



Creating a Green legacy in the City of Amsterdam

Green Infrastructure challenges in rapidly growing cities

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Summary

Context: facts, challenges and trends

Policies: → research

→ results

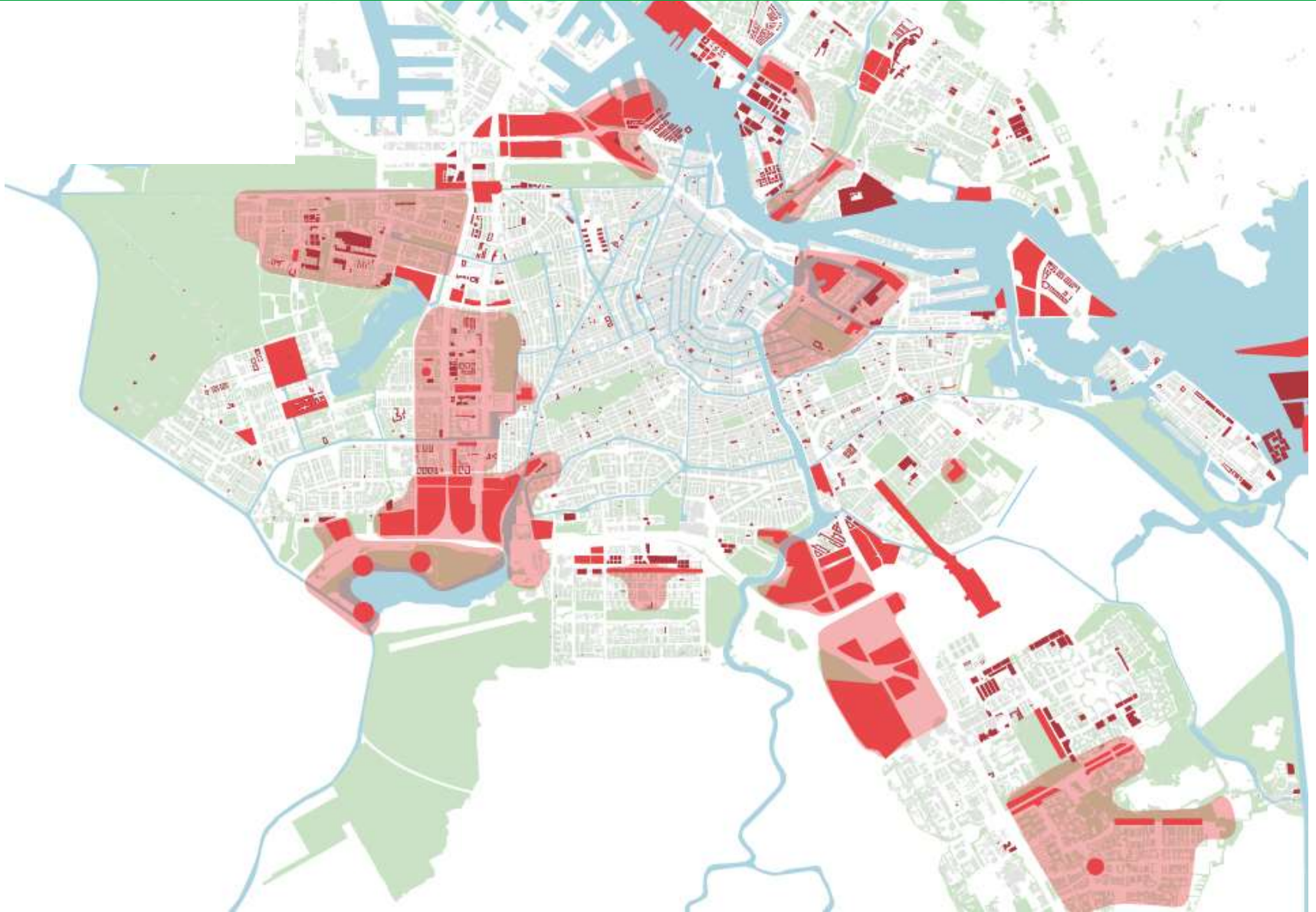
→ Green Strategy 2050

Zoom in: Rainproof and RESILIO

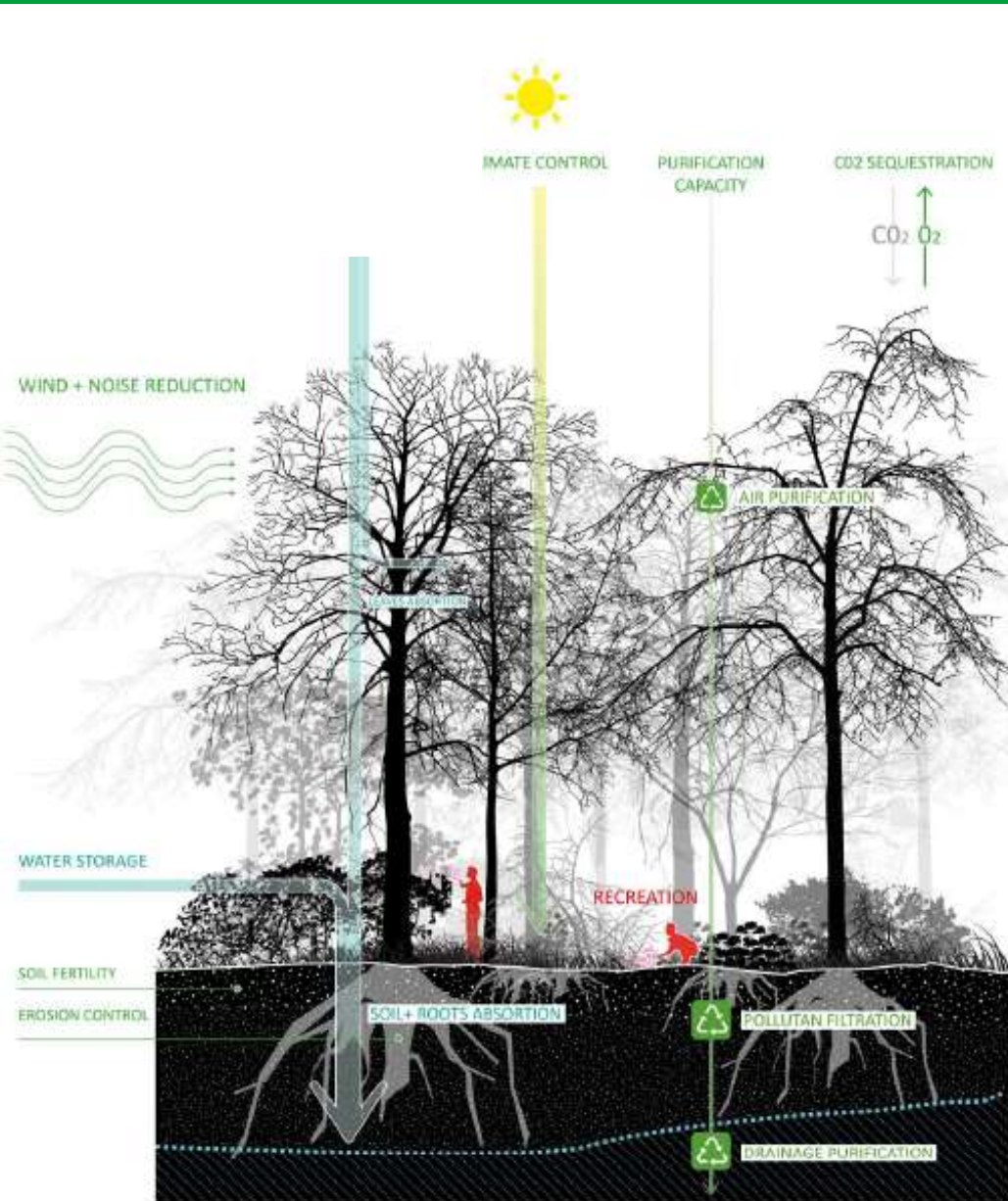
Amsterdam has a human scale and high standard of living



Amsterdam is growing rapidly ...



Evidence of the multiple benefits and value of green infrastructure is growing



Challenge: Do we have enough attractive green space for more than 1 mio people living in Amsterdam in 2034?



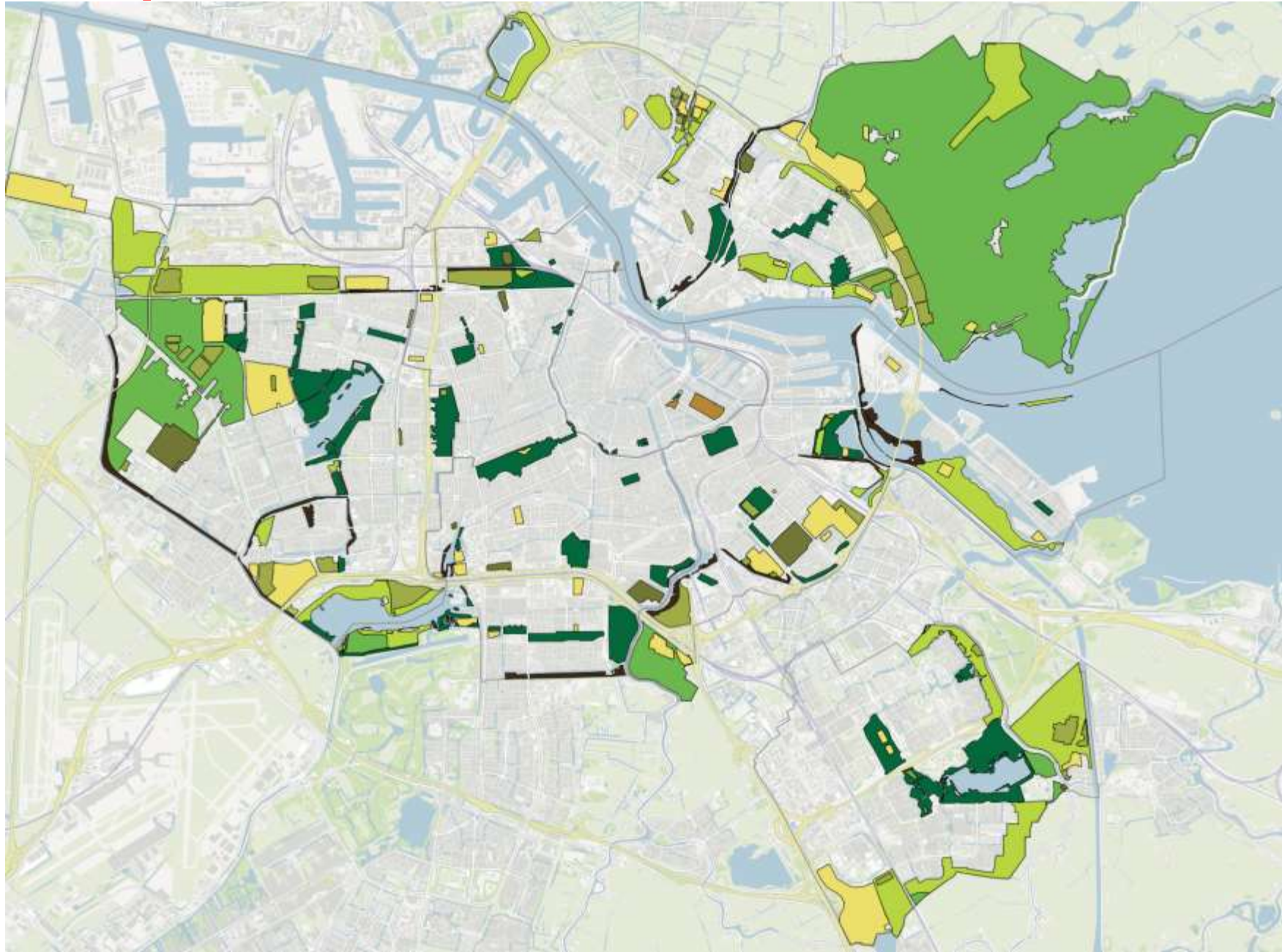
Challenge: Do we have enough green space to be a healthy and climate-resilient city?



Policy: Amsterdam Structural Vision



✘✘✘ Policy: Protected Main Green Infrastructure





Policy: Ecological Vision

Ecologische Visie

Ecologie, biodiversiteit en groene
verbindingen in Amsterdam



4 juli 2012



Policy: Targets have been set for green infrastructure in new developing areas in January 2018

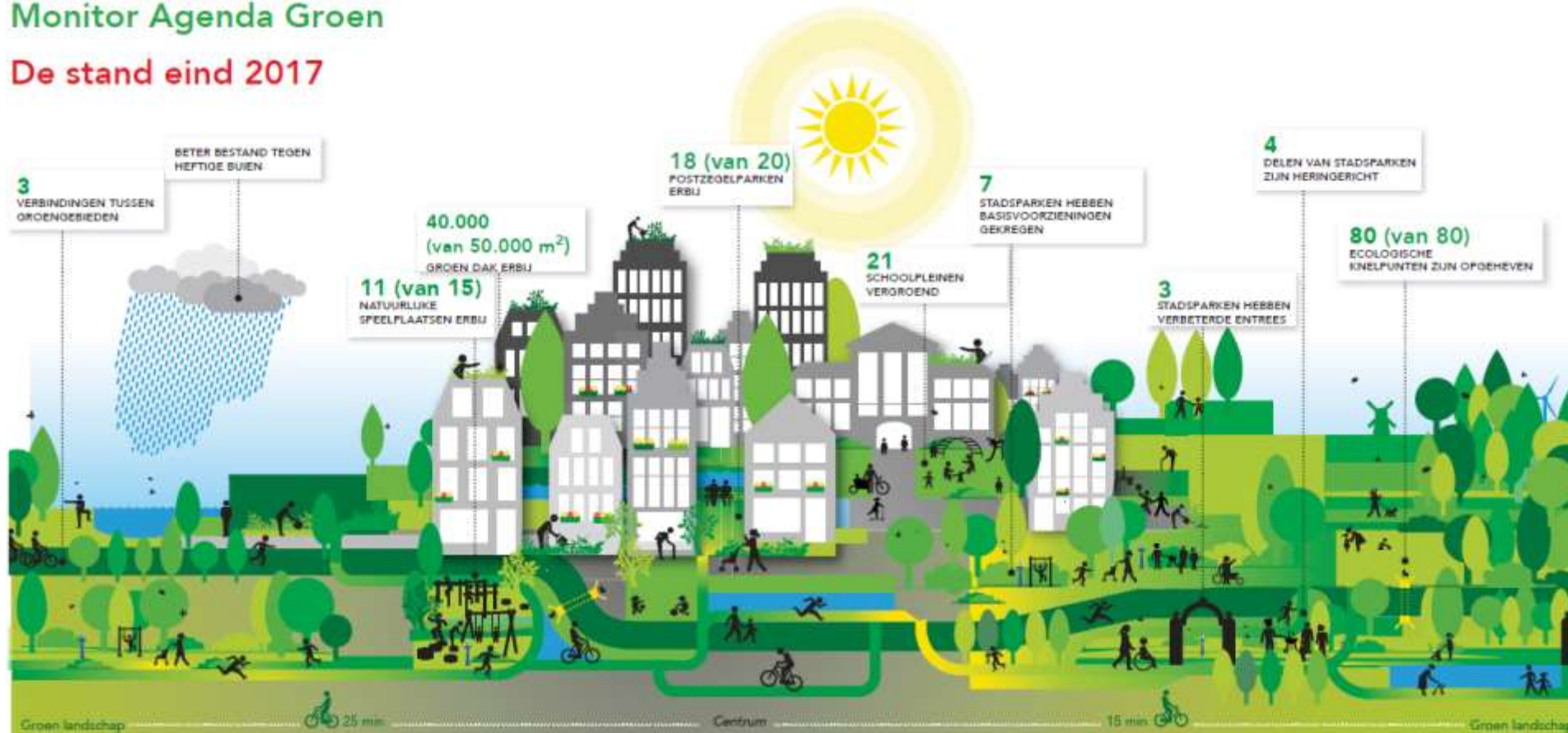
	Central living areas	Mixed living areas	Green-blue living areas
Public green space	8 m ² per dwelling	16 m ² per dwelling	24 m ² per dwelling
Ecosystem green space	8 m ² per dwelling	6 m ² per dwelling	4 m ² per dwelling

Green Agenda 2014-2018: investment in green infrastructure



Monitor Agenda Groen

De stand eind 2017



Prognose behaalde doelen eind 2018

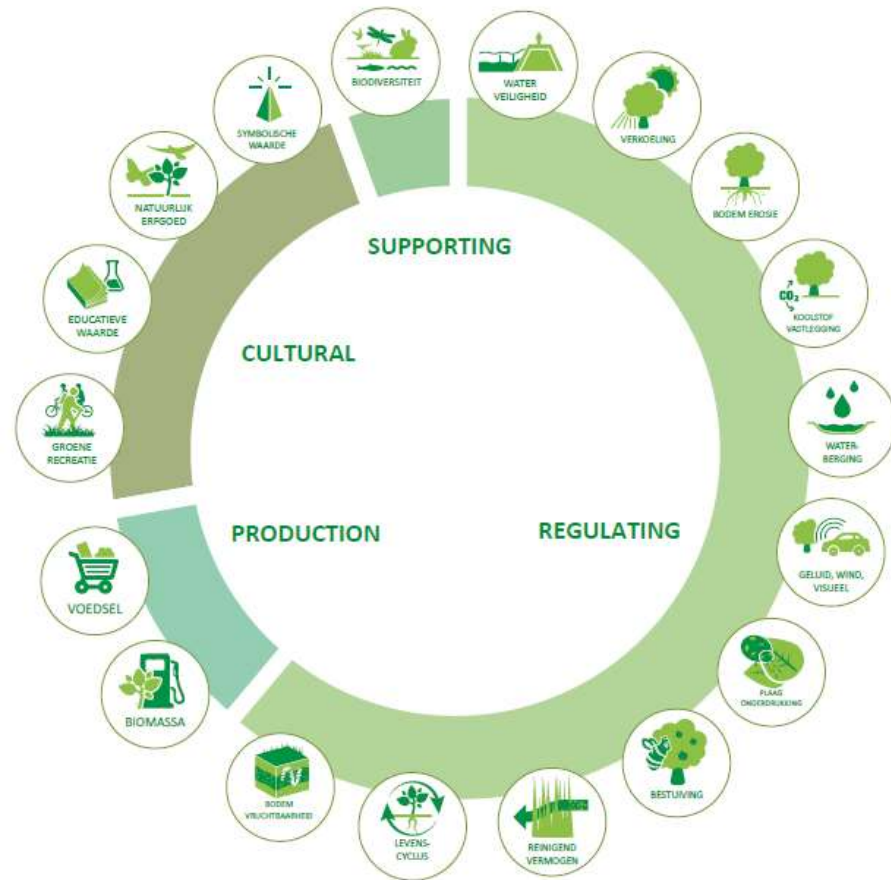




The Green Vision 2050

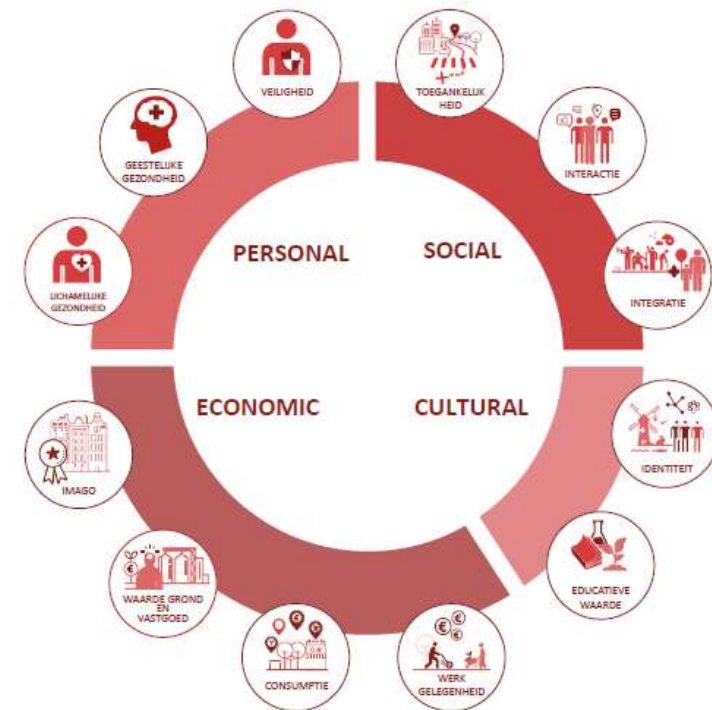
Creating a green legacy for the city of the future

Context: a survey on services and values of GI is conducted for Amsterdam in 2018



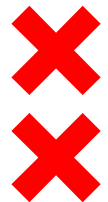
Ecosystem services

+

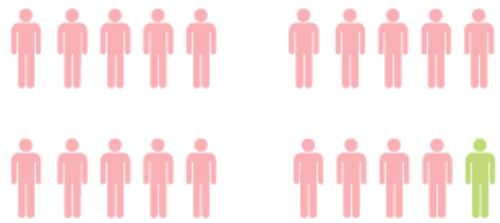
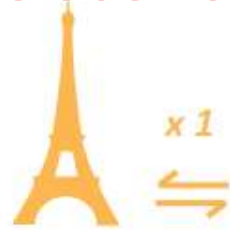


User values

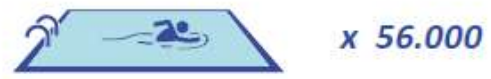
❌ Value of our existing green infrastructure



km
1000 km / jaar



=



Not enough space for new green proportional to the growth of inhabitants.



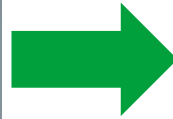
✘ 4 strategies for green infrastructure



A large diversity in green spaces for all Amsterdam people



Shifting away from private ownership towards a more public way of urban gardening



Development of accessible parks outside the built-up areas in the green wedges



A continuous green network for biodiversity and active recreation by the principle of “green unless”



Optimal greening of existing and new neighbourhoods on all levels



Looking at innovation to add new GI of the 21st century...



Building a green and livable city together with NGO's, citizens and entrepreneurs





Rainproof and RESILIO:

Preventing pluvial flooding by intelligent nature based solutions

Amsterdam Rainproof

Make Amsterdam Rainproof. Visit rainproof.nl to see what you can do.



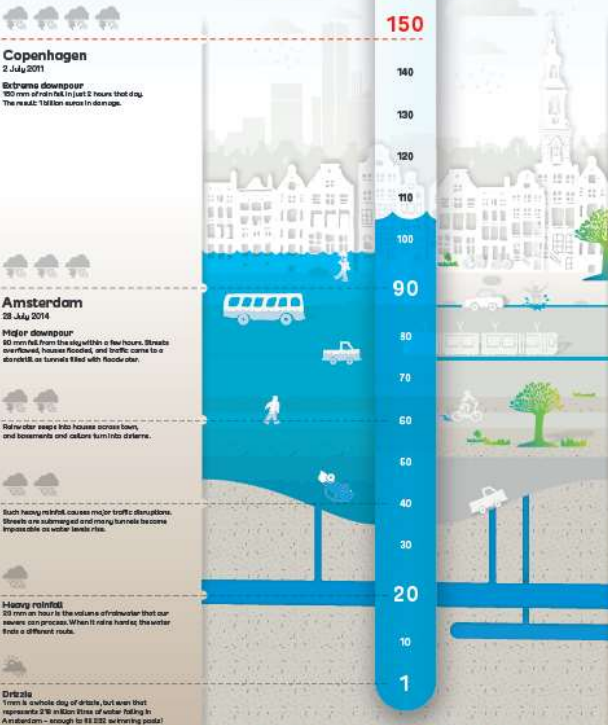
It's raining harder and harder, and our city can't handle it

Together, we can catch those raindrops and make Amsterdam Rainproof



What's wrong?

We increasingly have to deal with extreme rainstorms. They make our city vulnerable. As the city fills up with buildings and paved surfaces, there's nowhere left for the rainwater to go. The result: increasing flooding and damage, also to you.



mm.

150

140

130

120

110

100

90

80

70

60

50

40

30

20

10

1

What you can do

Everyone can contribute by introducing smart solutions, big and small, to prevent damage, and by using rainwater for example to water your garden. And it makes your neighbourhood more beautiful, livelier. Every drop counts. Increase our city's sponge capacity and make Amsterdam Rainproof.



Roof

A green roof holds rainwater to take care of excess roof structure and helps keep the building cooler. It benefits building life and you don't need a sewerage pipe. A blue roof is a new form for storing rainwater.



Building

Waterproof your exterior walls, green or blue roof. Store water in the basement. If it does rain, you can use it for watering plants. If it rains too much, you can use it for watering plants.



Neighbourhood

Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.



Garden

If you have a garden, balcony or terrace, set up a rain barrel. Use the water to water your plants. Use the water to water your plants.



Street

Rainproofing a street is as easy as laying a hollow pipe. Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.



Square

Rainwater that flows into squares and open green areas can be used to water plants. Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.



Park

Green parks, lawns and ponds are a key contribution to making our city more resilient. Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.

Make your neighbourhood rainproof.

How? Use these tips!



- Green / blue roof**
A green roof has a layer of plants, which helps to absorb rainwater. It also helps to insulate the building and reduce energy costs. A blue roof is a new form for storing rainwater.
- Small front garden**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Open gutter**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Urban infiltration strips**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Infiltration zones**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Green between the from rails**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Water-permeable paving**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Speed bumps**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Gross concrete blocks**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Water square**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Infiltration crotches**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Rainwater pond**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Rainproof utilities**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.
- Detached downpipe**
Use permeable materials like grass, cobblestones, and gravel. Use permeable materials like grass, cobblestones, and gravel.

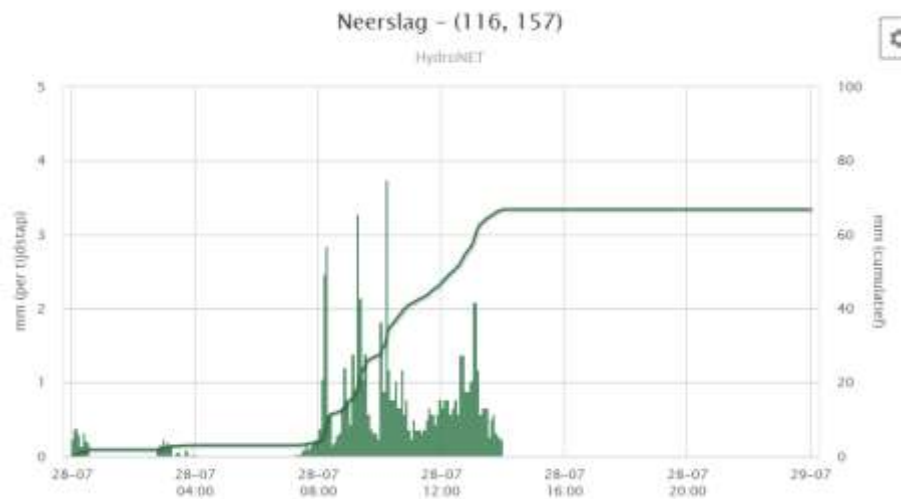
Amsterdam Rainproof
Amsterdam Rainproof trusts you, and all the people of Amsterdam, working together. We share a common goal: to help Amsterdam handle the increasingly frequent downpours. Even better, we want to make better use of the rain water that currently flows directly into the drains. The extreme rainstorms cause damage, primarily because the city is increasingly paved in buildings, asphalt and paved gardens – no raindrops can seep through.

Introducing Rainproof initiatives together.
If you add improvements to your house or garden, make them Rainproof. It would be to make an even bigger difference, work with others on joint initiatives. Rainproof wants to link citizens, entrepreneurs, knowledge workers and public servants in ongoing projects and new initiatives. When we work together we can transform Amsterdam into a city that uses smart solutions to make the best of heavy rainfall.

That make the difference.
The following suggestions offer tangible tips for what you can do – as a local resident or a professional. Visit Rainproof.nl for a comprehensive overview. If you have an idea, story or other contribution for Rainproofing your city, let us know! We'd be happy to link you to other Rainproof locals.

Together, we are Amsterdam Rainproof

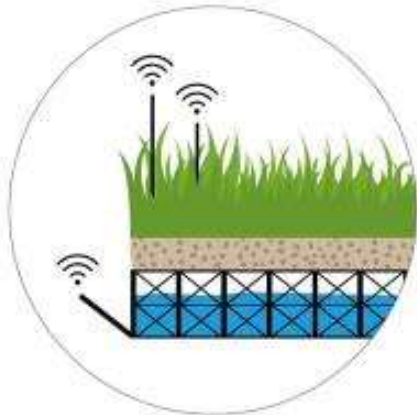
Rainstorm 28 juli 2014 (70 mm in 6 h)



RESILIO

Resilience Network of Smart Innovative cLIimate adaptive ROoftops

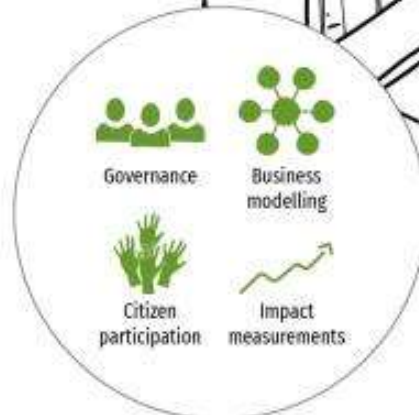
✘ Gemeente
✘ Amsterdam
✘



WP4 TECHNICAL ADAPTATION AND CUSTOMISATION



WP5 DESIGN AND IMPLEMENTATION WATER MANAGEMENT PLATFORM



WP6 GOVERNANCE FRAMEWORK AND IMPACT ASSESSMENT



WP7 PARTICIPATION IN PILOT LOCATIONS
WP8 INVESTMENT IN BLUE GREEN ROOFTOPS



RESILIO | LAAT JE DAK LEVEN

Consortium partners

Urban Planning & Water Management

**Gemeente
Amsterdam**

waternet

Roof Expertise & Innovation



Research Expertise



Social Housing

Stadgenoot



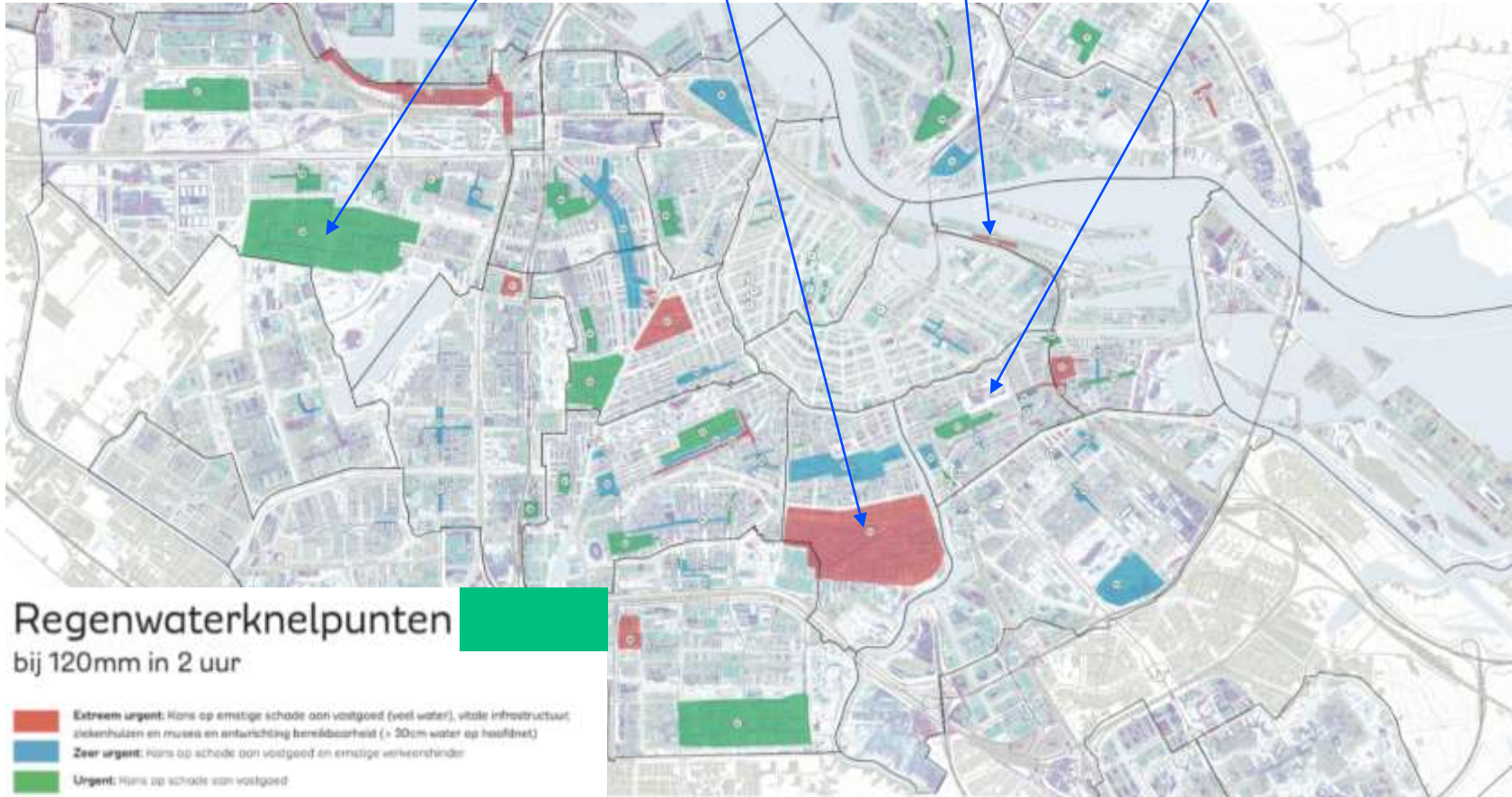
de Alliantie

deKey

Risk areas for pluvial flooding



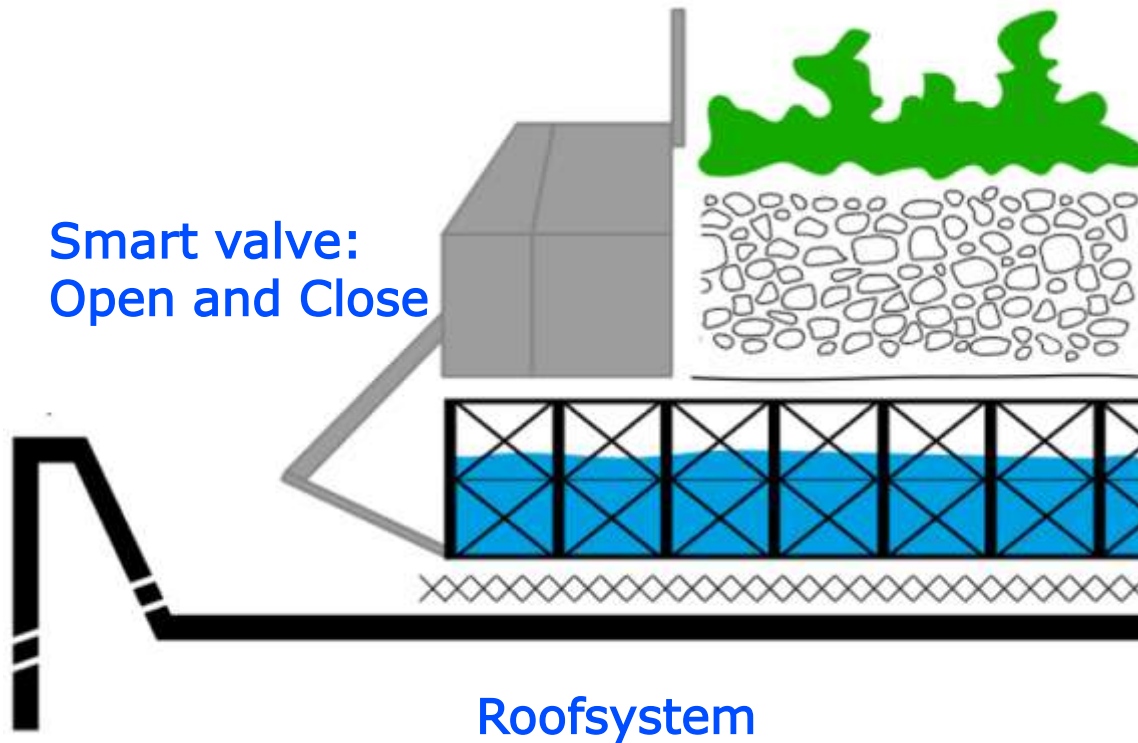
Slotermeer Rivierenbuurt Kattenburg Oosterpark



Smartroof 2.0



The RESILIO Rooftops



High quality
greenery

Substrate

Filter foil

Water system
(crates)
Insulation

Water Platform

RESILIO Beslissingsondersteunend Systeem



WP5







Thank you!

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