



NATURE IN THE CITY

Building Green and Blue Infrastructure to enhance urban resilience

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www.rehwaldt.de

GPSC World Bank
Regional City Academy, Guangzhou May 13, 2025



Productive gardens



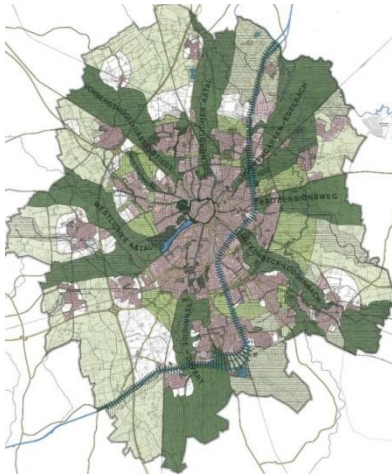
Decorative squares



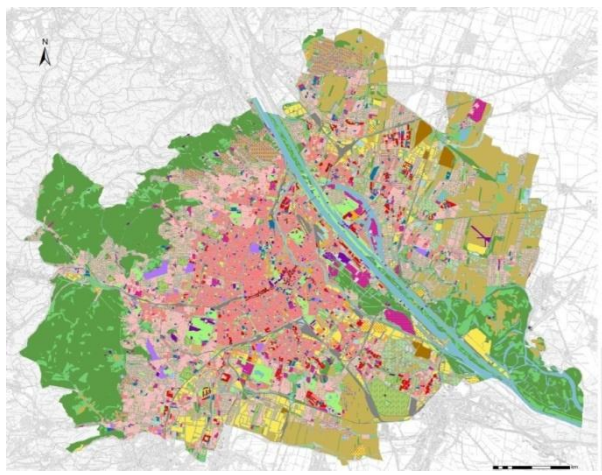
Urban green systems



Köln



Münster



Wien



Leipzig



Parks and promenades



Public event space



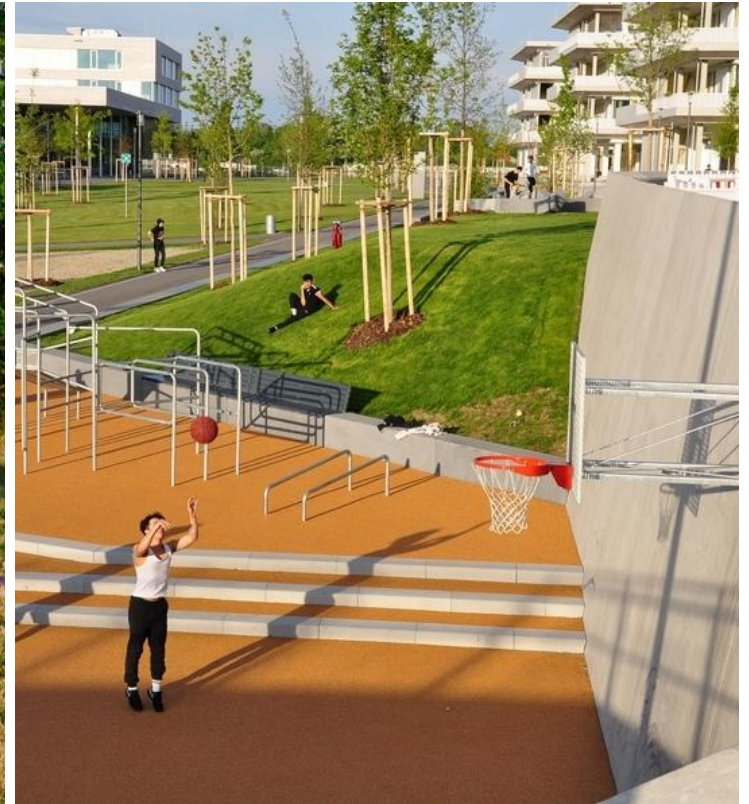
Urban ecosystem



Rainwater management



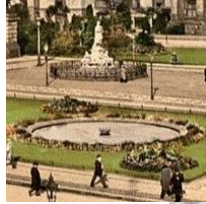
Urban climate conditions: shady and cooling spaces



Sport and health protection



New mobility



New program in an old system?



pipe



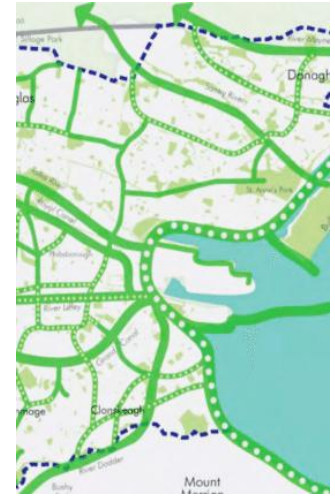
traffic



digital

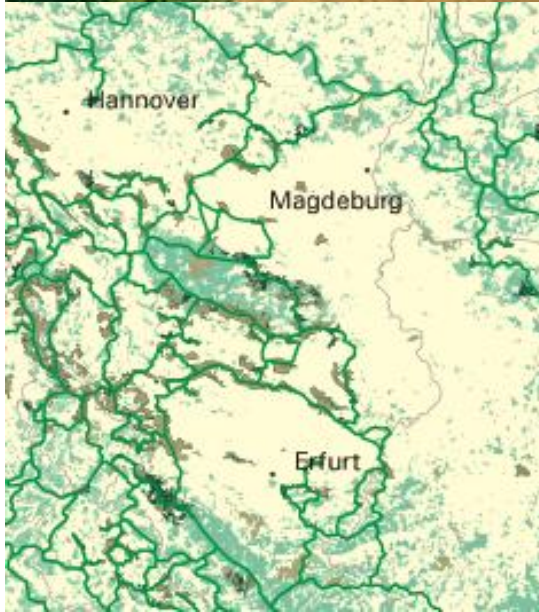


social



green

Development of infrastructure systems

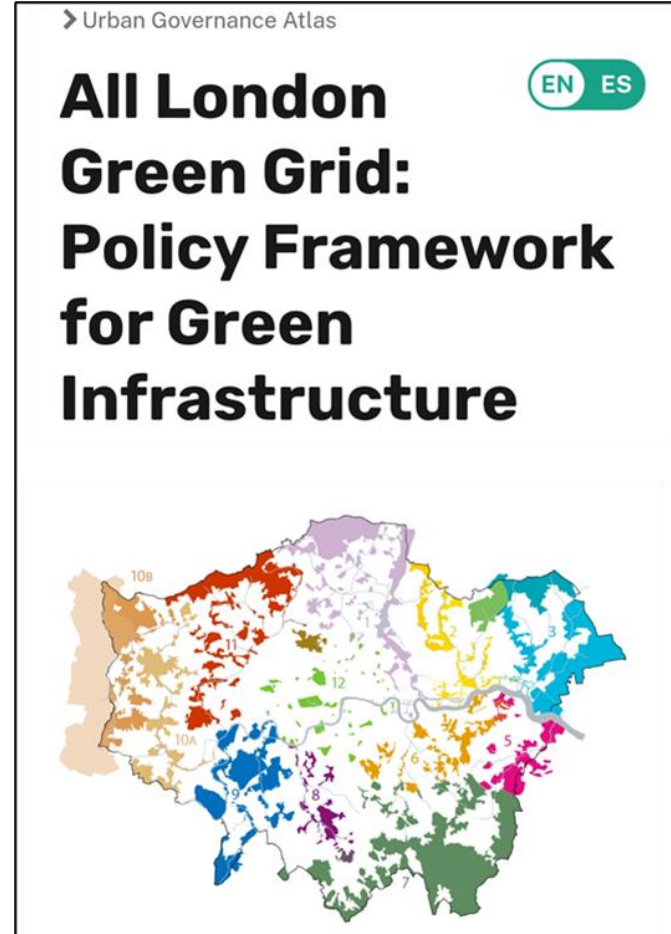


The Network



The Urban Infrastructure

Two roots of green infrastructure



ASLA:

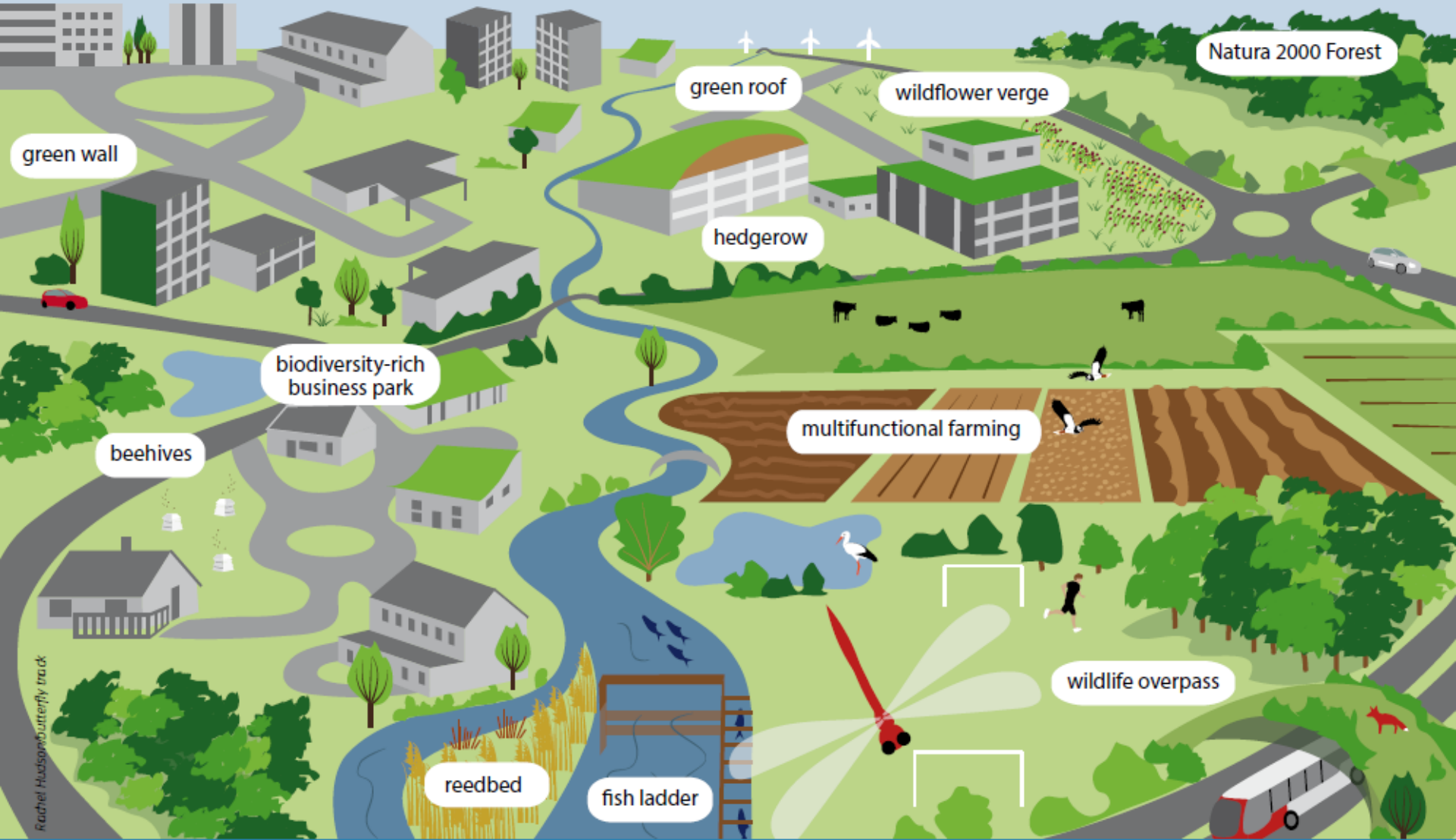
- Forests & Nature Reserves
- Wildlife Habitat & Corridors
- Cities
- Constructed Wetlands
- Green Streets
- Green Roofs & Walls

<http://www.asla.org/greeninfrastructure.aspx>

EU:

Green Infrastructure is addressing the spatial structure of **natural and semi-natural areas** but also other **environmental features** which enable citizens to benefit from its multiple services. The underlying principle of Green Infrastructure is that **the same area of land can frequently offer multiple benefits** if its ecosystems are in a healthy state. Green Infrastructure investments are generally characterized by a high level of return over time, provide job opportunities, and can be a cost-effective alternative or be complementary to 'grey' infrastructure and intensive land use change. It serves the interests of both people and nature.

http://ec.europa.eu/environment/nature/ecosystems/index_en.htm



Potential components of a Green Infrastructure

http://ec.europa.eu/environment/nature/ecosystems/docs/green_infrastructure_broc.pdf

EU Strategy „Green Infrastructure“

GREEN INFRASTRUCTURE

The Planning System of Multifunctional, Resilient and Connected Open Spaces

HABITAT CONNECTIVITY
SPORTS FIELD
PLAYGROUND

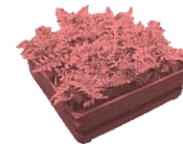
WATER STREAM
LAWN

From function to multifunction

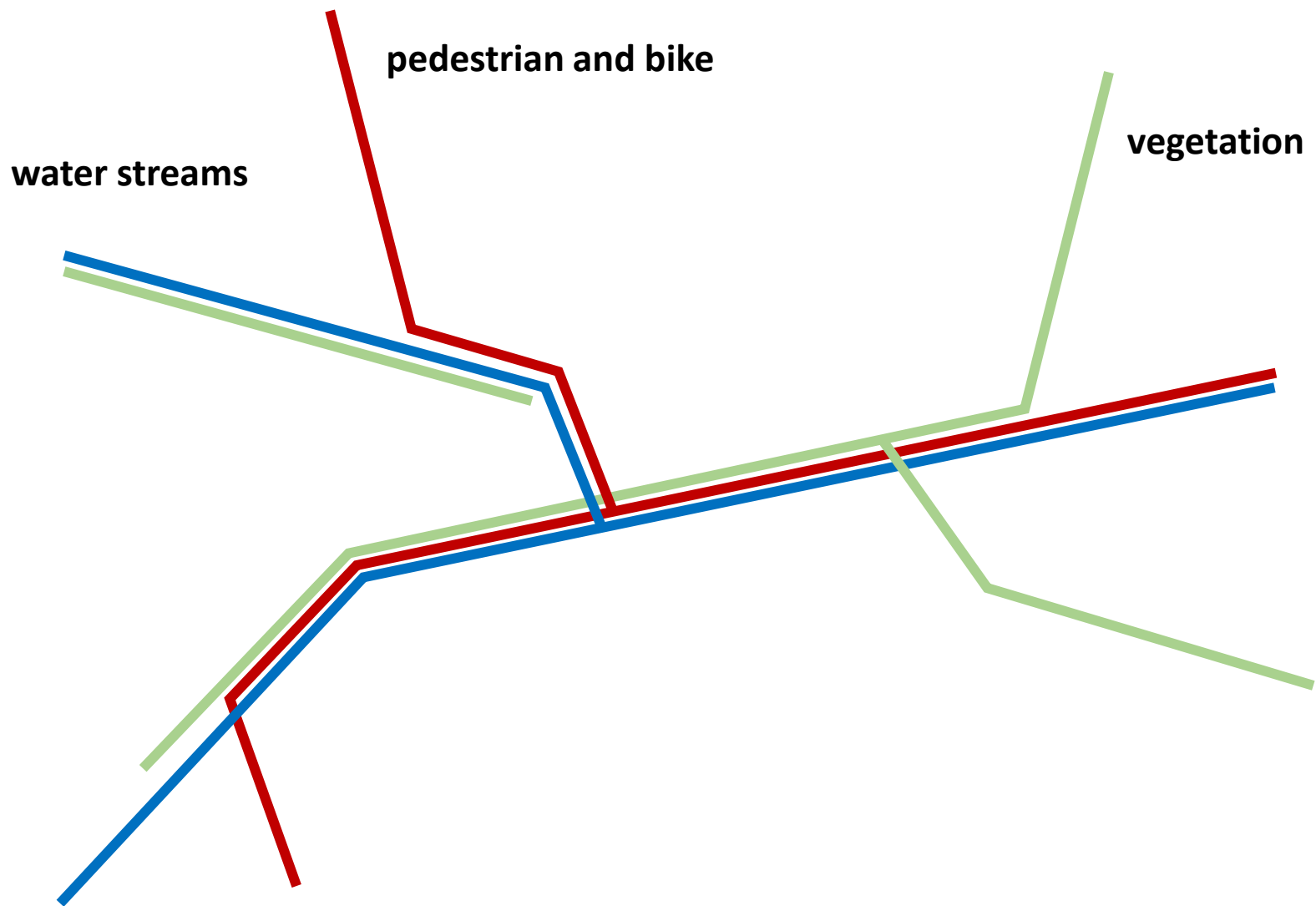


From function to multifunction

- accessibility of spaces
- carbon-neutral mobility
- biodiversity
- drought-resistant vegetation
- faunistic habitats
- connected green spaces
- stormwater retention
- permeable surfaces
- resource saving materials
- passability of water bodies
- green roofs and walls
- sustainable maintenance
- food production
- health protection
- sports and playing
- socially inclusive offers
- social control / safety



Principles and elements of green infrastructure



The network: three types of connection



Cafarella Park, Rome



New types of green spaces: Peri-urban Park



Erlenmatt Park, Basel



Park am Nordbahnhof, Berlin

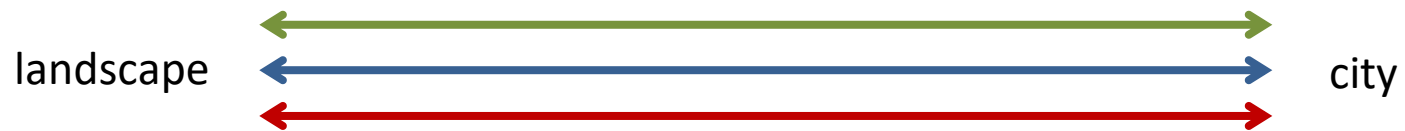
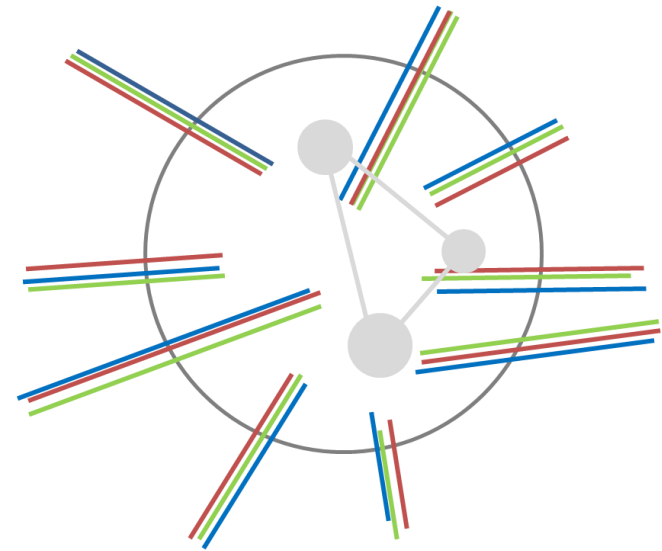
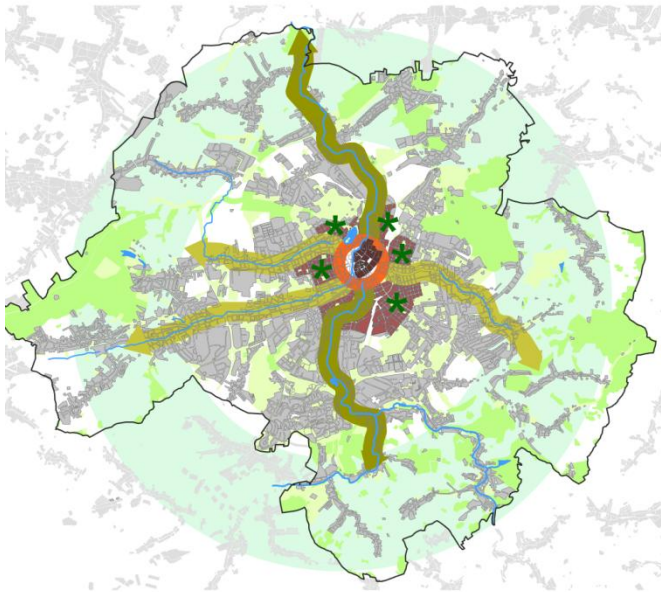
New functions - new aesthetics

GREEN WAYS, URBAN CONNECTIONS

Projects and experiences



The Kappel river revitalisation, Chemnitz



Green corridors
Continuous water body
Pedestrian and bicycle way

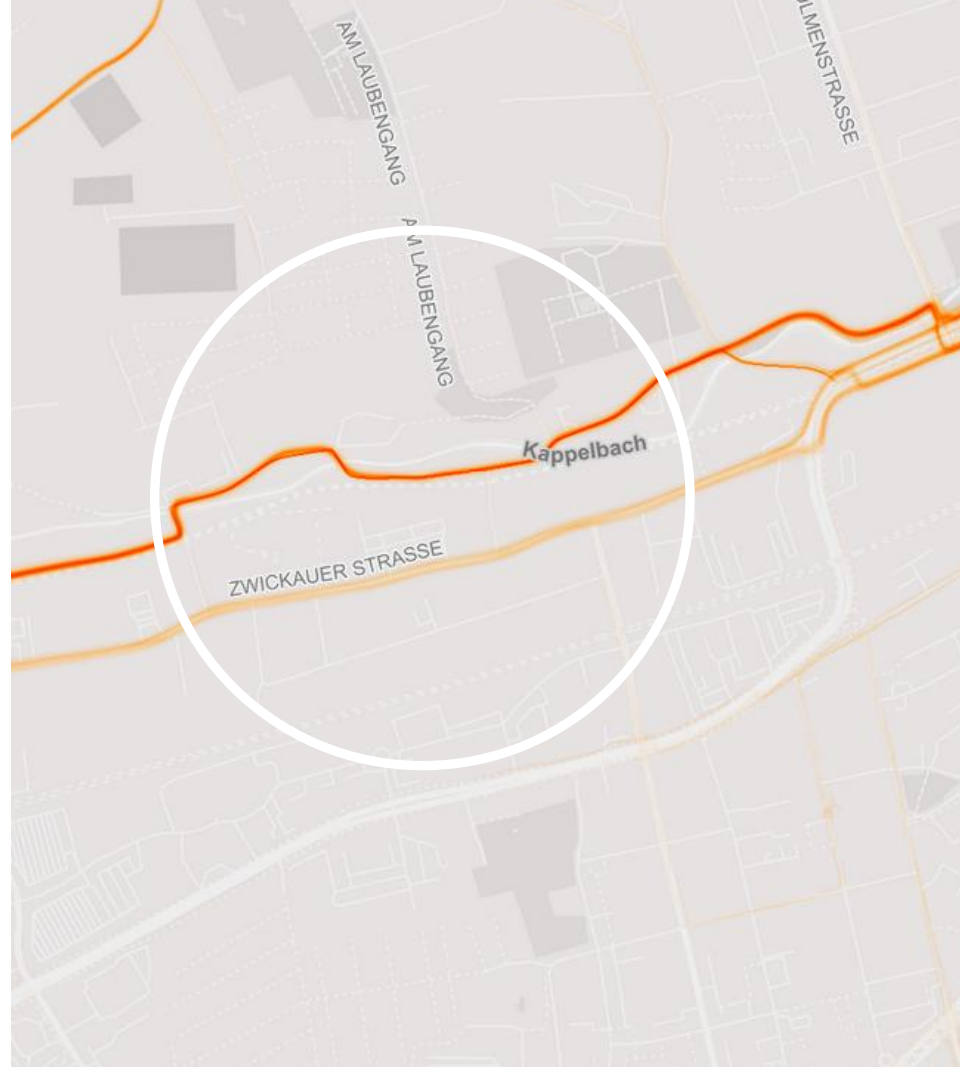
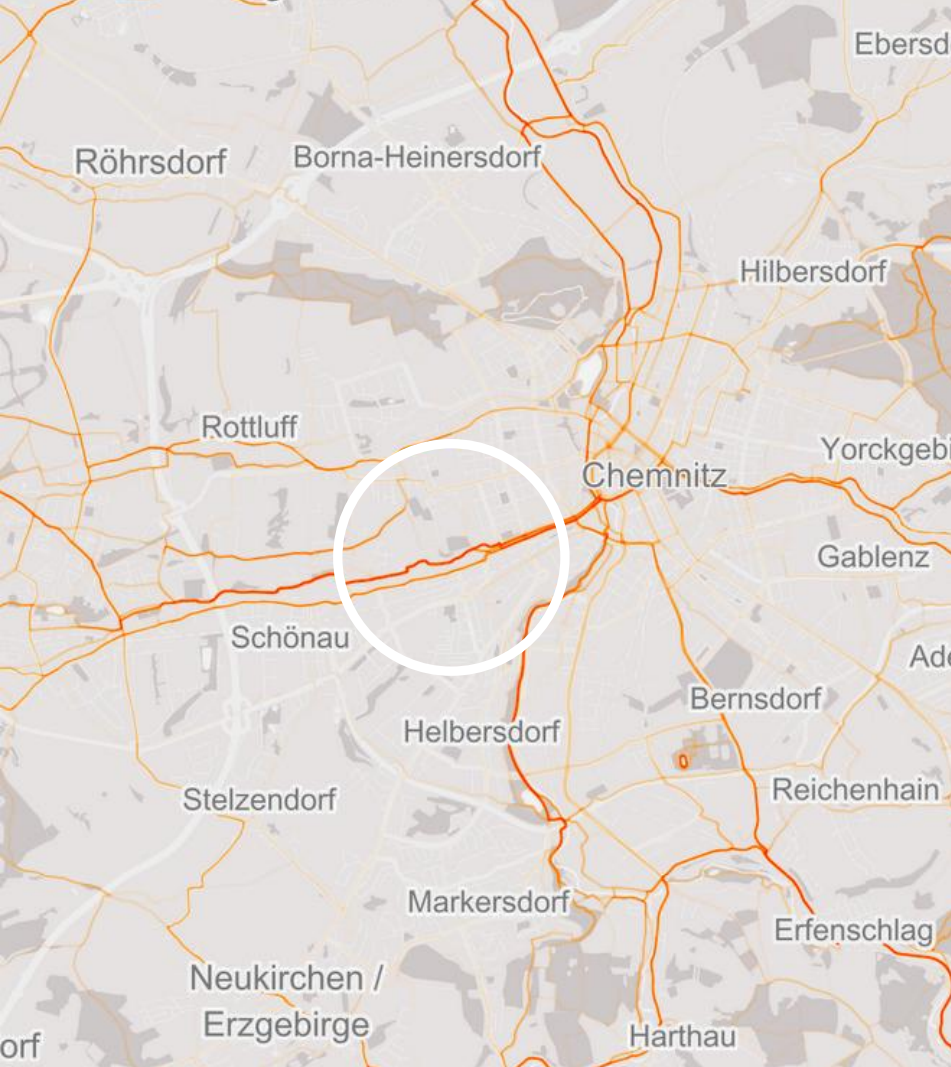
The connecting lines



New water body

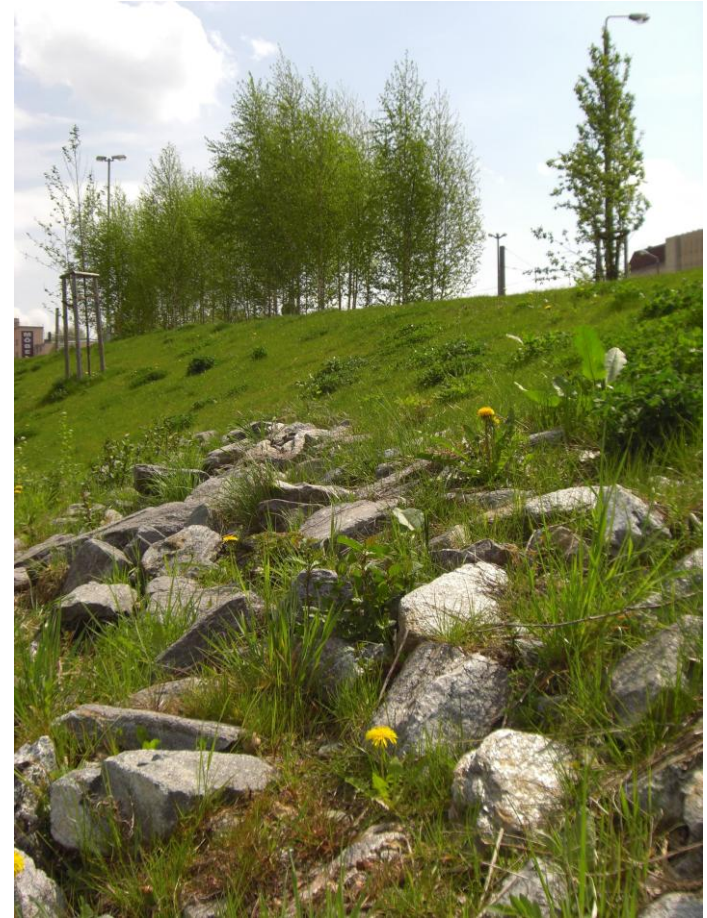


Bike route



www.strava.com

Monitoring of the use



Recycling of materials



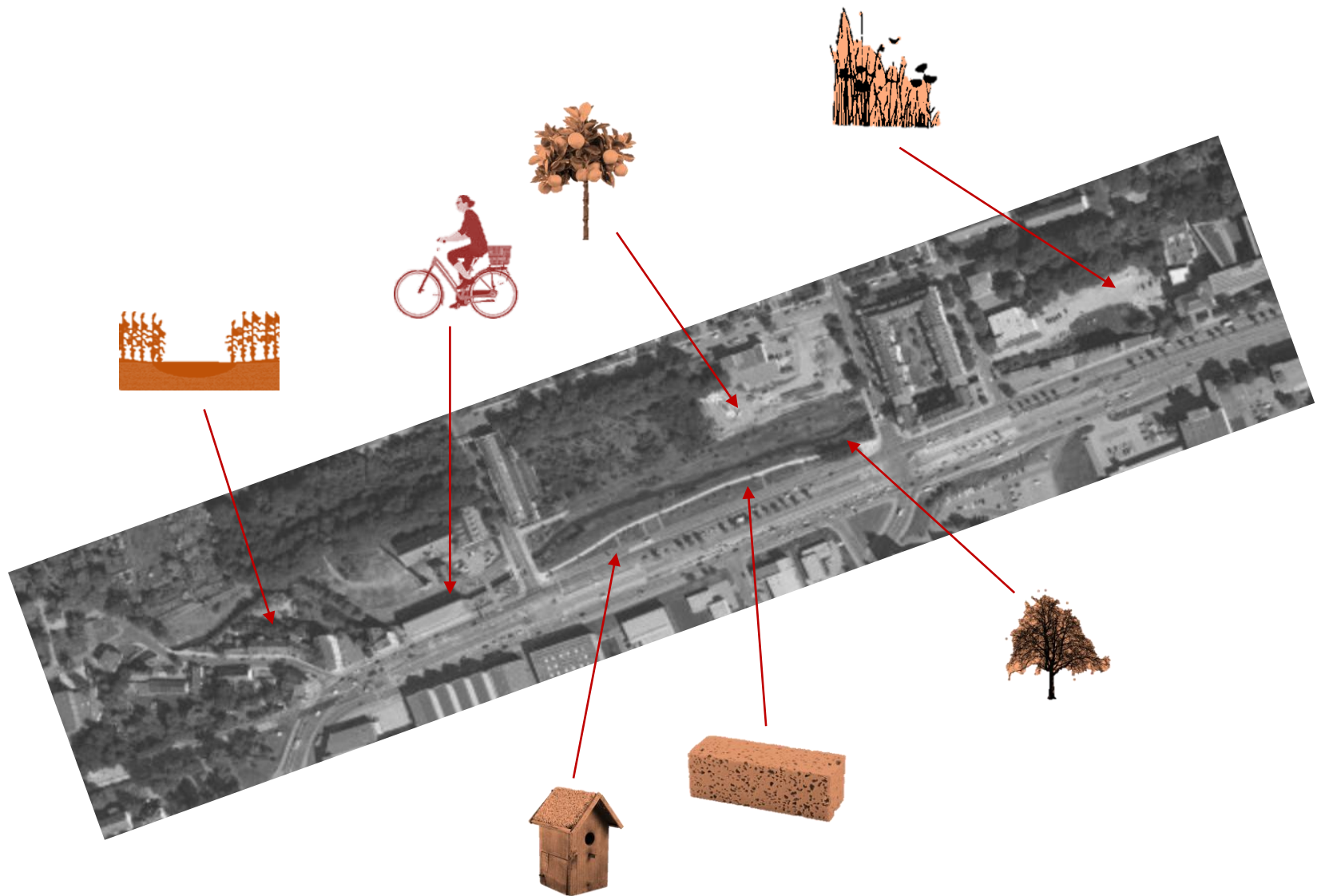
New habitats from old stones



Topography is back



Bike stop and Restaurant



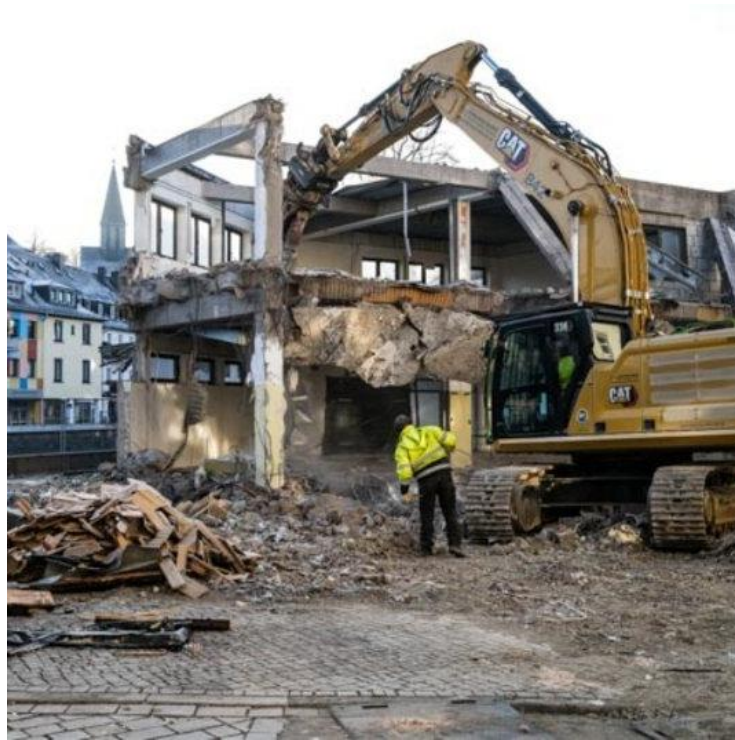
Elements of green infrastructure



Siegen city revitalisation – The riverfront terraces



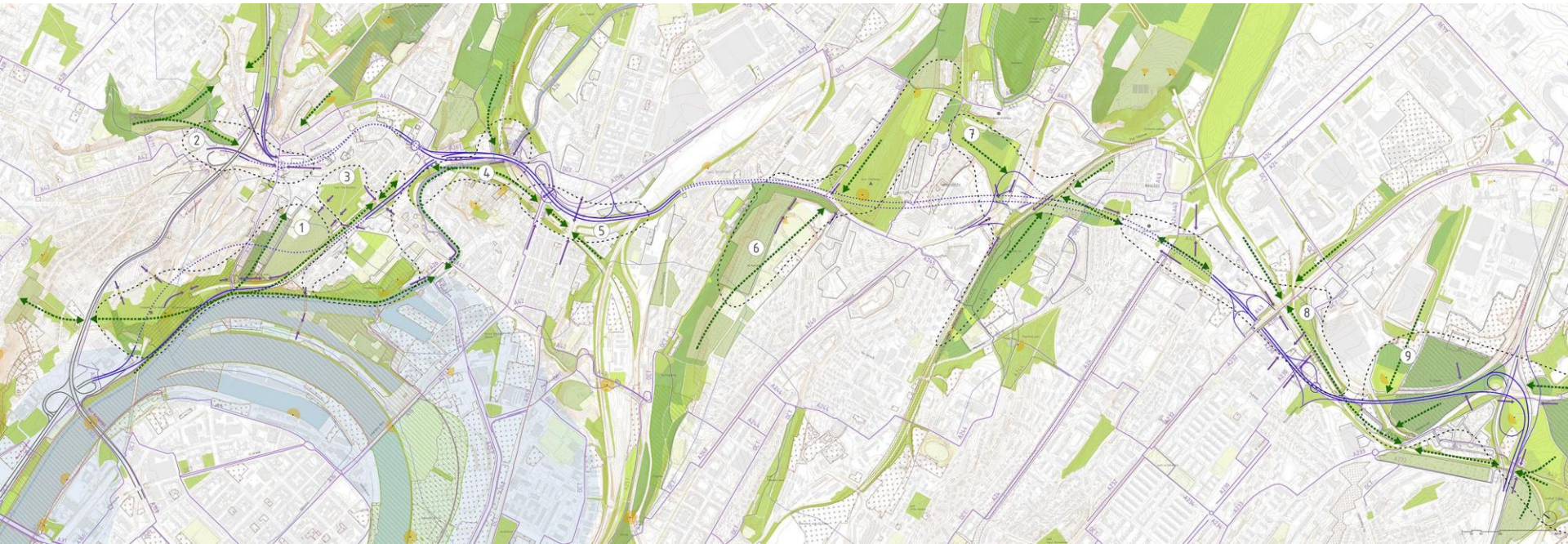
Siegen city revitalisation – The riverfront terrasses



Siegen city revitalisation – The Herrengarten park

TRAFFIC AND NEW MOBILITY

From Gray to Green



Prague city ringroad



Prague city ringroad

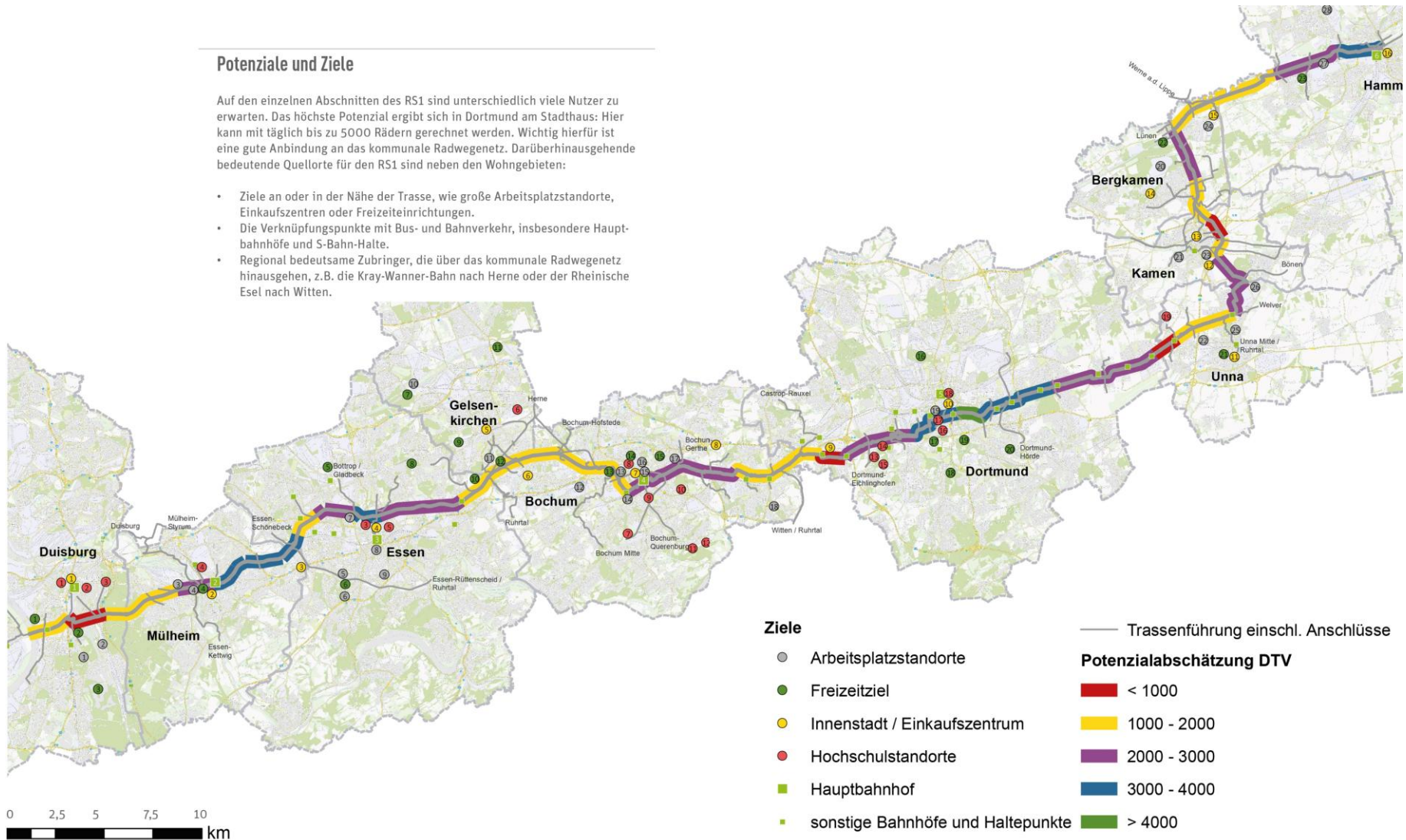


Prague city ringroad

Potenziale und Ziele

Auf den einzelnen Abschnitten des RS1 sind unterschiedlich viele Nutzer zu erwarten. Das höchste Potenzial ergibt sich in Dortmund am Stadthaus: Hier kann mit täglich bis zu 5000 Rädern gerechnet werden. Wichtig hierfür ist eine gute Anbindung an das kommunale Radwegenetz. Darüberhinausgehende bedeutende Quellorte für den RS1 sind neben den Wohngebieten:

- Ziele an oder in der Nähe der Trasse, wie große Arbeitsplatzstandorte, Einkaufszentren oder Freizeiteinrichtungen.
- Die Verknüpfungspunkte mit Bus- und Bahnverkehr, insbesondere Hauptbahnhöfe und S-Bahn-Halte.
- Regional bedeutsame Zubringer, die über das kommunale Radwegenetz hinausgehen, z.B. die Kray-Wanner-Bahn nach Herne oder der Rheinische Esel nach Witten.



<http://dtp-essen.de/projekte/referenzen/radschnellweg-ruhr---machbarkeitsstudie.html>



Bike route RS 1 - Ruhrgebiet



Elbe cycleway – bike stop and landmark

BIODIVERSITY

Flora and Fauna Habitats



New habitats, new aesthetics



Bird and insect habitats



USA-Pavillon, EXPO 2016

Vertical green



Bosco Verticale, Mailand

Green facades, Milano



Urban bees, Seoul



Building for animals



Biodivers and active Roofs, Copenhagen

RAINWATER MANAGEMENT

From the pipes to the trees



<http://www.urbanisten.nl/wp/?portfolio=waterplein-bentemplein>

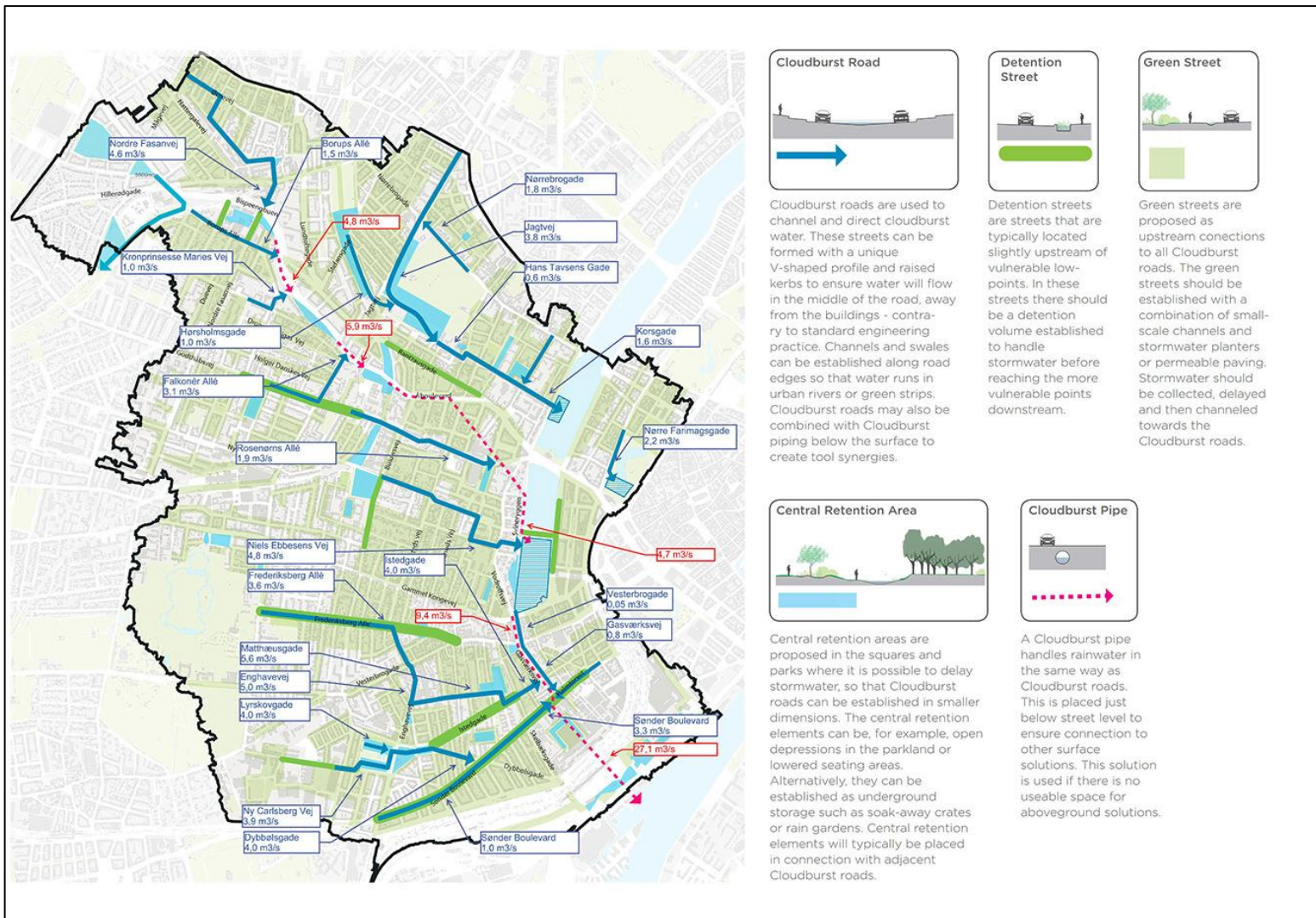


Benthemplein Square, Rotterdam



<https://www.asla.org/stormwatercasestudies.aspx>

Stormwater retention volume



Copenhagen Cloudburst Management Plan

A diagram of a street with buildings on both sides. A dashed red triangle is drawn on the road surface, pointing towards the viewer, indicating a pedestrian crossing area. There are three green circular patches on the road surface within the triangle.





Illustration: GHB Landskabsarkitekter
<http://klimakvarter.dk/>

Climate quarter Østerbro, Copenhagen



Stormwater protection and biodiversity

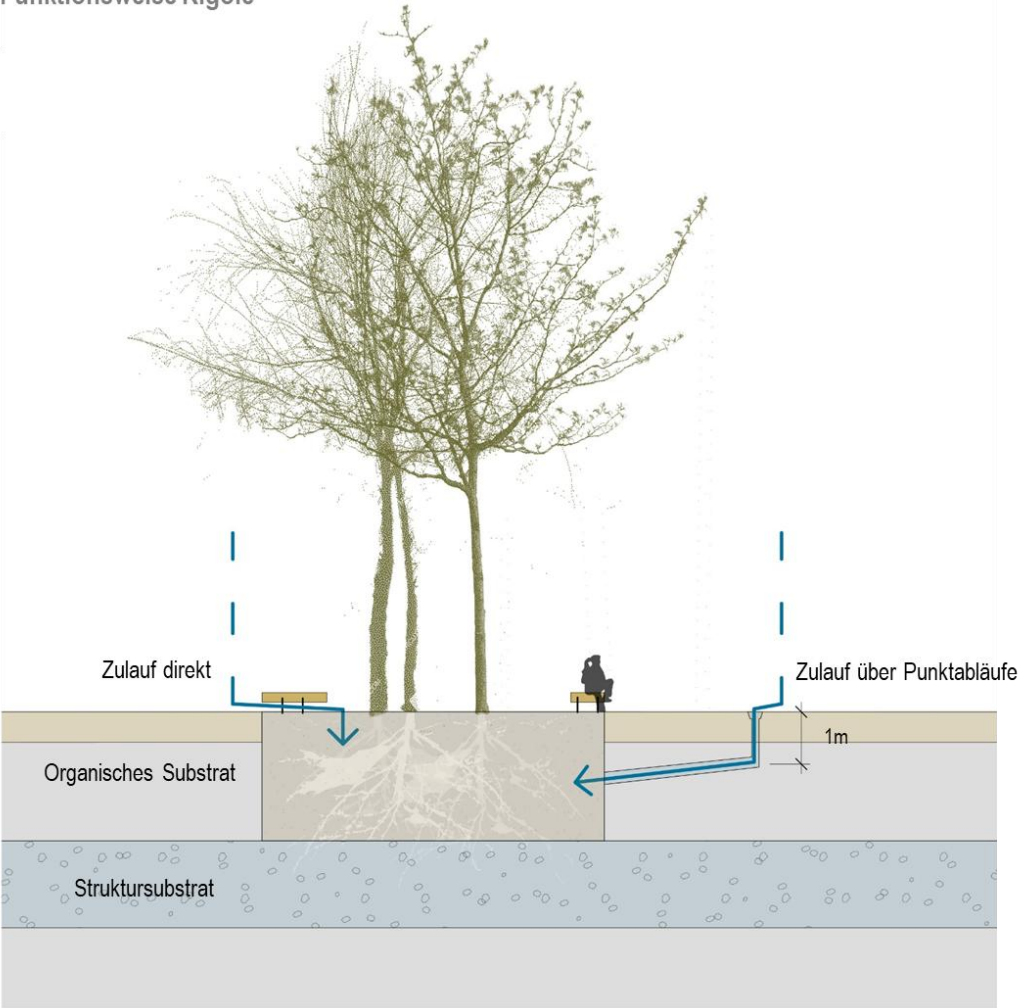


Stormwater protection and biodiversity, Remise Park



Berlin main station Europa Park

Funktionsweise Rigole



Funktionsweise Bauminself (Rigole)

Schema Regenwassermanagement



Entwässerungsschema Übersicht



Sponge City – sponge Square



Some weeks after opening



Summertime

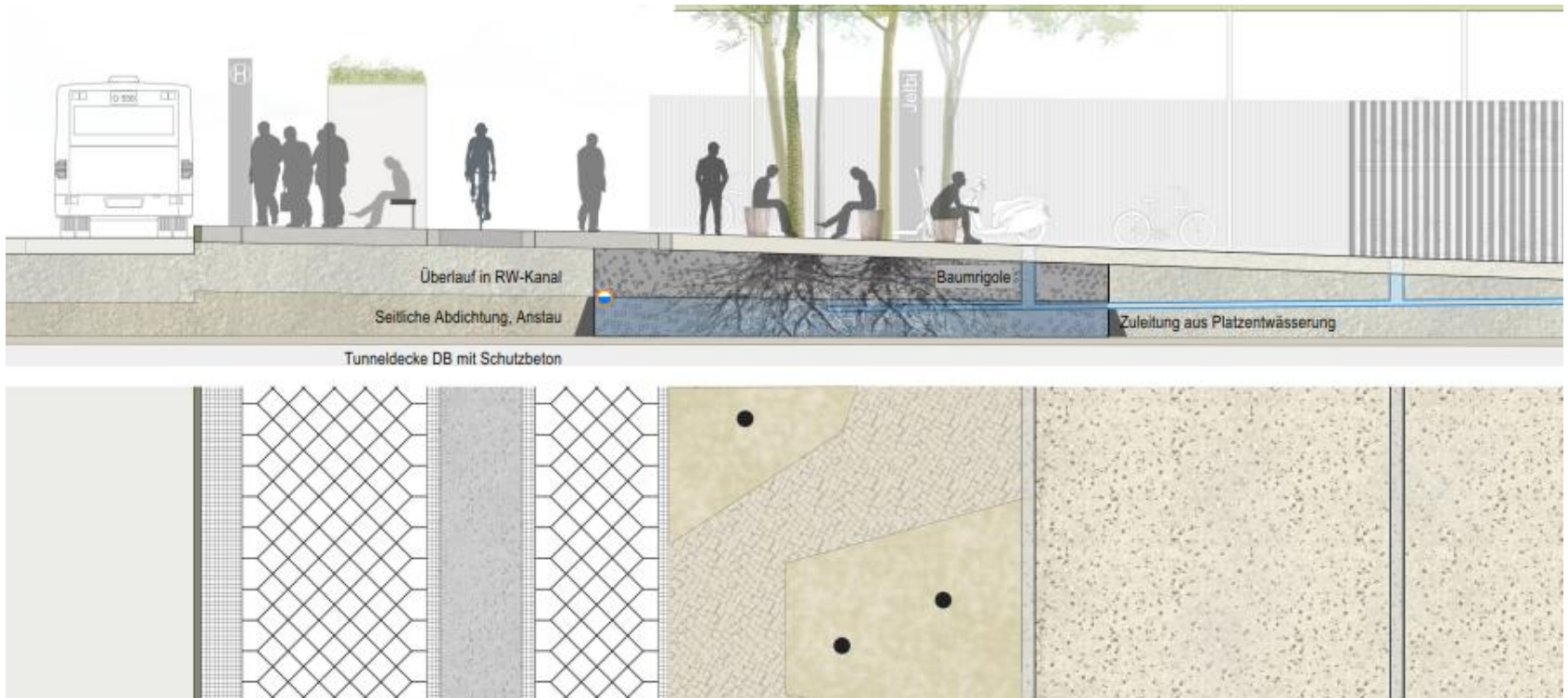




Biodiversity, rainwater management and bike hub



The climate groove



Rainwater to the roots



THANK YOU!