

DESIGNING BLUE_GREEN INFRASTRUCTURES



PERFECT
PSC5

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Amsterdam

June 6th 2019

DE URBANISTEN

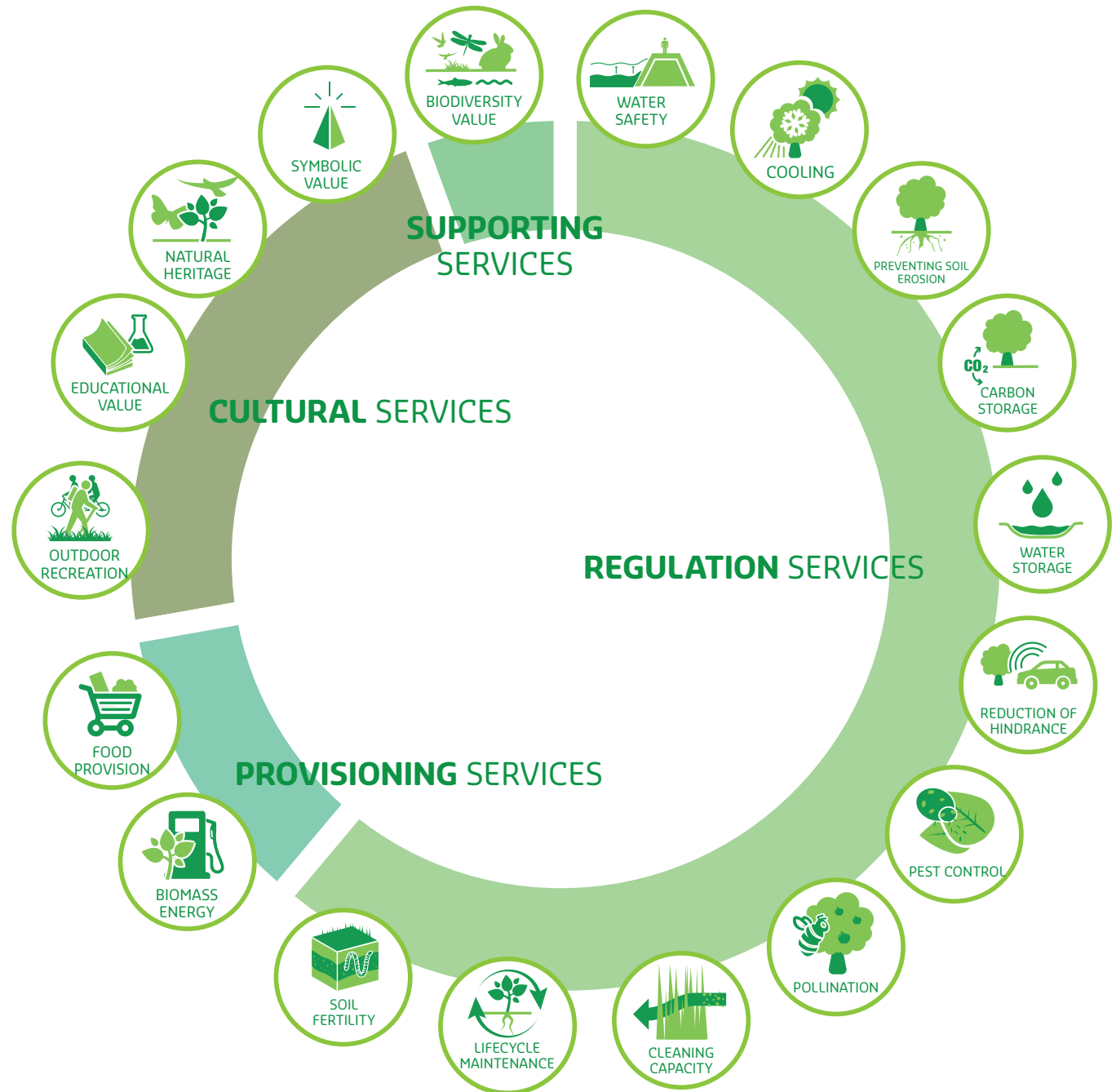




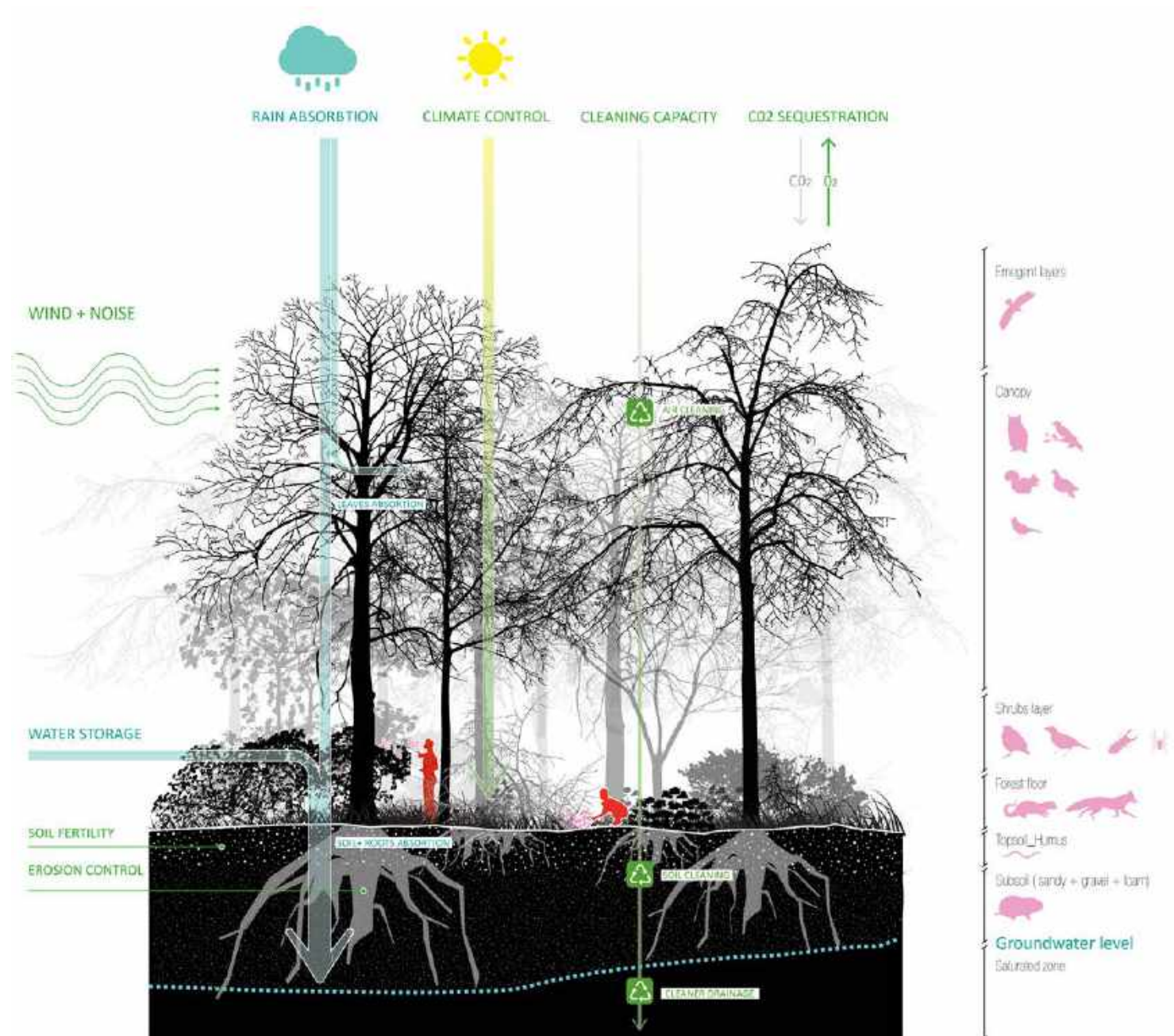
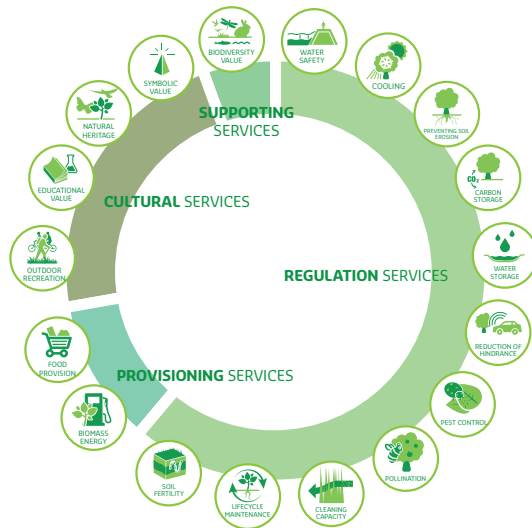
Ecosystem services



Source: Atlas Natuurlijk kapitaal



Productive values of green-blue



ECOSYSTEEMDIENSTEN

Ecosysteemdiensten dragen bij aan het welzijn en de welvaart van de mens



Regulerende diensten

*Regulerende functies van
ecosysteemdiensten*



Productiediensten

*Materiële baten van
ecosystemen*



Culturele diensten

*Niet-materiële baten van
ecosystemen*



Ondersteunende diensten

*Voorwaarden voor
in standhouden van
ecosystemen*

Vertaling van ecosysteemdiensten naar gebruikswaarden van groen



Mens waarden

Groenblauwe netwerken in dienst van de basisbehoeften van de mens



Sociale waarden

Groenblauwe netwerken dragen bij aan contact tussen mensen en vergroten inclusiviteit



Culturele waarden

Groenblauwe netwerken vertegenwoordigen een culturele waarde.



Economische waarden

Groenblauwe netwerken creëren een directe economische waarde.



CLIMATE_SENSITIVE DISTRICTS

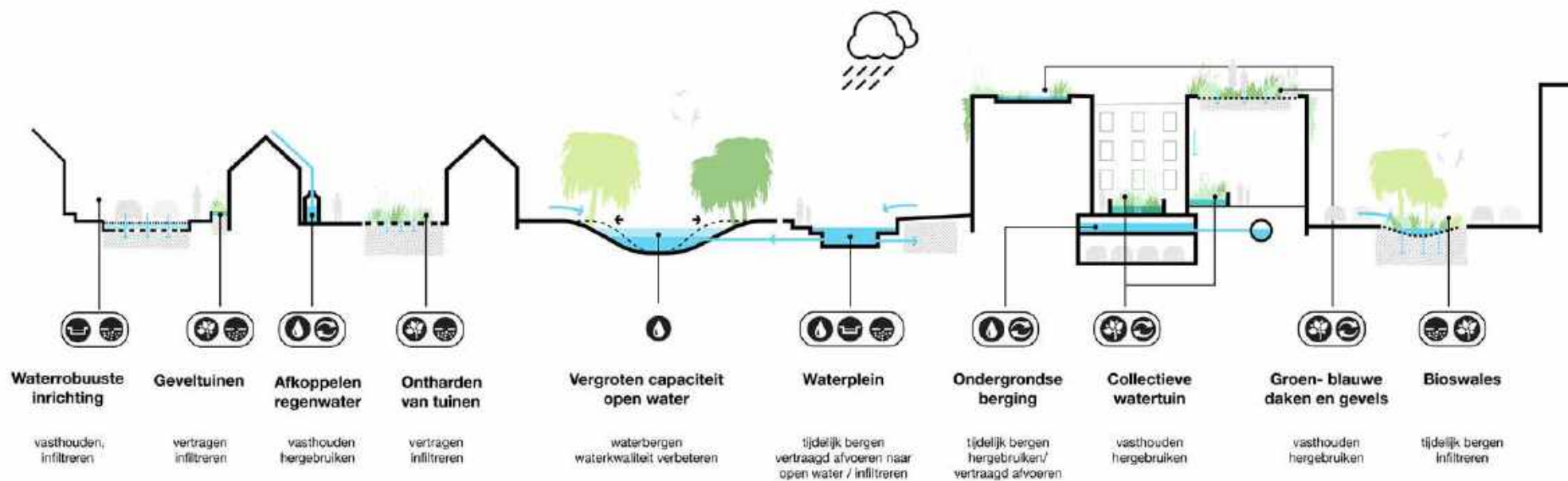
ZOH0 climateproof district



ZOHO climateproof district

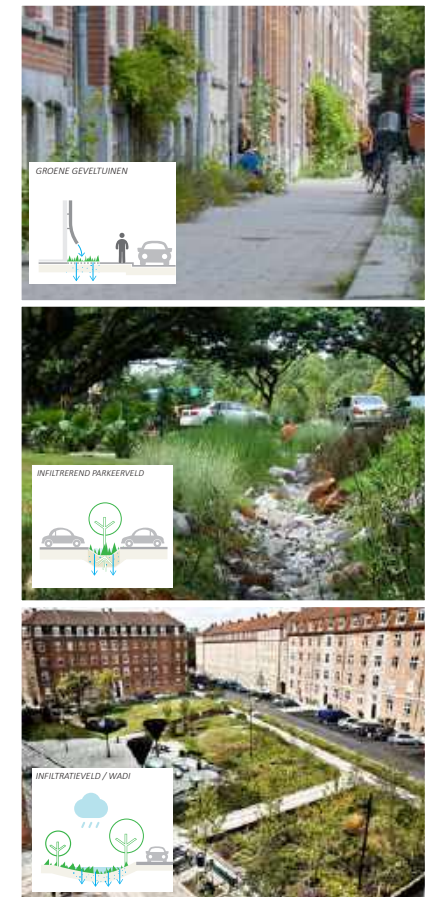
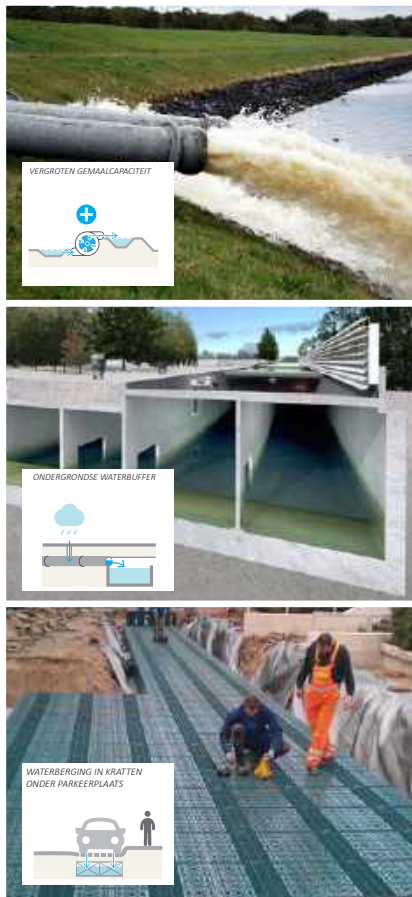


De proeftuin voor een klimaatbestendige stad bestaat uit de Agniesebuurt en het Zomerhofkwartier

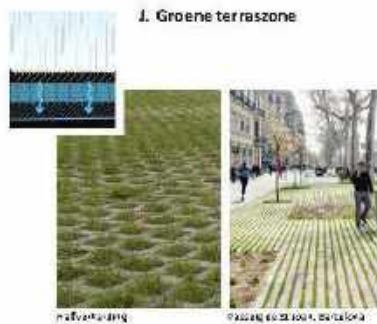


CURRENT APPLICABLE SOLUTIONS FROM **TECHNICAL** MEASURES TO **NATURAL** MEASURES

TECHNICAL



ZOHO climateproof district



Toolbox for a watersensitive district

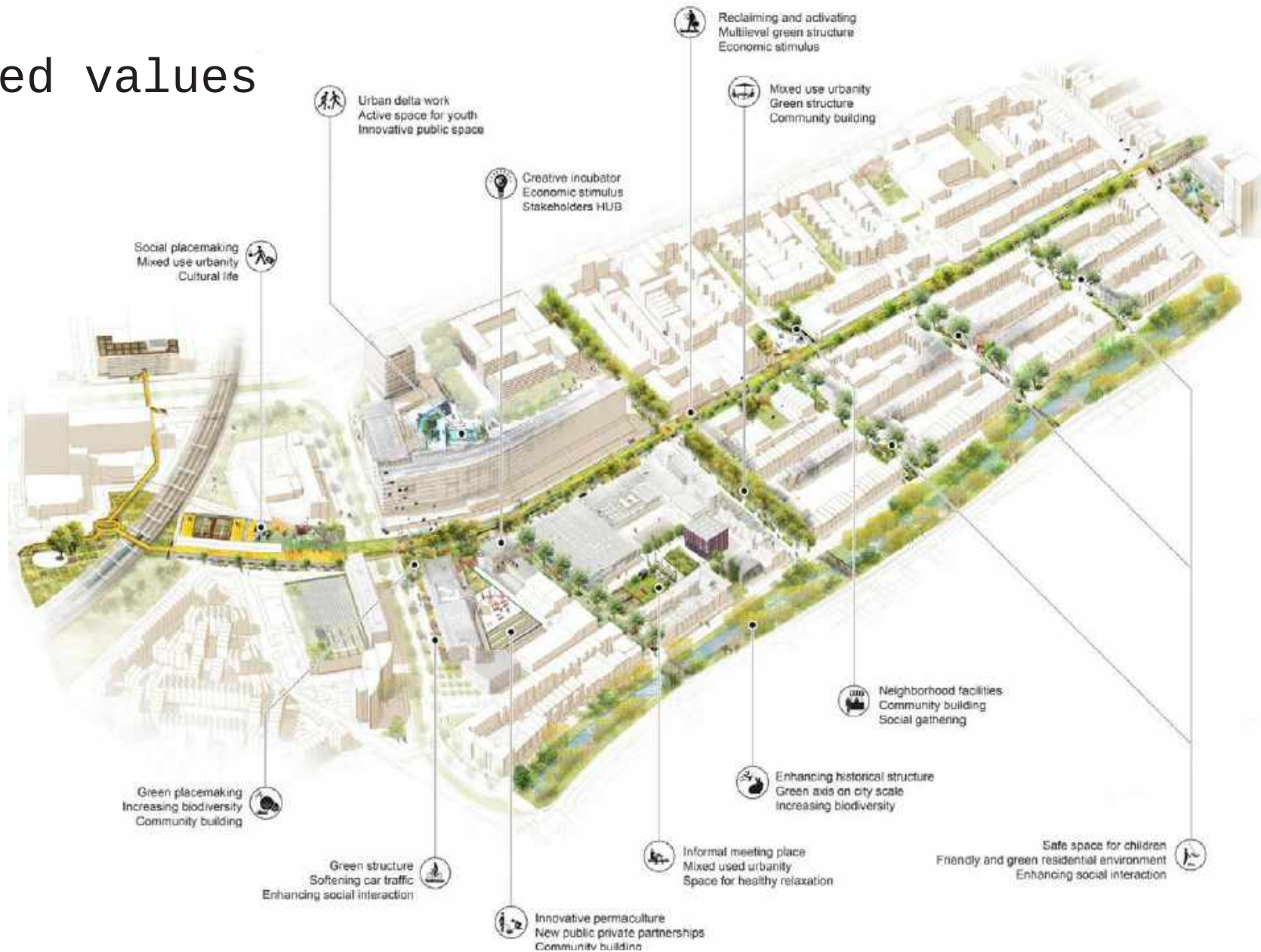
ZOH0 climateproof district

Watersystem



ZOH0 climateproof district

Added values



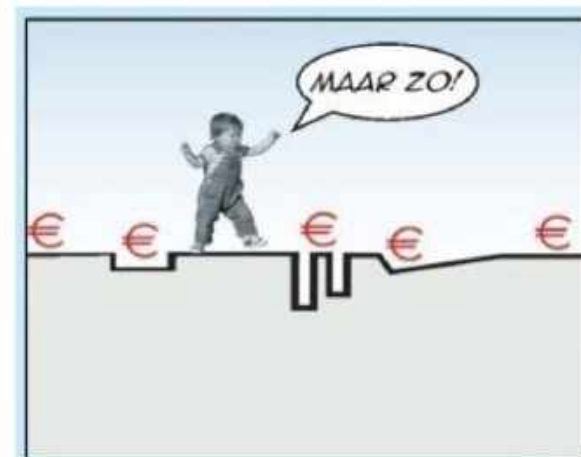
Watersquare Benthemplein



Photo: Ossip van Duivenbode



+



Waterstorage + public space



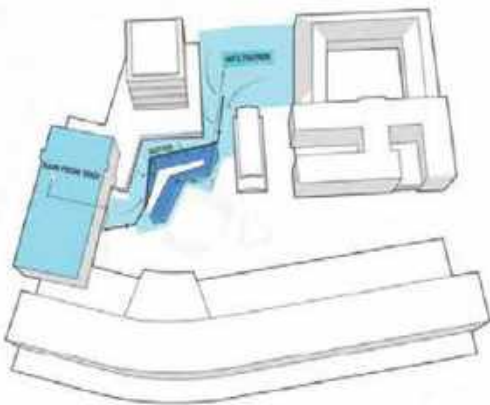
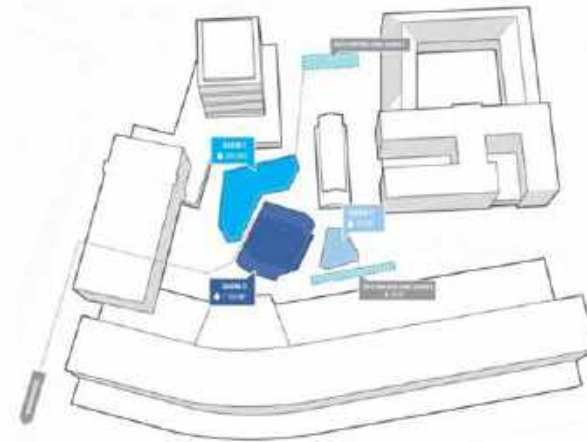
Photo: Jeroen Musch

Watersquare Benthemplein (De Urbanisten)

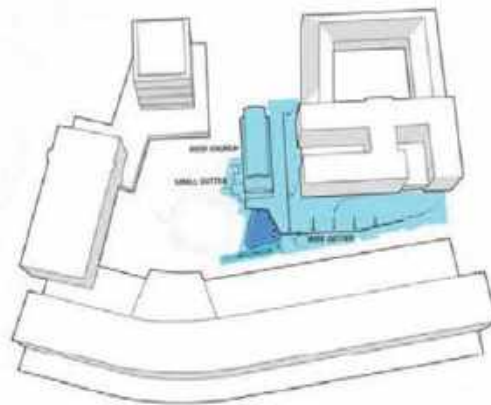
Places for temporary waterstorage



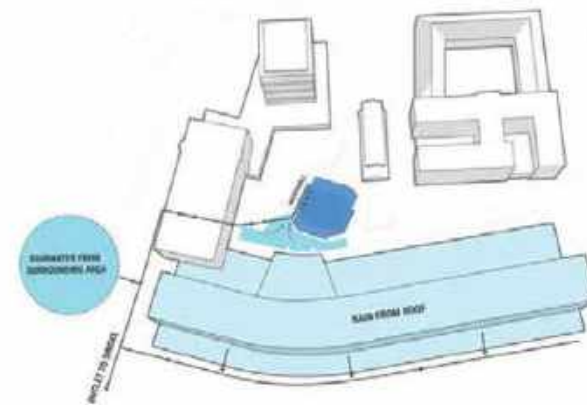
total capacity 1700 m³



catchment area of basin 1



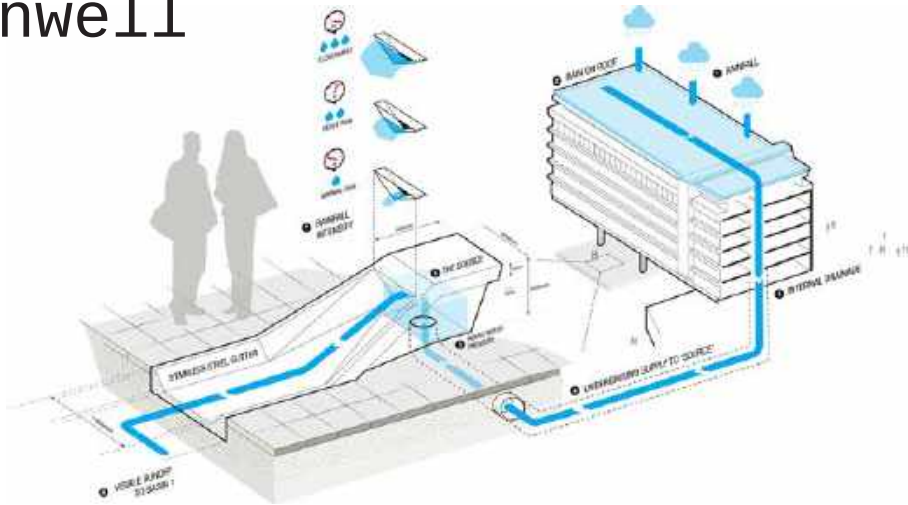
catchment area of basin 2



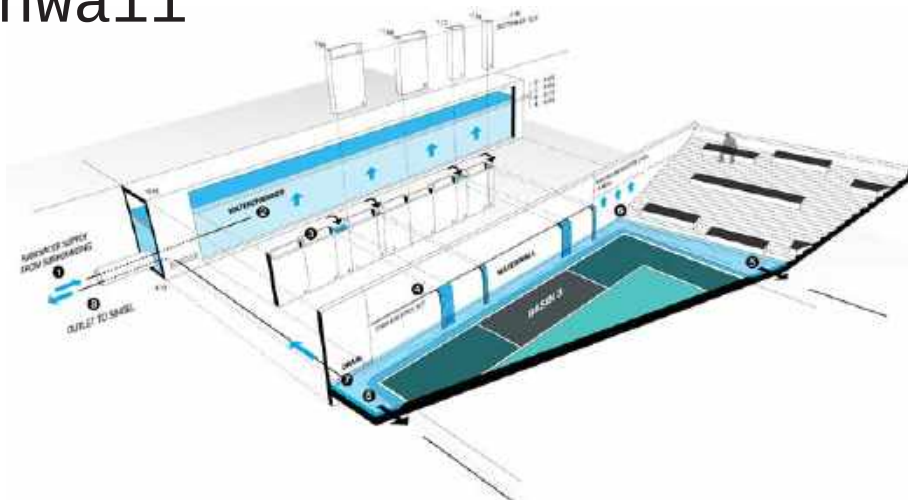
catchment area of the deep basin 3

Orchestration of the rainwater

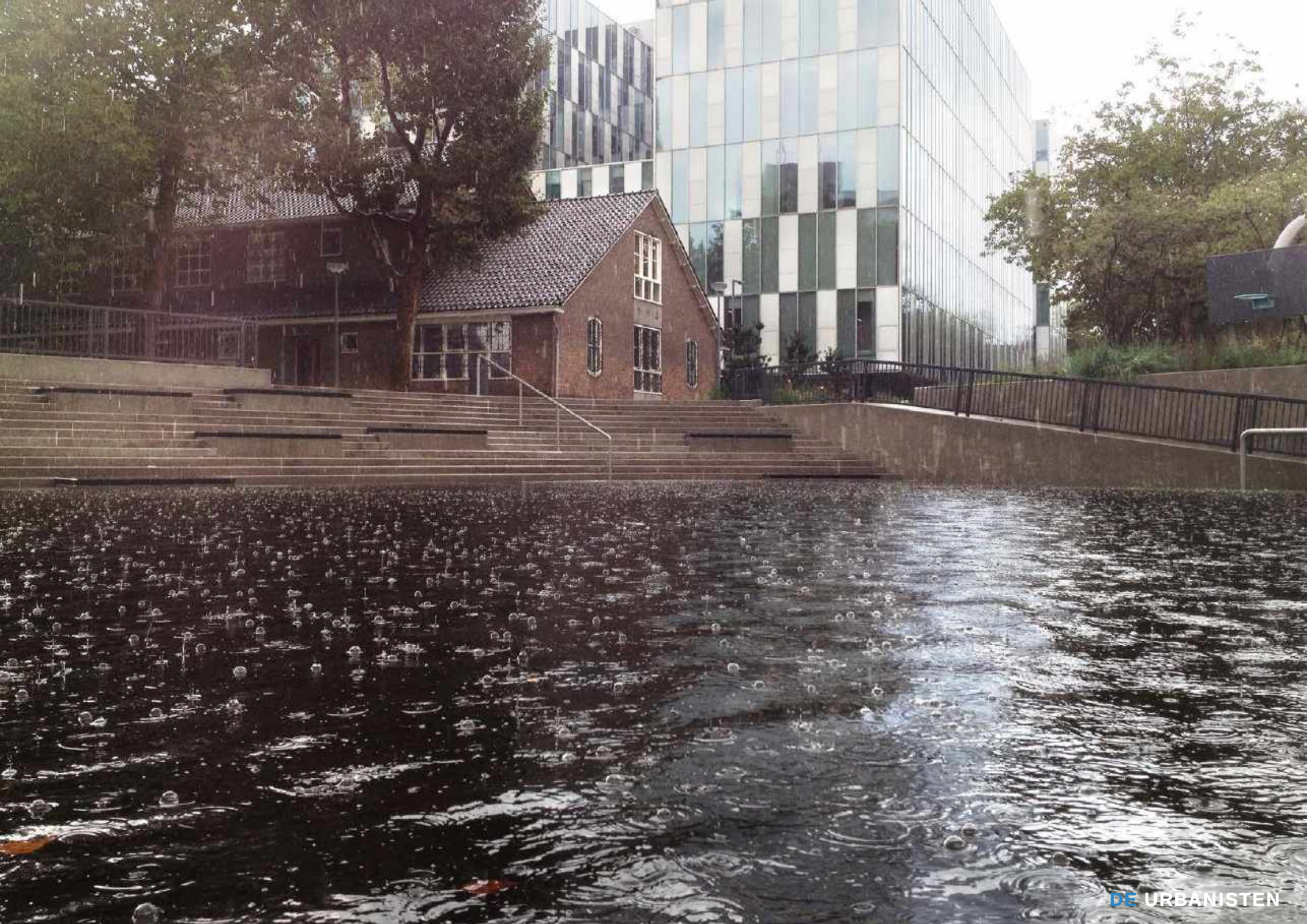
Rainwell



Rainwall











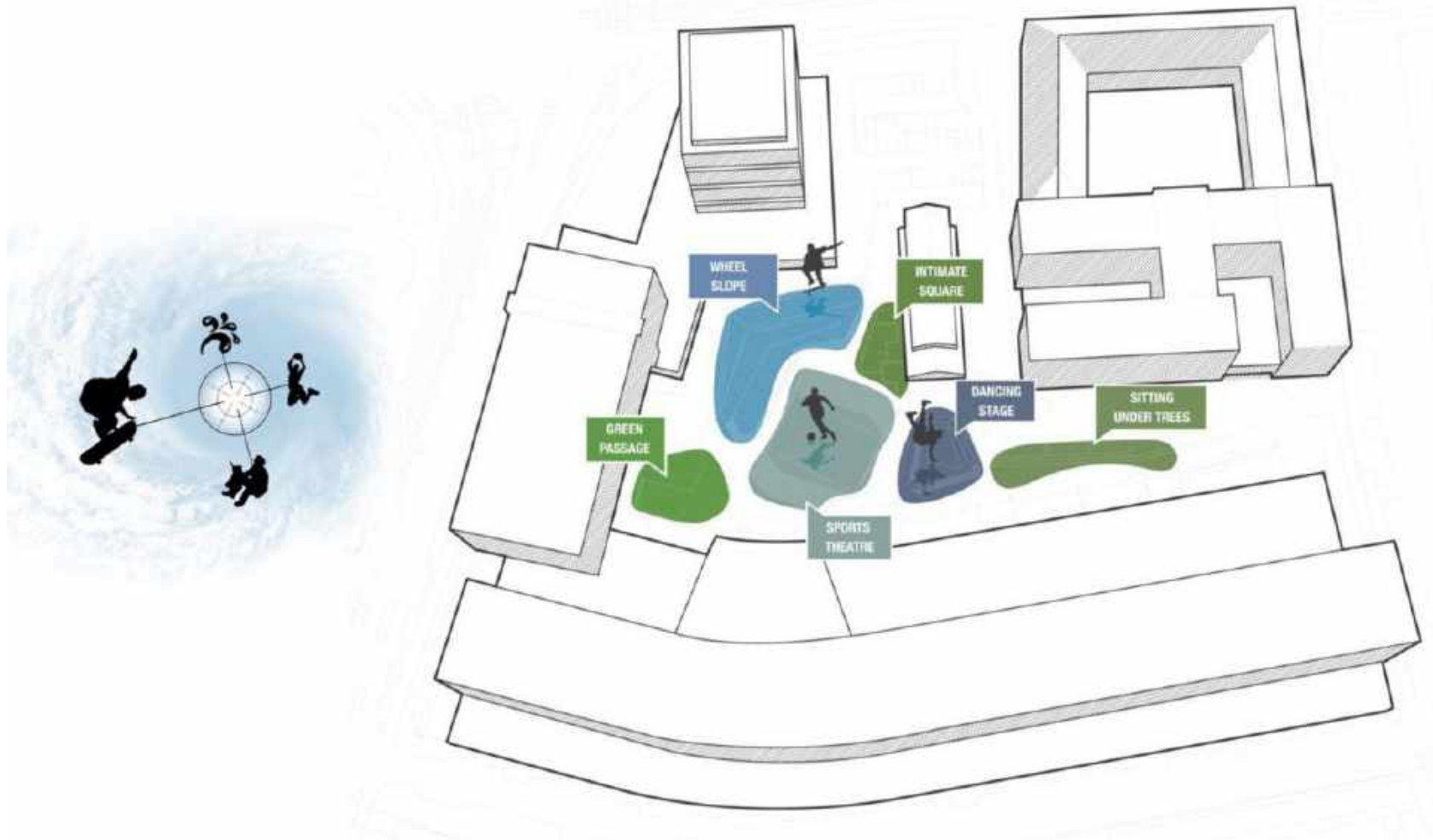
Dan Lloyd Sports & Health Clubs







A place for all to enjoy and meet



Organisation of activities Benthemplein









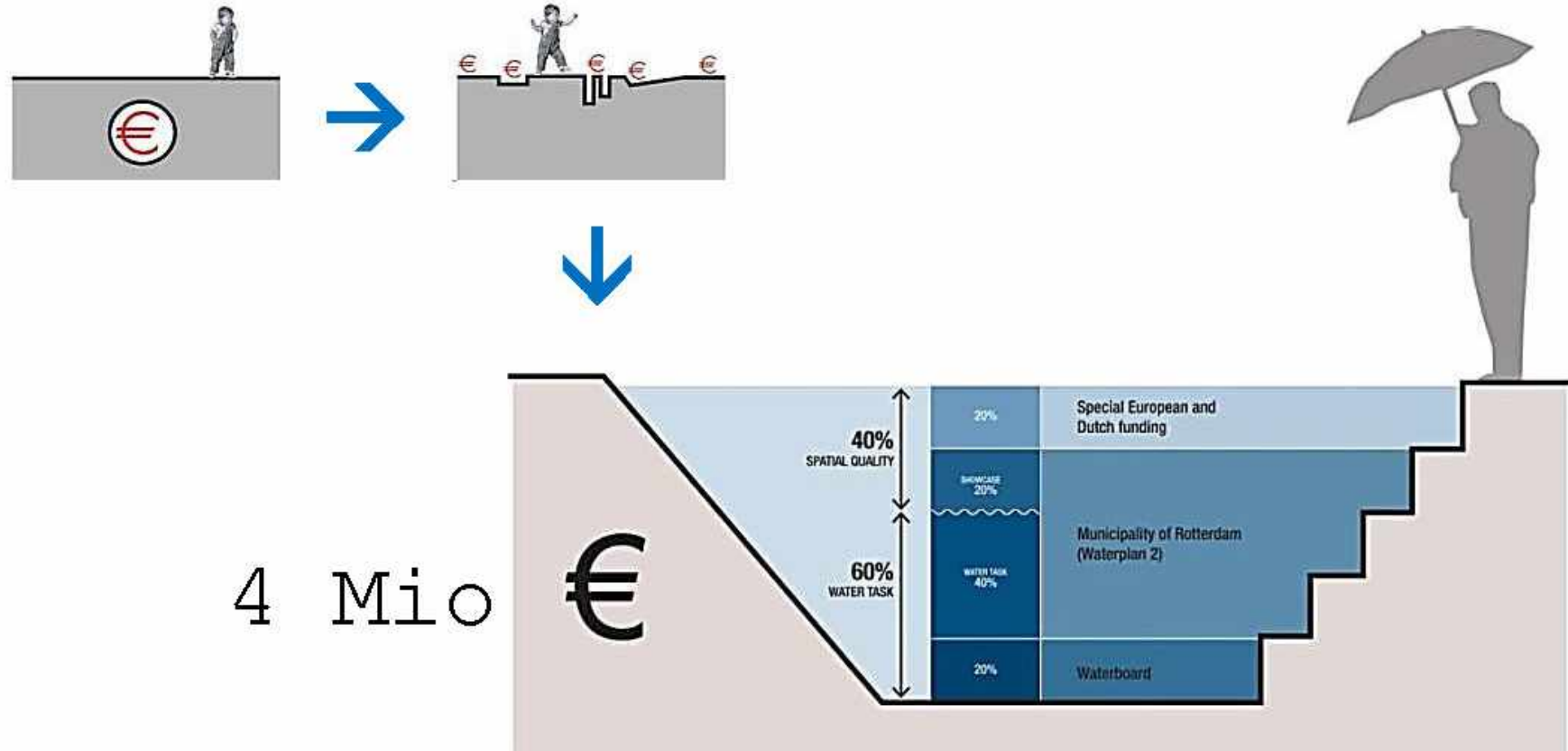








Doing more with the same money

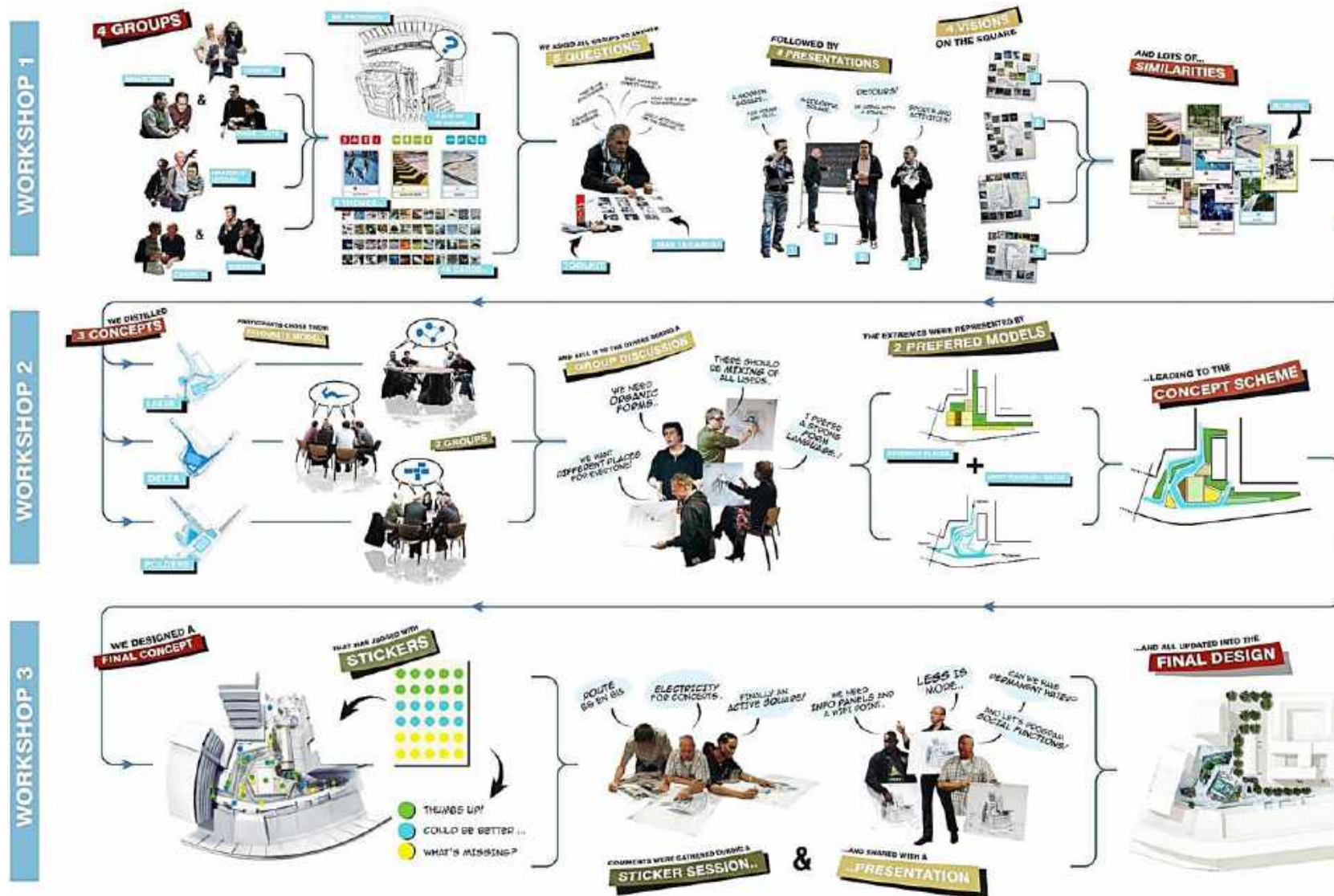


The 'no silo' watersquare team



Watermanagement / Construction / Road works / Health Department
Geotechnics / Maintenance hard surfaces / Greenery and Maintenance
Public lighting / Planning Department / Communication / Design

Create an open design proces



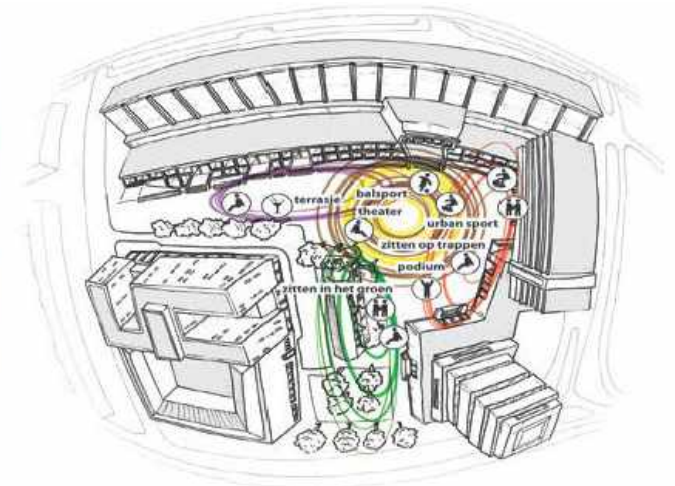
Create an open design proces



Groep grafisch Lyceum



Groep Zadkine



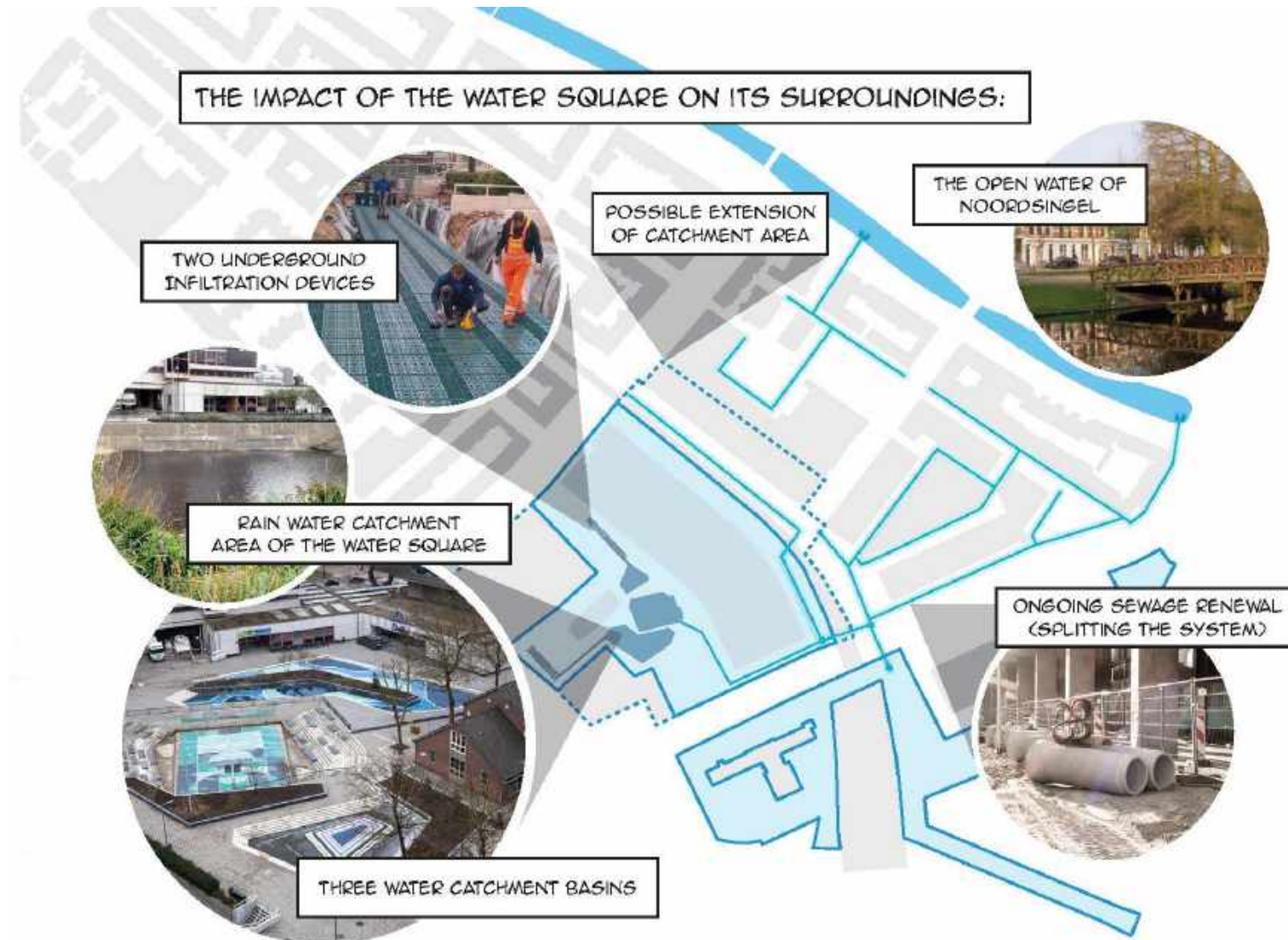
Groep David Lloyd en bewoners Agniesebuurt



Groep Jeugdtheater en kerk



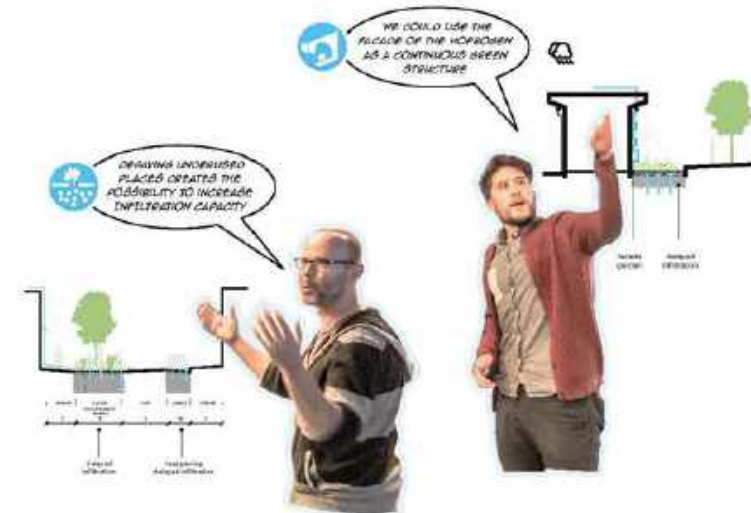
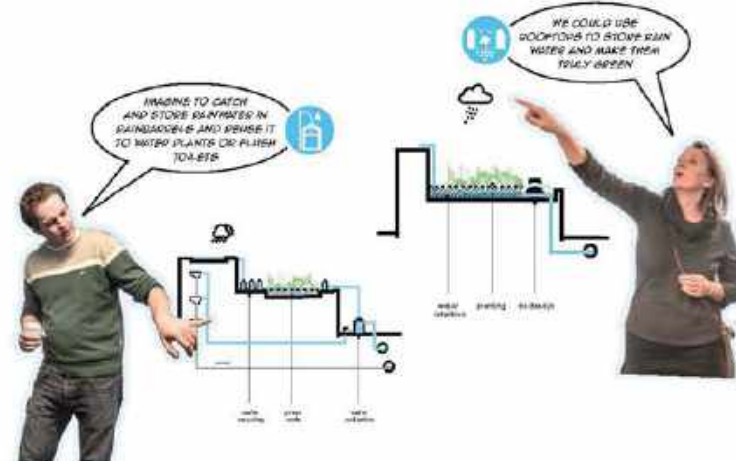
ZOH0 climateproof district



ZOHO climateproof district



TOGETHER WE CAME UP WITH SOME BRIGHT IDEAS



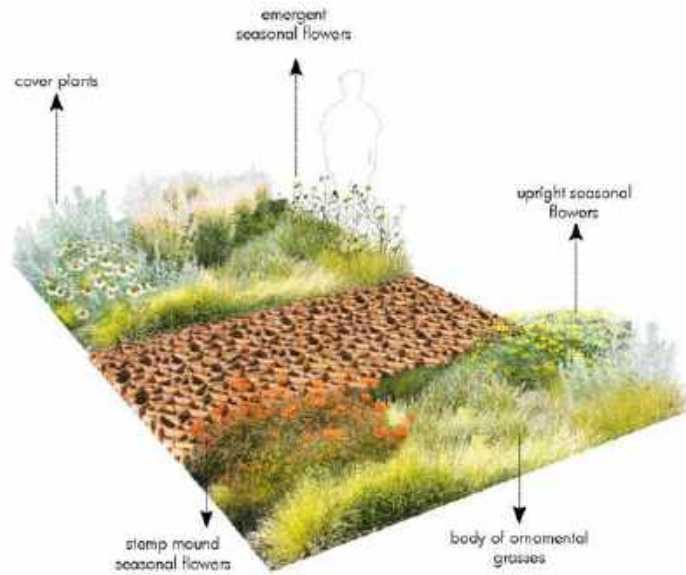
A coalition of the willing - full of ideas

ZOH0 climateproof district



The Post-Office frontgarden

ZOH0 climateproof district



The Rain(a)Way garden (Fien Dekker + De Urbanisten)

ZOH0 climateproof district



The Rain(a)Way garden (Fien Dekker + De Urbanisten)

The ZOH0 rainstreet



→
No



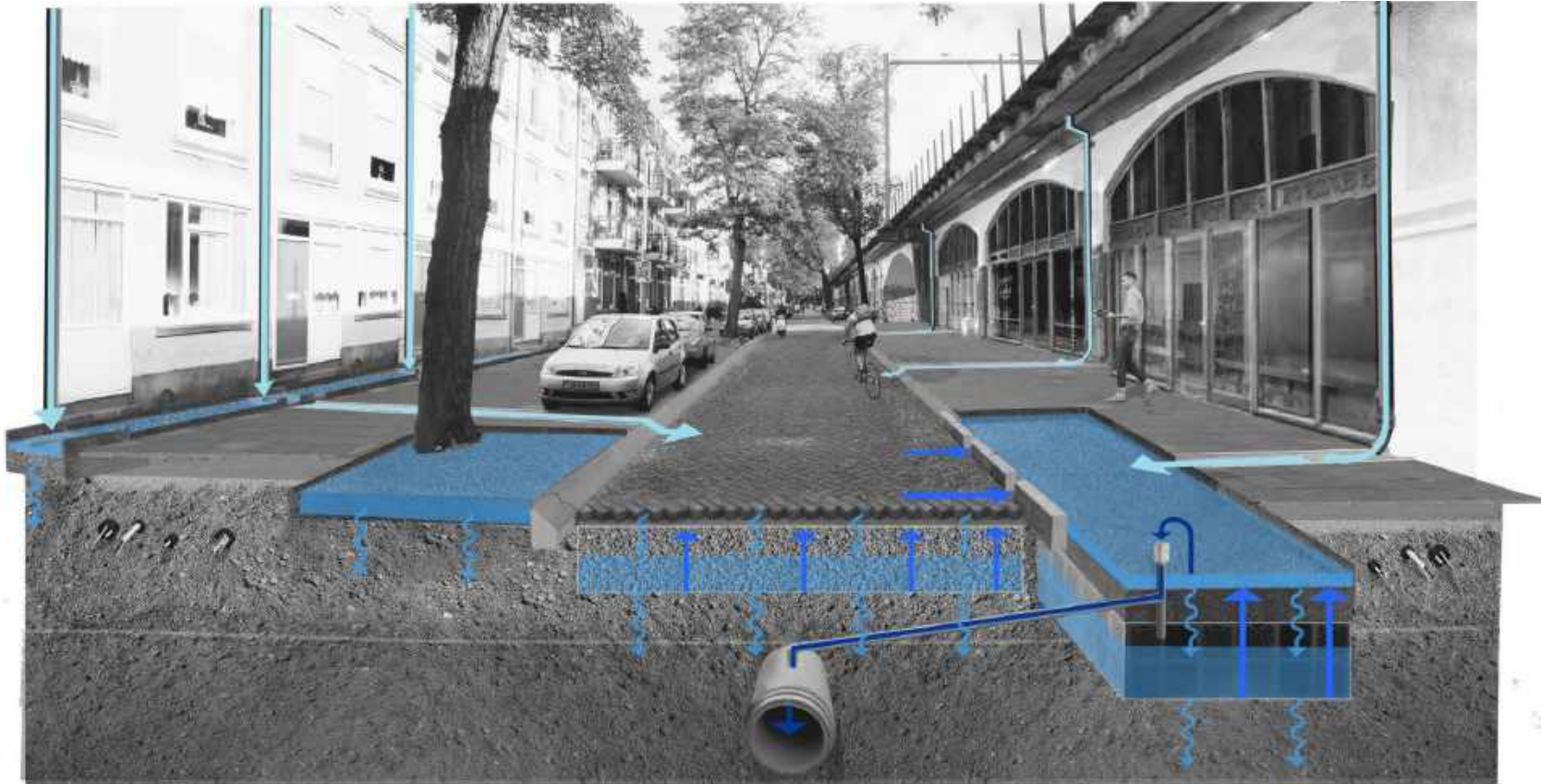
→
Yes!



The ZOH0 streets of today



The ZOH0 rainstreet



Is a green street for ZOH0



The ZOHO raingarden



The ZOHO Raingarden - rain situation (De Urbanisten)

The ZOH0 raingarden



The ZOH0 Raingarden - dry situation (De Urbanisten)

The ZOH0 guerilla raingarden



The ZOH0 guerilla raingarden



The garden was realized with the help of the local community in only a week time (initiative by De Urbanisten)

The large ZoHo raingarden



The ZOHO raingarden design; municipality Rotterdam

The large ZoHo raingarden



Leiden Zuid West



Leiden Zuid West



Meerhof



Bernard Zweersstraat



Peter van Anrooystraat



Sweelincklaan



Beethovenlaan



Operapad

Leiden Zuid West

Homogene green carpet



-  1. Useful local greens
-  2. Linear neighborhood parks
-  3. Generously connected water
-  4. Water sensitive streets



Leiden Zuid West



Leiden Zuid West



1 *Useful local greens*



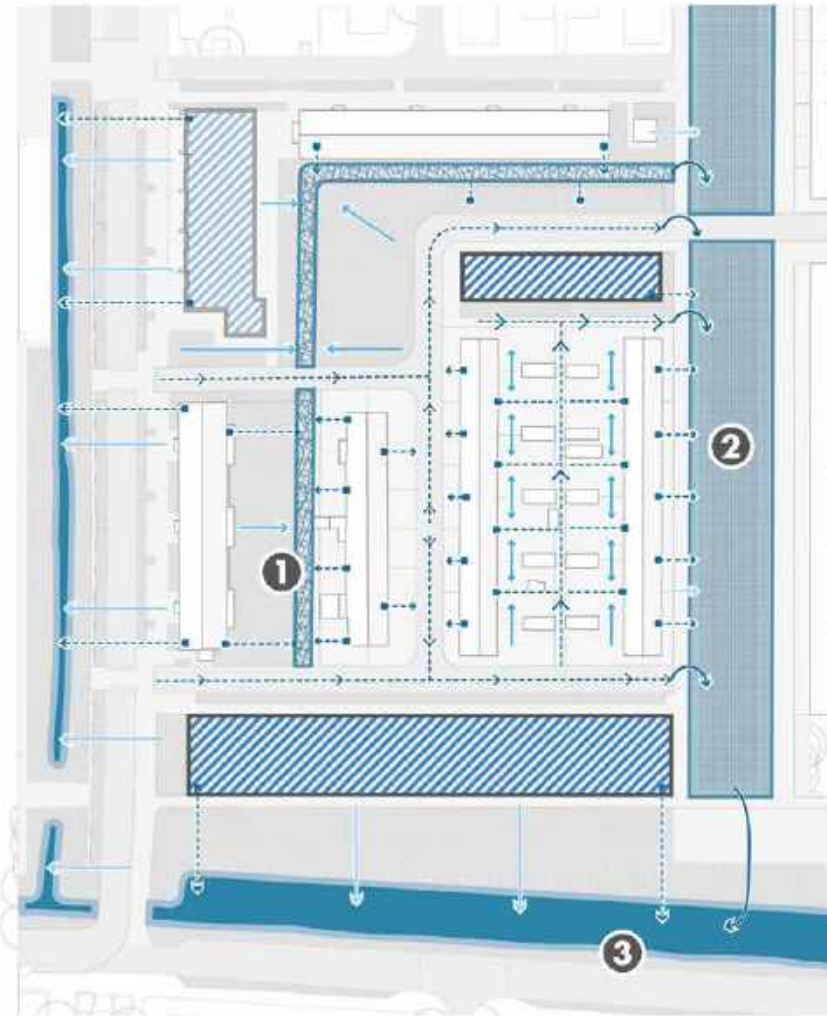
2 *Linear neighbourhood parks*



3 *Generously connected water*



Leiden Zuid West



1 Useful local greens

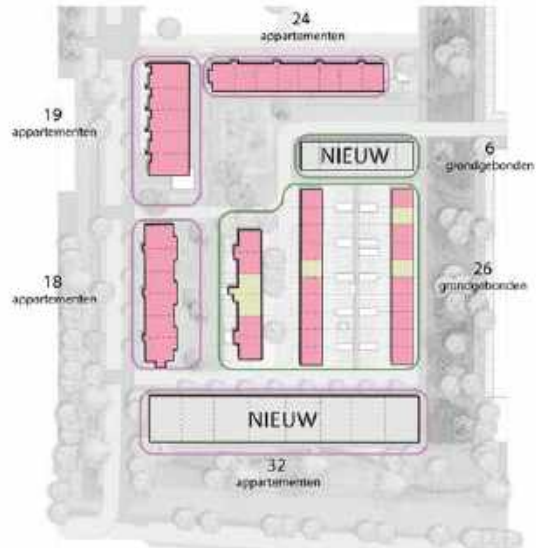


2 Linear neighborhood parks



3 Generously connected open water

Leiden Zuid West



Leiden Zuid West



locatie foto: Nieuwshof







locatie foto: Duinthof / Weidenhof







locatie foto: Mendelssohnkade



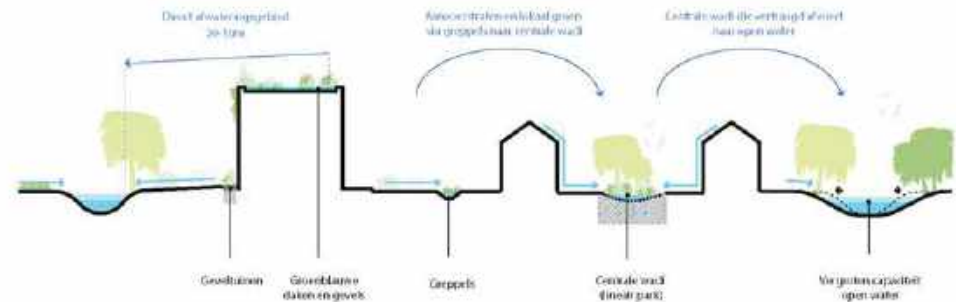




Locatie foto: Boshuizerkade





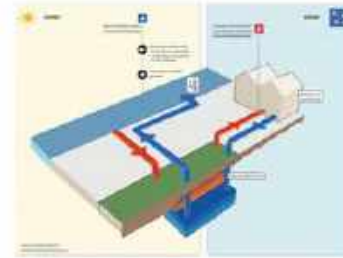
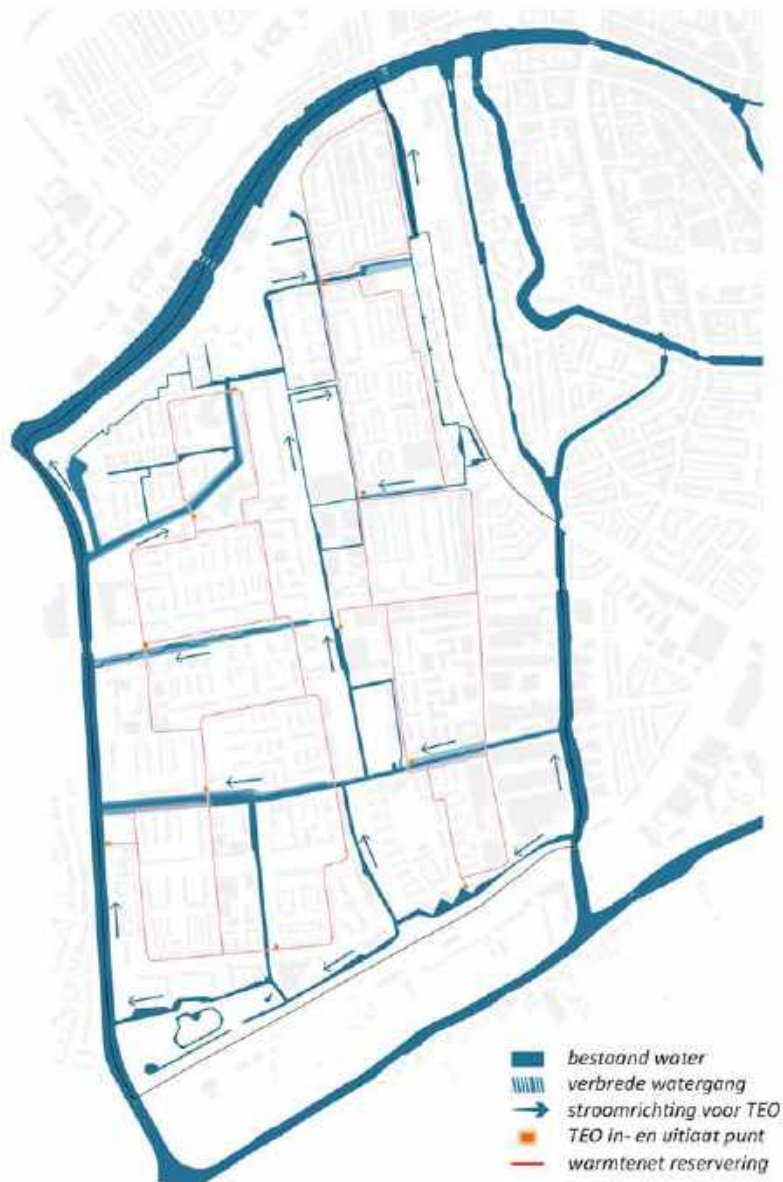


water management components



-  *bestaand water*
-  *verbrede watergang*
-  *direct afwaterings gebied (20-50 meter)*

-  *aanvoer naar centrale buffer*
-  *vertraagd afvoeren naar open water*
-  *groen / blauwe daken*
-  *lineair park - centrale wadi's*



Principe: Thermische energie uit oppervlaktewater - bron: IF Technology



Mogelijke aantakking op grootschalig warmtenet - bron: warmte visie Leiden, 2017



Opportunities for local Fauna

canopies



Vogels



Vleermuizen



Eekhoorns

grasses



Konijnen



Muizen



Vlinders



Bijen

around water



Salamanders



Vogels



Reigers



Eenden



Libelles

in the water



Vissen



Kikkers

Eco system services



SYMBOLISCHE
WAARDE



BIODIVERSITEIT



VERDELING



BOODJ ERODIE



EDUCatieve
WAARDE



GROENE
RECREATIE



VOEDSEL



KOOLSTOF
VASTLEGING



WATER-
BERGING



REINIGEND
VERMOGEN



BESTUURING

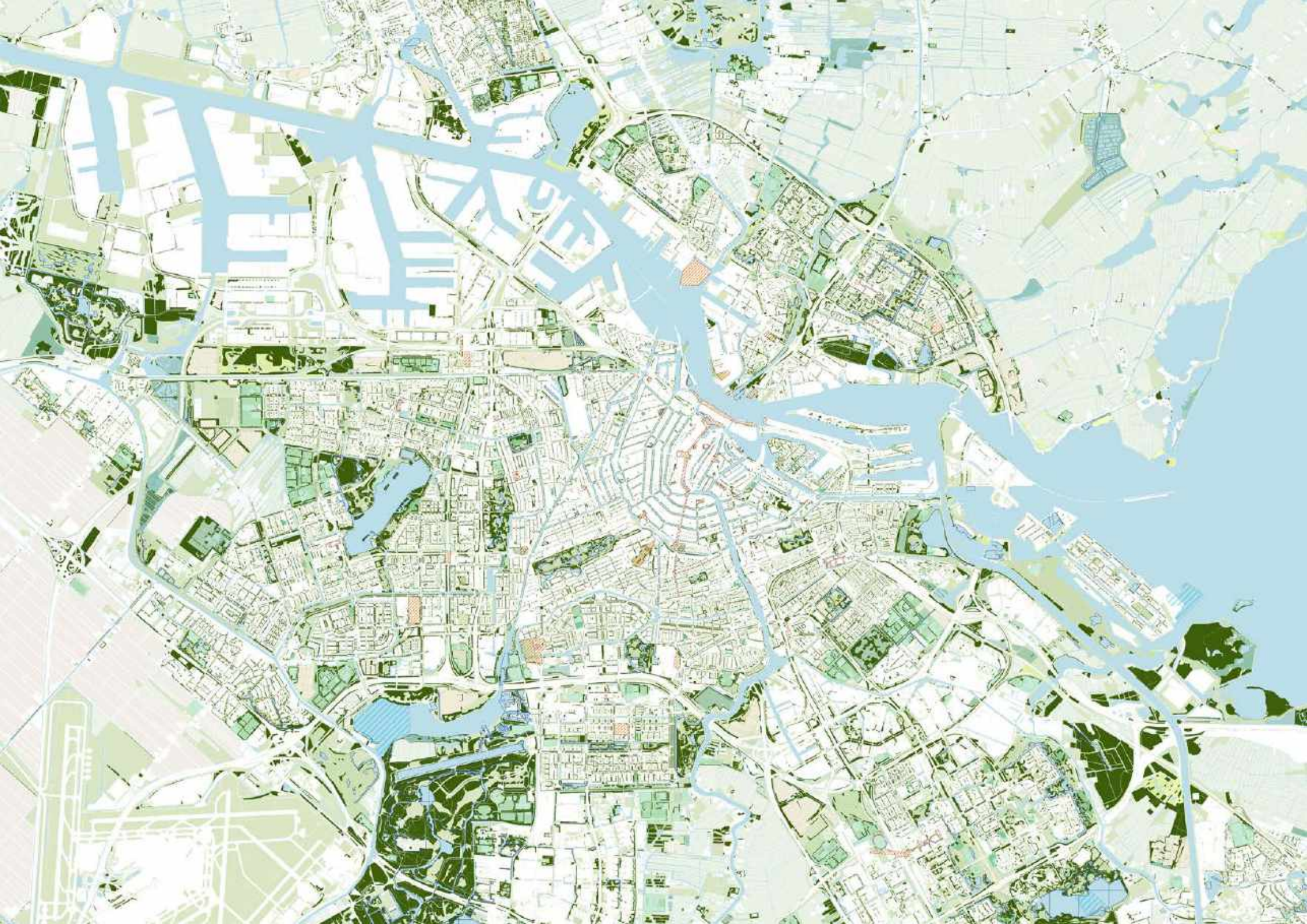


Diversity of user functions in public space

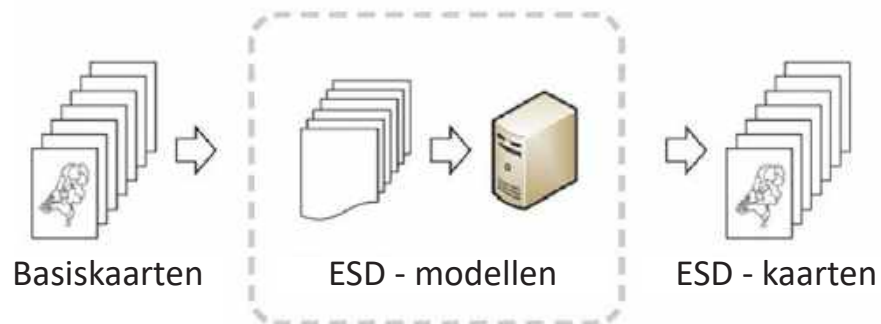
- | | |
|---|---|
|  Rustige lees / werkplek |  Voetbalveld(je) |
|  Speelplek |  Tennisveld |
|  Wilde speelplek |  Grasveldje |
|  Ontmoetingsplek |  Skateplek |
|  Moestuin / buurtgroen |  Fietsroute |
|  Vissteiger |  Wandelroute |
|  Bevaarbaar water | |

Offered User values

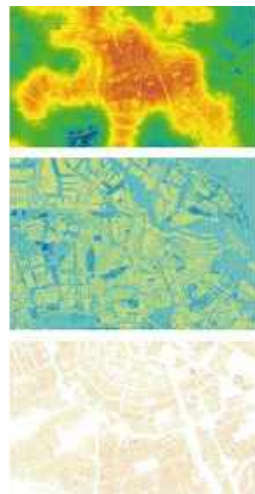




Green Benefit Planner



Bron: RIVM



Bron: RIVM

Gezondheid

Afname van aantal patiënten

patiënten/jaar



Vermeden arbeidsverlies

euro's / jaar



Fysieke activiteiten

Fietsen

km / jaar



Luchtkwaliteit

Afvang van fijnstof - Pm 10

kg / jaar



Verkoeling

Gemiddelde verkoeling door groen

C°



Waarde van vastgoed

Bijdrage van groenblauw aan huisprijs

euro



Waterberging

Waterberging in groengebieden

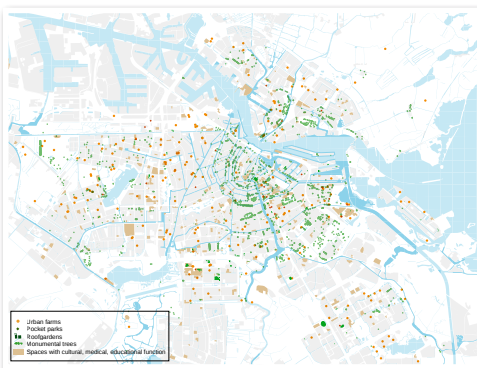
m³



VIER STRATEGIEËN VOOR AMSTERDAMS GROEN



GROEN DICHTBIJ



STADSPARKEN



METROPOLITAAN LANDSCHAP



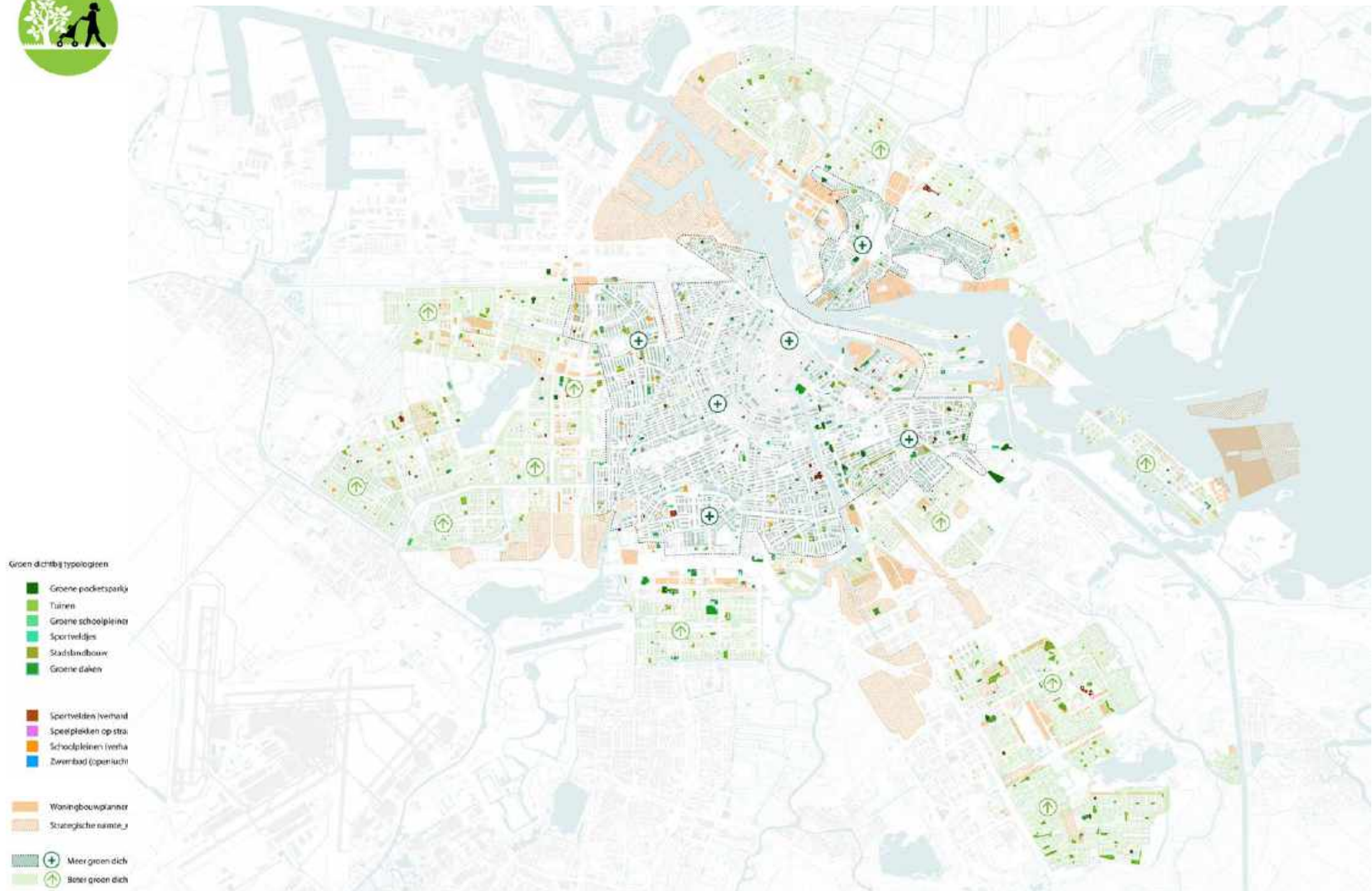
VERBINDINGEN







GROEN DICHTBIJ





GROEN DICHTBIJ

Following the exploratory study 'Water Sensitive Rotterdam, Agniesebuurt / Zomerhof-quarter', De Urbanisten was asked to submit a quotation for 'the city as a sponge'. In the completed study on the Agniesebuurt / Zomerhofkwartier we have formulated an ambition for circular water collection for the entire neighbourhood, where building blocks have been delivered and developed for all street profiles and for three archetypal building blocks. These building blocks make the district suitable for 100% local water collection and infiltration, without having to use a (HWA) sewage system. This material forms the basis for further elaboration in the Functional Advice of the sewage plan Agniesebuurt and the preparation of



Urban typologies

- 1. Historic city centre***
- 2. Canal belt***
- 3. First extensions***
- 4. Extensions in the 40's***



1



2



3



4

+ EXTRA GREEN ROOFS

by turning grey roofs into green roofs.

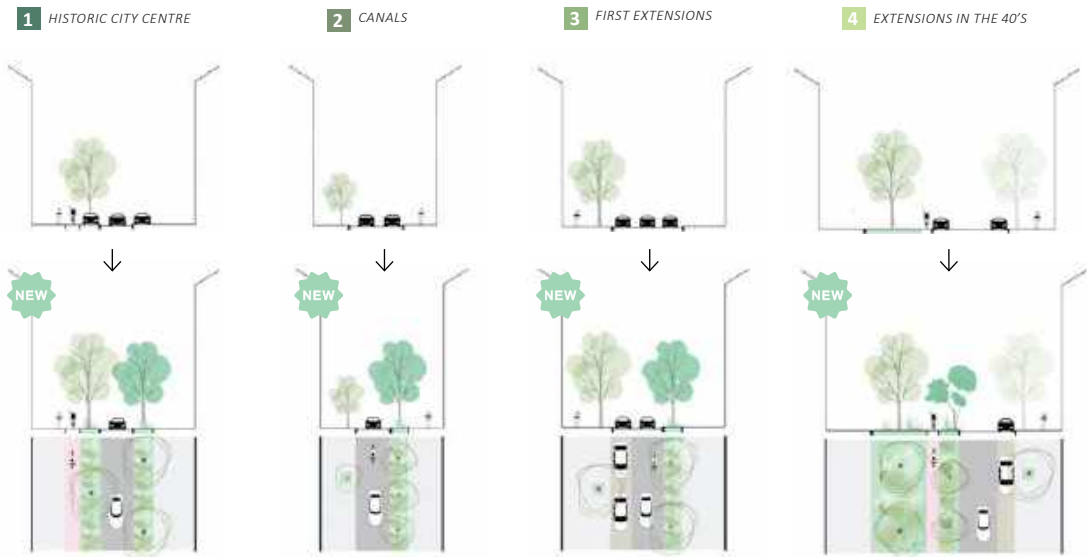


Estimated percentages suitable to change

1	Historic centre	5 %
2	Amsterdam canals	15 %
3	First extensions	50 %
4	Extensions in the 40's	50 %

+ EXTRA GREEN ON STREETS

by turning 100% (areas 1 & 2) and 50% (areas 3 & 4) of all parking places into green.



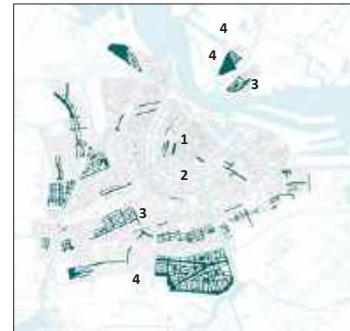
+ EXTRA "WATER SENSITIVE" GREEN



Infiltration



Bioswales
& Raingardens



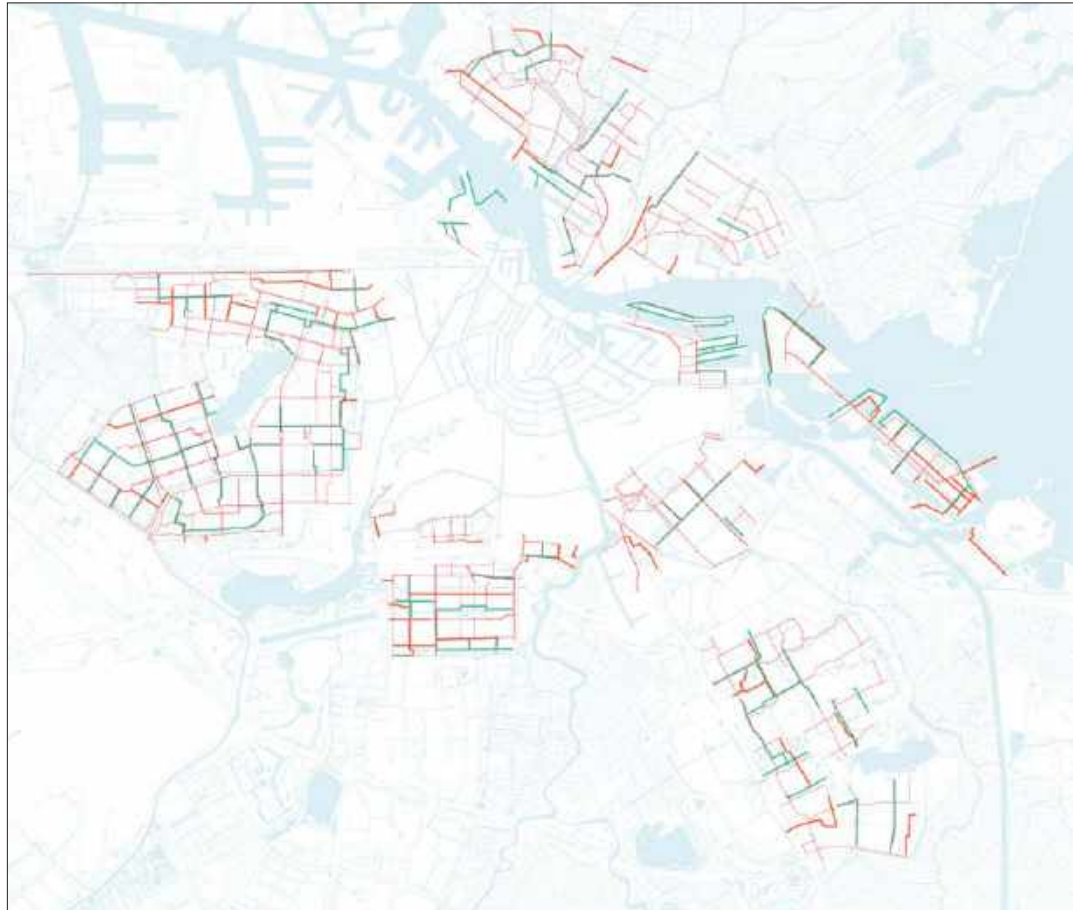
Estimated reduction of volume of rain out of the sewer.

1	Historic centre	1.787 m3
2	Amsterdam canals	3.850 m3
3	First extensions	37.262 m3
4	Extensions in the 40's	71.500 m3



GROEN DICHTBIJ STRATEGIC ACTIONS

B. Increase quality and usability in 'groen dichtbij'



EXTRA BIKE AND WALKING PATHS



cycle routes



walking routes



Estimated amount of extra paths

159.7 km
total extra paths



Green close by...increase program and qualities



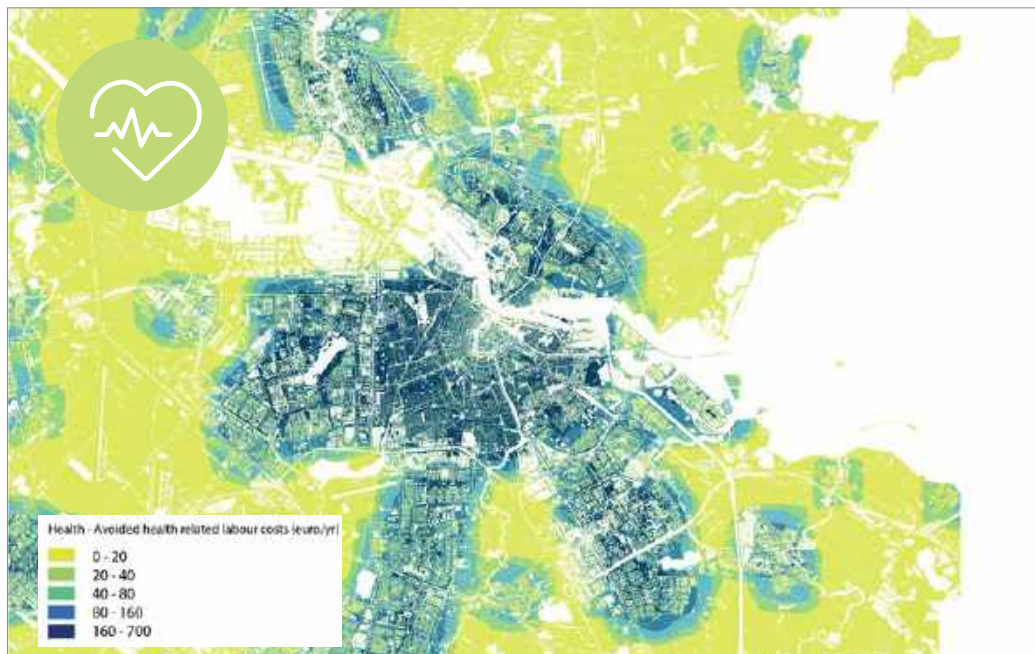
EXTRA MAINTENANCE



LEVEL C



LEVEL B





GROEN DICHTBIJ

QUANTITATIVE CONCLUSIONS (KOERS 2025 as reference)

- Results shows a significant overall improvement on health and physical exercise.
- Adding green in high density areas has high positive impact on the health of the residents.
- Increasing the usability of the available green spaces in less dense areas by adding new bike paths leads to a higher amount of time completing physical activity.





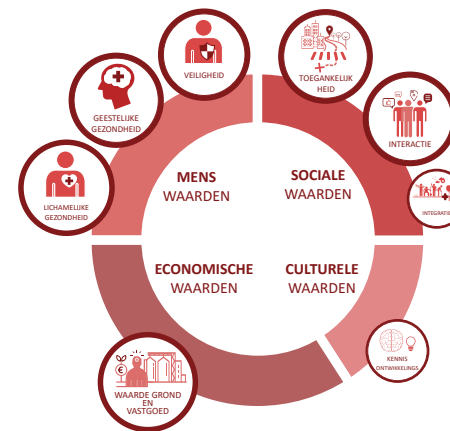
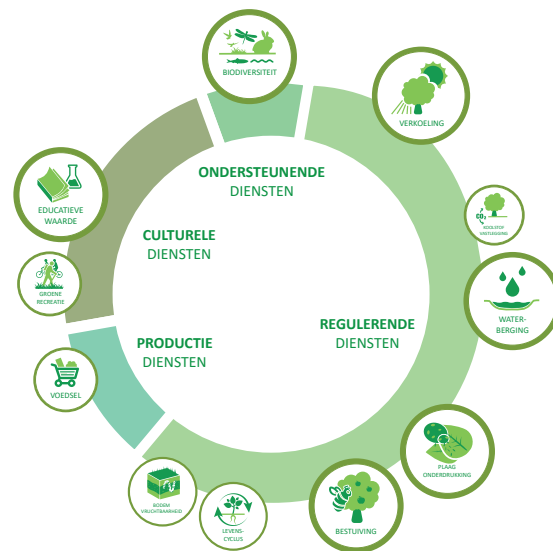
GROEN DICHTBIJ

Extra baten

Groen in de buurt biedt in de compacte stad **welcome ruimte voor interactie en participatie en educatie**

Groen dichtbij draagt bij aan de **sociale samenhang** en een **gevoel van veiligheid** in de buurt

Vergroening van daken en straten levert een belangrijke bijdrage aan een **klimaatbestendigheid** en de **aantrekkelijkheid** van de buurt





More information:
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DE URBANISTEN