

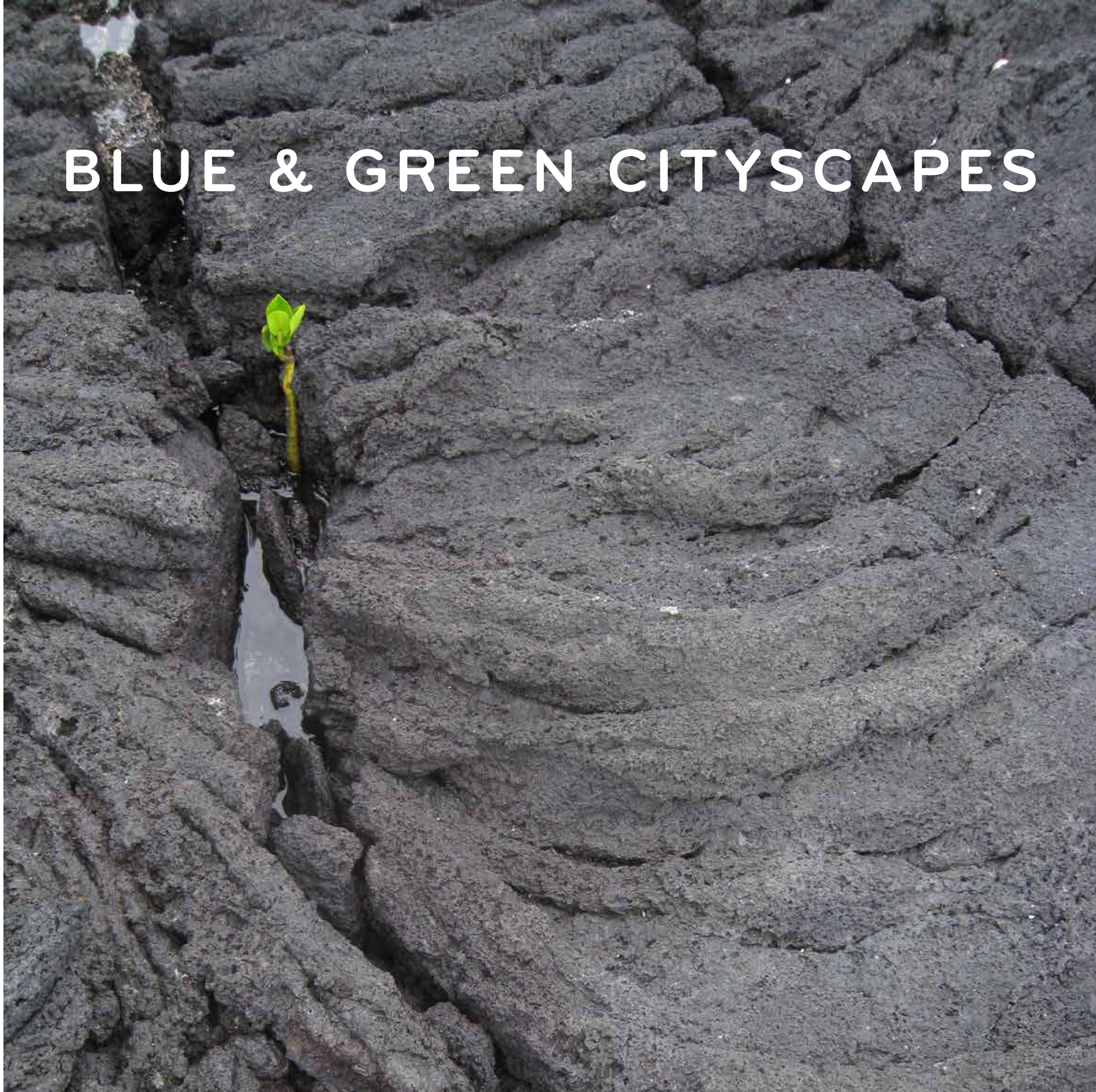


BLUE & GREEN CITYSCAPES

UTRECHT REGION, THE NETHERLANDS

RANI IZHAR | OKRA LANDSCAPE ARCHITECTS

BLUE & GREEN CITYSCAPES





THE CHALLENGE TO CREATE HEALTHY CITIES

OUR EVOLVING CITIES
SHOULD COMPRISE THE
IDEA OF HEALTHY CITY.

- = RESILIENT
- = ACCESSIBLE
- = VIBRANT
- = CIRCULAR

OKRA LANDSCAPE ARCHITECTS

OKRA is an award-winning design office for landscape architecture and urbanism. Over the last twenty years OKRA has focused on the transformation of cities and landscapes for the people who use them. OKRA has extensive experience in defining frameworks for urban development, design public space, master planning and strategies. OKRA is a multi-disciplinary team with more than 20 international professionals working enthusiastically with partners and clients to create a better environment.





RE-THINK ATHENE TRANSFORMATION & CLIMATE ADAPTION OF THE CITY CENTER ATHENE GREECE



landscape of the hills
in the north

landscape of green fingers

recreational connec-
tion to the sea

recreational connection
to the sea

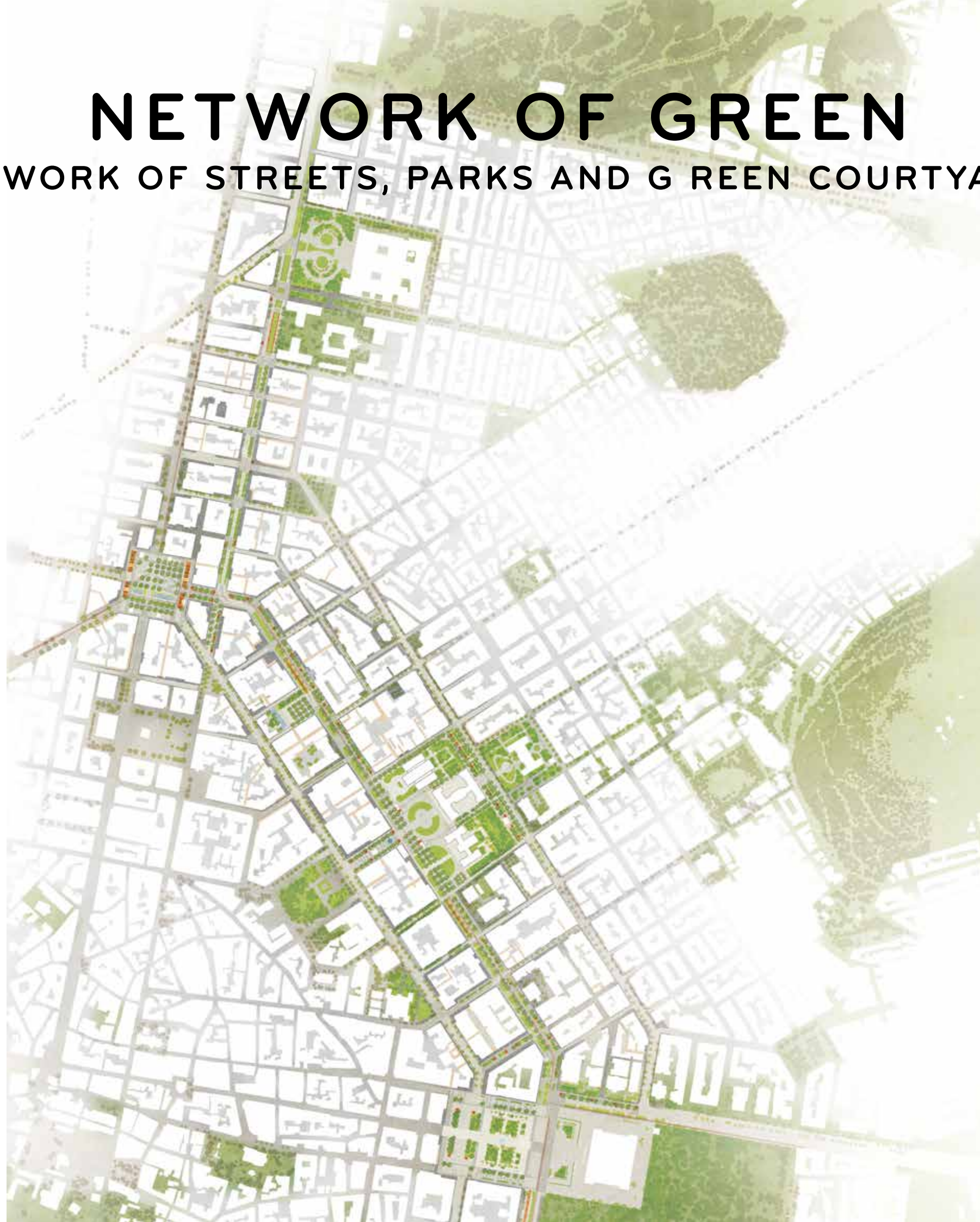
GREEN INFRASTRUCTURE ON A 'METROPOLITAN SCALE

new city centre 56 ha



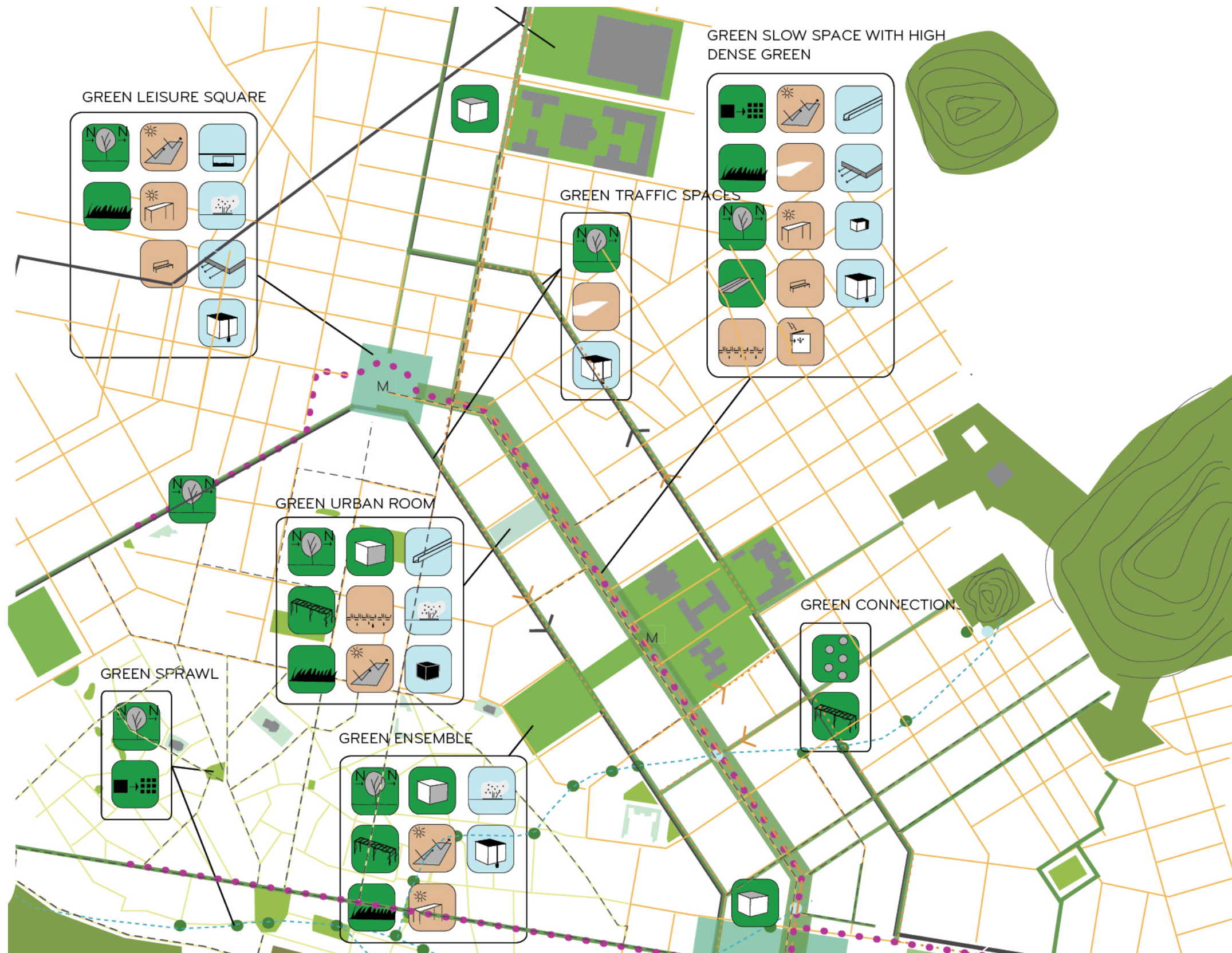
NETWORK OF GREEN

NETWORK OF STREETS, PARKS AND GREEN COURTYARDS



NETWORK OF PUBLIC REALM

ACTIVE SPACES



DESIGN PRINCIPLES

MATERIAL CHOICE



DESIGN PRINCIPLES

SHADED PUBLIC REALM



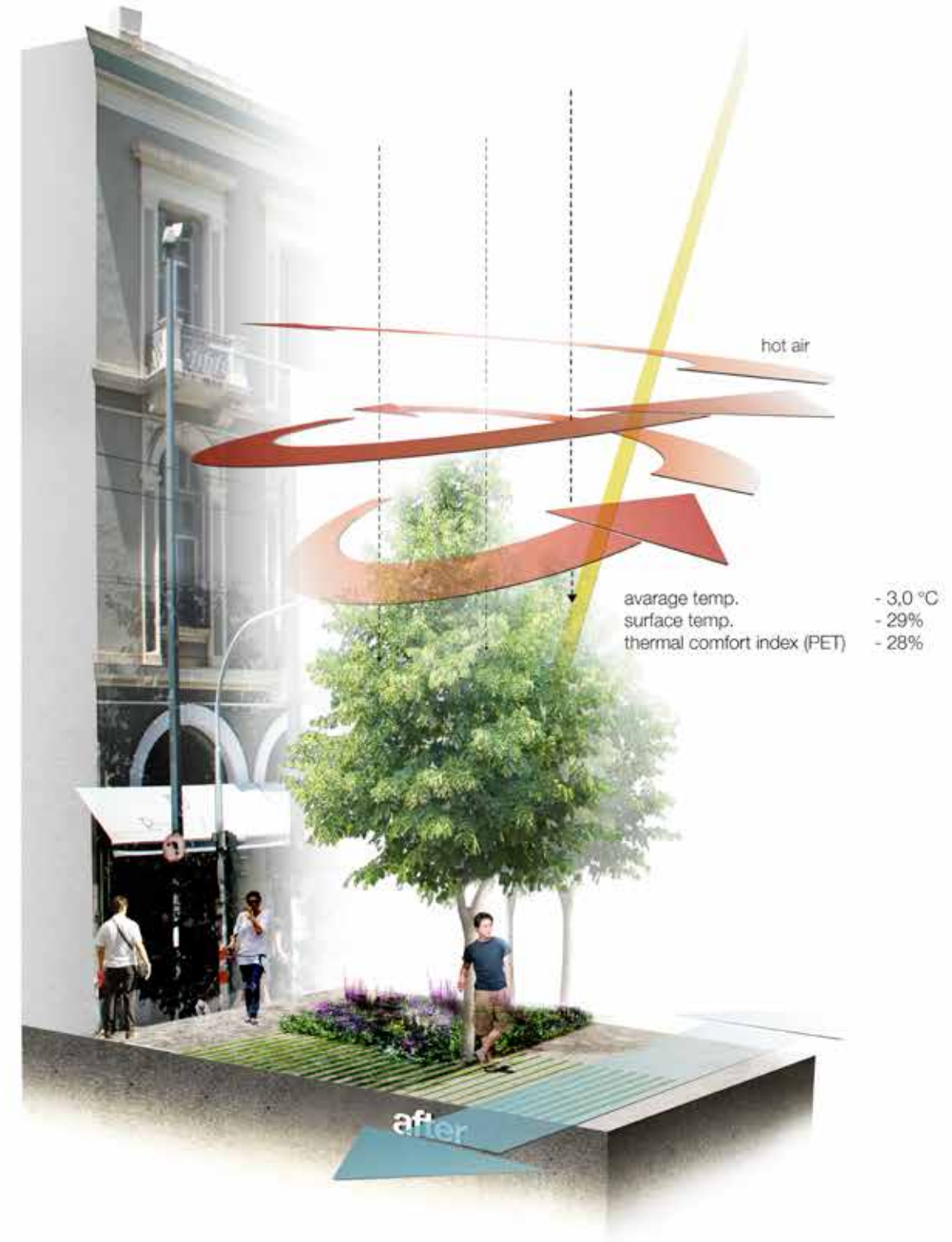
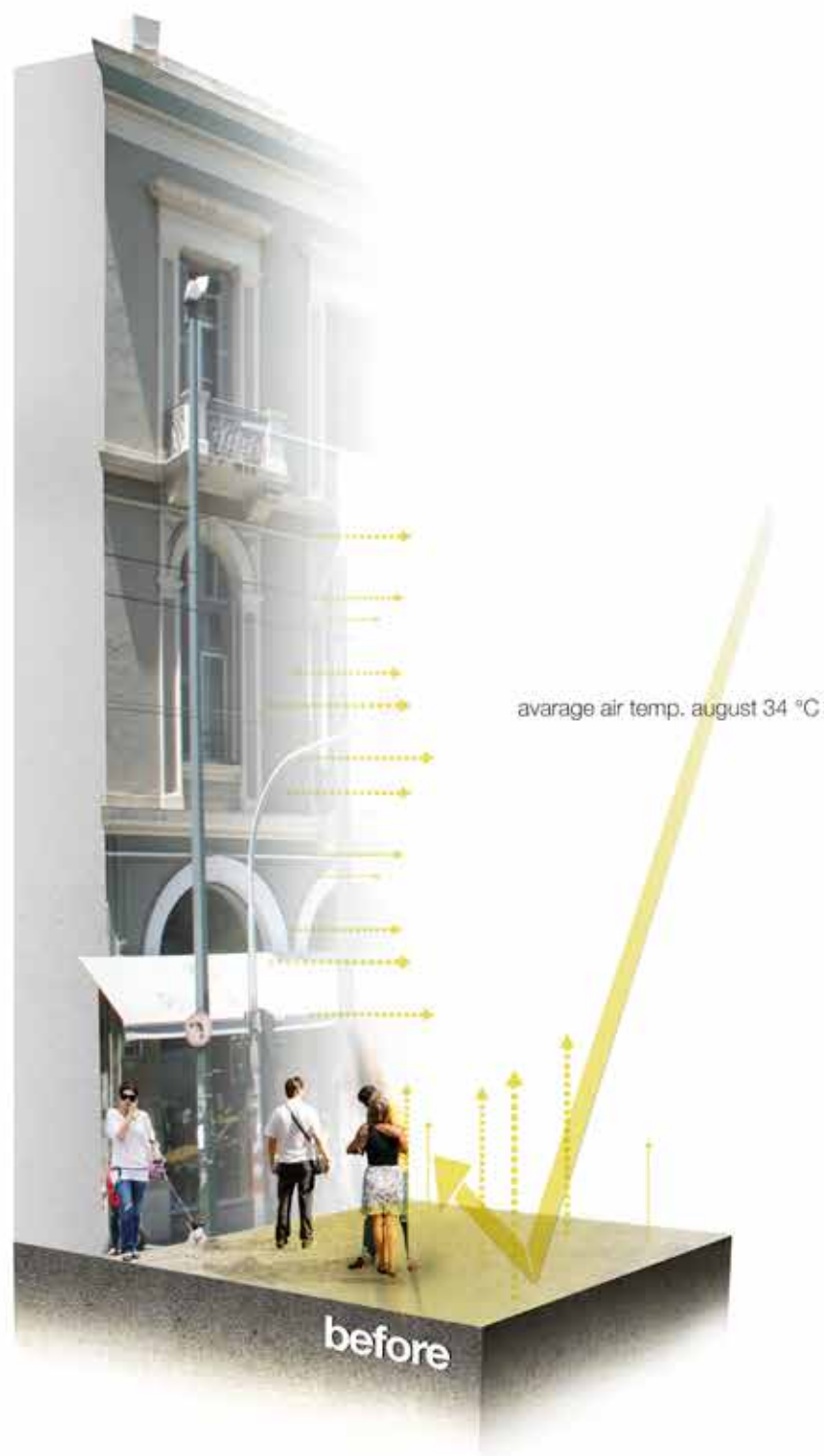
DESIGN PRINCIPLES

PLANTING STRATEGY



CLIMATE CONTROL

1.5 - 3.0 DEGREES TEMPERATURE REDUCTION

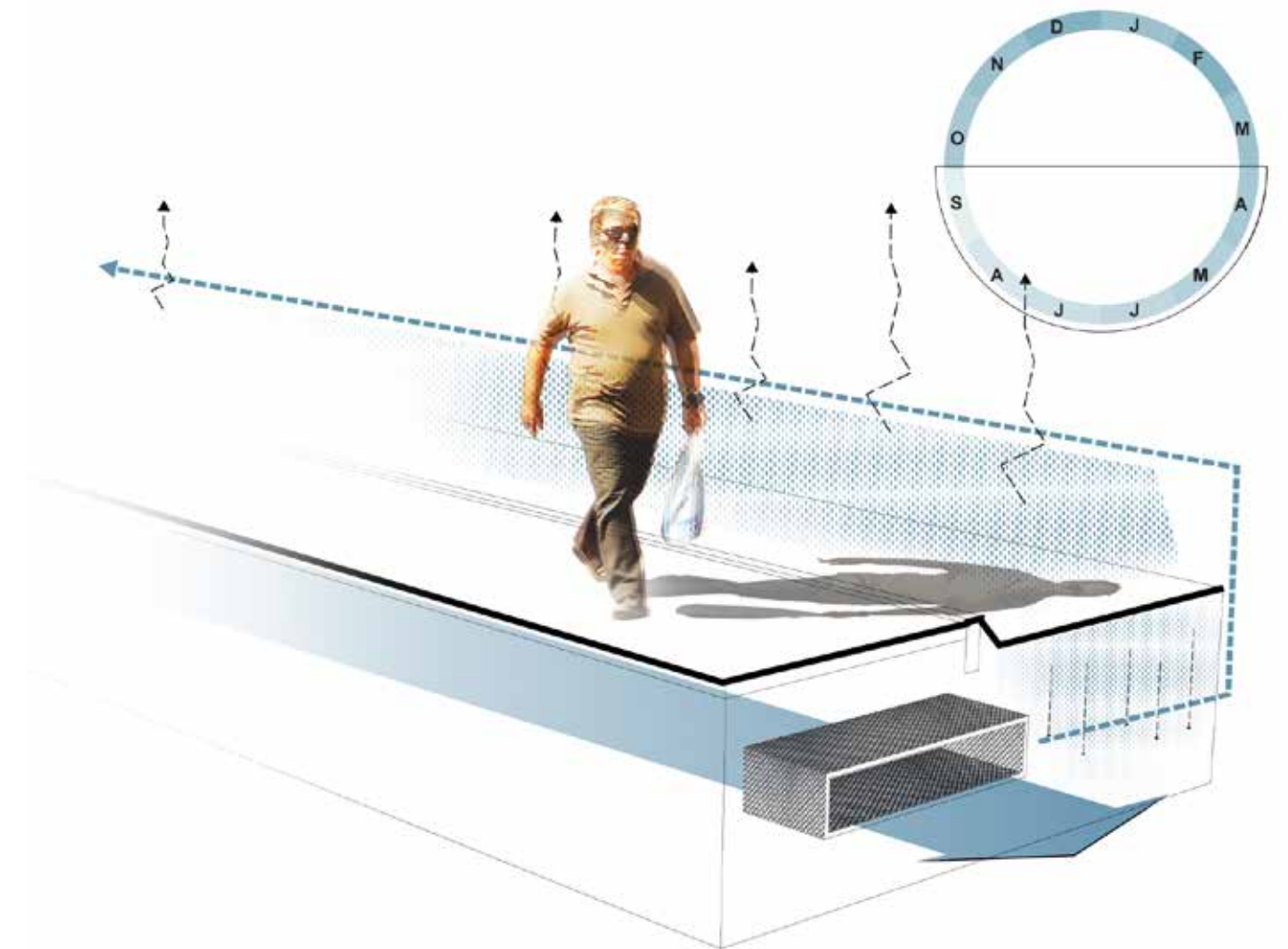


CLIMATE CONTROL

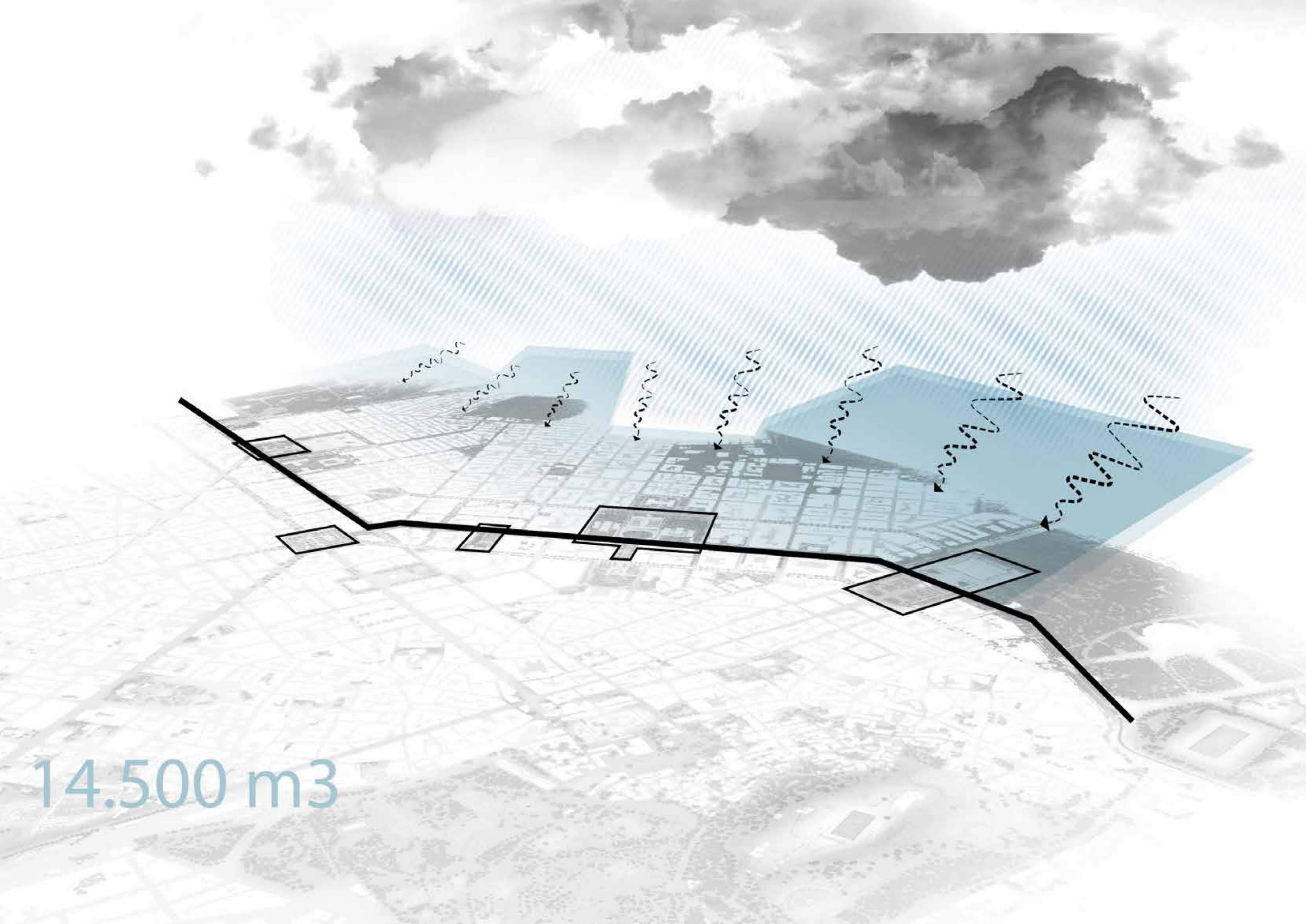
WATER RETENTION AND DISTRIBUTION



WATER RETENTION IN WET SEASON



IRRIGATION IN DRY SEASON



14.500 m³

BLUE NETWORK

BLUE NETWORK FEEDING GREEN







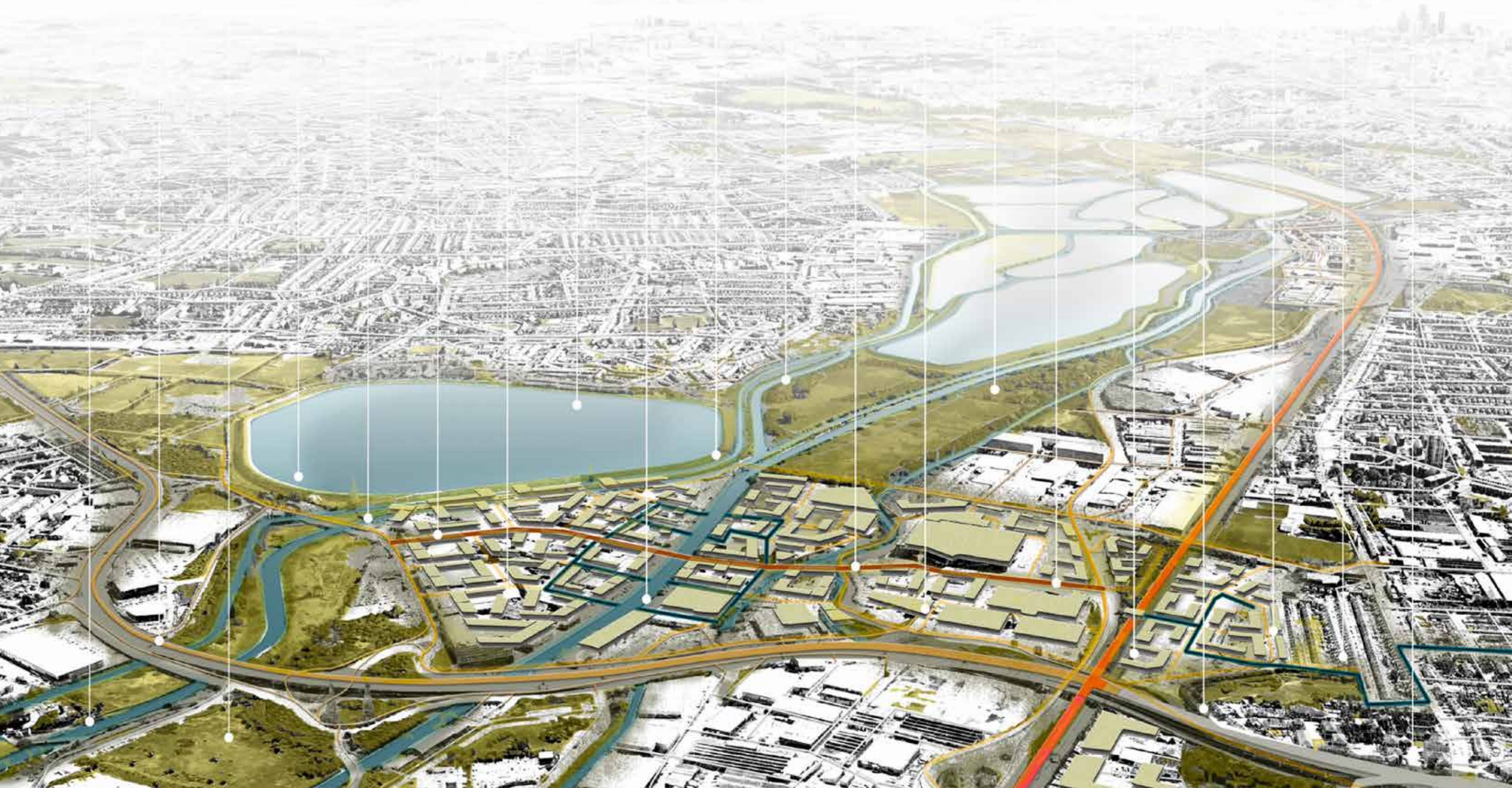


URBAN GREEN & WATER SENSITIVE DESIGN TOOL

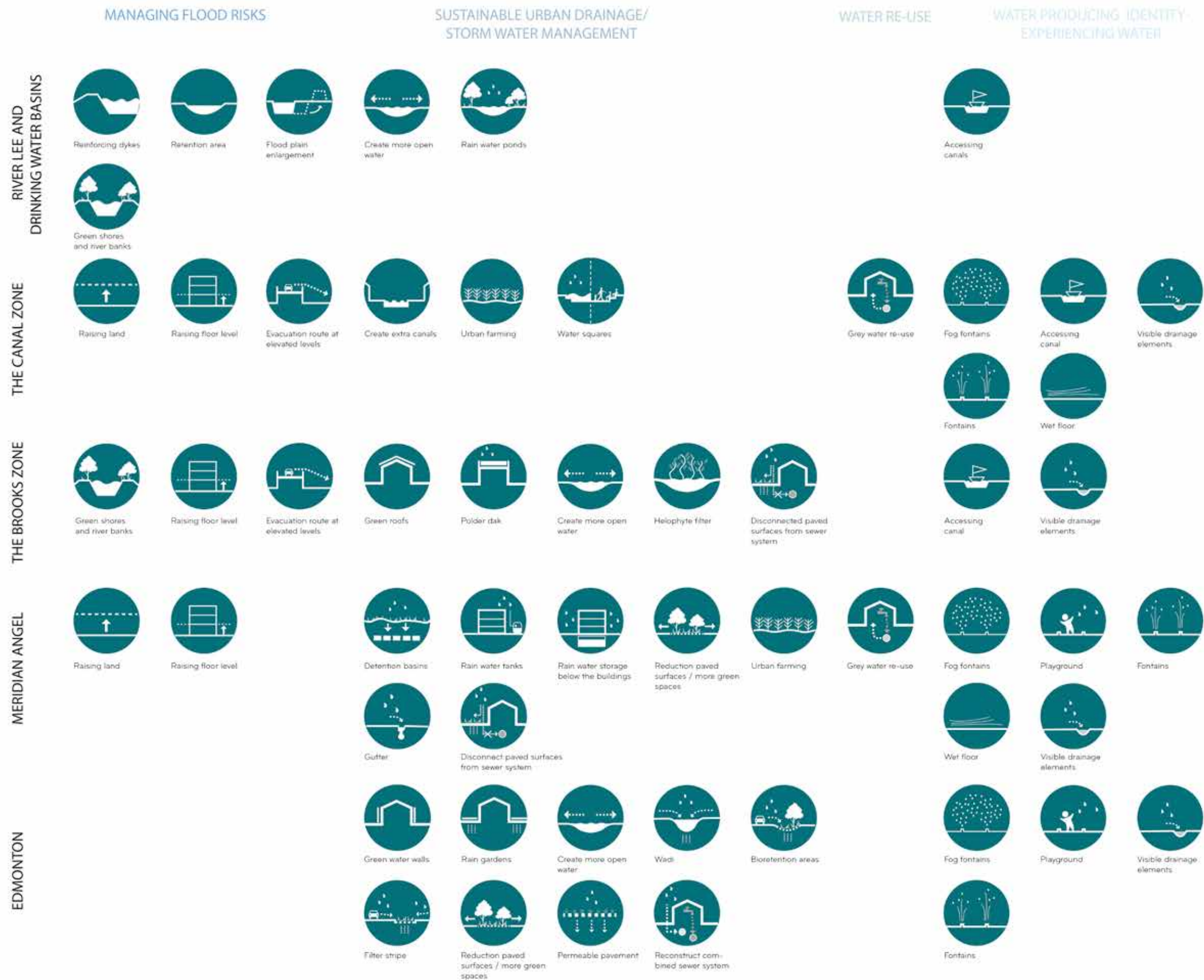
MERIDIAN WATER MASTERPLAN

LONDON UK

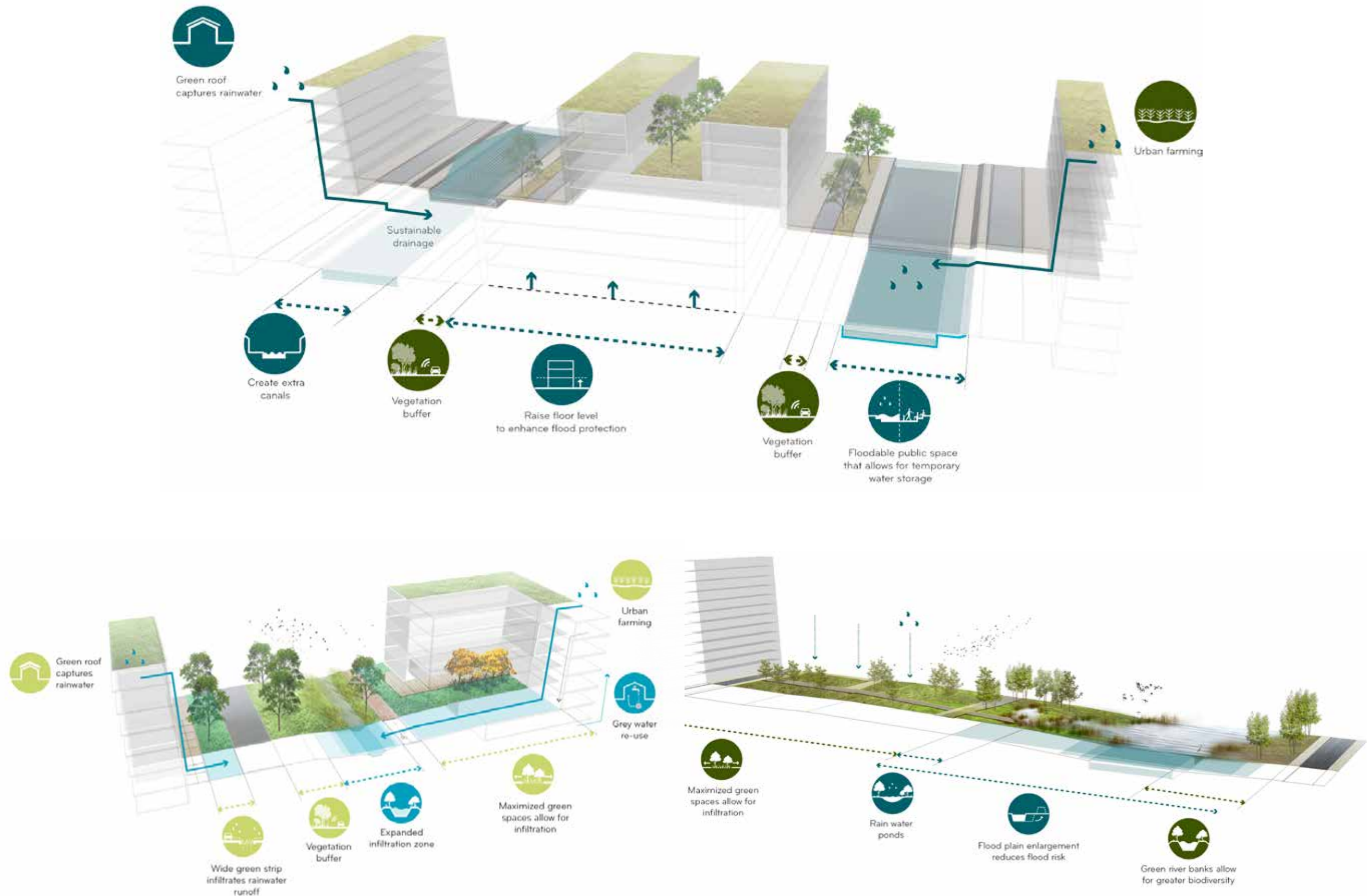
MASTERPLAN VISION



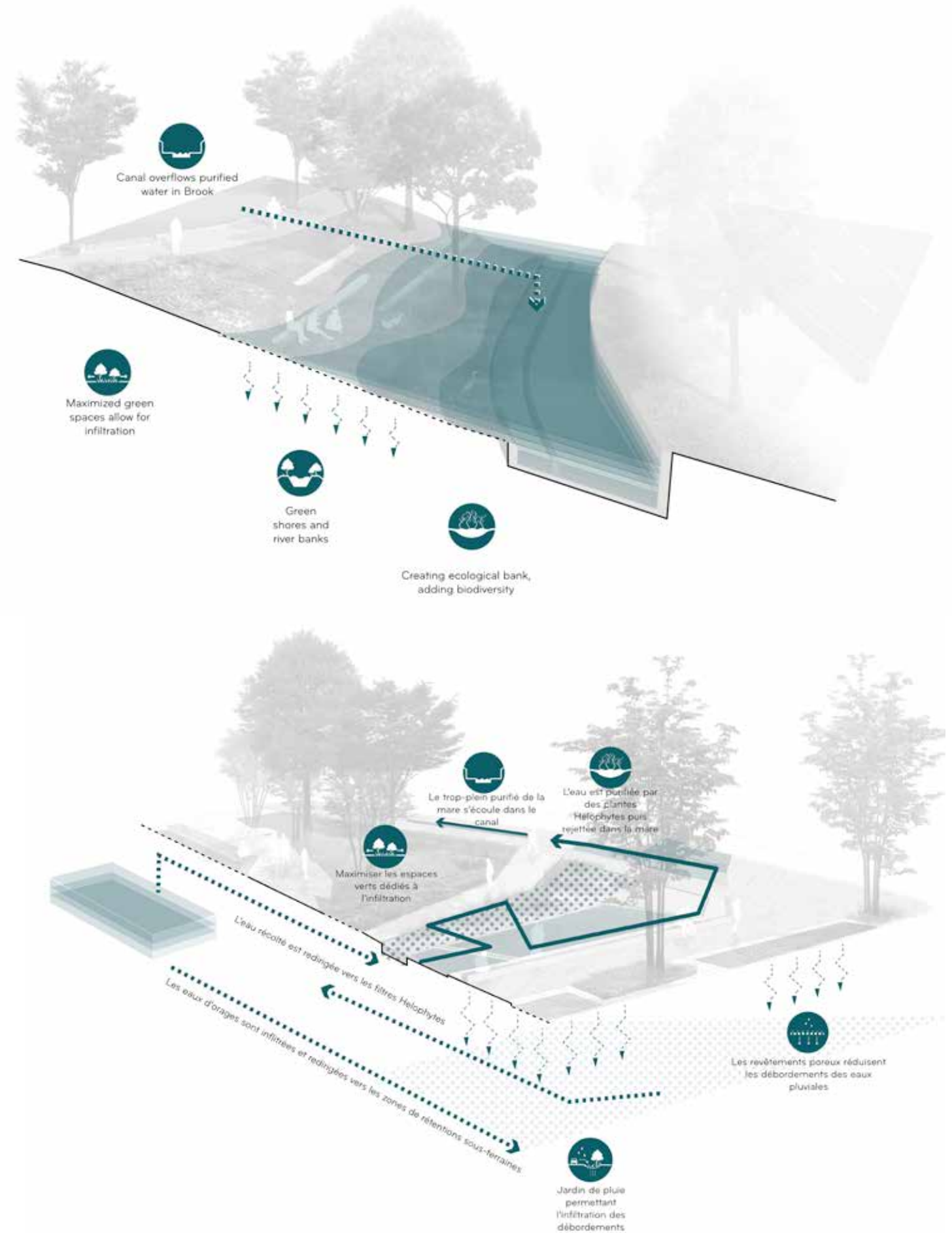
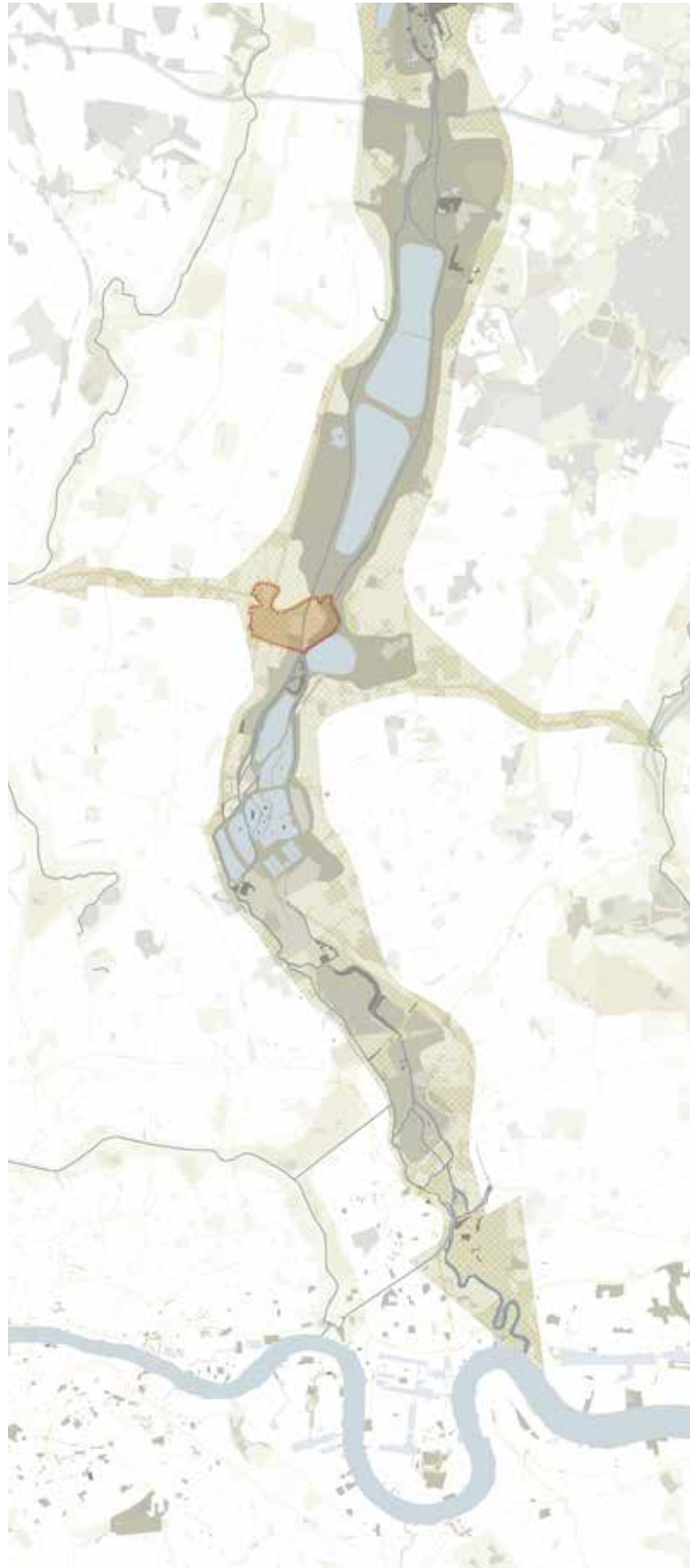
DESIGN TOOLBOX



IMPLEMENTING THE TOOLBOX



BLUE - GREEN FRAMEWORK



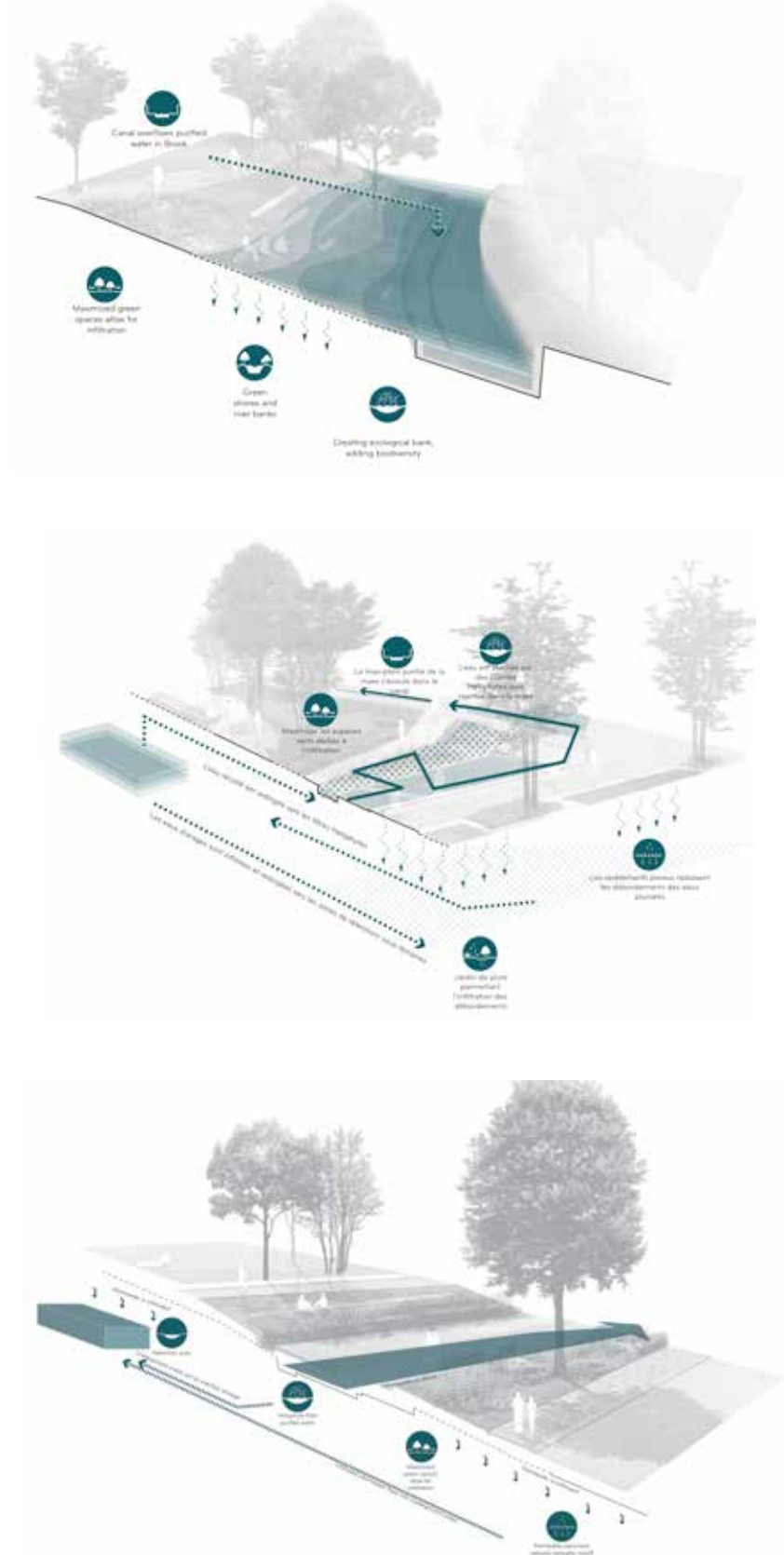
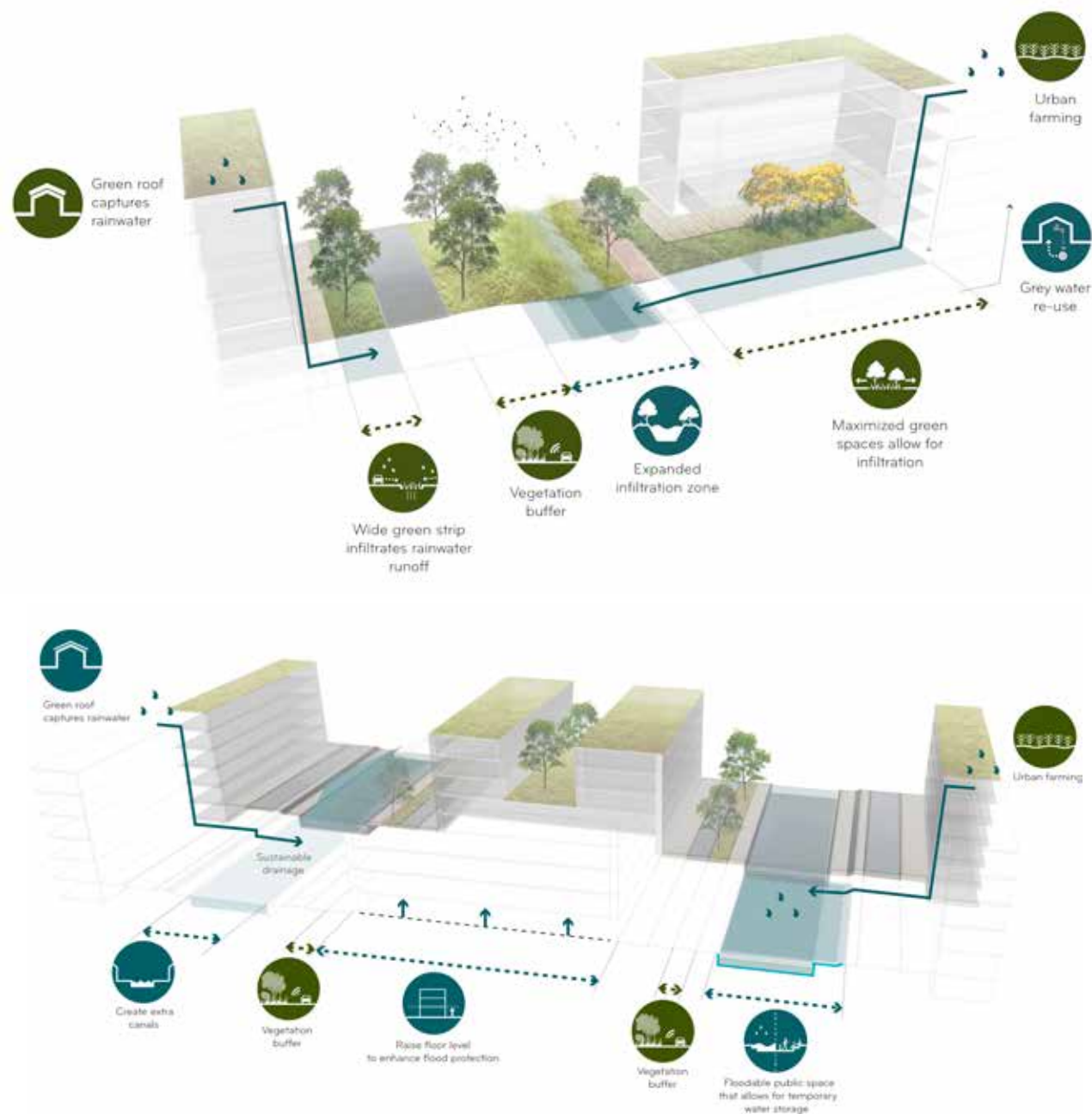
BLUE - GREEN FRAMEWORK

BLUE-GREEN FRAMEWORK

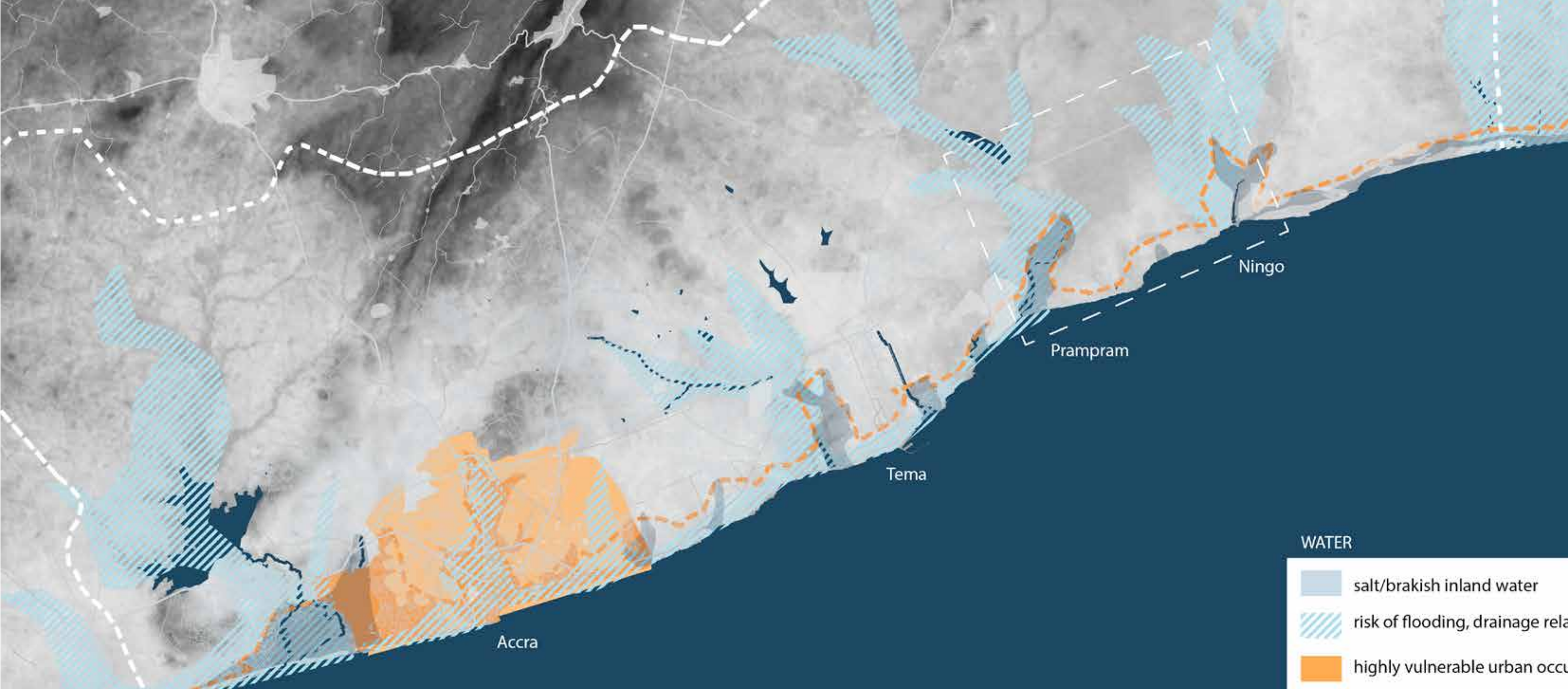
Climate-proof strategy for Meridian Water, including a blue-green framework for public space. This network is linked to the different waterways in the area, the River Lee, the Lee Navigation Canal, Salmons Brook and Pymmes Brook.

TOOLBOX

OKRA has created a design toolbox for the water sensitive development area in the Upper Lee Valley, becoming a showcase for 21st century urbanism in London.







NINGO-PRAMPAM MASTERPLAN

GHANA

FLOODING

CONSIDARATIONS ON THE LARGE AND SMALL SCALES



DESIGN IN BALANCE WITH NATURE



0 200 500 1000 2000m





Ningo-Prampram Planned Urban Extension

Urban Metabolism Flows WATER

Water

URBAN METABOLISM GHANA

Water production
Water

- Water reservoir
- Flooding Zone 1
- Flooding Zone 2
- Flooding Zone 3

Water network

- Devised line topography
- Rainwater
- Water Tower
- Water Tank
- 2030 Water Demand/day



Water Reservoirs

Dawhenya

Purification

Desalination

Upstream

Water recycling

Buerko

Old Ningo

Purification

New Ningo

Prampram

1 Block : 282 x 360m

existing utilization:
123,150 pp x 20 liters = 2 469 000 liters

1pp/day needs 50 liters (WHO)
Water requirement:
123,150 pp x 50 liters = 6 157 500 liters



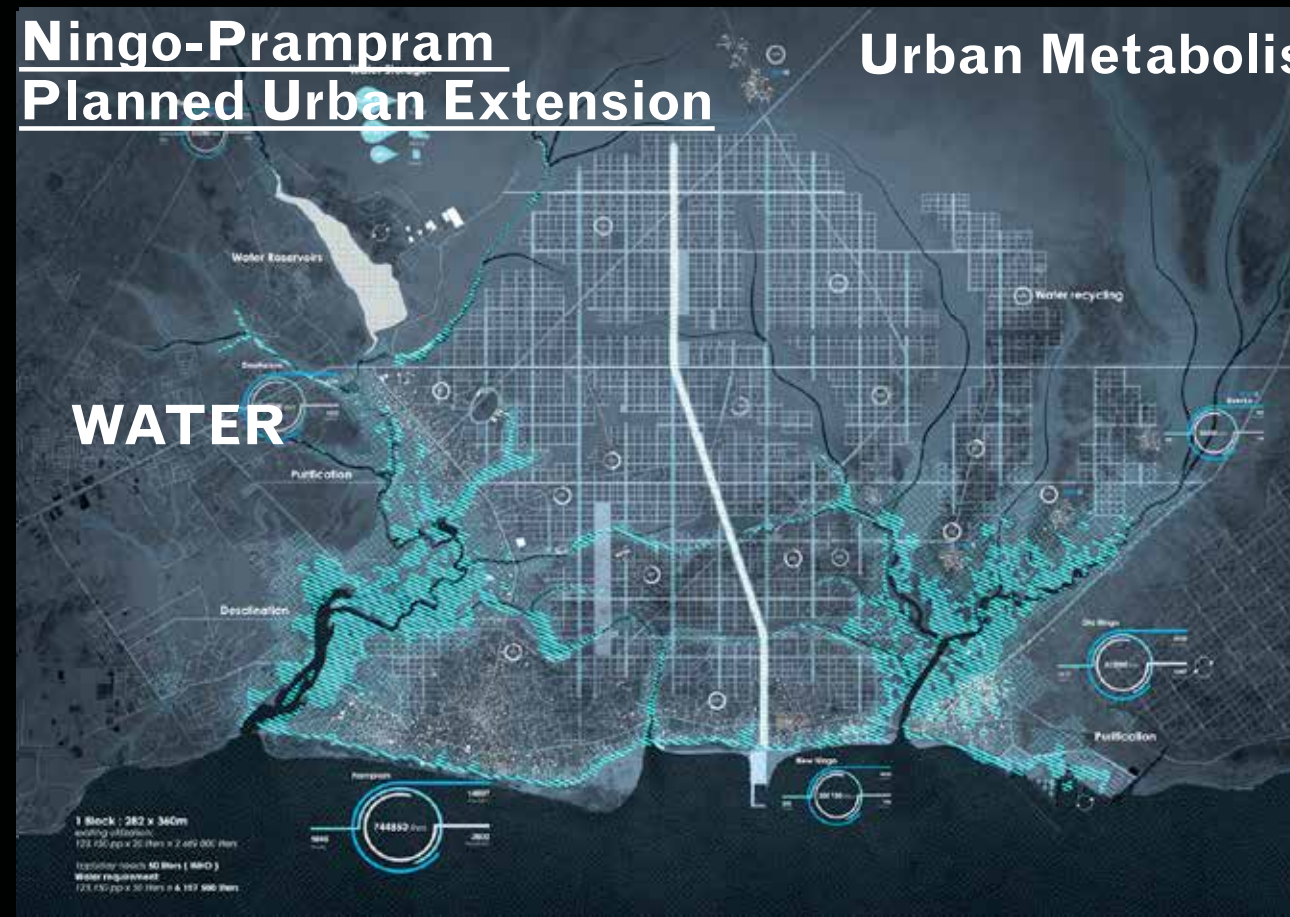
0 0.5 1km 2km



Ningo-Prampram Planned Urban Extension

Urban Metabolism Flows

WATER



ENERGY



FOOD



WASTE





INTEGRATED APPROACH

MERWEDE CHANNEL MASTERPLAN

UTRECHT NL

GREEN STRATEGY



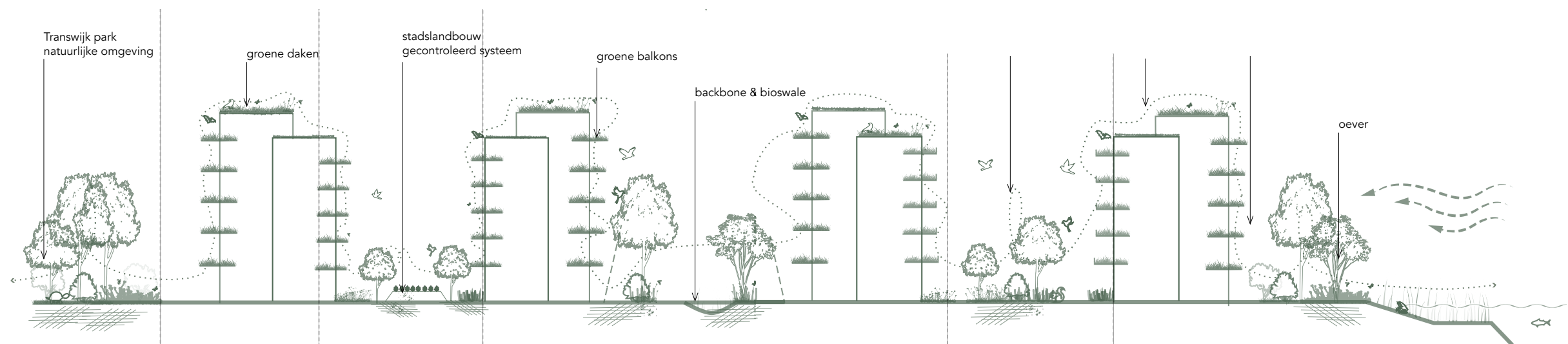
BIODIVERSITY

CITY SCALE HABITATS

Improving the urban biodiversity and creating a wide range of atmosphere.

Preservation of characteristic landscape elements.

HORIZONTAL AND VERTICAL CONNECTIONS



Indicatieve sfeerimpressies

Park Transwijk



groene daken & gevels



cultureel binnentuinen



pleinen



backbone



LAYERED APPROACH

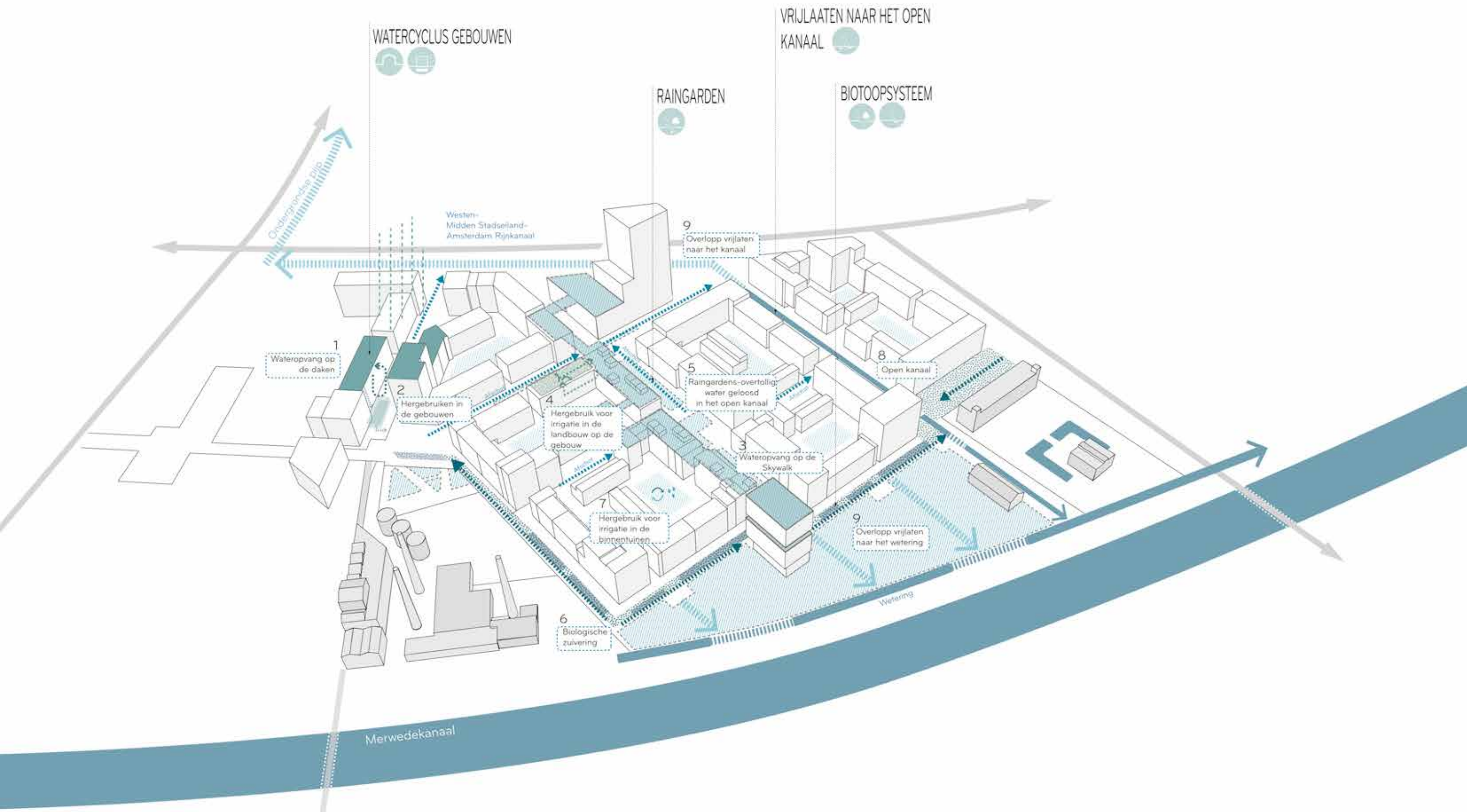
GREEN NETWORK

- A strong green network is a prerequisite for healthy, liveable and resilient city.
- The district will be climate-adaptive as a result of a balanced set of sustainable innovative solutions.
- Richly planted network of green streets, courtyard gardens and Parks.

GREEN FRAMEWORK



BLUE FRAMEWORK

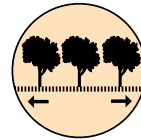


CLIMATE ADAPTIVE SPACE

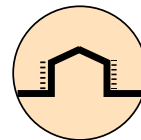
DESIGN PRINCIPLES

Ontwerpprincipes

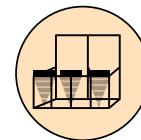
INFLUENCING SUN AND SHADE



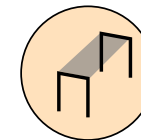
Increasing green (trees and shrubs)



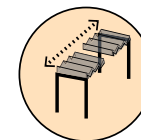
Green facades, vertical green



Green balconies, loggias

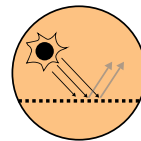


Pergola (planted)/ Canopies

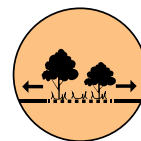


Flexible awnings

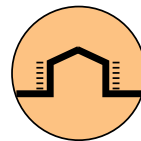
INFLUENCING REFLECTION



Surfacing with high albedo materials

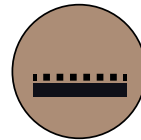


Increase the amount of green amenities

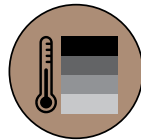


Green facades

INFLUENCING EMISSIVITY AND HEAT CONDUCTIVITY

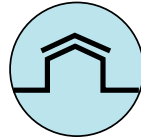


Low density surfacing

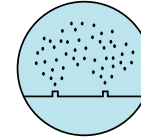


Cool walls (materials with lower mass, hollow building bricks)

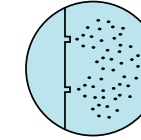
INFLUENCING EVAPORATION



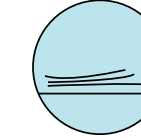
Intensive green roofs



Water in motion for cooling

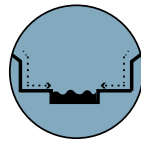


Fog walls/pillars

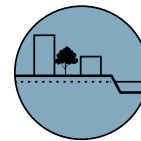


Wet surface

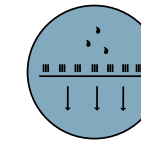
WATER RETENTION



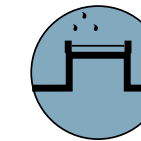
More open water used as extra storage (DIAGONAL)



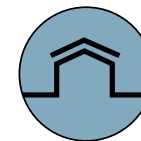
Position related to groundwater level and open water



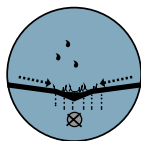
Use permeable pavement



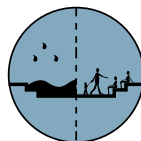
Blue roof for water storage



Green roof works as extra buffer



Disconnected paved surfaces from sewer system

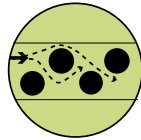


Water squares

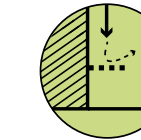
INFLUENCING WIND PATTERN



Vegetation as wind-break



Reduce channeling effect

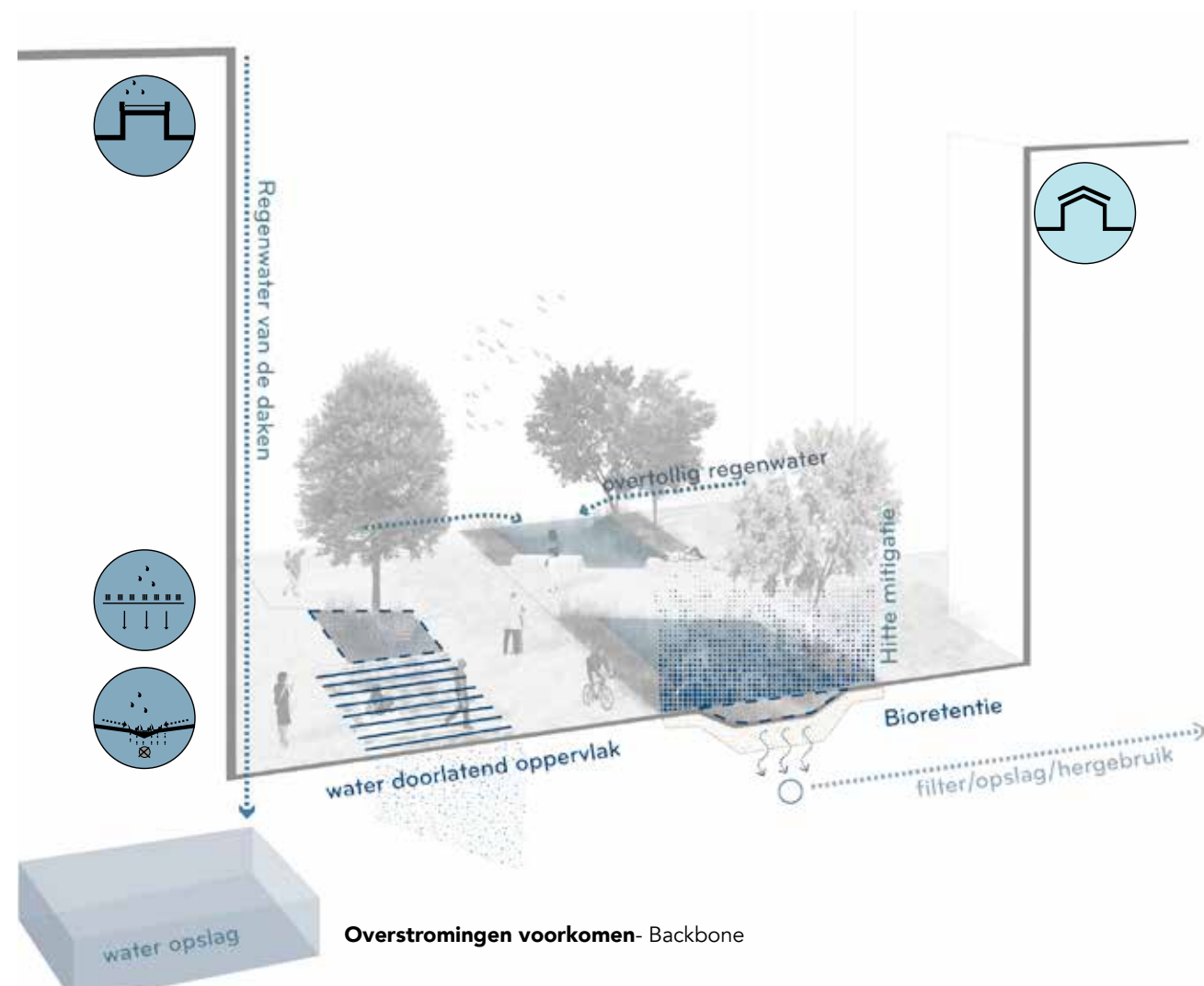


Block down-wash effect

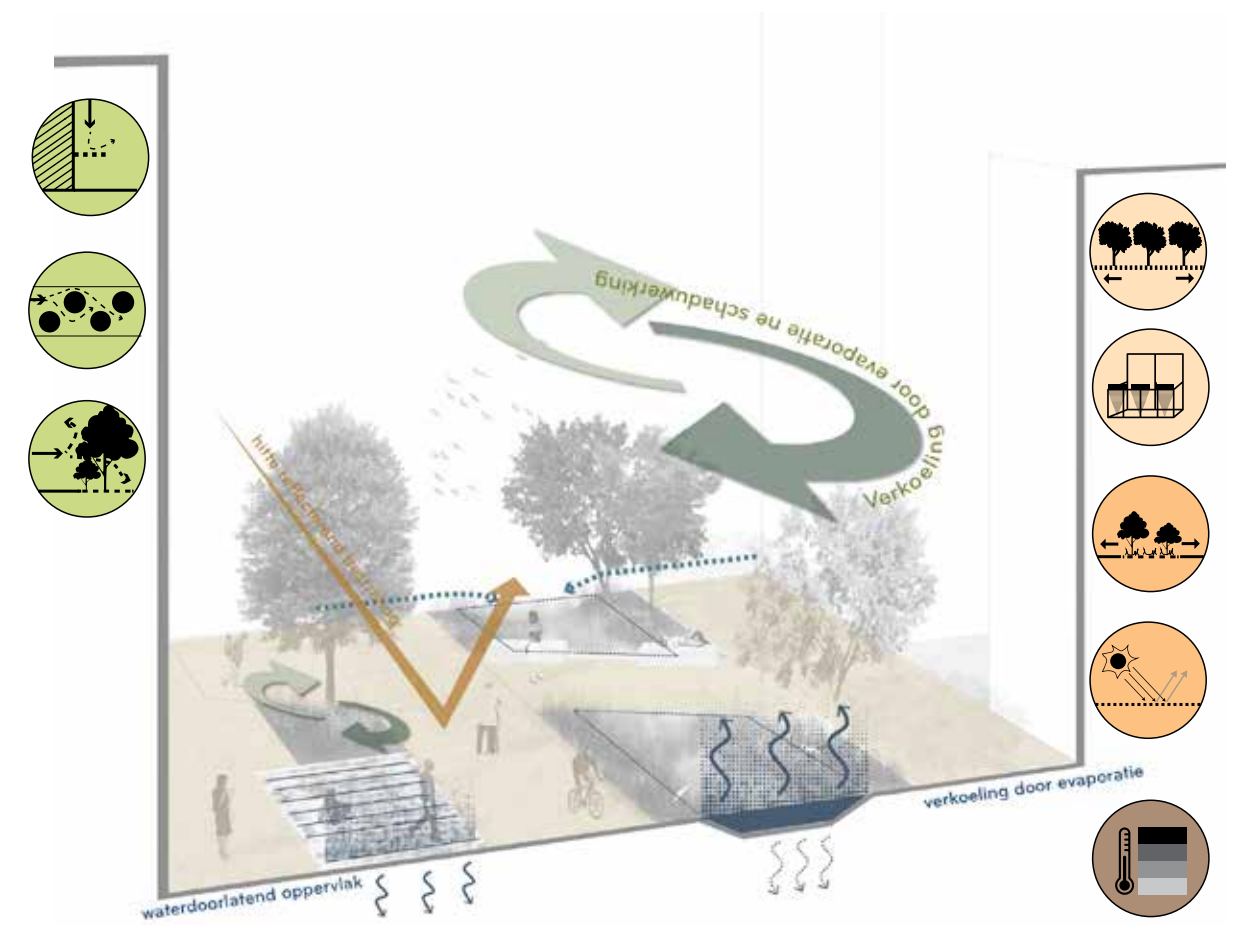
CLIMATE ADAPTIVE SPACE

IMPLEMENTING THE TOOLS

FLOOD PREVENTION

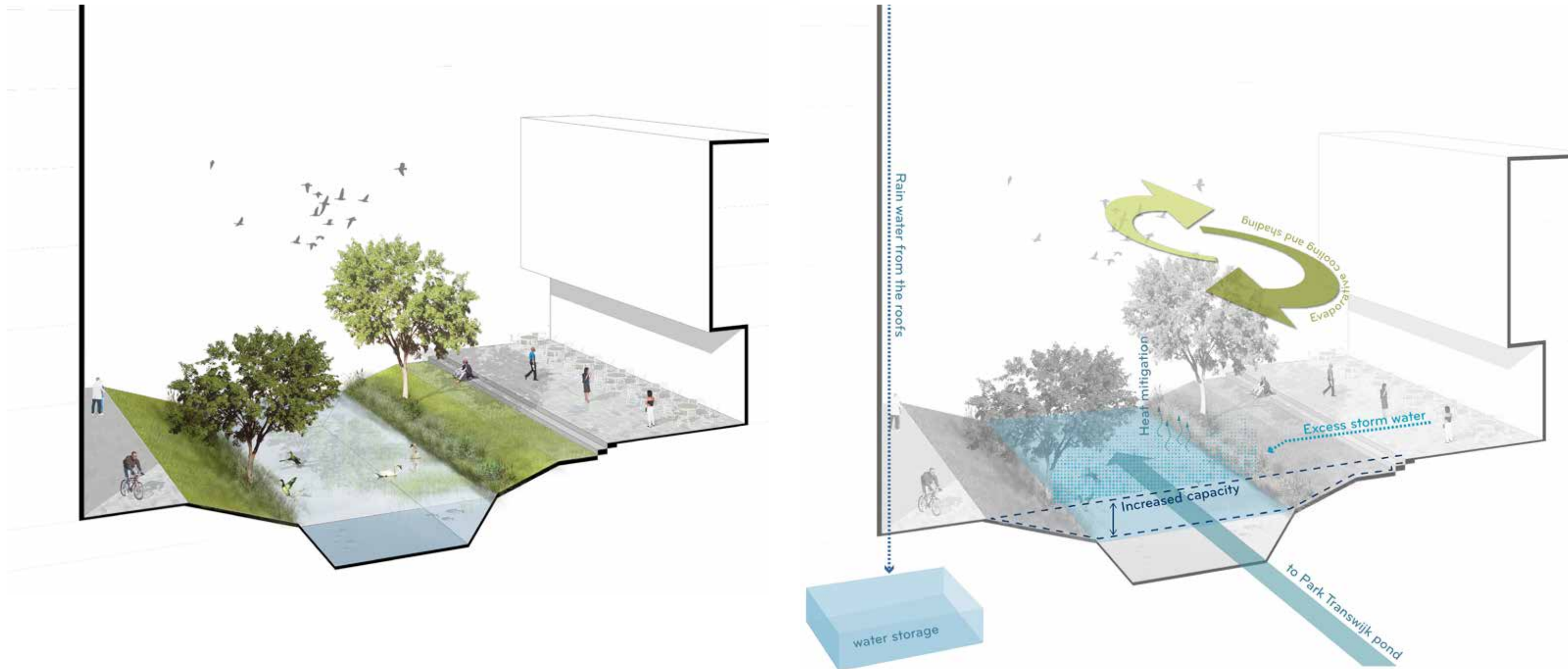


CLIMATE ADAPTIVE



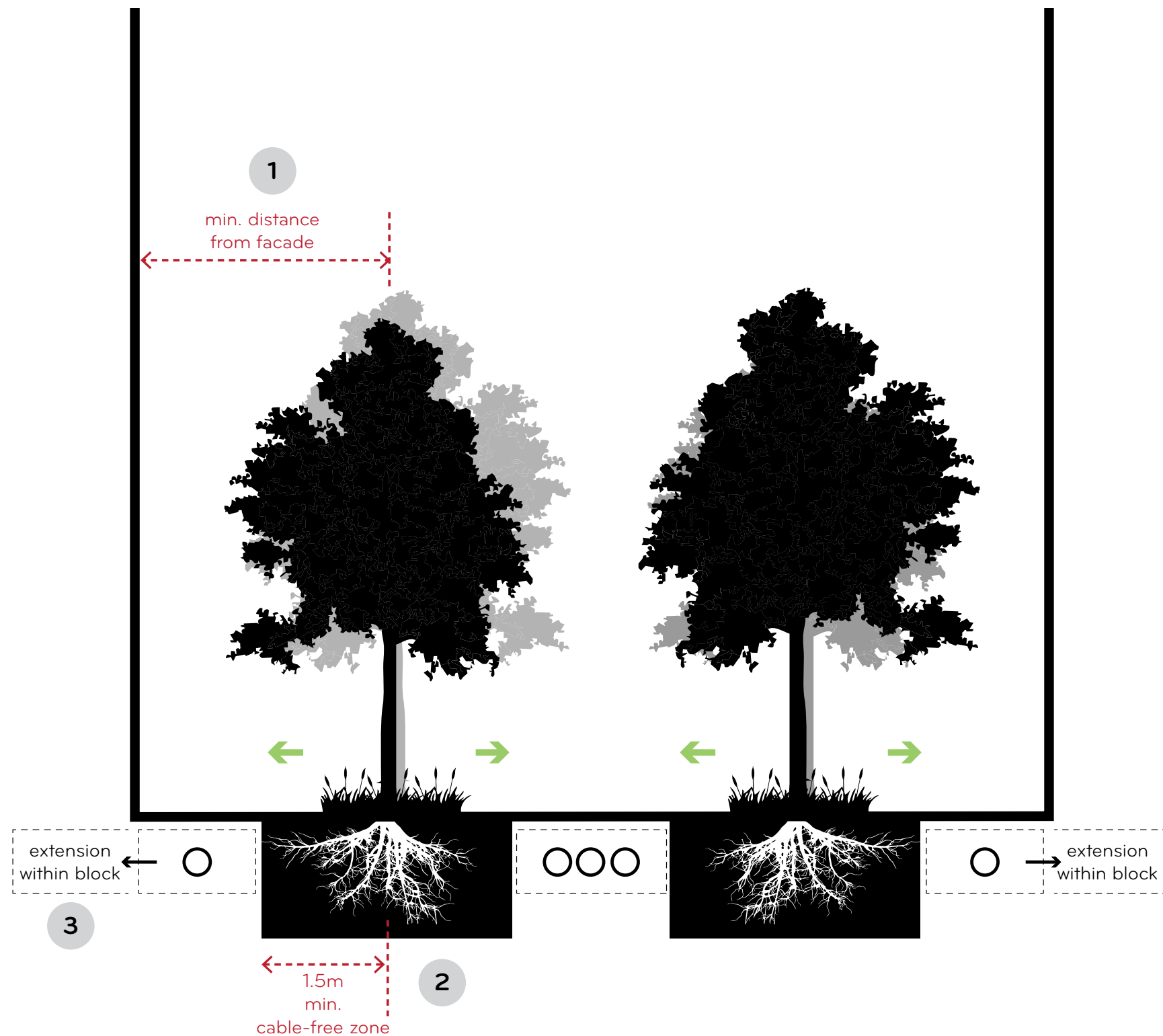
INTEGRAL APPROACH

INTEGRATING THE GREEN AND BLUE



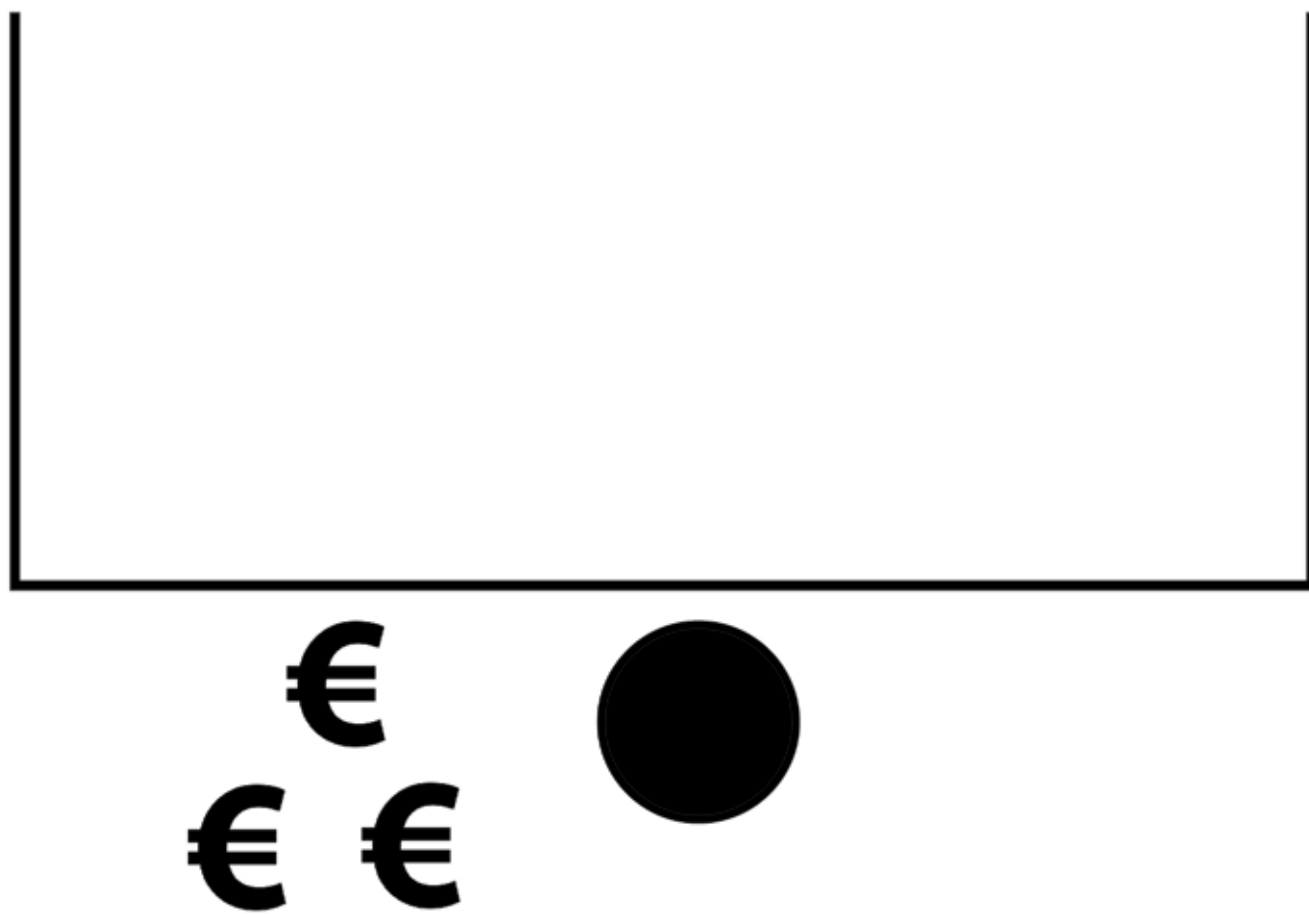
SPACE REQUIREMENTS

UNDER - ABOVE GROUND COORDINATION

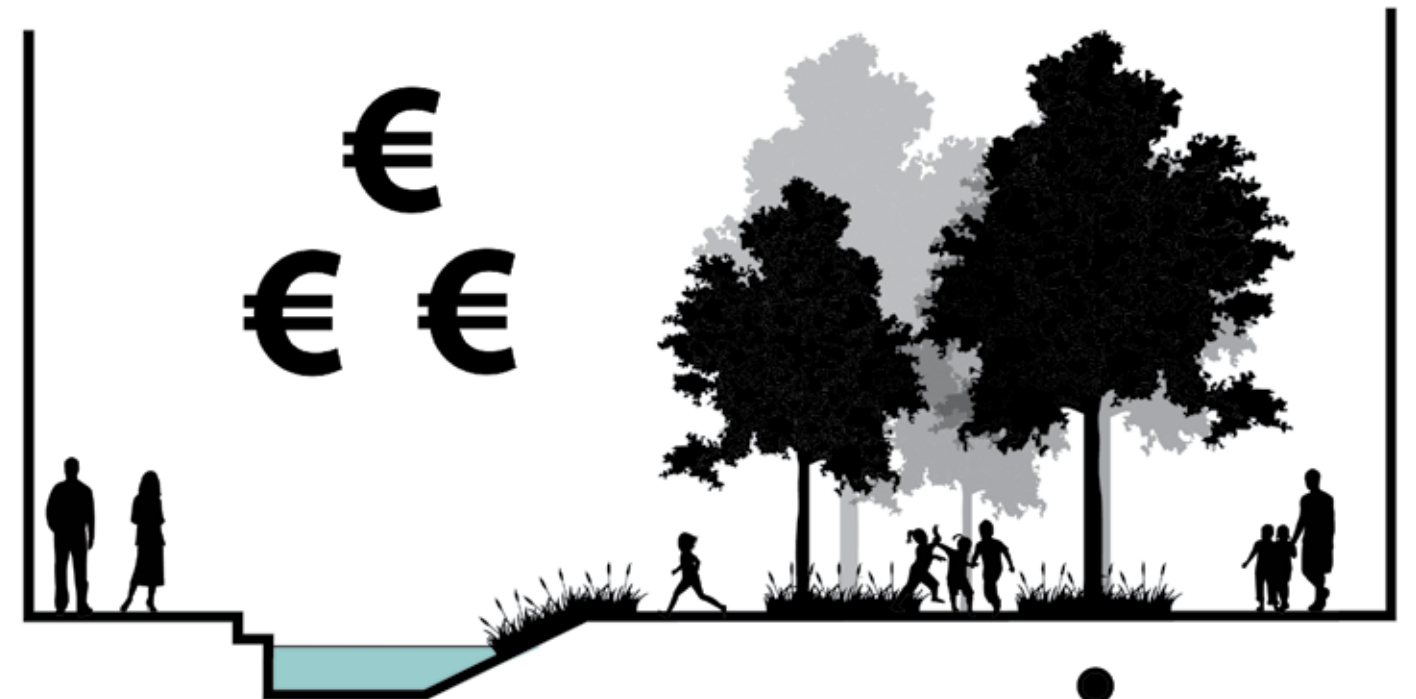


BLUE & GREEN CAPITAL

INVESTING MONEY ABOVE GROUND SOLUTIONS



INVESTING IN LARGER UNDERGROUND INFRASTRUCTURE



INVESTING IN SOLUTIONS INTEGRATED IN PUBLIC REAL



The background is a solid grey color. Overlaid on this are several thin, white, wavy lines that originate from the top left corner and flow downwards and to the right, creating a sense of movement and depth. These lines vary in thickness and curvature, some appearing as single strokes while others are more complex, overlapping patterns.

OKRA LANDSCAPE

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