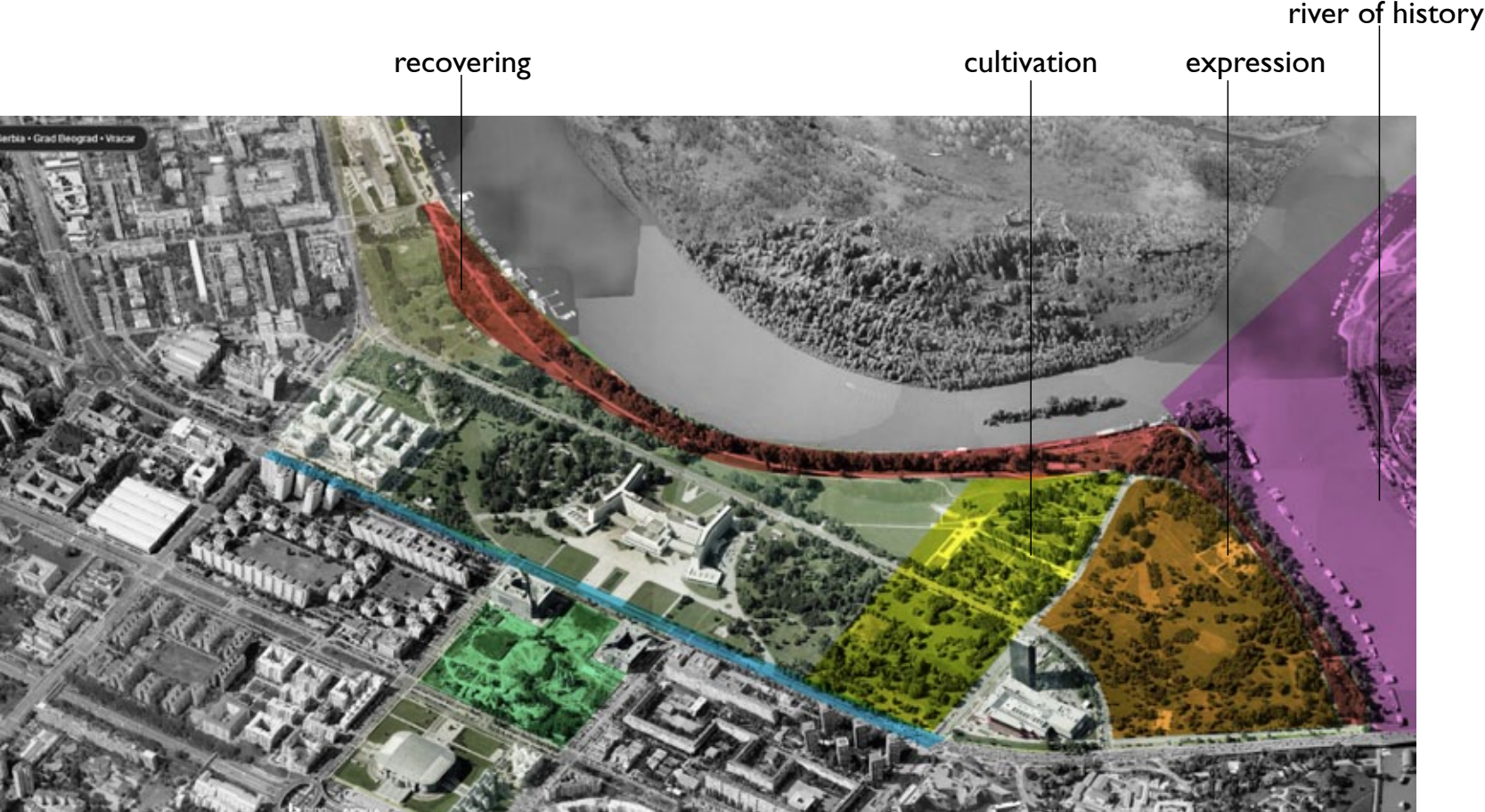
ELABORATE DESIGN

- 5.1 Elaborate Site 1- Park Systems
- 5.2 Elaborate Site 2- New Public Square
- 5.2 Elaborate Site 3- Blok 30

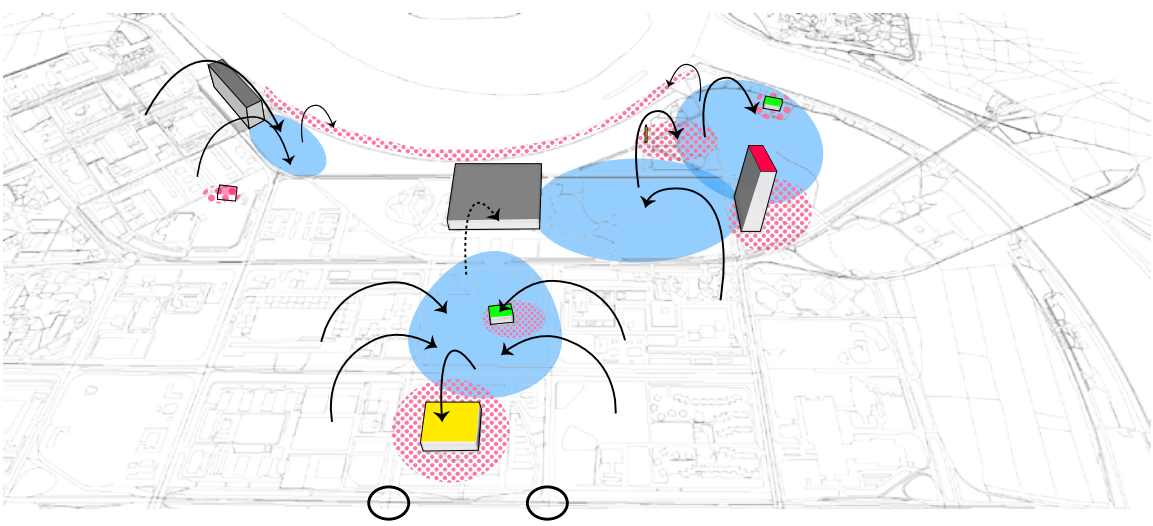
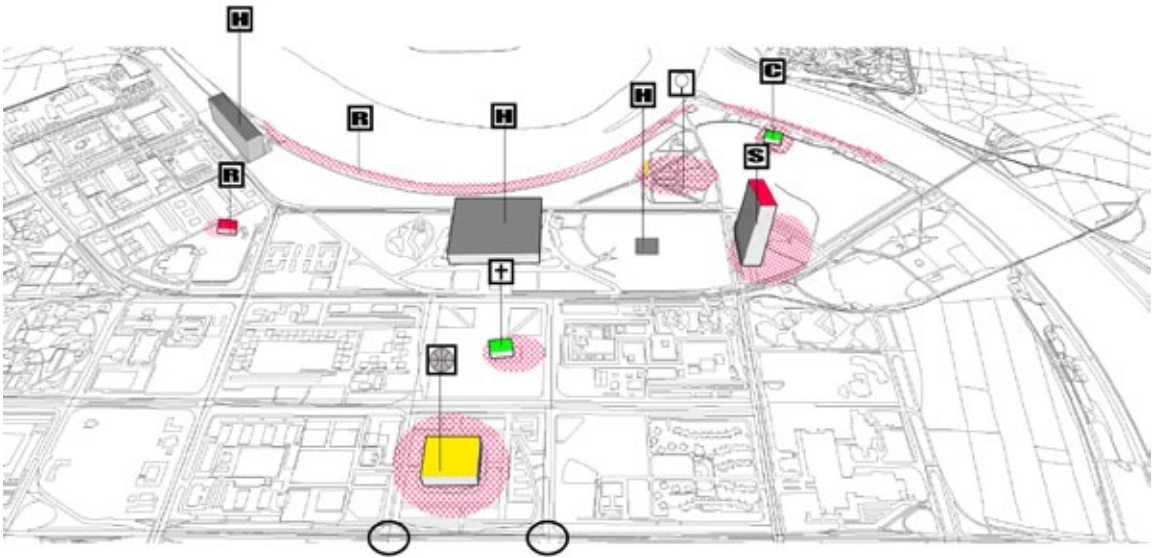








The zoom-in elaborate design area is located in the central nine Bloks. They are the most noted identification and representation of the socialist urbanism ideology. So specifically speaking, they are Blok 21 to Blok 30, among which, Blok 21, 22, 23, 24, 28, 29, 30 are the resident communities. In the middle of the T-structure are Blok 25, 26, 27, which are the real urban functional center for the whole New Belgrade. (attach pic) As stated in the second part Background of New Belgrade, the Blok 27 is the administration area. Palace Serbia is located as the head of the entire Yugoslavia. The enormous and glorious building is too huge for the New Belgrade. The green carpet around it is still kept vacant. It is the time for new functions and new relationships with the Danube, Sava rivers and the residence. Blok 25 and 26 were a part of the historical perspective for a "Golden Axis". In fact, the very original "Golden Axis" consisted of Blok 27, 26, 25, 24 and continued to the train station. (attach pic)





current open space condition

1999



war



lost



art

1940



promise

the locals' emotion keywords



recovering



cultivation



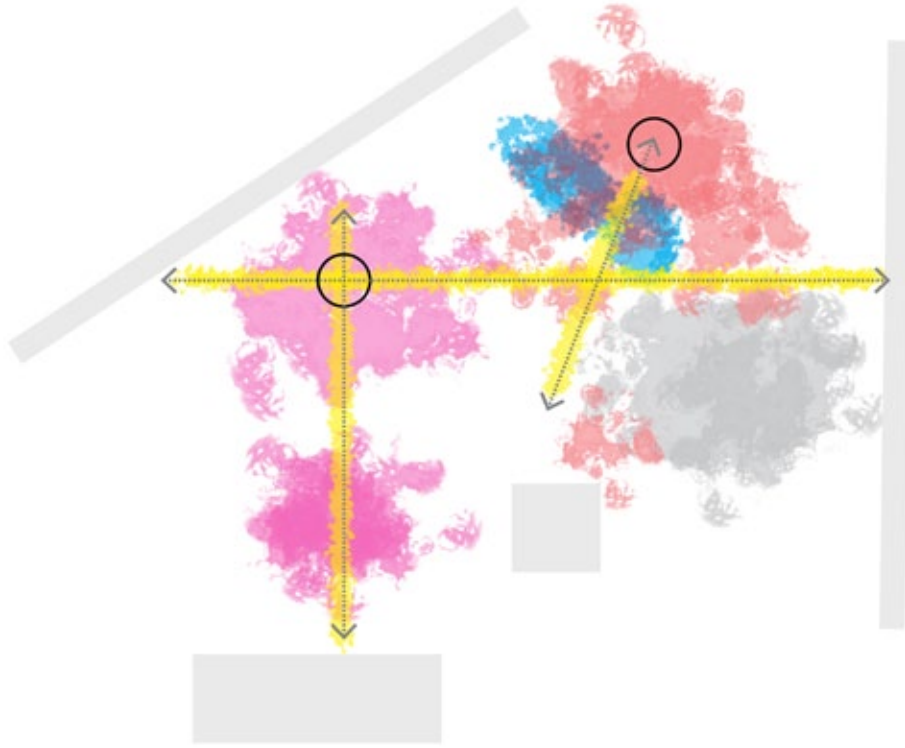
expression



river of history

propused atmosphere and themes

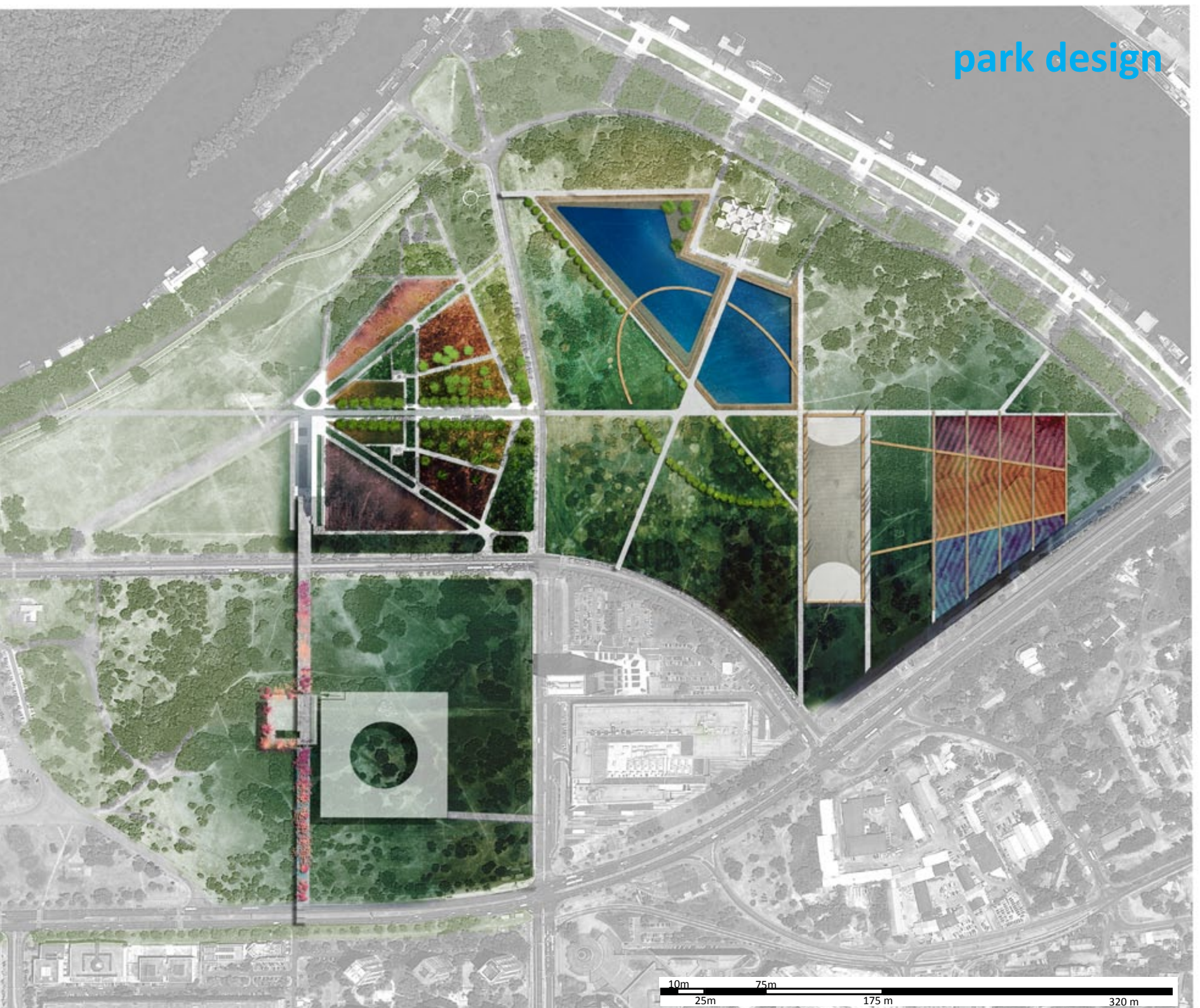
Concept & Proposal



ELABORATE DESIGN



park design



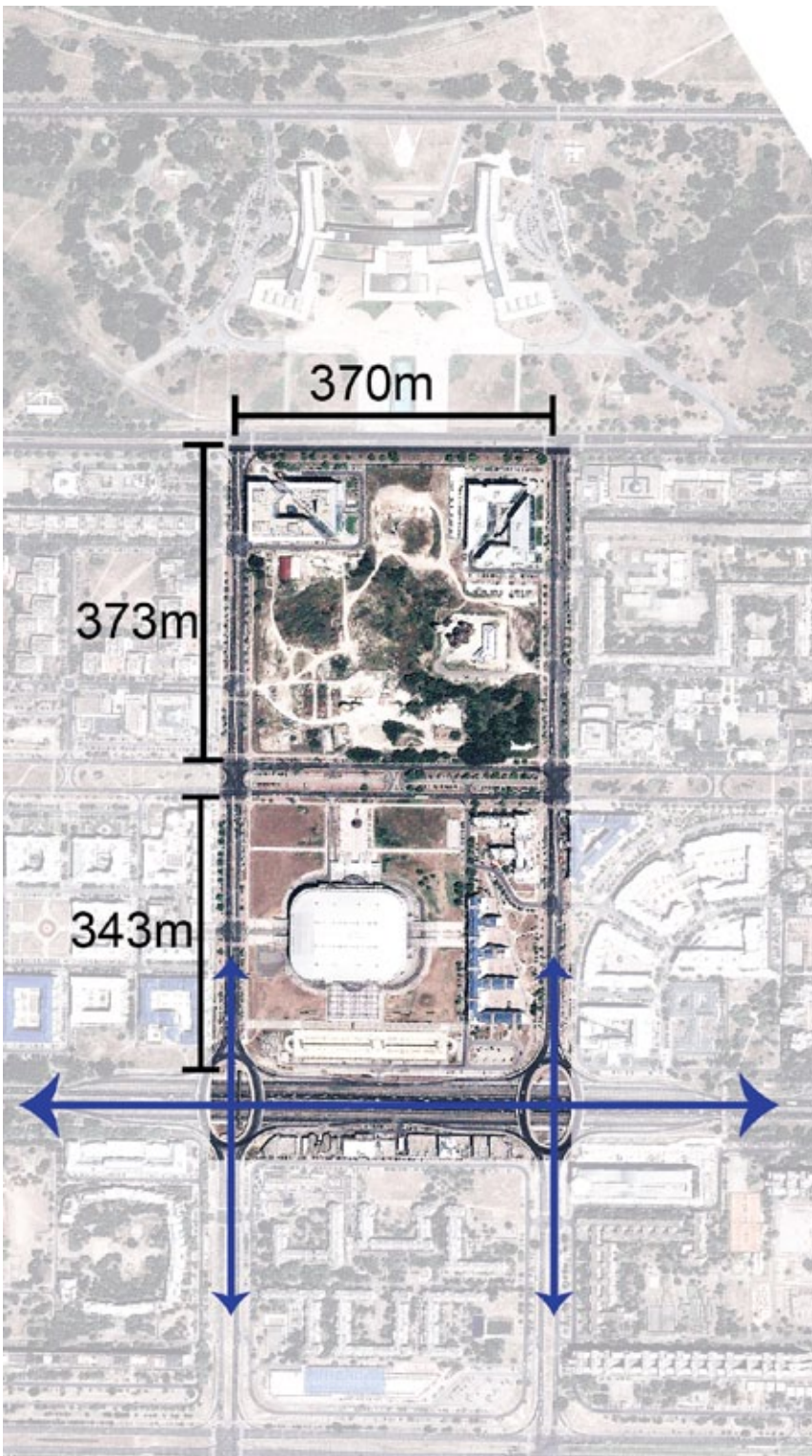
concept diagram

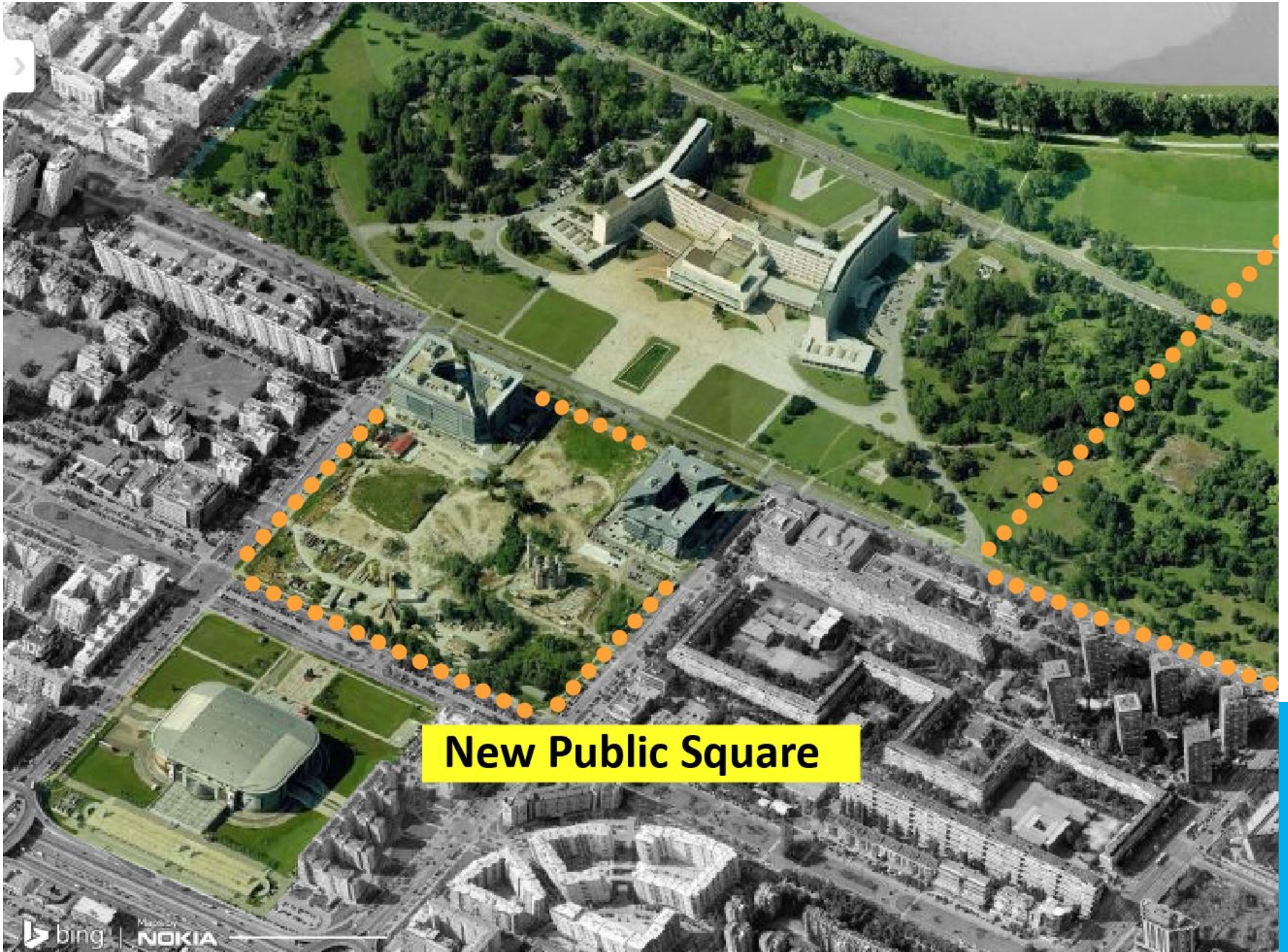


visual connection with surroundings

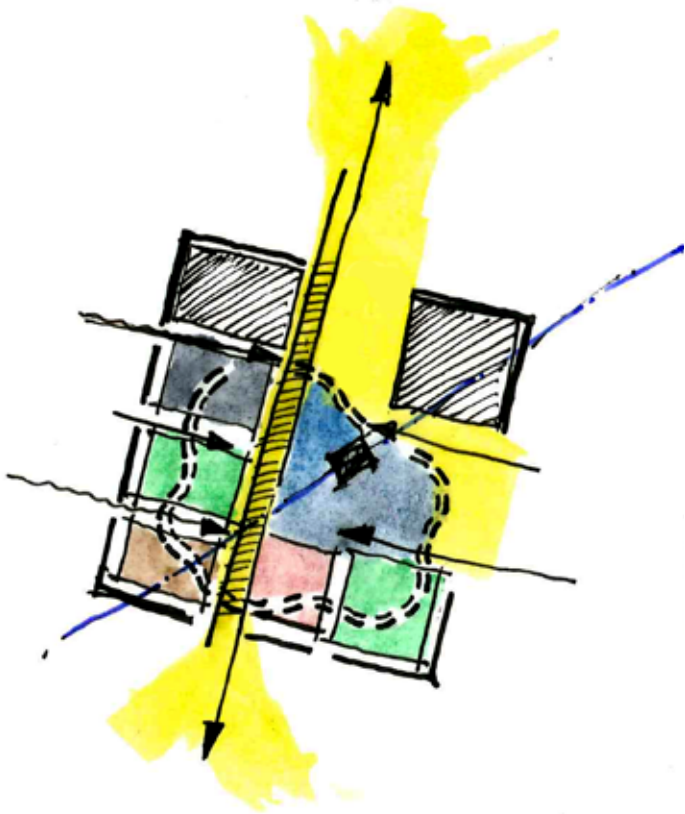






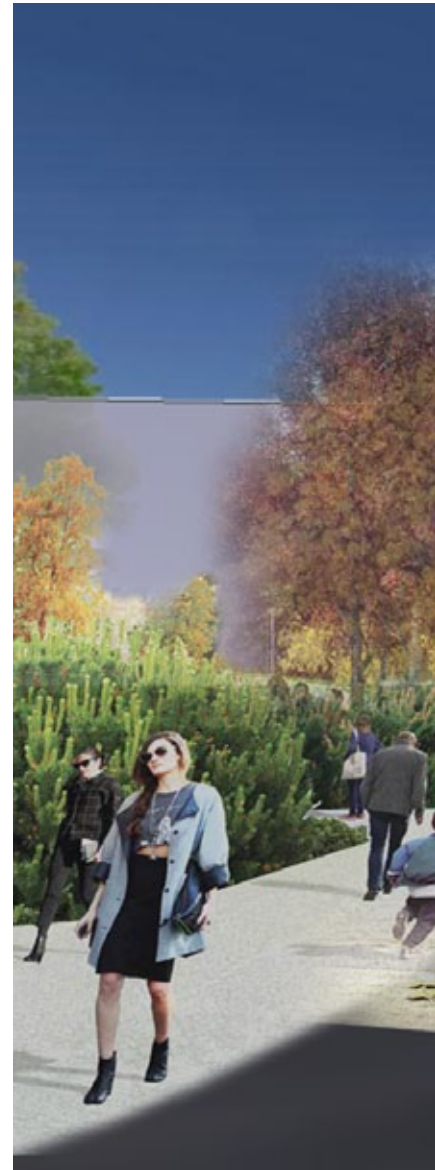


New Public Square



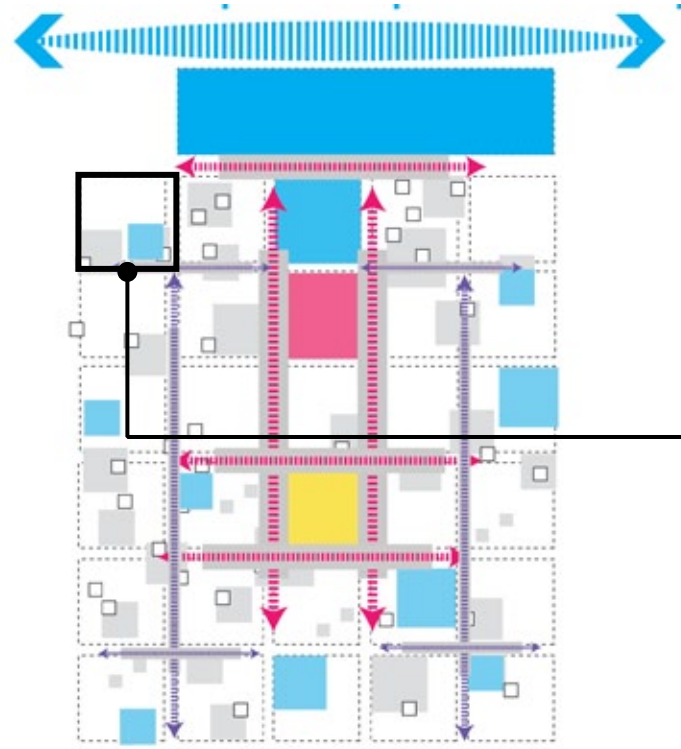
Legend

- Play field
- Play field
- Night Garden
- Kinder Garden
- Sculpture Garden
- Church Square



square concept diagram



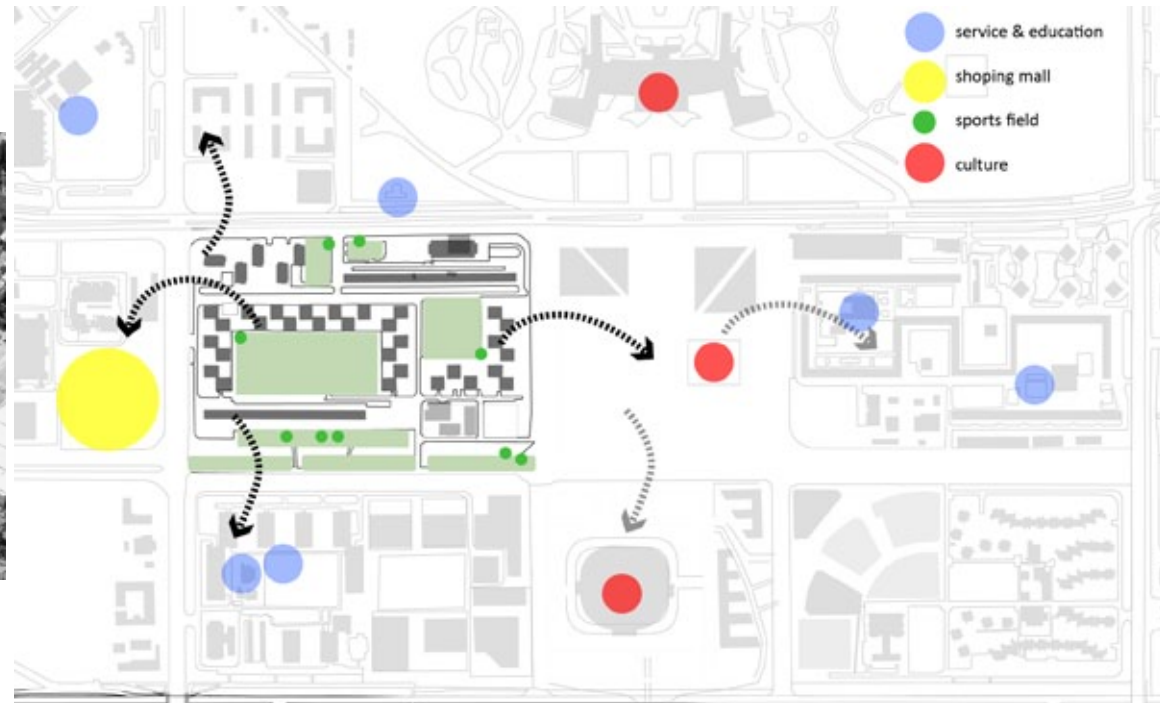


bottom-up experiential design site

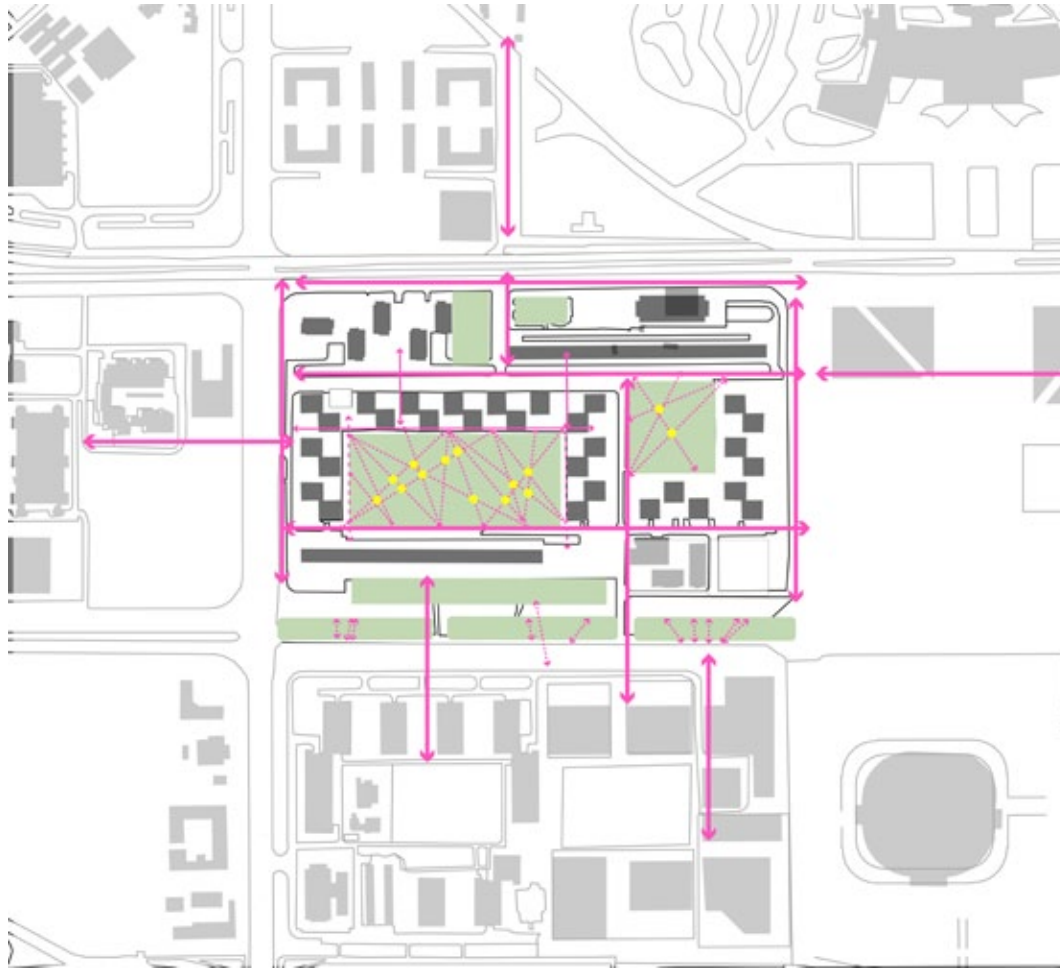
community design experientment



block 30



surrounding functions



local flow analysis

community design experientment



necessary acitivities

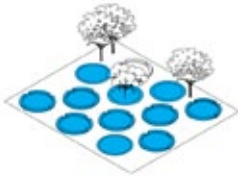
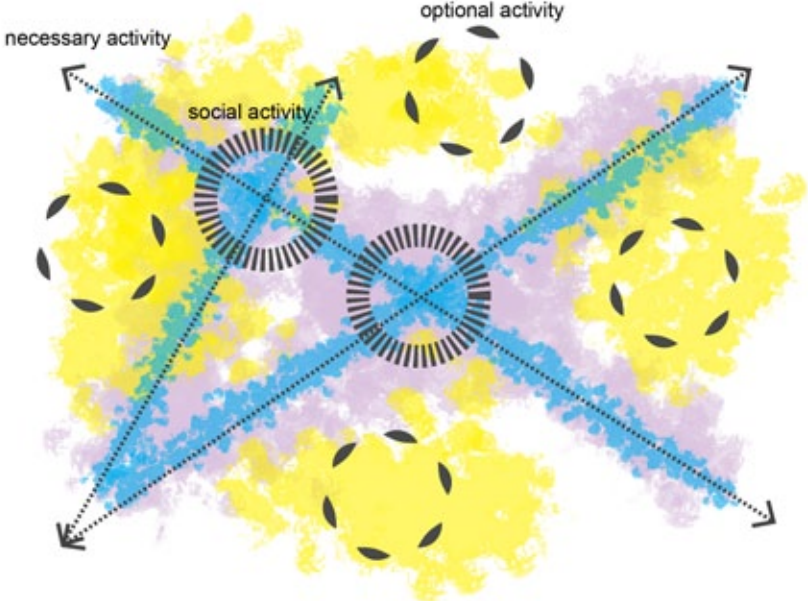


social acitivities

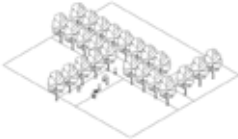


optional acitivities

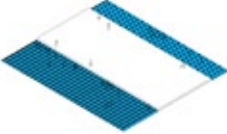
concept



Private gardens



Path & tree lines



Surface treatment

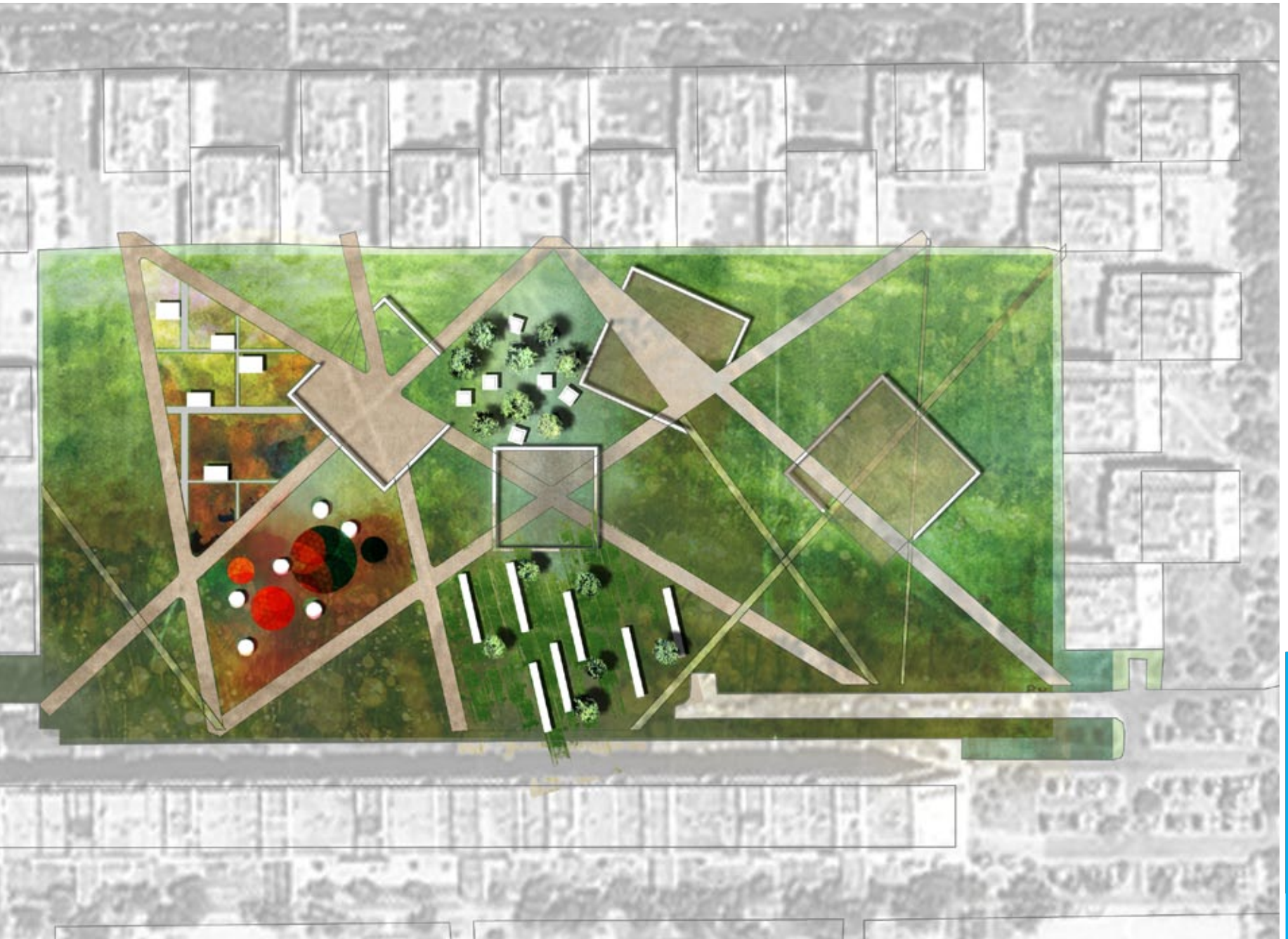


Civic amenity

ELABORATE DESIGN



community design experient





community design experient



REFLECTION



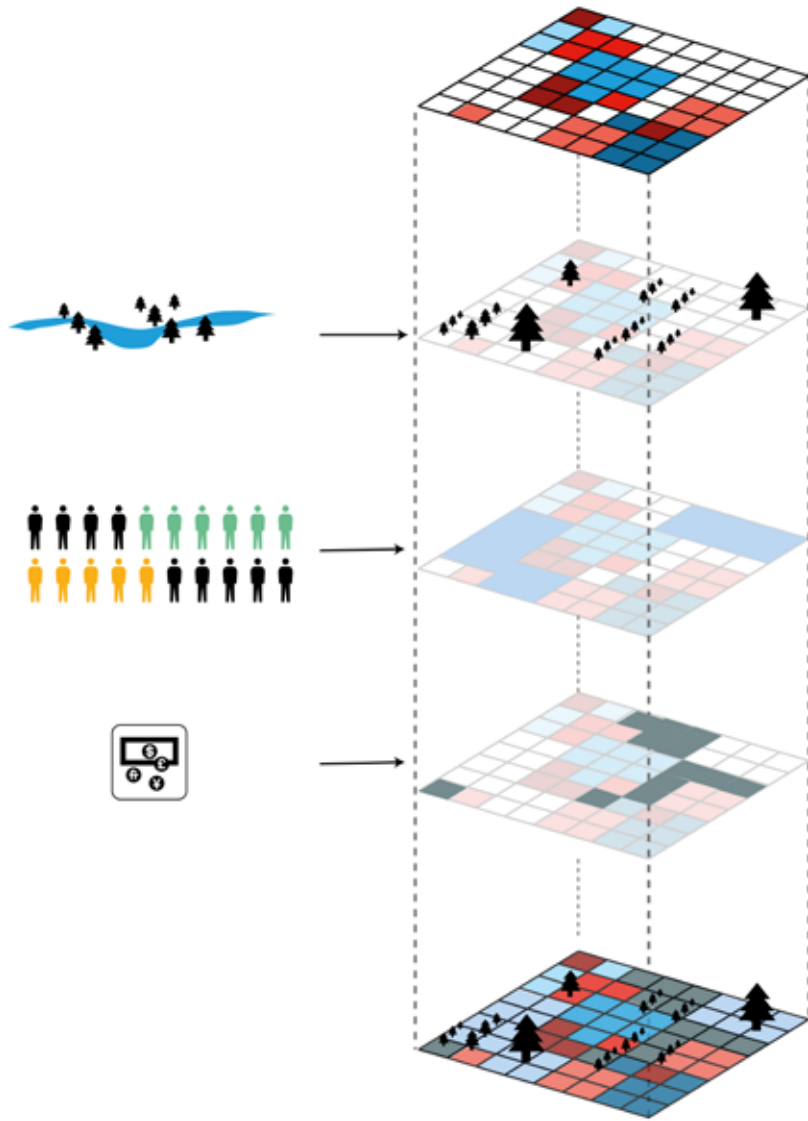
Figure ?

<http://vucko61.deviantart.com/art/Blokovi-New-Belgrade-Serbia-168437207>



Landscape Intervention	Local Residents' Participation	Authority & Other Decisive Factors	Research Strategic Goal
			Landscape Model
			Suggestive selection & toolbox
			Suggestive Vision





PANORAMA
from the landscape view

LOCAL PARTICIPATION
from cultural spatial view

MUTIPLE DECISION
from the economic and
politic view

New Belgrade has an impressive history that reveals the landscape and human's relationship. The distinguish landscape mosaic patterns is a result of human's engagement and natural process. Large amounts of green and open spaces are the perfect ground for a productive and operative landscape. Current situation of the mosaic pattern is not efficient enough for a growing city. The patches-corridor- matrix model works as an evaluation and molding system for Belgrade region. Four main principles of landscape mosaic have been set according to the evaluation. Detailed and endless principles based on R. Forman's theory can be applied as strategies for different aspect of zoom-in design. In short, the mosaic landscape theory provides a base for a mature landscape architecture view and outcomes. On the ground of understanding the process of man-made and natural mosaic patterns, an operative landscape could be established.

