

Building resilience

design strategies in planning
for a densified Gelderland

Anouk Jansen



What has urgency?

Onprotest gaat der actie voeren: oncrisis is alleen r erger geworden'

test, dat vorig jaar grote demonstraties
erde tegen de wooncrisis, gaat hardere en
ere acties voeren. Volgens de organisatie zijn er
open jaar geen wezenlijke maatregelen genomen
de crisis onverminderd voort.

Wijk 22 september 2022, 03:00



niet tot n geschillen

de milieubaas van de Verenigde Naties
evoudige crisis: klimaatverandering,
samenwerking kan die crisis oplossen.



Voorzitter intensive cares: we hebben dit nog nooit meegemaakt

Diederik Gommers Eind mei dreigt een tekort aan bedden voor
coronapatiënten op de intensive care. Er komen steeds meer
patiënten bij en ze blijven lang.

NEWS | 28 February 2022

Climate change is hitting the planet faster than scientists originally thought

Latest IPCC climate report warns that rising greenhouse-gas emissions could soon
outstrip the ability of many communities to adapt.



▲ De Drieharingstraat in Utrecht, in andere tijden altijd vol met mensen op het terras. © Foto: Peggy van Overdijk, bewerking: AD

De grafieken die laten zien hoe Nederland tot stilstand kwam zijn (soms) best schokkend

Met de uitbraak van corona is Nederland massaal op de noodrem gaan
staan. En dat is goed terug te zien in de cijfers over hoe we ons bewegen
en waar we ons geld aan uitgeven. Hoe Nederland tot stilstand kwam in
elf (soms toch wel schokkende) grafieken.

Dominique Voss en Thomas Boeschoten 08-04-20, 06:30

Top climate scientists are sceptical that nations will rein in global warming

A *Nature* survey reveals that many authors of the latest IPCC climate-science report are
anxious about the future and expect to see catastrophic changes in their lifetimes.

Jeff Tollefson



VN: 3,7 miljoen mensen zijn Oekraïne ontvlucht

✎ Casper van der Veen 25 maart 2022 1 Leestijd 1 minuut



NEWS | 09 August 2021

IPCC climate report: Earth is warmer than it's been in 125,000 years

Landmark assessment says that greenhouse gases are unequivocally driving
weather – but that nations can still prevent the worst impacts.

sopvang is
kend' -

dig, stellen de Nationale
port. Ze roepen
nemen voor de opvang. „Er



Urban microclimates can turn deadly as climate crisis deepens

Tall, dense buildings in towns can trap heat and raise temperatures, and also amplify gusts of wind



Commuters travelling towards Manchester city centre. Computers show where the most potentially dangerous microclimates have been created. Photograph: Christopher Thomond/The Guardian

crisis van eigen an meesleuren

de VS is niet langer onvoorstelbaar en kan
deconomie. Komt Washington tijdig tot

De crises blijven zich opstapelen,
zonder dat er een ontknoping volgt



Wooncrisis



NOS Nieuws • Zondag 12 september 2021, 13:43 •
Aangepast zondag 12 september 2021, 19:32

**Duizenden betogers vragen met protestmars
naar de Dam aandacht voor wooncrisis**

Vier op de tien Nederlanders voelen zich niet goed voorbereid op een ramp of crisis

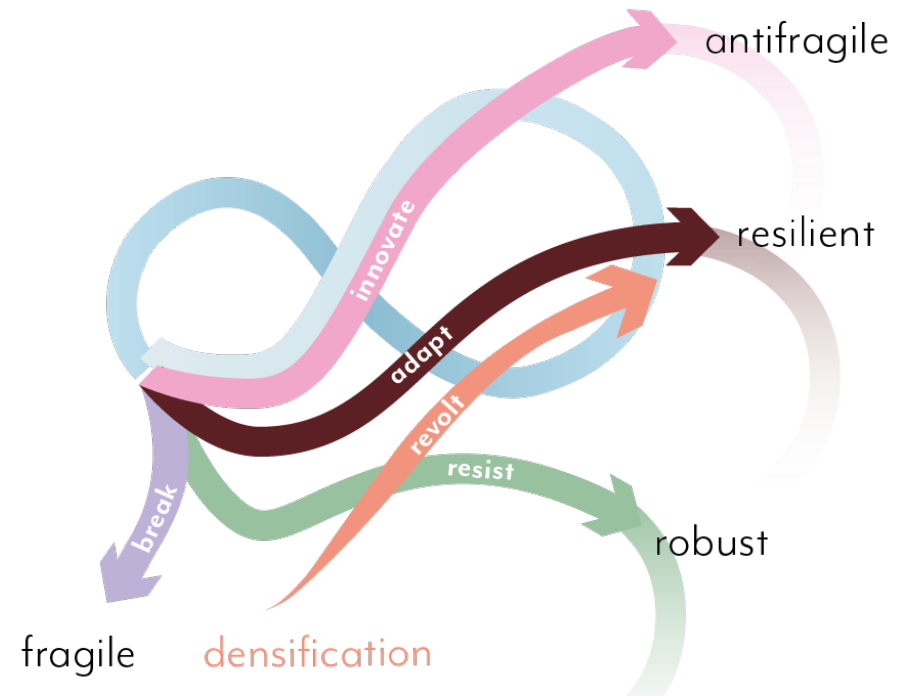
Dreigingen Mensen maken zich vooral zorgen om cyberdreigingen en georganiseerde criminaliteit. Nederlanders die zich voorbereiden, legden bijvoorbeeld een noodpakket klaar of sloegen extra brandstof in.

How to deal with crisis and uncertainty?

Resilience

‘The ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains.’

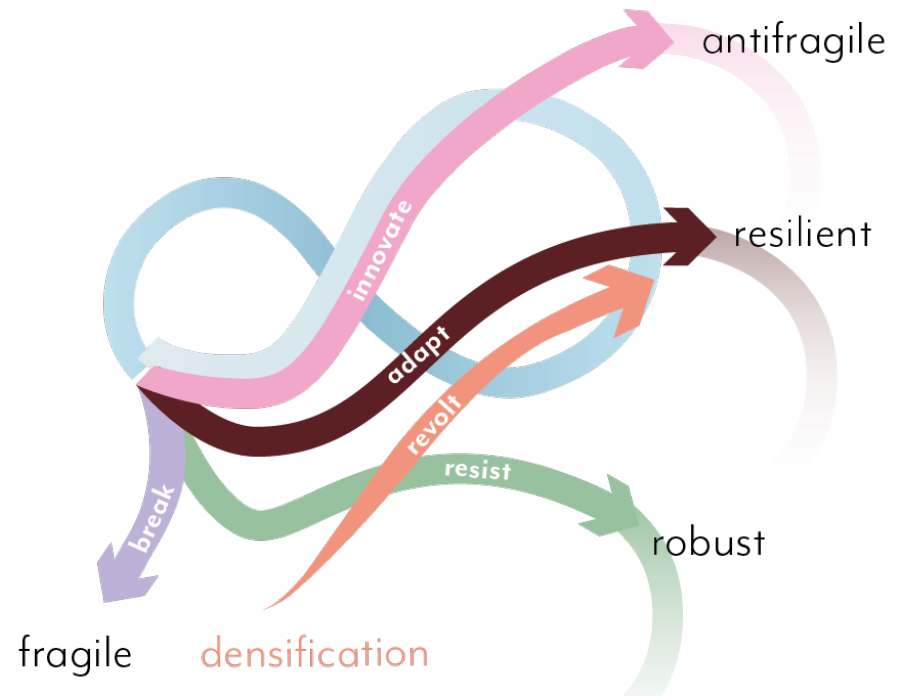
Davoudi et al., 2012



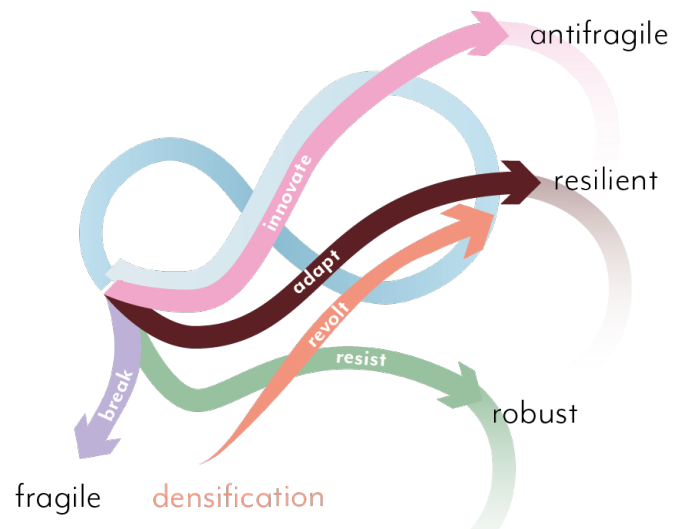
Resilience

‘The ability of complex socio-ecological systems to adapt in response to stresses and strains.’

- Flexibility
- Persistence
- Transformability

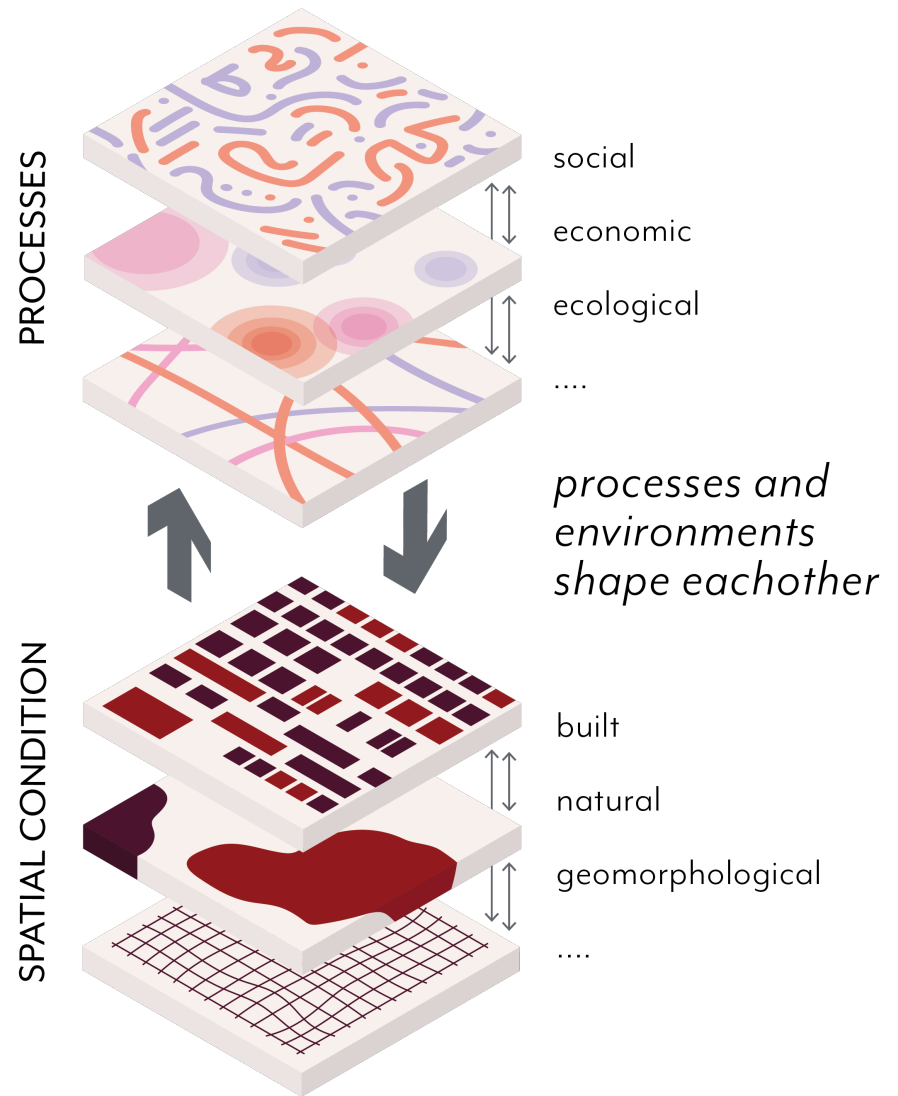
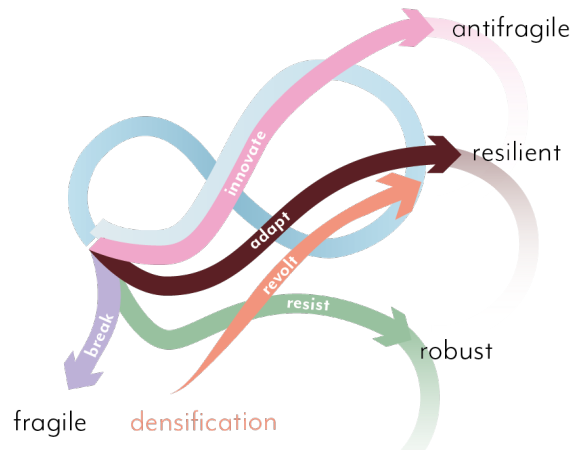


Resilience

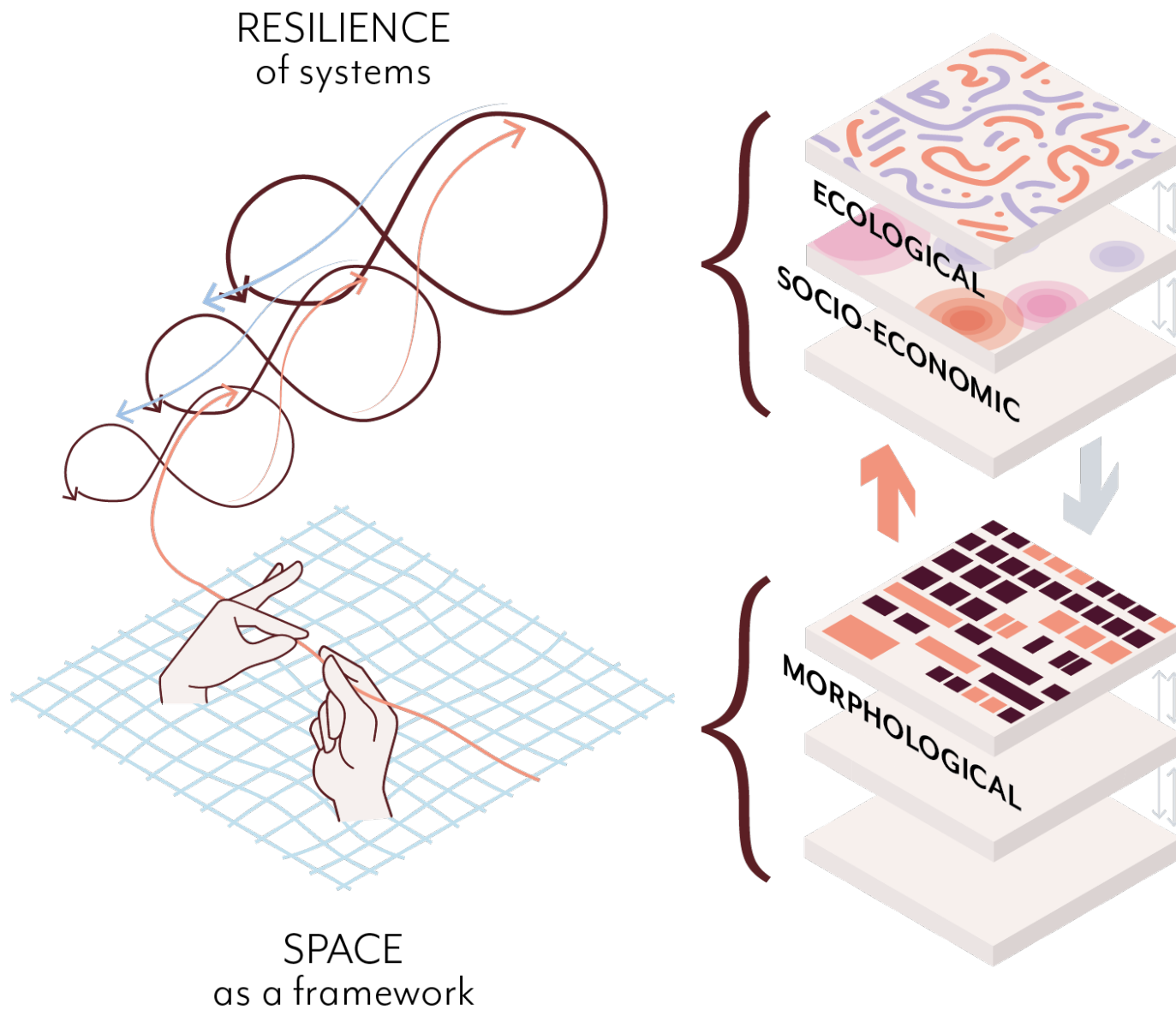


URBANISM?

Resilience & urbanism



Resilience & urban form



How to prepare for the future?



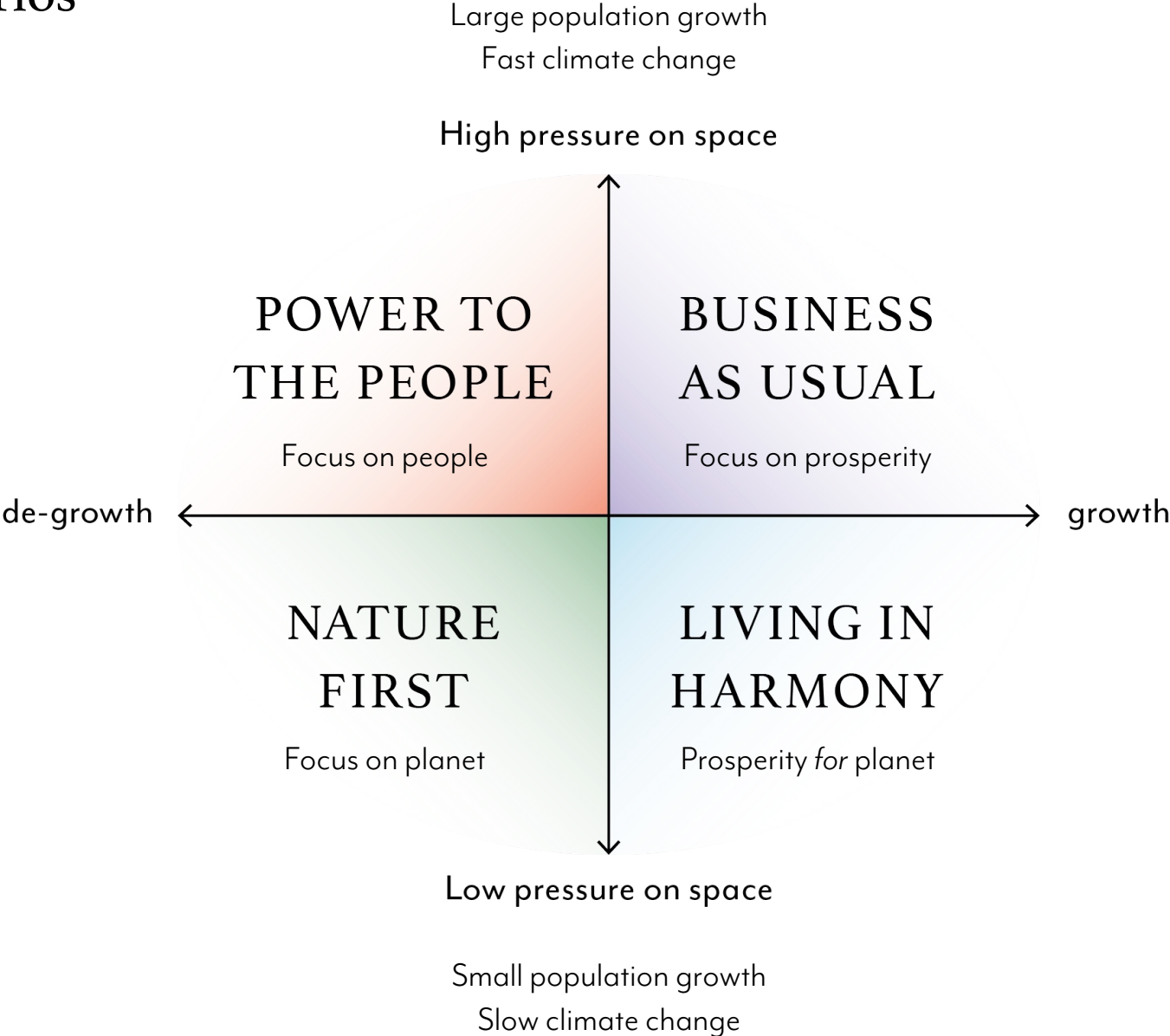






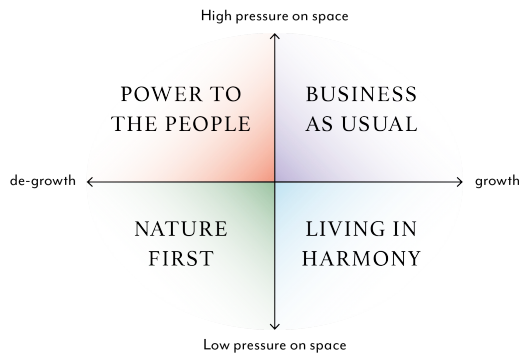


Scenarios



Specific resilience

population growth
climate change



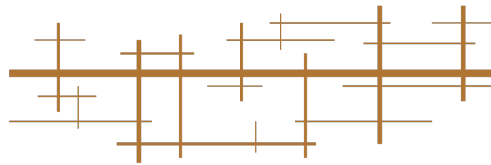
General resilience

diversity



the richness and evenness of
distribution of different components

connectivity



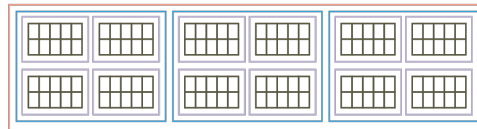
how well components are linked to the
rest of the system

redundancy



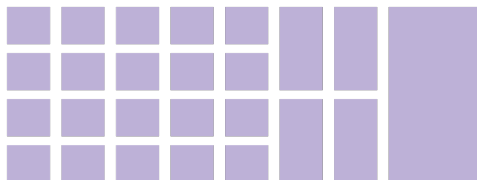
multiple components performing the
same or similar functions

modularity



the degree to which a system can be
separated into smaller components

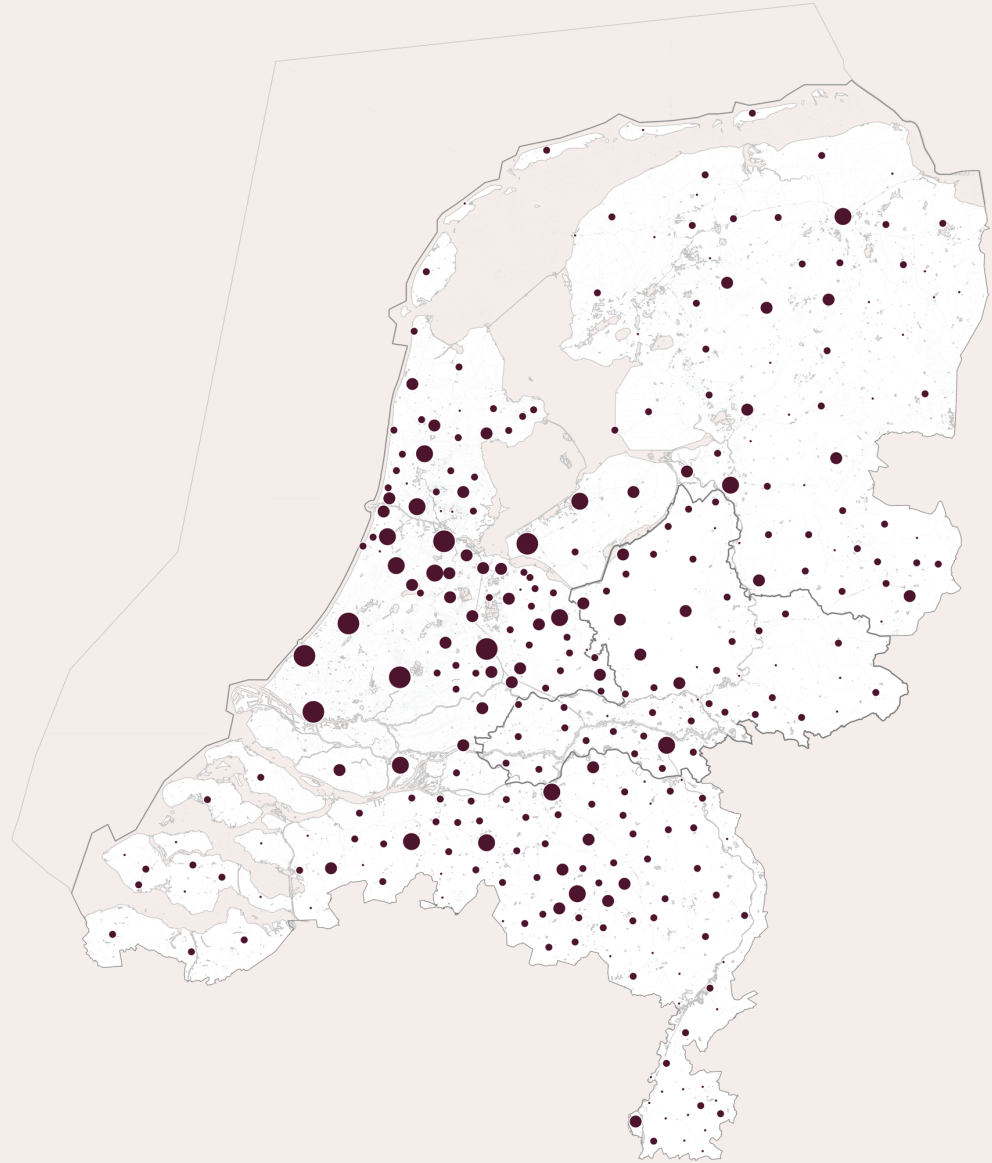
efficiency



the distribution of small and generic
versus large and unique components

Housing crisis

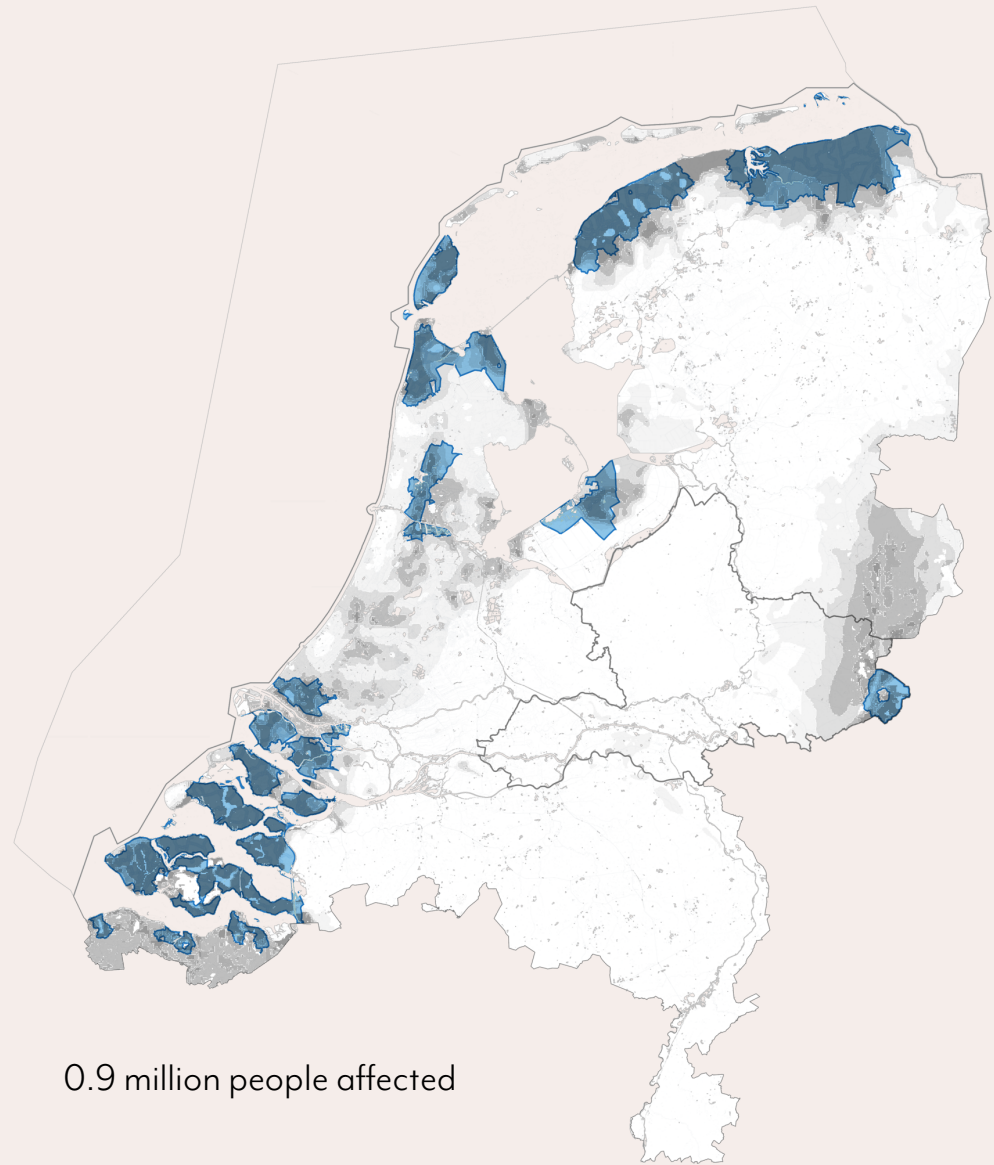
1 million homes to be built



Housing crisis

1 million homes to be built

- Salinisation

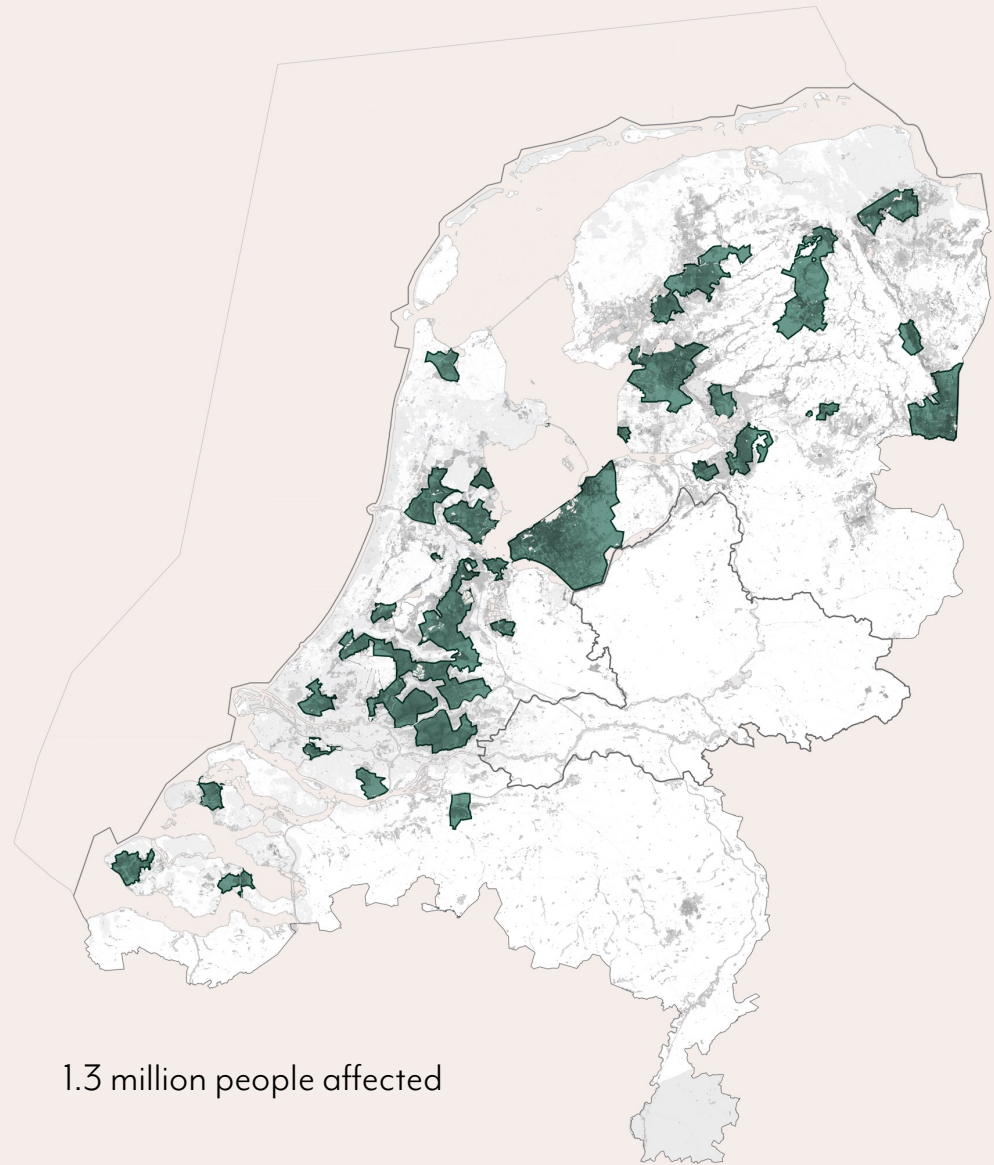


0.9 million people affected

Housing crisis

1 million homes to be built

- Salinisation
- Subsidence

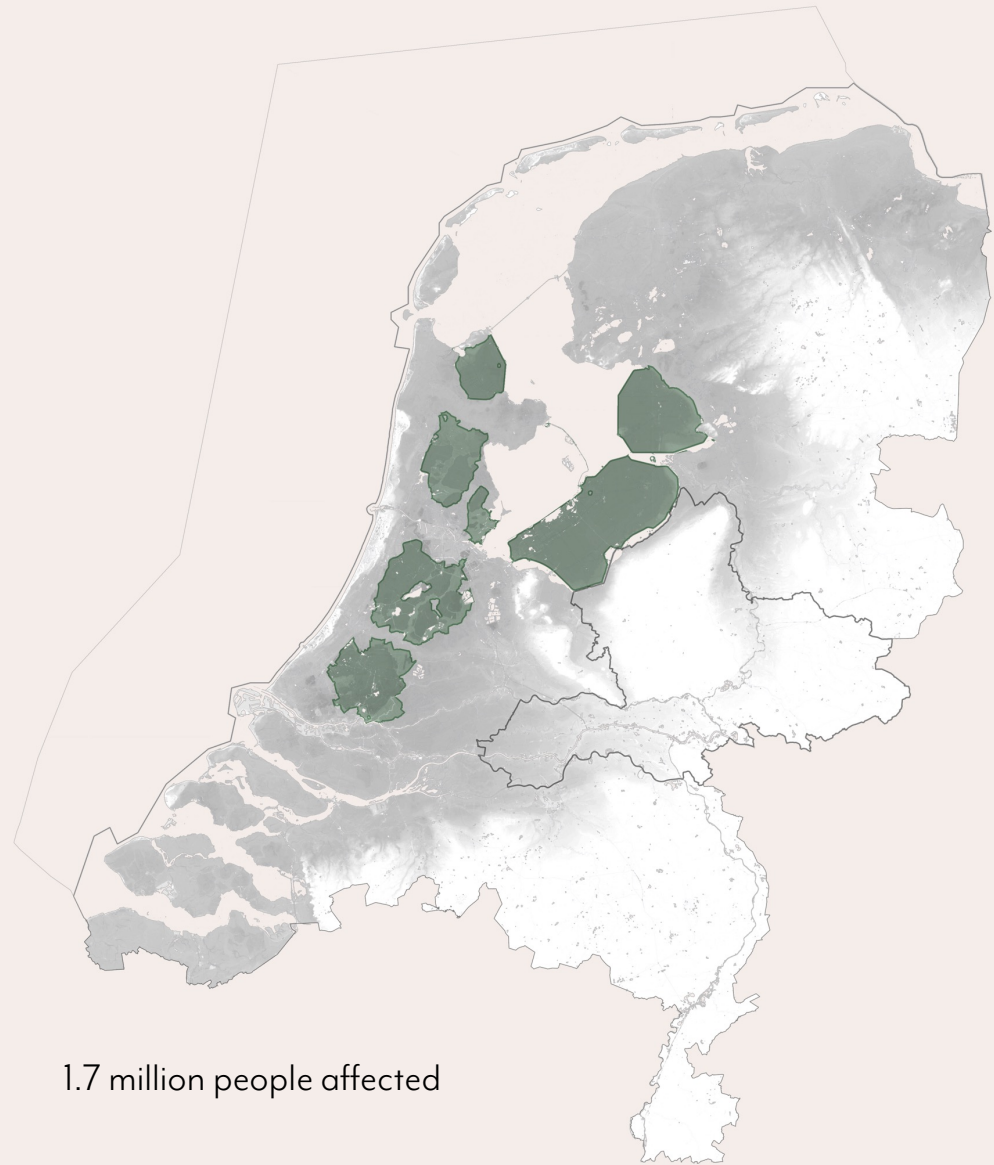


1.3 million people affected

Housing crisis

1 million homes to be built

- Salinisation
- Subsidence
- Sea level rise

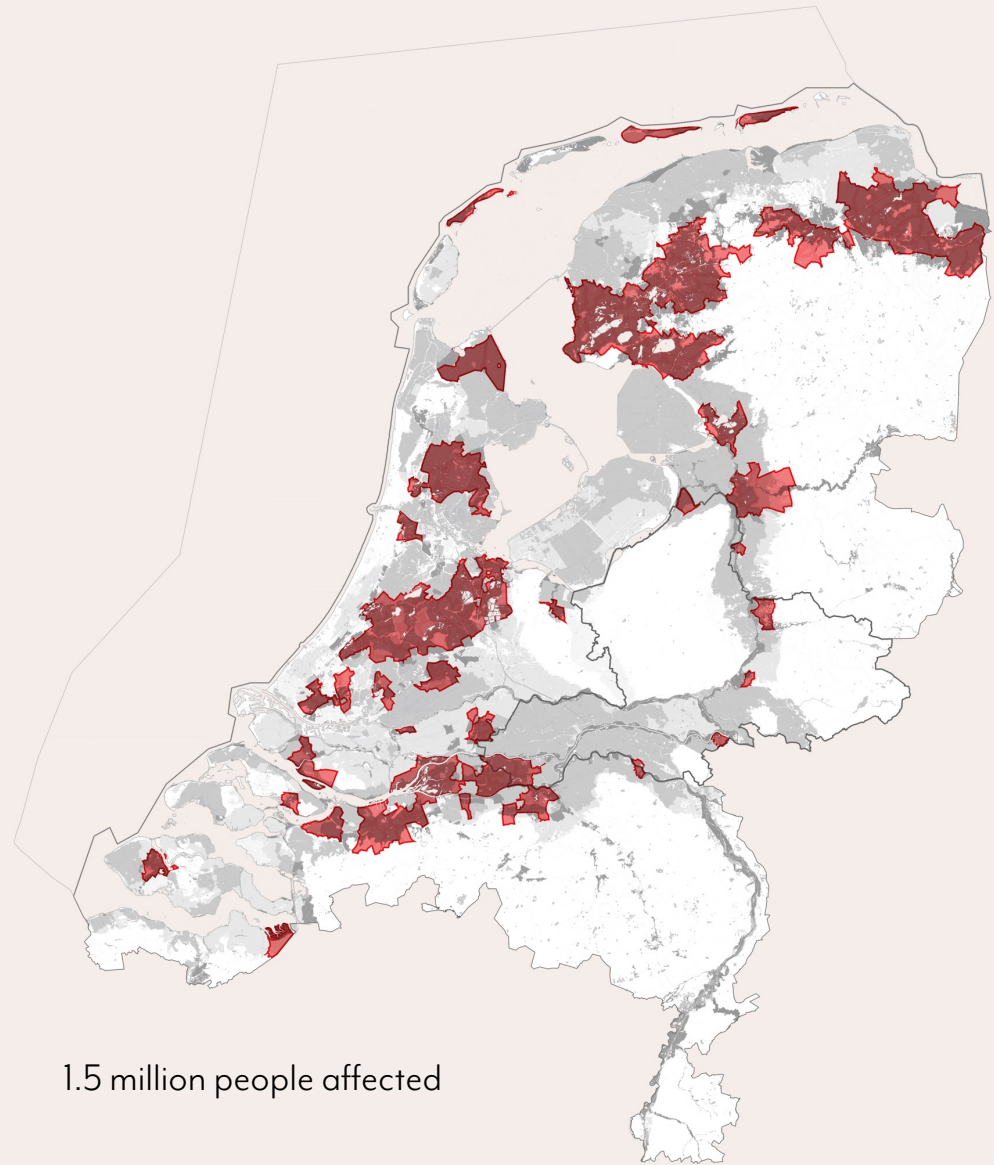


1.7 million people affected

Housing crisis

1 million homes to be built

- Salinisation
- Subsidence
- Sea level rise
- Flood risk

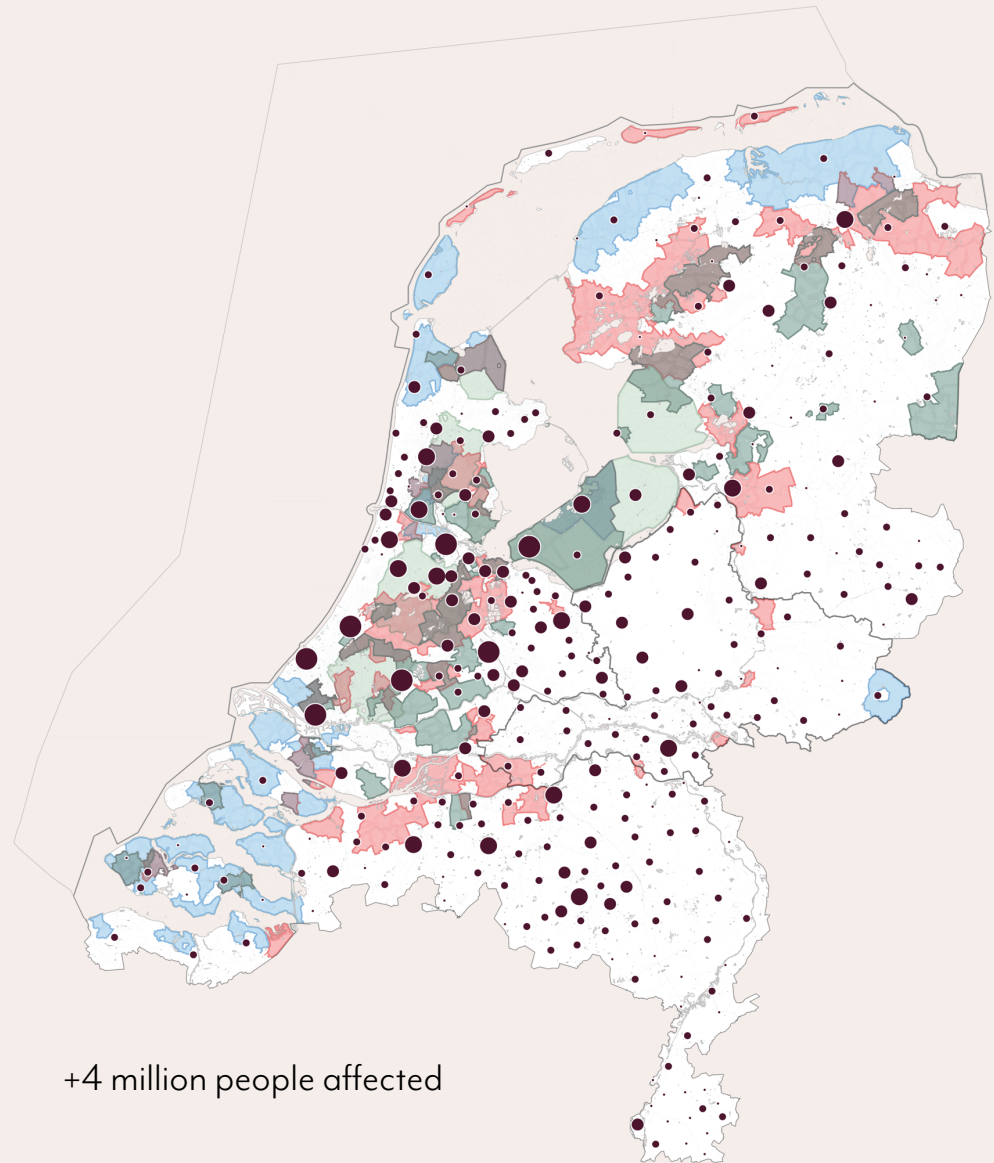


1.5 million people affected

Housing crisis

1 million homes to be built

- Salinisation
- Subsidence
- Sea level rise
- Flood risk

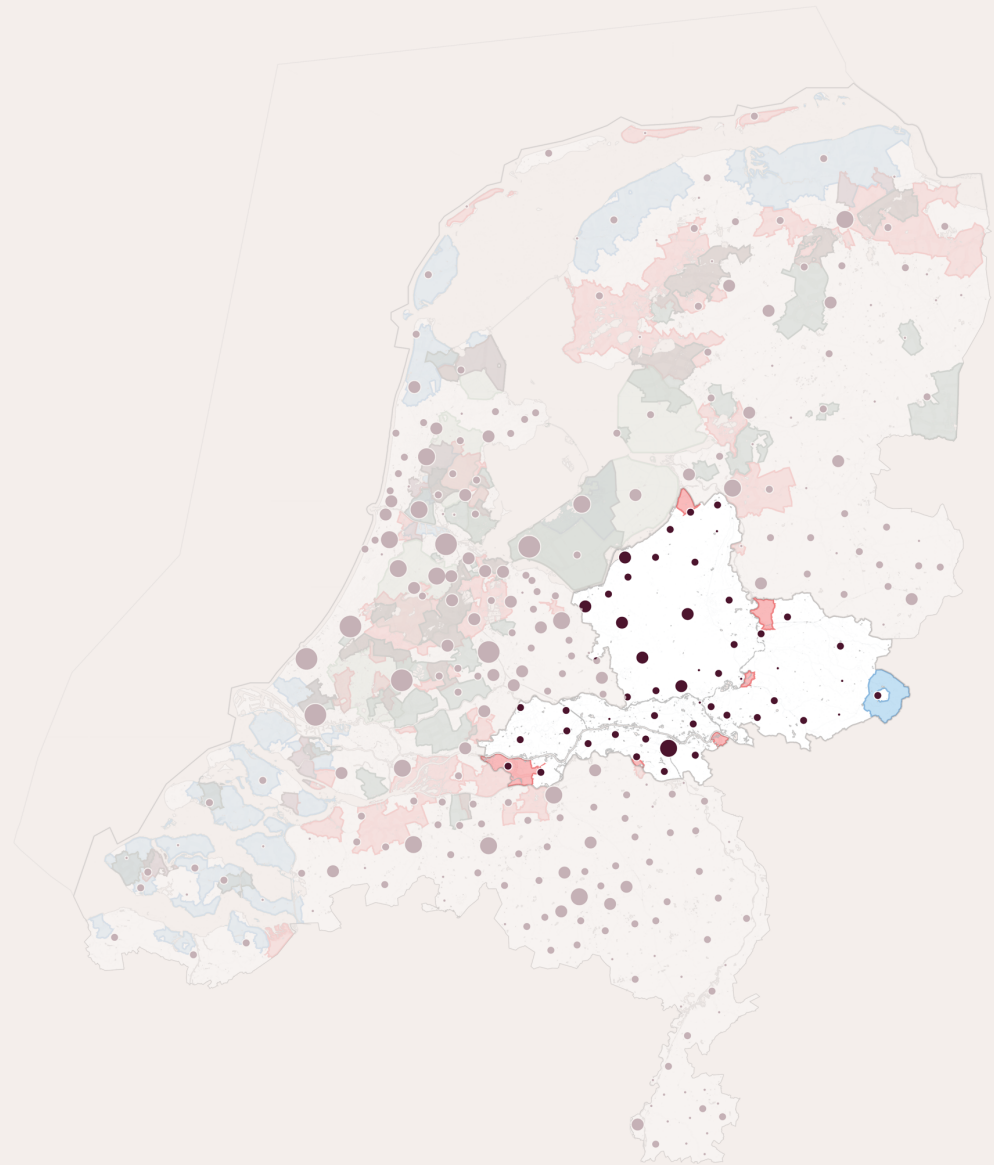


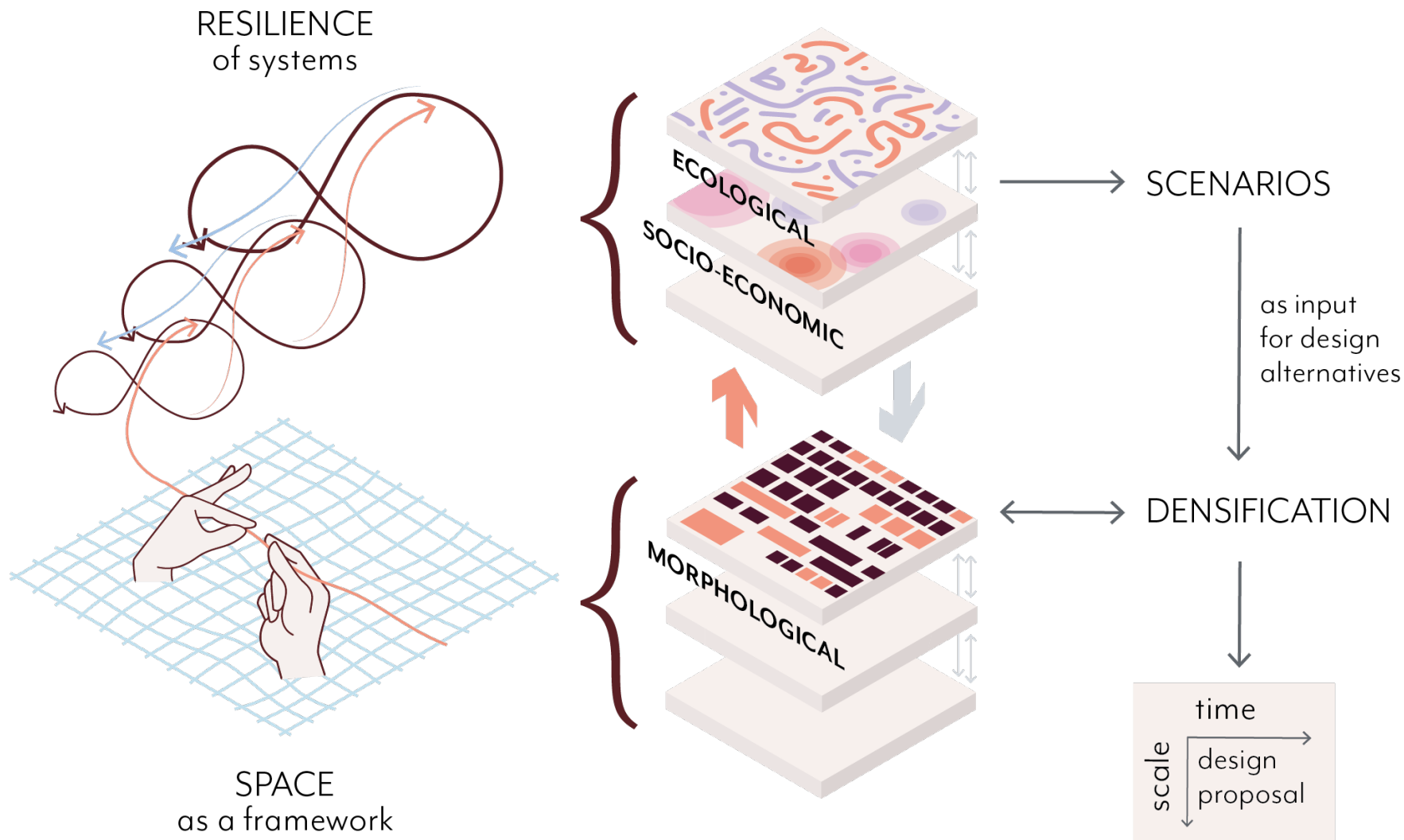
Housing crisis

1 million homes to be built

- Salinisation
- Subsidence
- Sea level rise
- Flood risk

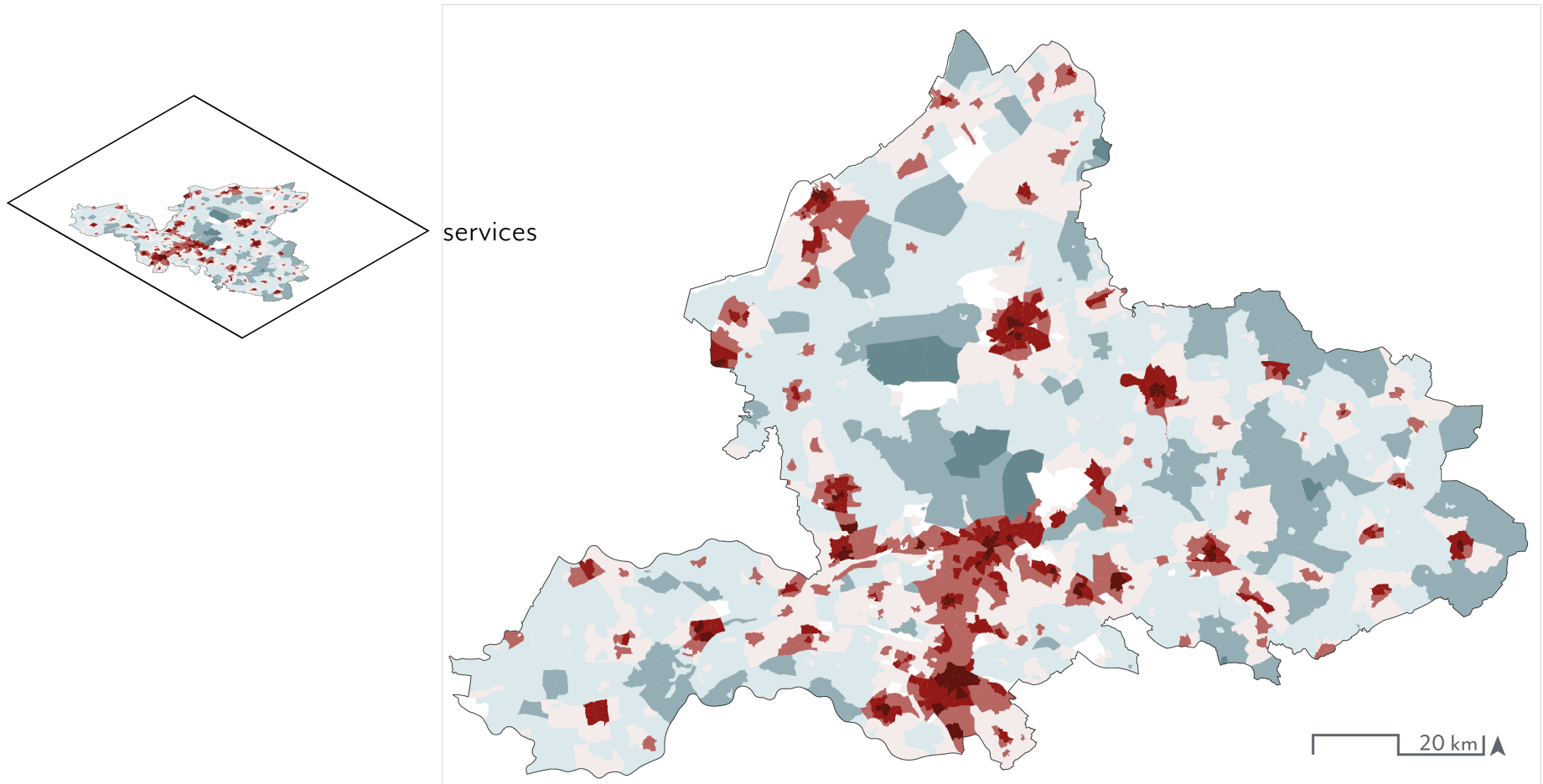
Focus on Gelderland



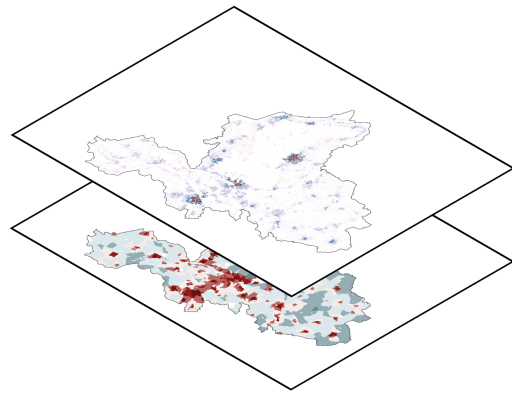


Where to densify?

Regional densification strategy

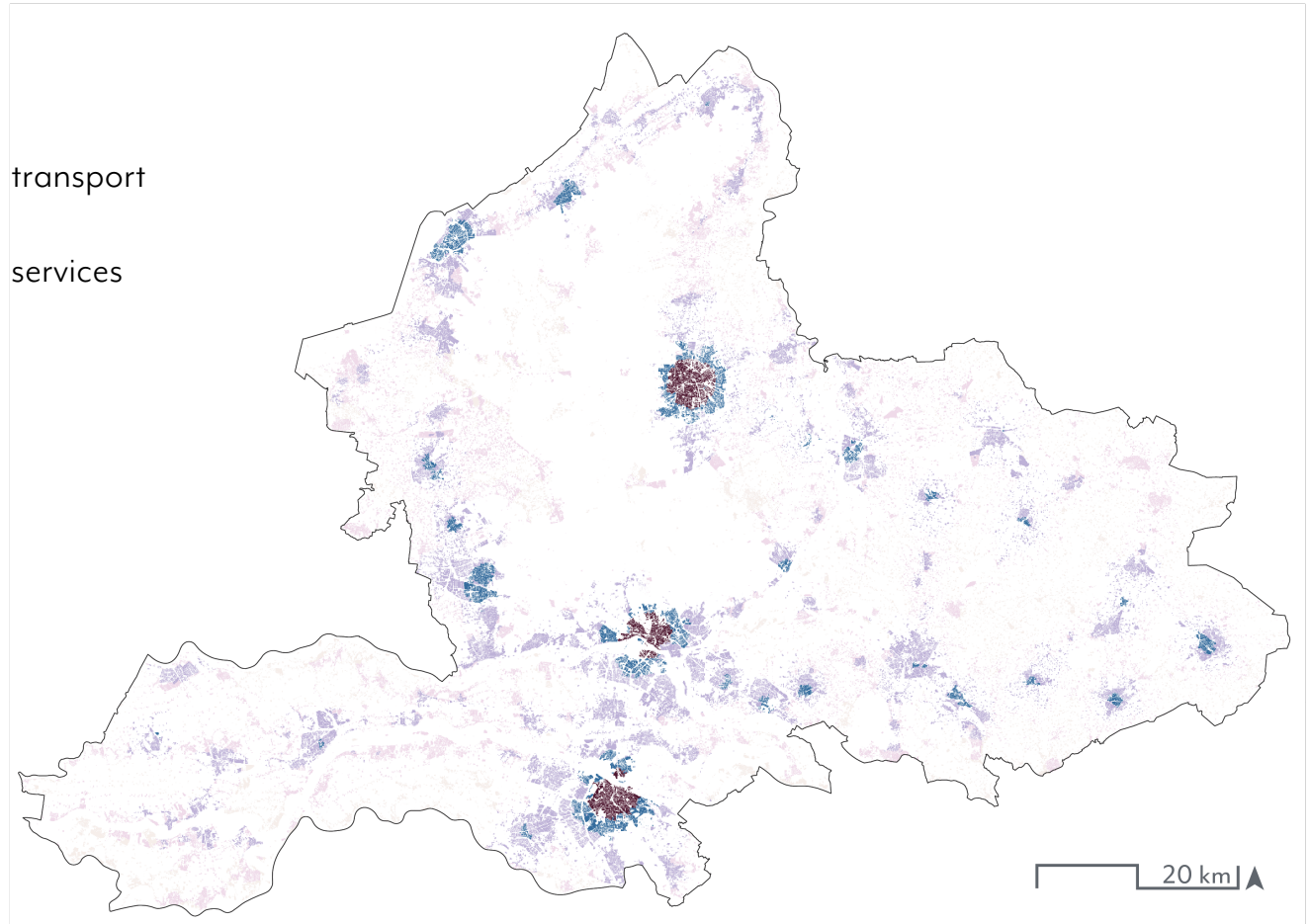


Regional densification strategy

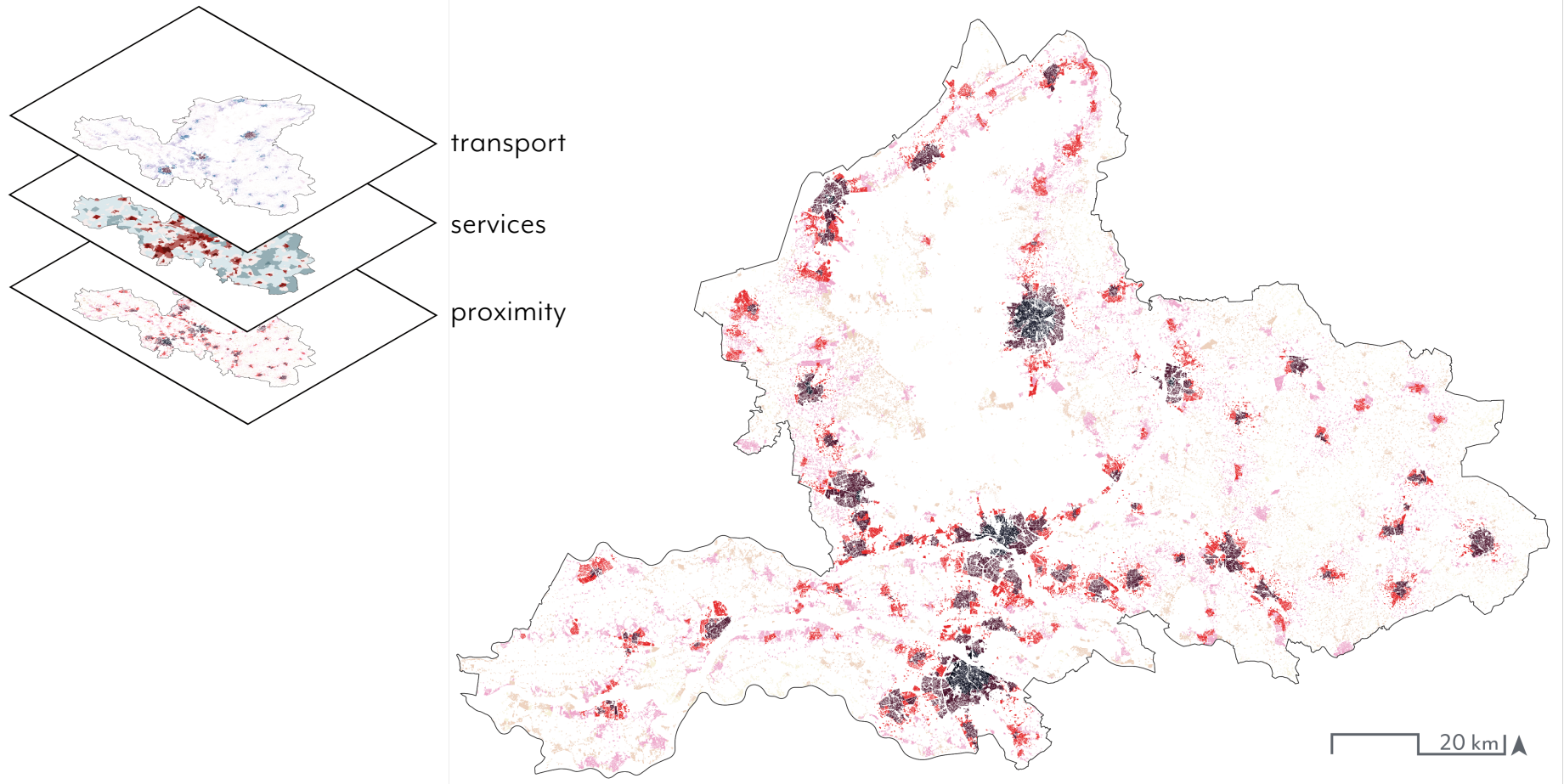


transport

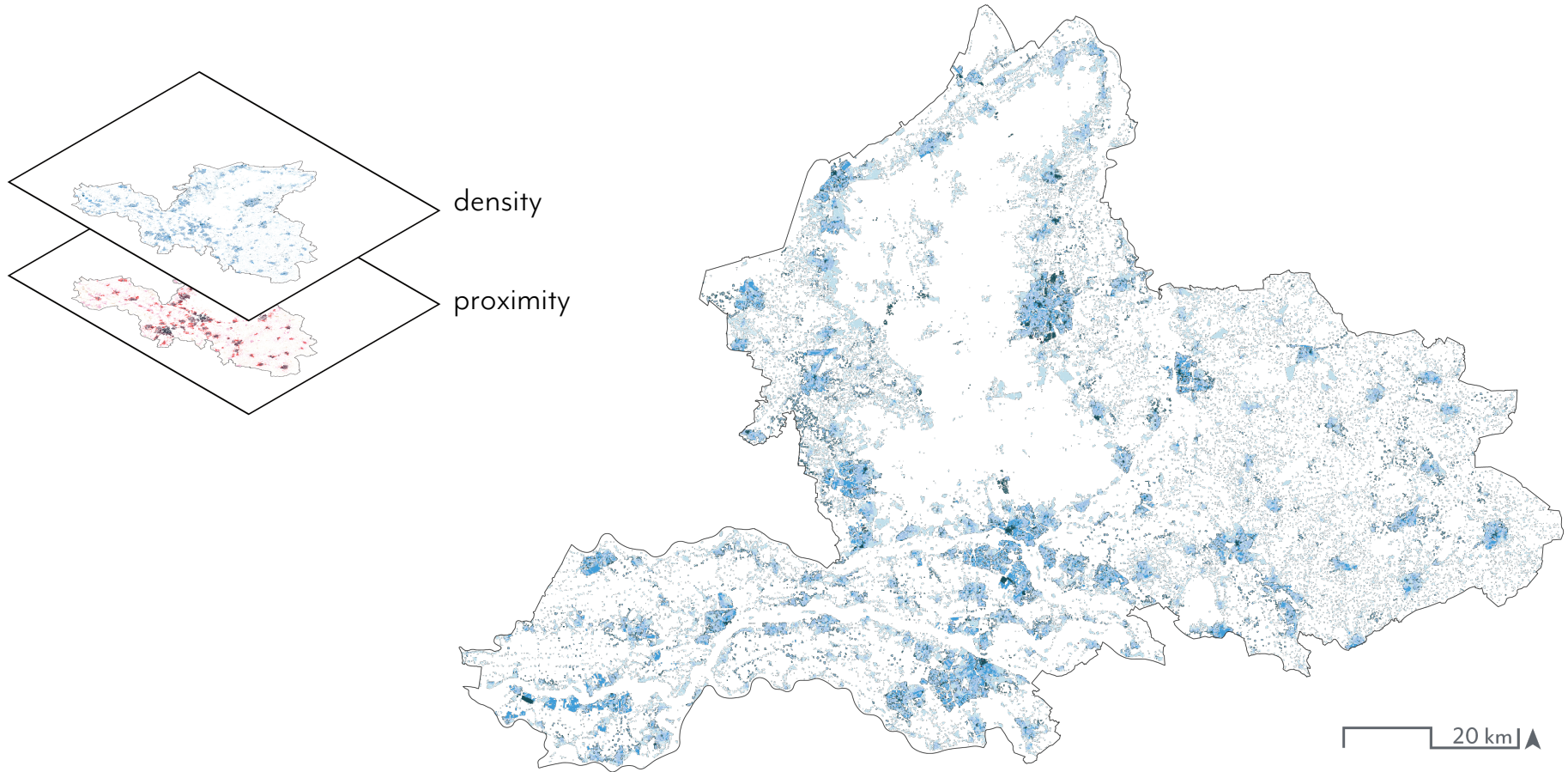
services



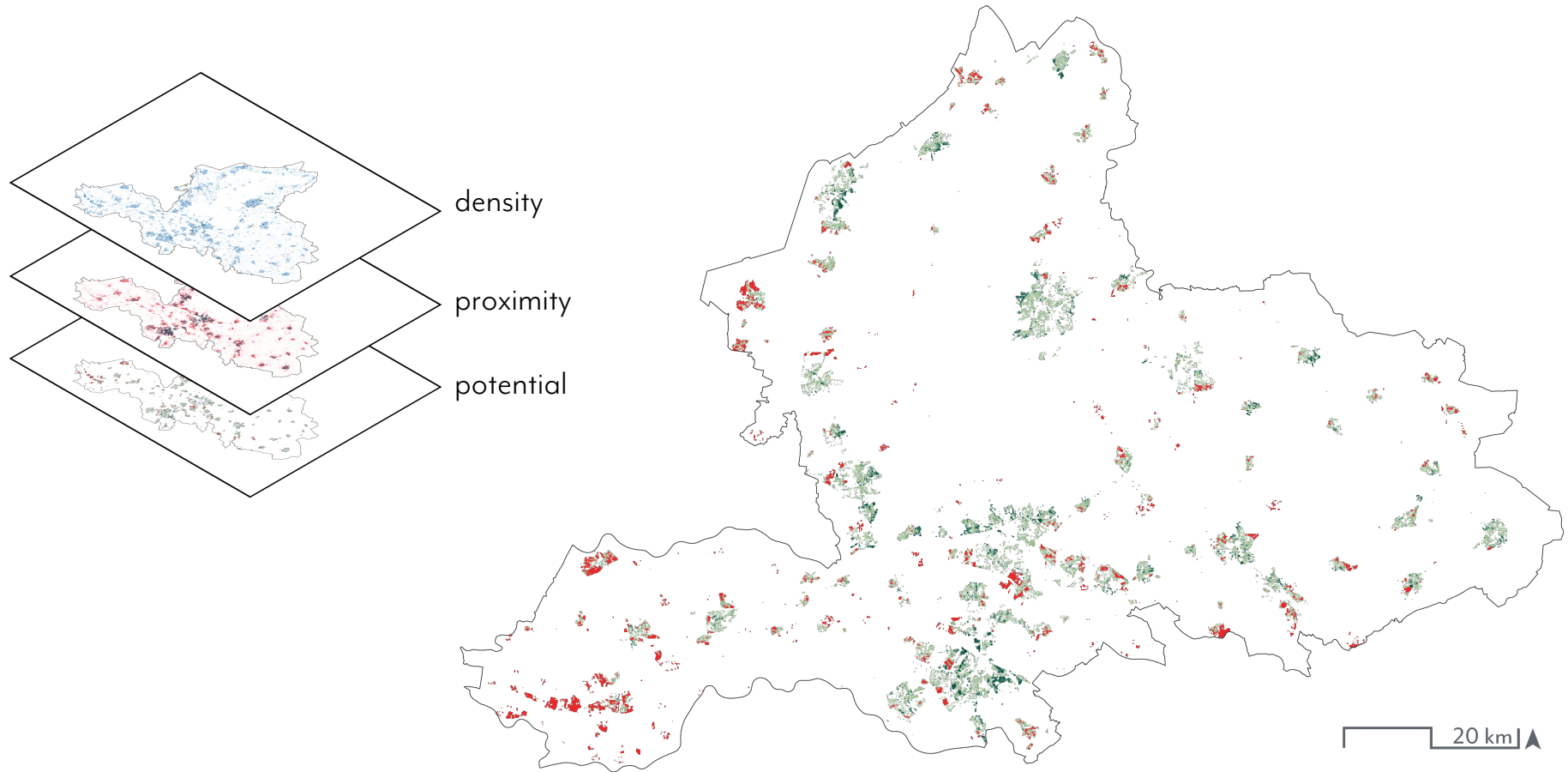
Regional densification strategy



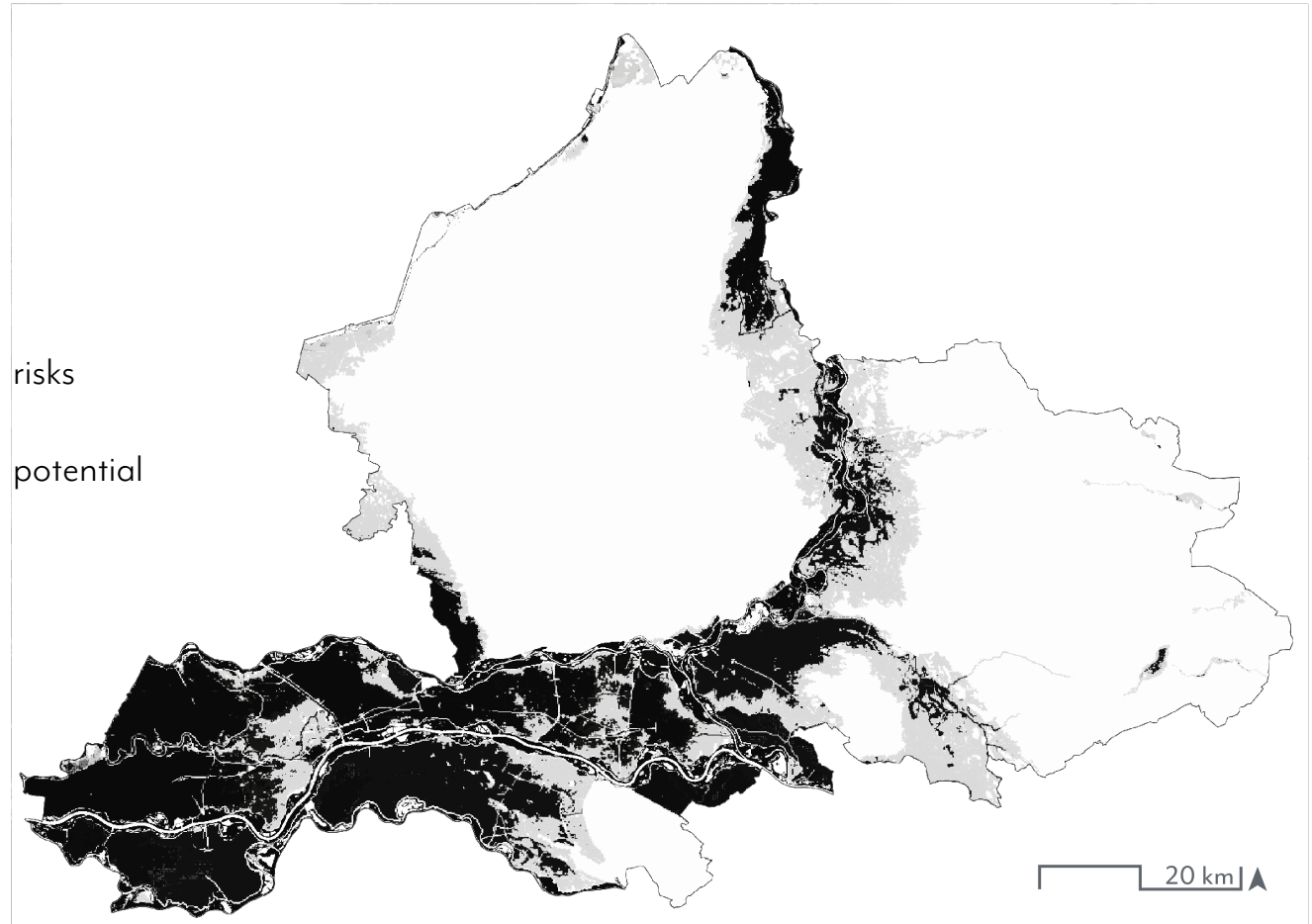
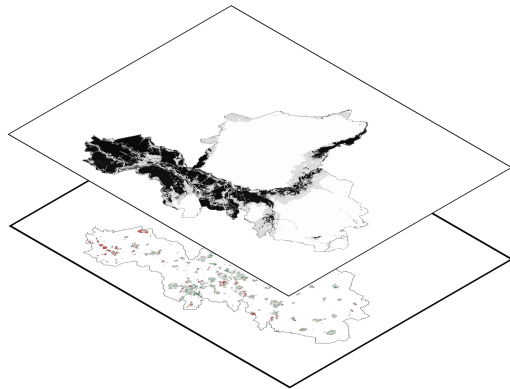
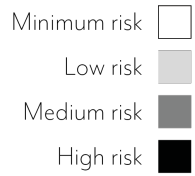
Regional densification strategy



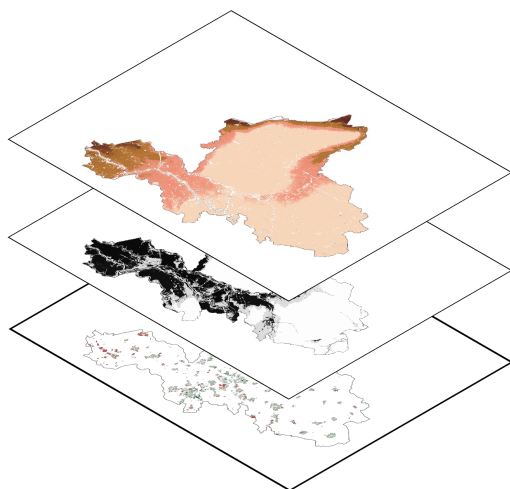
Regional densification strategy



Regional densification strategy



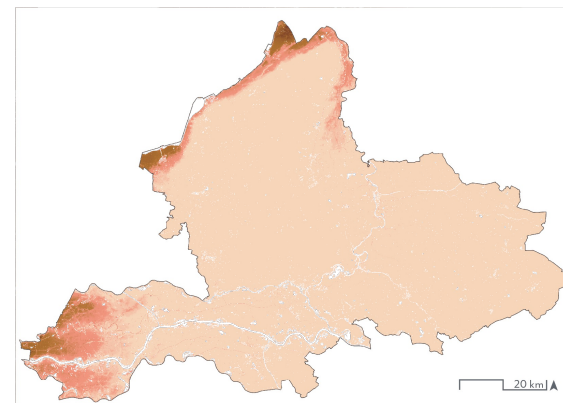
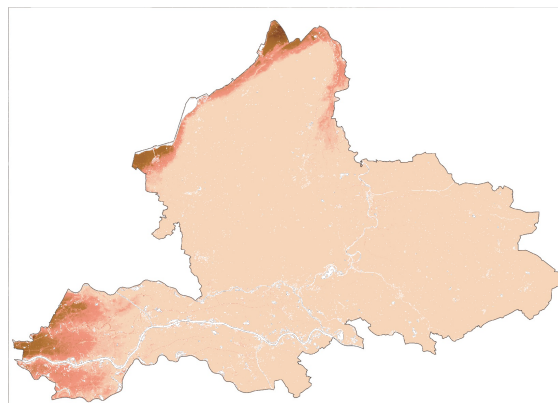
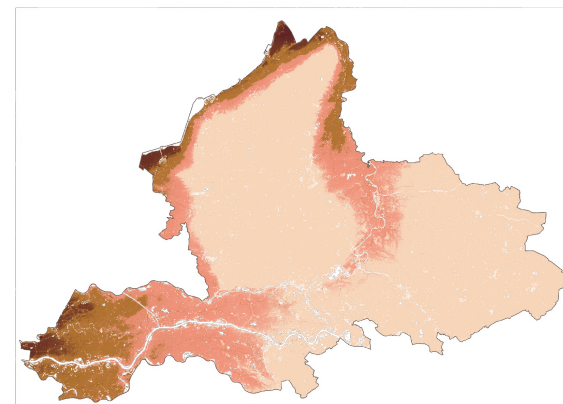
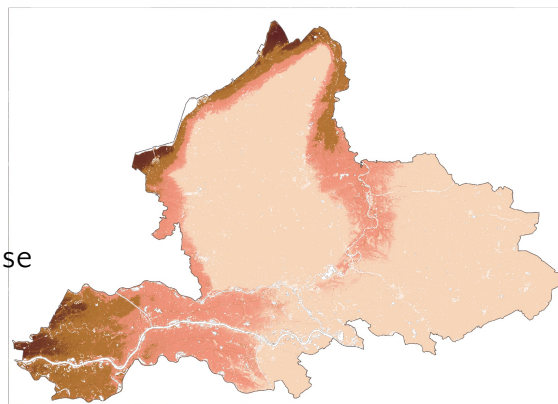
Regional densification strategy



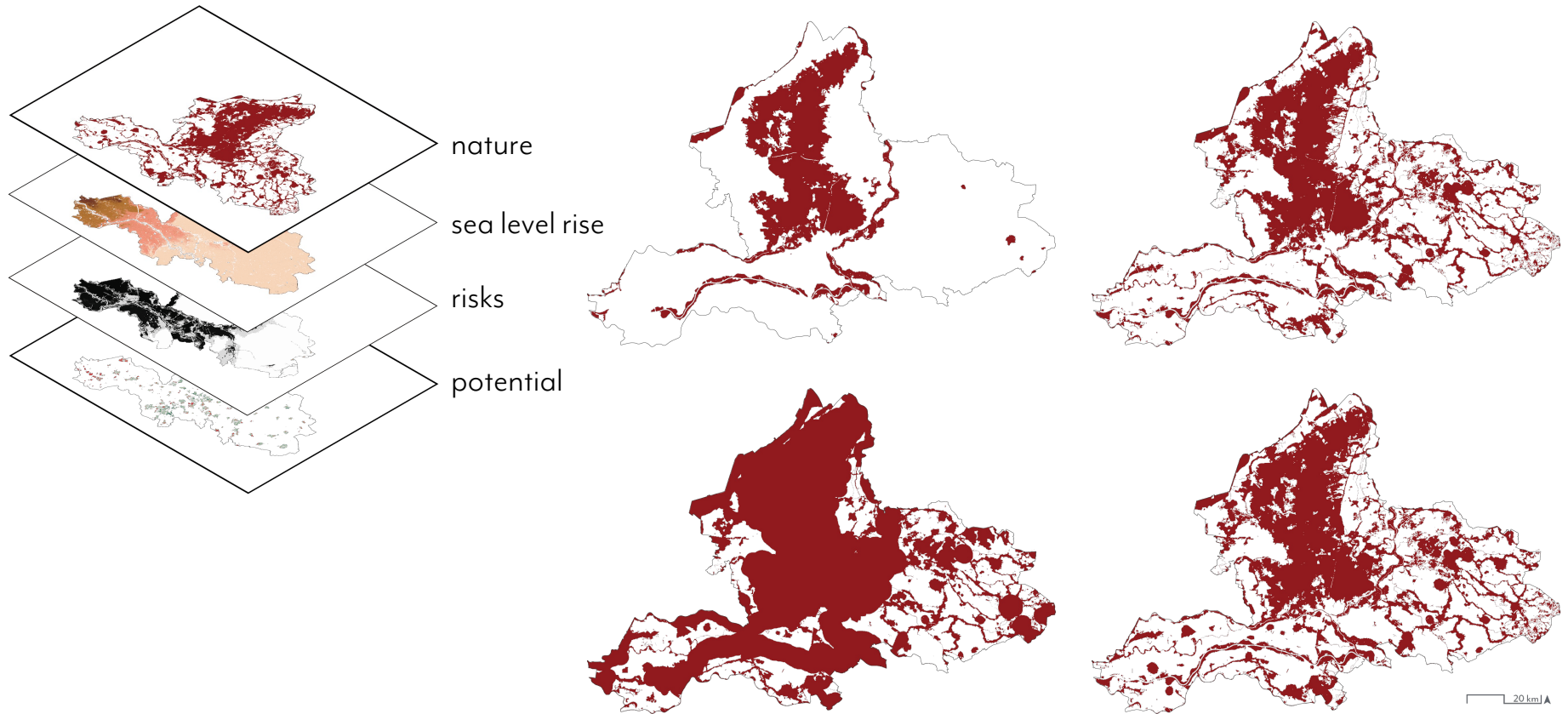
sea level rise

risks

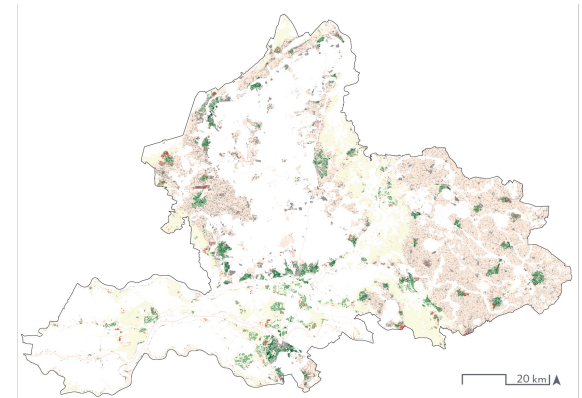
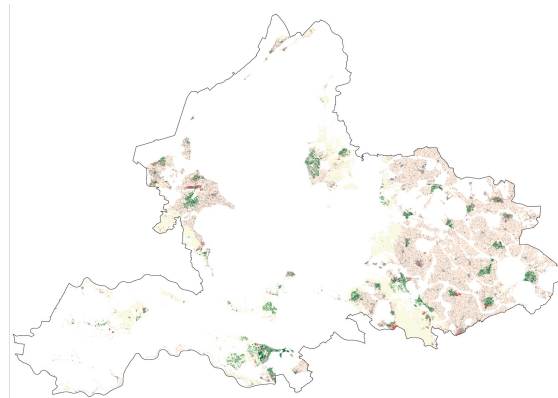
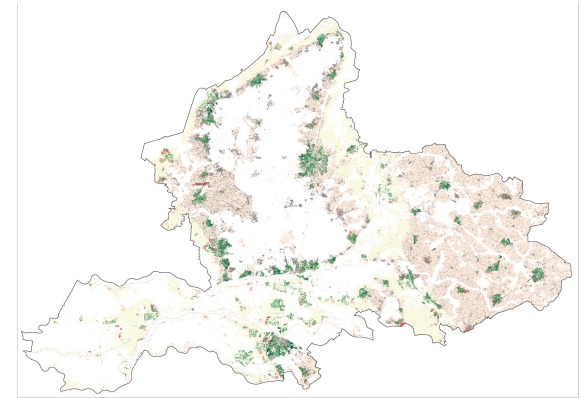
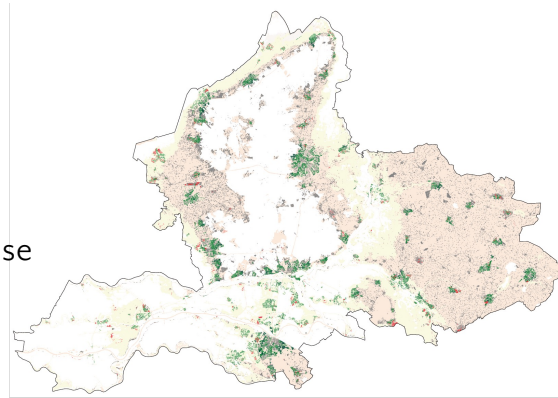
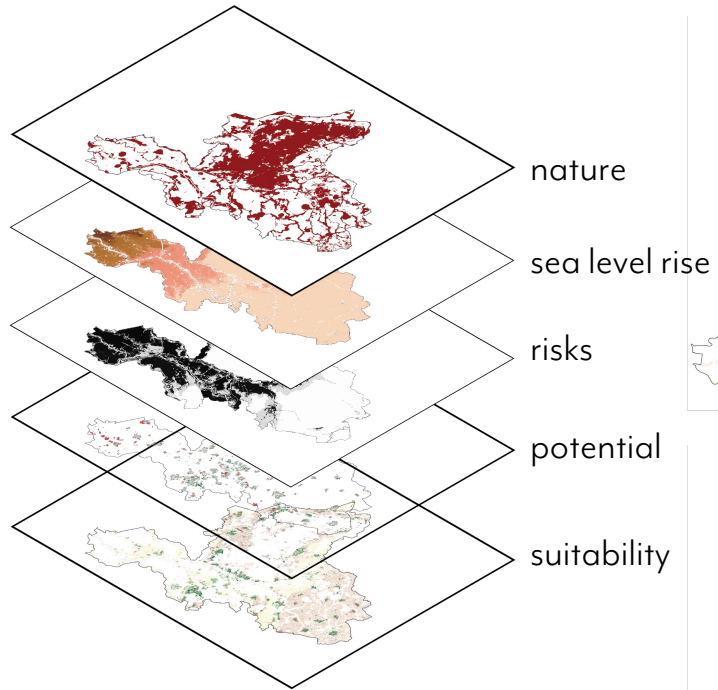
potential



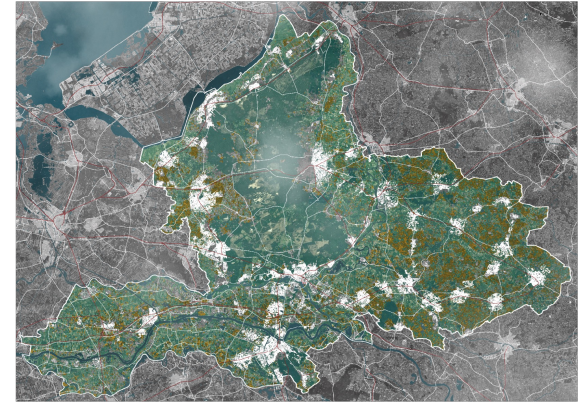
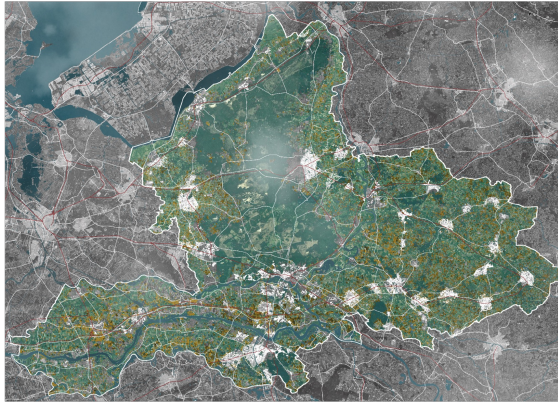
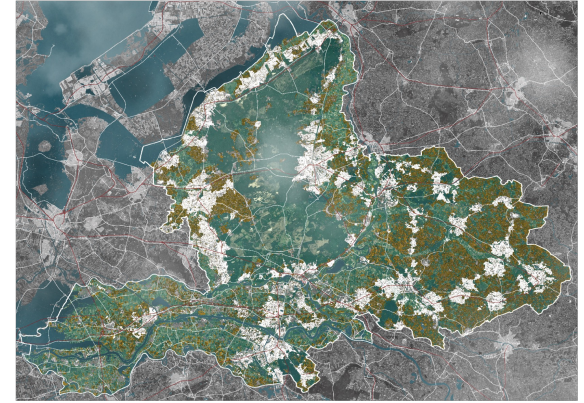
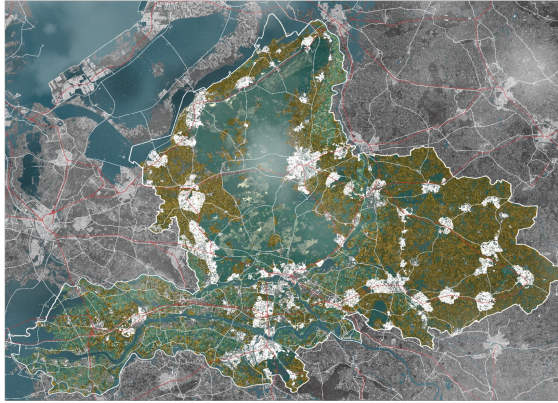
Regional densification strategy

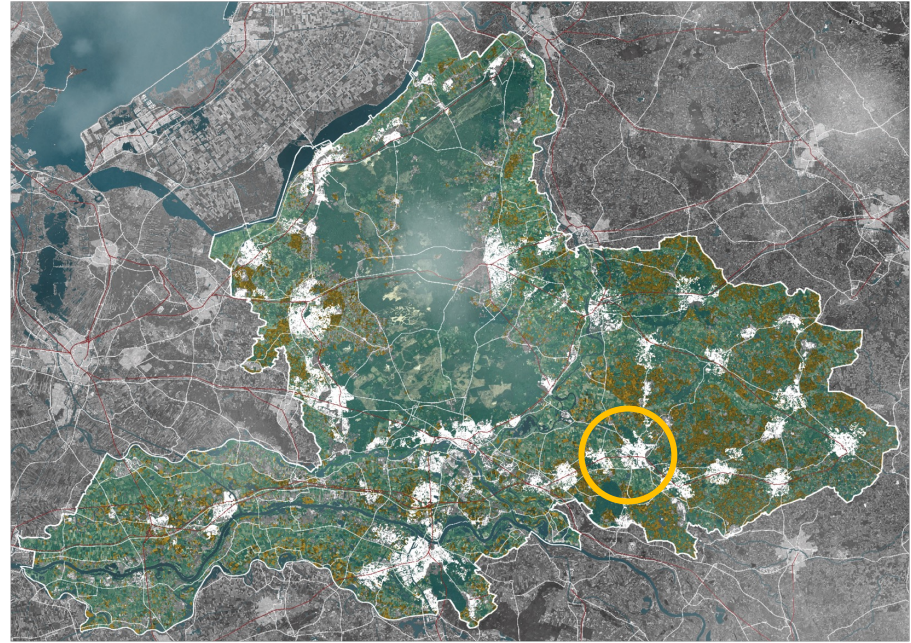
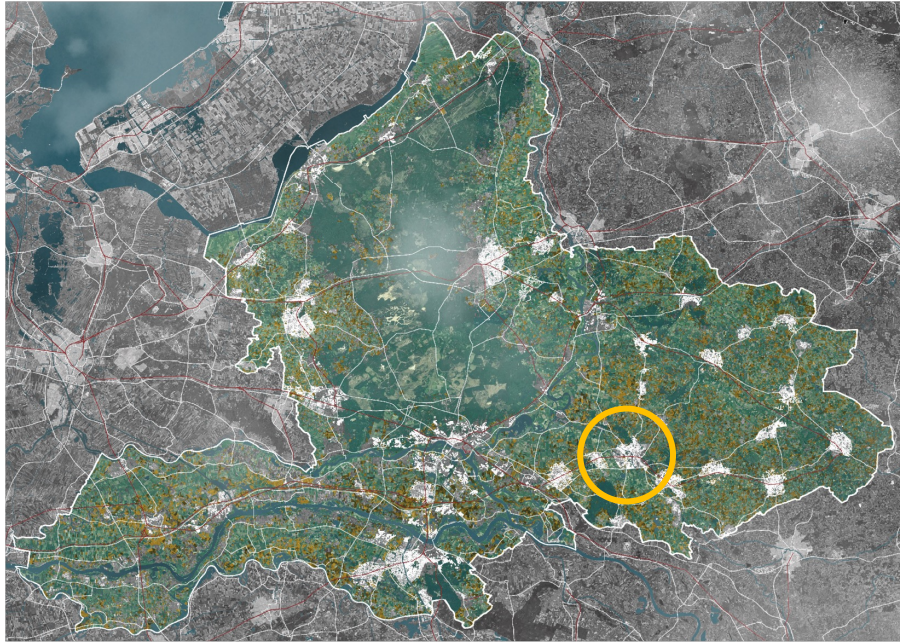
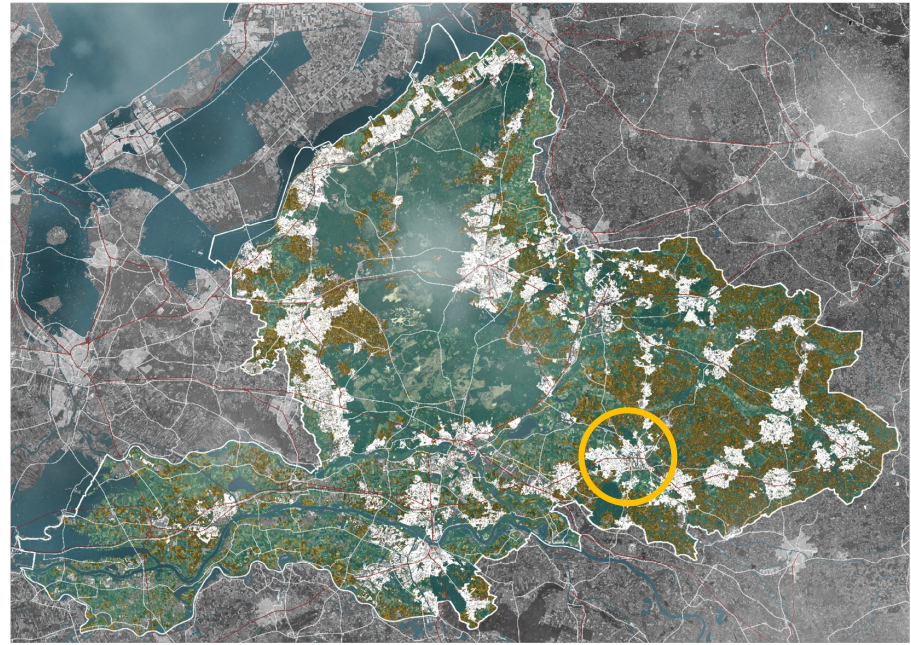
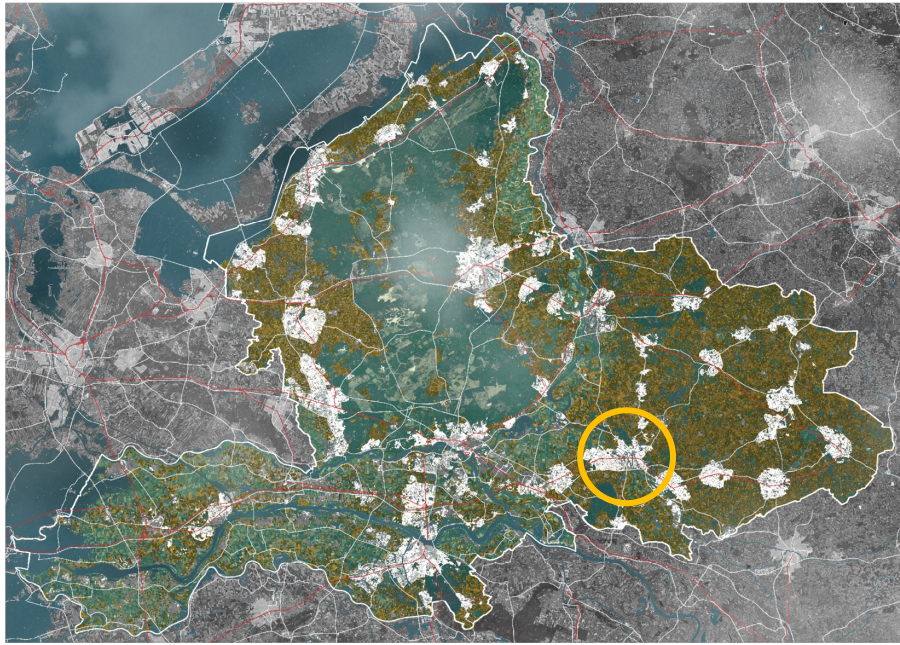


Regional densification strategy



Regional densification strategy



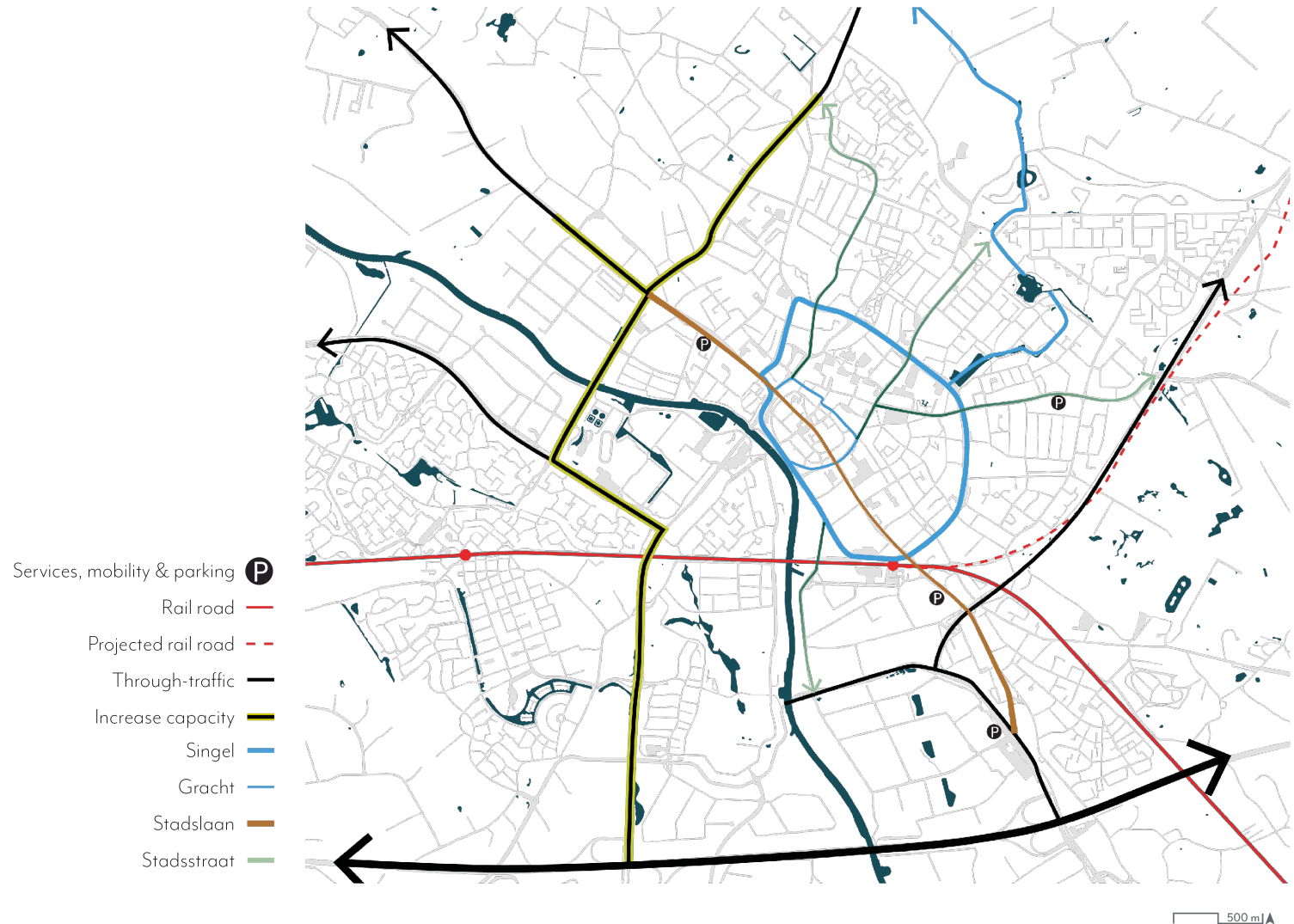


How can Doetinchem become more resilient?

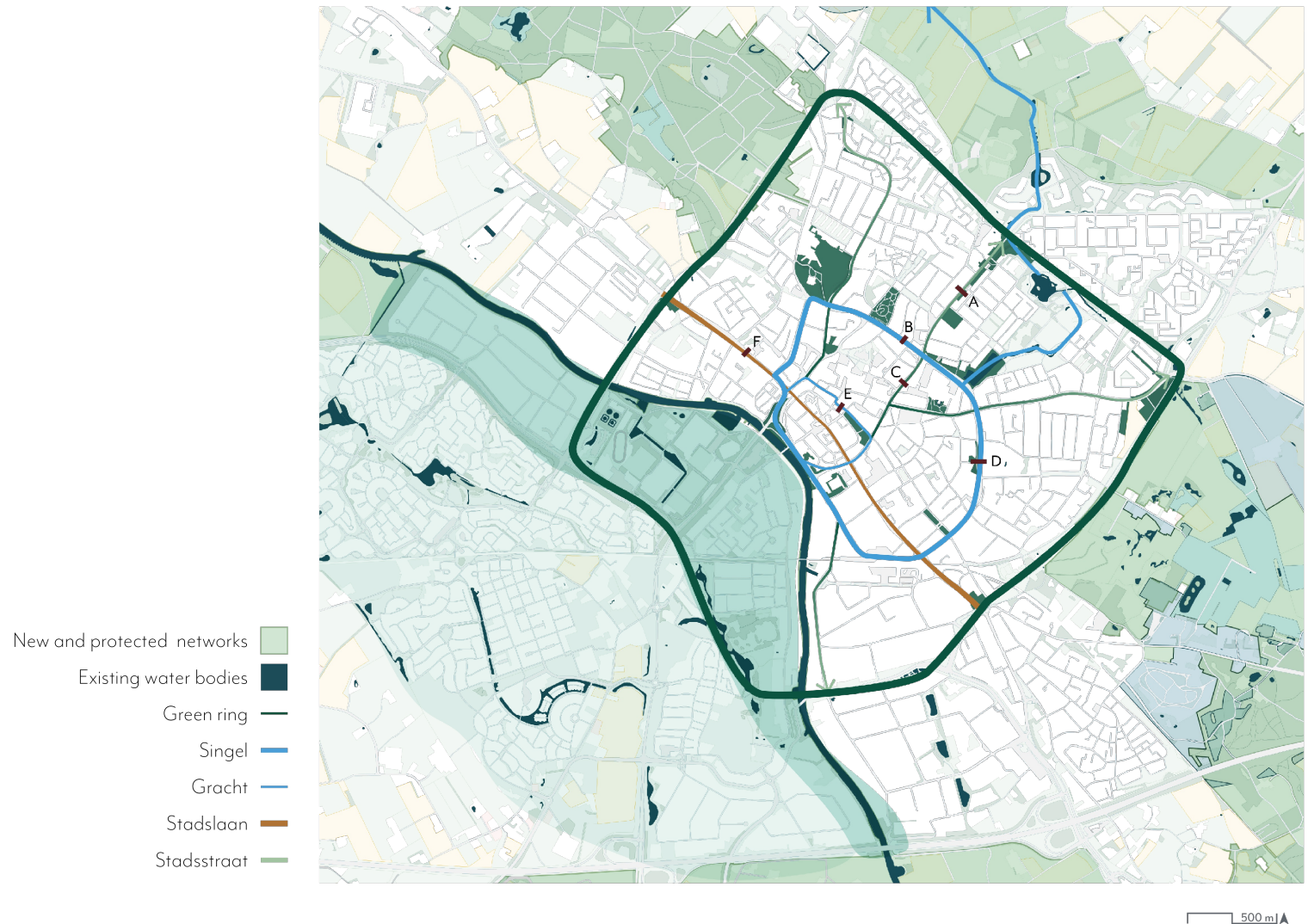
Doetinchem



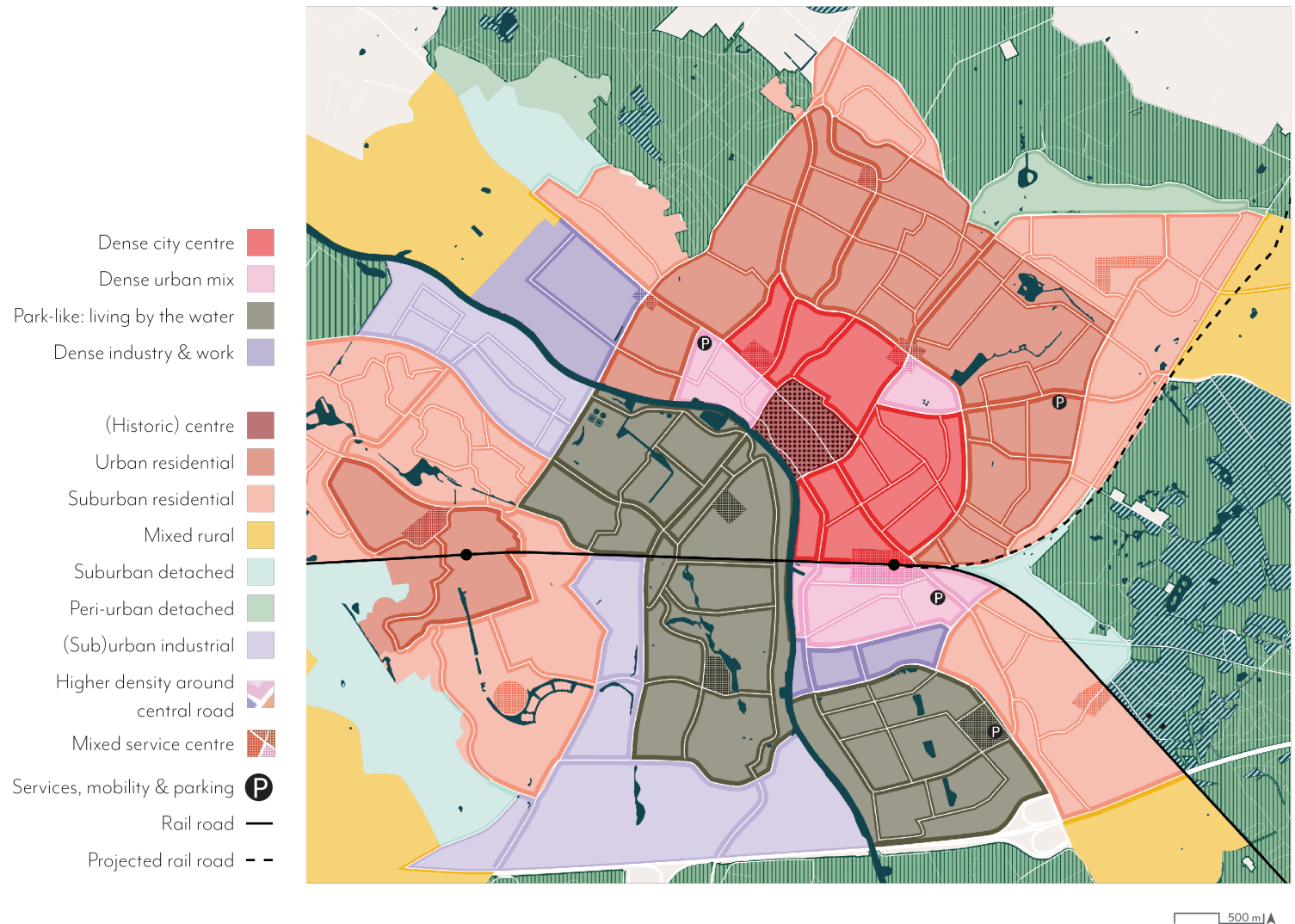
A new urban network



A nature inclusive city

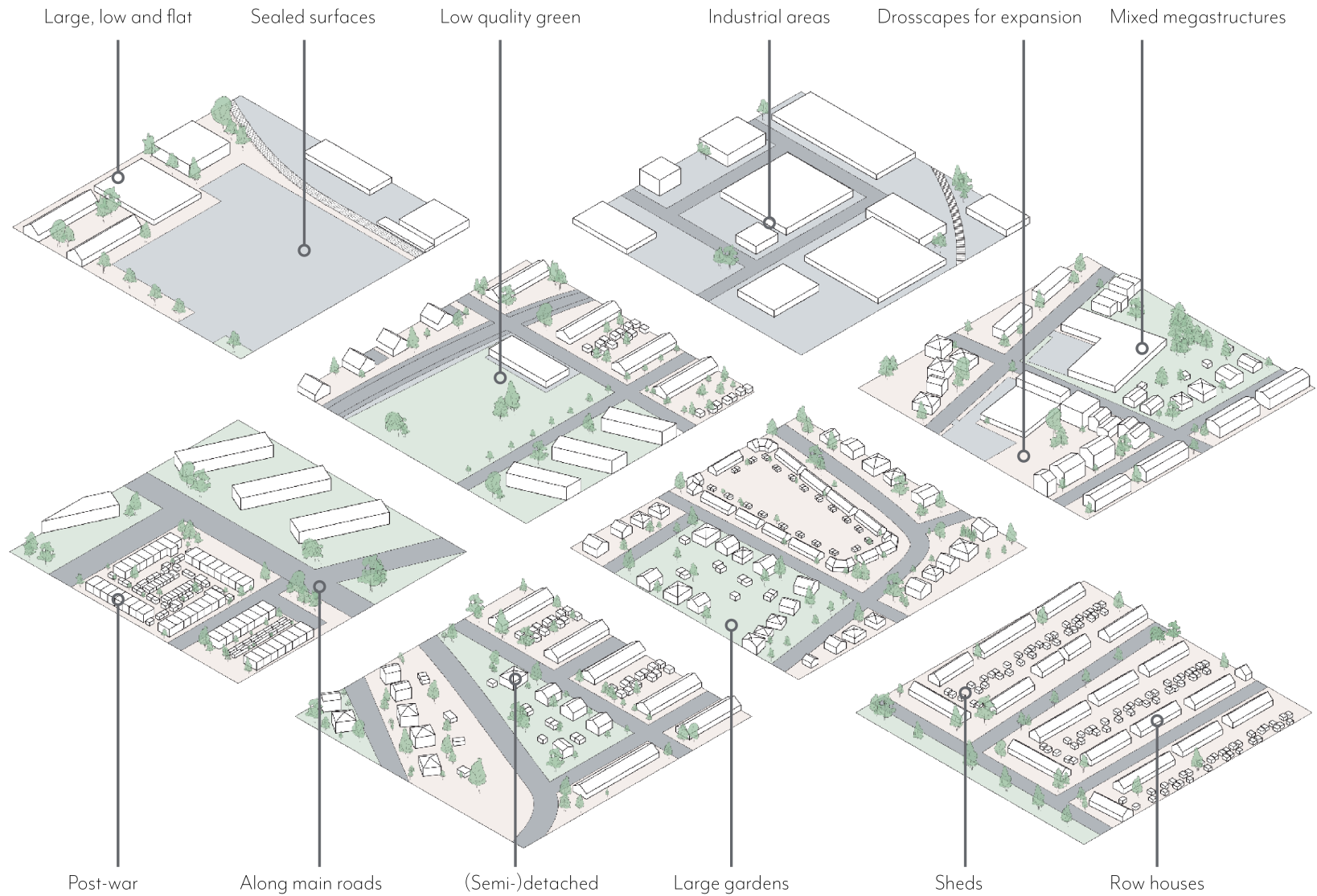


Diverse urban characters

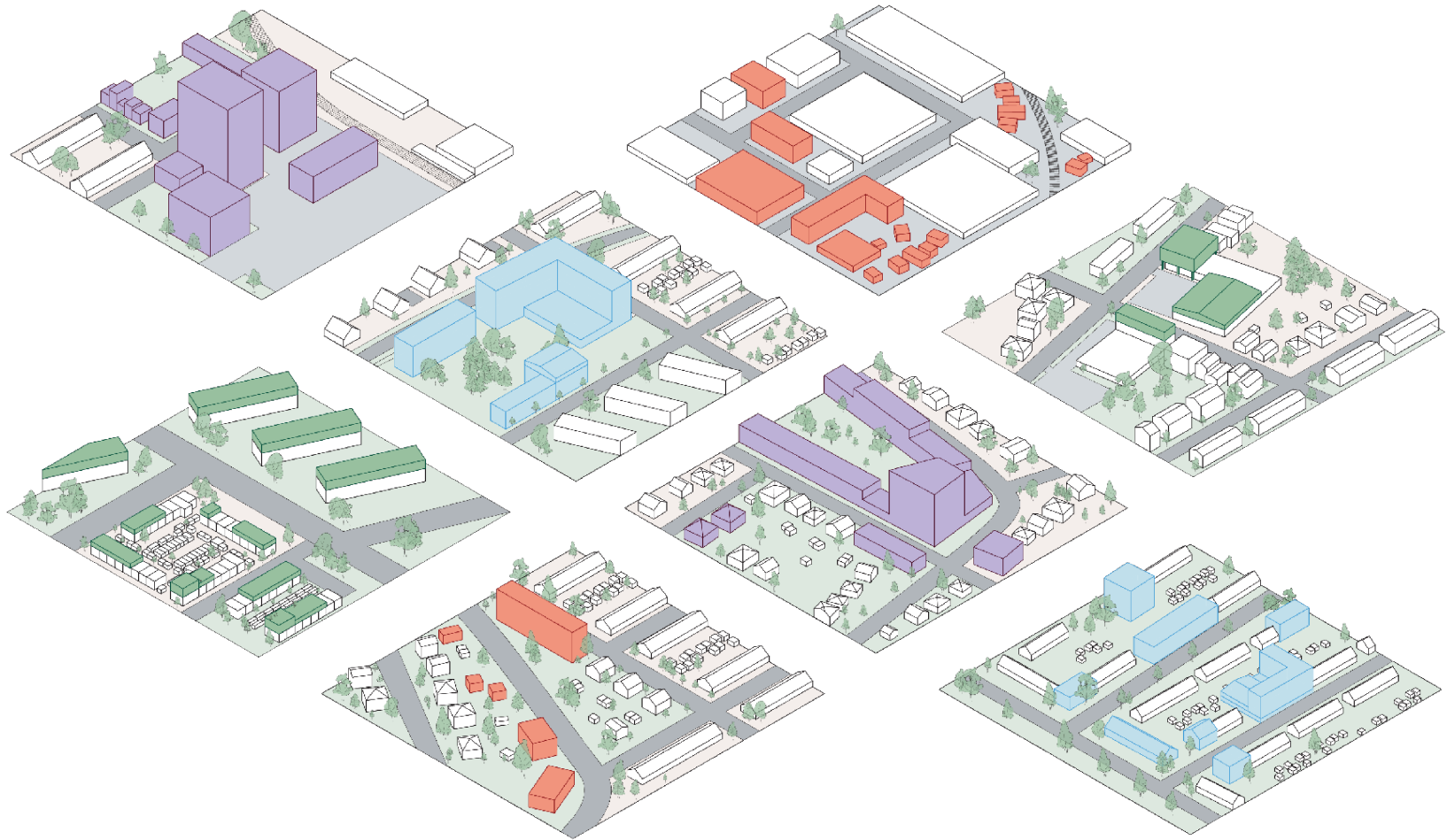


How to densify?

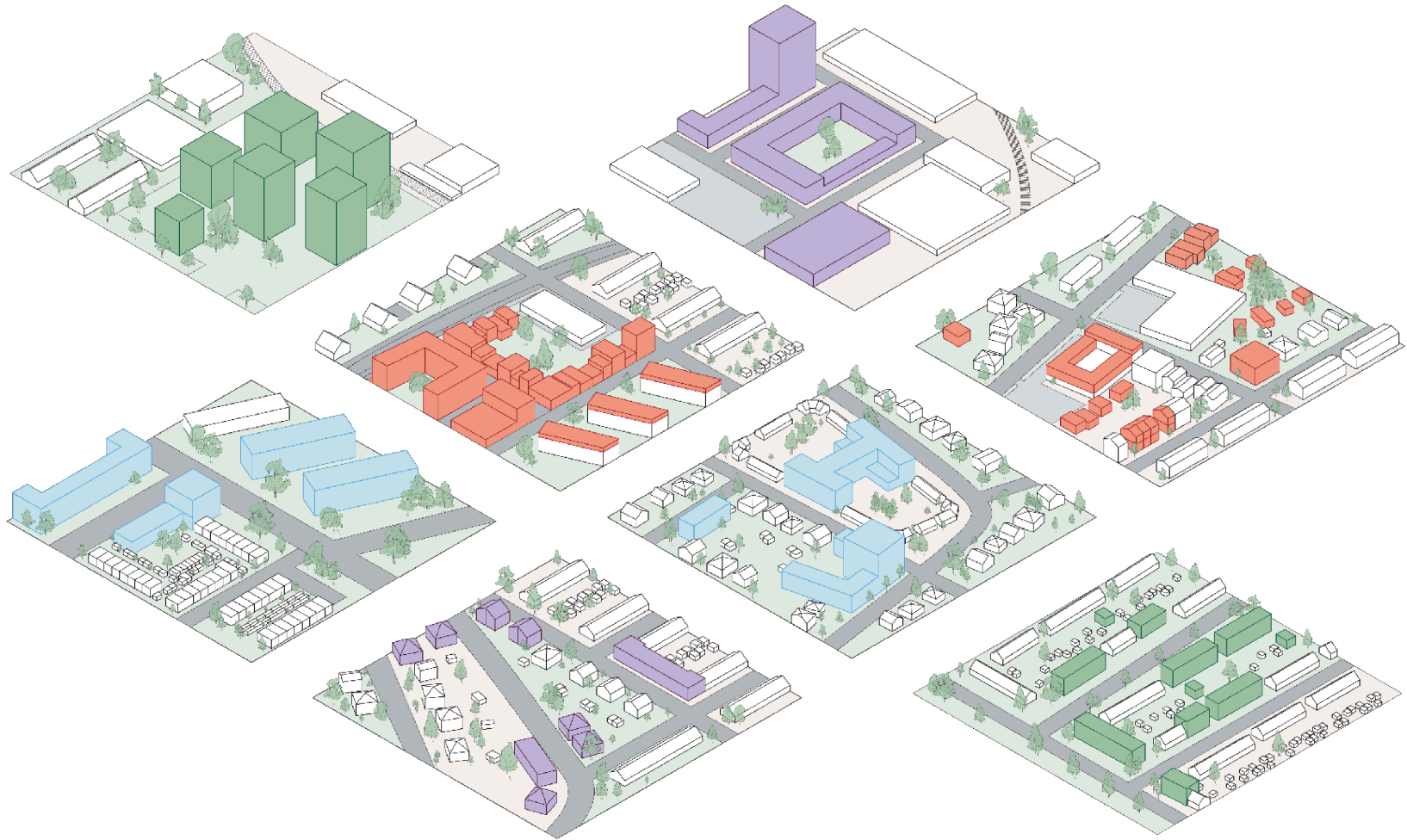
Spatial structures



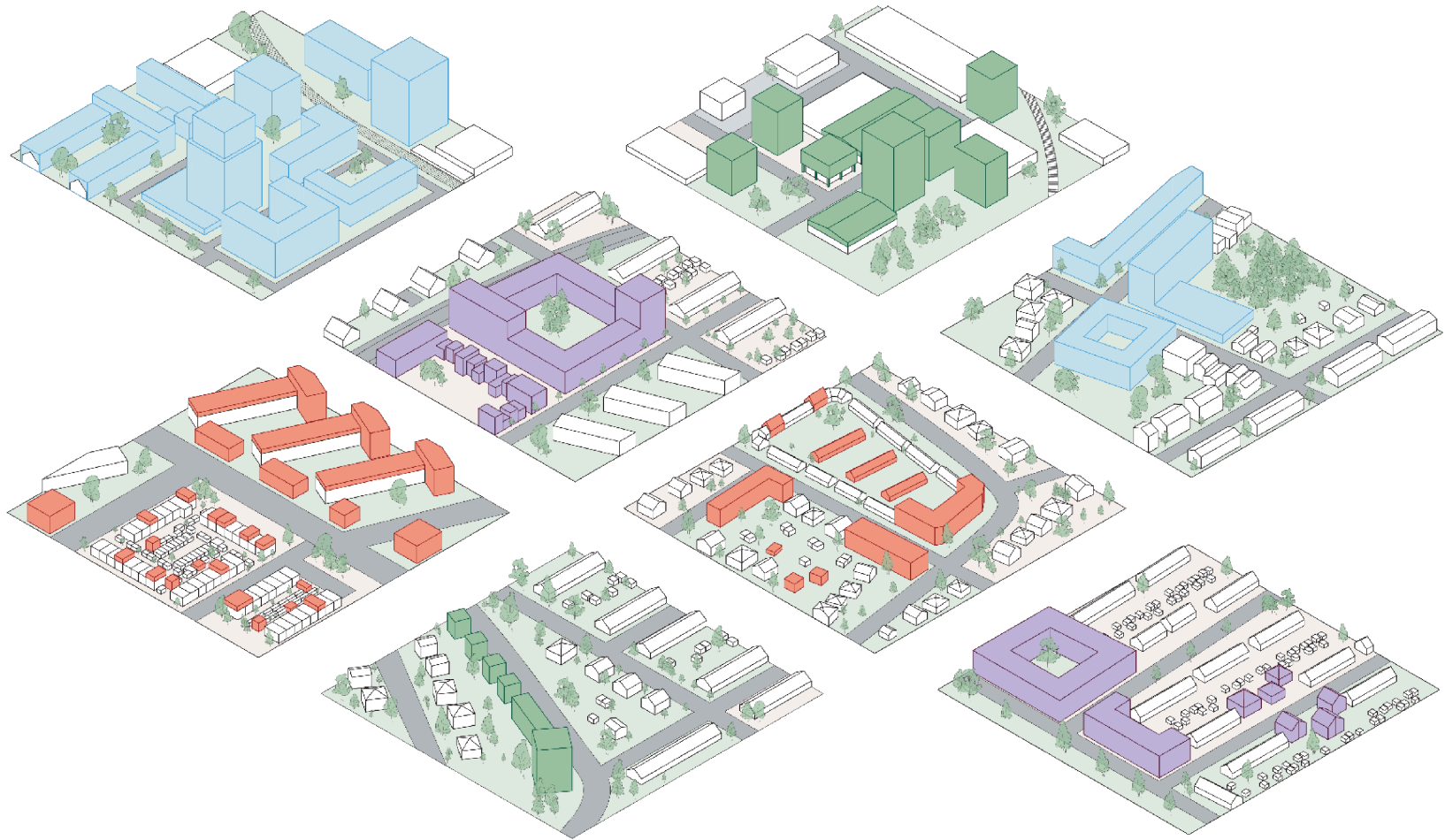
Spatial structures



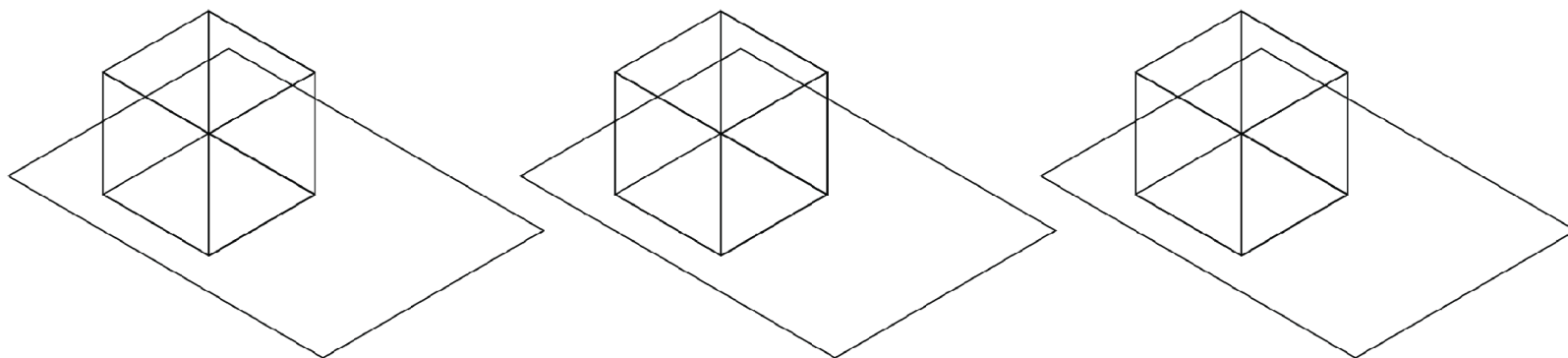
Spatial structures



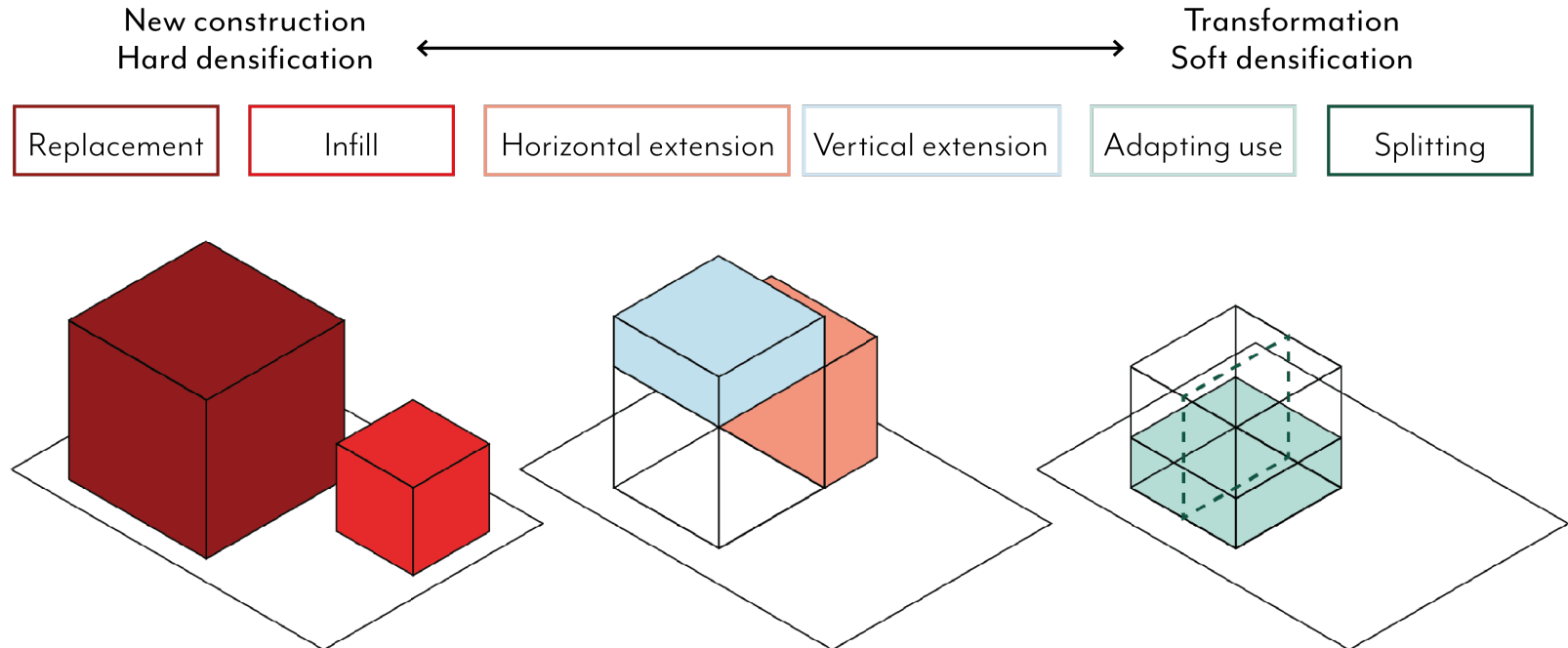
Spatial structures



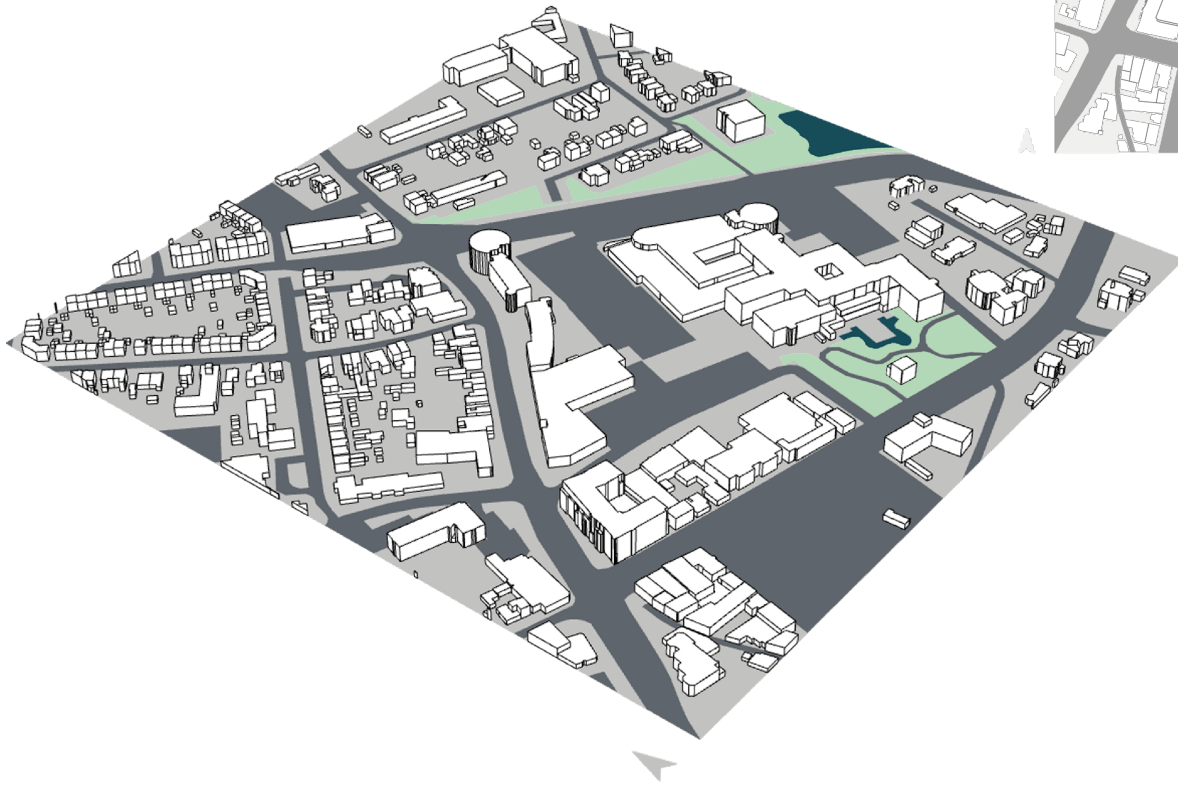
Densification methods



Densification methods



Transforming a neighbourhood



Transforming a neighbourhood

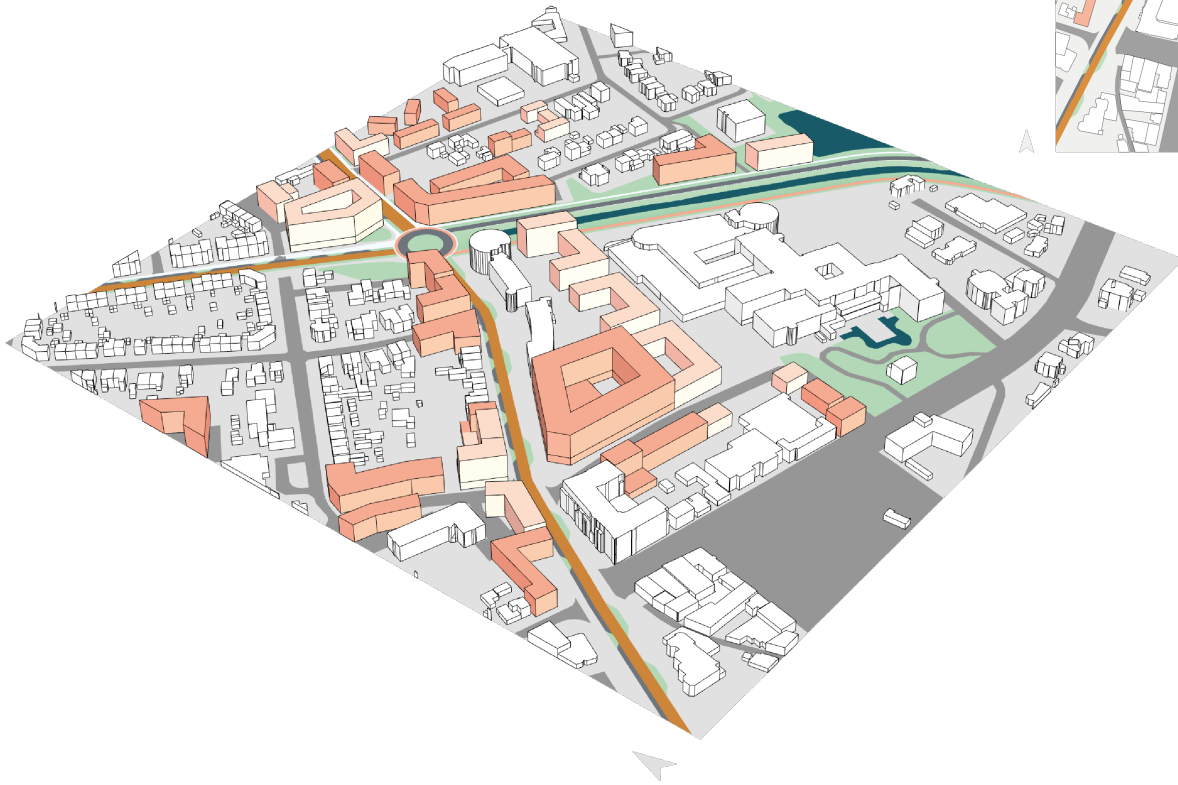
Phase 1: + 27% floor space



Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

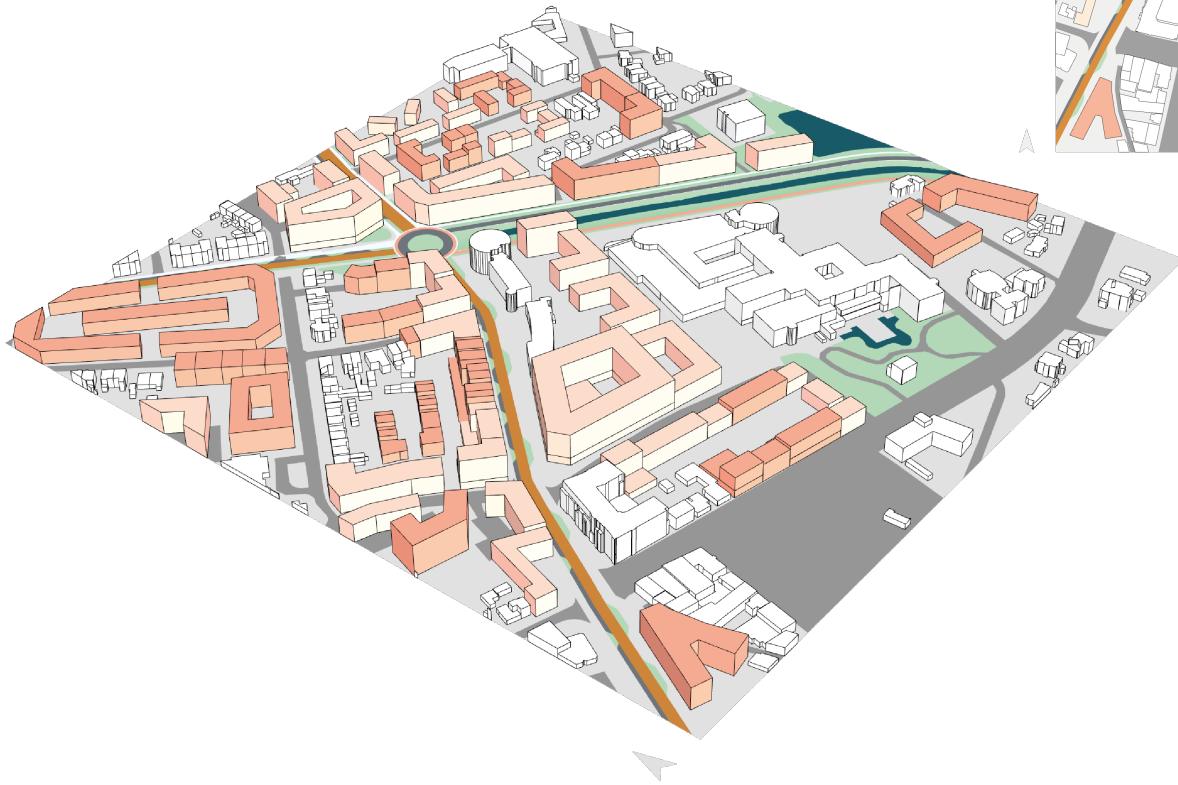


Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

Phase 3: + 105% floor space



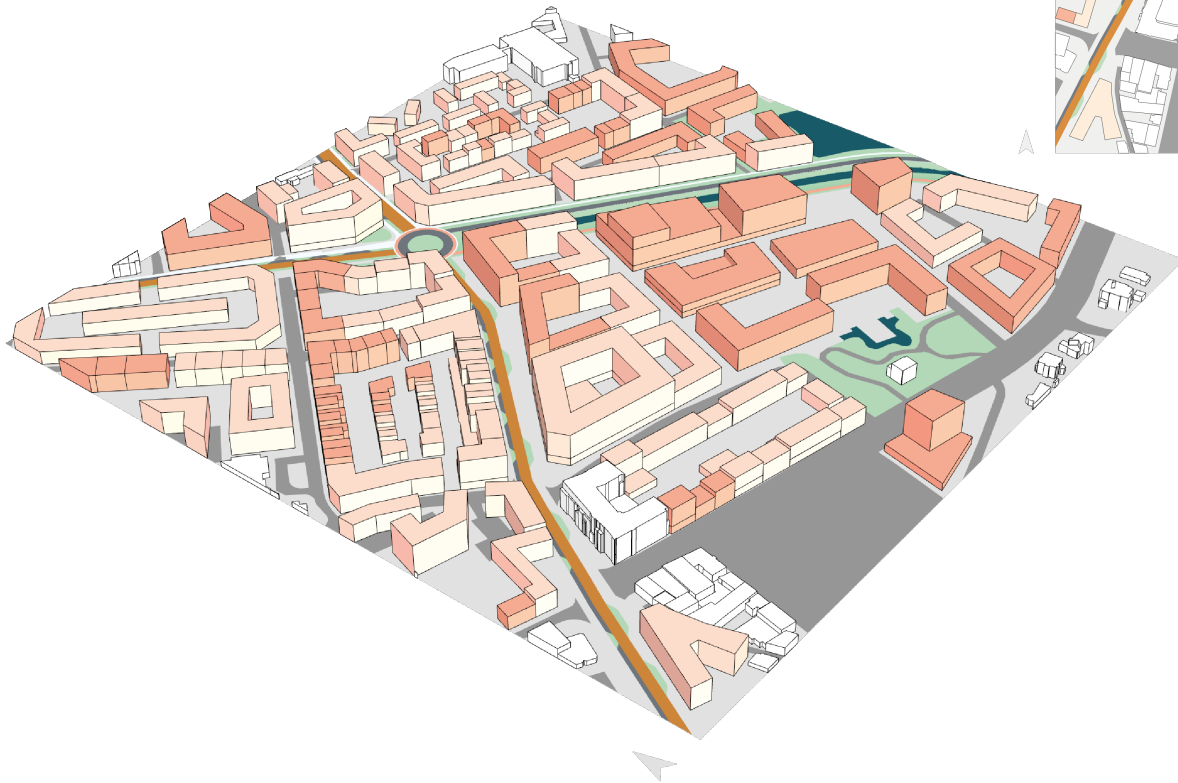
Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

Phase 3: + 105% floor space

Phase 4: + 165% floor space

















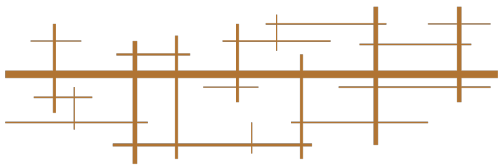
Guidelines for resilient densification

diversity



Diverse urban characters

connectivity



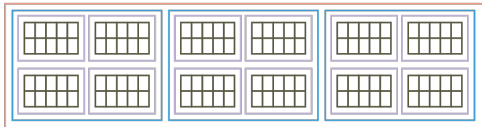
Proximity to service centres

redundancy



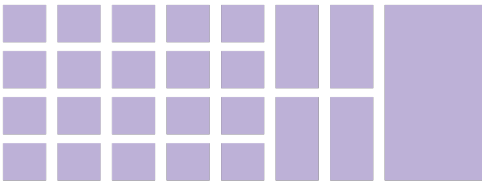
Multiple service centres, less dependent on the city centre

modularity



Neighbourhoods as autonomous entities

efficiency



Many small neighbourhoods, one larger city centre

LIVING IN A VILLAGE



Guidelines for resilient densification

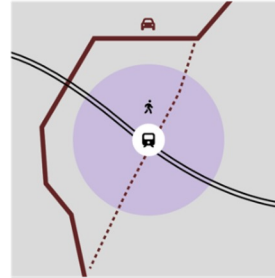
LIVING IN A VILLAGE



WALKABLE REGION



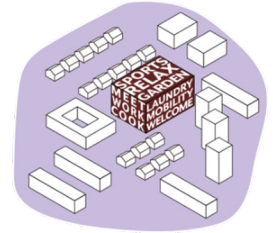
NO WAY THROUGH



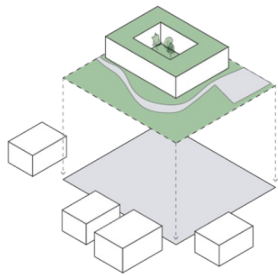
HIERARCHY IN THE MAZE



SERVE THE NEIGHBOURHOOD



DENSIFY = GREENIFY



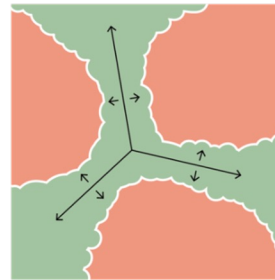
WHERE TO MEET?



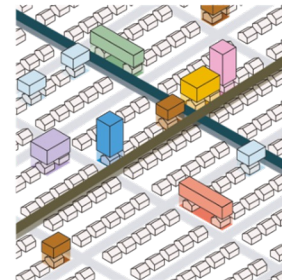
DENSIFICATION > EXPANSION



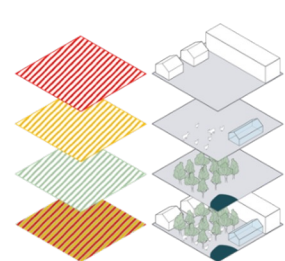
DO NOT MERGE



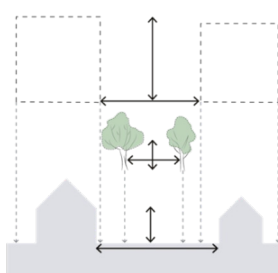
MIX UP THE 'MUSH'



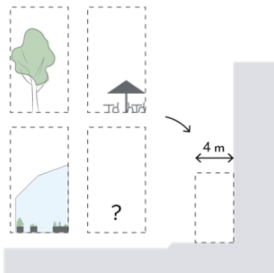
A STACK OF USES



BALANCED DIMENSIONS



FLEXIBLE TRANSITION



FLAT = ADAPTIVE



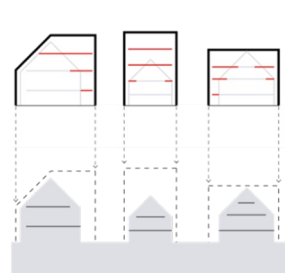
POTENTIAL OF THE GARDEN



CREATIVE DWELLING



WRAP & EXPAND



Conclusion

Specific resilience

&

General resilience

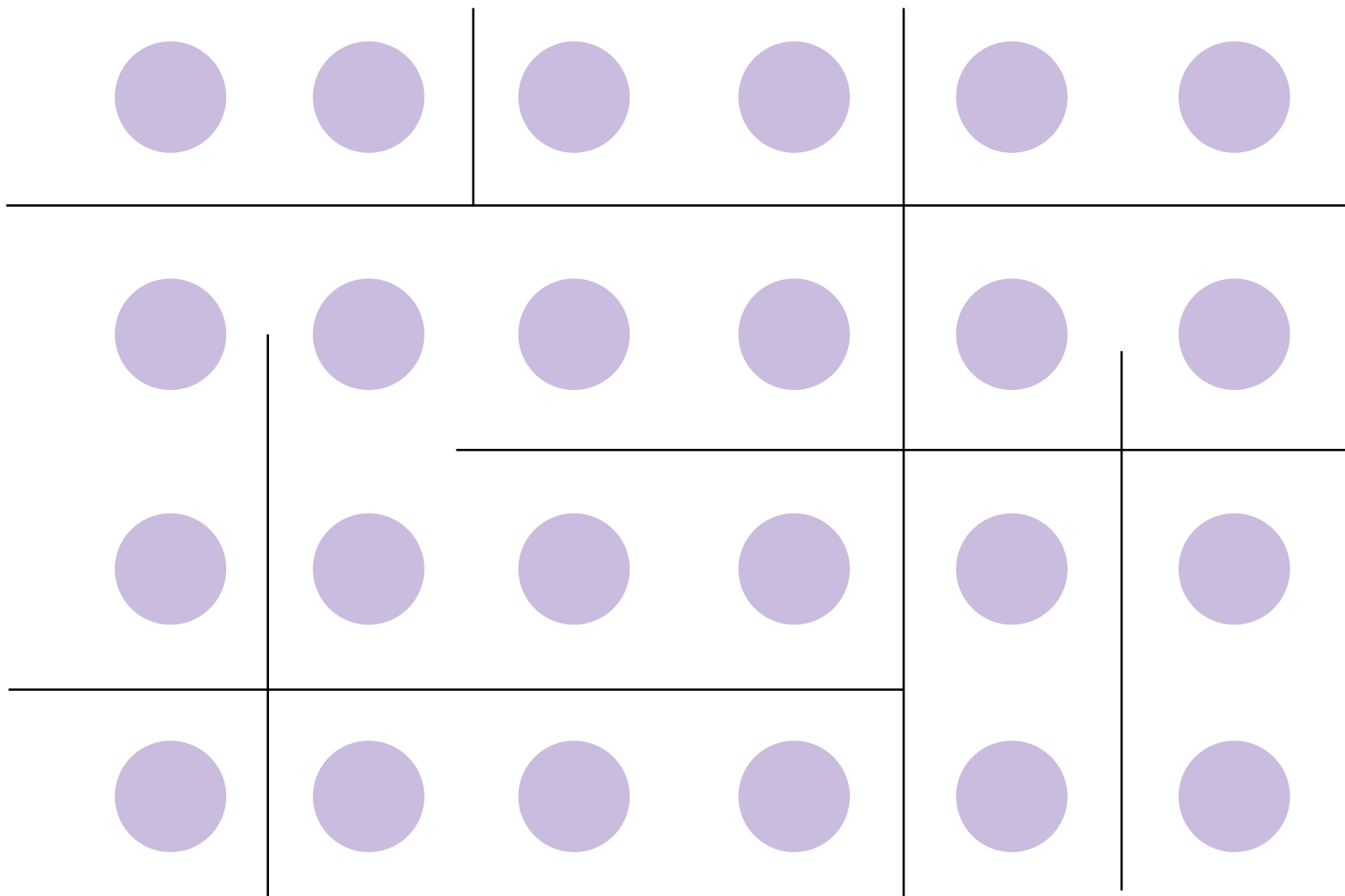
diversity

connectivity

redundancy

modularity

efficiency



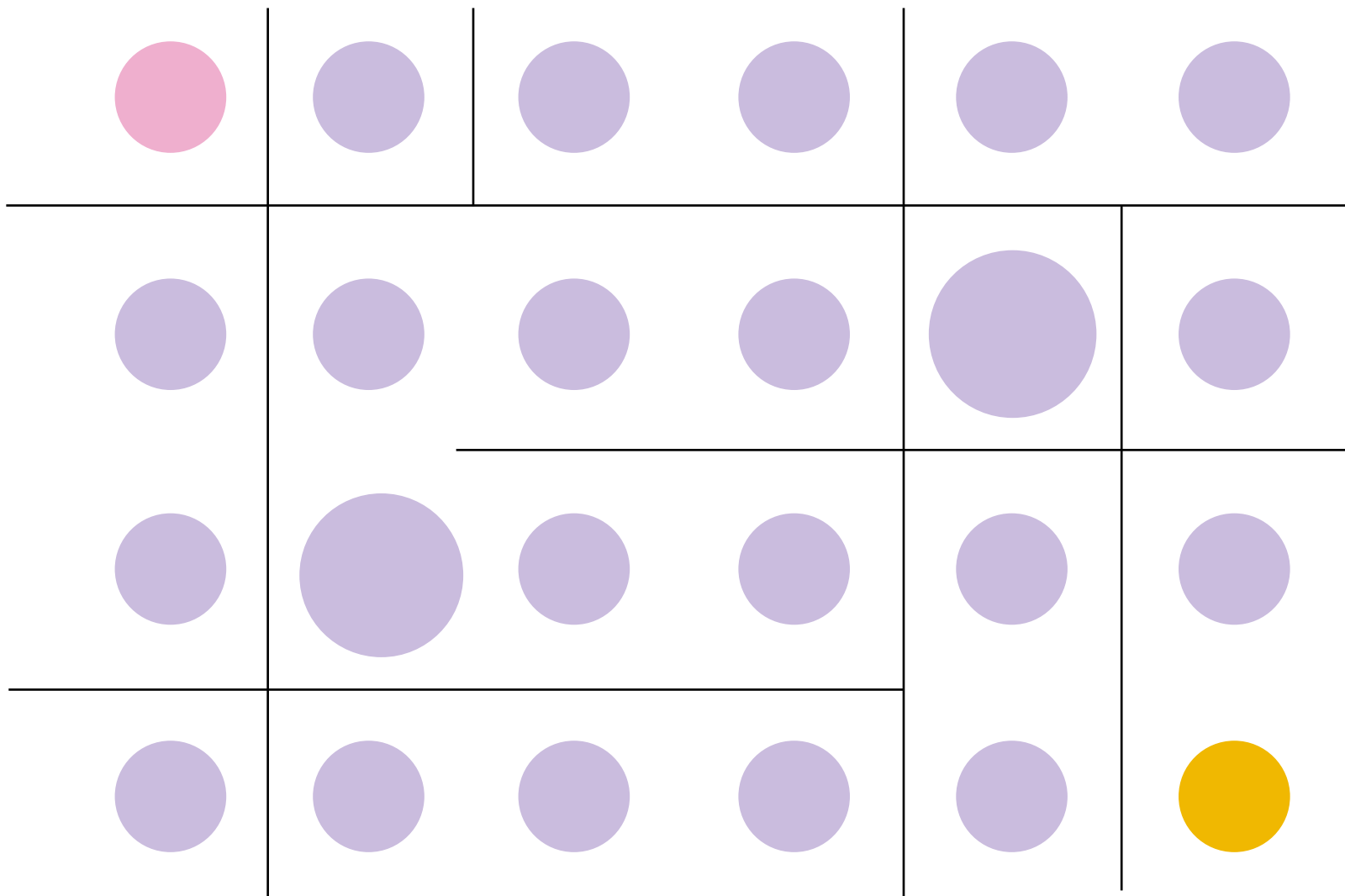
diversity

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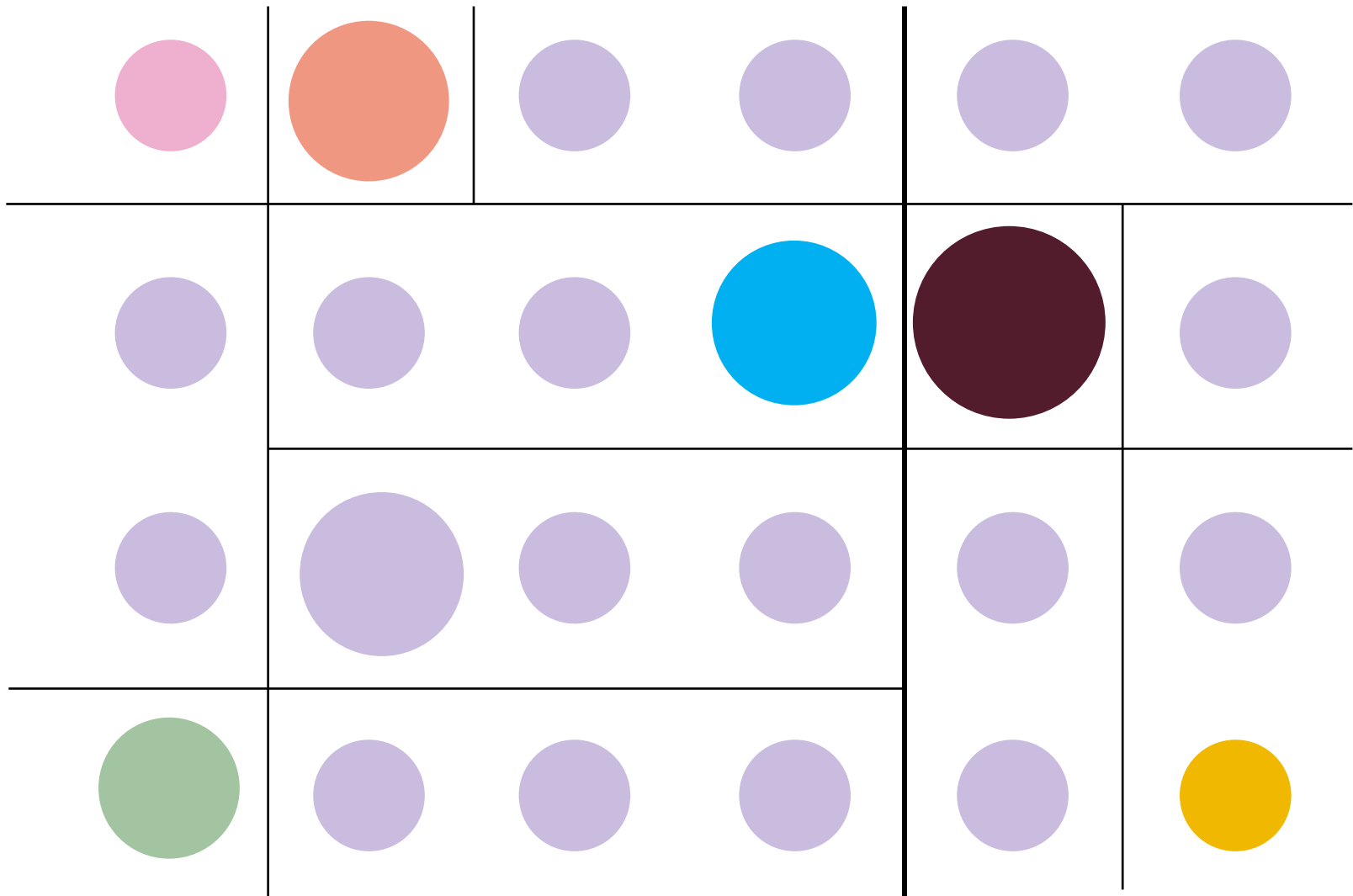
diversity

connectivity

redundancy

modularity

efficiency



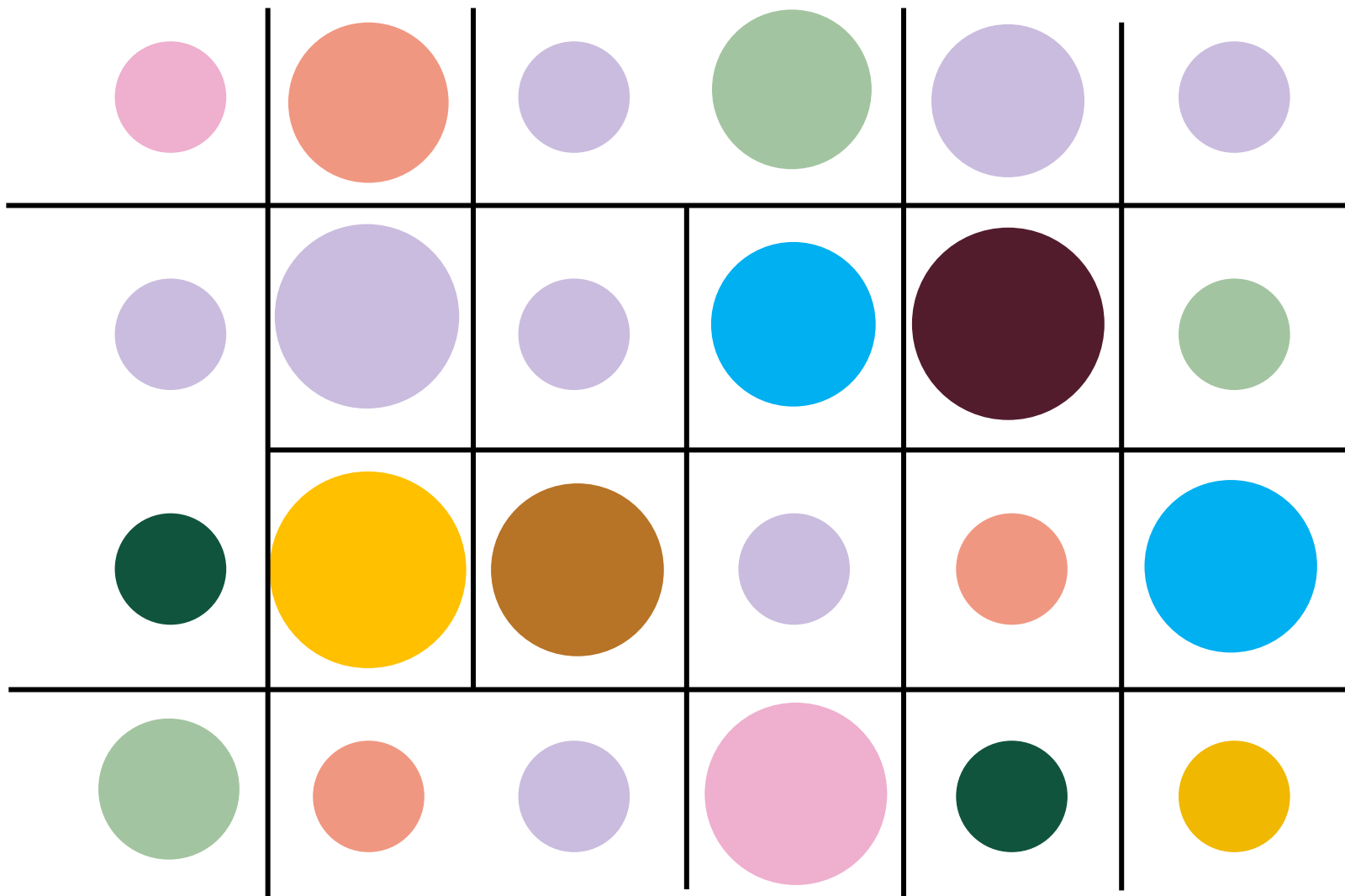
diversity

connectivity

redundancy

modularity

efficiency

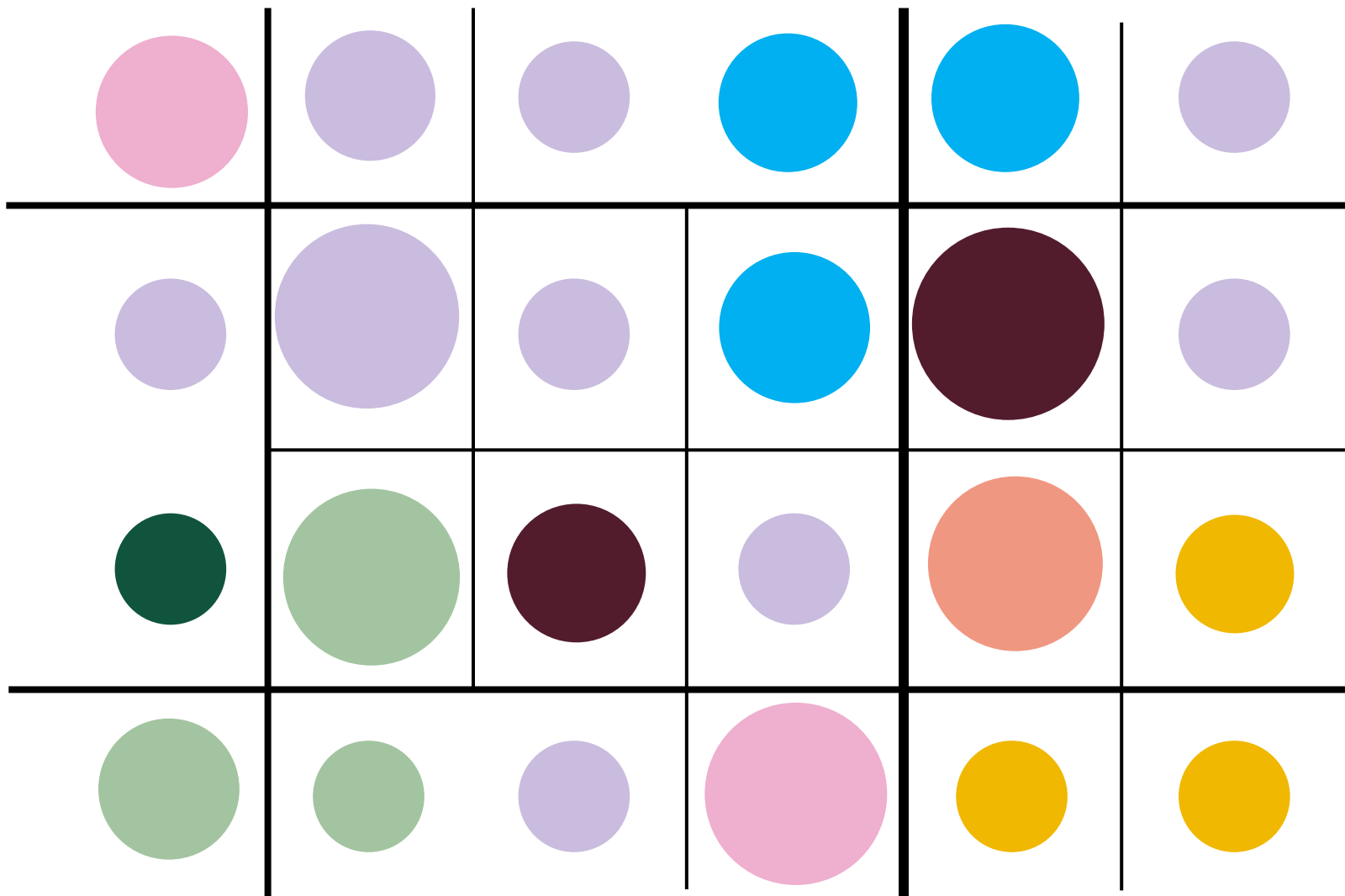


diversity connectivity

redundancy

modularity

efficiency



diversity

connectivity

redundancy

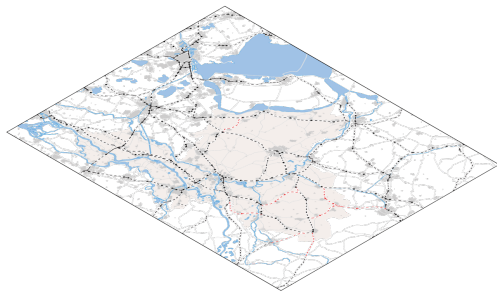
modularity

efficiency

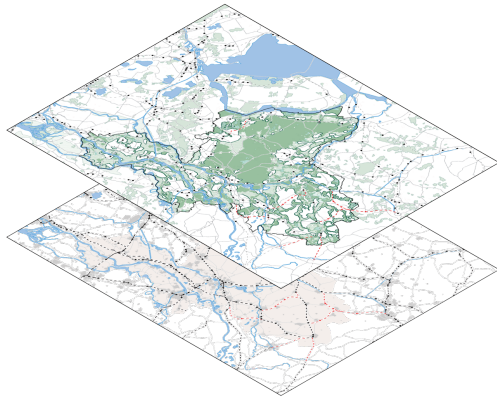
Conclusion

- Balanced incorporation of general resilience and specific resilience
- Goes hand in hand with durability, sustainability, inclusivity and adequacy
- Resilient densification happens through application of different methods
- A focus on proximity and the compact city model
- Gelderland can provide solutions to the pressure on space, but it will have to go with a relatively radical transformation of the existing urban environments – no matter the scenario
- Densification should mean much more than only building extra dwellings
- Developments should fit within the larger context of the location and go beyond the focus on urbanisation alone

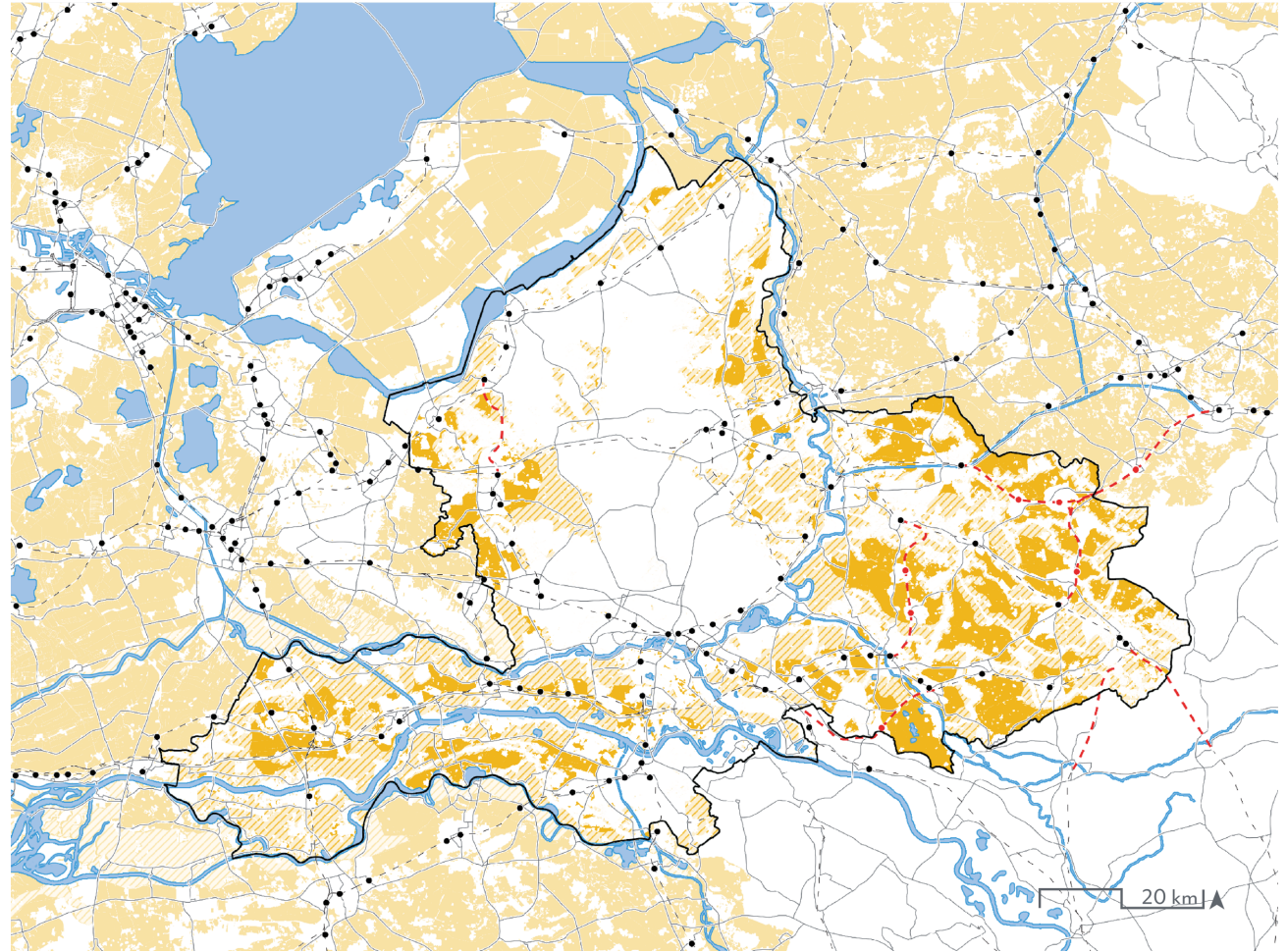
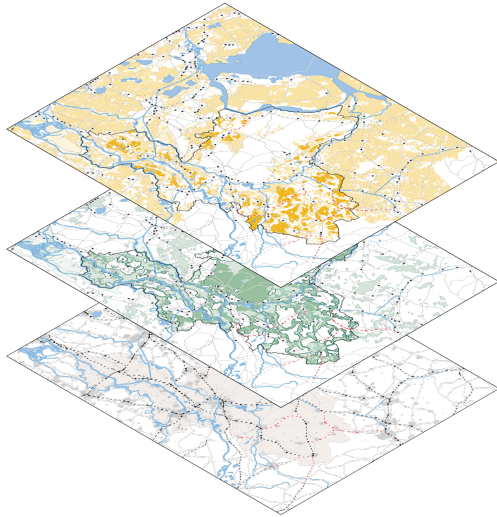
Vision | Network



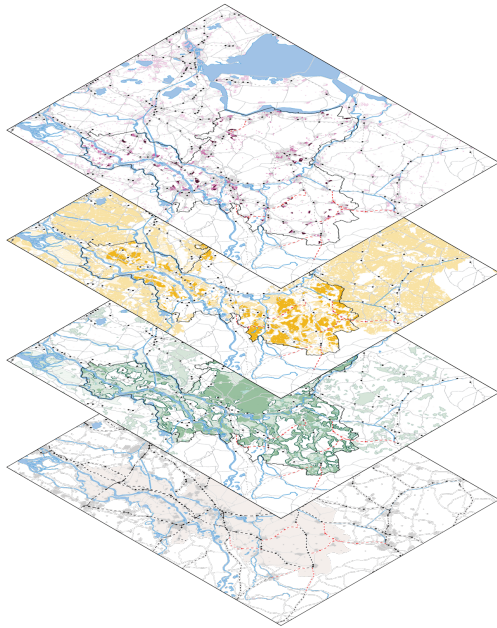
Vision | Nature



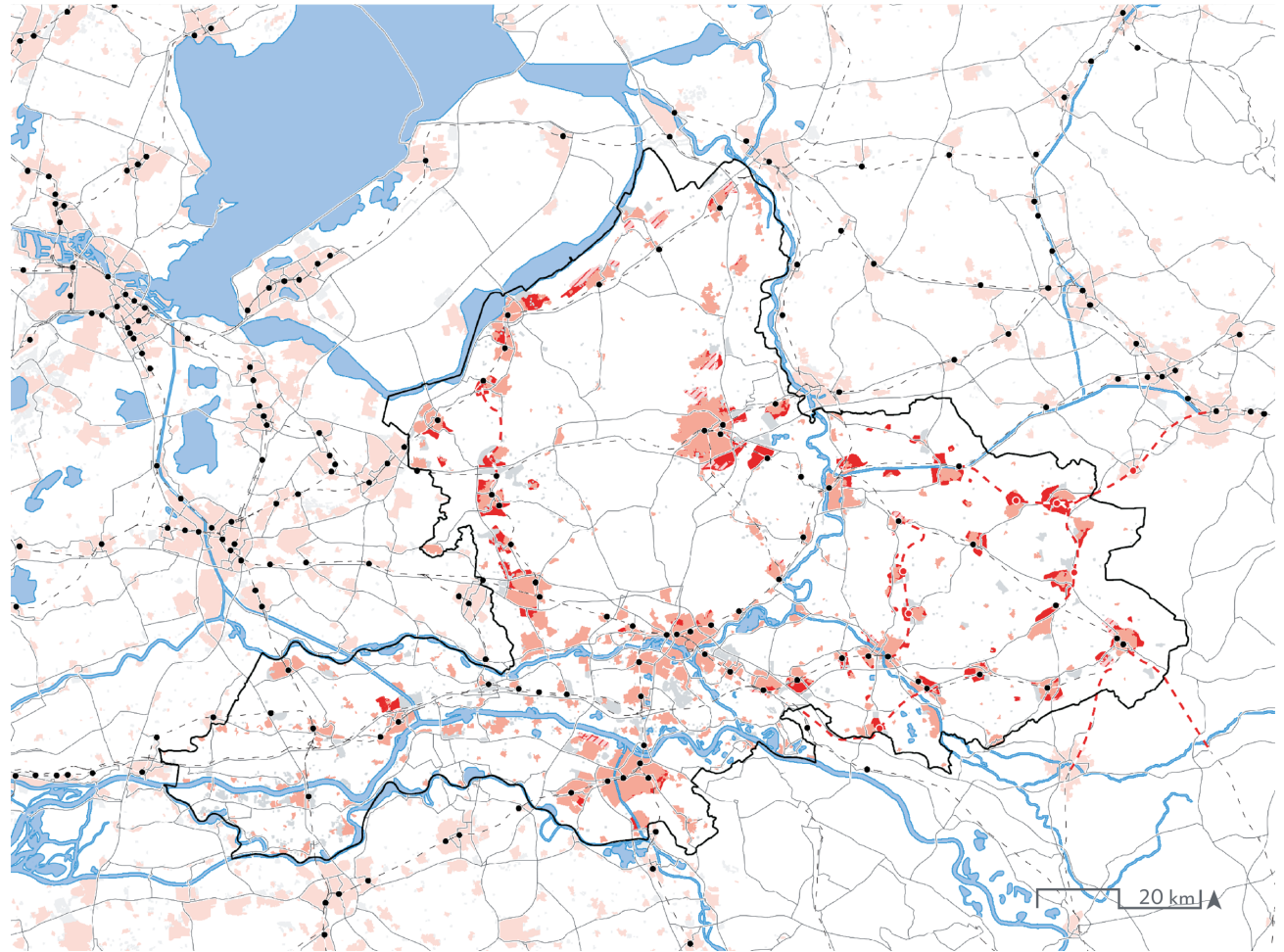
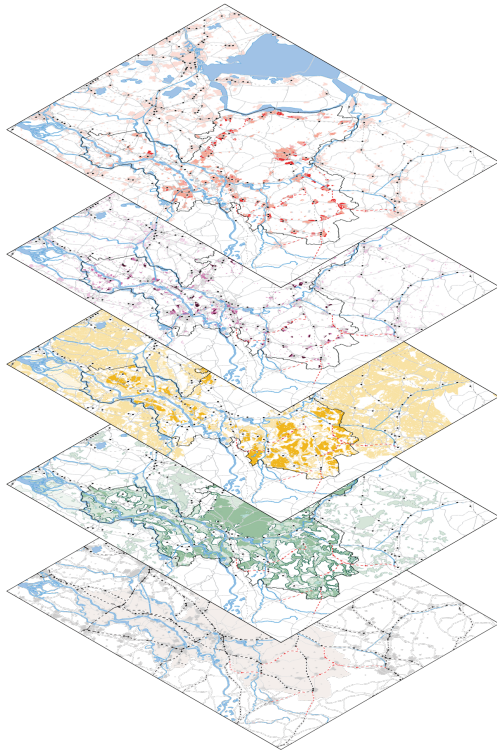
Vision | Agriculture



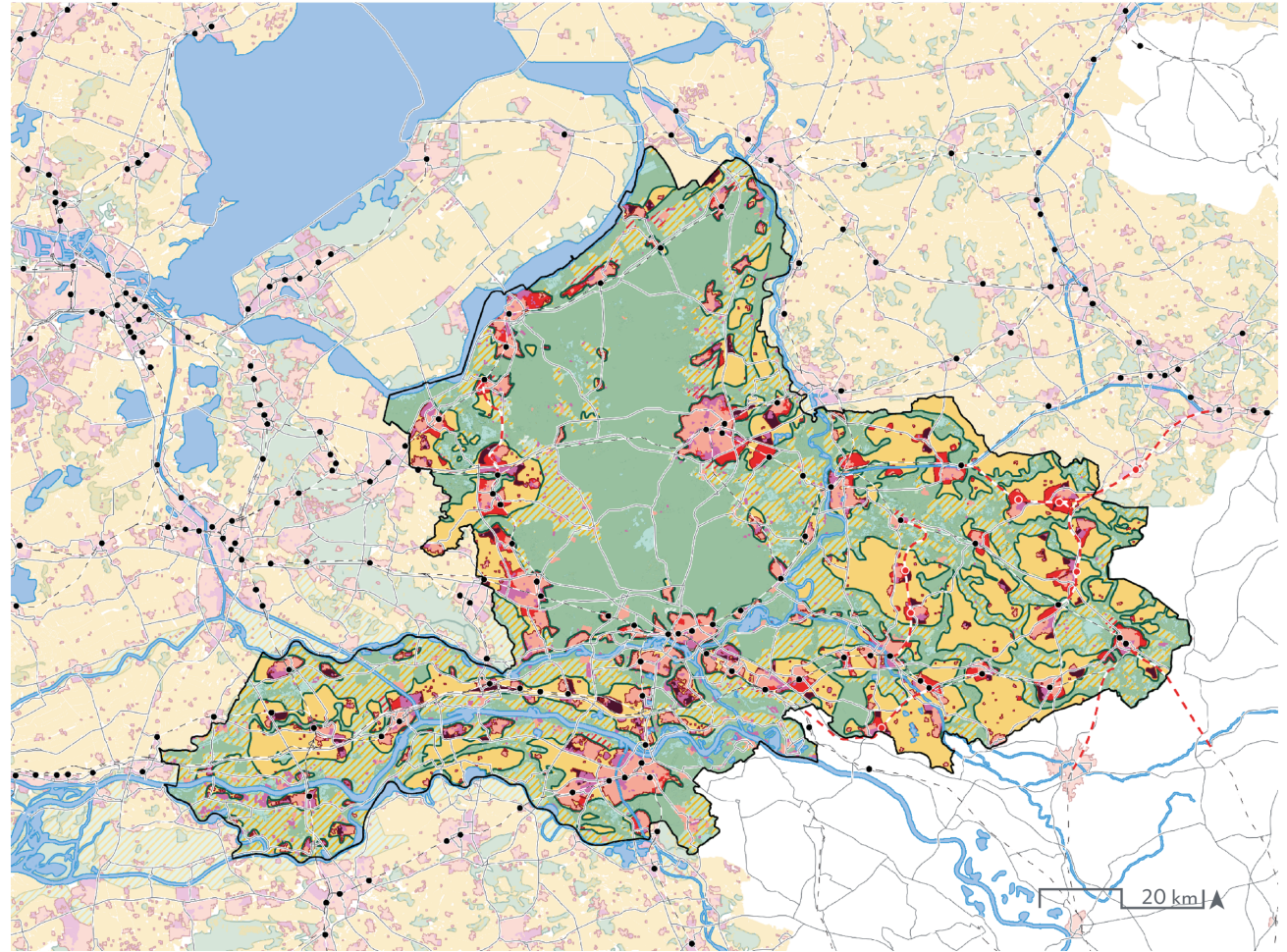
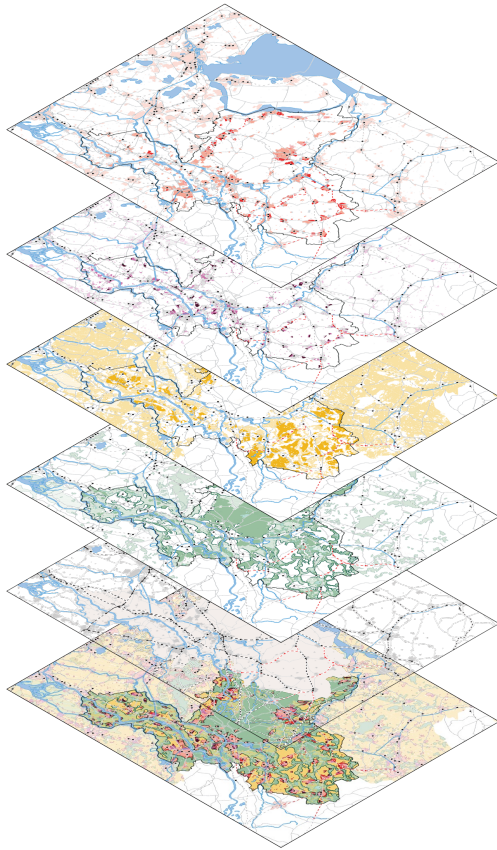
Vision | Industry

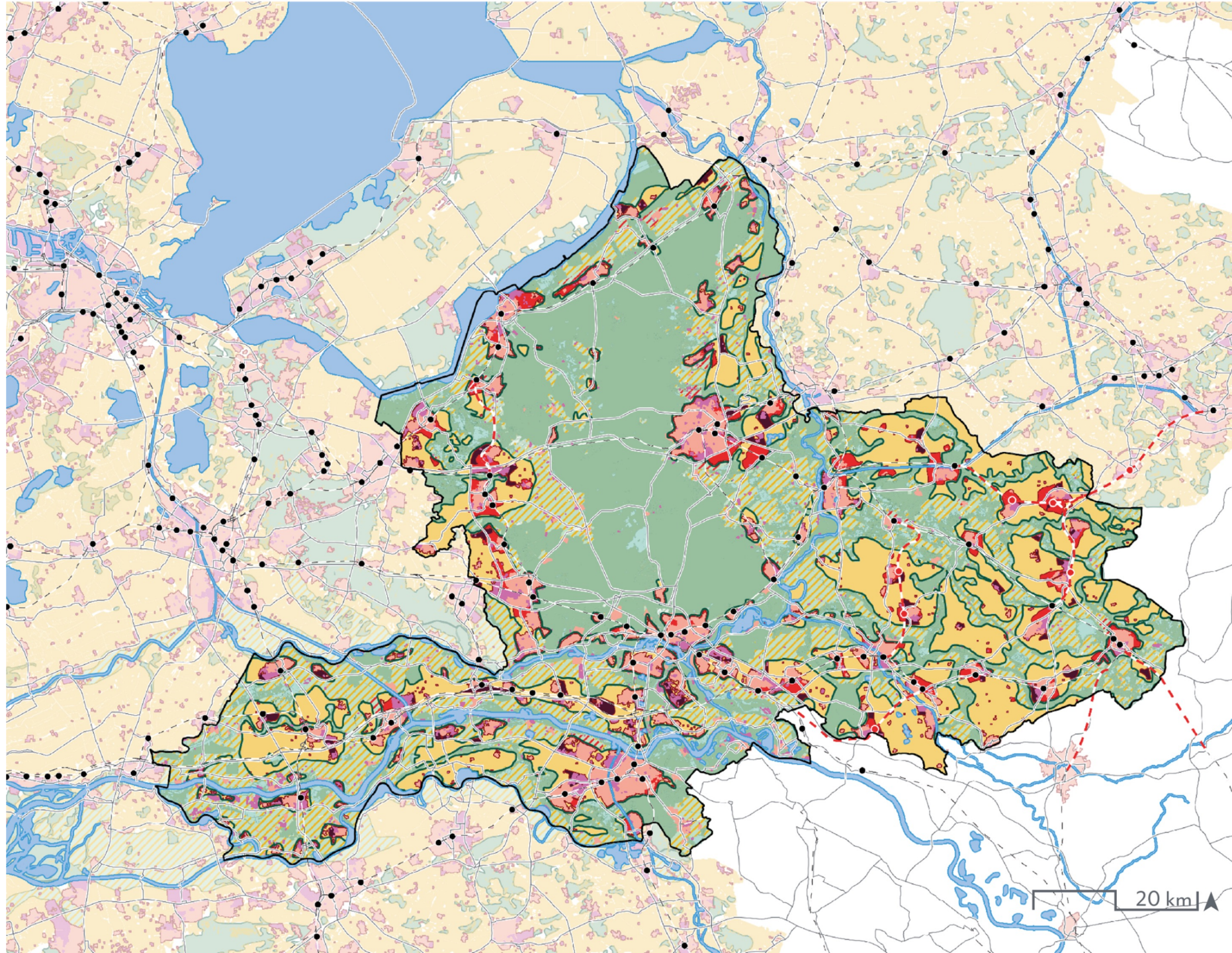


Vision | Urban



Vision

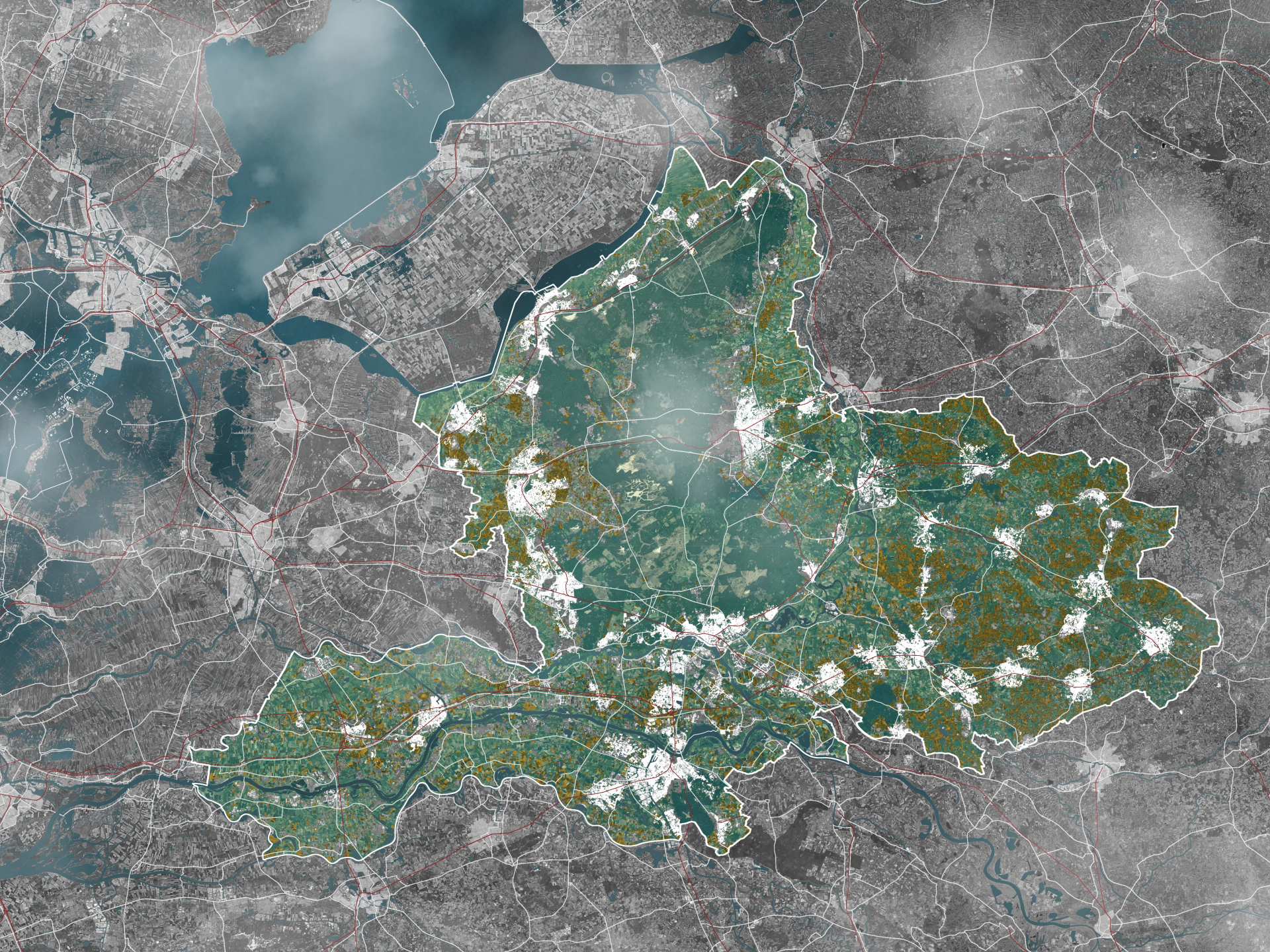












An aerial photograph of a region, likely a river valley, with a large area highlighted in green and yellow. The highlighted area is irregularly shaped and follows the course of a river and its tributaries. The surrounding area is mostly grey and brown, indicating urban or developed land. The text "Thank you!" is centered over the highlighted area.

Thank you!