

Building resilience

design strategies in planning
for a densified Gelderland

Anouk Jansen



What has urgency?

protest gaat der actie voeren: oncrisis is alleen er erger geworden'

test, dat vorig jaar grote demonstraties werden tegen de wooncrisis, gaat hardere en meer acties voeren. Volgens de organisatie zijn er in het openbaar geen wezenlijke maatregelen genomen om de crisis onvermindert voort.

vrij 22 september 2022, 03:00



niet tot n geschillen

de milieubaas van de Verenigde Naties waarschuwt voor de klimaatcrisis: klimaatverandering, samenwerking kan de crisis oplossen.



▲ 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

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.



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 ⏰ 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.

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



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

crisis van eigen aan meesleuren

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

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

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

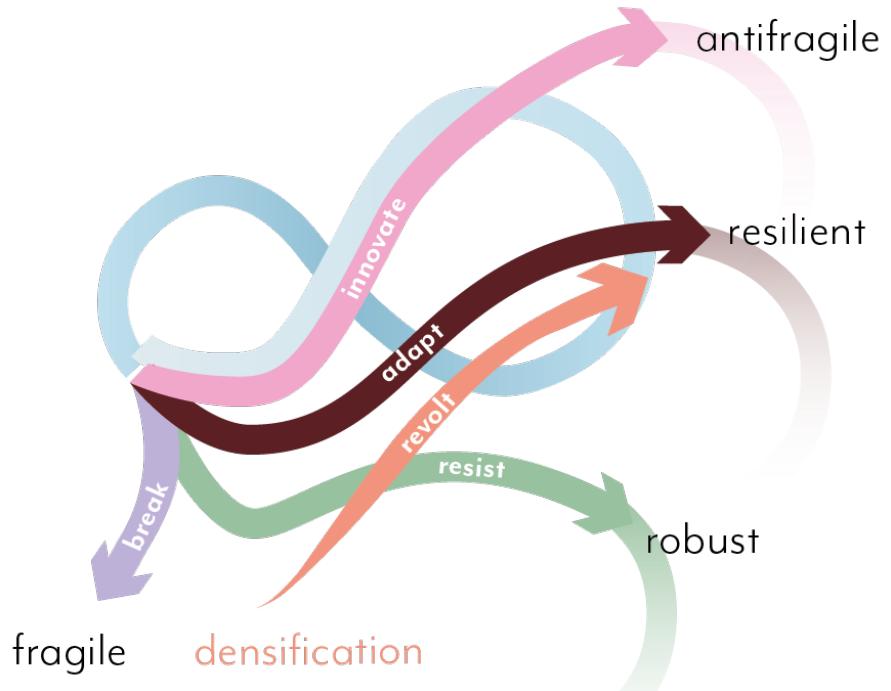
Dreigingen Mensen maken zich vooral zorgen om cyberdreigingen en georganiseerde criminaliteit. Nederlanders die zich voorbereidden, legden bijvoorbeeld een noodpakket klaar of sloegen extra brandstof in.

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

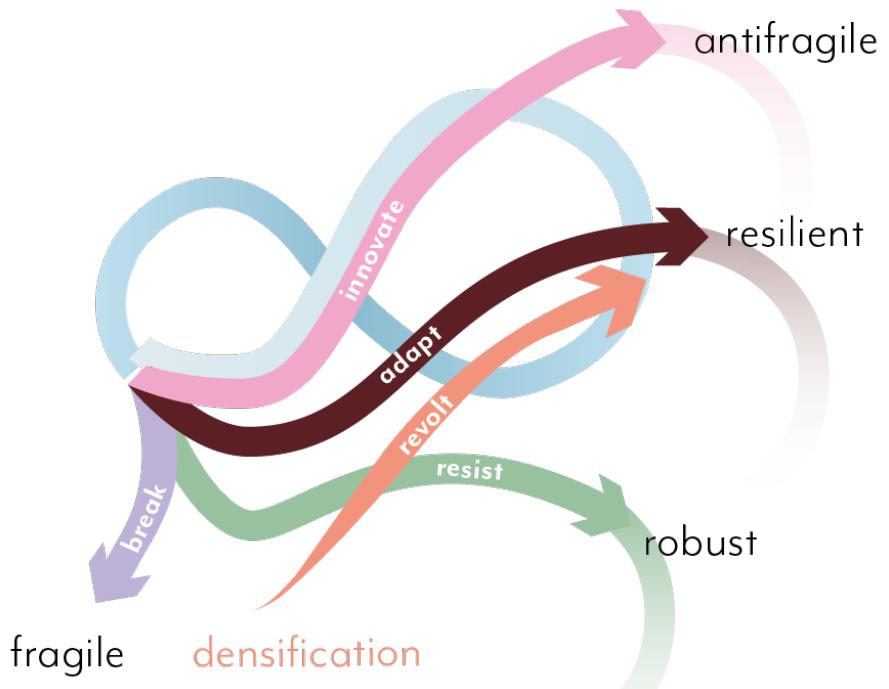


Davoudi, S., Shaw, K., Haider, L. J., Quinlan, A. E., Peterson, G. D., Wilkinson, C., Fünfgeld, H., McEvoy, D., Porter, L., & Davoudi, S. (2012). Resilience: A Bridging Concept or a Dead End? “Reframing” Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does it Mean in Planning Practice? Resilience as a Useful Concept for Climate Change Adaptation? The Politics of Resilience for Planning: A Cautionary Note. *Planning Theory & Practice*, 13(2), 299–333. <https://doi.org/10.1080/14649357.2012.677124>

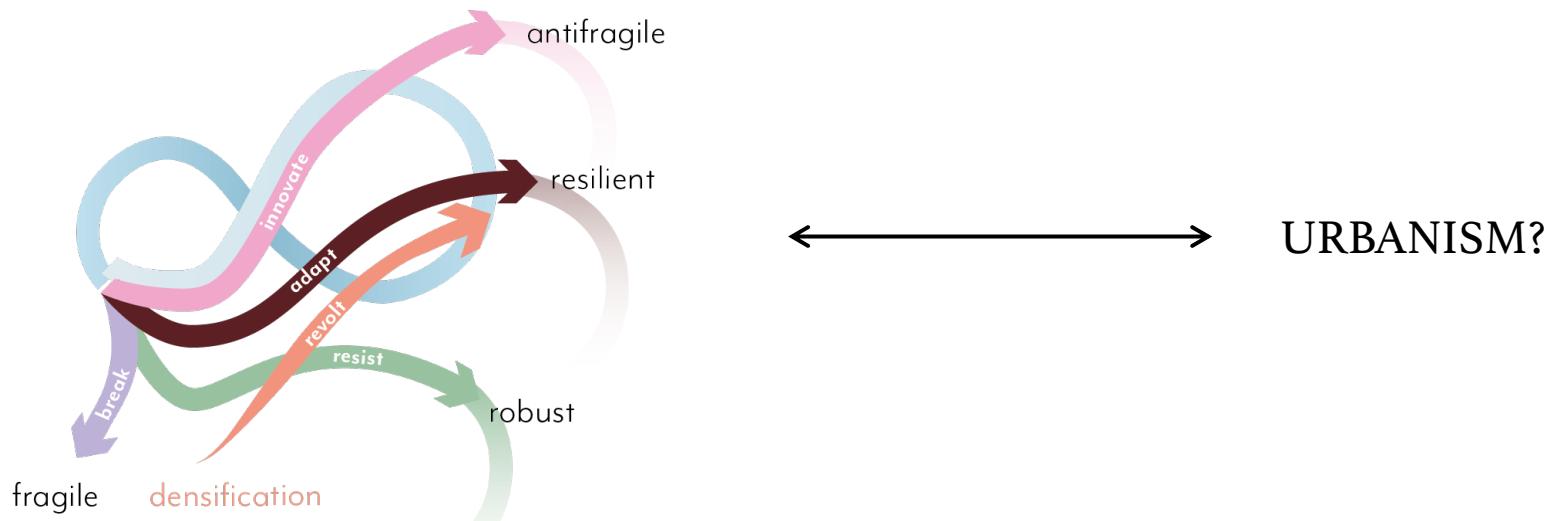
Resilience

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

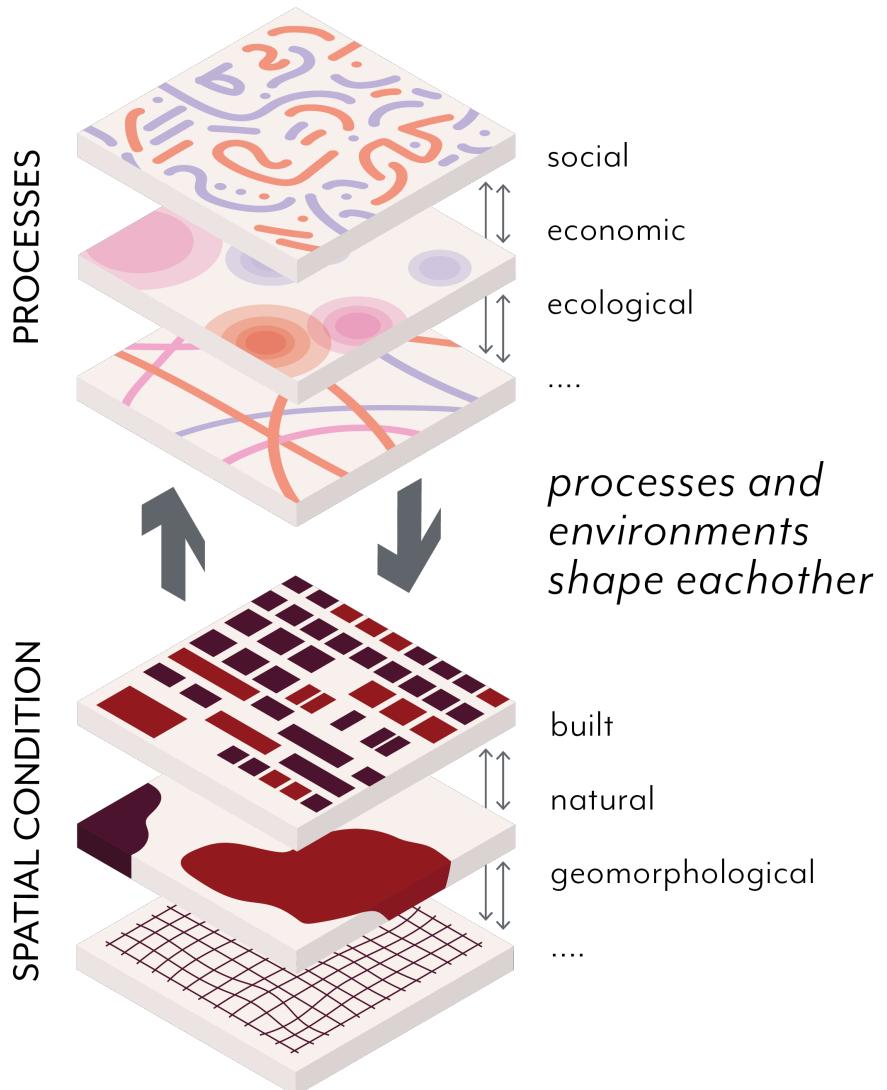
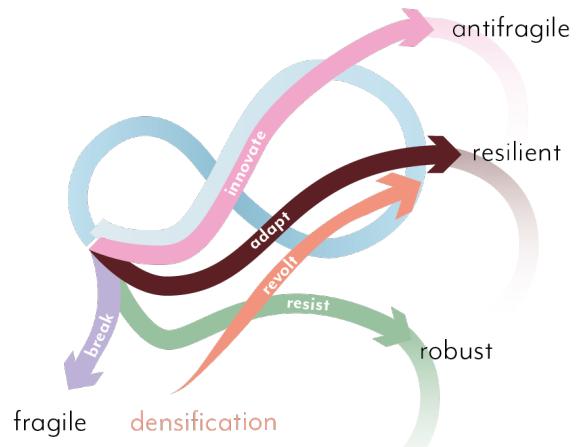
- Flexibility
- Persistence
- Transformability



Resilience

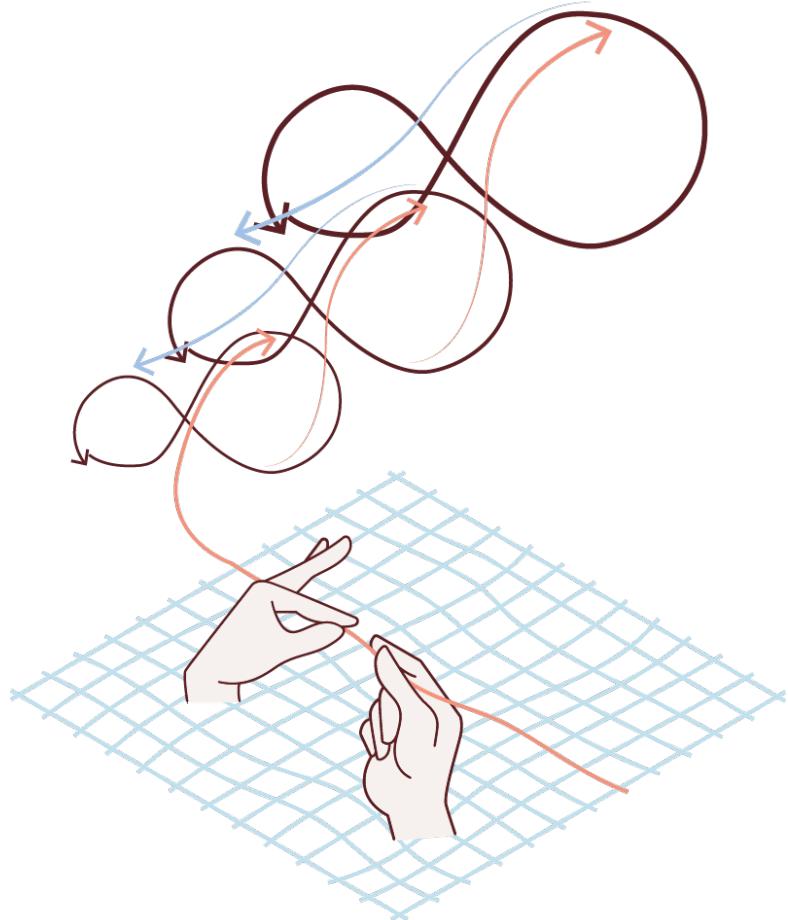


Resilience & urbanism

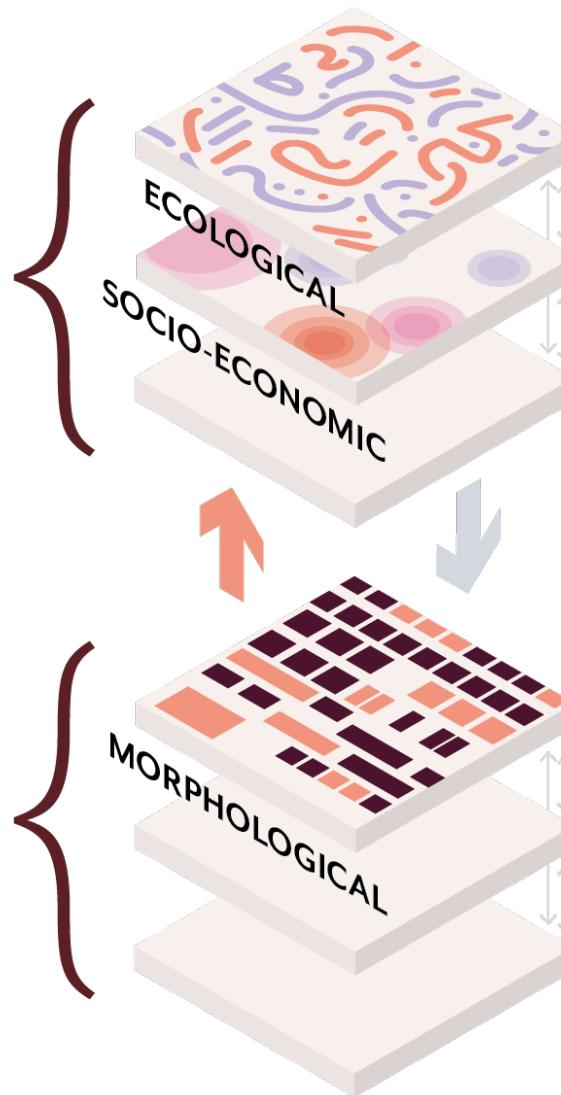


Resilience & urban form

RESILIENCE
of systems



SPACE
as a framework



How to prepare for the future?



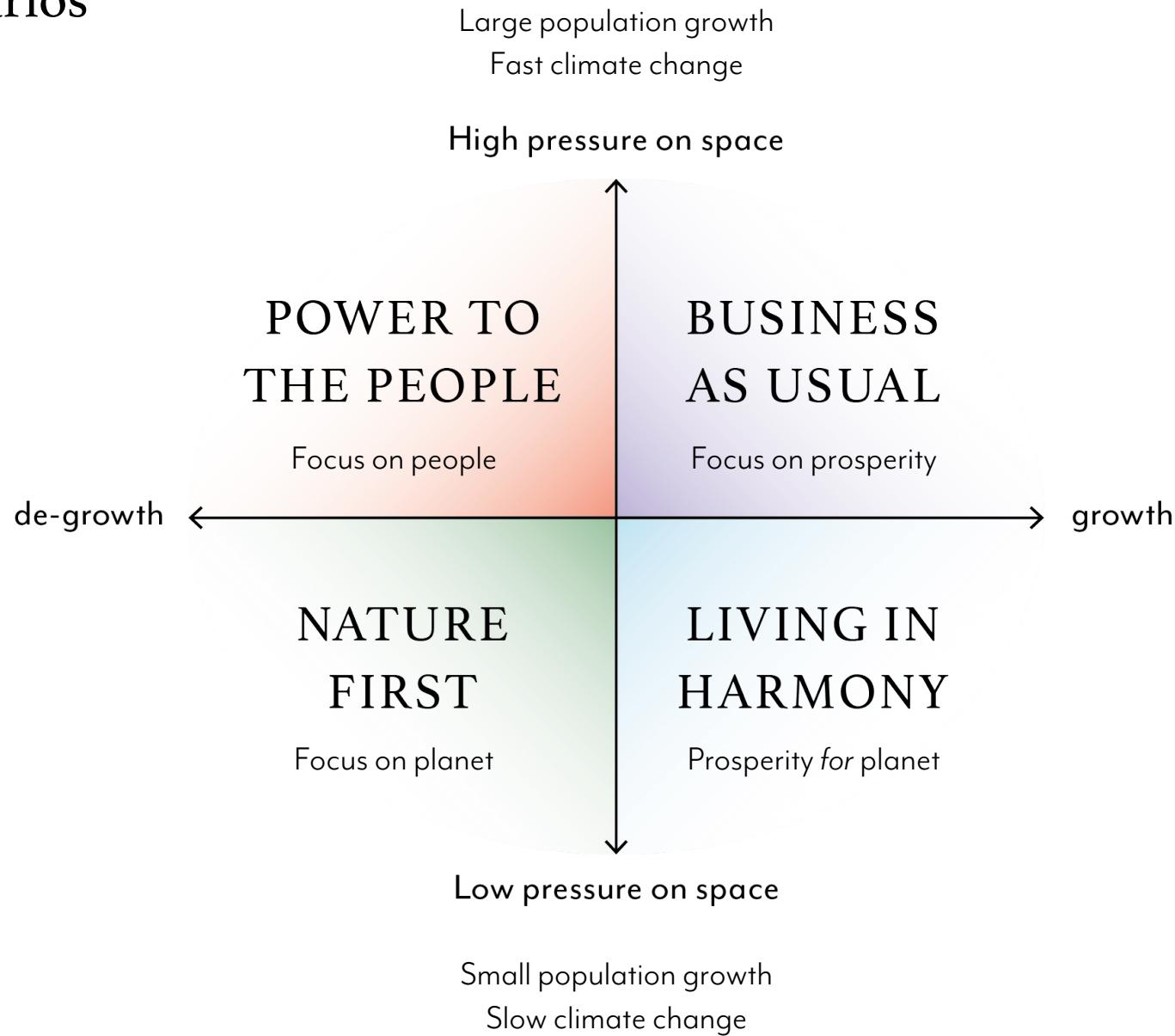






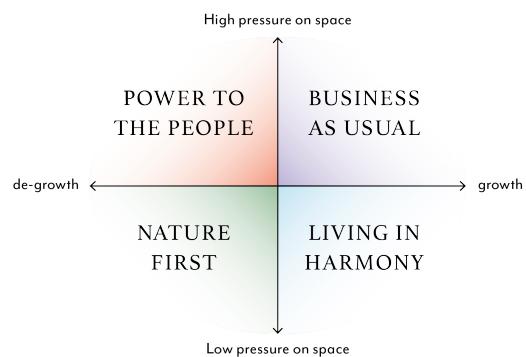


Scenarios



Specific resilience

population growth
climate change



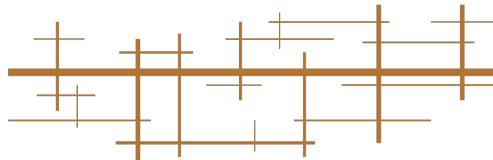
General resilience

diversity



the richness and evenness of distribution of different components

connectivity



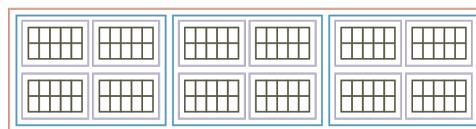
how well components are linked to the rest of the system

redundancy



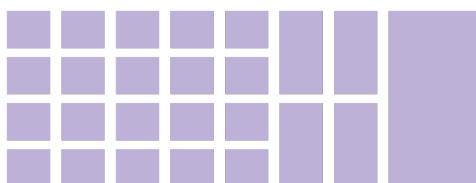
multiple components performing the same or similar functions

modularity



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

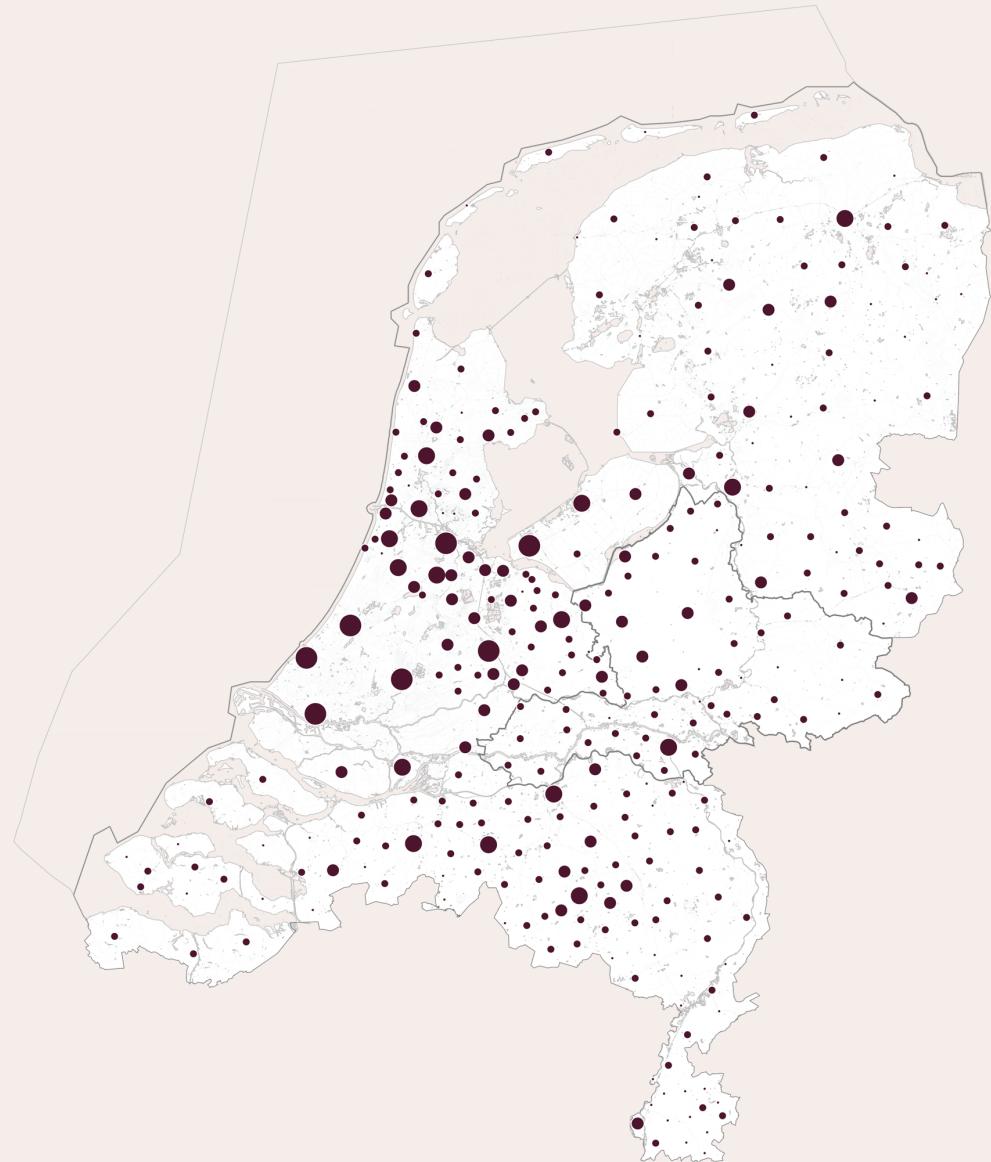
efficiency



the distribution of small and generic versus large and unique components

Housing crisis

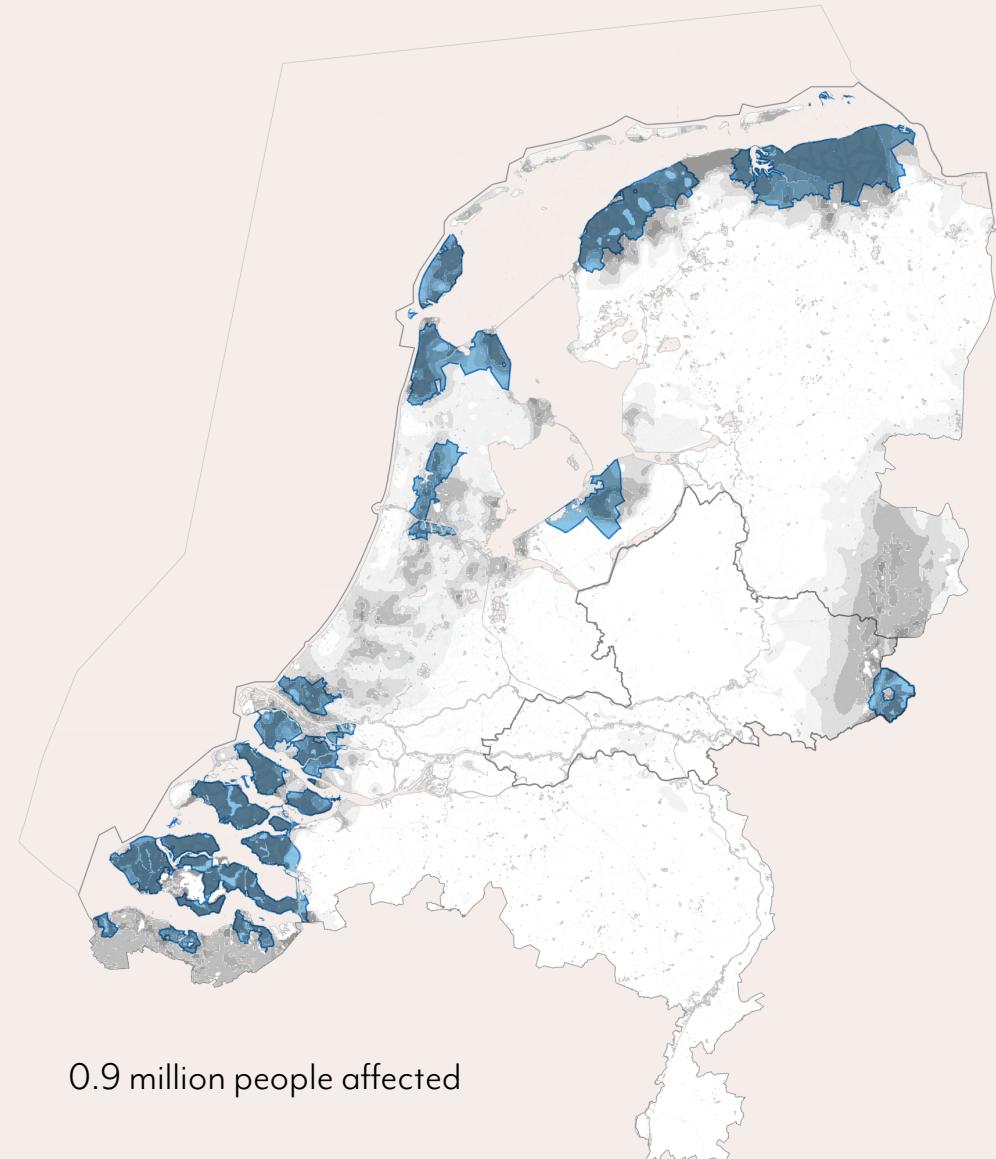
1 million homes to be built



Housing crisis

1 million homes to be built

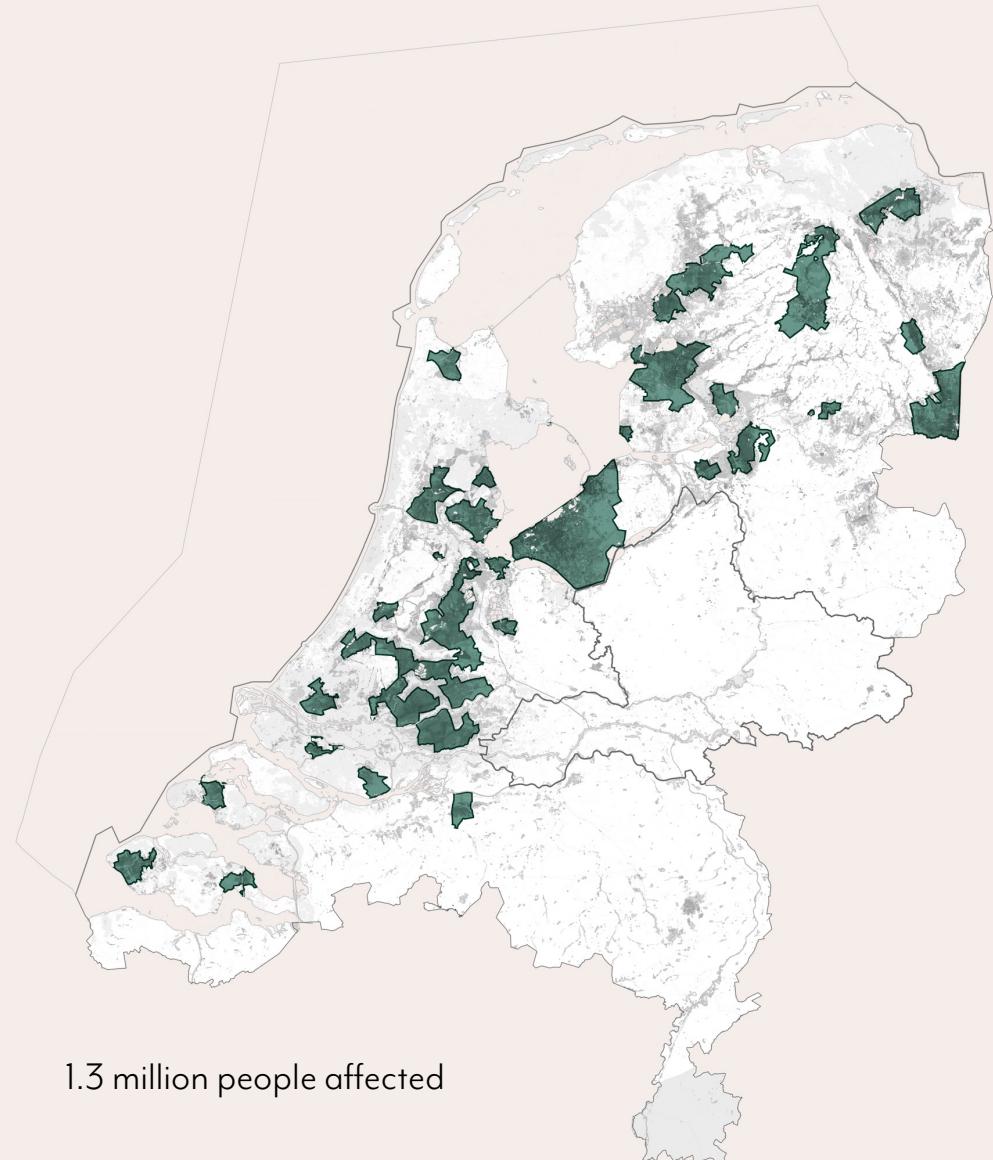
- Salinisation



Housing crisis

1 million homes to be built

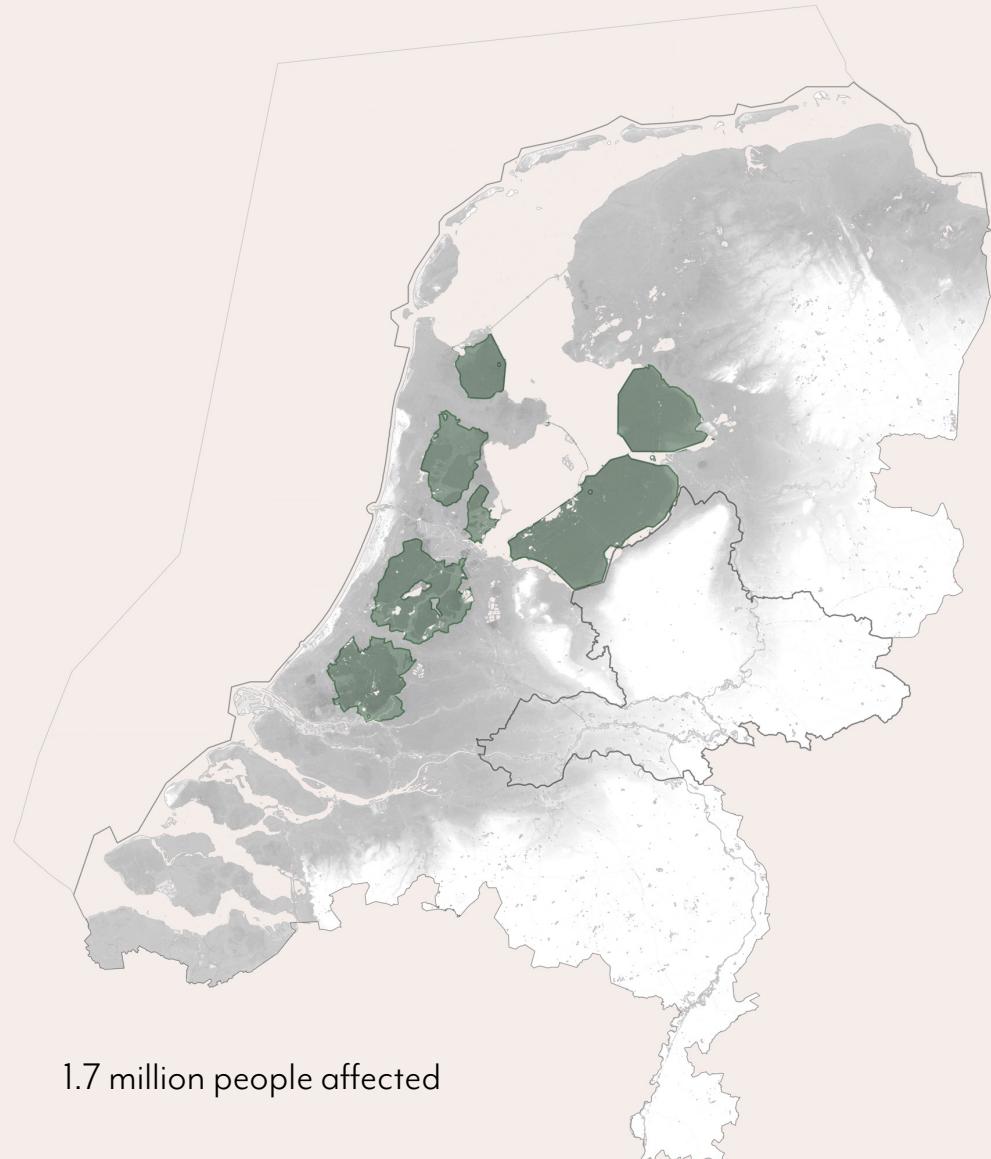
- Salinisation
- Subsidence



Housing crisis

1 million homes to be built

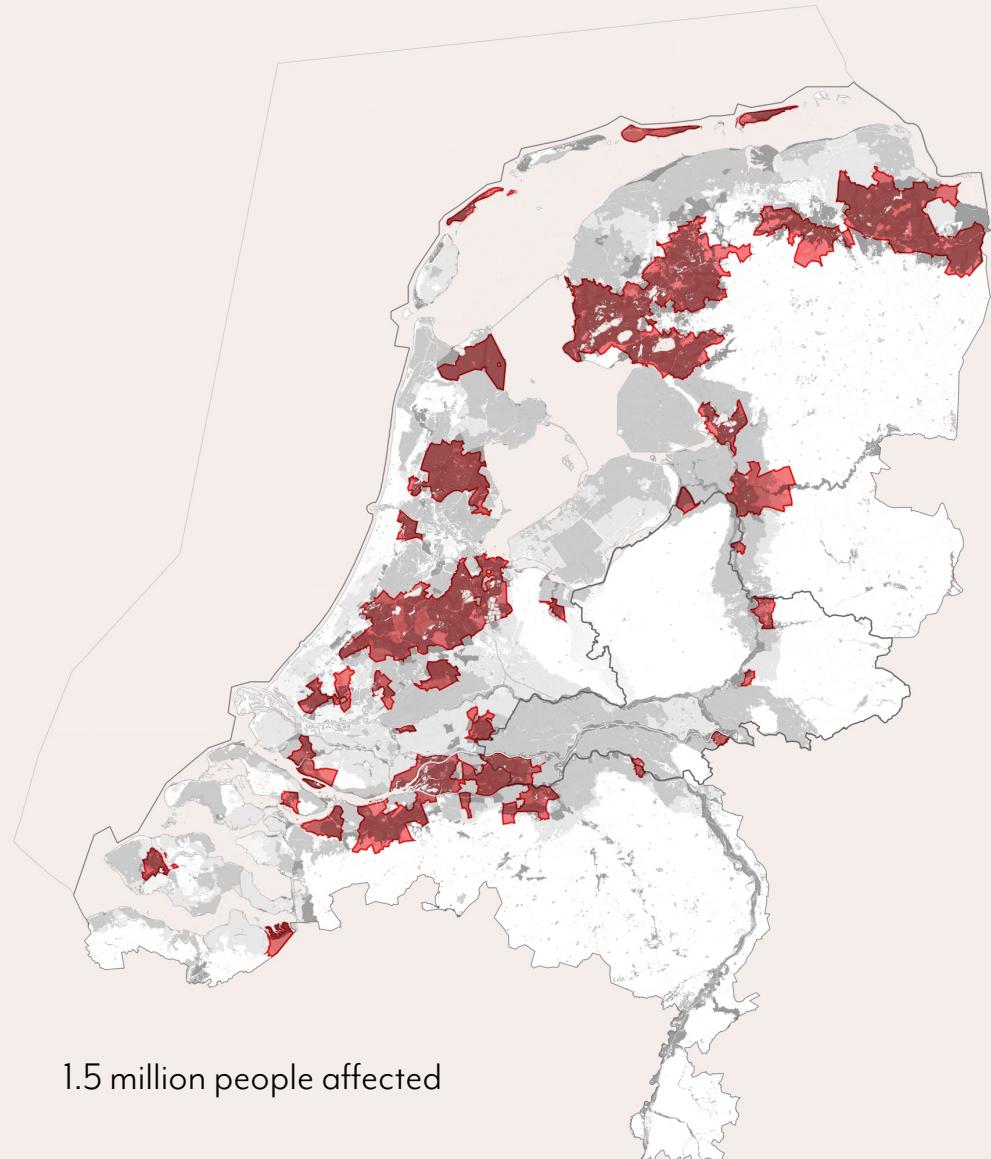
- Salinisation
- Subsidence
- Sea level rise



Housing crisis

1 million homes to be built

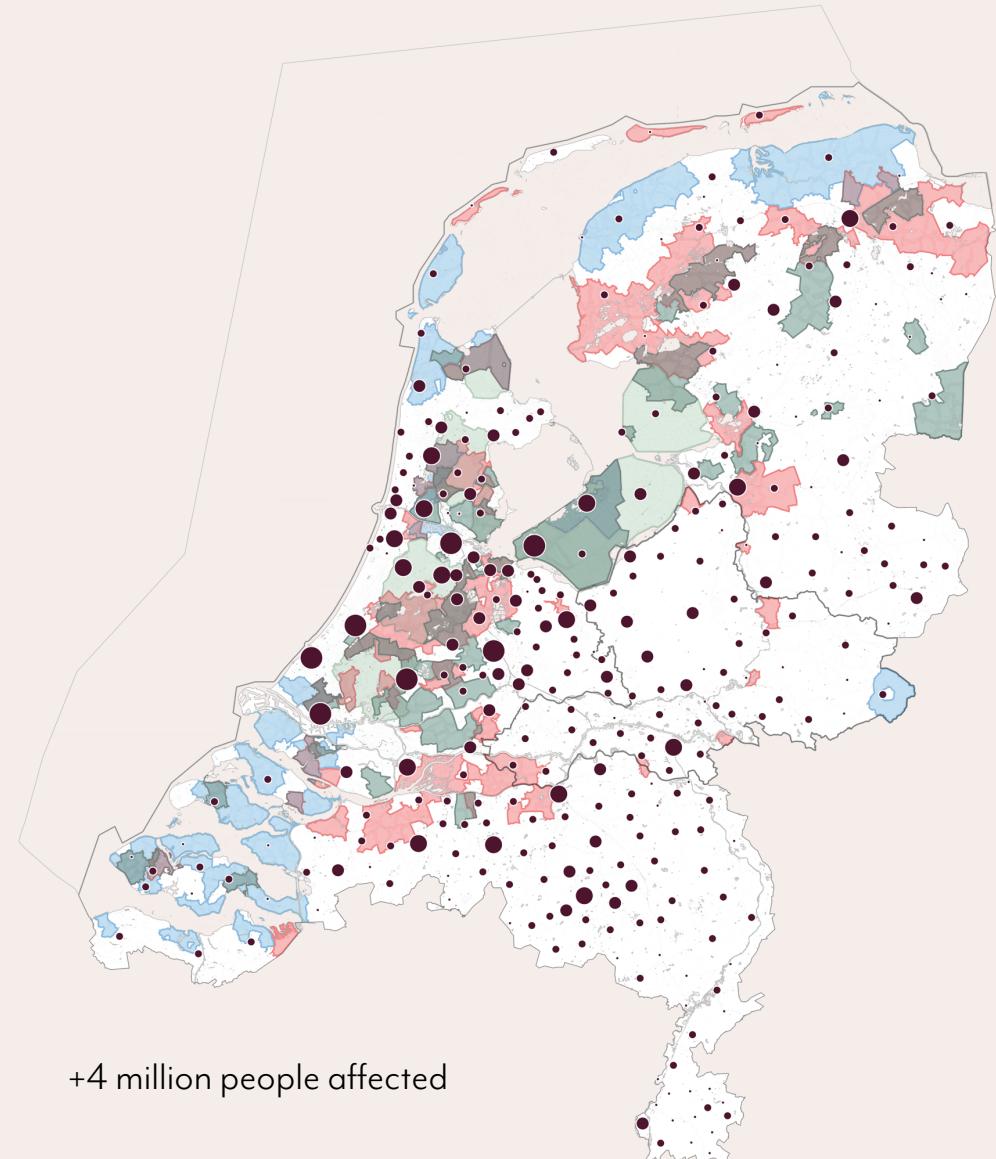
- Salinisation
- Subsidence
- Sea level rise
- Flood risk



Housing crisis

1 million homes to be built

- Salinisation
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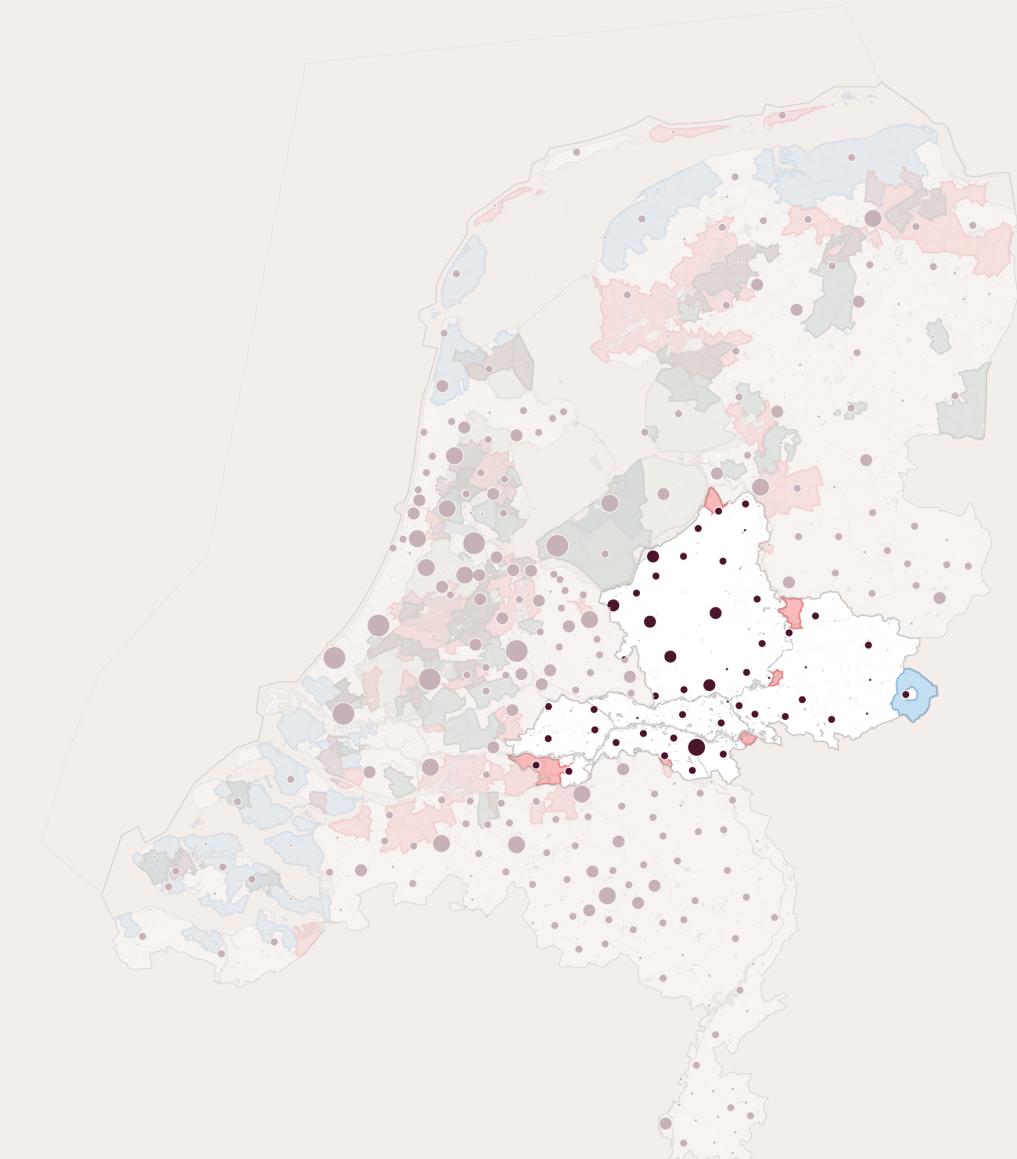


Housing crisis

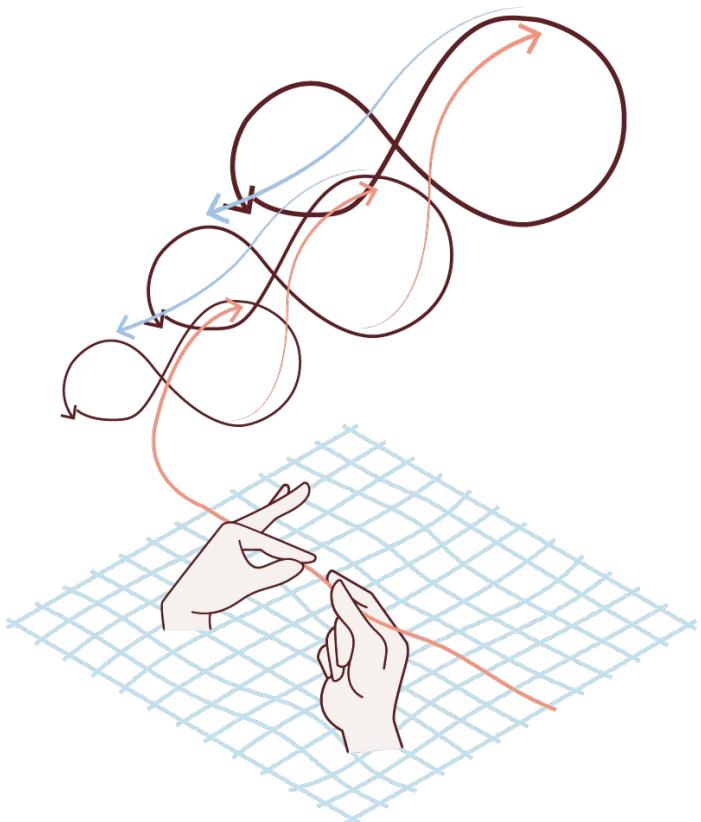
1 million homes to be built

- Salinisation
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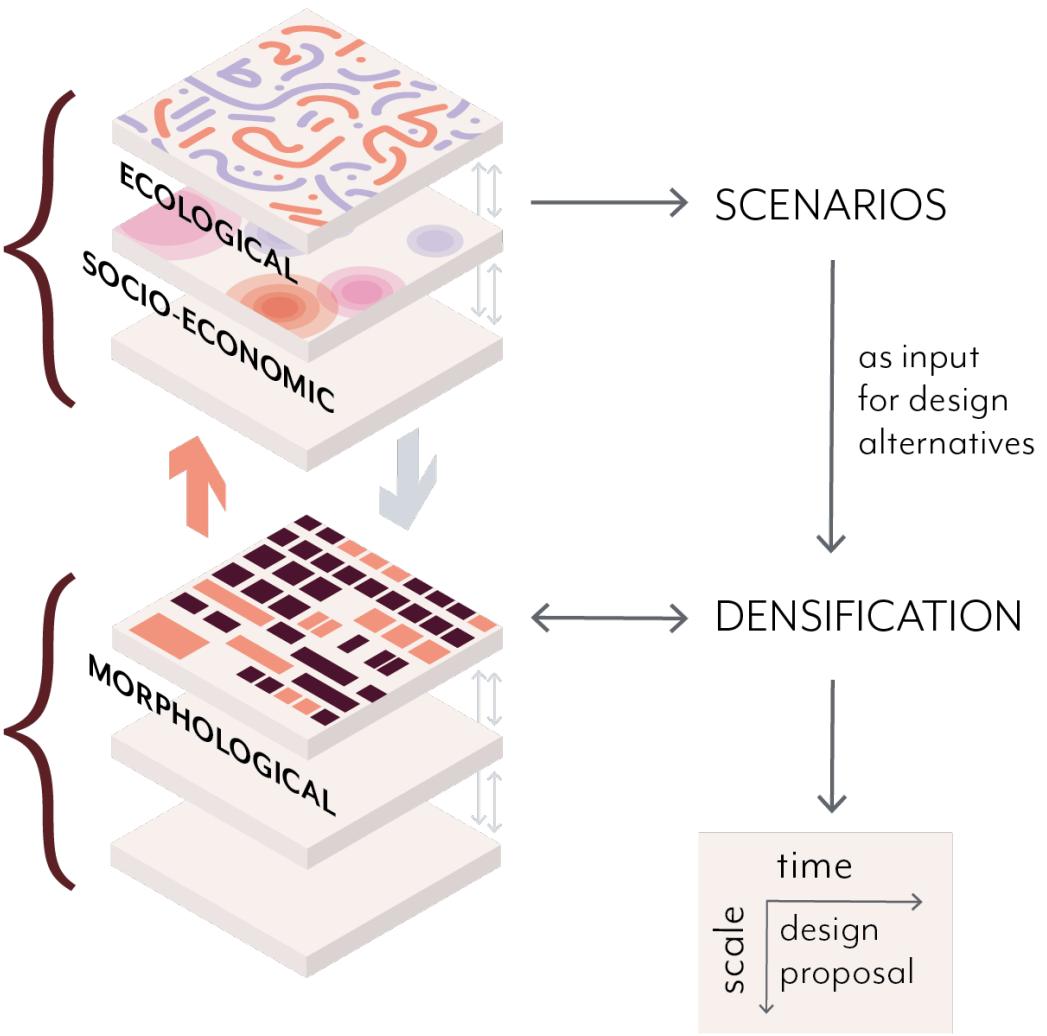
Focus on Gelderland



RESILIENCE of systems

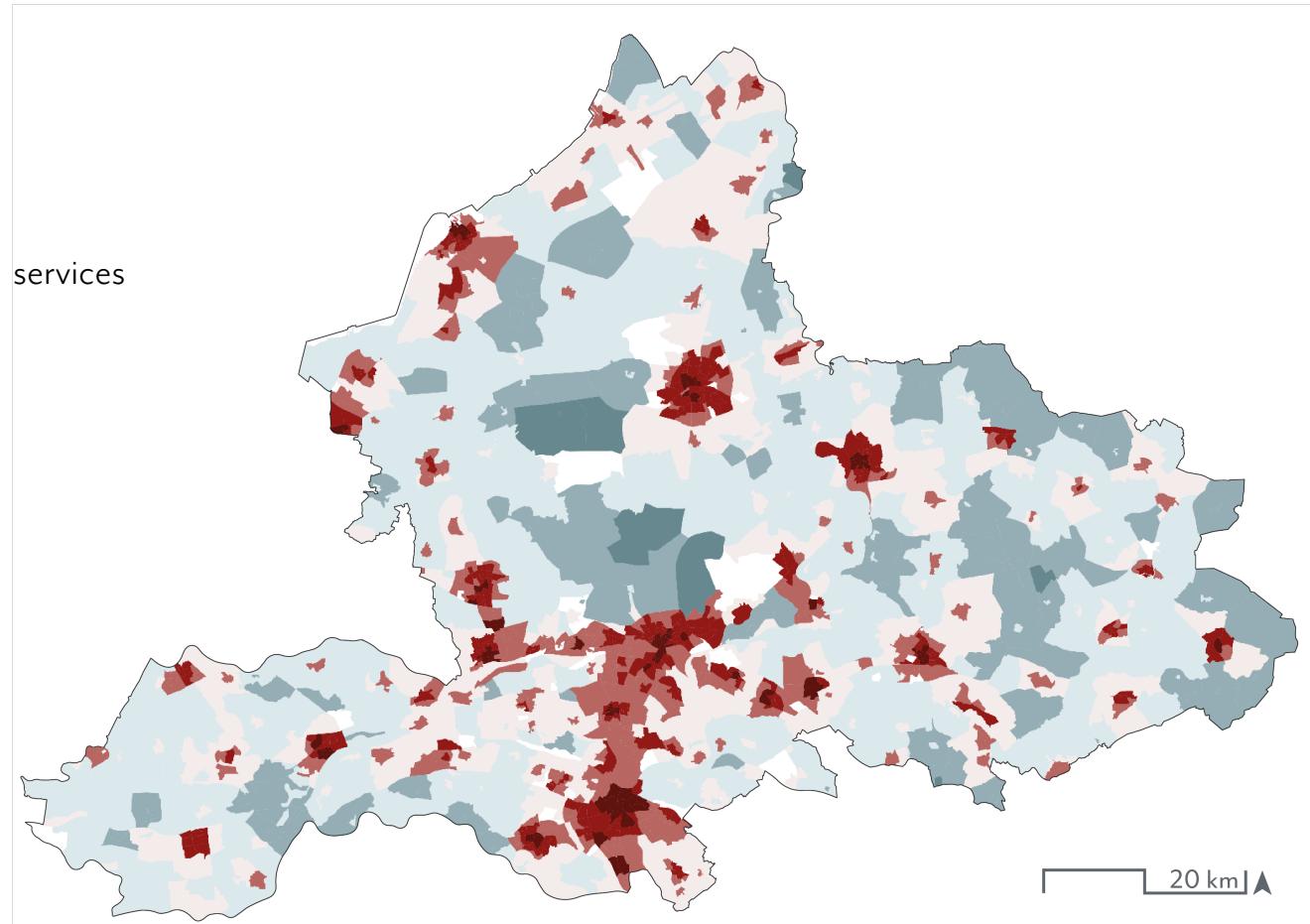
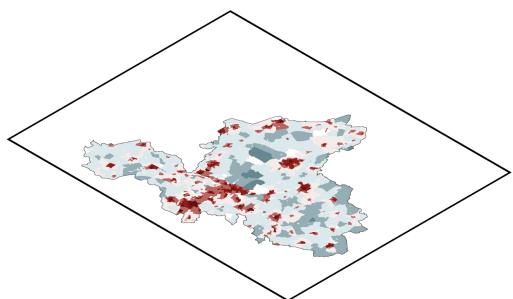


SPACE
as a framework

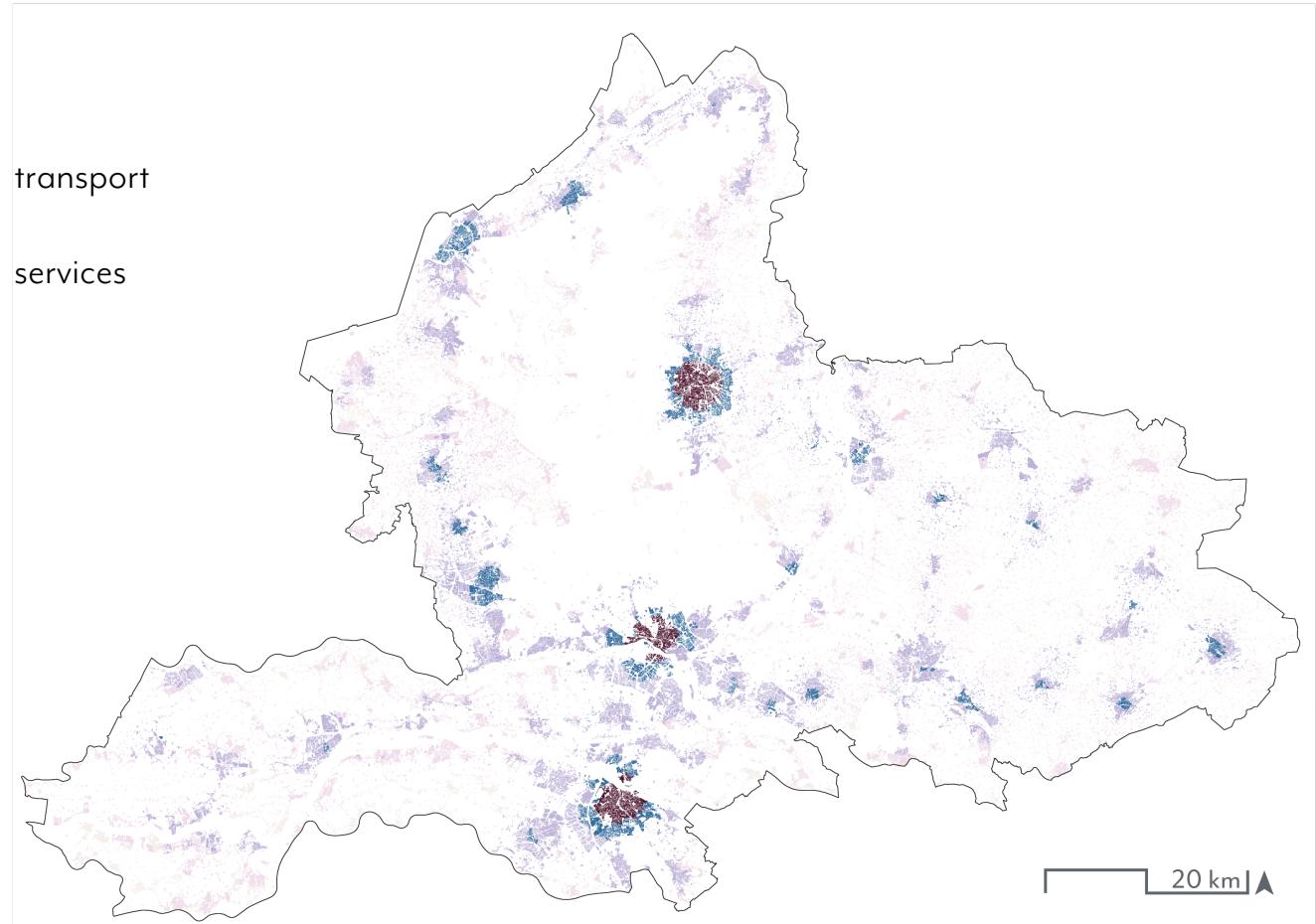
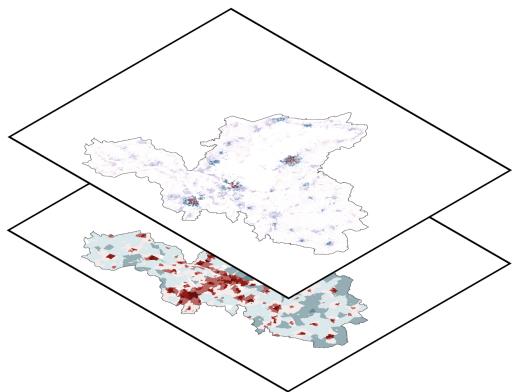


Where to densify?

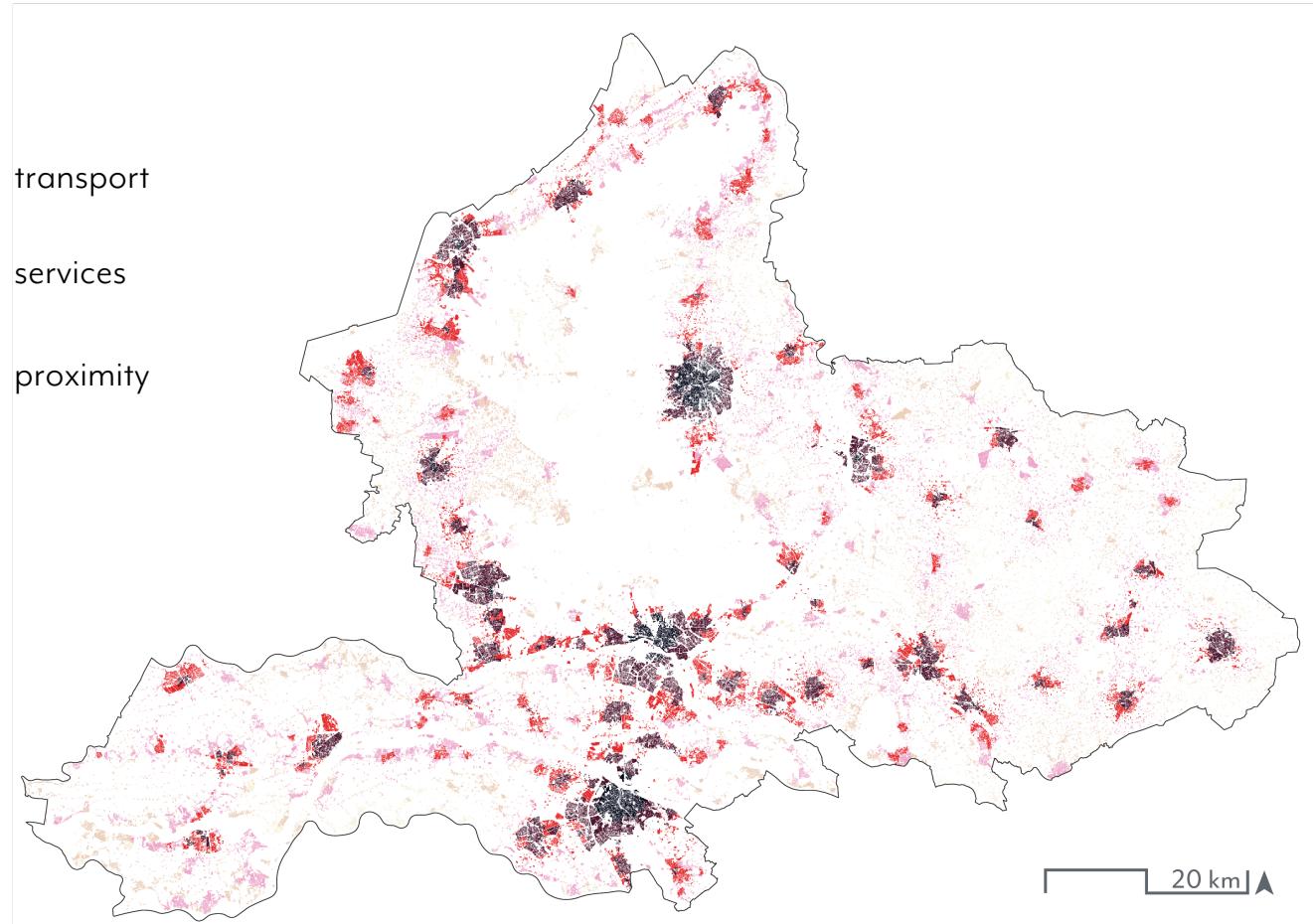
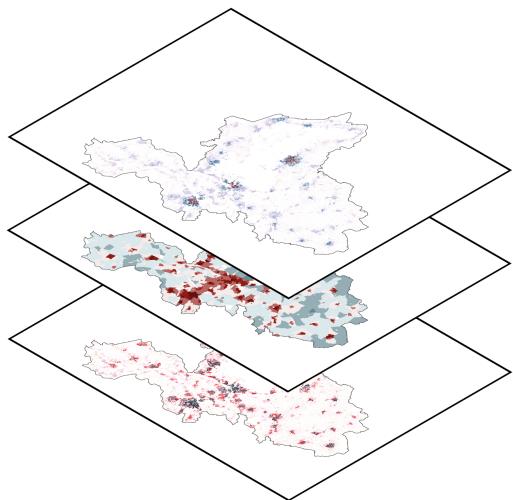
Regional densification strategy



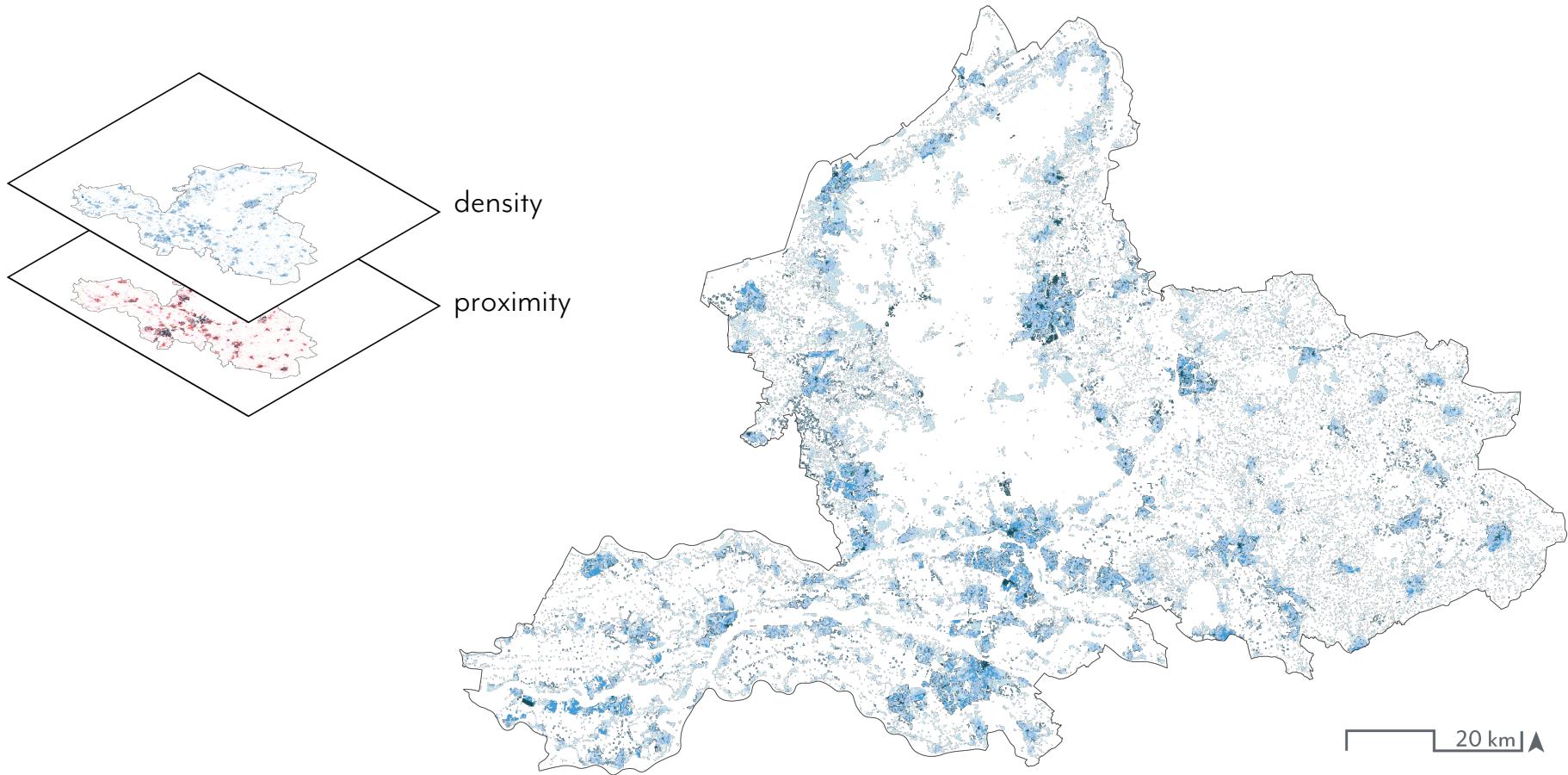
Regional densification strategy



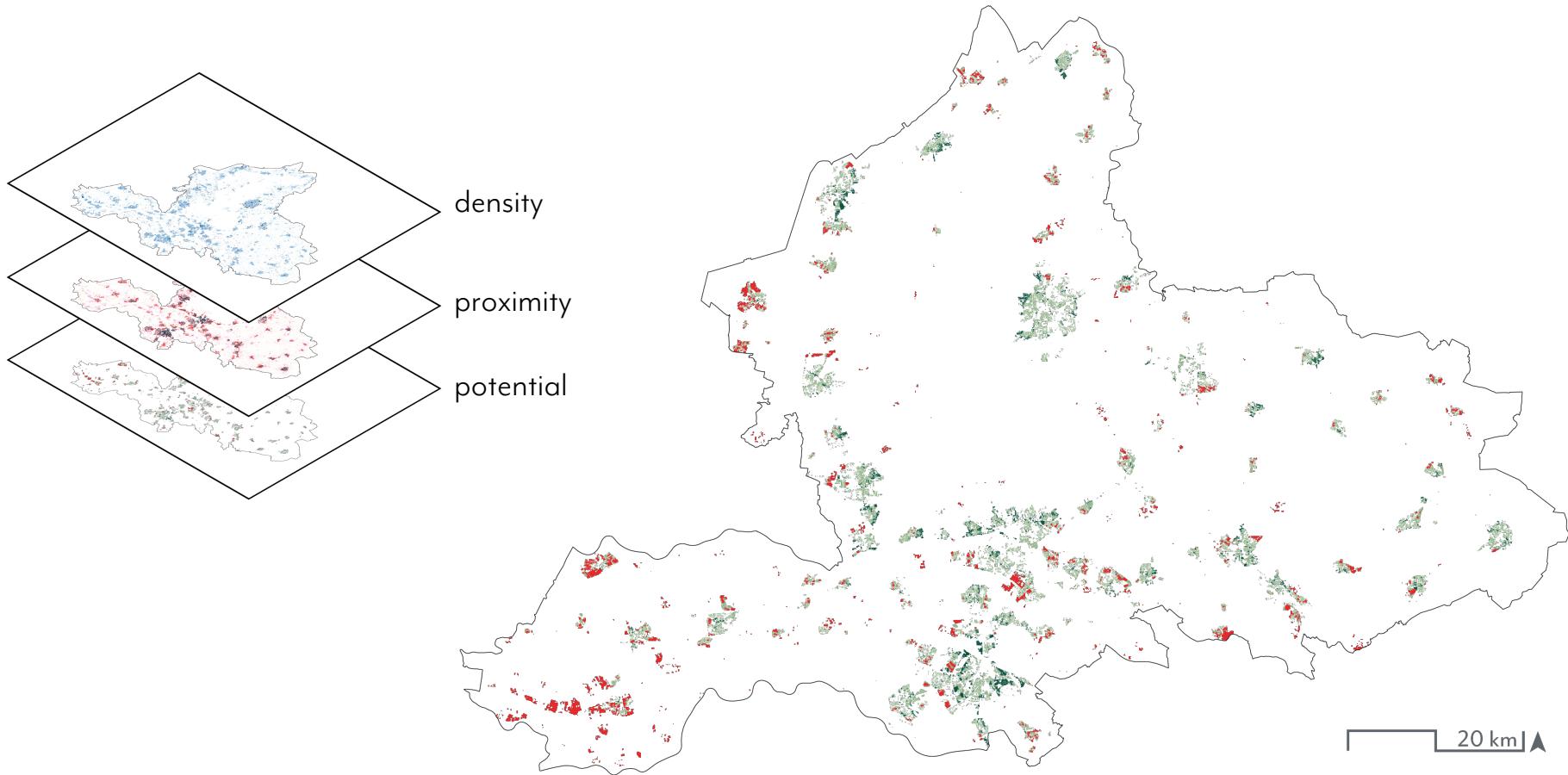
Regional densification strategy



Regional densification strategy

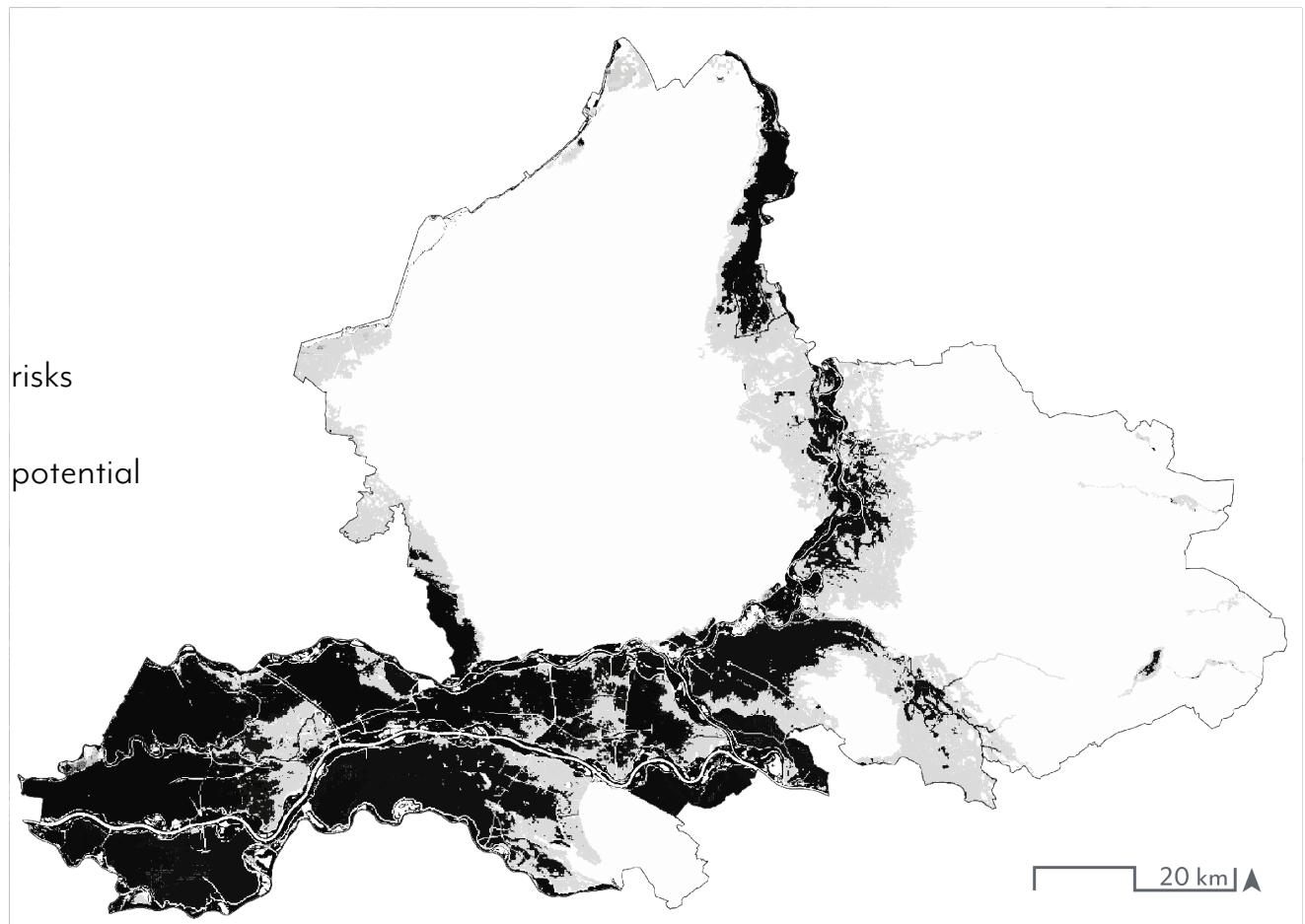
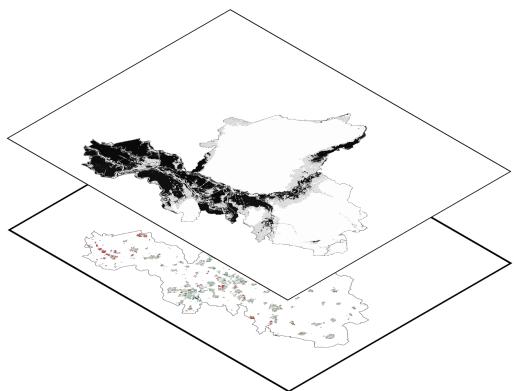


Regional densification strategy



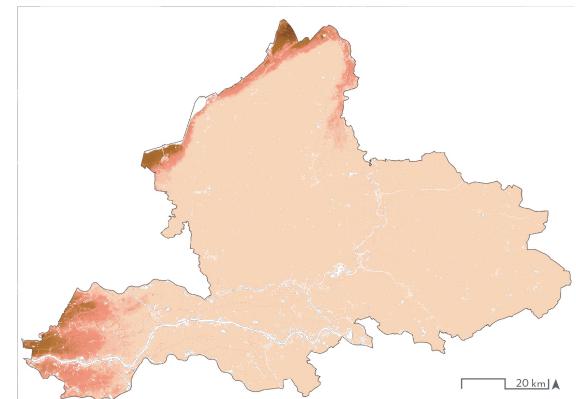
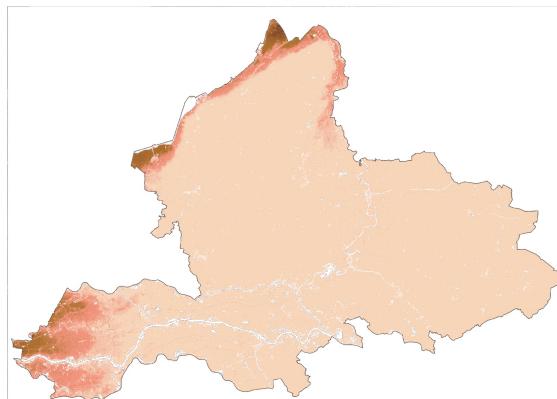
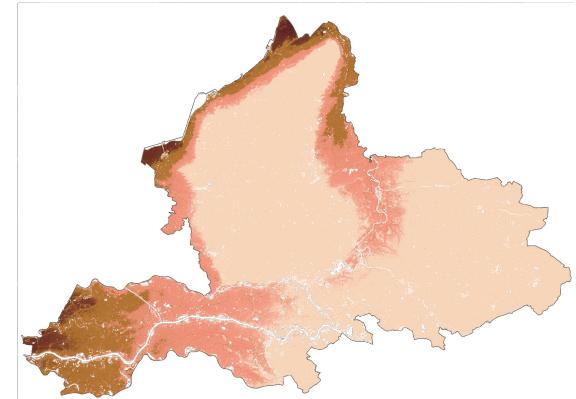
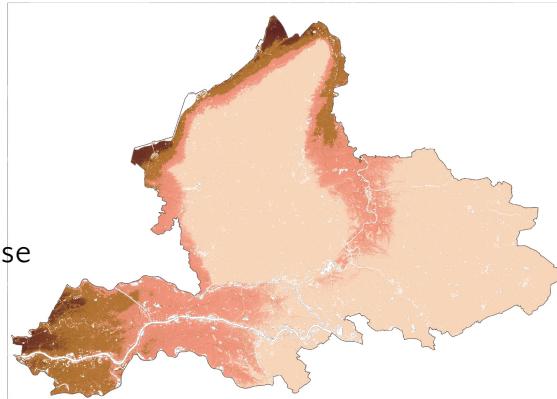
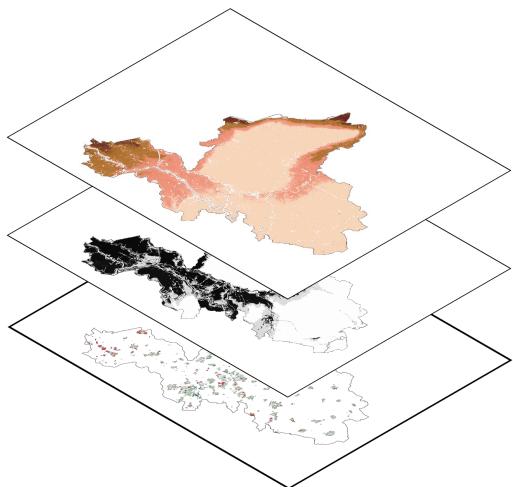
Regional densification strategy

Minimum risk 
Low risk 
Medium risk 
High risk 

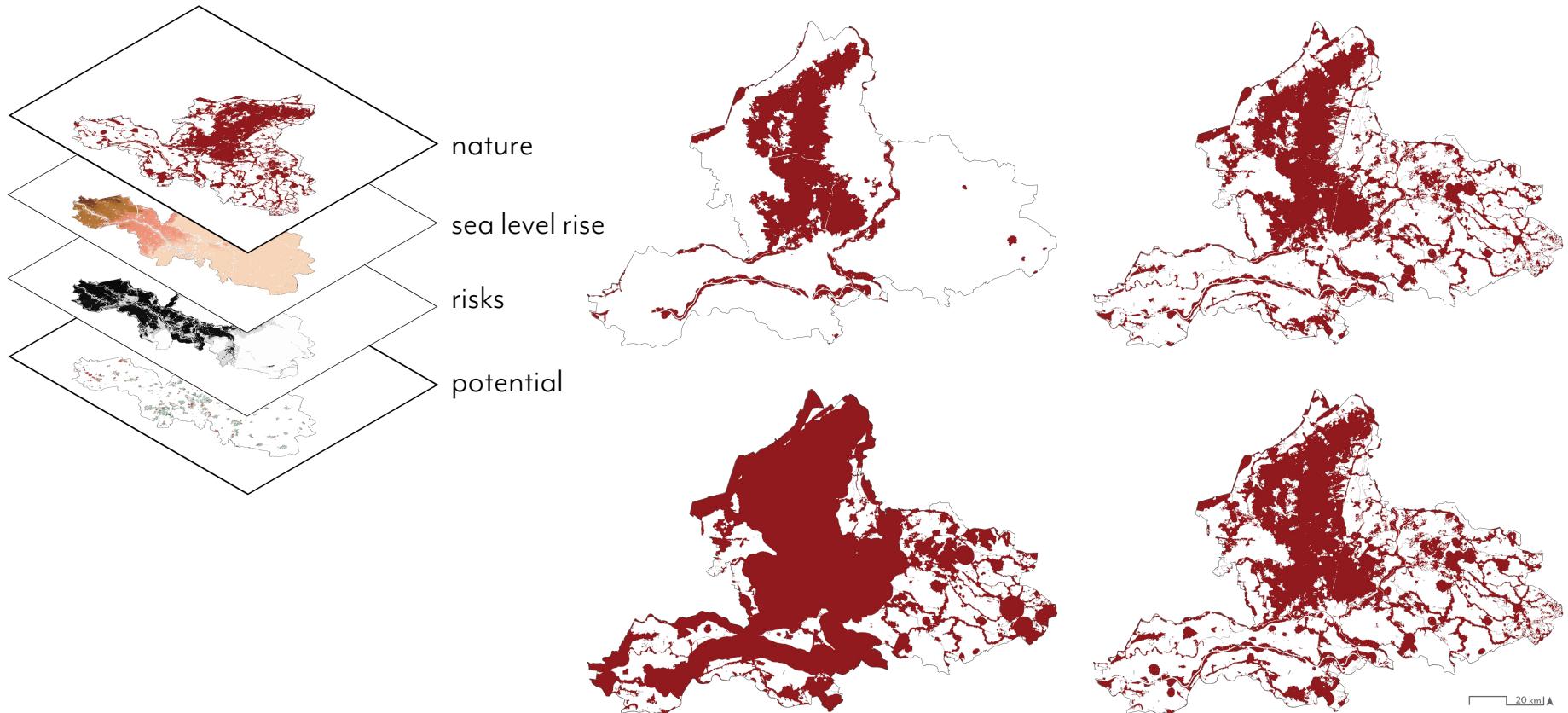


Regional densification strategy

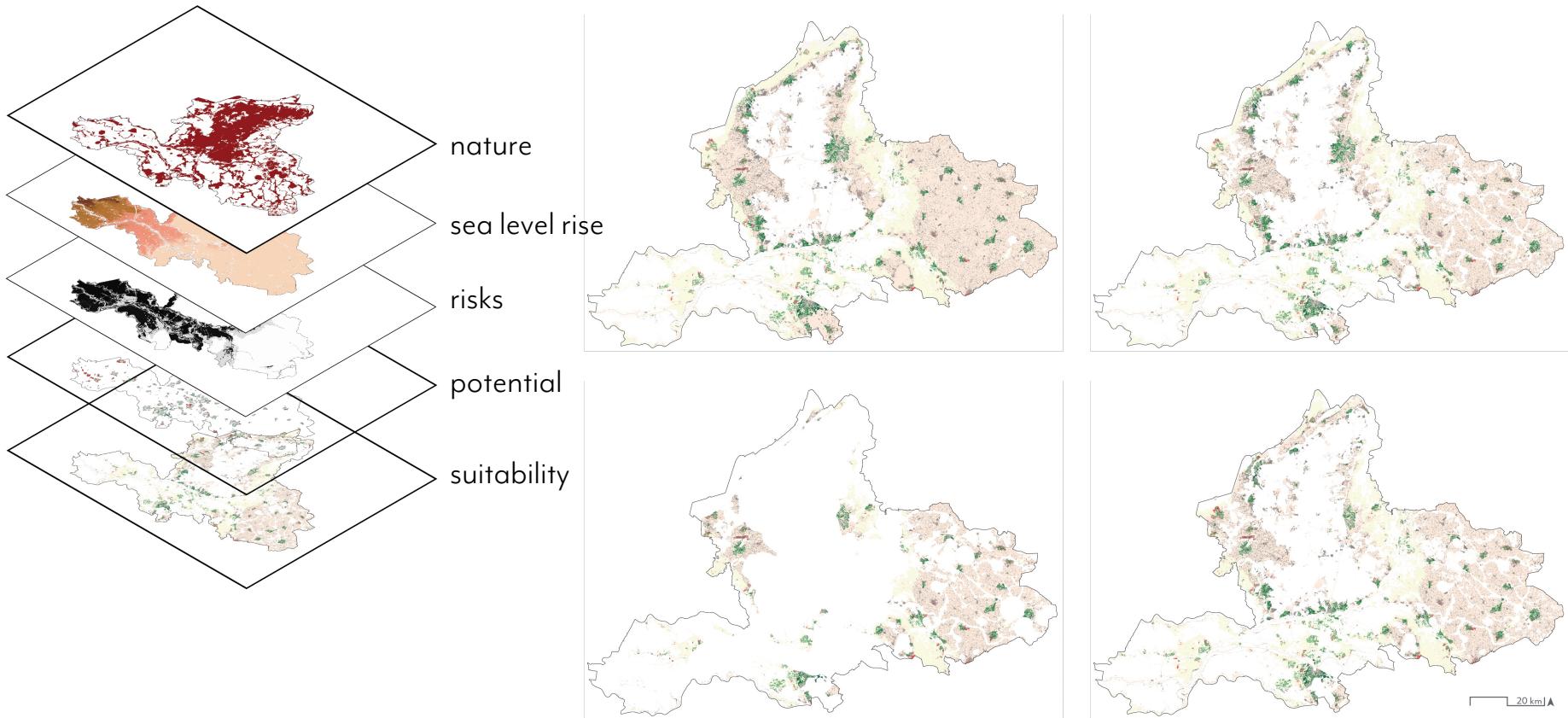
Very suitable
Quite suitable
Possible
Not suitable
No-go



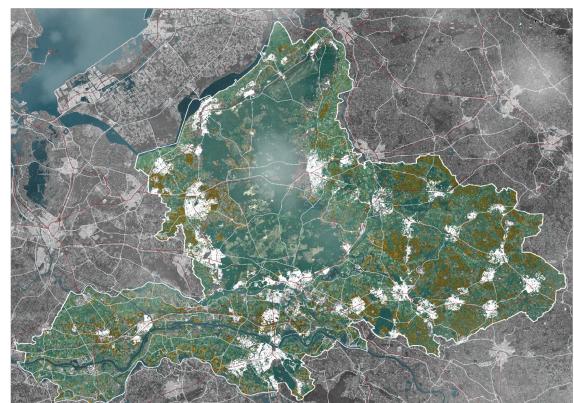
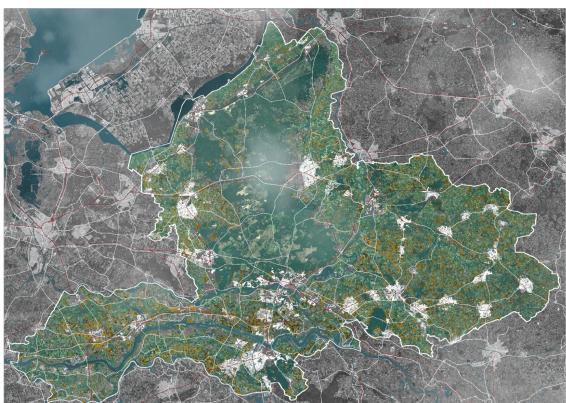
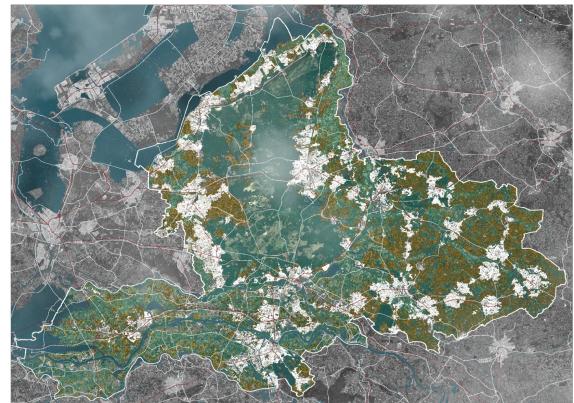
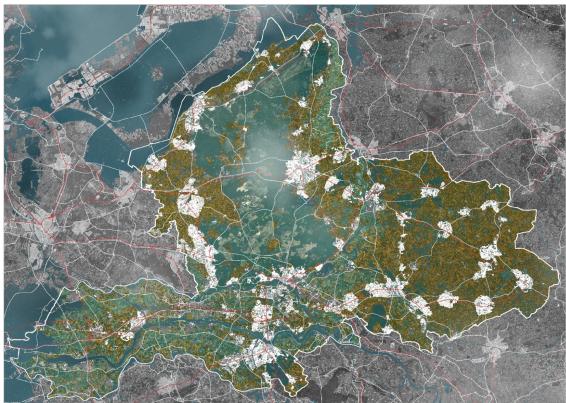
Regional densification strategy

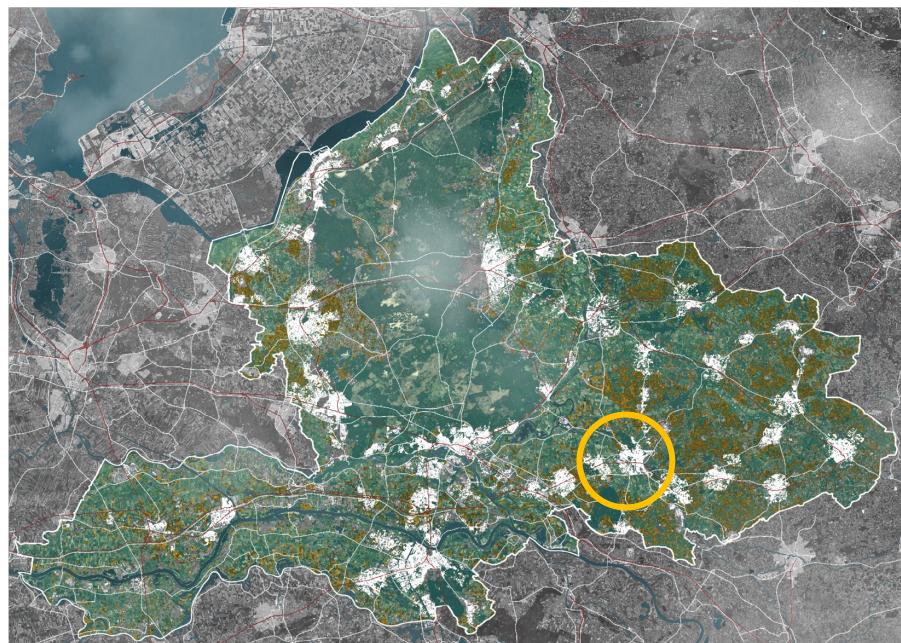
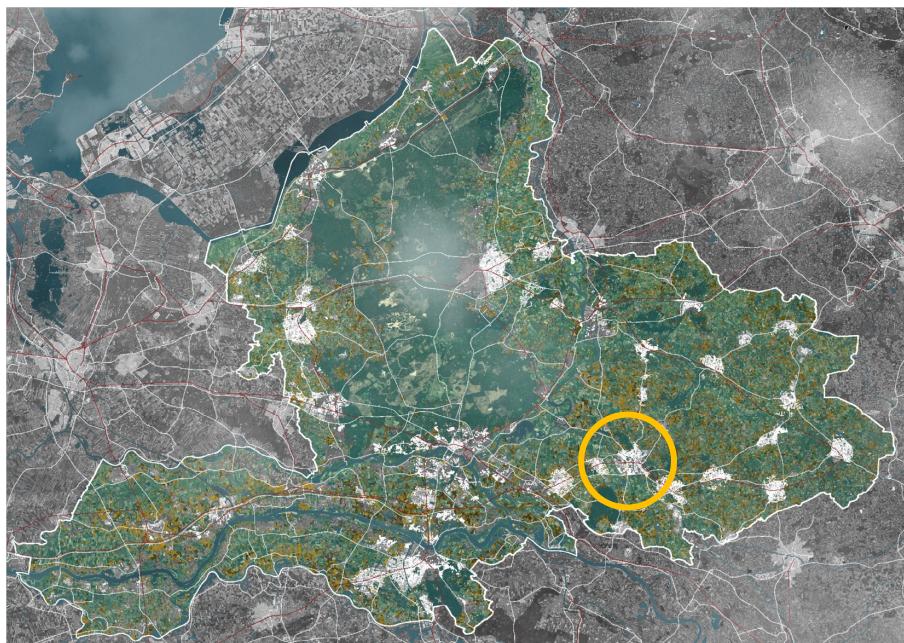
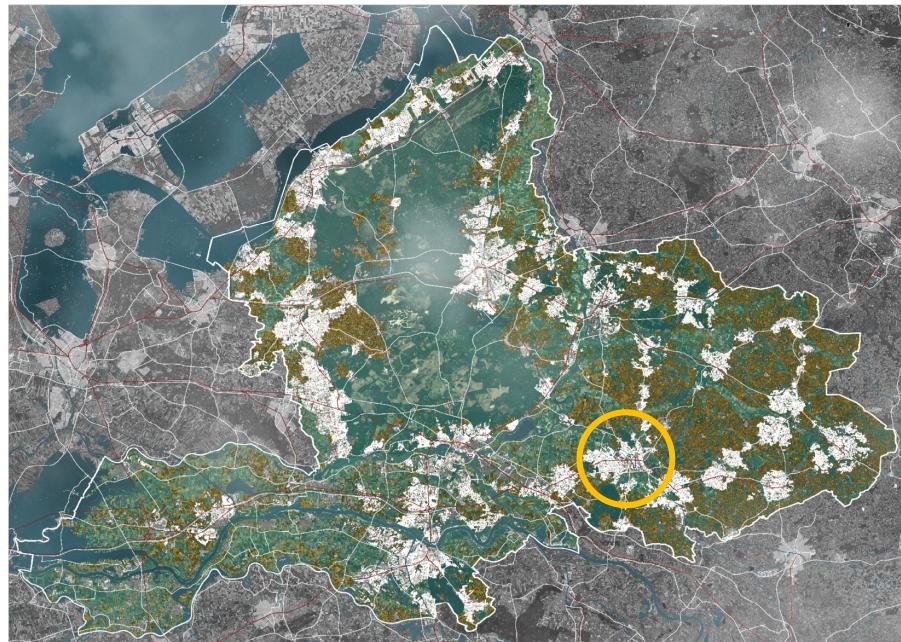
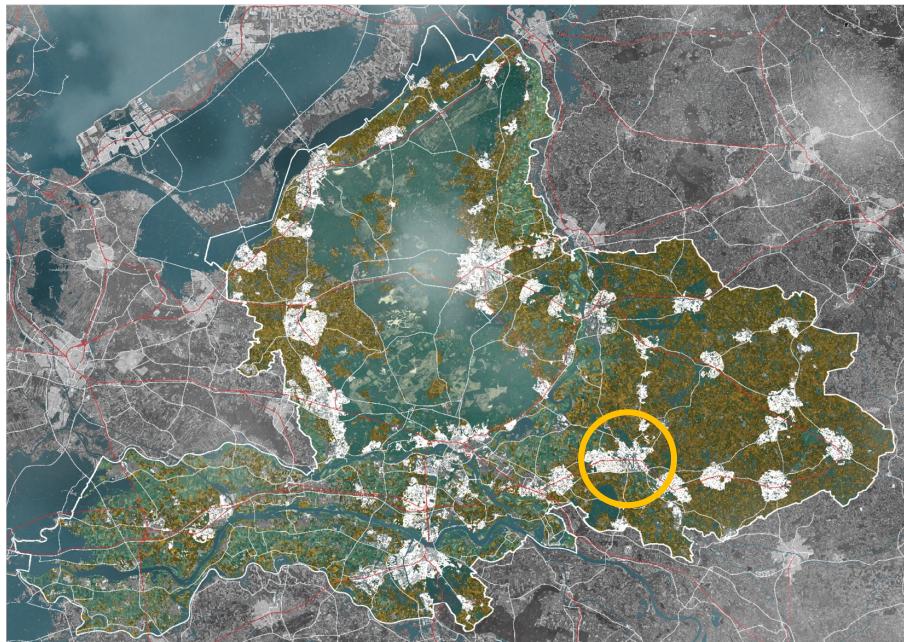


Regional densification strategy



Regional densification strategy





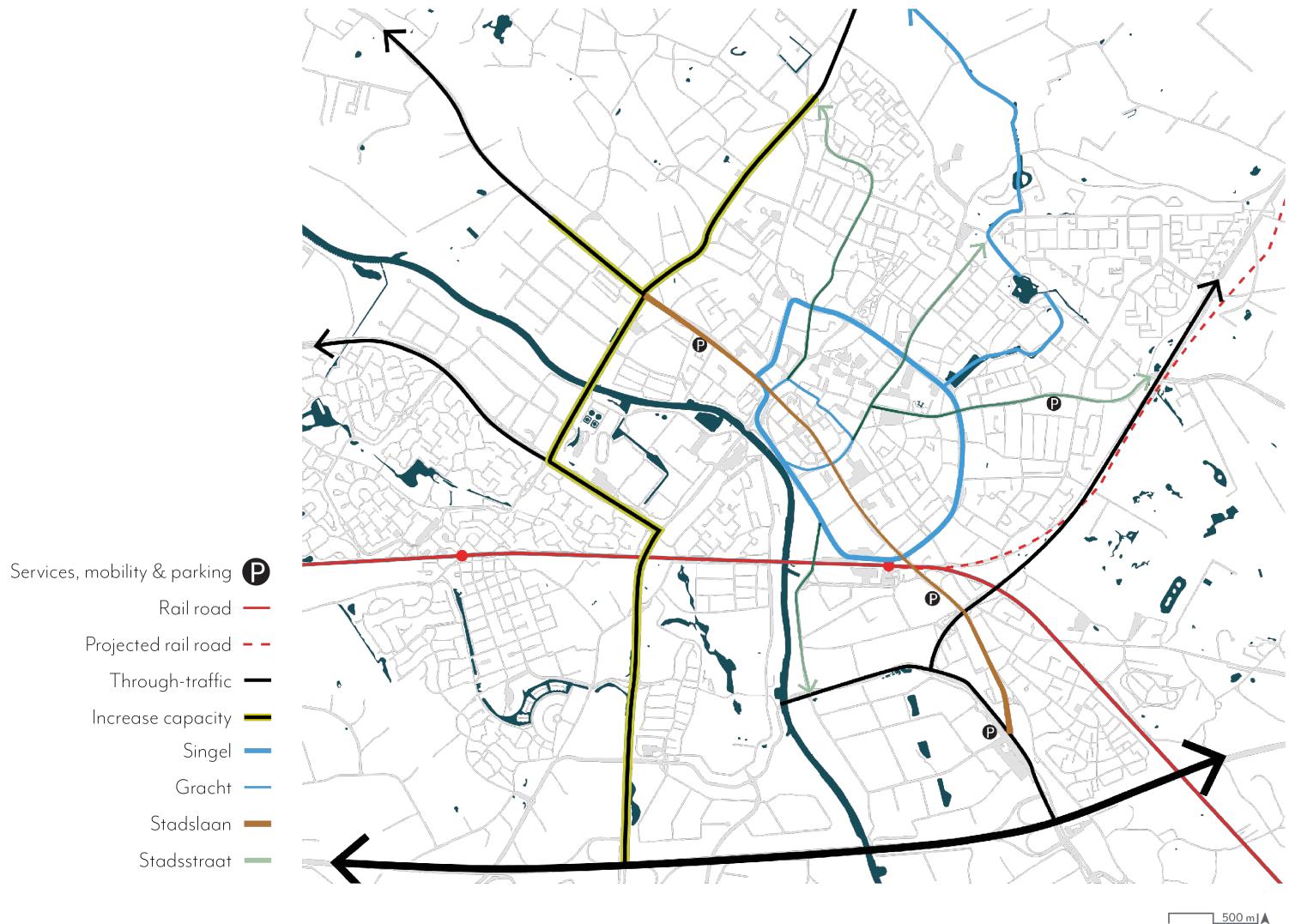
How can Doetinchem become more resilient?

Doetinchem

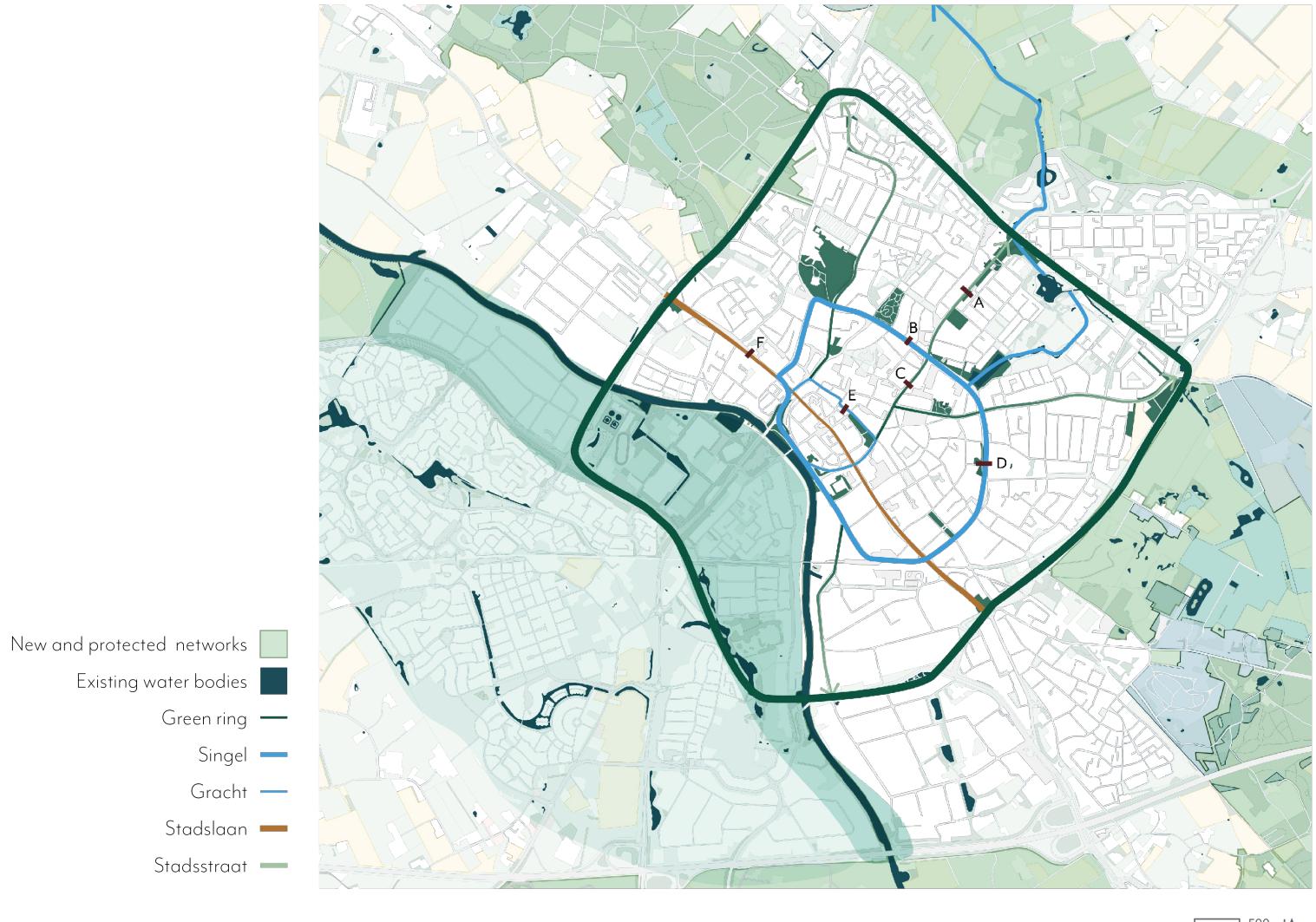


500 m ▲

A new urban network

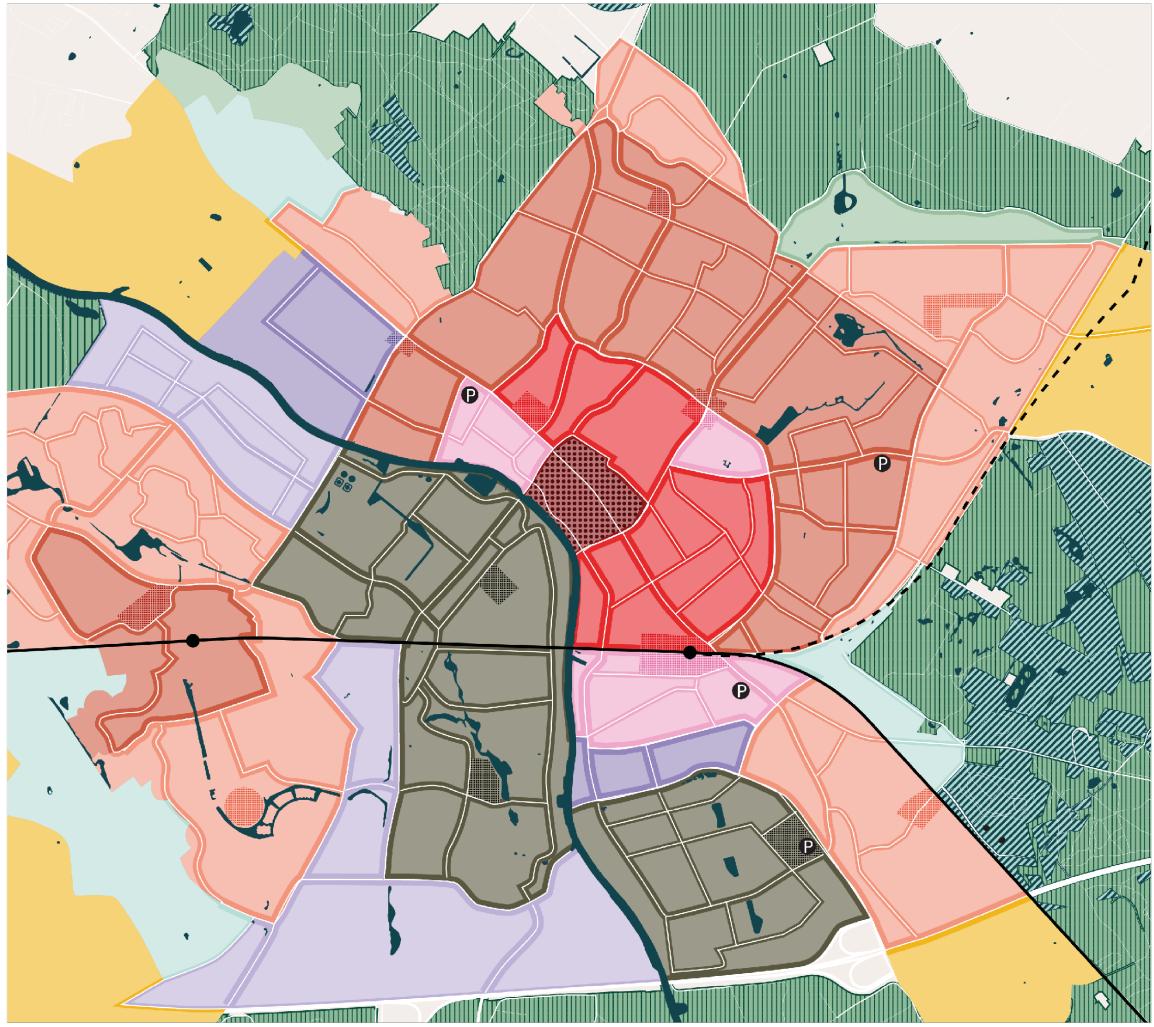


A nature inclusive city



Diverse urban characters

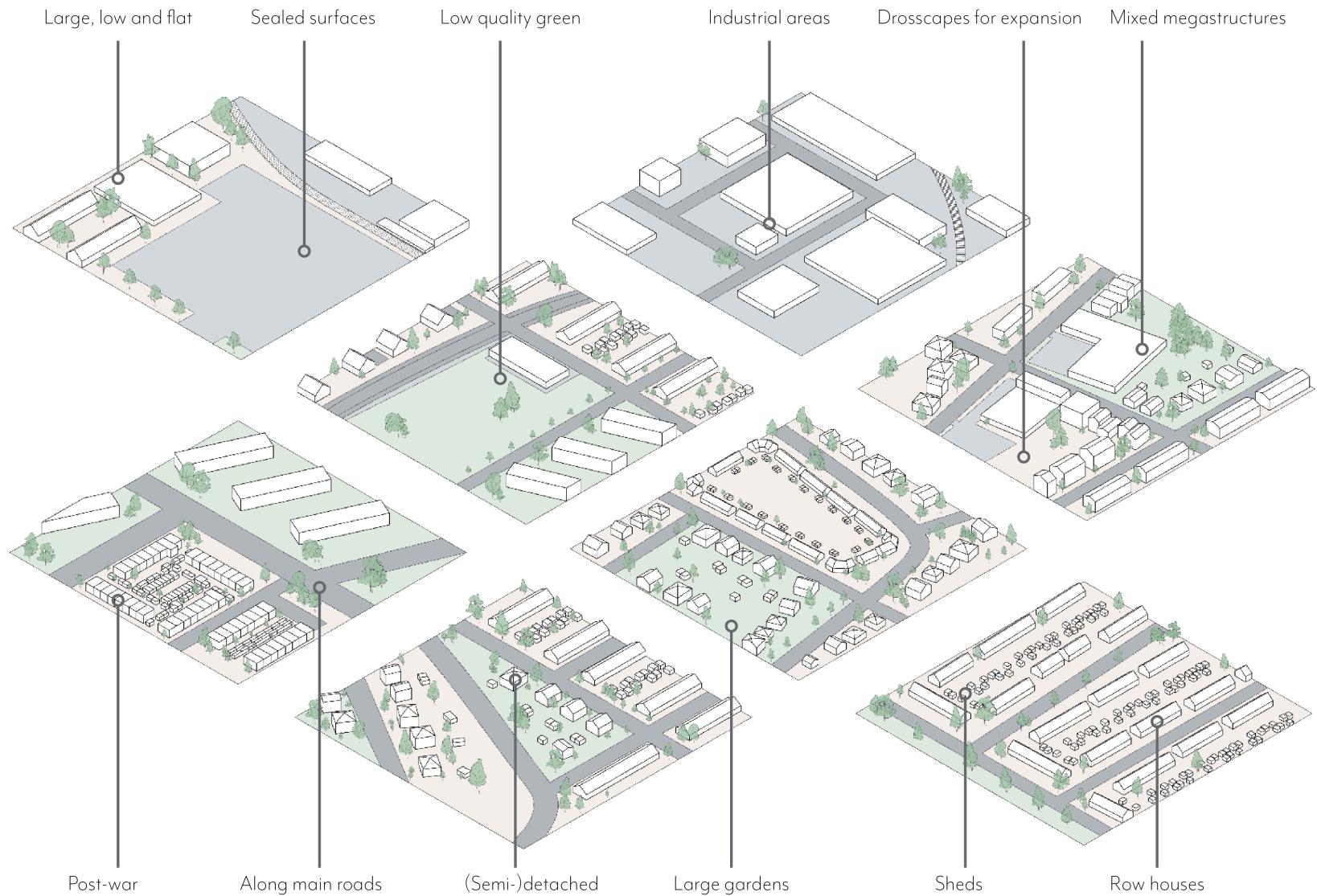
- Dense city centre
- Dense urban mix
- Park-like: living by the water
- Dense industry & work
- (Historic) centre
- Urban residential
- Suburban residential
- Mixed rural
- Suburban detached
- Peri-urban detached
- (Sub)urban industrial
- Higher density around central road
- Mixed service centre
- Services, mobility & parking 
- Rail road —
- Projected rail road - -



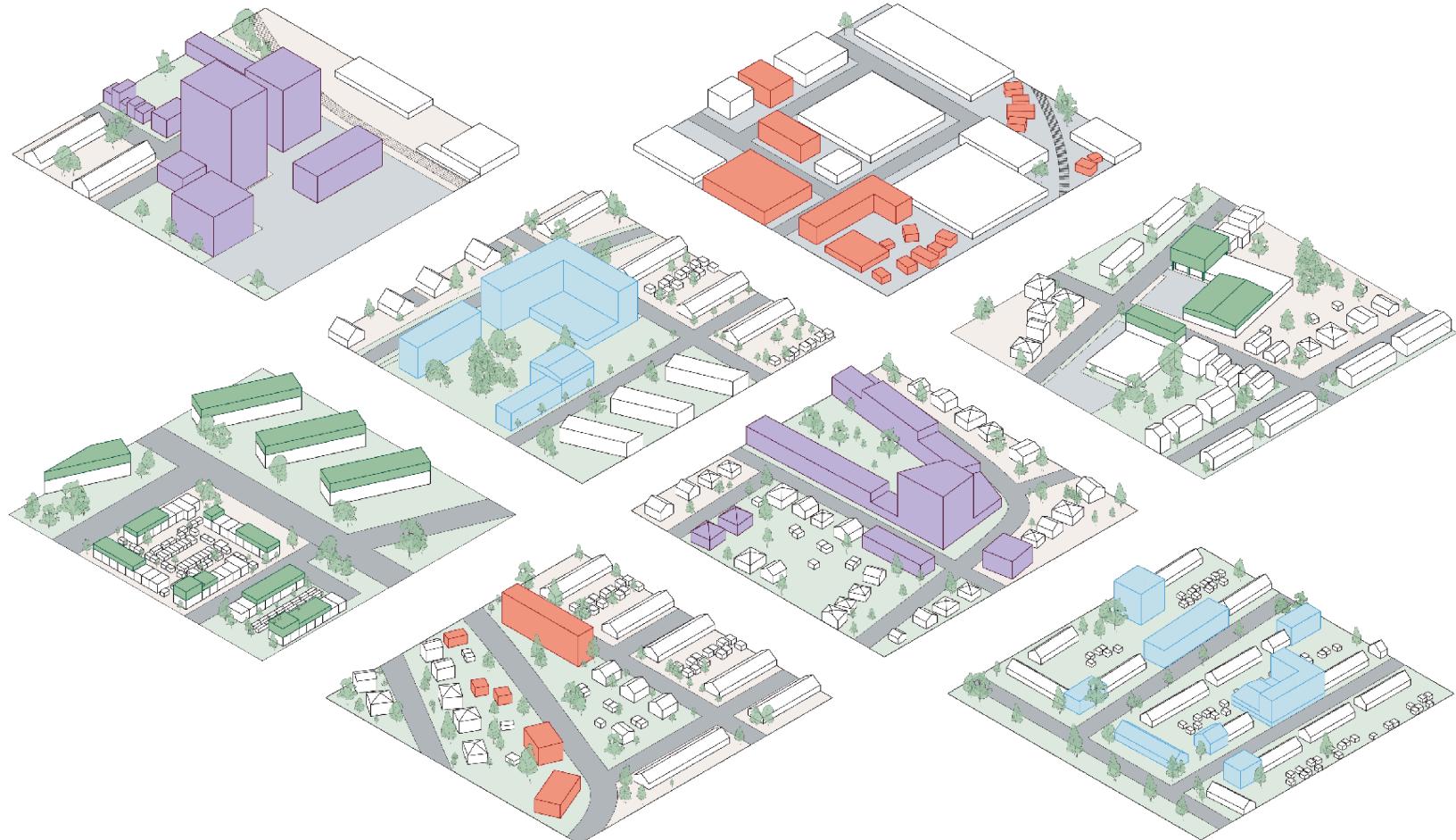
500 m 

How to densify?

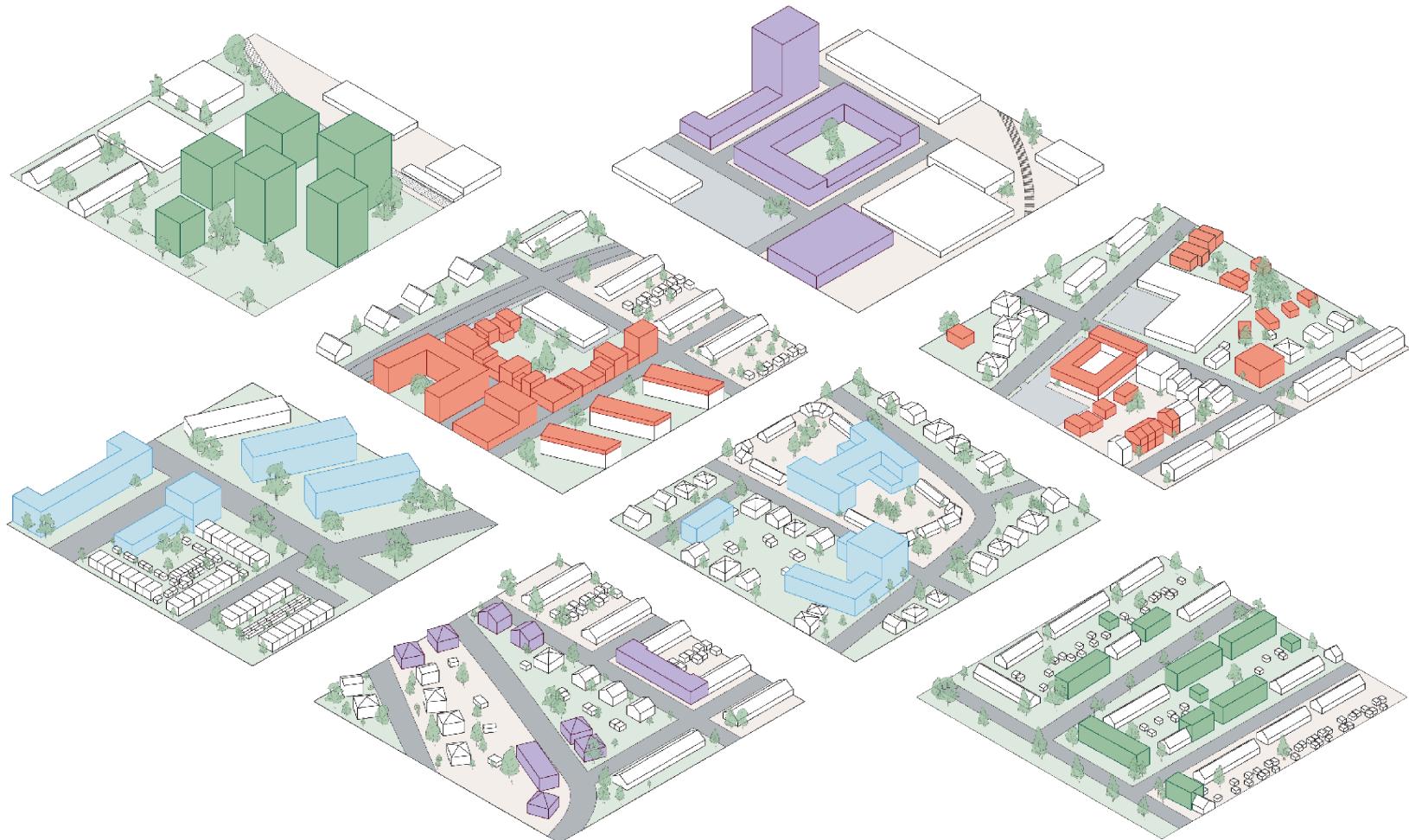
Spatial structures



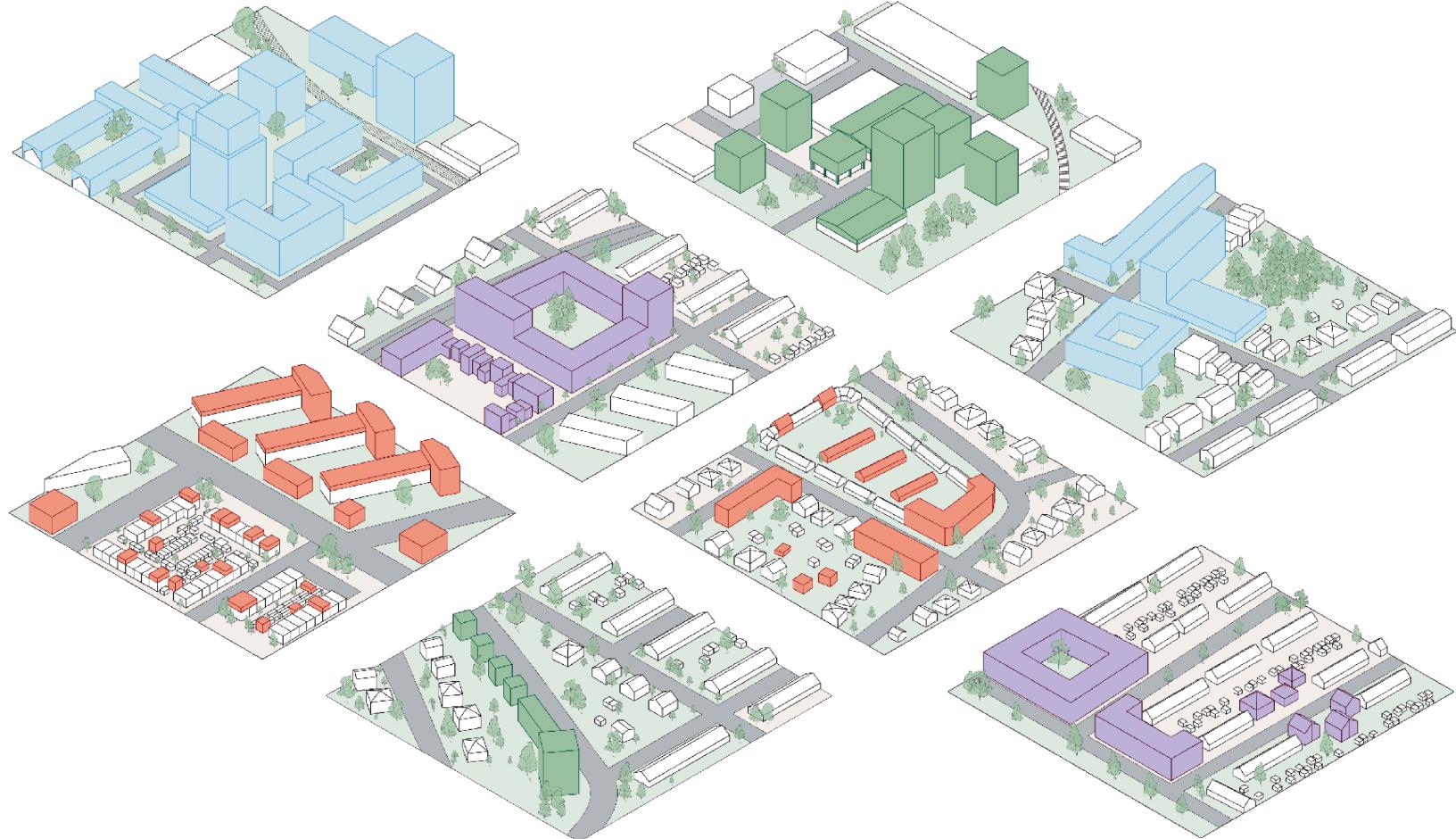
Spatial structures



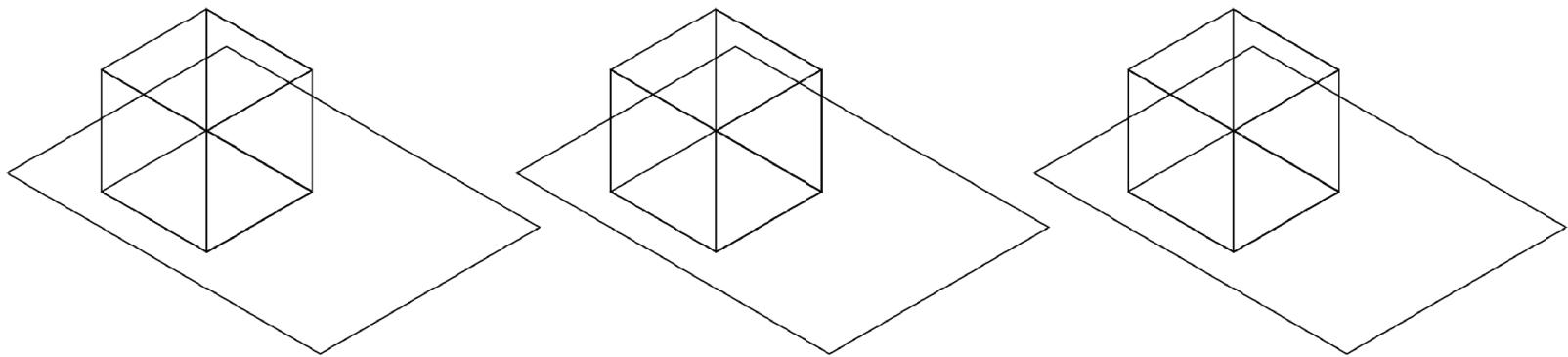
Spatial structures



Spatial structures



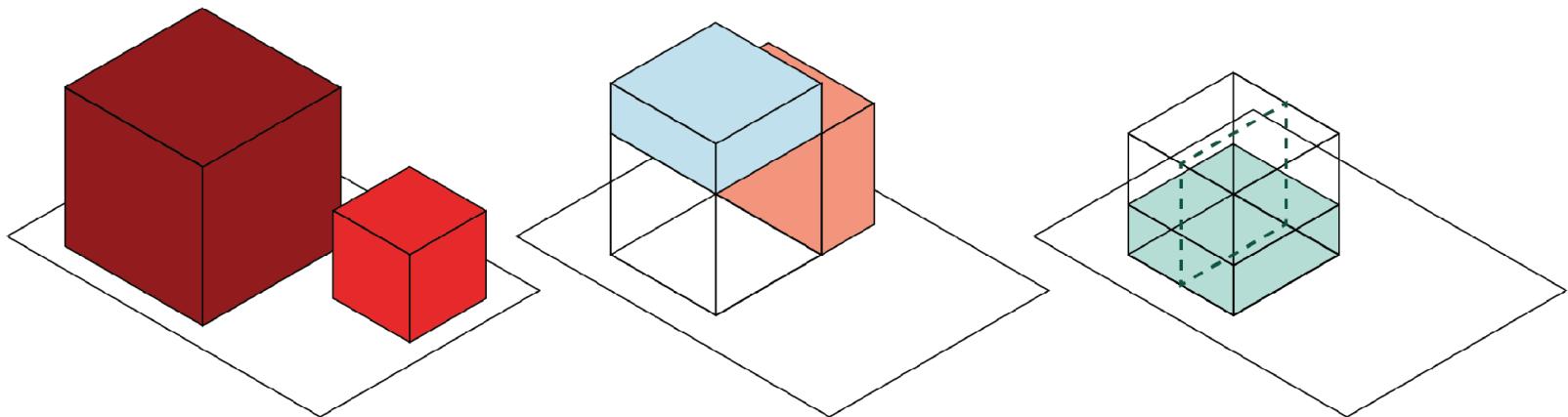
Densification methods



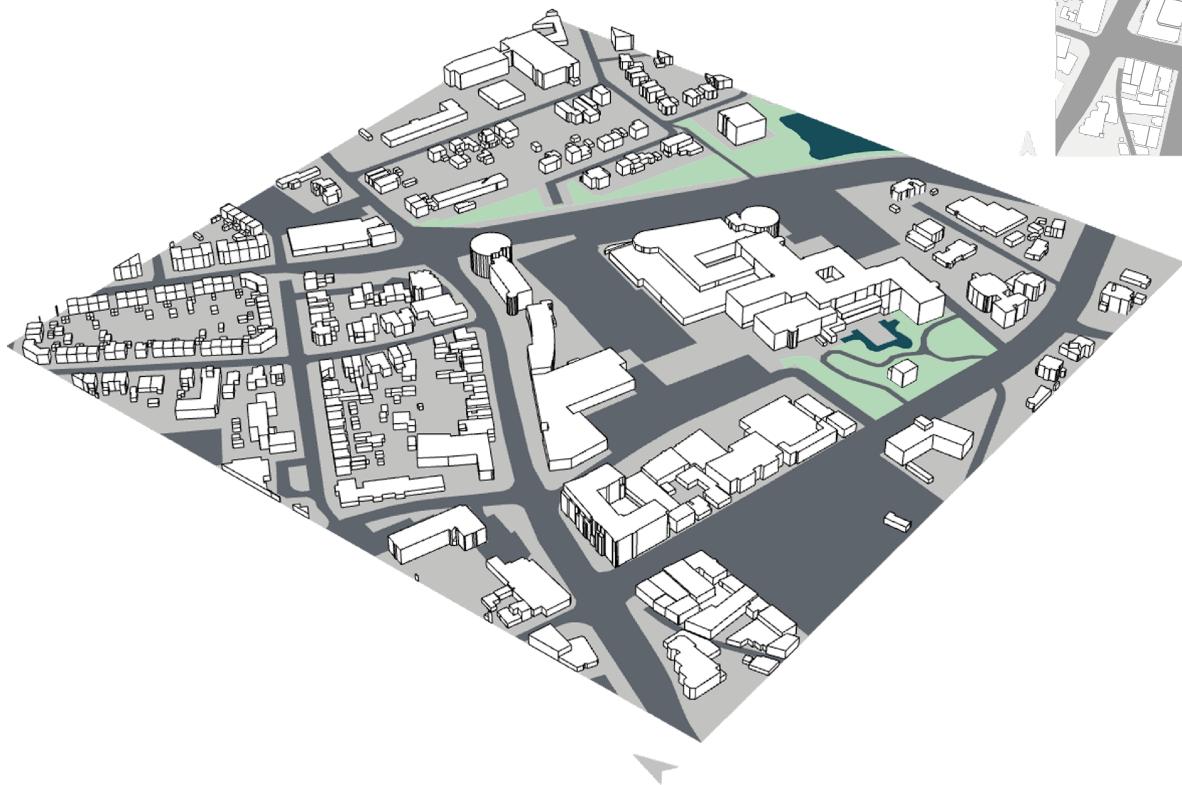
Densification methods

New construction
Hard densification

Transformation
Soft densification



Transforming a neighbourhood



Transforming a neighbourhood

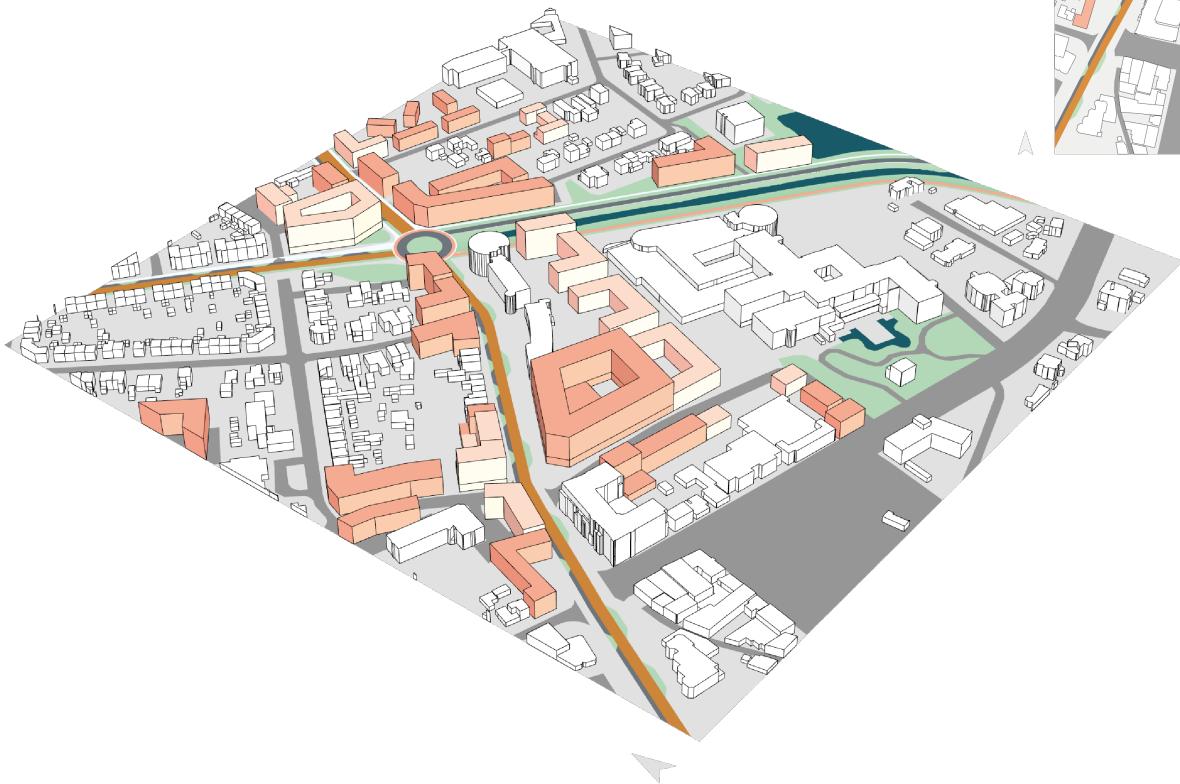
Phase 1: + 27% floor space



Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

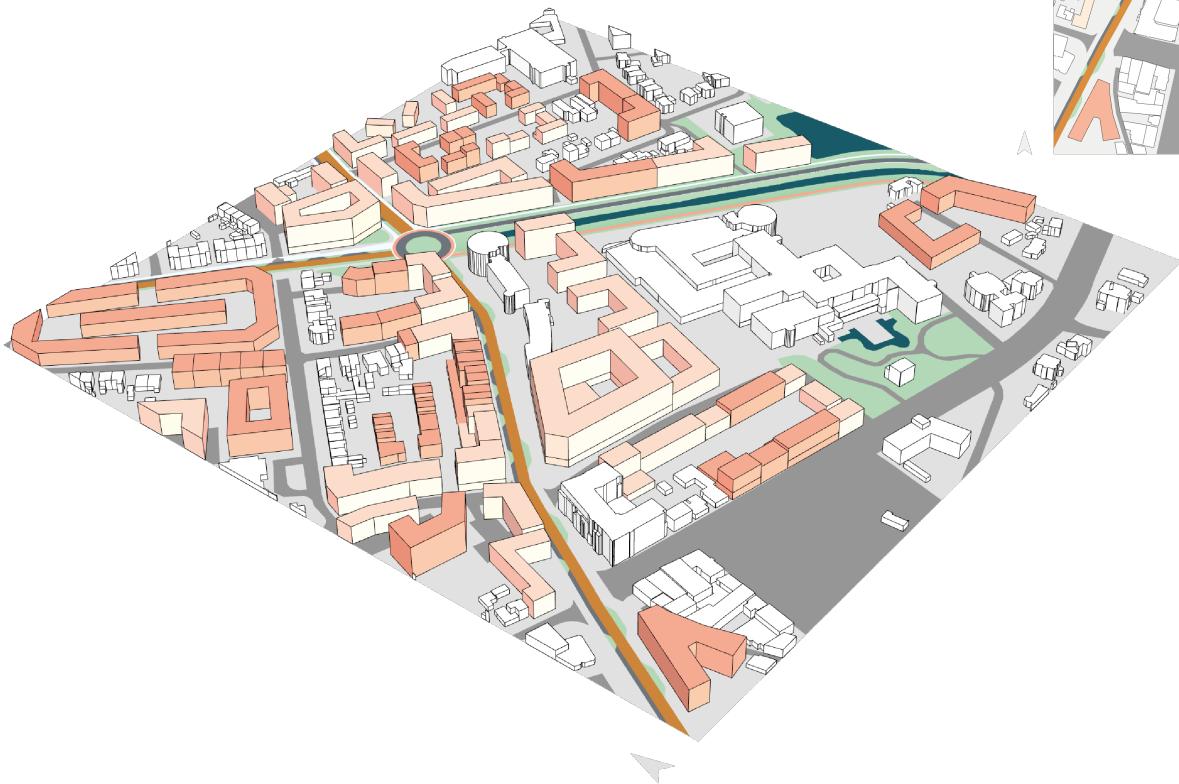


Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

Phase 3: + 105% floor space



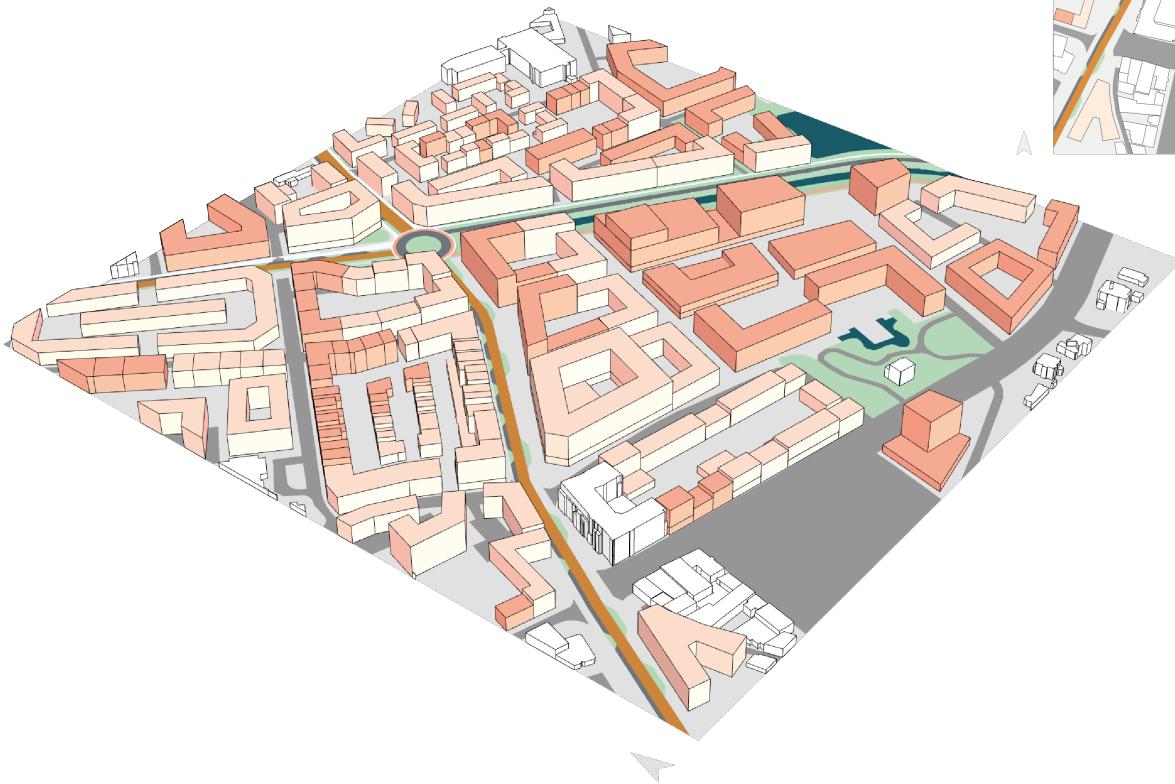
Transforming a neighbourhood

Phase 1: + 27% floor space

Phase 2: + 65% floor space

Phase 3: + 105% floor space

Phase 4: + 165% floor space









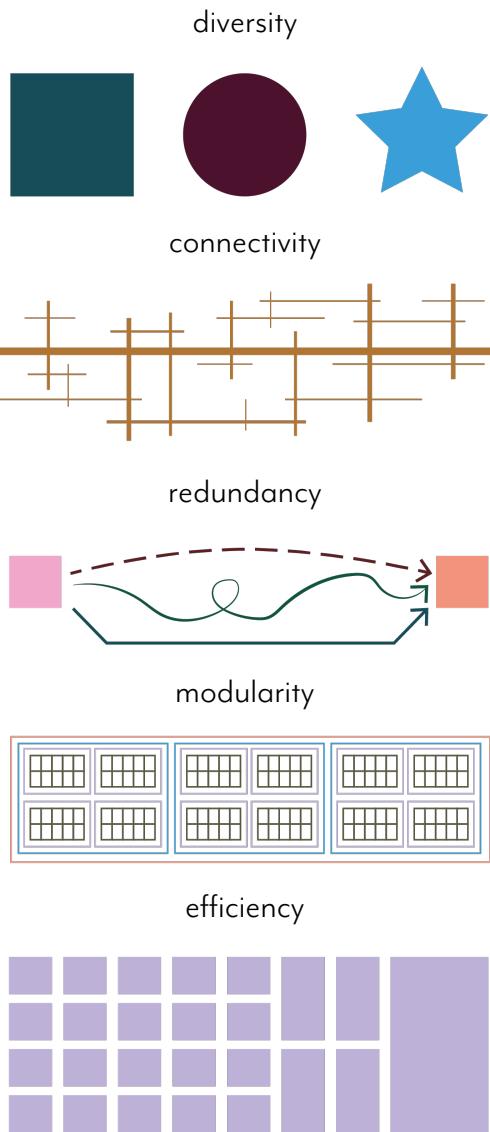








Guidelines for resilient densification



Diverse urban characters

Proximity to service centres

Multiple service centres, less dependent on the city centre

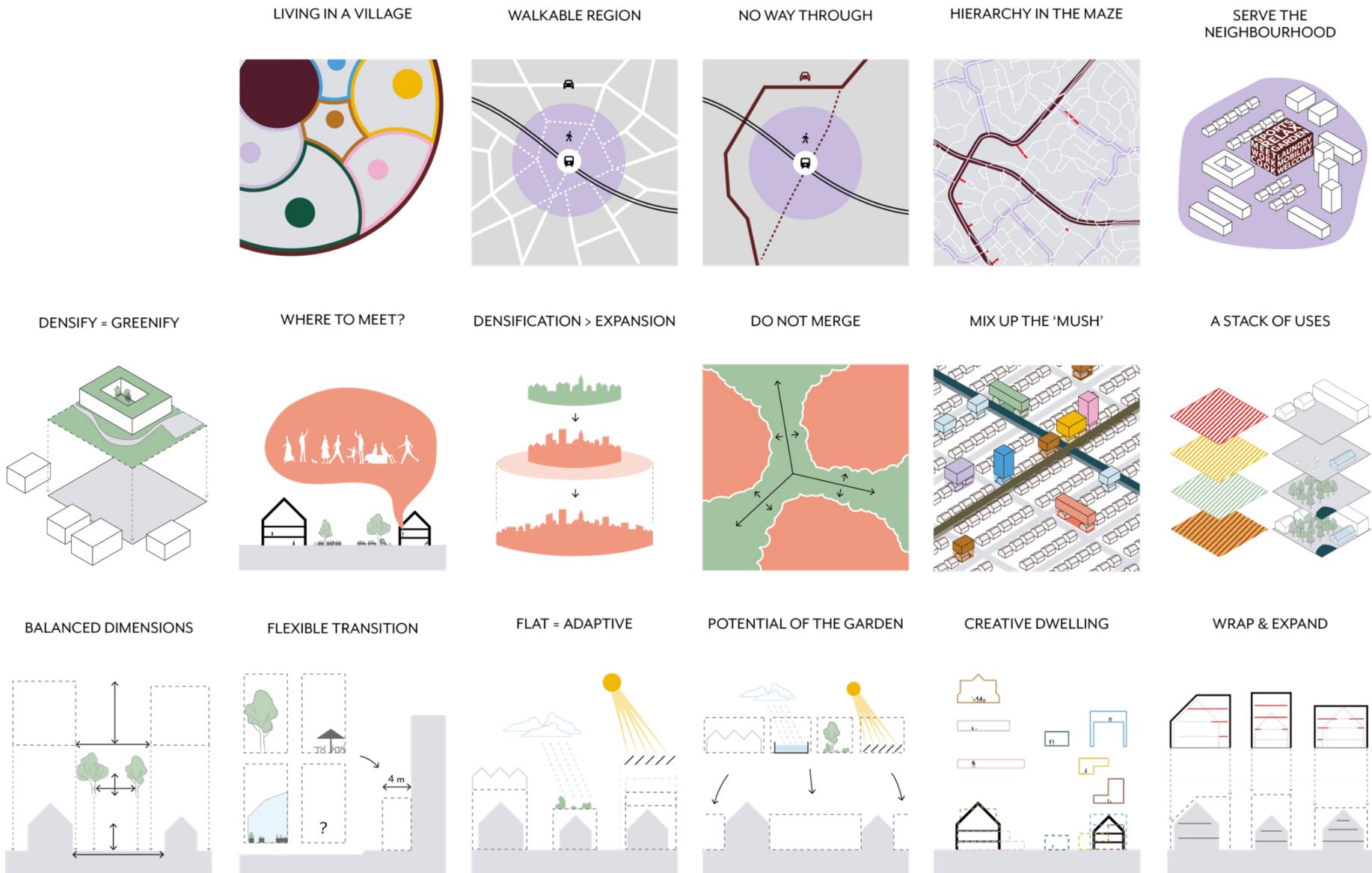
Neighbourhoods as autonomous entities

Many small neighbourhoods, one larger city centre

LIVING IN A VILLAGE



Guidelines for resilient densification



Conclusion

Specific resilience

&

General resilience

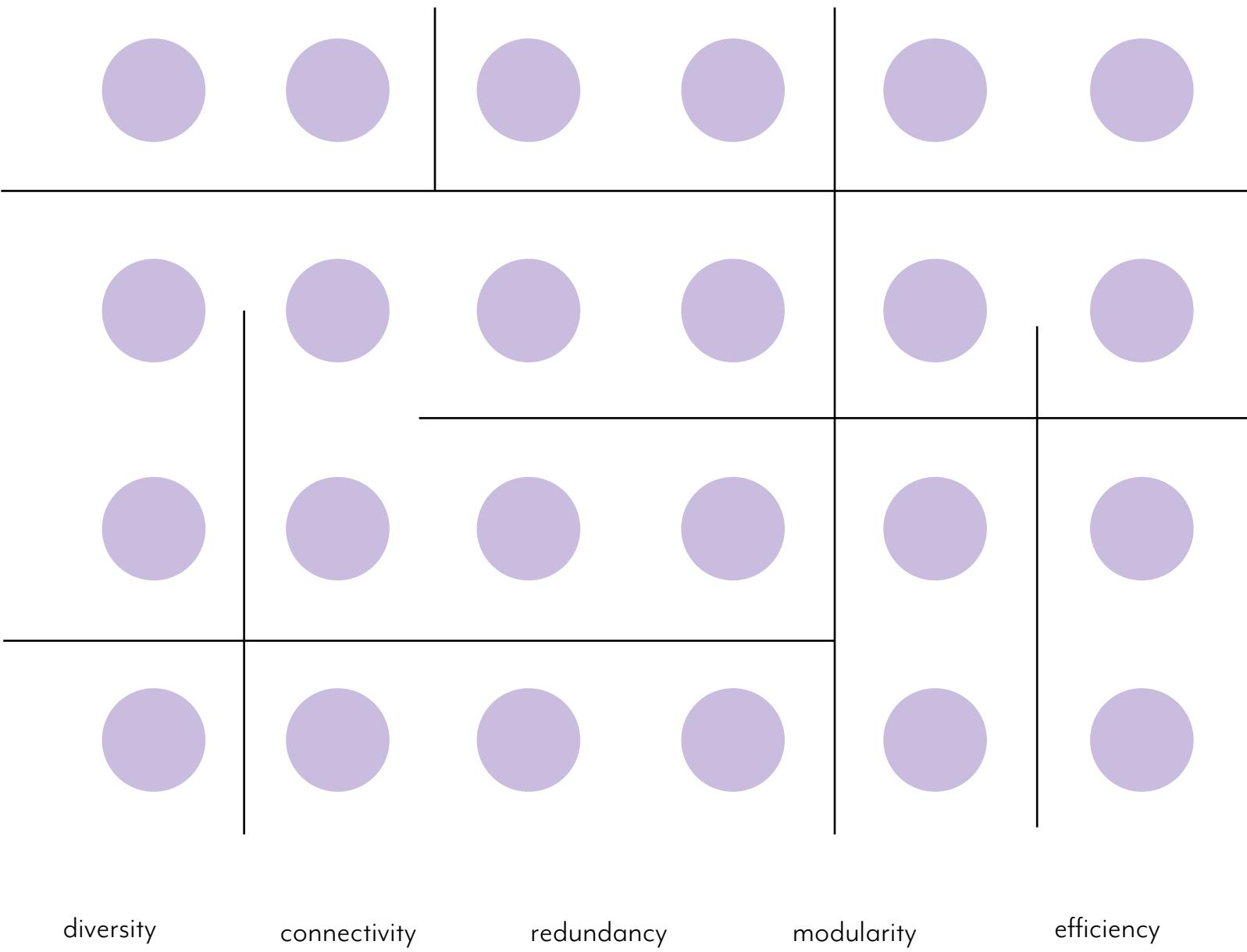
diversity

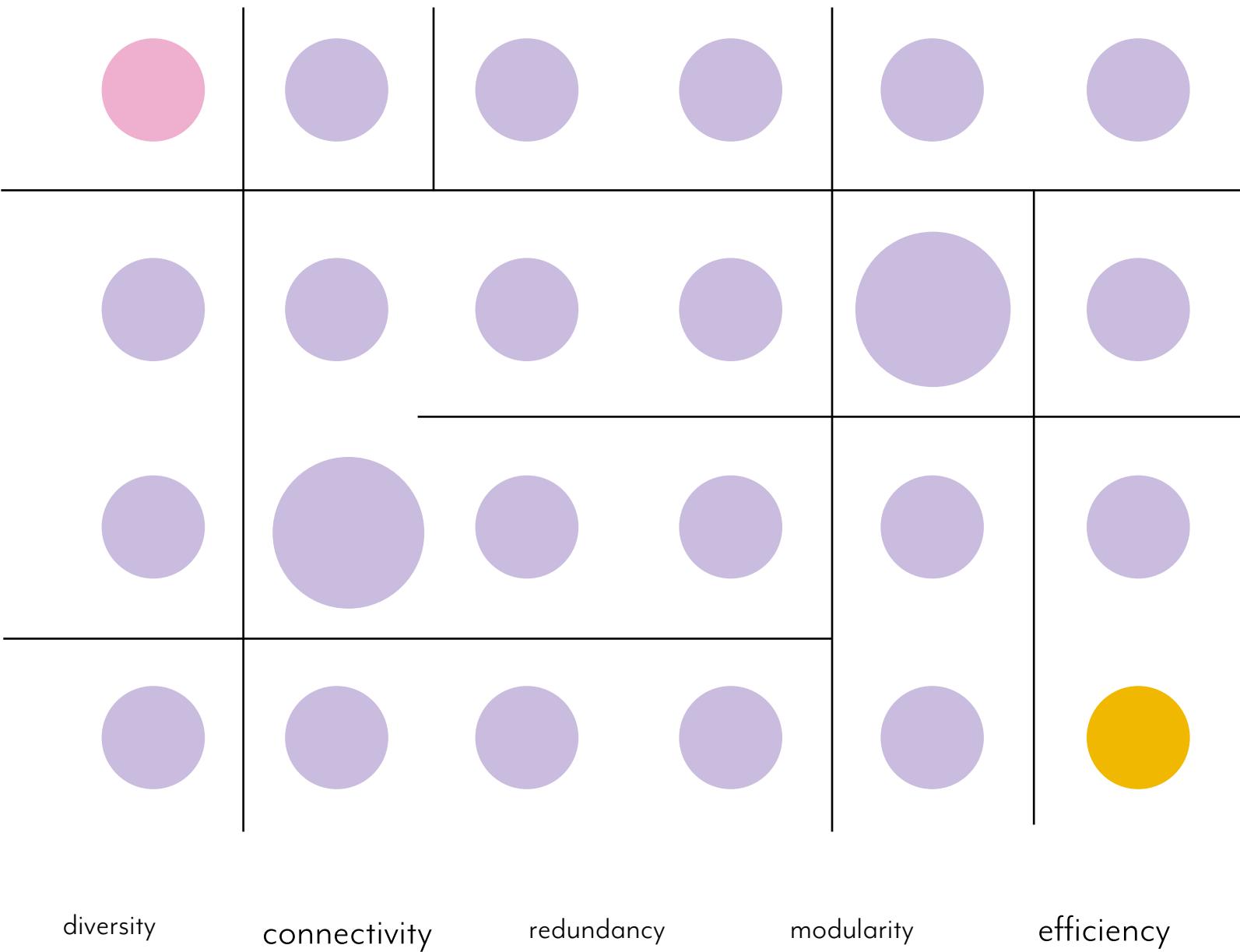
connectivity

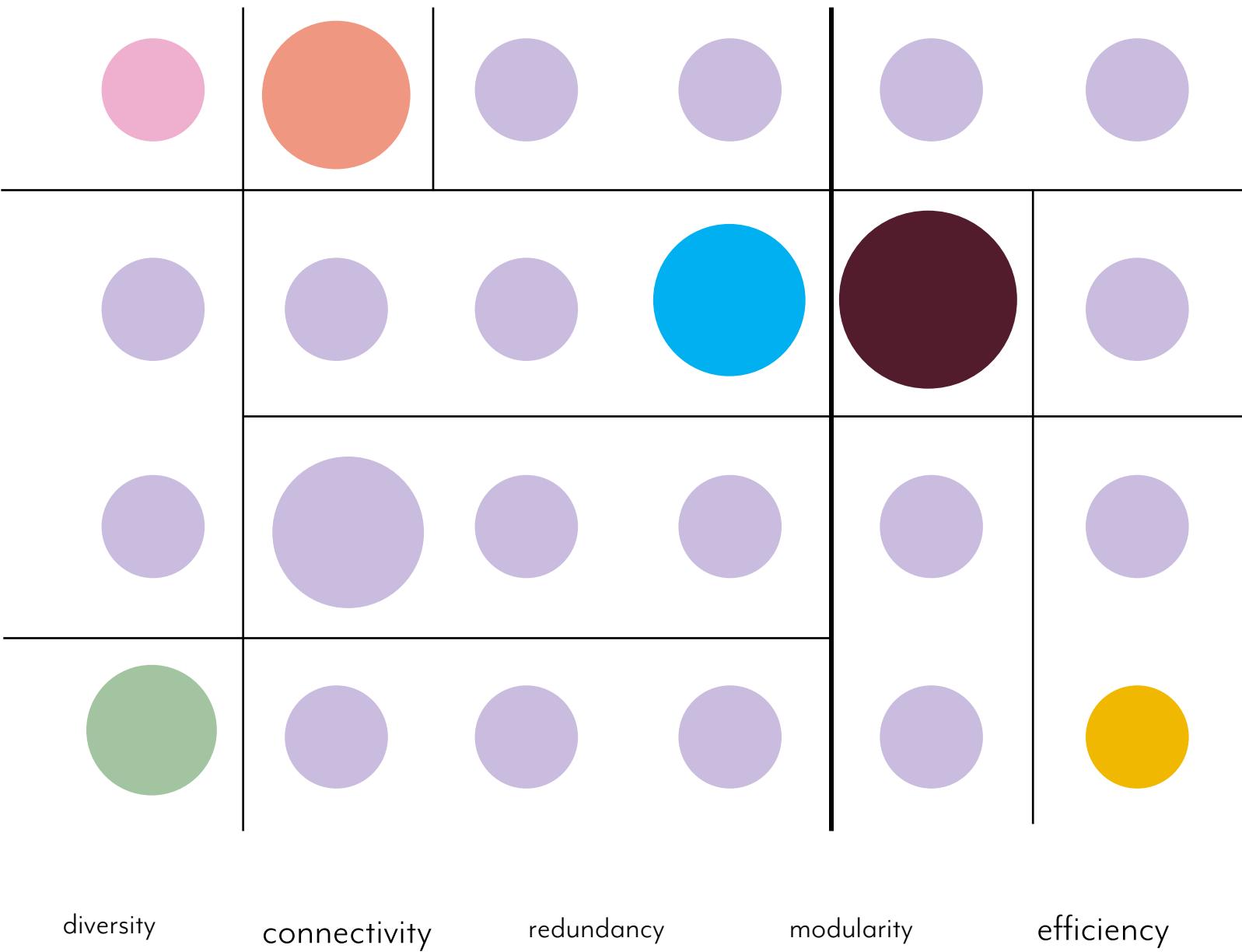
redundancy

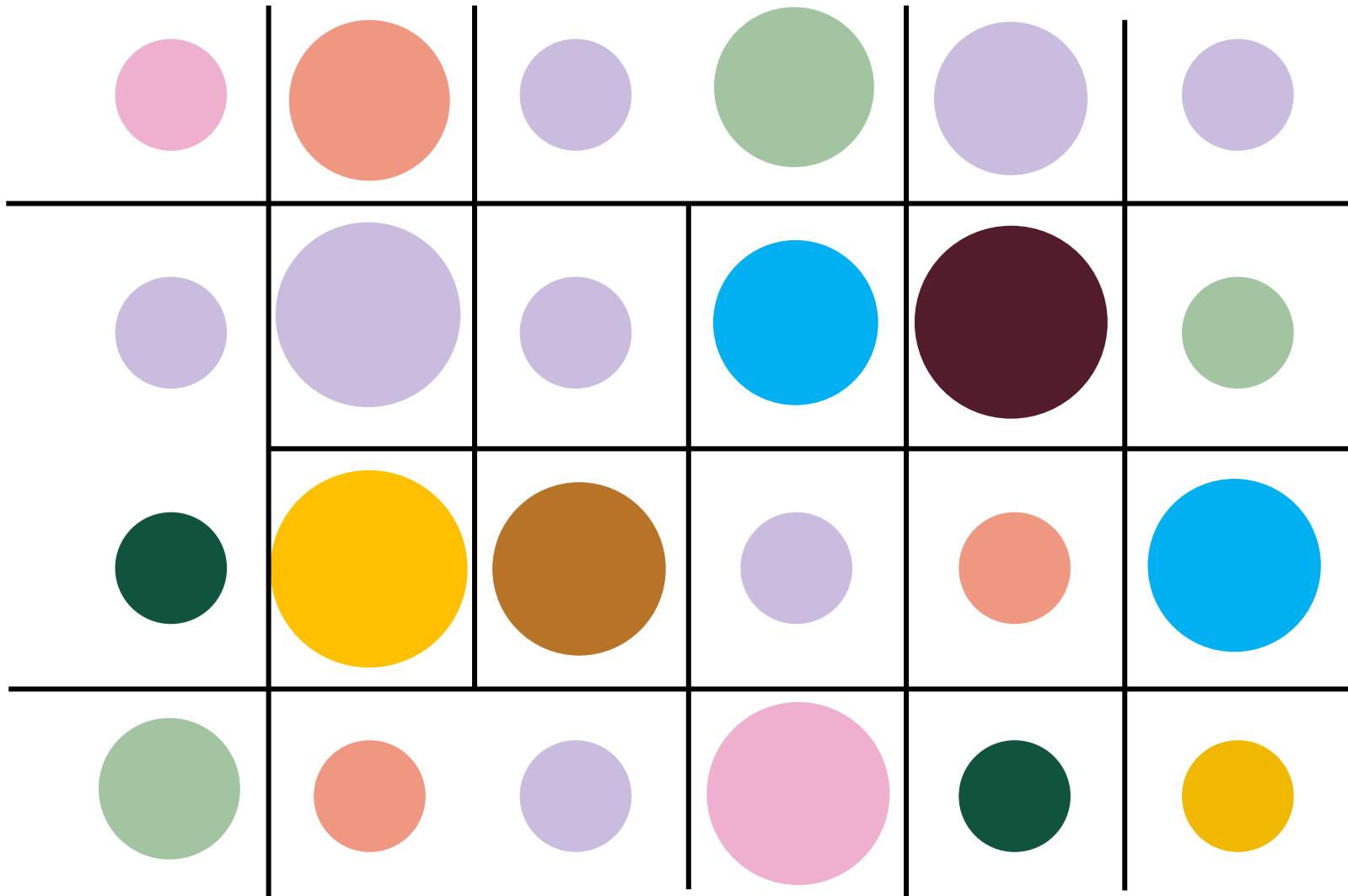
modularity

efficiency







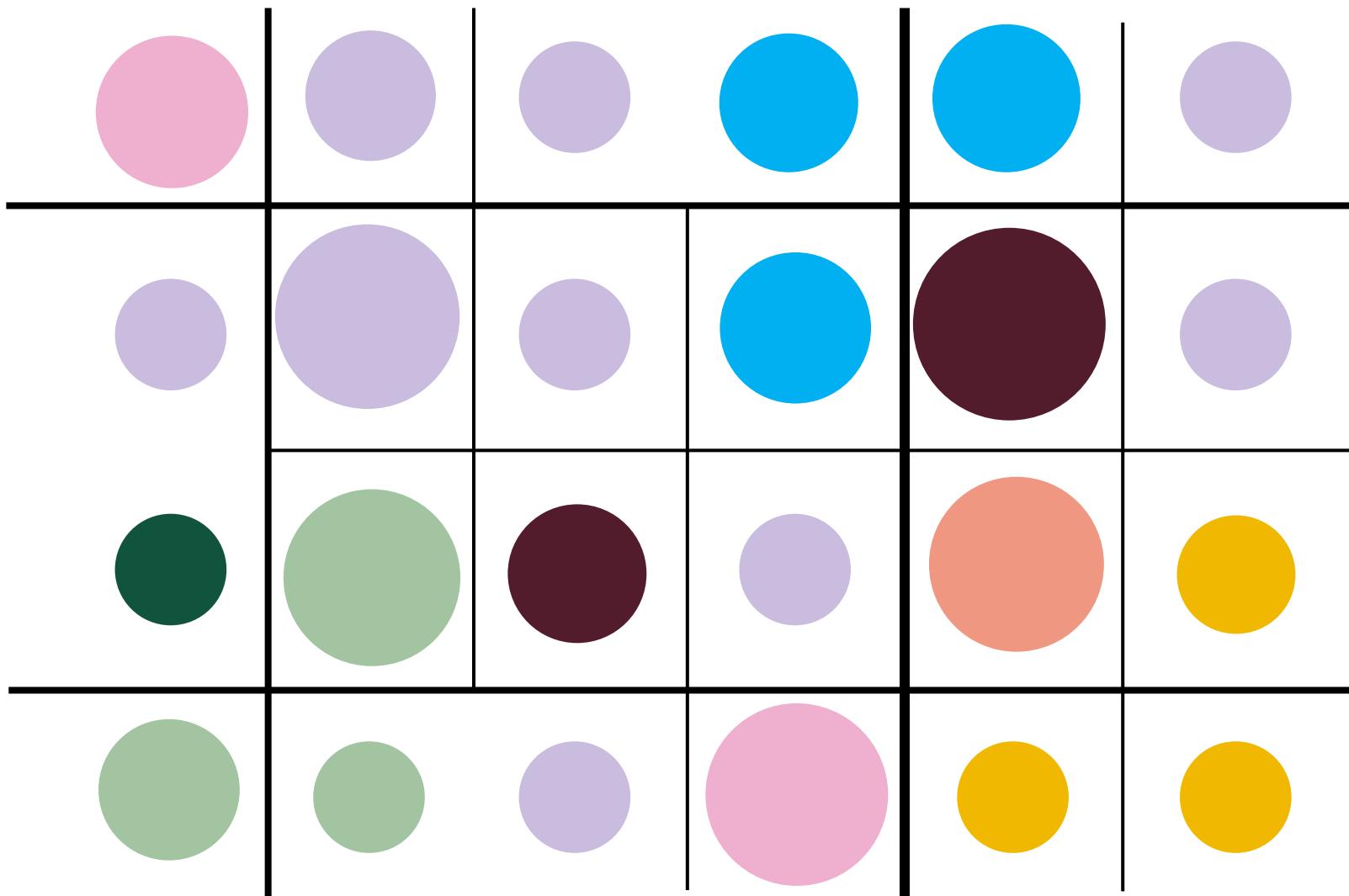


diversity connectivity

redundancy

modularity

efficiency



diversity

connectivity

redundancy

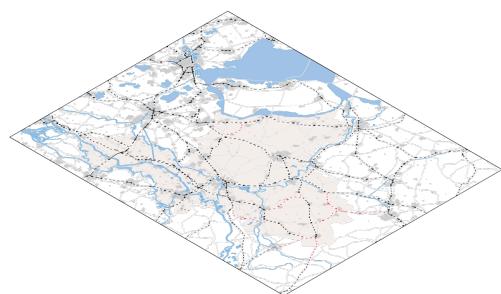
modularity

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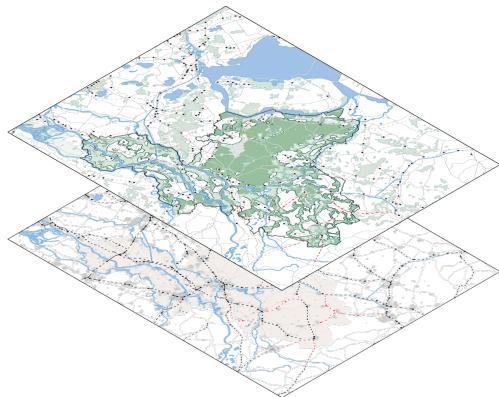
Conclusion

- 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

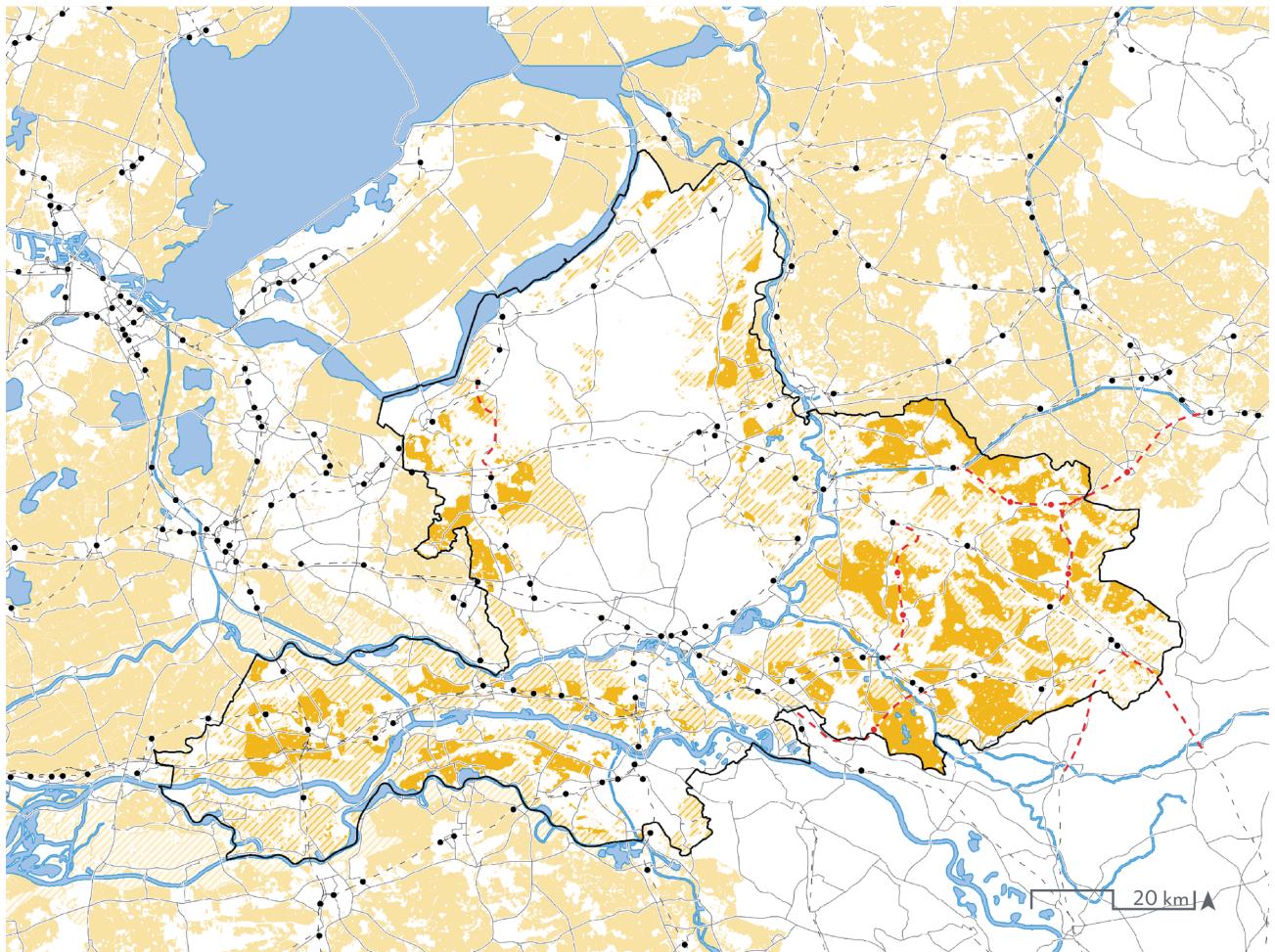
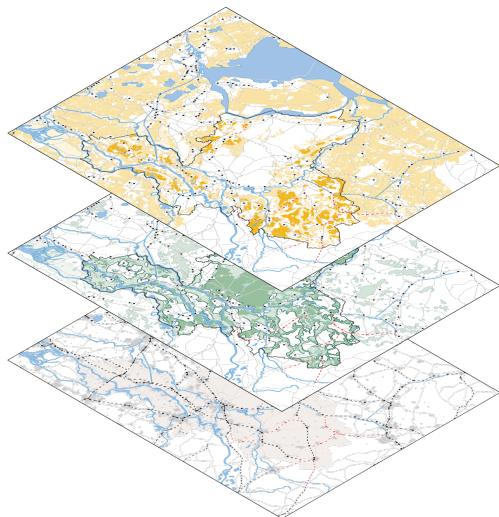
Vision | Network



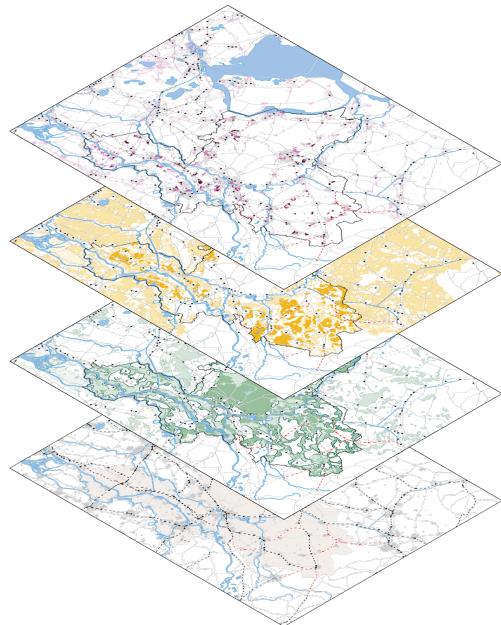
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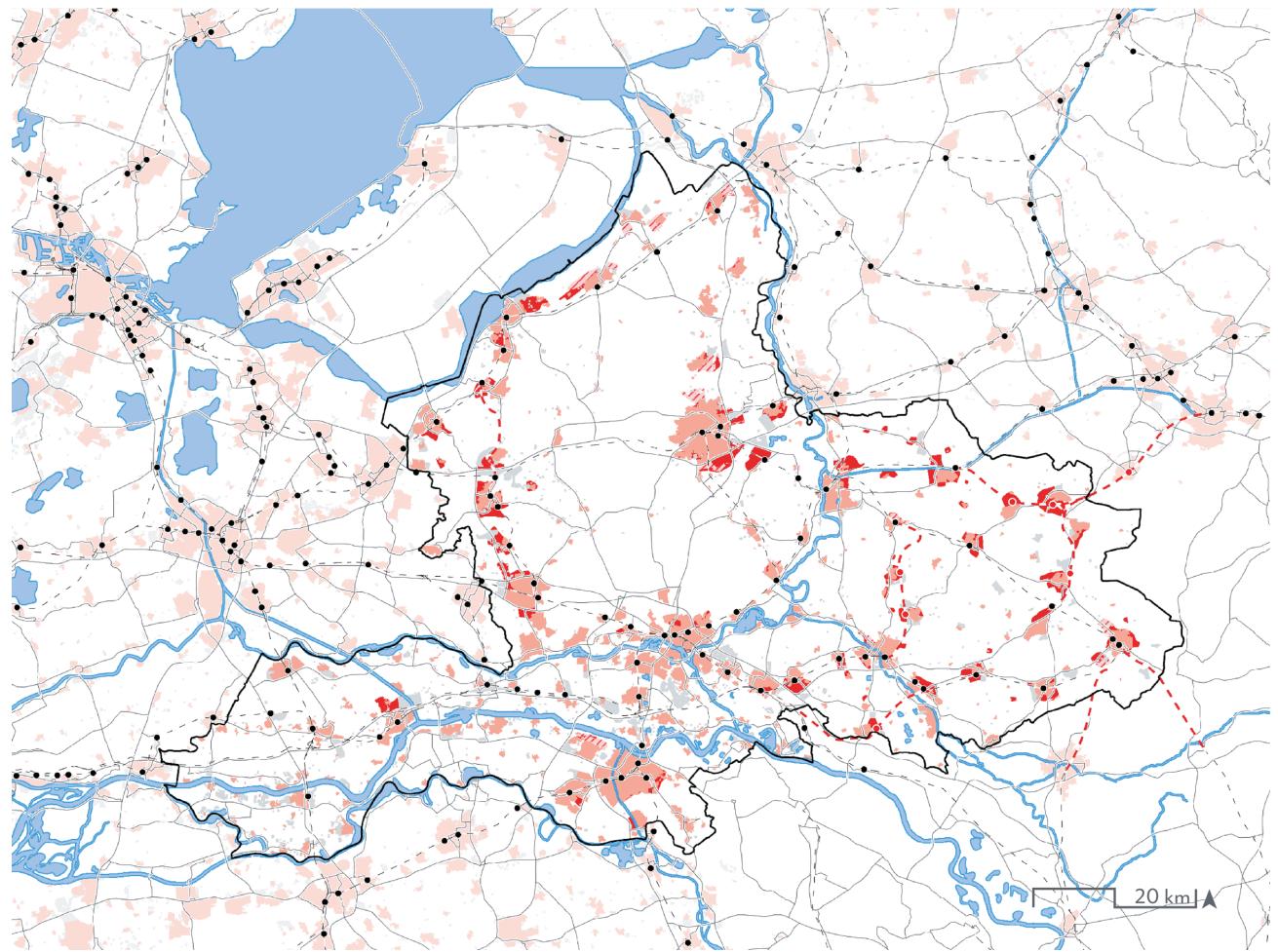
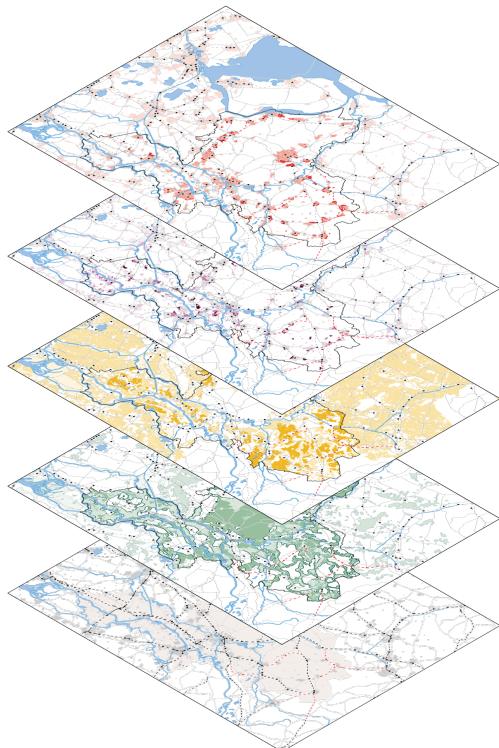
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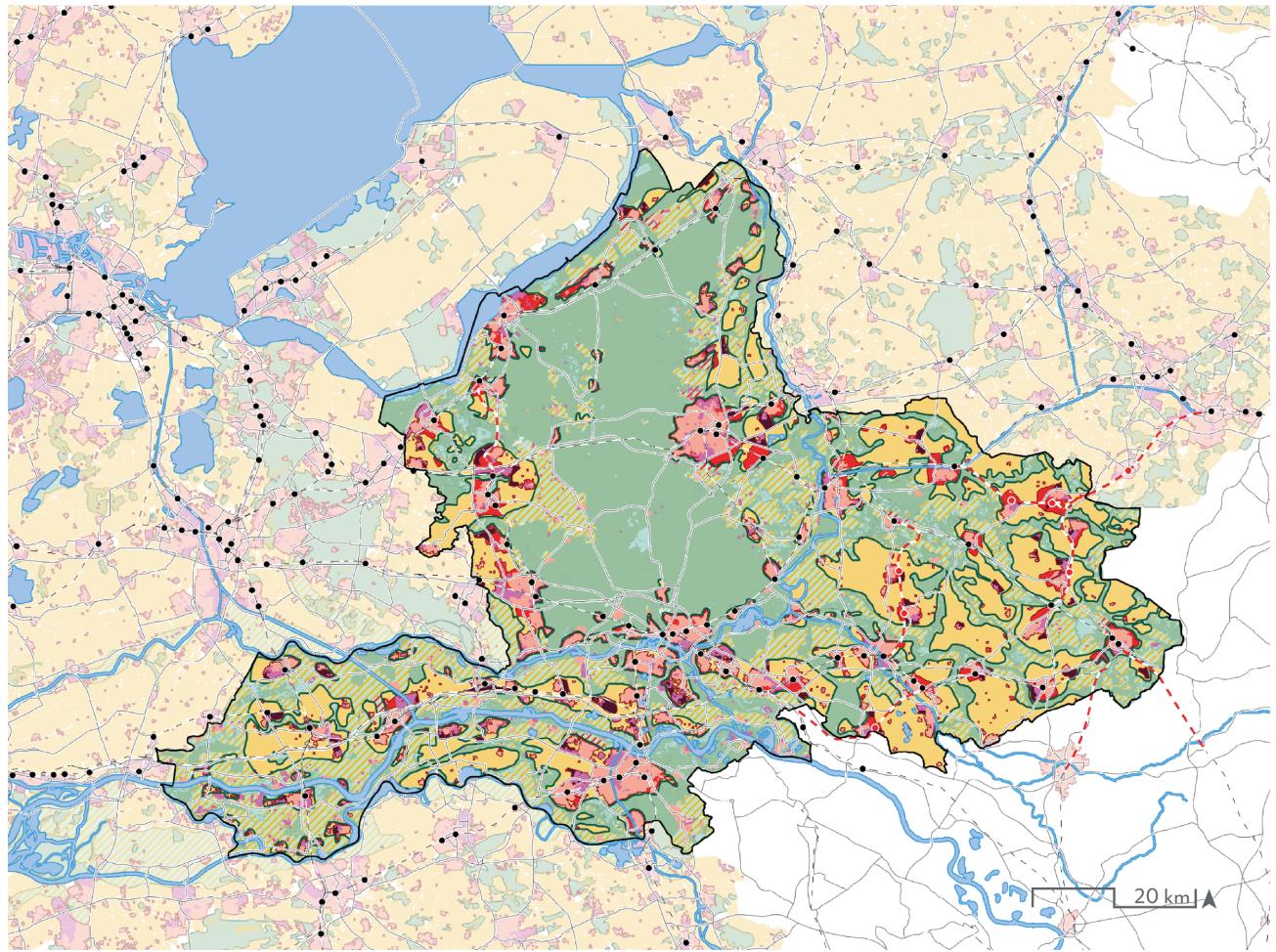
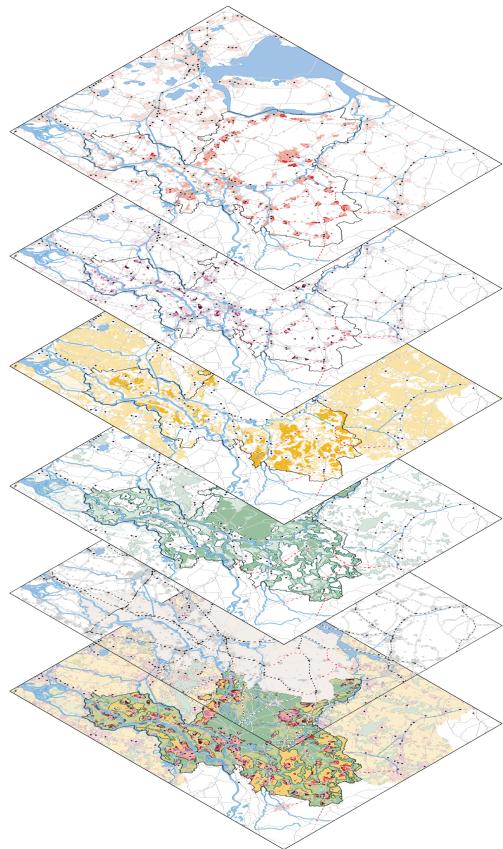
Vision | Industry

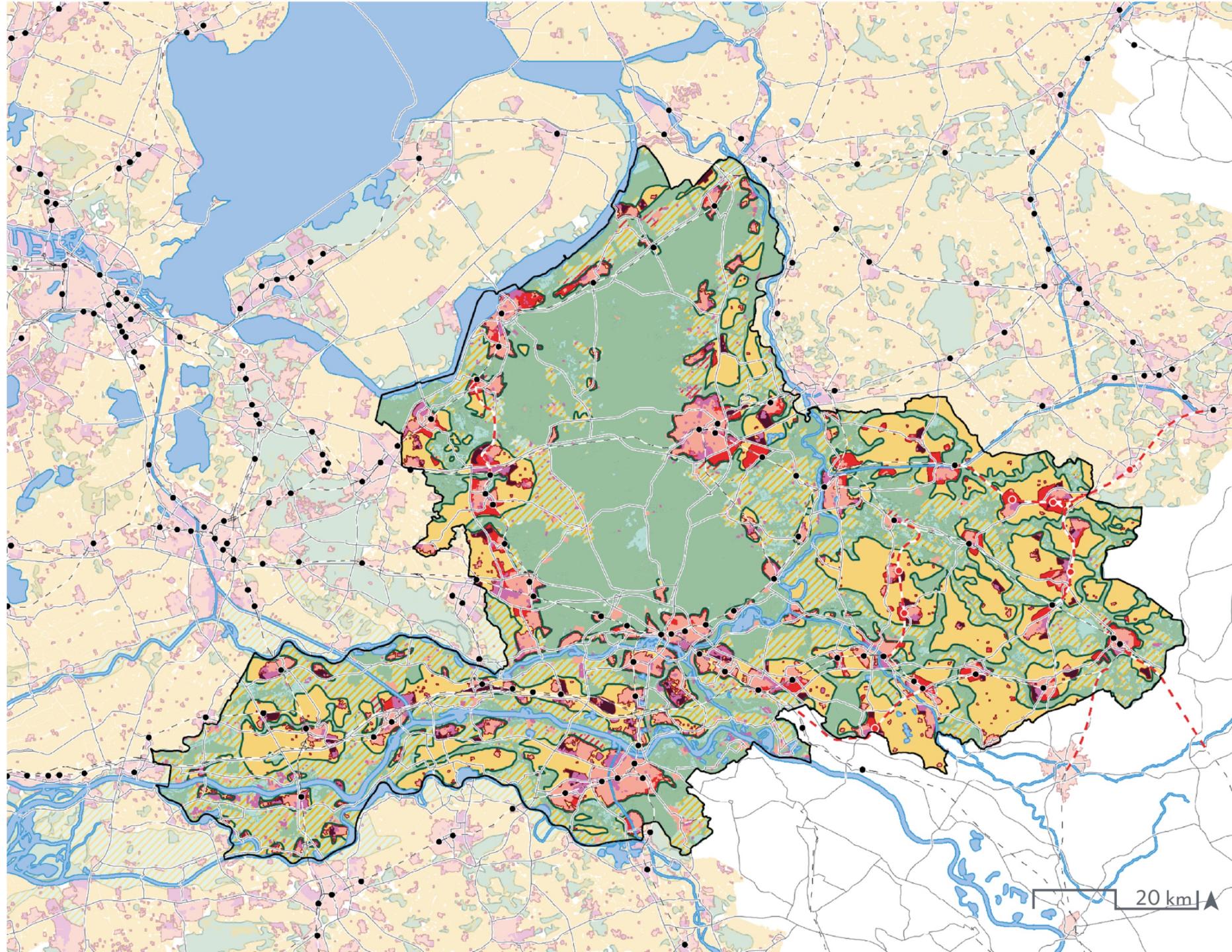


Vision | Urban



Vision















Thank you!