KLADNO UPGRADE
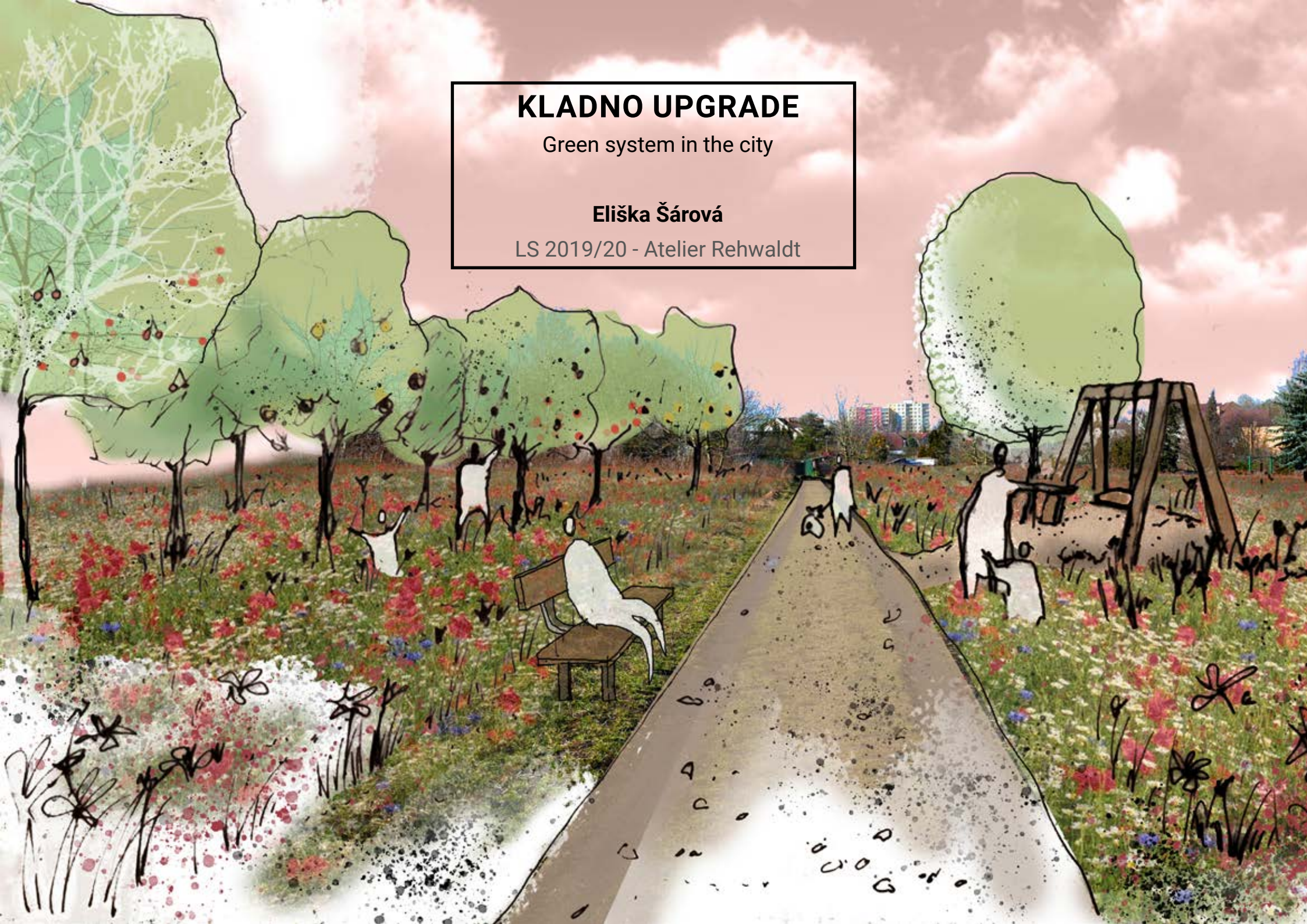
Green system in the city

Eliška Šárová

LS 2019/20 - Atelier Rehwaldt
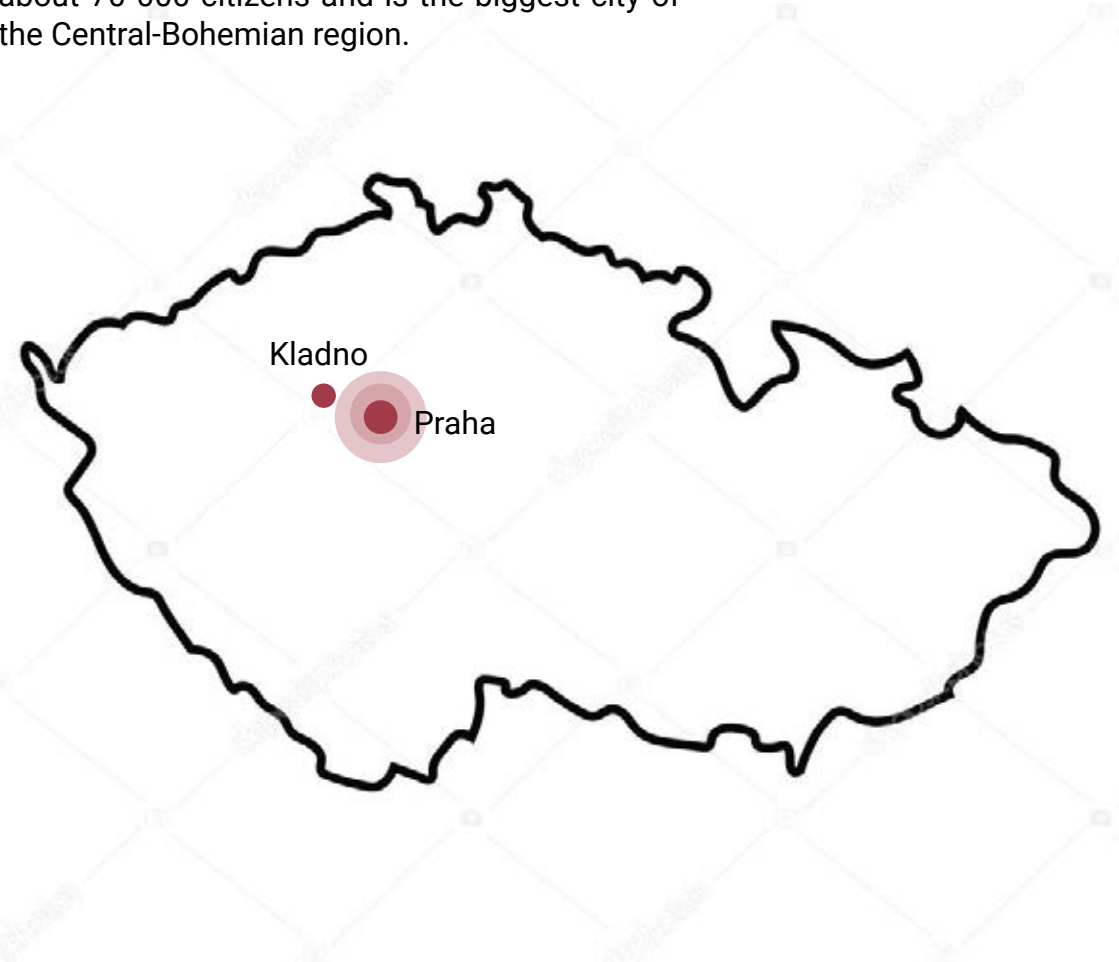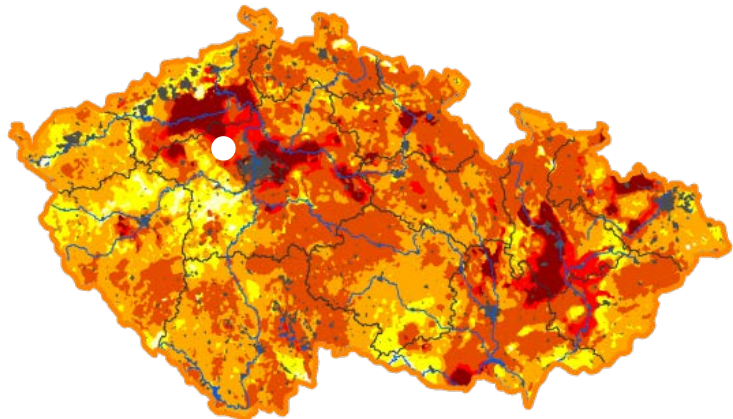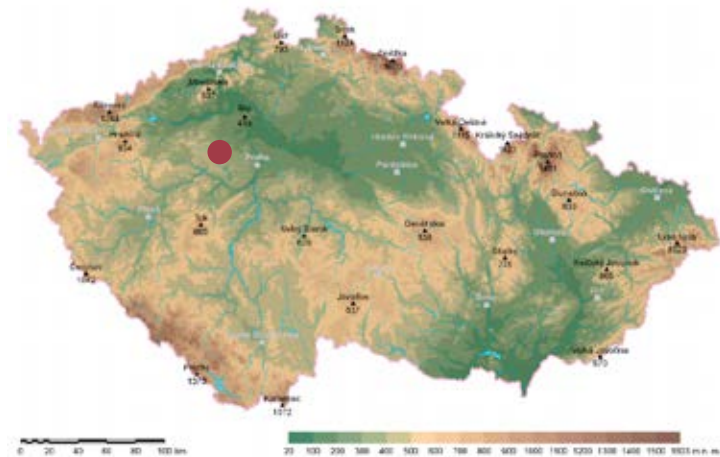
Contents

SITE ANALYSIS

Location

The city of Kladno is located in Central Bohemia, about 30 km far from the capital Prague. It has about 70 000 citizens and is the biggest city of the Central-Bohemian region.

Characteristics of the area

Map of drought intensity
Kladno is located in one of the driest areas of Czech republic.

Map of terrain
The terrain around Kladno is rather flat. Altitude of the city is around 380 metres.

Character of the city

Probably the main part of Kladno´s identity is industry. It was a very important city in the industrial era, but now that era is over and Kladno struggles a bit to find a new identity.

The city grew in sudden waves, always expanded rapidly over the course of few years. The lack of organic growth causes that it is a patchwork of different areas that are not always well connected. Kladno is quite strictly devided into zones with different functions and urban forms. Also large part of the city area is taken by a brownfield.

One of the positives of living in Kladno is proximity to nature, as the city is surrounded by forests. Locals profit from this and often spend time there Sometimes it maybe serves as an escape, because inside the city we can´t find enough quality public spaces.

History

The face of the city today is very much connected to the history. Kladno used to be one of the main focal points of czech industry during the 19th and 20th century. A large steel factory Poldi and coal mines employed thousands of workers and the city was growing rapidly. Up until around 1950, Kladno consisted mostly of colonies of small workers houses.

A big urban change came in the 50´s. The city needed to expand critically, so the municipality purchased large areas of land and started with a construction of huge housing-estate complexes (sídliště). The „sídliště" were constructed according to the principles of modernist urbanism, with strictly devided functions and large empty public spaces in between the buildings. They fullfilled their purpose to accomodate lot of people as fast as possible, but the quality of living in this kind of development is questionable.

After the end of communist regime in 1989, the industry quickly declined and Kladno faced a challenge to re-invent the identity of the city. I think it struggles with this challenge till today.

Postcard showing the Poldi industrial area

How the main promenade looked

Photo from the 60´s - Sídliště Kročehlavy being built

Large tiered panel house in Sídliště Kročehlavy

Aerial view from 1951 - before the second wave of rapid growth

Functional zoning

- City center
- Individual housing
- Panel houses
- Sport areas
- Greenery
- Garden colonies
- Brownfield
- Others

Different characters

Unique atmosphere of the brownfield

Sídliště Kročehlavy
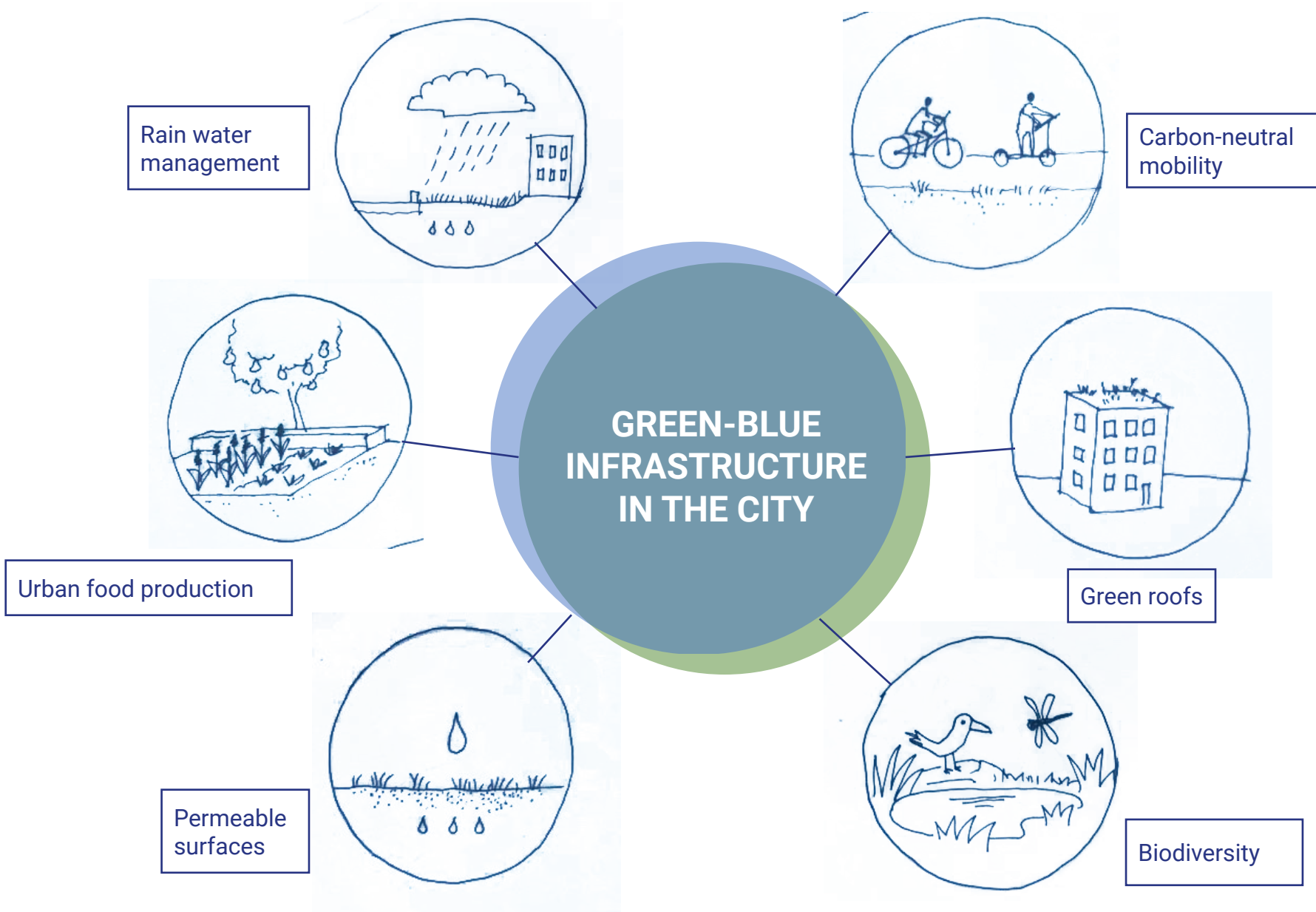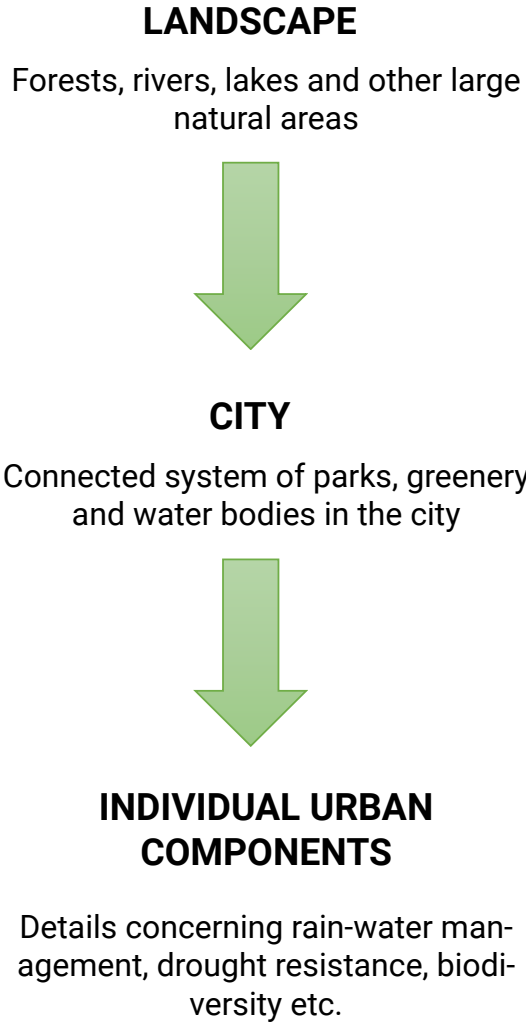

The main square

The main city park „Sítenské údolí"

GREEN-BLUE INFRASTRUCTURE

What is green and blue infrastructure?

Green and blue infrastructure is a set of solutions that make a city or a landscape more sustainable. It is a network that functions in multiple scales, from landscape to little details in the streets. We need good green and blue infrastructure in our landscape and cities now more than ever as we face the consequences of climate change, such as drought, heatwaves or floods. The solutions also aim to reduce the impact we have on the climate, and prevent the climate change in the first place.

LANDSCAPE

Forests, rivers, lakes and other large natural areas

CITY

Connected system of parks, greenery and water bodies in the city

INDIVIDUAL URBAN COMPONENTS

Details concerning rain-water management, drought resistance, biodiversity etc.

Rain water management

Carbon-neutral mobility

Urban food production

GREEN-BLUE INFRASTRUCTURE IN THE CITY

Green roofs

Permeable surfaces

Biodiversity

Overview of the GBI in Kladno
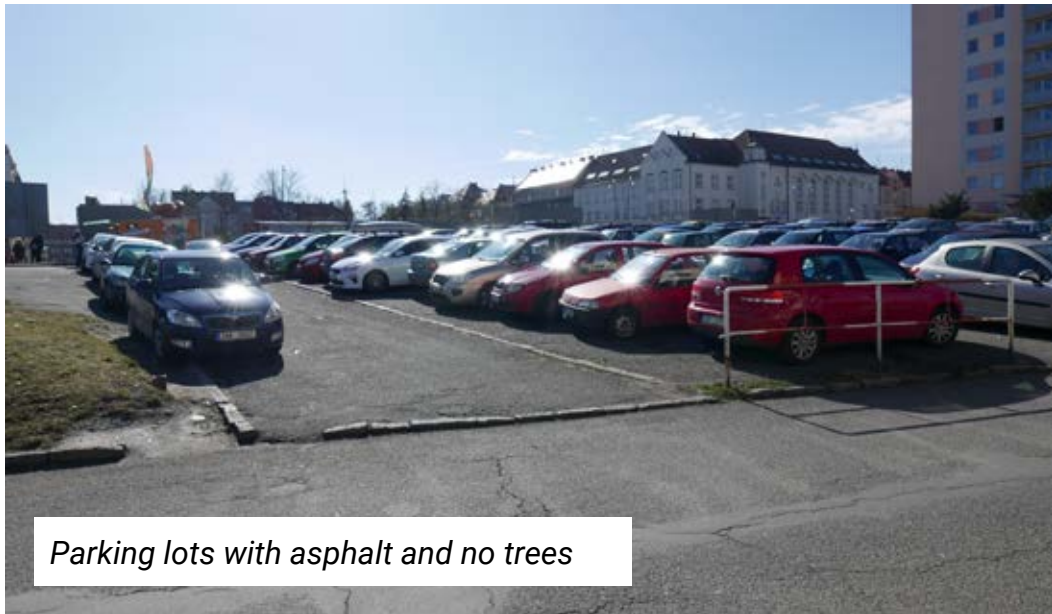
Weaknesses

Paved surfaces

Rubish in forests

Mobility by cars

Parking lots with asphalt and no trees

Orchards and parks with no maintenance

Strenghts

Few nice parks in the center

Water in some parks (Sítenské údolí)

Big trees in the city

Kročehlavský pond

The greenery outside and inside of the city

Kladno is surrounded by forests, especially in the north and the west. The forests hold a great potential to be a natural continuation of the city´s green system, however today it is not very well connected.

Inside the city we can find multiple types of green spaces. Usually closest to the forest are natural parks, often badly maintained. Lot of these parks used to have orchards, somewhere we can still find remains. Then closer to the center we have city parks, the main one being „Sítenské údolí". These are usually in fairly good shape.

Large areas are also taken by housing-estate greenery (in the „sídliště"), greenery inside the brownfield and by garden colonies.
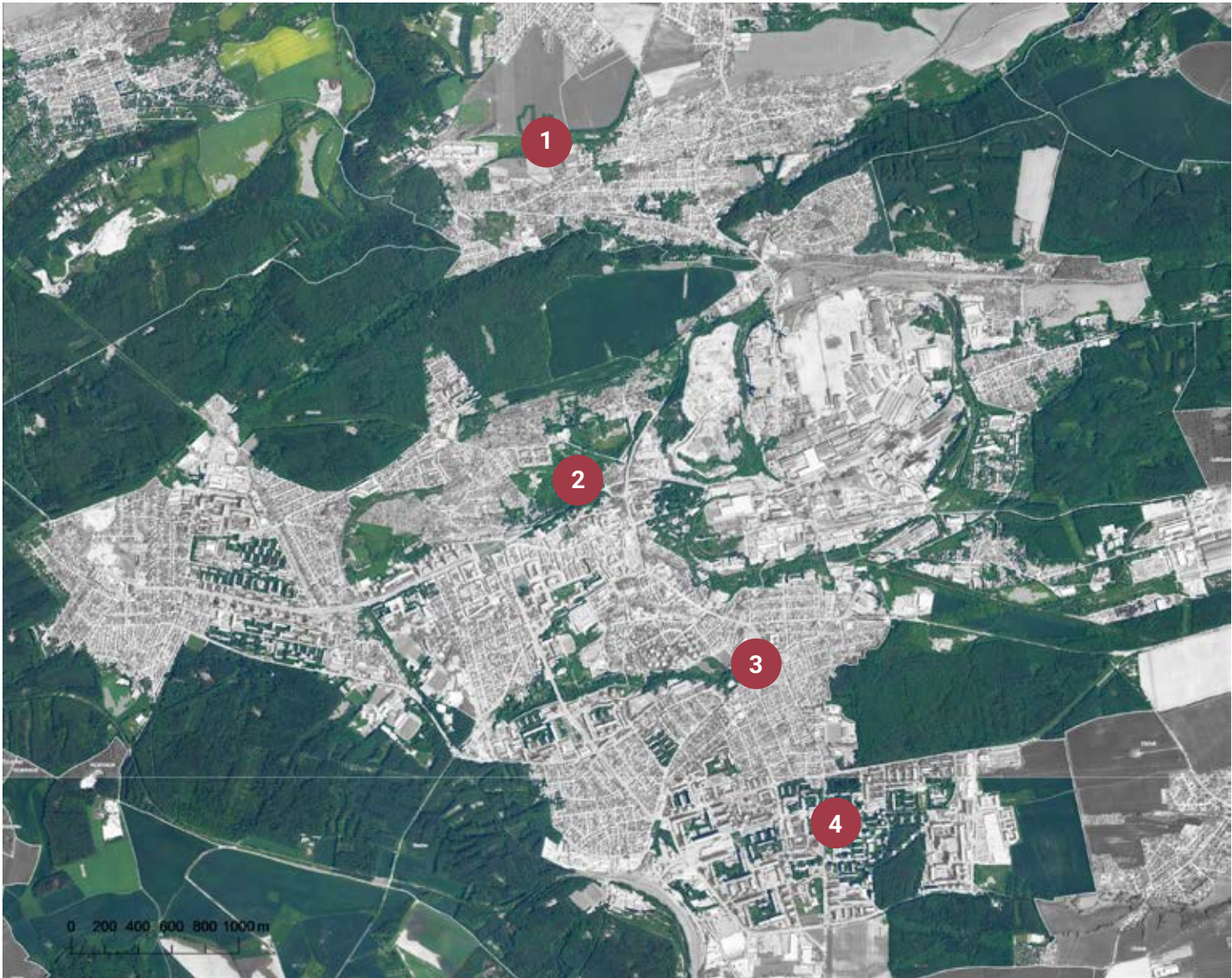
1. Líšnice, natural park in Švermov

2. Bukovka, natural park near to the center

3. Panská louka, park near Kročehlavský rybník

4. Housing-estate greenery

The blue infrastructure

There is not much water in Kladno. The city wasn´t founded on any river and because of its topography, water naturally flows outwards. The few water streams that are there are unfortunately not in a very good shape. Large parts are in underground tubes and the rest is usually in a hard basin. The same situation is with rain-water management, any water coming to Kladno quickly dissapears.

It is clear that if Kladno wants to evolve to be a more sustainable city, the way they work with water has to change significantly.

1. Kročehlavský pond

2. Dřetovický stream, part in a hard basin

3. Dřetovický stream under the highway

4. Water park Čabárna

Transport - distances

Kladno is not a very big city, the distance from the main square to the furthest outskirts of the city is about 3 km. In theory most of the regular movement around the city could be done by walking or cycling. The streets are however made in a way which favors car mobility, so most people are using cars for their everyday transport. As a result of this there is also a big problem with lack of parking spots and cars parking basically anywhere.
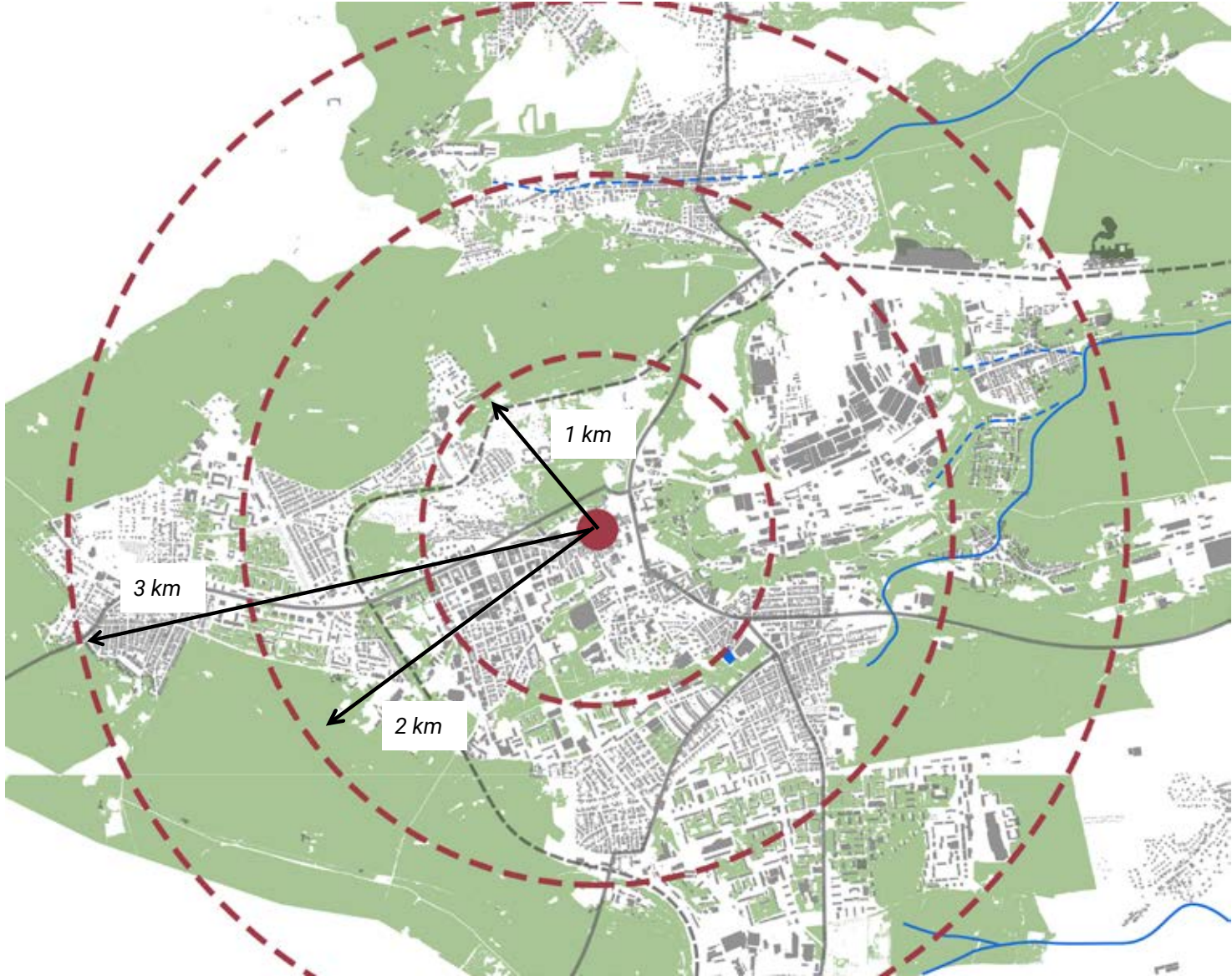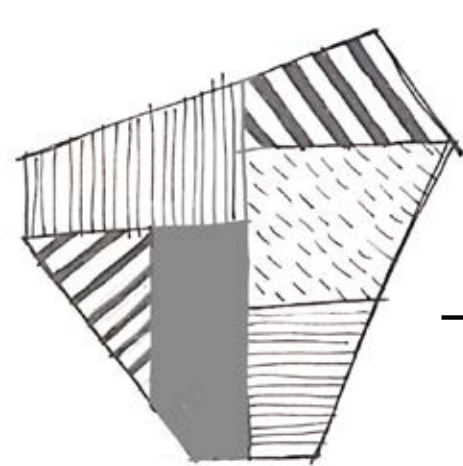

Cycling routes

The main cycling route leads around the whole Kladno, fo the most part through a forest. Most people take cycling just as a weekend sport and not as an everyday mean of transport. It is also because inside the city, the infrastructure for bikes is insufficient.
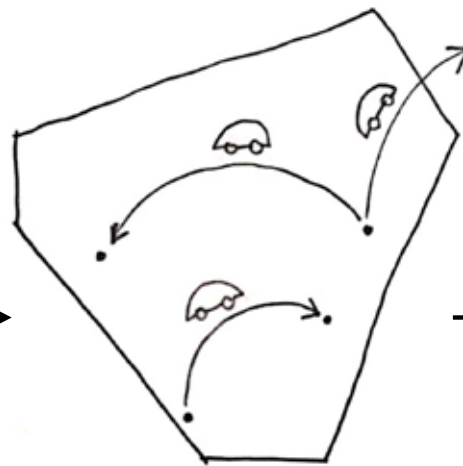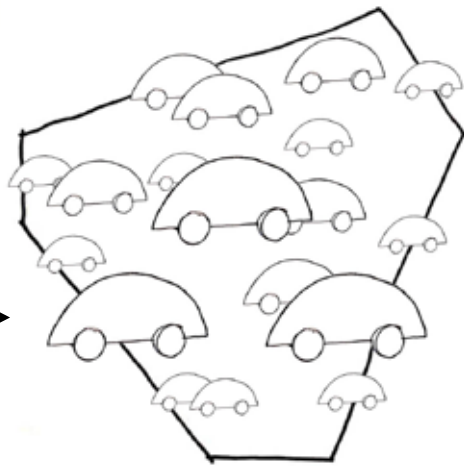
PROGRAM

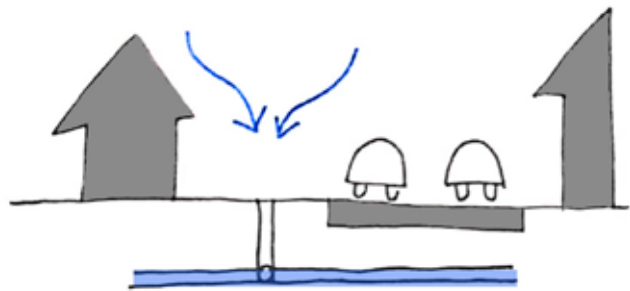# Results of analysis - important topics in Kladno
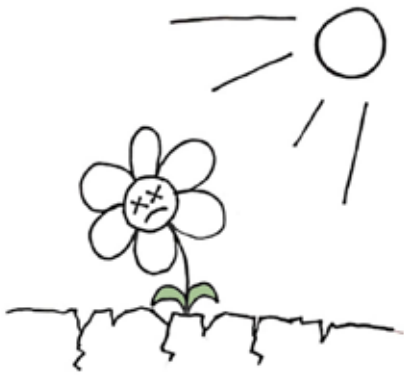

Functional zoning of the city

Higher need for mobility

City flooded by cars

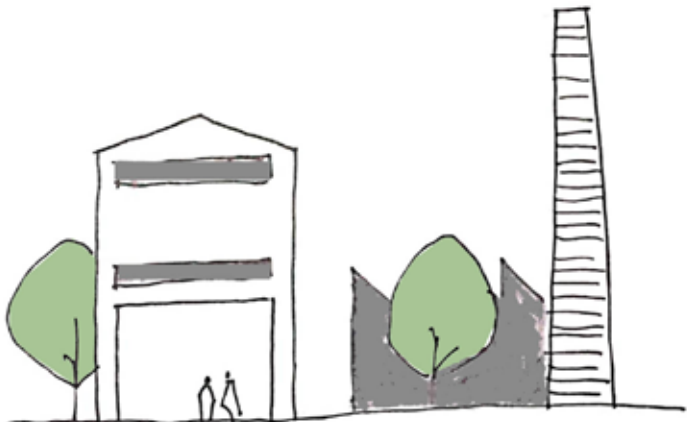All the water goes to canalisation
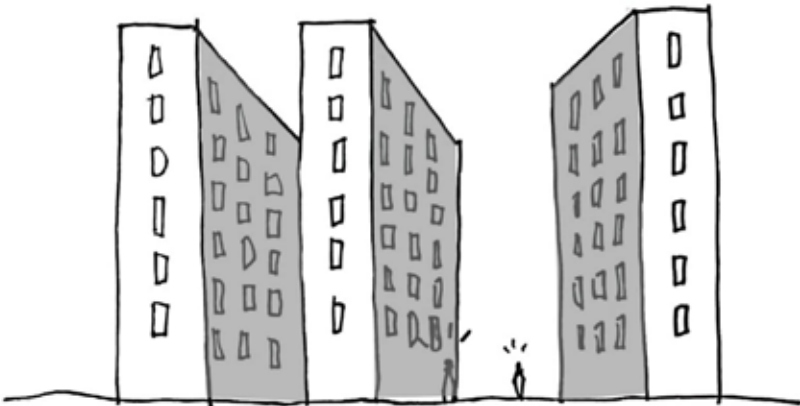

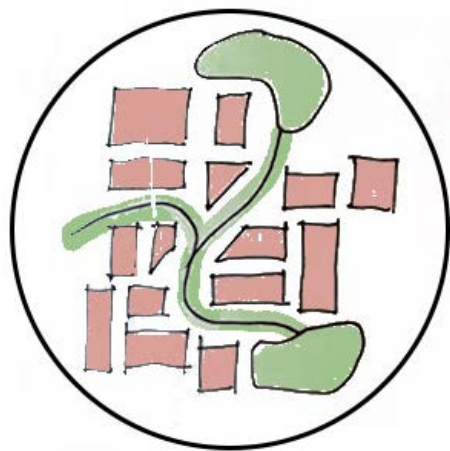Drought and overheating

Lack of quality public spaces in the city

People „running away" (to Prague, to nature)

BROWNFIELD - key area of development

Large panel house complexes - need to be modernized

My program

Improve the existing green spaces and connect them into a park chain
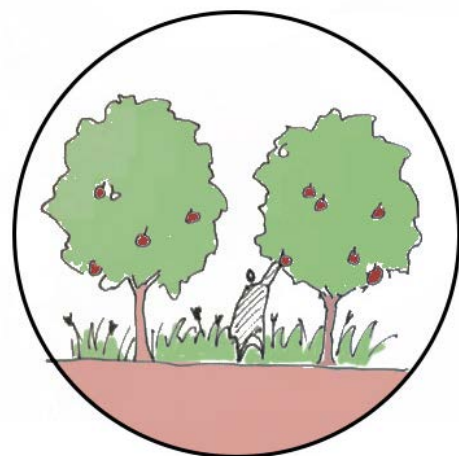
Revitalise the neglected orchard and parks
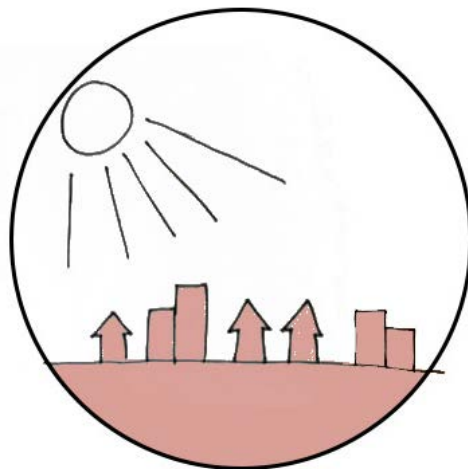
Reduce the summer heat waves by increasing water retention capacity

Make a city that is more friendly for people than cars

Change the principal mean of transport
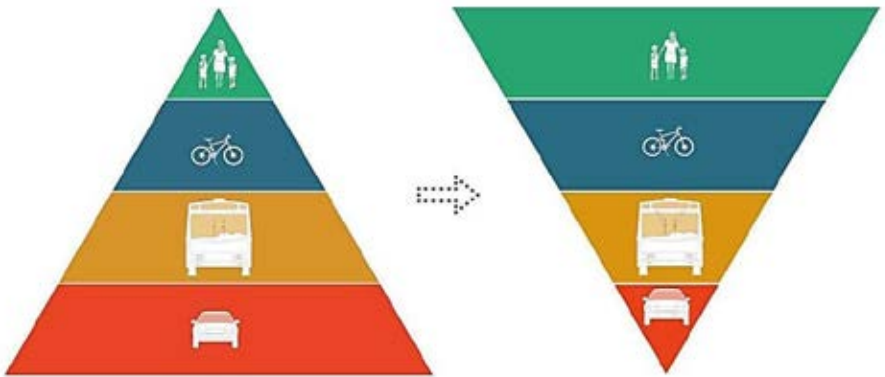
Kladno 1.9   Kladno 2.5

In a city of the size of Kladno, the main type of mobility should be walking and cycling. Right now Kladno is completely taken by cars and we need to give it back to the people. One of the main points of my project is to find streets and connections that should be changed and propose specific spolutions on how to do it.

Current state

Parking lots everywhere - even in a park

No space for pedestrians or cyclists in the streets

CONCEPT / DESIGN

Typology

Areas

Natural parks

City parks

Housing-estate greenery

Brownfield

Connective areas

Empty areas, parking lots etc. that have potential to change and complete the green system

Lines
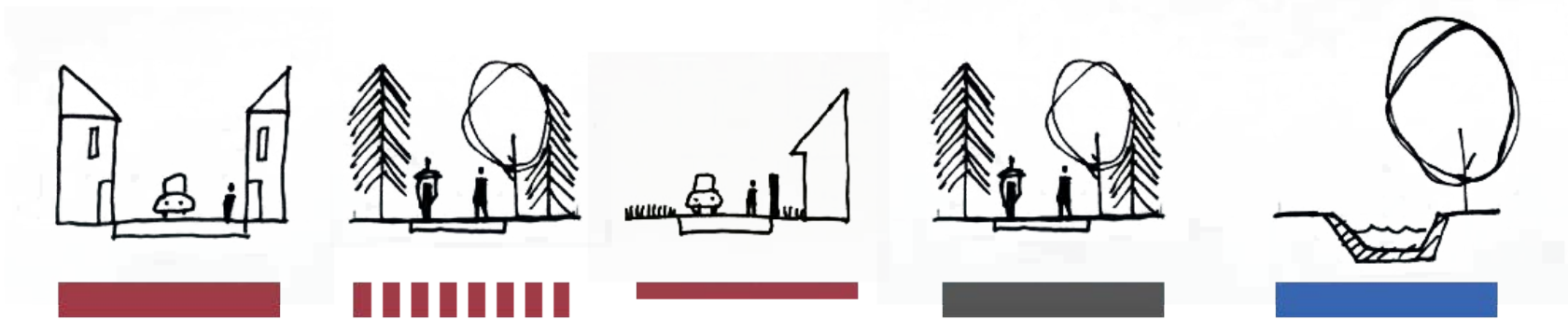
Main proposed connections for soft mobility

New connections

New paths in places where there is no path / street today

Additional connections

Existing cycling routes

Water streams

The dashed lines are streams that are today in tubes, but I propose to take them out

I chose places in Kladno that should be part of the green system and devided them into categories. For each category I made a set of principles and examples and showed how it can be applied on a specific site in Kladno.

Together the areas and lines form a complete a system, that would be the green backbone on Kladno and improve significantly the quality of life in the city.
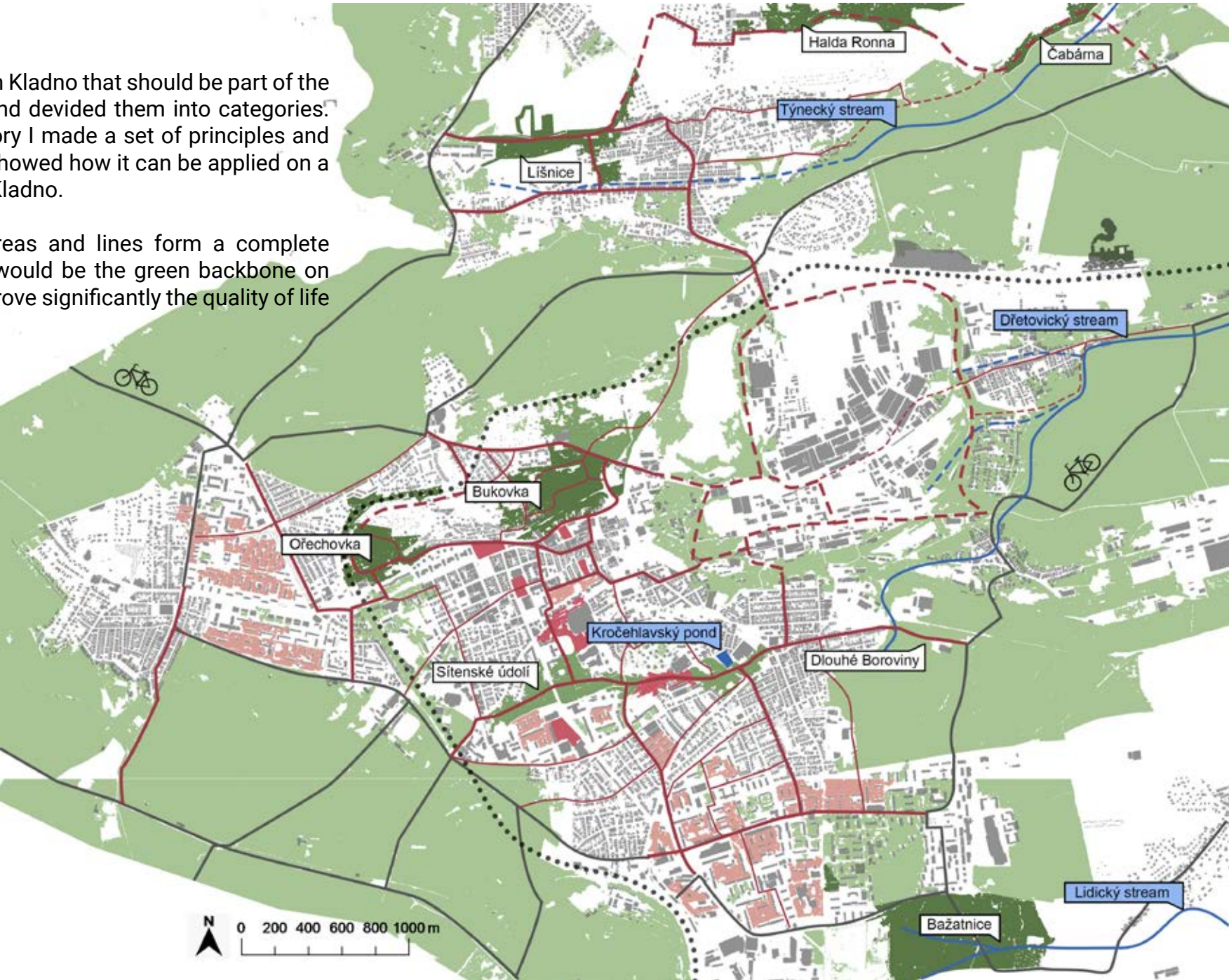
The streets of Kladno should not only become more friendly for bikes and pedestrians, but they should also get more green. I propose these streets to make a „green string" that ties together the parks. There would be trees or perrenial beds in each one and it would naturally lead people to green public spaces.

Halda Ronna

Čabárna

Týnecký stream

Lišnice

Dřetovický stream

Bukovka

Ořechovka

Kročehlavský pond

Šítenské údolí

Dlouhé Boroviny

Chosen streets:
- Americká
- Vodárenská
- Litevská
- Dr. Foustky
- Dr. Steinera
- Křižíkova
- Ivana Olbrachta
- Štechova
- Slánská
- Svojsíkova

Bažatnice

Lidický stream

N

0 200 400 600 800 1000 m

Bike paths through the brownfield

New bike path crossing the garden colony

Un-official shortcut made official

Path with veiws

Connection of two parks

Revitalise the orchard and connect it to the system
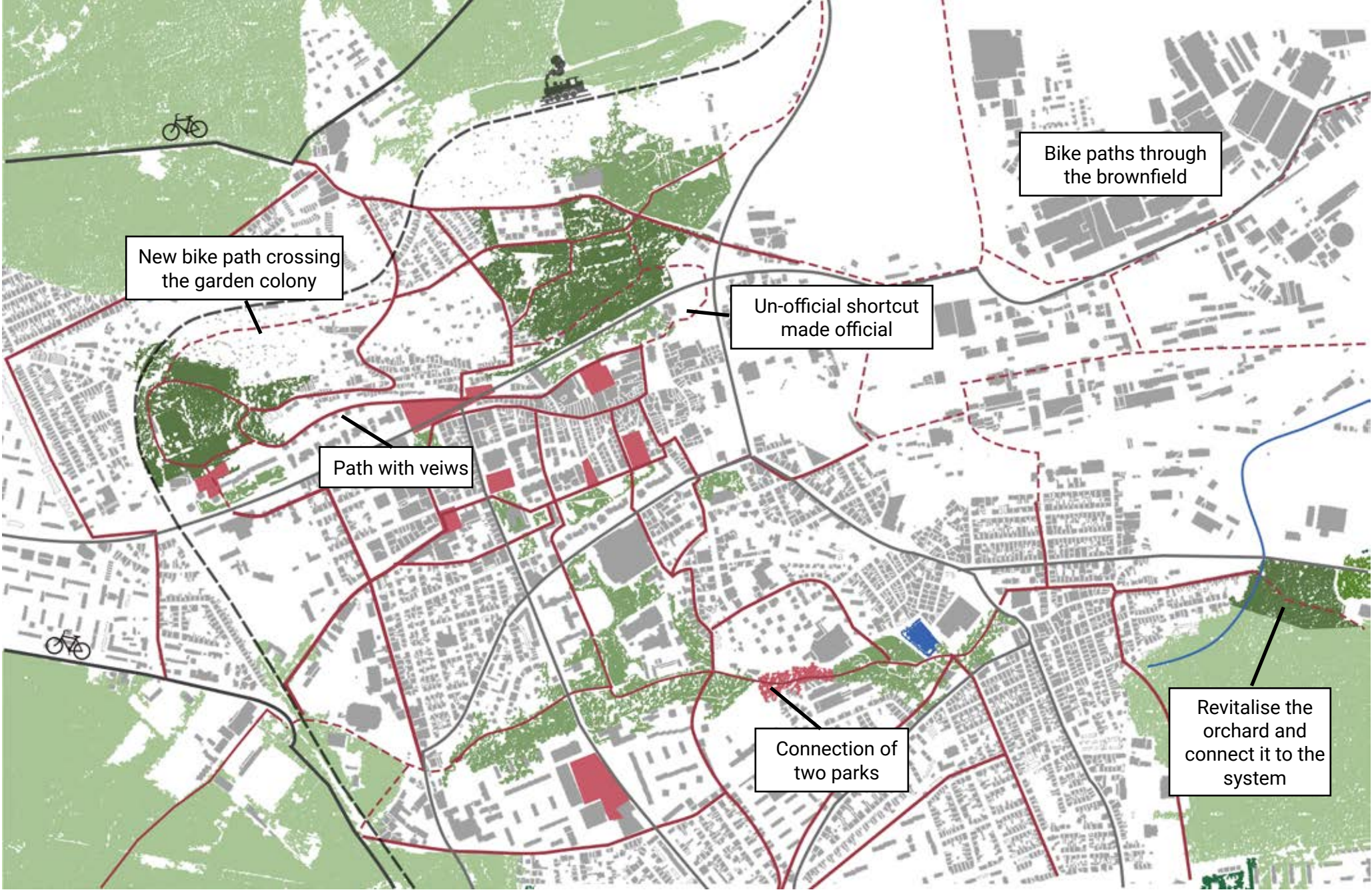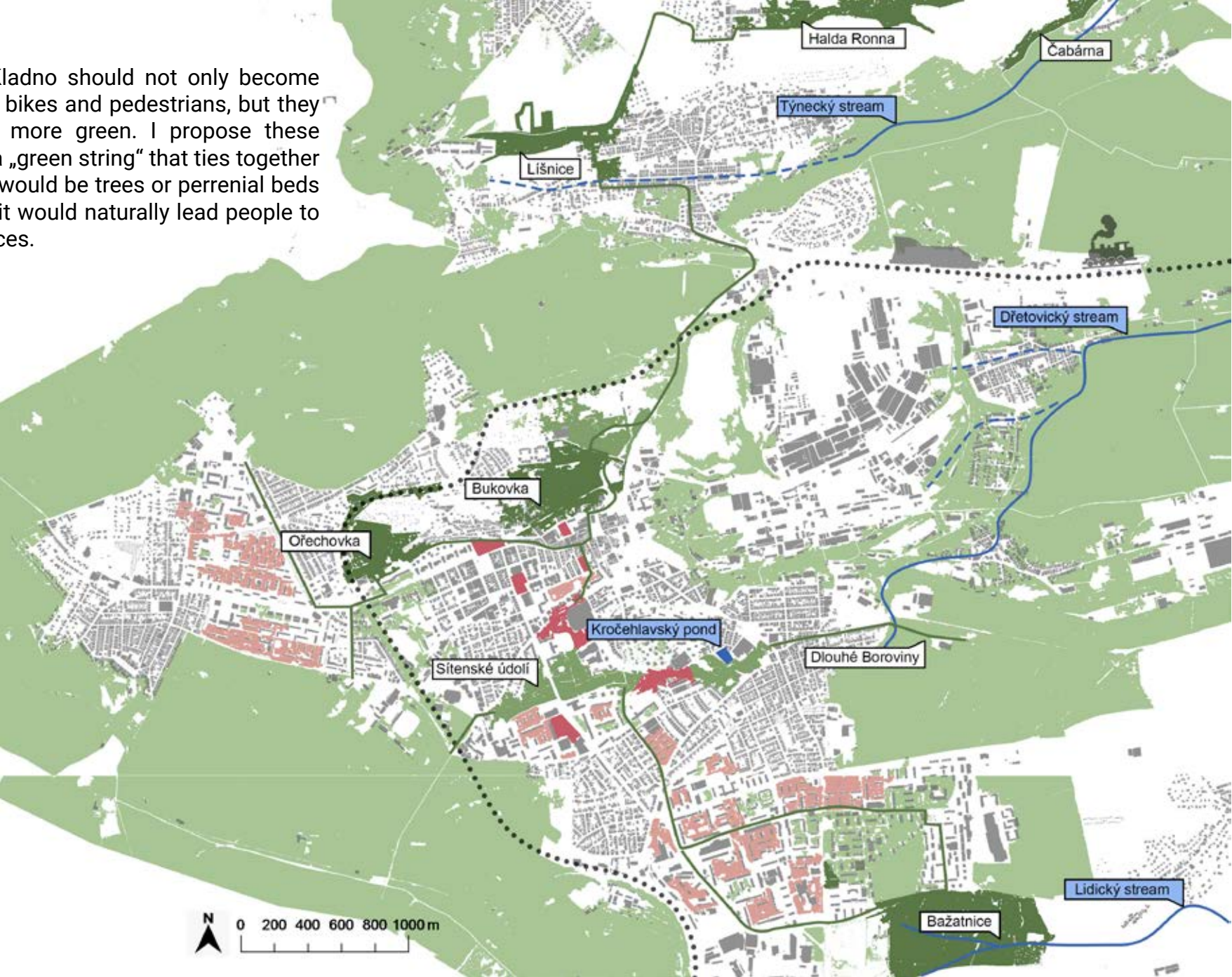
Center of the system

1. Natural parks

PRINCIPLES

- **Clean** from shrubs and rubbish

- Take care of the forested areas – each tree needs some space to grow

- Create new **paths in the forests** and create easy access to hidden places (to avoid homeless dungeons)

- Revive **orchards with flower meadows** instead of lawns

- Wilder **playgrounds** that use terrain modelation and natural materials

- Paths – use ecological material, make sure it doesnt get muddy after rain

EXAMPLES

Piece of wilderness in the city, but not a jungle

Combination of forest areas and orchards

Natural playgrounds

Make space for the trees to grow

Find a purpose for each area

If there is water, use it to create a stream or swamp

1. Ořechovka today
Ořechovka is an area quite close to the center, the location has a big potential. Today there is forested part which is a bit dangerous with rubbish and homeless people and an open part with abandoned orchard and a field. A big strenght of this place are beautiful views of the city.

1. Ořechovka in the future
Ořechovka could quite easily turn into a nice park where people from the nearby „sídliště" would come for a walk. I propose to revive the abandoned orchard, make there flower meadows and make small places for people to stop on their way and enjoy the view.

2. Líšnice today
The vegetation in this park is very neglected, it is a jungle where no trees can grow properly. It has some nice views on the city, but they are usually hidden by shrubs.

2. Líšnice in the future
I propose to clean the park in the first place. Trees would have enough space to grow and the hidden views would open. Some places to chill like a fireplace or a natural playground would be created near the main path.

2. City parks

PRINCIPLES

- Base the park on the **values of the particular site**

- Create **welcoming entrances** to each park

- Prefer **indigenous vegetation** species as the base tree taxons

- Playgrounds and sport areas as a natural part of the park (reduce the fences and divisons)

- Revive the **orchards** in the places where they still remain

- Add **unique elements** coming from the specific site

- If there is **water** make the most out of it

EXAMPLES

Combination of lawns and meadows

Calm oasis in the city

Playgrounds as natural part of the area

Orchard – fruit trees on a meadow

Maintenance and nice entrances are important

Avoid dense bushes and hidden places

1. Panská louka today
A small park near to the „Kročehlavský rybník" serves mainly for passage. Next to it there is a big building of Baumax that ruins the visual quality of the park a bit. There is lack of places where people could sit together, on the photo we see someone tried to make an improvised solution for this using few benches.

1. Panská louka in the future
Since the park is surrounded from almost all the sides by a busy road or a large mall, I propose to add more trees to create a more cozy atmosphere. System of paths can be made less complicated. The park would also profit from some bench or a place where bigger groups of people could sit together.

3. Housing-estate greenery

PRINCIPLES

- Each „sídliště" needs **general concept of greenery**

- **Hierarchy** of the greenery – few main streets with lines of trees

- Trees in a scale that corresponds the buildings

- Possible to transform the places in more radical way – for example large **modern play landscapes** instead of catalog playgrounds

- **Community gardens** instead of remote garden colonies

- Convert some lawns into **flower meadows**

- Use deciduous trees (=with leaves) instead of conifers

EXAMPLES

Lines and grids of trees

Add modern playgrounds

Flower meadows

Reduce areas with just lawn and no use

Don´t use so many conifers (spiky trees)

Large concrete blocks are a good material for paths

1. Sídliště Rozdělov today

Generally the main problem with housing-estate greenery is the huge scale and lack of hierarchy. There are large empty spaces between the buildings where rarely any activities happen. The trees are usually planted randomly without much thought. However the large trees are a big value of the site and any future design has to respect that.

1. Sídliště Rozdělov in the future

The housing-estate greenery has one of the biggest potential for significant change. I propose to take a more radical approach and create completely new public spaces between the buildigs, like large play landscapes and community gardens. The gardens would also solve the issue that many people have a separate small garden behind the city where they go by car every weekend.

4. Connective areas (parking lots)

PRINCIPLES

- Each connective area needs a specific design

- Parking is always just an **additional function**, there shouldn't be any places just for parking without any added value

- **Rain-water management** is very important in parking areas

- **Trees** hide the cars a little bit and prevent creating heat islands in the summer

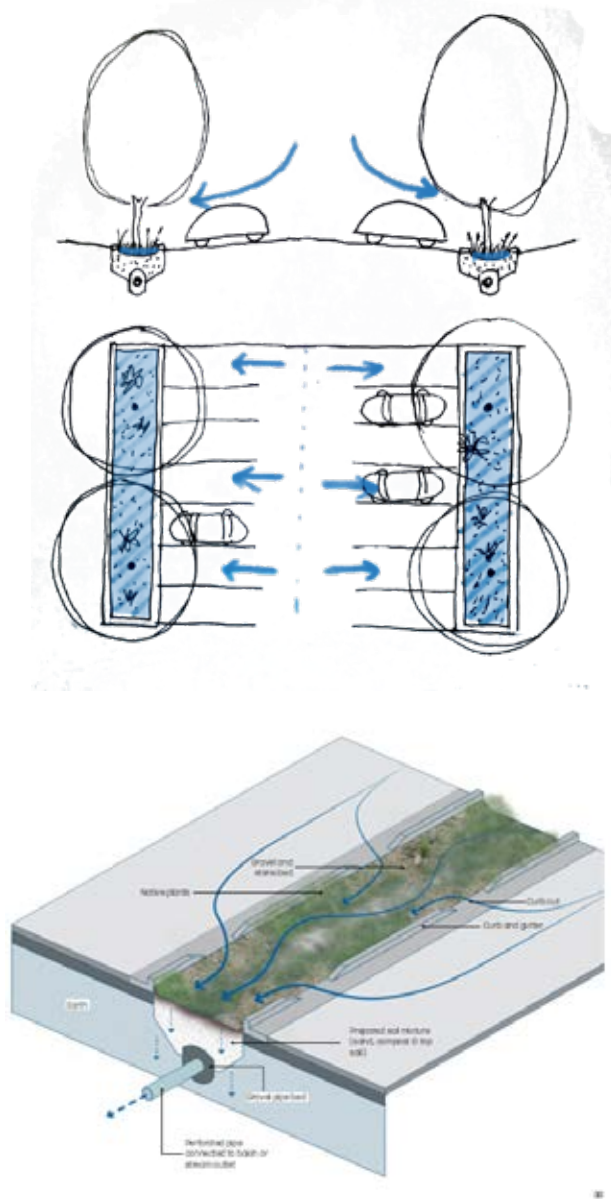- **Bioswale chanels** can retain lot of stormwater and direct it into a basin

EXAMPLES

Parking in the shade of trees

Bioswale channels - allow water to soak in the ground right in the spot + excess is led to retention basin
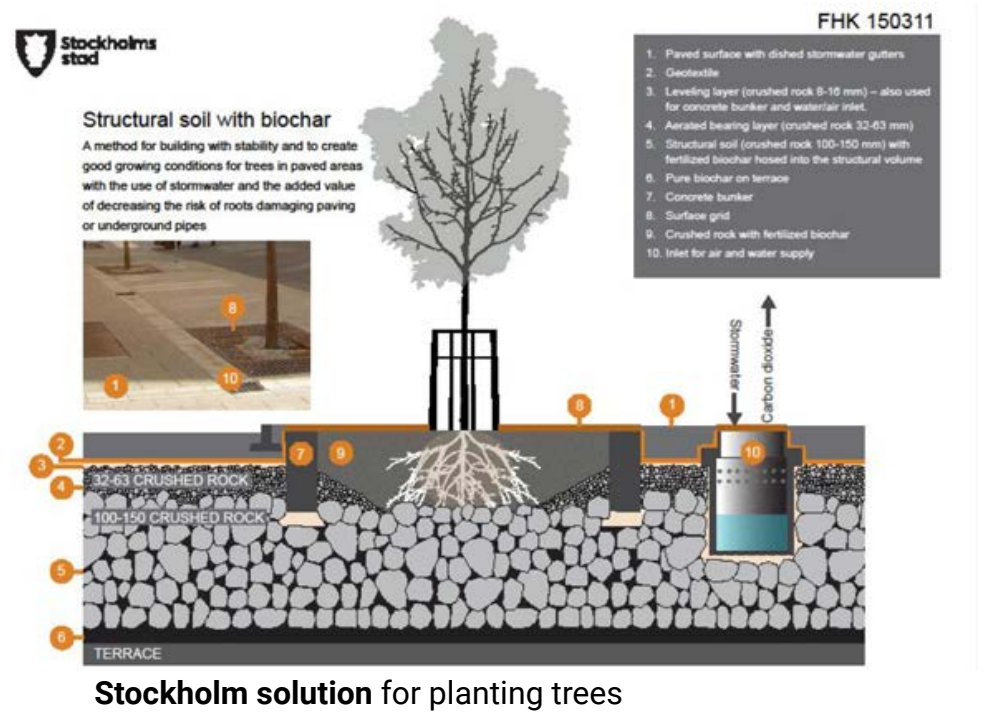
5. (Green) Streets

PRINCIPLES

- Green streets are primarily **for people**, not for cars

- **Trees** are the best option, if not possible then plant beds

- Stripes with vegetation shouldn´t be just a lawn but have a **water retention function**

- Narrow streets can work as a **shared space** (all in one level)

- Busy streets should have a **bike lane** if it fits

- Don´t make the car lanes wider than necessary

- Parking only in dedicated areas, preferably with trees in between parking spots

EXAMPLES

Stockholm solution for planting trees
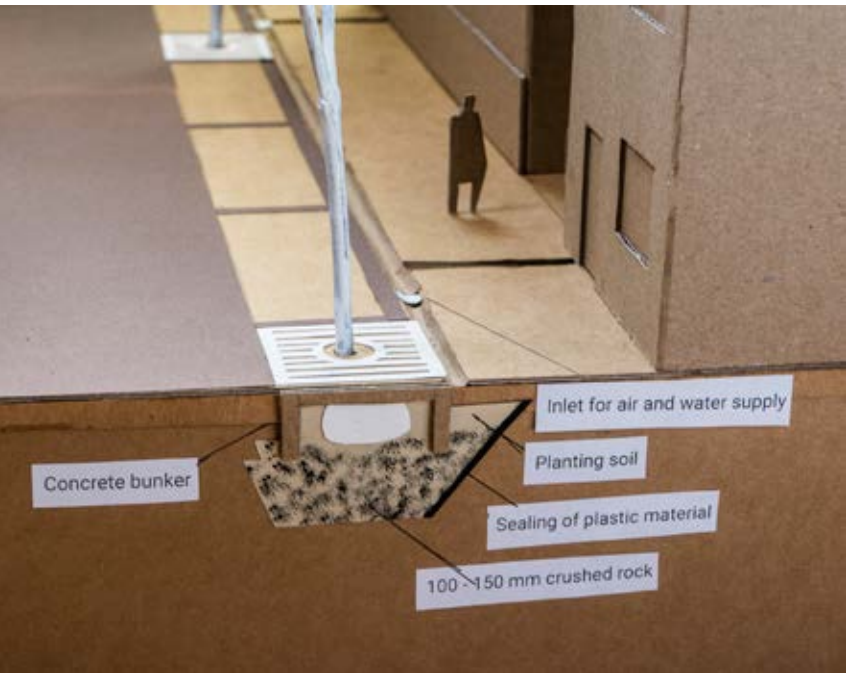

Stripes with vegetation in wider streets

Bike lanes

Parking only in dedicated spots

The Stockholm solution for planting trees

The model shows a typical „green street" and the use of „**Stockholm solution**" for planting trees. The system allows to plant trees in streets with technical infrastructure and use rain-water for irrigation. The water is led from the pavement to small perforated retention basins and then further into a layer of crushed rock where the trees can use it. The trees usually grow really well when this solution is applied.

1. The main promenade today
The main promenade in Kladno serves quite well its purpose, but little changes it could easily become much more attractive. It has the same problem as most other streets in the city, all the water goes to canalisation. In the promenade there is no greenery and lot of visual polution.

1. The main promenade in the future
I propose to plant trees in the promenade, using the principles of Stockholm solution. This would also solve the problem with rain-water management. Also the atmosphere of the street could be improved by making more lively parter and getting rid of the visual polution.

6. Water streams

PRINCIPLES

- Bring the streams from tubes back **on the surface**

- **Revitalise** the streams, they shouldn´t be in straight concrete basins

- Re-create **natural ecosystems** with vegetation along the water

- Make the water **accesible** for people

EXAMPLES
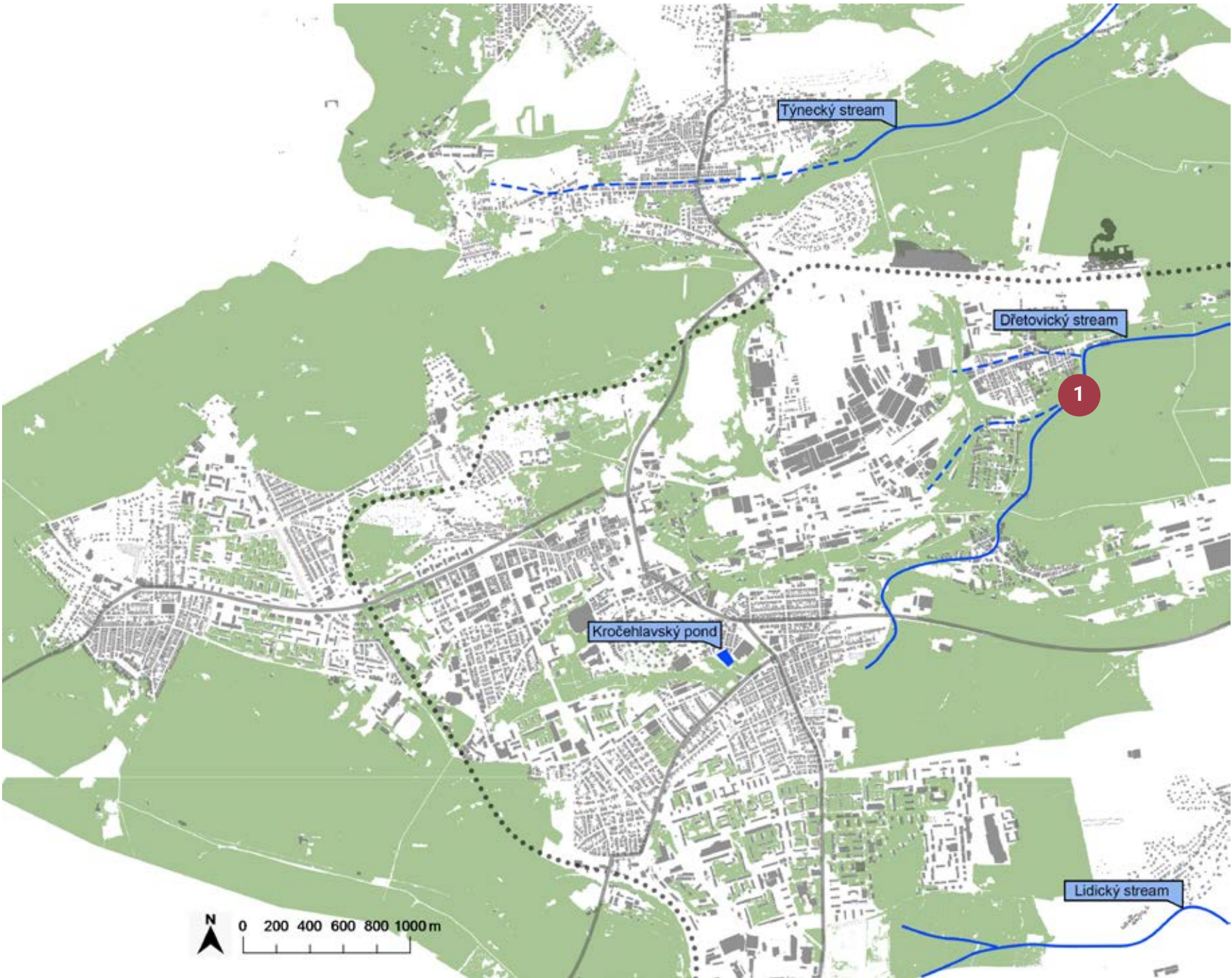

Acces to the water

Natural stream

Increased retention capacity – resistence to floods
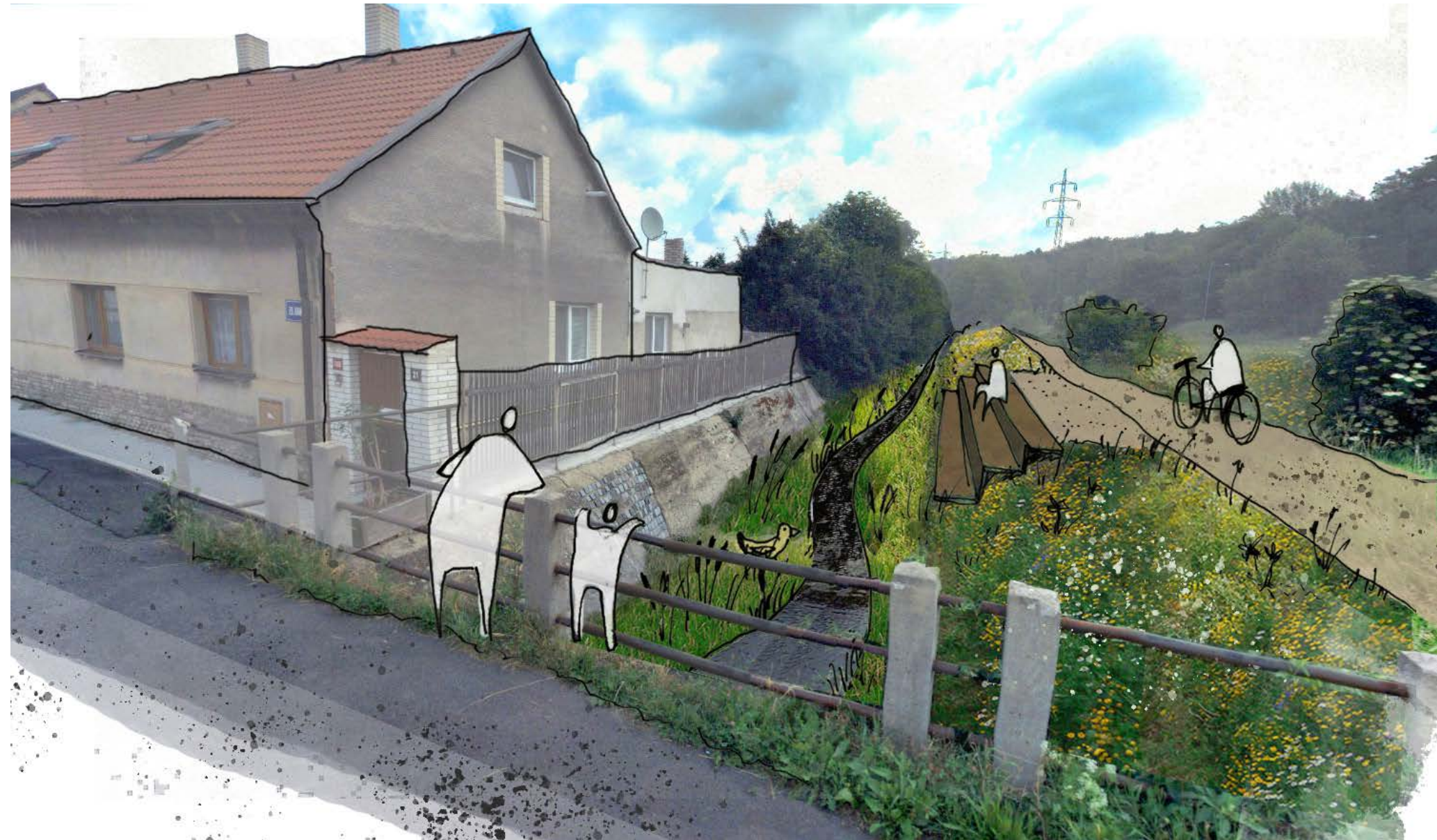

Streams in hard basins

Streams in tubes

1. Dřetovický stream today
In the past, most water streams in Kladno were put in tubes or hard basins, to make quick development of new neighborhoods easier. However today the lack of water is alarming and the streams need to go back in the natural state.


1. Dřetovický stream in the future
I propose to revitalise the stream by adding vegetation and changing the shape, so the water flows more slowly. Also the water is a big asset for the public space, so it should be accesible for people. A cycling path along the water could attract people in the area.

TIMELINE

In 5 years

- Create bike paths through the brownfield

- Transform the main connecting streets (prioritize pedestrians + add greenery)

- Clean the natural parks from shrubs and rubbish

- Revitalise orchards in Ořechovka and Bukovka

- Connect Sítenské údolí and Panská louka

- Expand Sítenské údolí to the north

- Plant trees in parking lots and housing-estates
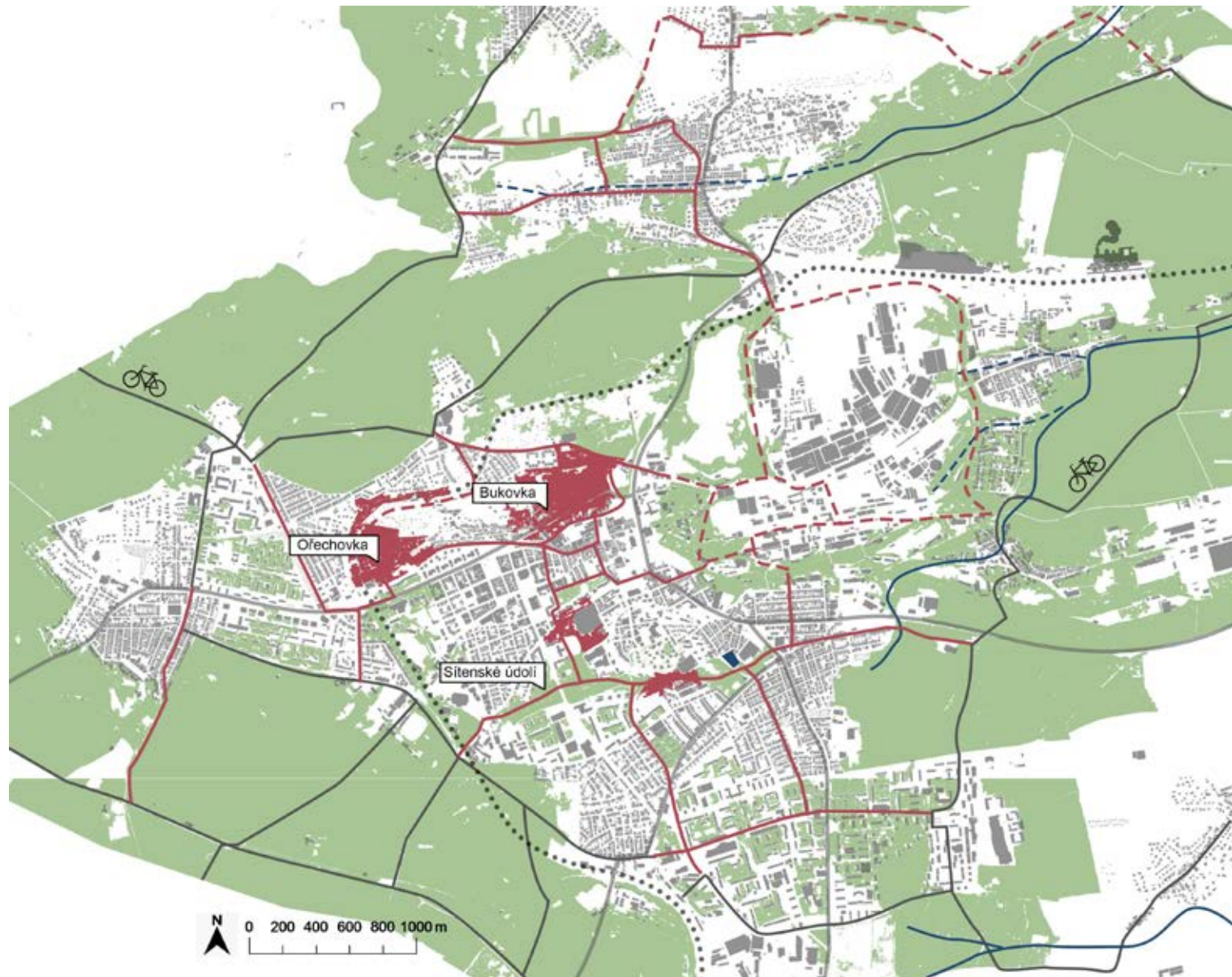
In 10 years

- Expand the pedestrian zone in the center

- Keep transforming streets into green streets

- Start with water stream revitalisation

- Transform the connective areas into functioning public spaces

- Start with brownfield transformation

- Revitalise orchards in Líšnice, Dlouhé Boroviny and Halda Ronna
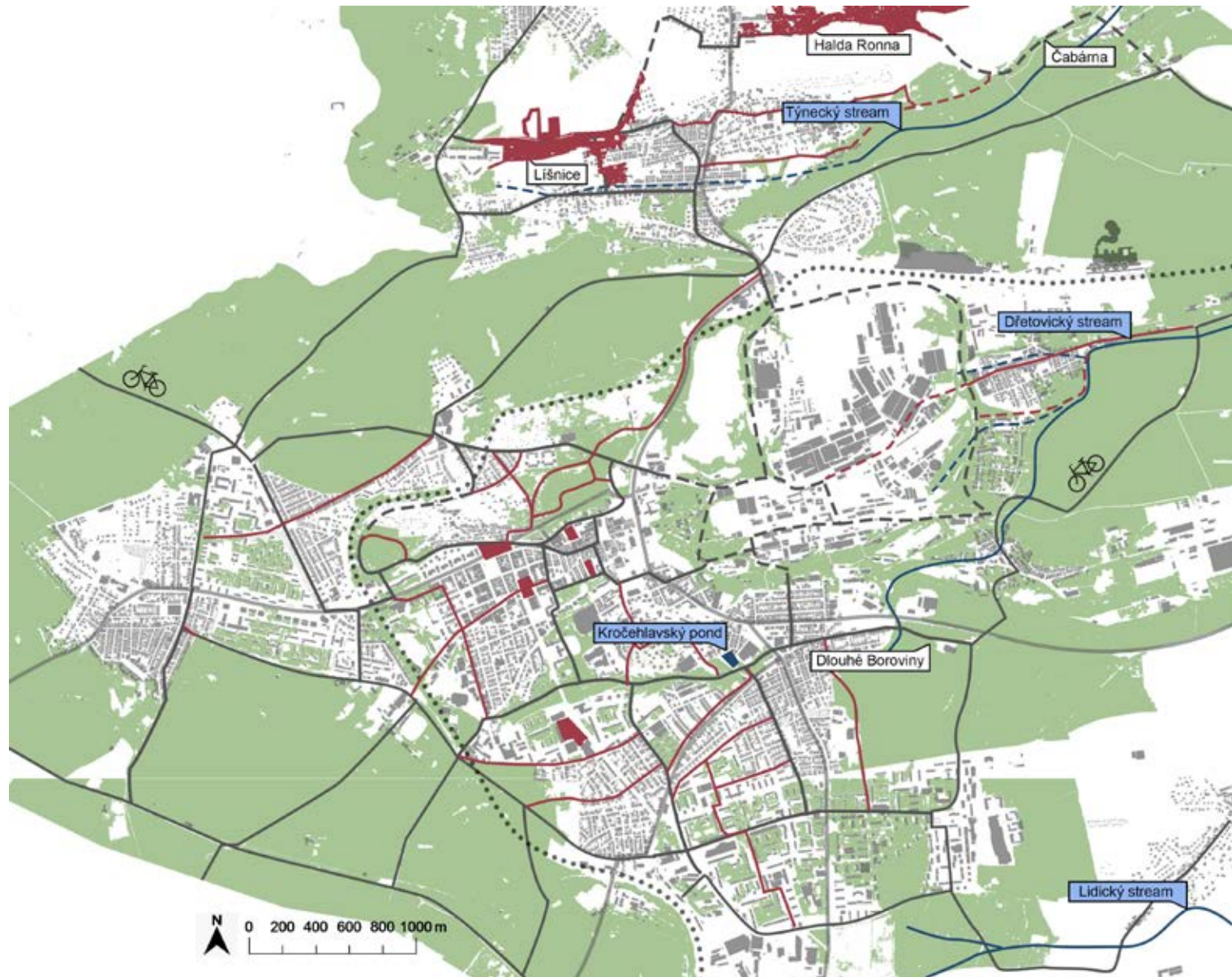
In 20 years

- Finish revitalisation of water streams

- Complete the whole bike connection network

- Focus on the brownfield transformation

- Make brave projects in the housing-estate complexes, create community gardens