

An aerial photograph of a city, likely Almere, showing a dense urban area with a river and a large body of water in the background. The sky is a mix of blue and purple, suggesting a sunset or sunrise. The city buildings are mostly grey and white, with some red-roofed structures in the foreground.

Glasgow, EURA conference 2007 seminar Vital City

# “to Know the Path is to Rule the System”

--case study New Town Almere--  
the discrepancy between serial planning and vital city

Delft University of Technology  
Faculty of Architecture, Urbanism and Building Sciences  
Department of Urbanism

Chair of Urban Design, Theory and Methodology

# Introduction

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**Coordinator of Atelier Almere (graduation  
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# Cognitive map **Circuit**

Real time individual cognitive (mental) map of Amsterdam  
with GPS technology

Adinka






Irene -mooiweerfietser



Jouke



Sanne



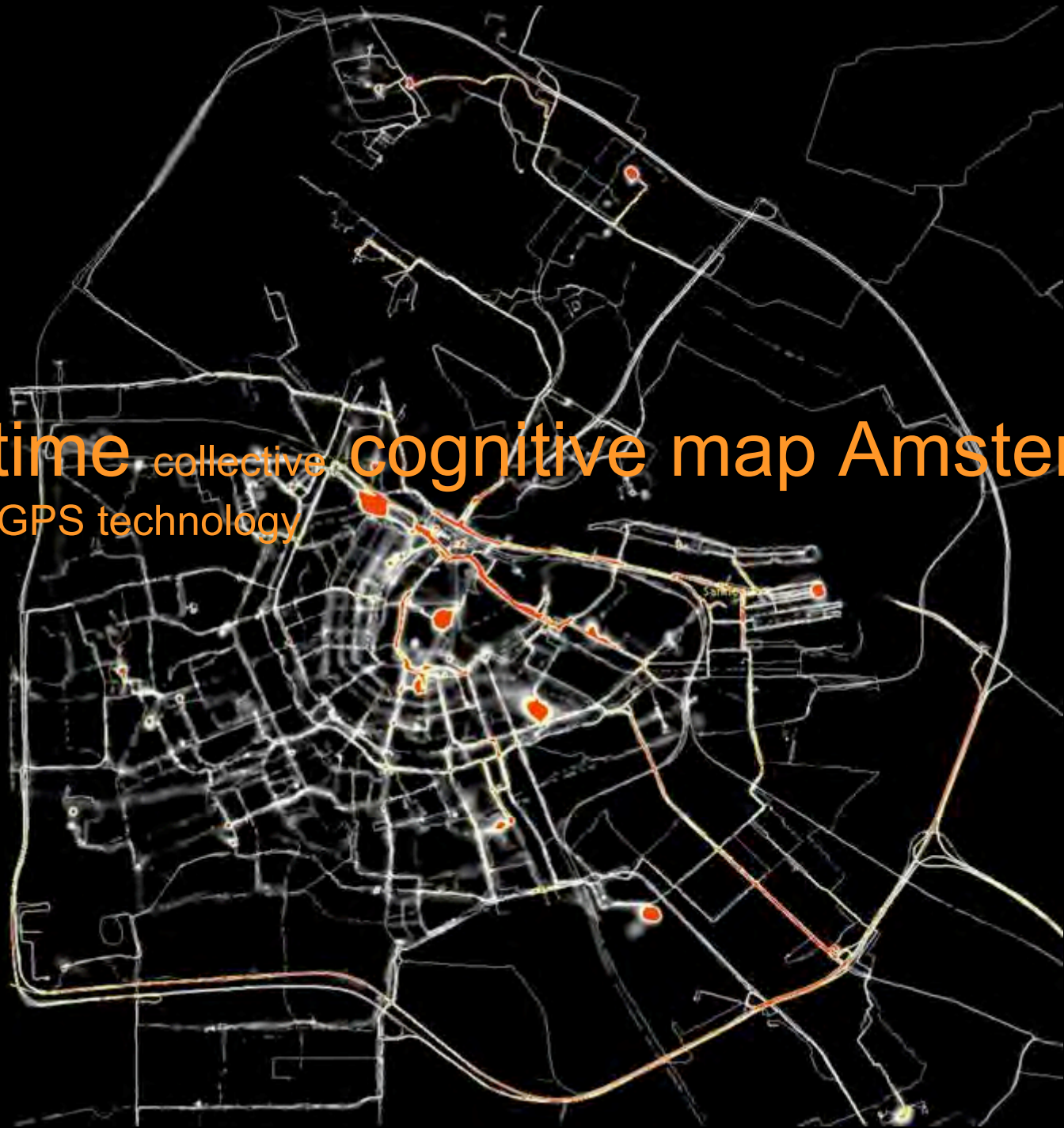
Sjaco -metrobestuurder





# Real time collective cognitive map Amsterdam

based on GPS technology



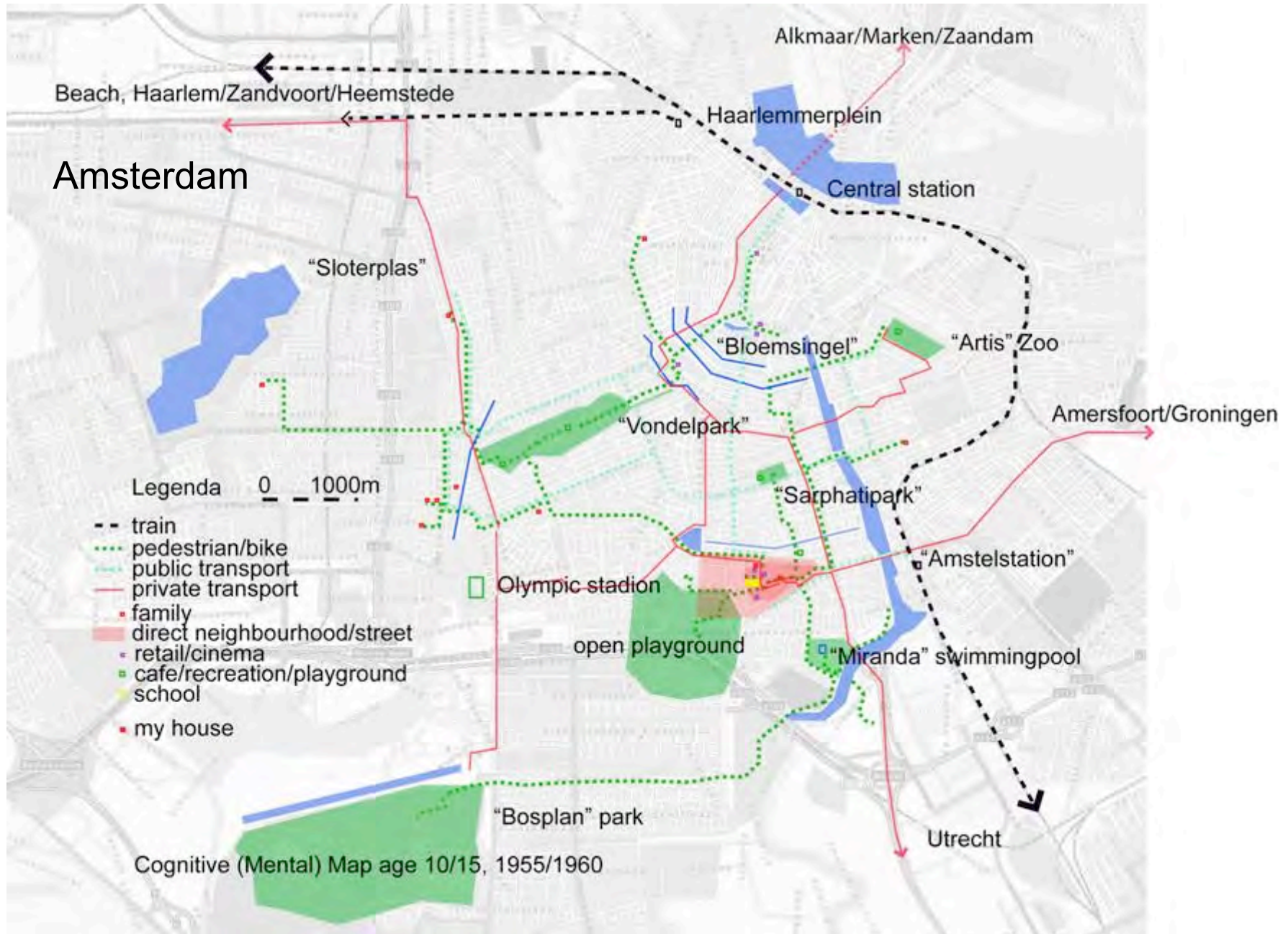
## Why is research based on GPS technology important

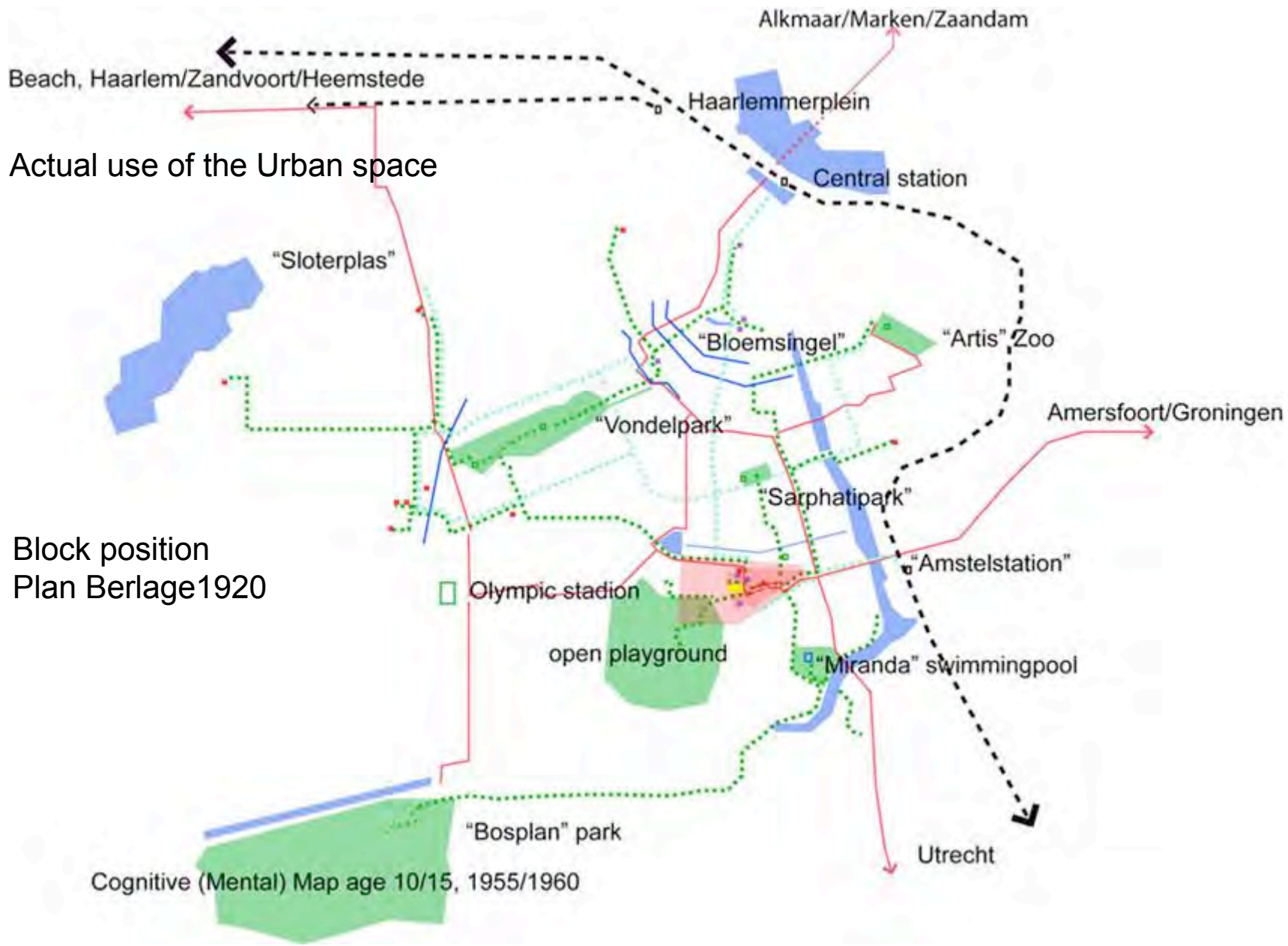
It gives essential information about the collective use of public space the importance of places in the urban fabric as a whole, the network it shows the way people coincide, and by that the actual significance between use and users, and the role of the urban frame

Public space is a collective issue, it generates the cognitive map of all individuals



# Cognitive map and the **Urban Frame**





Actual use of the Urban space

Block position  
Plan Berlage 1920

Cognitive (Mental) Map age 10/15, 1955/1960

Three step analysis:  
Orthogonal change of direction

1st step



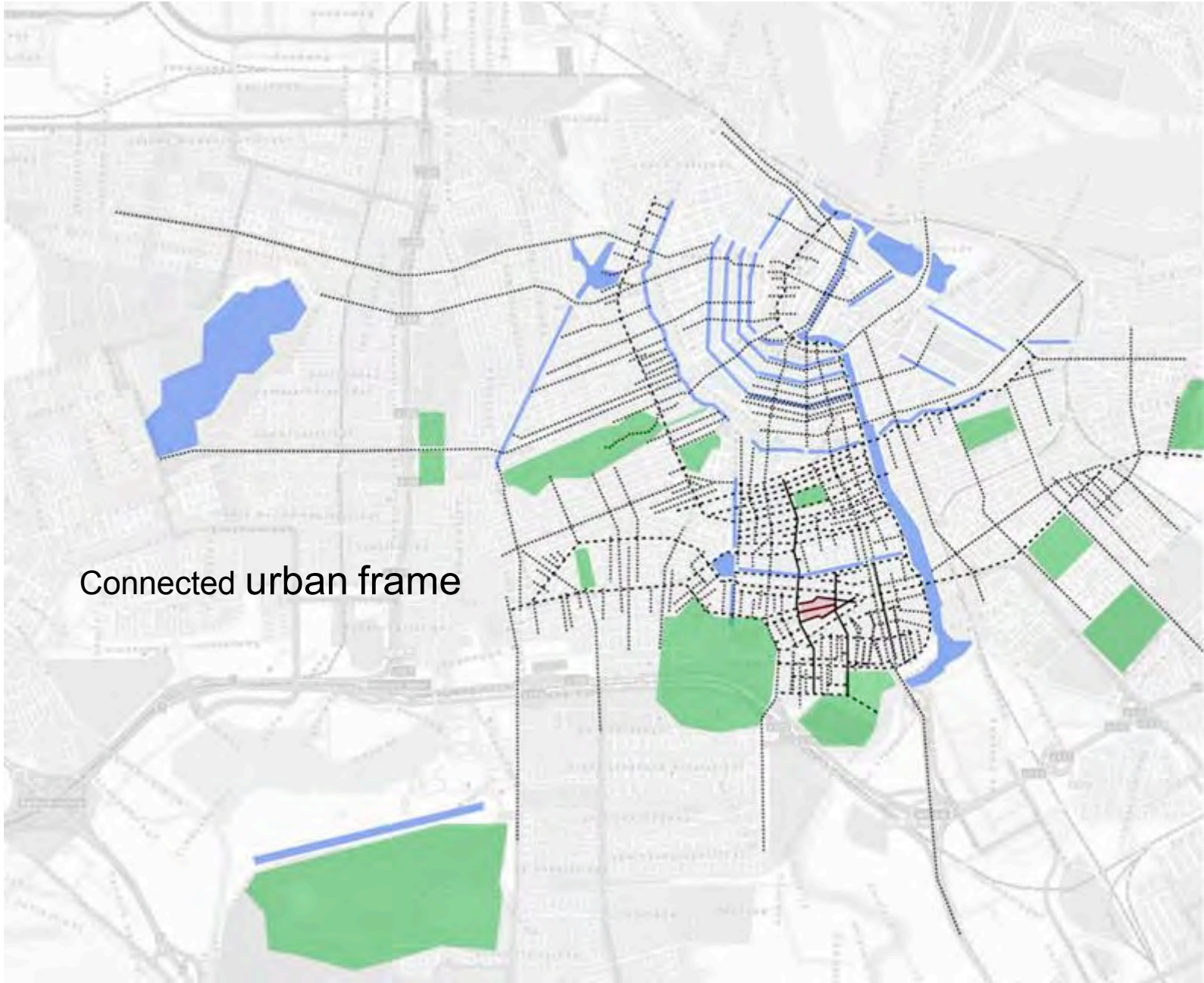
2nd step



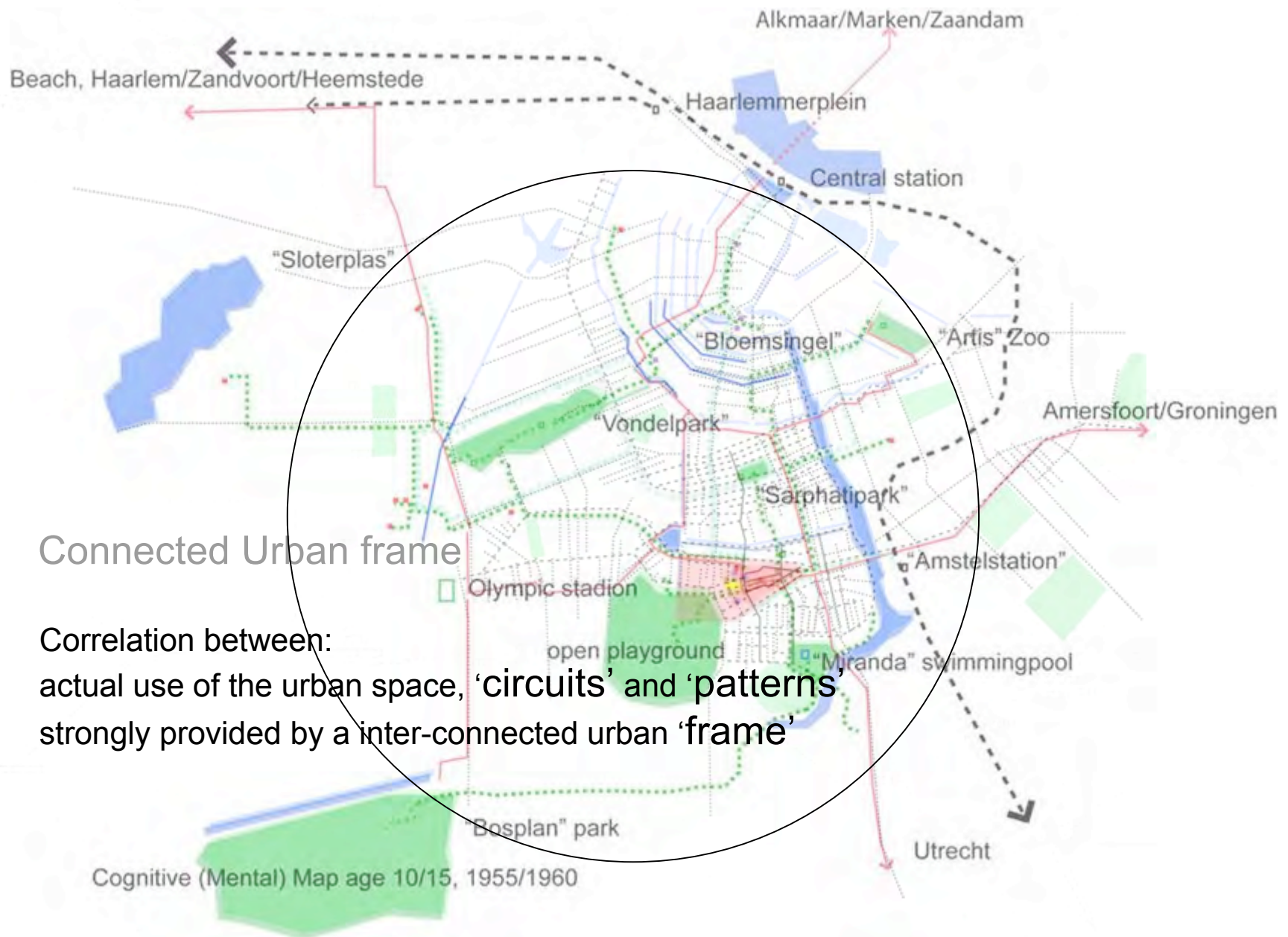


3rd step





Connected urban frame

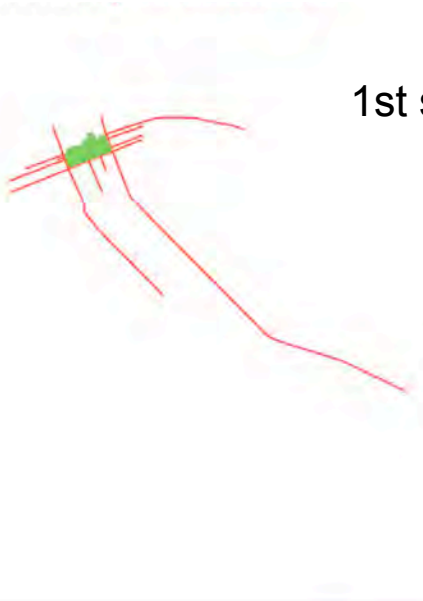
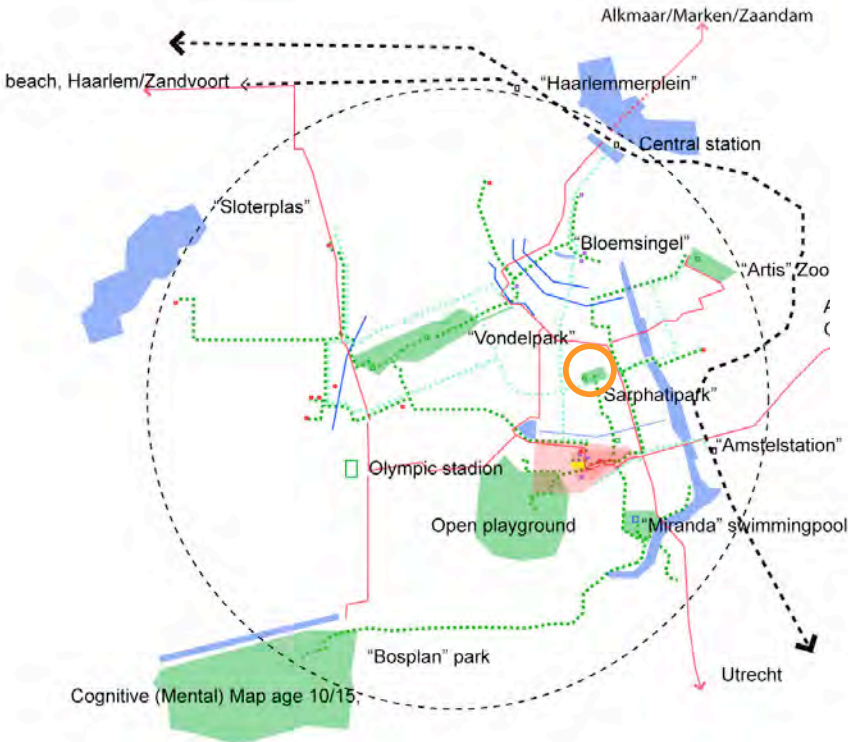


## Connected Urban frame

Correlation between:  
 actual use of the urban space, 'circuits' and 'patterns'  
 strongly provided by a inter-connected urban 'frame'

Three step analysis:  
Orthogonal change of direction in the frame

Cases Amsterdam Sarphati Park



1st step

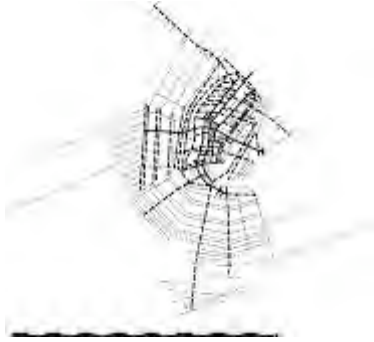
2nd step



3rd step Connected urban frame



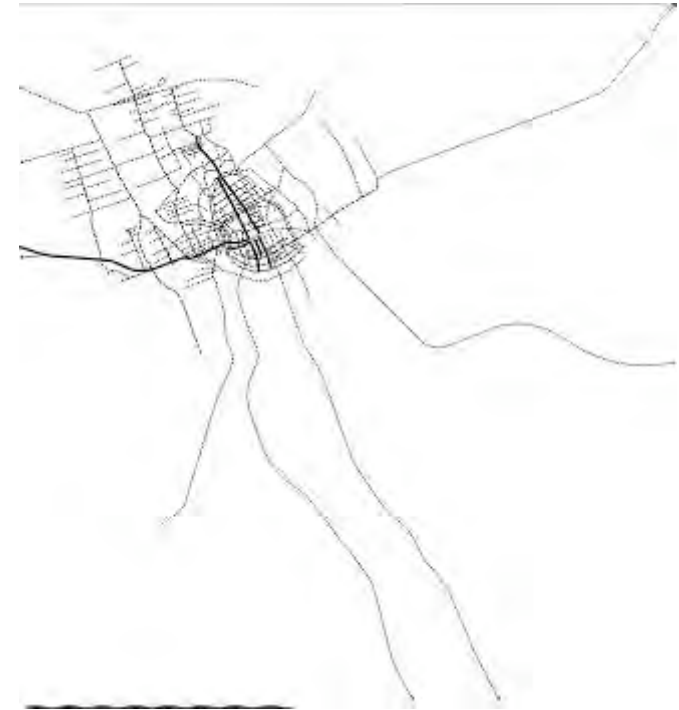
## Gold squares



"Damplein" Amsterdam



"Markt" Apeldoorn



"Vismarkt" Groningen

## New squares



"Grote Markt" Almere



"Het Rond" Houten



"Stadhuisplein" Zoetermeer



"Doelenplein" Rotterdam

What makes the **urban frame** so important



**structure**, the urban network, public places, streets and squares

**urban frame**, essential element of public space

**time**, needed for getting somewhere, travelling, staying

**freedom**, of choosing any destination and acting upon choice,

deduction

the need for both **context** and **detail** information

induction

without **context** no clue as to **where** we are

without **detail** no reason **why**

cognitive map  
=  
individual impression  
of reality

the **cognitive map** facilitates orientation & anticipation

1000 cognitive maps  
=  
Collective impression  
of reality

Cognitive map  
=  
built up in layers

Recent neurological research (amongst taxi drivers in Paris & London) indicates that the cognitive map is “located” in a basal part of the brain, the hippocampus, which plays a vital part in the process of orientation together with the brain cortex frontal lobes (risk assessment).

the collective urban frame **shapes** the cognitive map

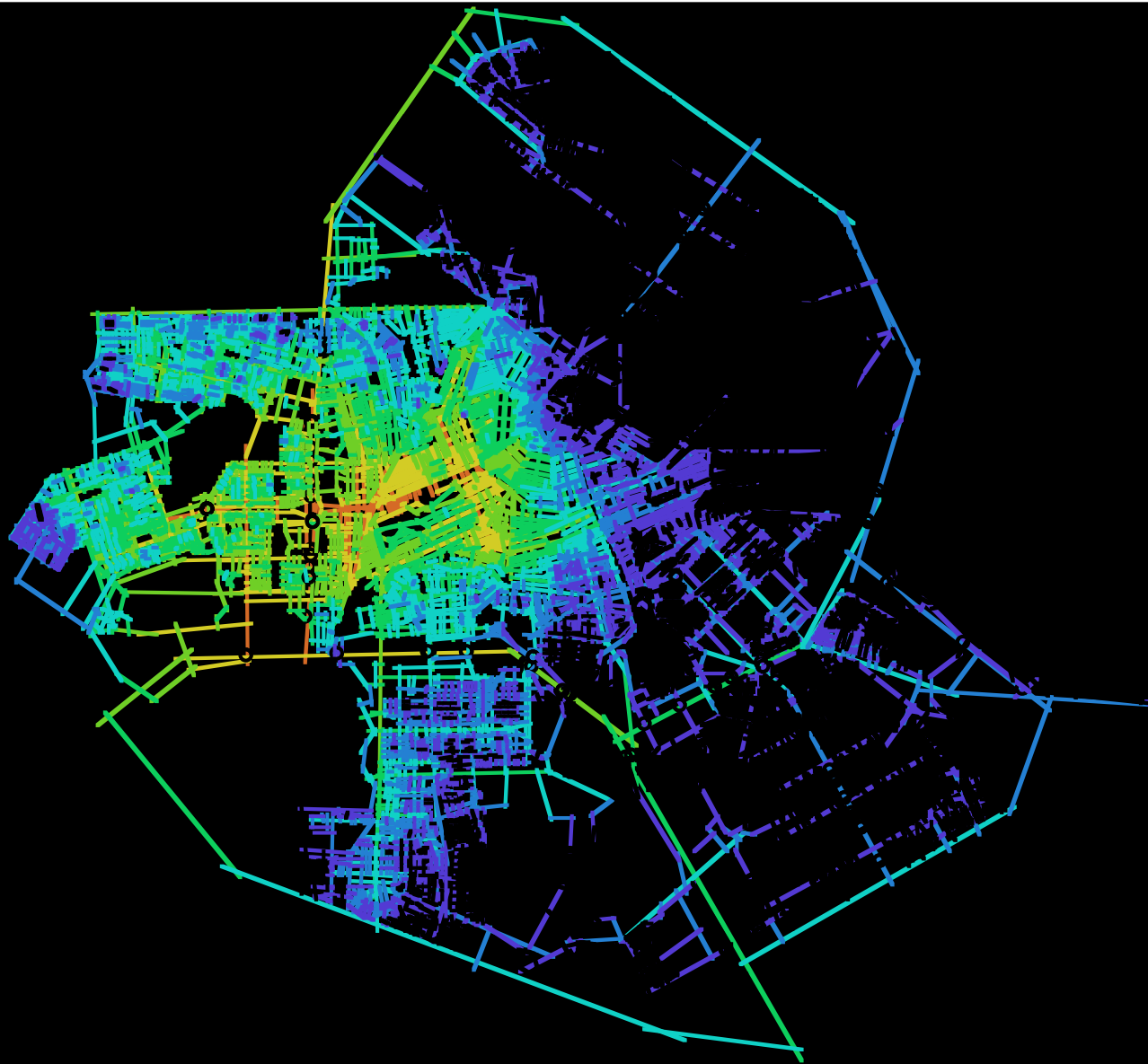
People who grow up in “floating spaces” (such as post-war and New Town areas) show poorly developed hippocampus.

Additional psychological research suggests that an underdeveloped hippocampus might be a cause of (beside obvious problematic spatial orientation) learning and language disabilities, which are both highly related to one’s ability to (recognise) structure.



dominant lines in the urban frame

Amsterdam, dominant lines in the city frame

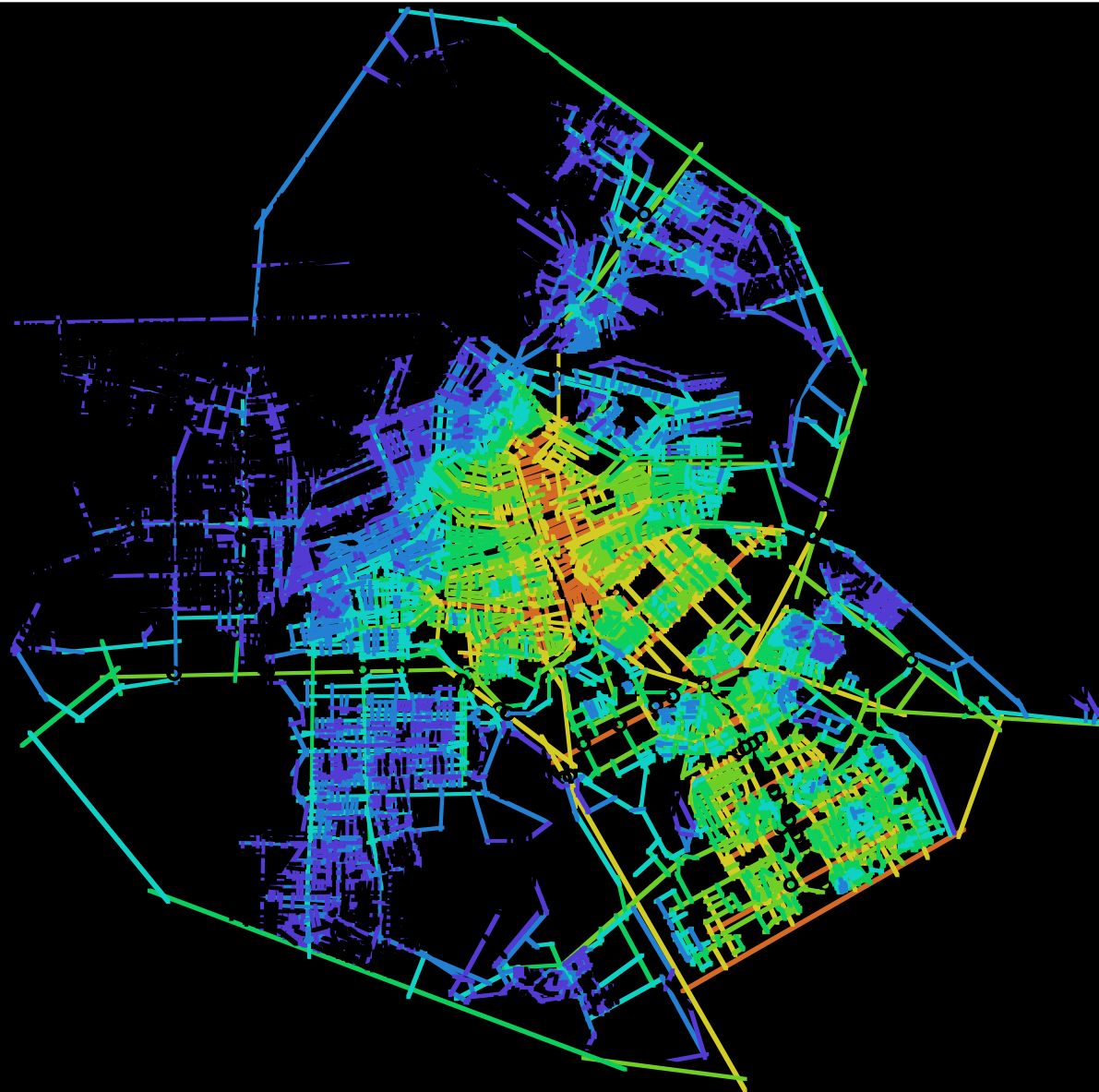


Amsterdam, dominant lines in the city frame





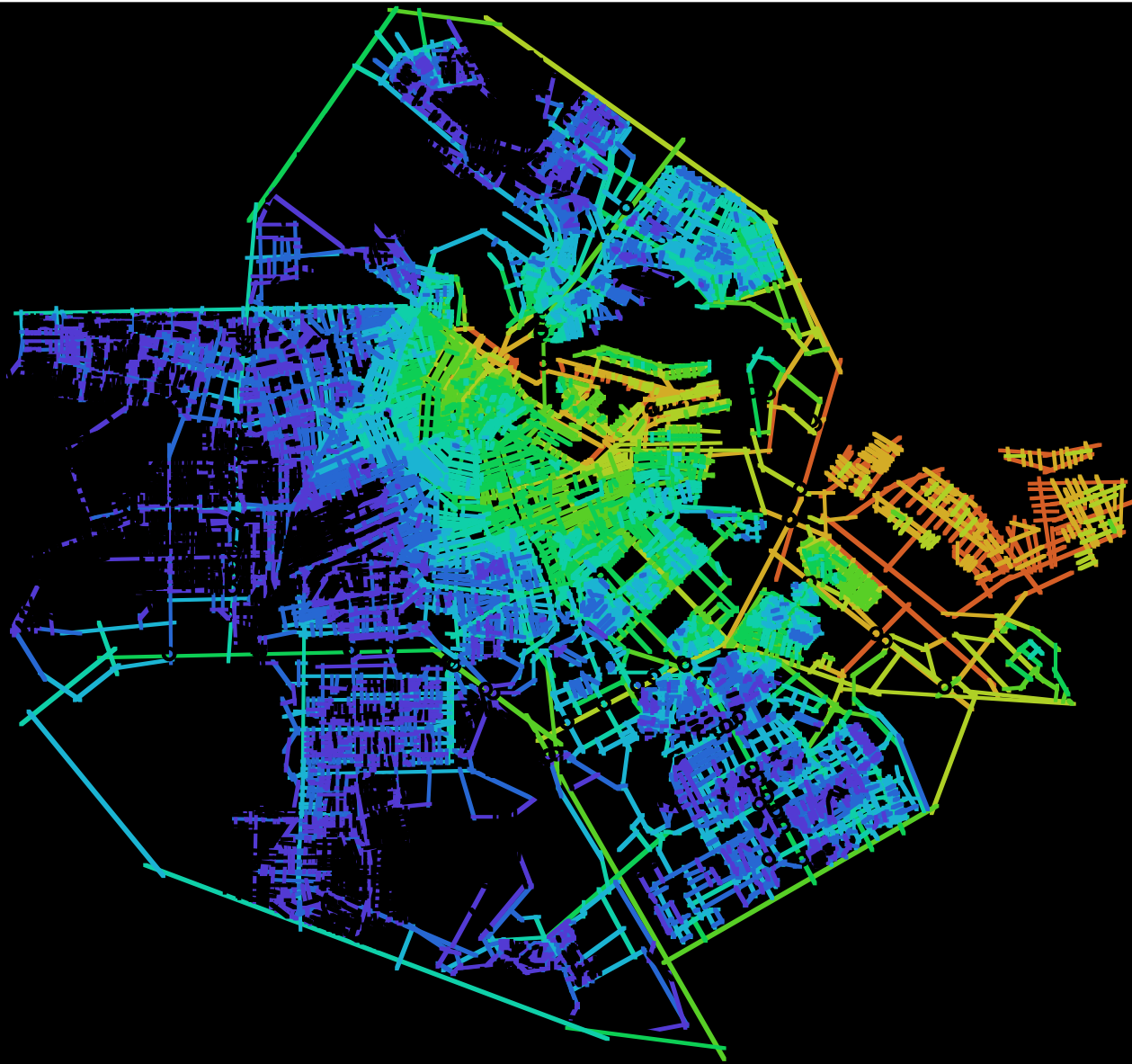
Amsterdam, dominant lines in the city frame



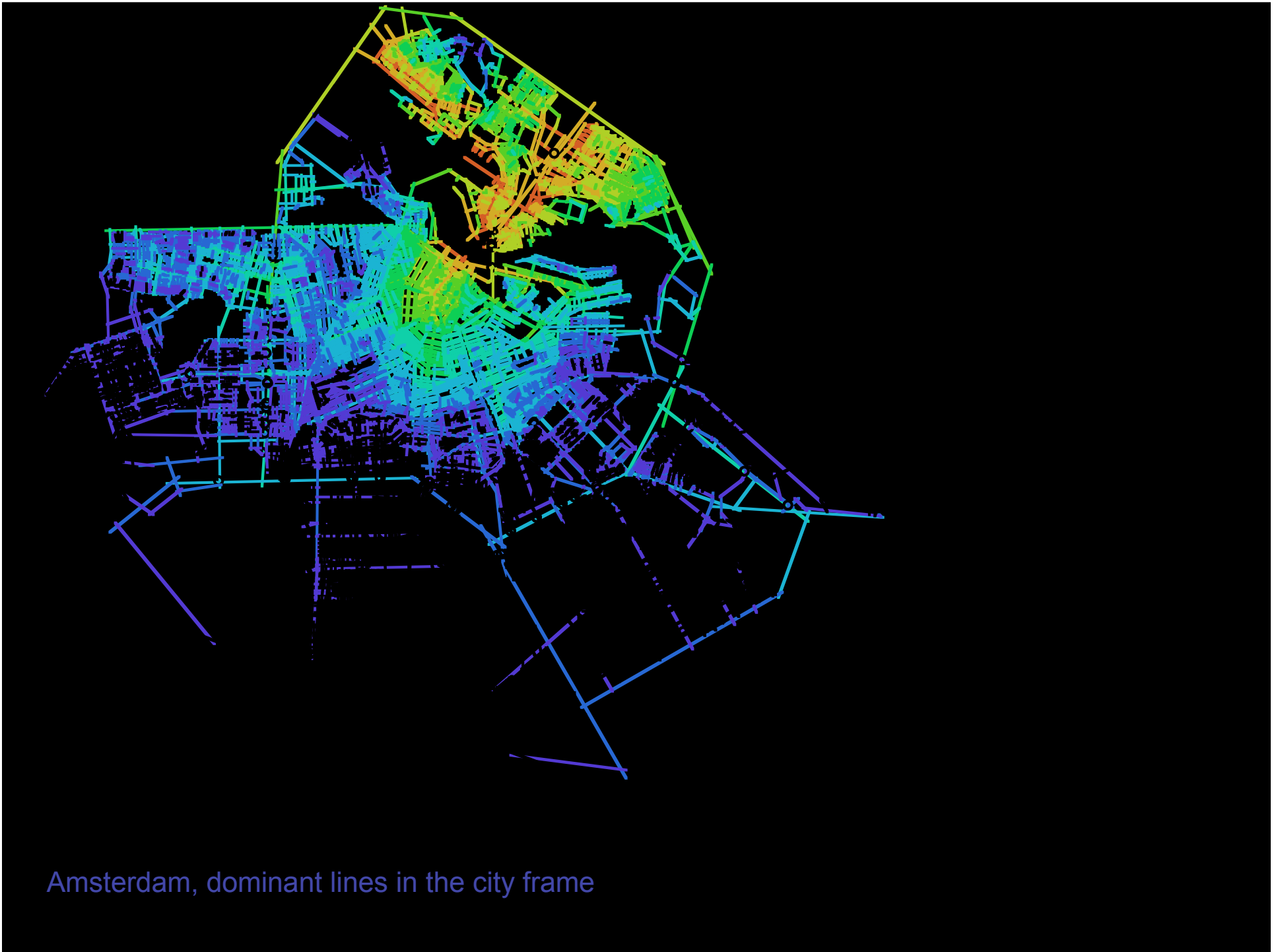
Amsterdam, dominant lines in the city frame



Amsterdam, dominant lines in the city frame



Amsterdam, dominant lines in the city frame



Amsterdam, dominant lines in the city frame

The urban 'frame' facilitates circuits for pattern

position of retail



## dominant conditions 20th century

- well-known society, familiar (collective characteristics)
- governmental dominance, controlled (considerate society, regulated)
- territorial control, technically (top down)
- accent on modernity (visionary, modernism)

## transition of paradigm

## dominant conditions (start) 21th century

- on-known society, on-familiar (individual characteristics)
- market dominance sector (ambivalent, de-regulation)
- no territorial control, new relations (physical identification, bottom up)
- accent on cultural inheritance, strong interest (hist.continuity, context)

Central focal point a “new” balance between :

- public and private parties
- urbanisation and landscape
- urban design and management
- tradition and modernity

## urban design in the 21st century

Legibility of the public domain

- spatial coherence
- structural coherence
- functional efficiency

collective frame of reference

- optimisation of social “encounter”

governance and management

- integration of the process of urbanisation and urban design

spatial de-fragmentation, “socio-economical synergy”, context



but “styling” tends to become dominant

decorative furnishing tends to become an end in itself,  
the level of “design” prevails...

Space is reduced to the status of “object”,  
a piece of furniture one can flaunt,  
with which a designer can show himself off

Botox for public space

“styling” focuses on the “how” question

But “public domain” asks for the underlying starting points,  
the preconditions, context, “why”

This “why” refers to the role and position of lines and places, to public space as a “project”, as an assignment with long term impact

An assignment that needs to be re-assessed time and again

A group of men are playing basketball in a public square. In the foreground, a man in a white t-shirt is dribbling the ball while others watch. The background features large, classical-style buildings under a bright sky. The text 'Public Space = a collective issue' is overlaid on the left side of the image.

## Public Space = a collective issue

It is a “quest” after context,  
It is about the position of a certain place within the urban fabric as a whole, the urban frame

It concerns overlap, coincidence, contrast with regard to use  
the more uses and users actually coincide the more significance  
that particular space will gather

The more important a space becomes because of its significance the  
more it needs to be connected to the urban frame, and become a  
part of the context of the whole.

# Public Space = a cognitive issue = cognitive structure

In order for use and users to coincide,  
in other words  
for a place to attract both

Both parties must know that place exists,  
they must be able and figure how to get there, encounter,  
and recognise it as such they must be connected

It must be part of their cognitive area



# Urban “Cognitive Structure”

The “cognitive structure” of urban space, the context of the city can be exposed into three components:

**Frame = complete system of streets & spaces**

**Pattern = all possible destinations, landmarks, anchor points**

**Circuit = intermediate system of routes and networks**

**Frame** can be regarded collective or public “hardware”

**Pattern & circuit** are “private” operating systems, “software”

# Frame, Pattern, Circuit



**Frame** facilitates the formation of **circuits** (use, coincidence, efficiency) and implementation of self-generating socio-economical **pattern** (private enterprise, etc.)

“hardware” is conditional for “software” !

The urban 'frame', to know the path is to rule the system

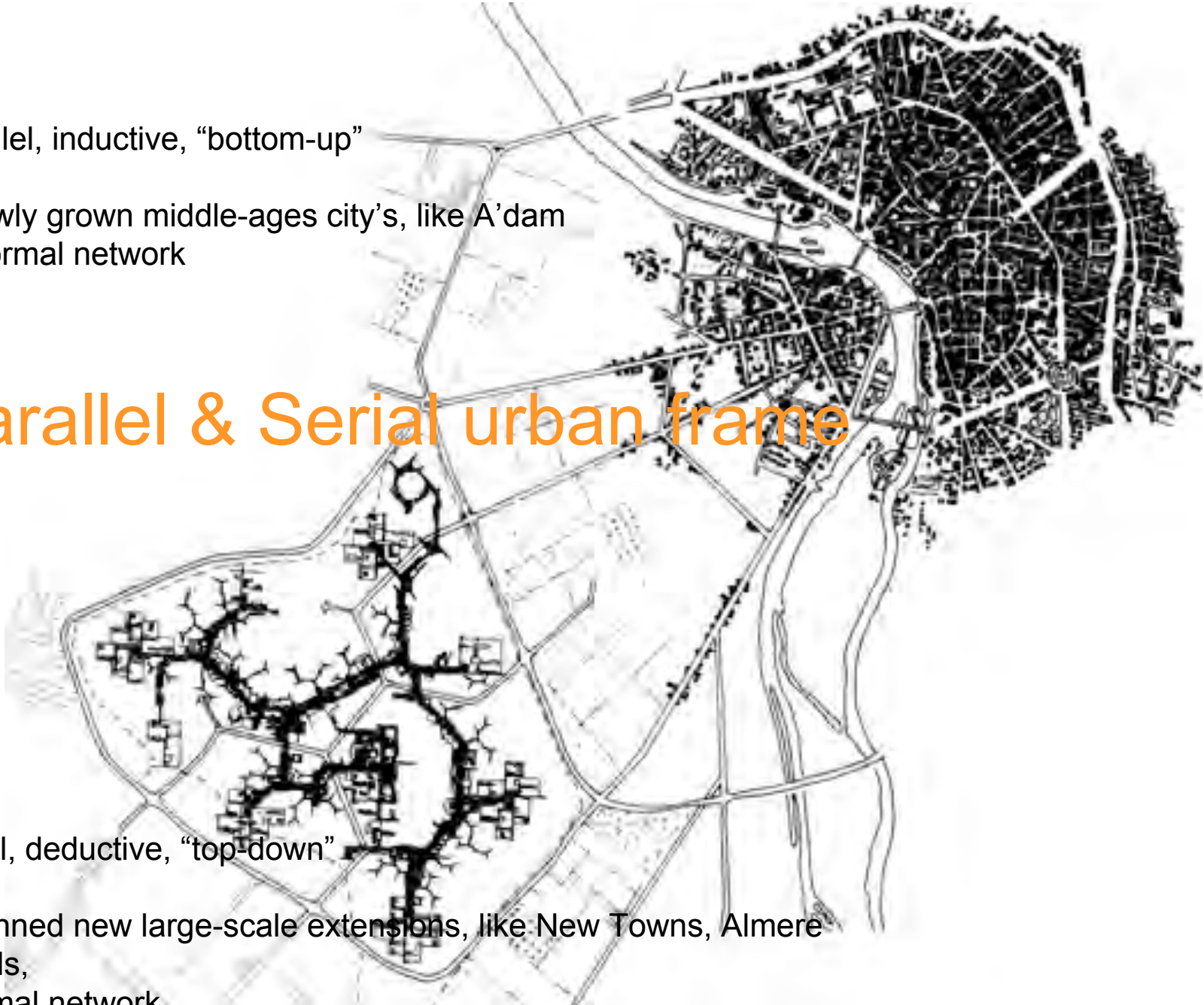
parallel, inductive, “bottom-up”

- slowly grown middle-ages city's, like A'dam
- informal network

## Parallel & Serial urban frame

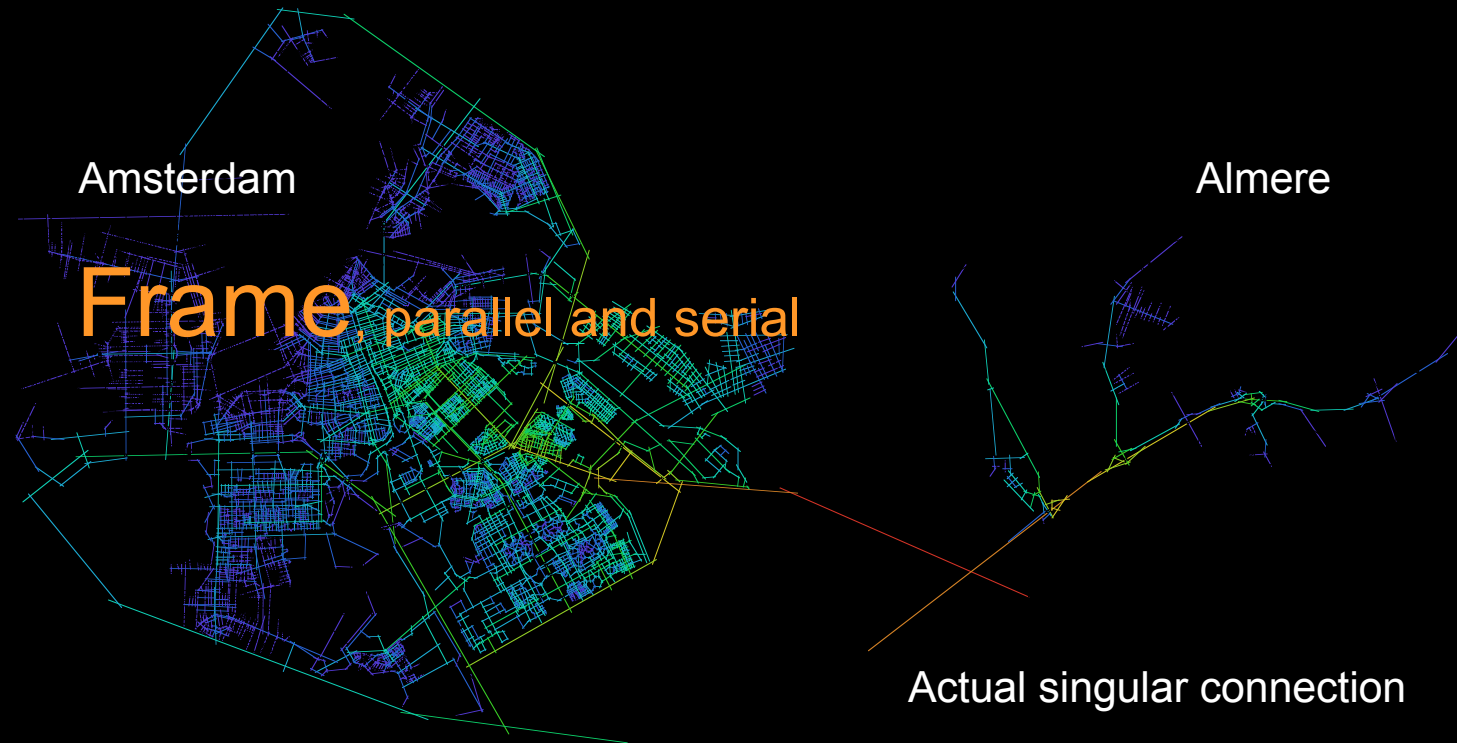
serial, deductive, “top-down”

- planned new large-scale extensions, like New Towns, Almere
- grids,
- formal network





Space syntax analyses, hierarchy and 1-2-3 steps depth



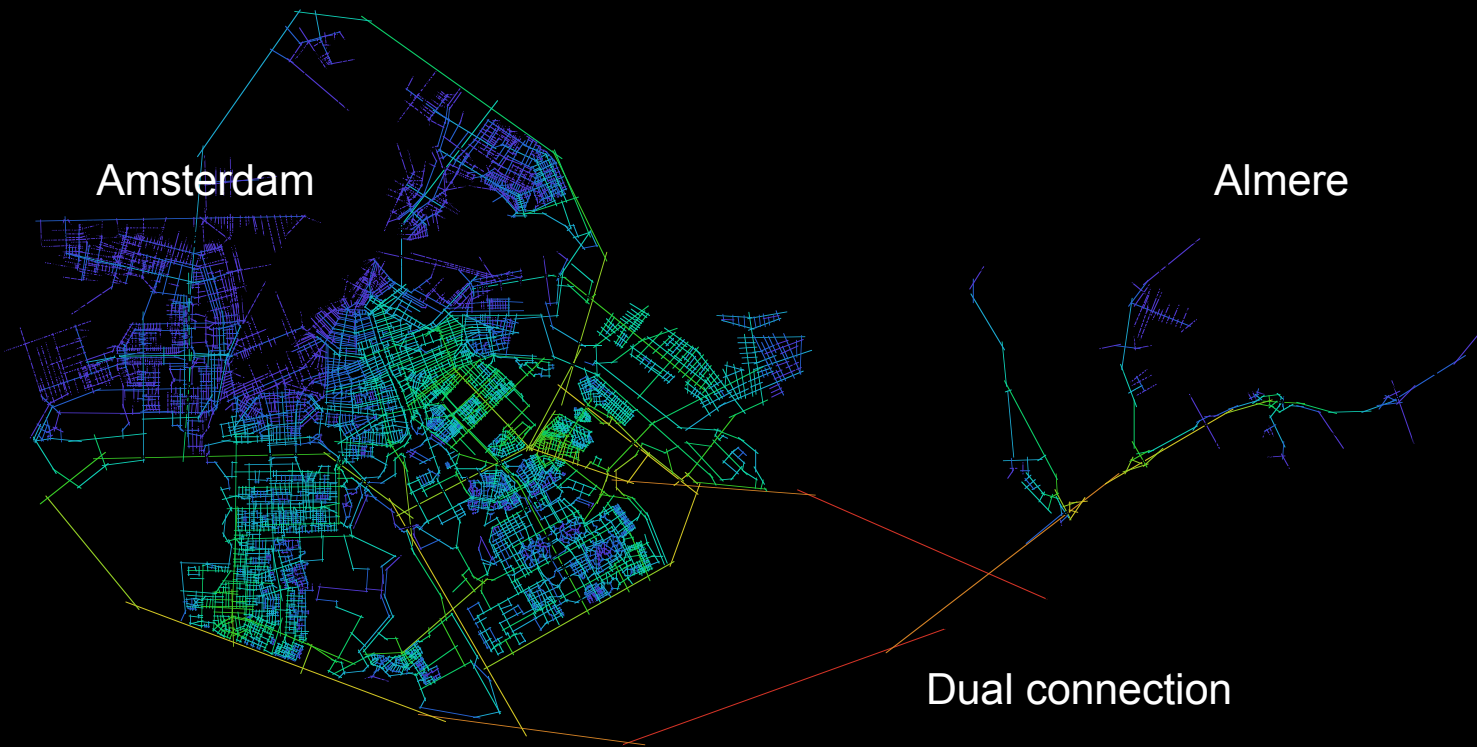
Almere-Amsterdam depth 1dd

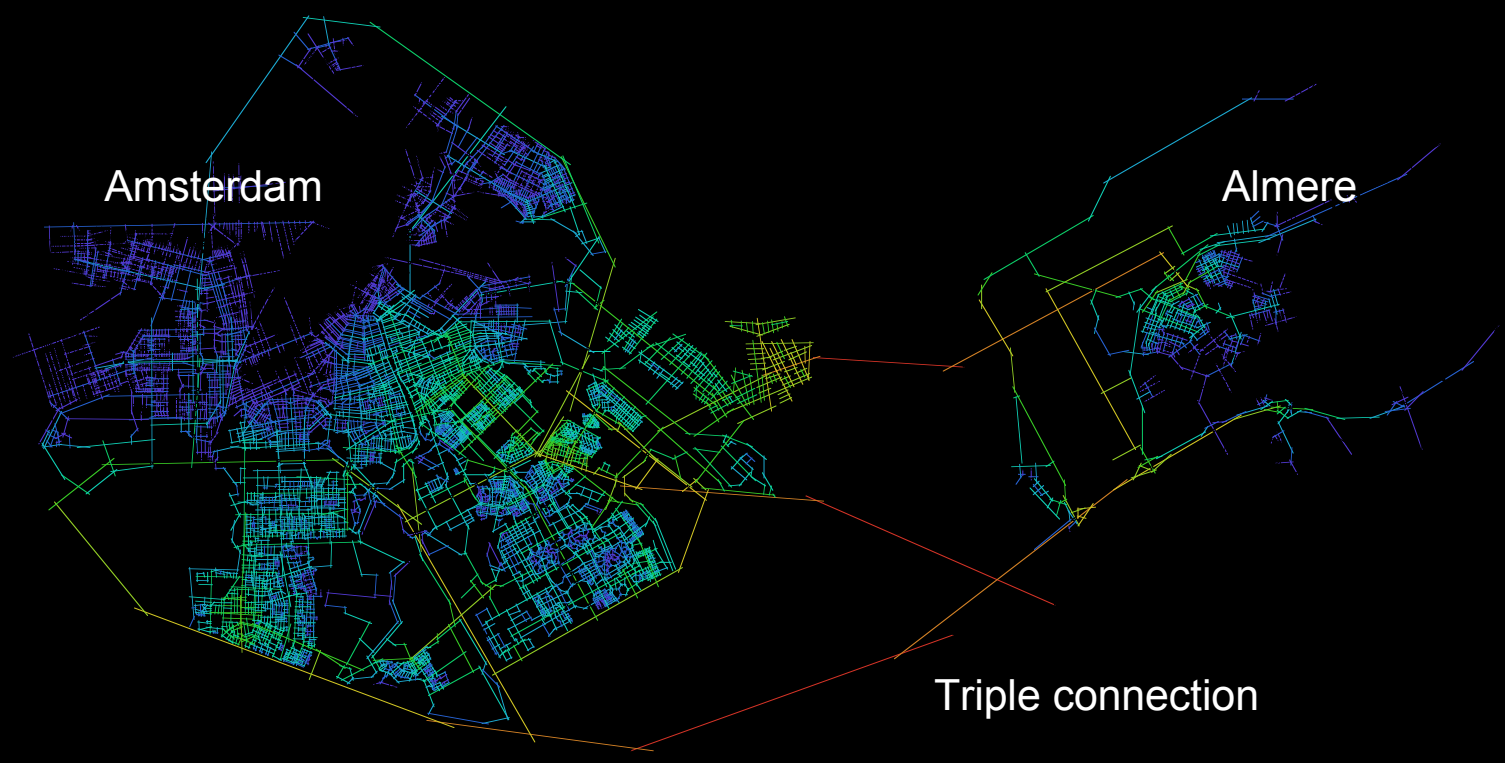
Amsterdam

Almere

Dual connection

Almere-Amsterdam, depth 2dd





Amsterdam

Almere

Triple connection

Almere-Amsterdam, depth 3dd

(1)

## Parallel frame

parallel, inductive, “bottom-up”

- slowly grown middle-ages city's, like Rotterdam
- informal network



(2)



(3)



(4)



(5)

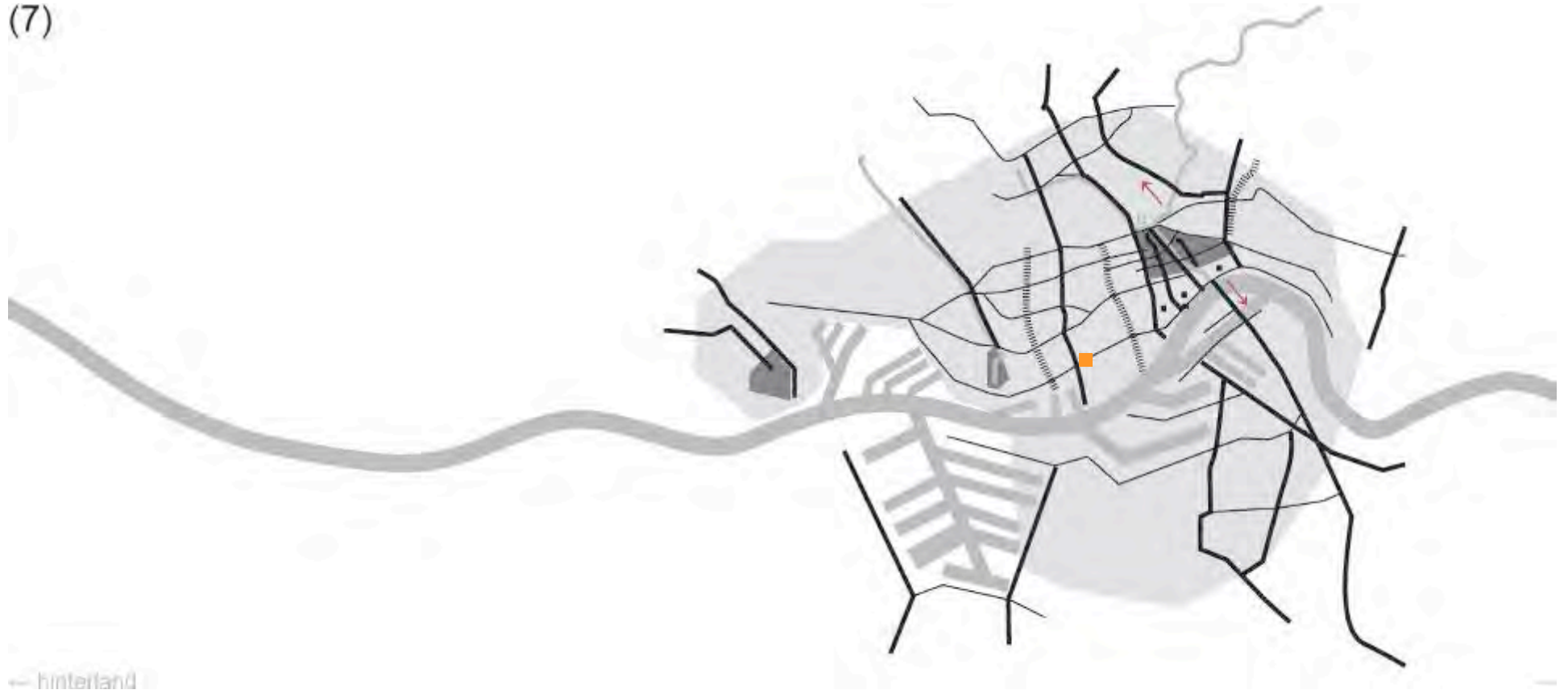




(6)



(7)



← hinterland

(8)



(9)



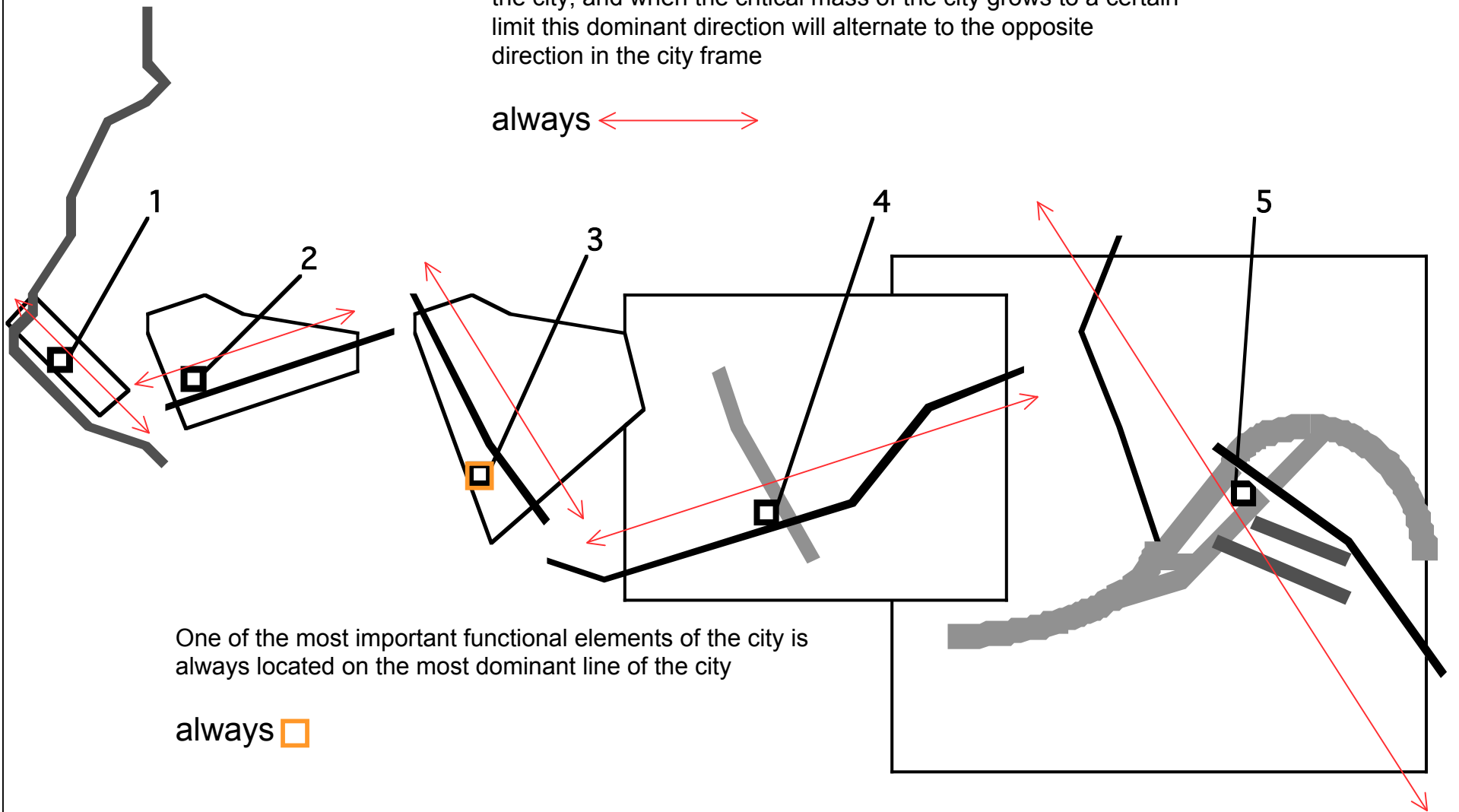
(10)





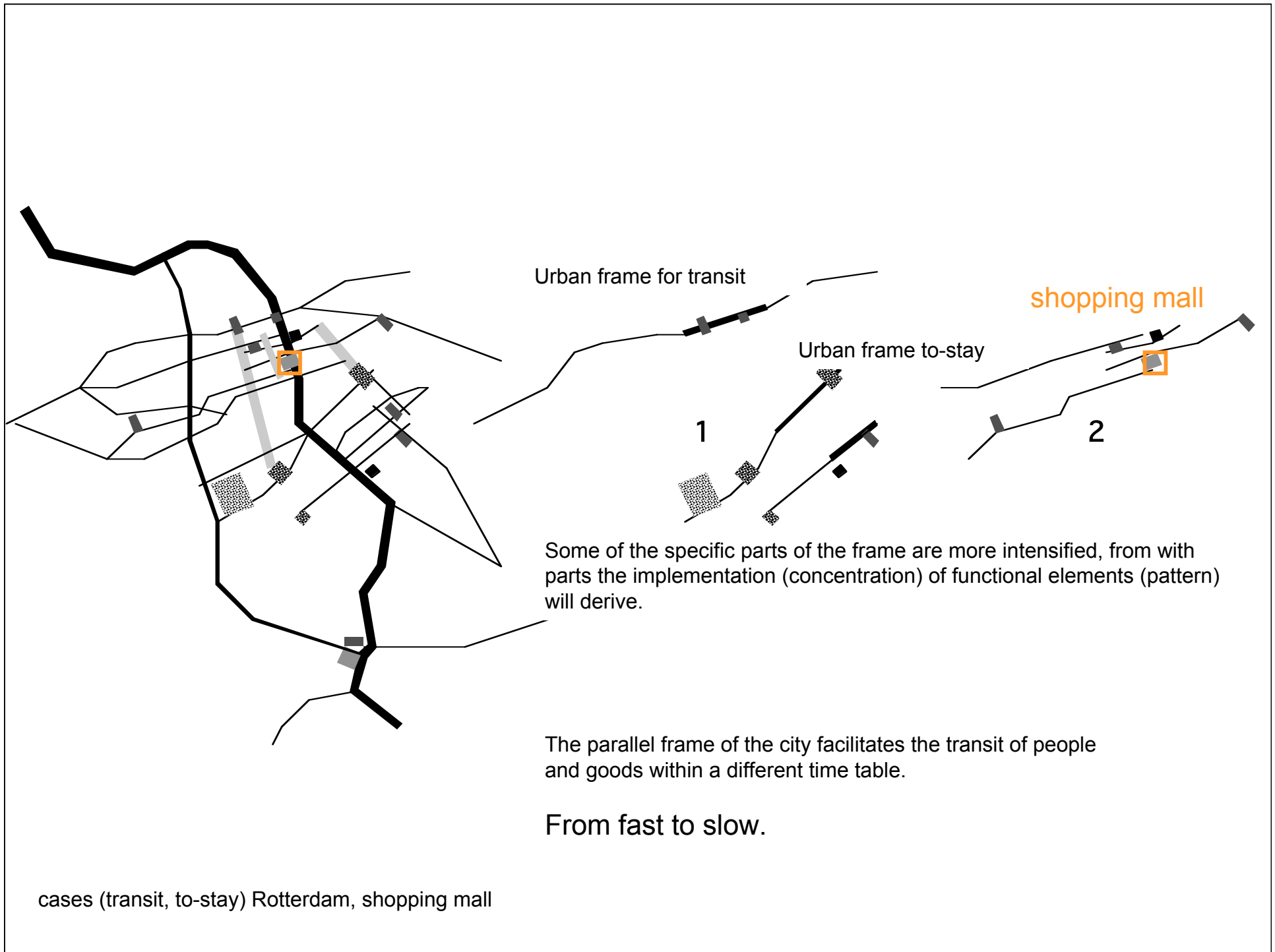
There is always a dominant direction within the urban frame of the city, and when the critical mass of the city grows to a certain limit this dominant direction will alternate to the opposite direction in the city frame

always  $\longleftrightarrow$

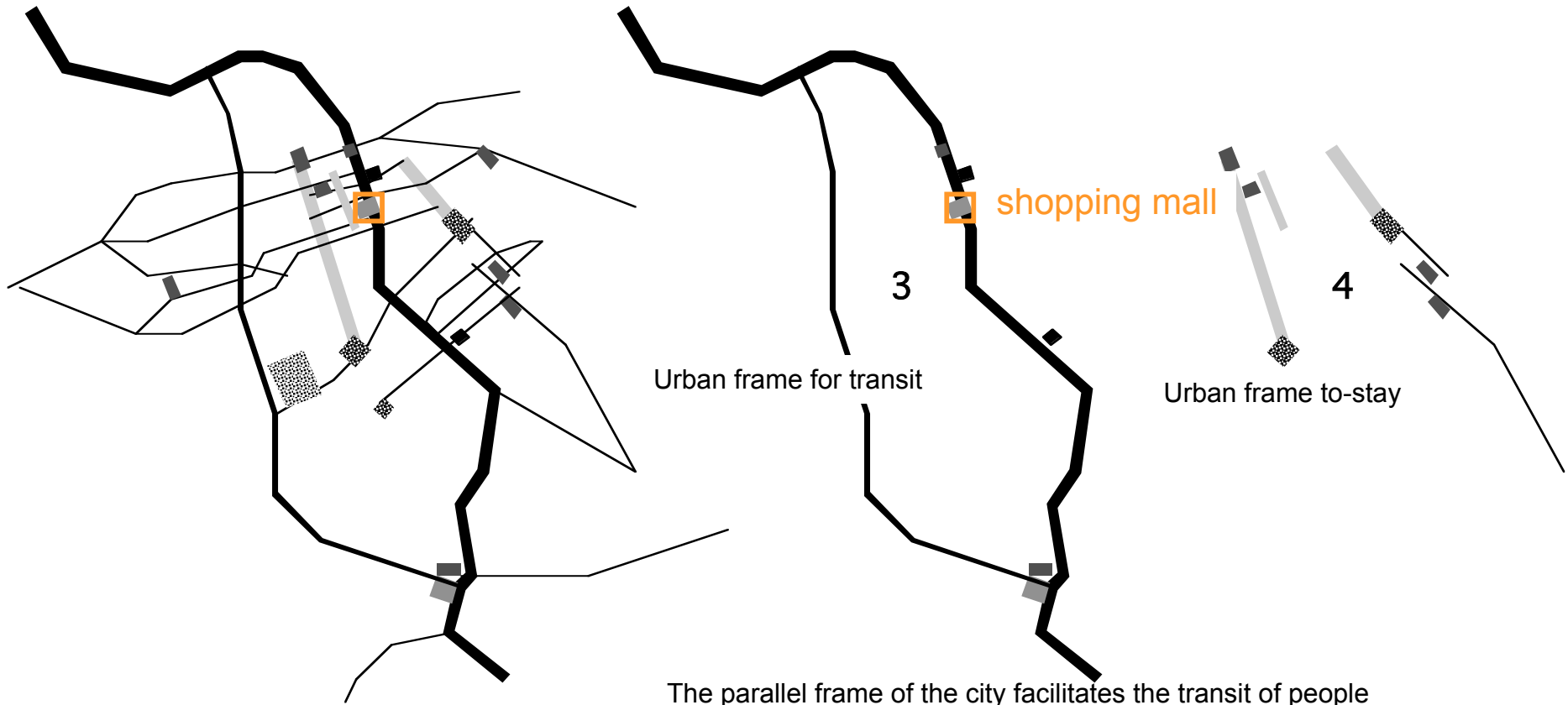


One of the most important functional elements of the city is always located on the most dominant line of the city

always  $\square$







Urban frame for transit

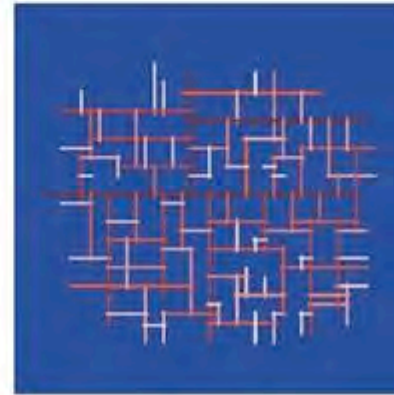
Urban frame to-stay

The parallel frame of the city facilitates the transit of people and goods within a different time table.

From fast to slow.

casus (transit, to-stay) Rotterdam, shopping mall

# A CITY IS NOT A TREE



LEESBAARHEID

LIJNLINGTEN

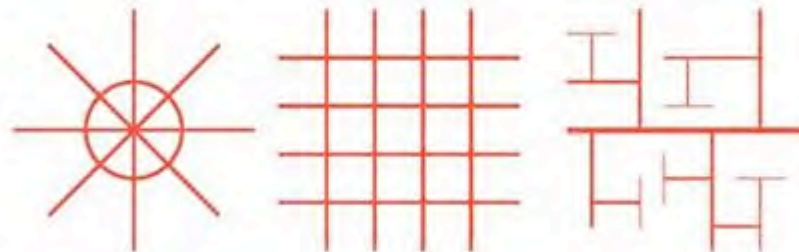
SOCIAL DISTANCE

LEESBAARHEID

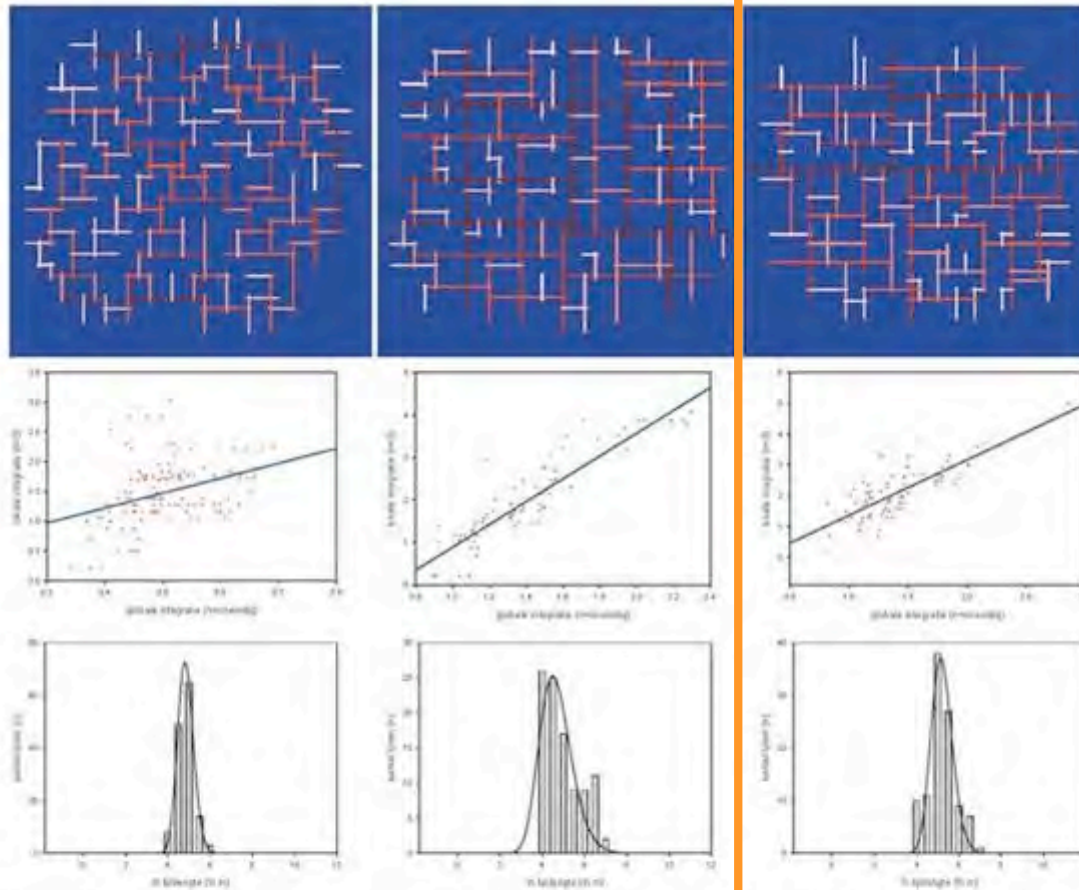
LIJNLINGTEN

SOCIAL DISTANCE

Afbeelding 7: A city is not a tree\*



Afbeelding 8: Stet, grid of boom?



**Type 4 - Composiet / lijnlengten kort**

- De correlatie L-G is zeer slecht ( $R^2=0.14$ )
- De lijnlengteverdeling is nagenoeg perfect ( $R^2=0.99$ )
- De sociale afstanden zijn redelijk kort.

**Type 5 - Composiet / relatief veel lange lijnen**

- De correlatie L-G is zeer goed ( $R^2=0.80$ )
- De lijnlengteverdeling is goed ( $R^2=0.84$ )
- Er zit een grote spreiding in sociale afstand.

**Type 6 - Composiet / 'optimale' lijnlengteverdeling**

- De correlatie L-G is goed ( $R^2=0.59$ )
- De lijnlengteverdeling is zeer goed ( $R^2=0.94$ )
- De sociale afstand is relatief groot

| lokatie | leesbaarheid |      |      |       | variatie in lijnlengten |      |           |       | sociale afstanden (%) |     |     |     |     |     |
|---------|--------------|------|------|-------|-------------------------|------|-----------|-------|-----------------------|-----|-----|-----|-----|-----|
|         | con          | loc  | glo  | $R^2$ | $n_{2k}$                | LV   | $1M_{2k}$ | $R^2$ | 1                     | 2   | 3   | 4   | 5   | 6   |
| type-4  | 2.47         | 1.49 | 0.51 | 0.14  | 72                      | 0.08 | 4.80      | 0.99  | 0%                    | 6%  | 1%  | 35% | 58% | 0%  |
| type-5  | 3.23         | 1.92 | 1.39 | 0.80  | 25                      | 0.16 | 4.49      | 0.84  | 0%                    | 0%  | 28% | 23% | 38% | 10% |
| type-6  | 3.24         | 2.00 | 1.36 | 0.59  | 37                      | 0.10 | 5.13      | 0.94  | 0%                    | 10% | 1%  | 11% | 76% | 3%  |

Levels of scale

province

region

municipality

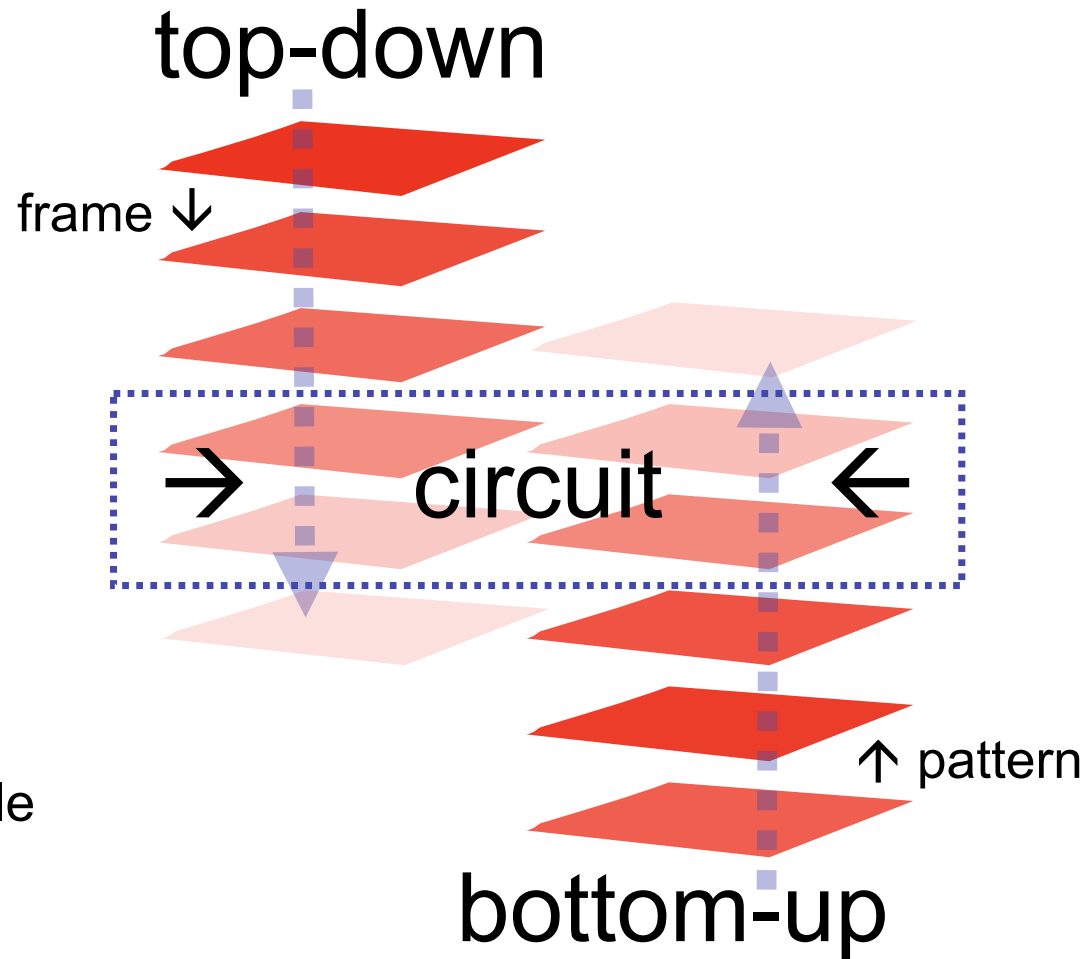
city

district

quarter

neighbourhood

street / block / ensemble



“Use” and “necessity” of public space spring from the [encounter](#)



# Serial frame

serial, deductive, “top-down”

- planned new large-scale extensions, like New Towns, Almere
- grids,
- formal network

1967



The genesis of the Dutch landscape

New town Almere and new polders



1968



1969





1970



1971

## The re-making of a landscape

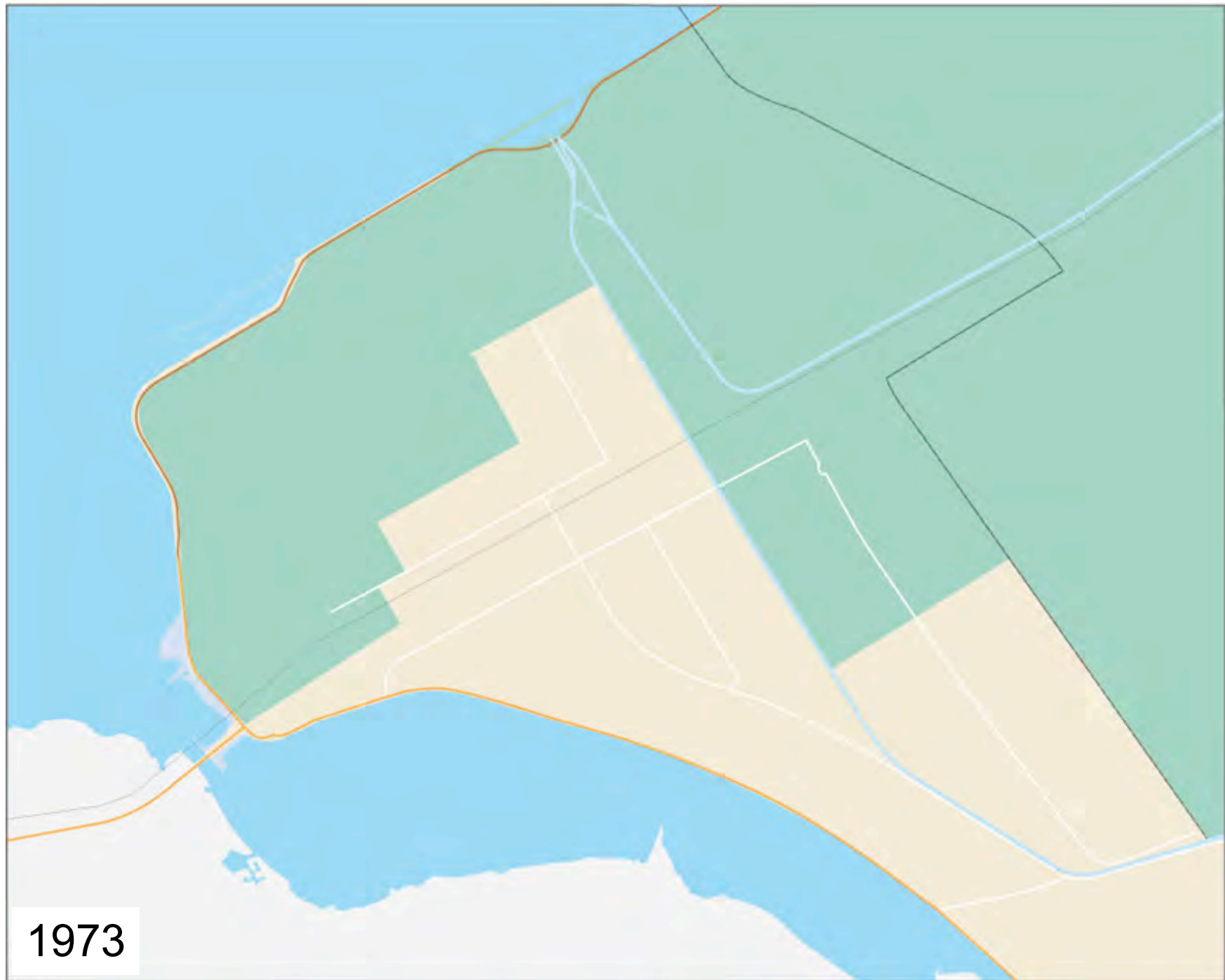
Almere op  
zondag 14  
september  
foto: Geth

## New Town categorisation:

| aspect     | outpost   | colony   | overflow   |                     |                        |
|------------|---|--|--|---------------------|------------------------|
| time       | Richelieu, Rennes etc. in France<br>Roman military "castra"                                       | all American cities like New York and Washington DC<br>the "Spanish Law" towns from the time of Spanish and Portuguese supremacy | New Delhi, India<br>French "satellite towns"<br>New Towns in England and Scotland          |                     |                        |
| technology |   | Ancient Greek "Νέα Πόλις"  | German "Siedlungen" and comparable settlements in Denmark and Sweden                       |                     |                        |
| ideology   | New Lanark and other settlements directly connected to some kind of industrial production process |  | Zeevolde, Almere, Lelystad and the Noordoostpolder villages<br>"Garden Cities of Tomorrow" |                     |                        |
| situation  | border conditions   | frontiers  | productive environment   | healthy environment | recreative environment |



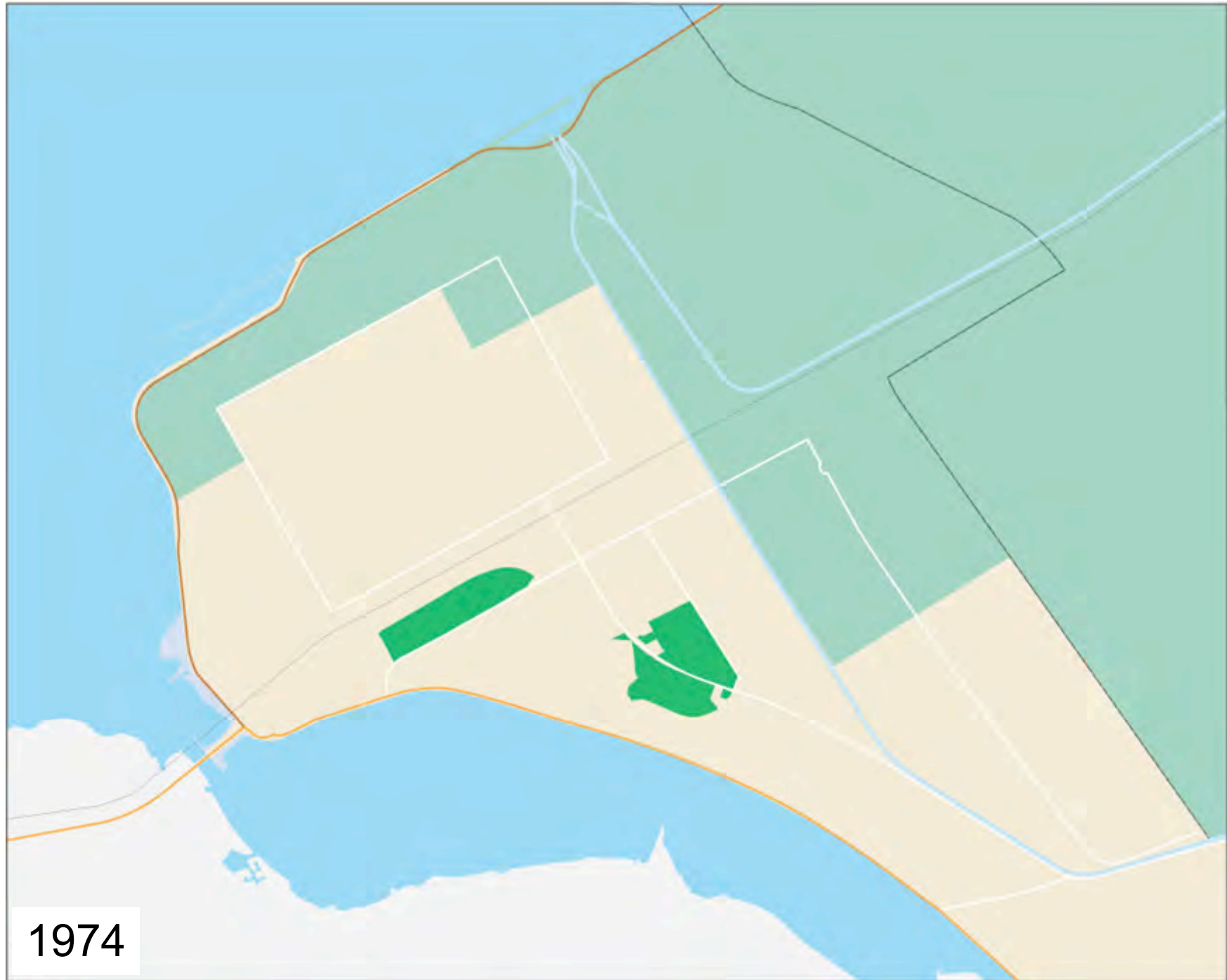
1972



1973

The establishing of a human environment



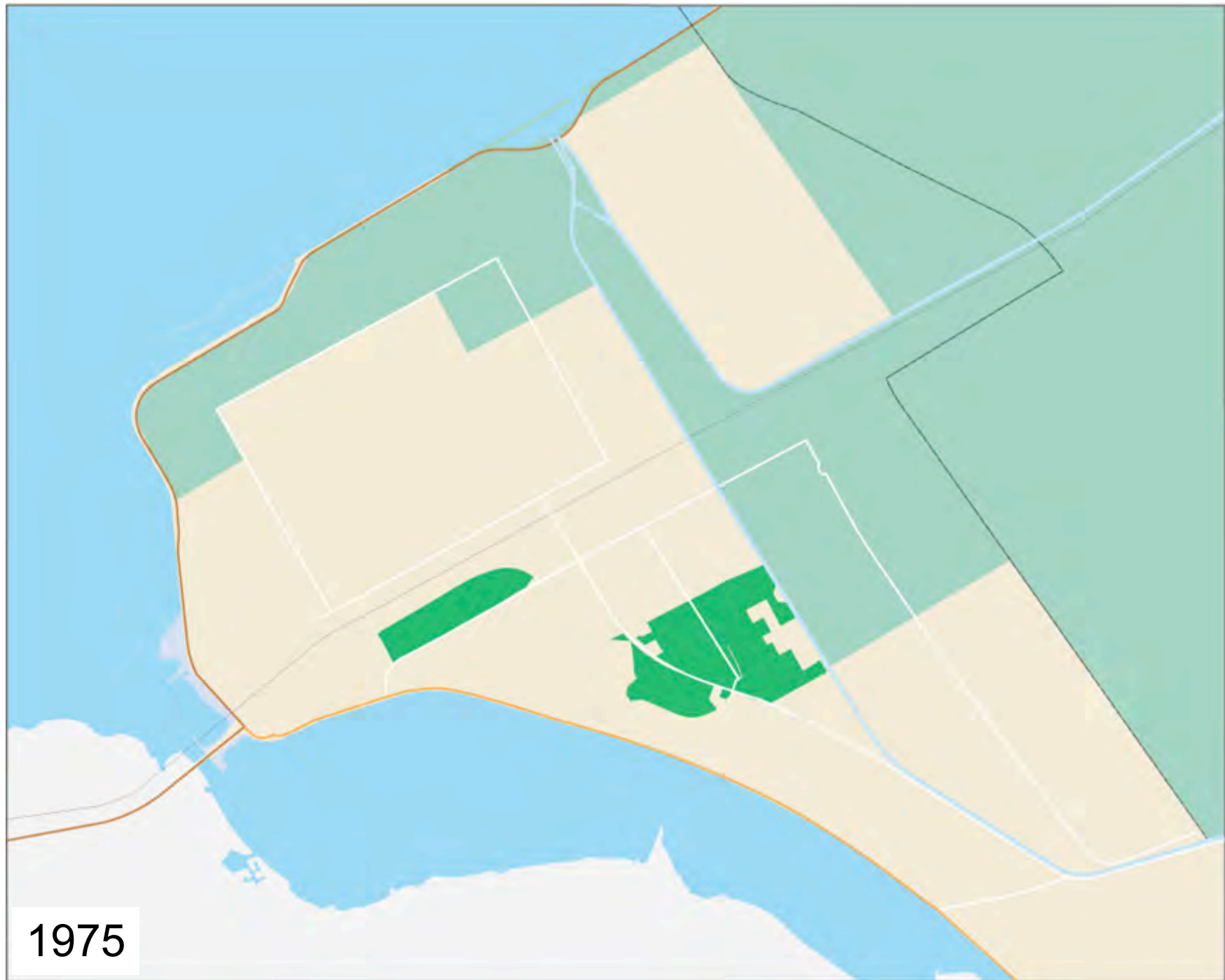


1974





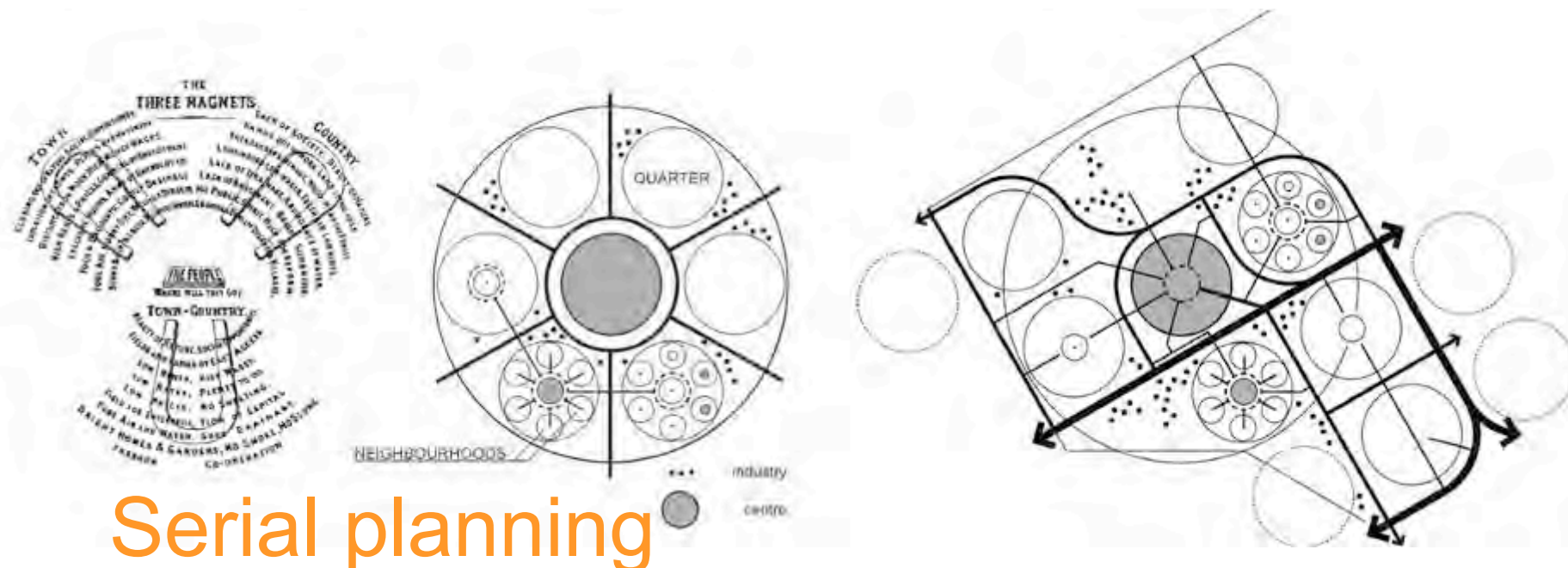
The birth of a natural environment



1975

The conception of a New Town plan

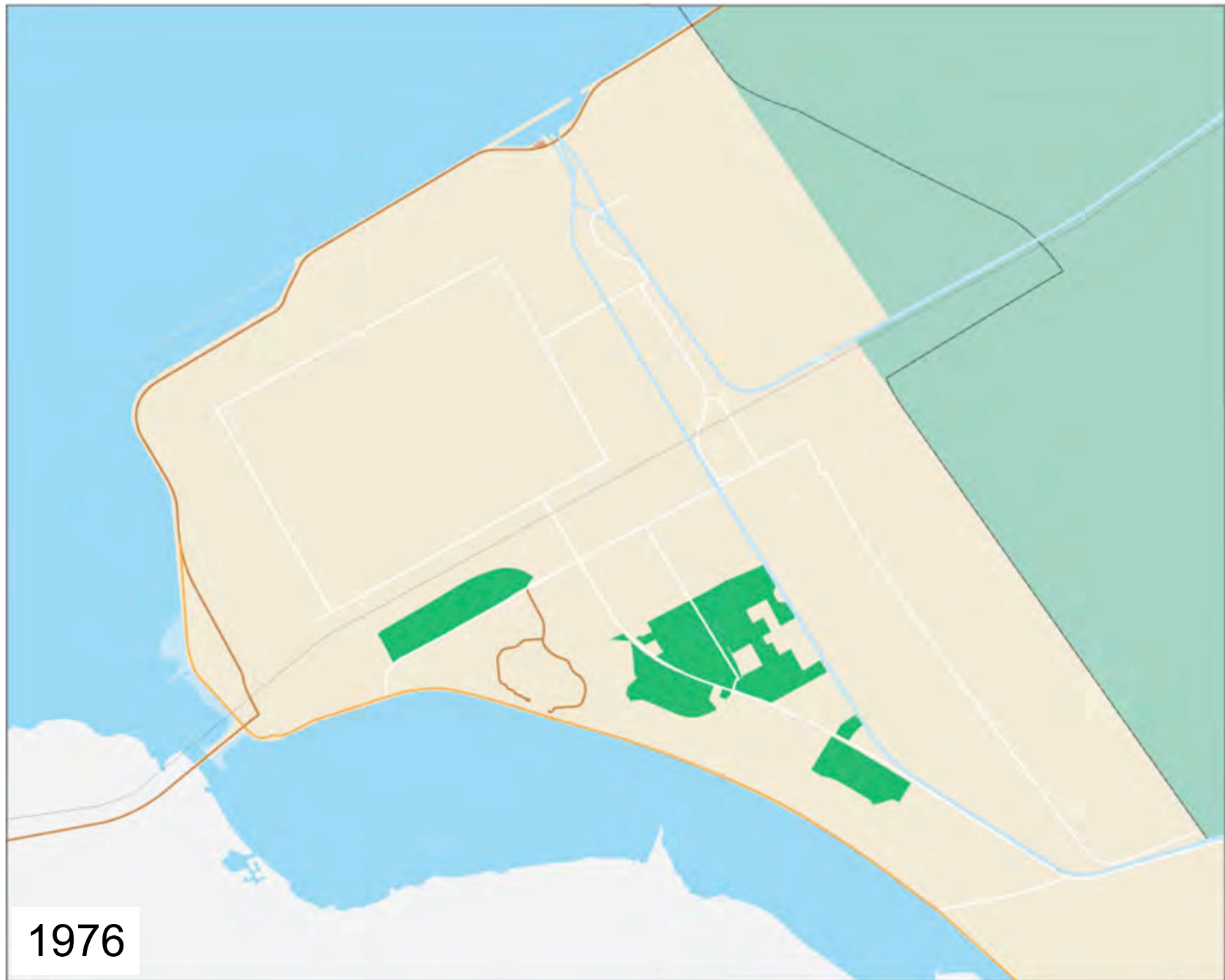




# Serial planning

New town Almere is an amalgam of ideological and technocratic notions:

- “Garden Cities of To-Morrow” but without the required distance
- the “Green Belt” but primarily as a gutter for infrastructure
- the “Neighbourhood Unit” as marketing tool rather than social concept
- the “Segmented City” with all of its functional / programmatically segregation



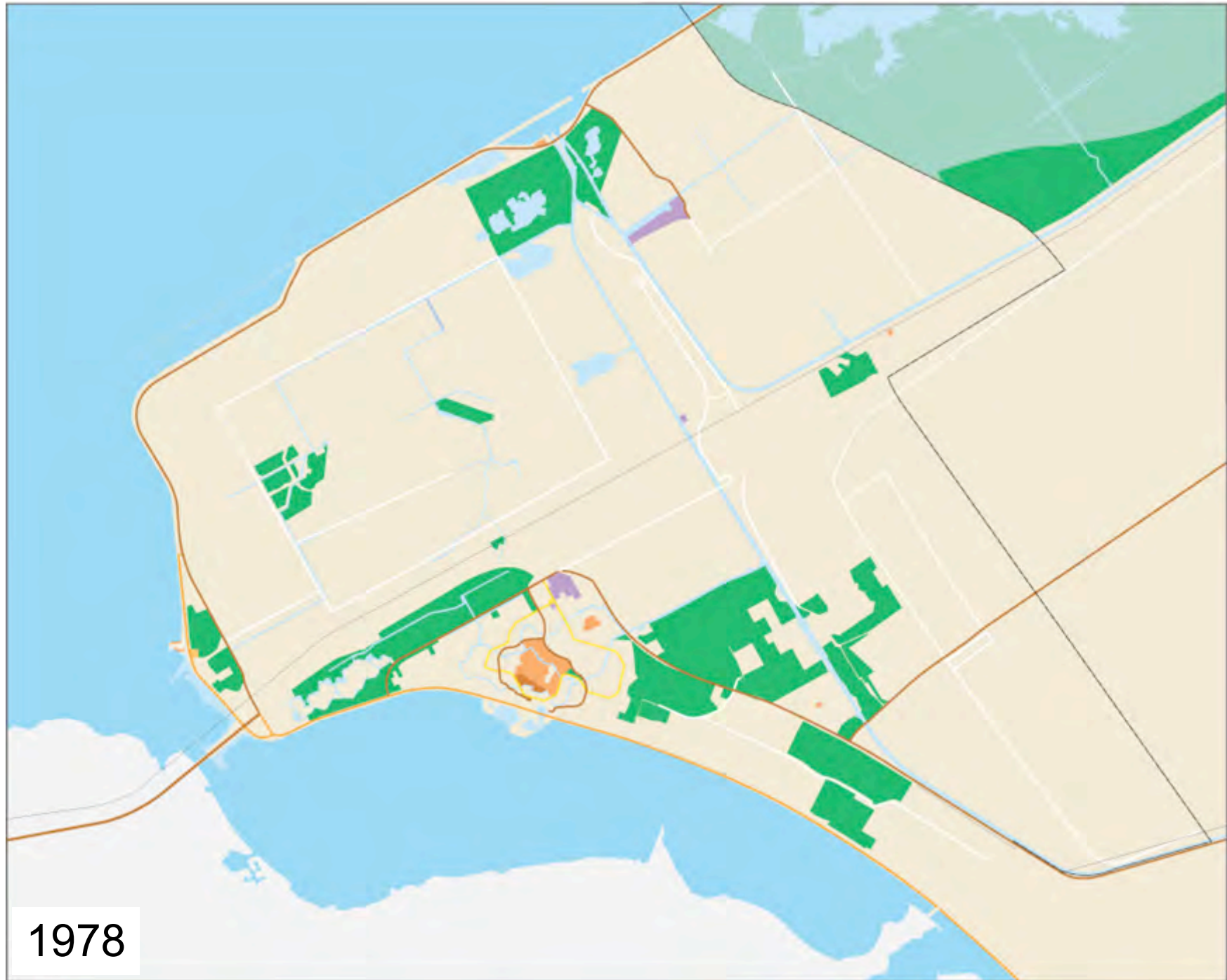
1976



1977

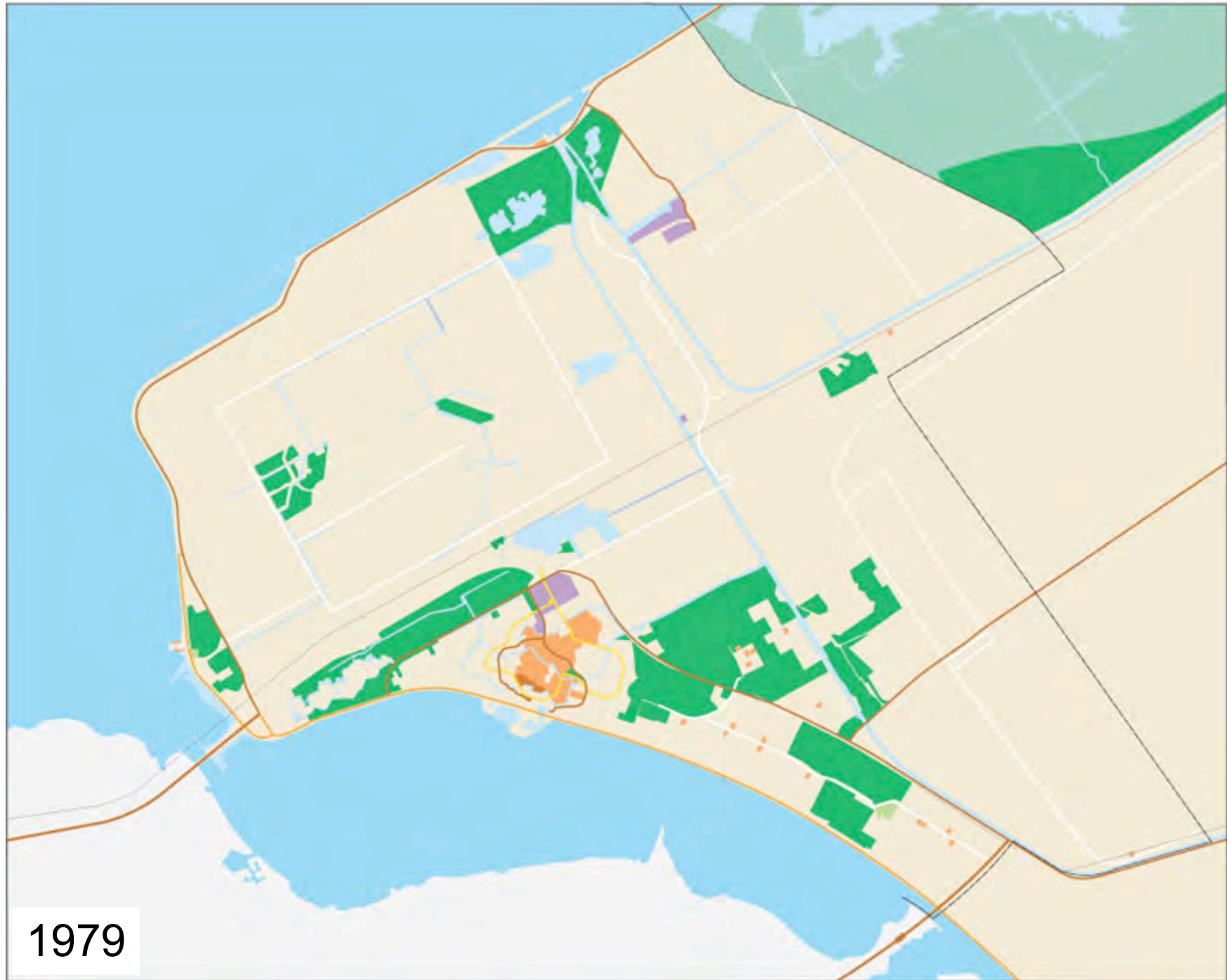


The making of public & private space

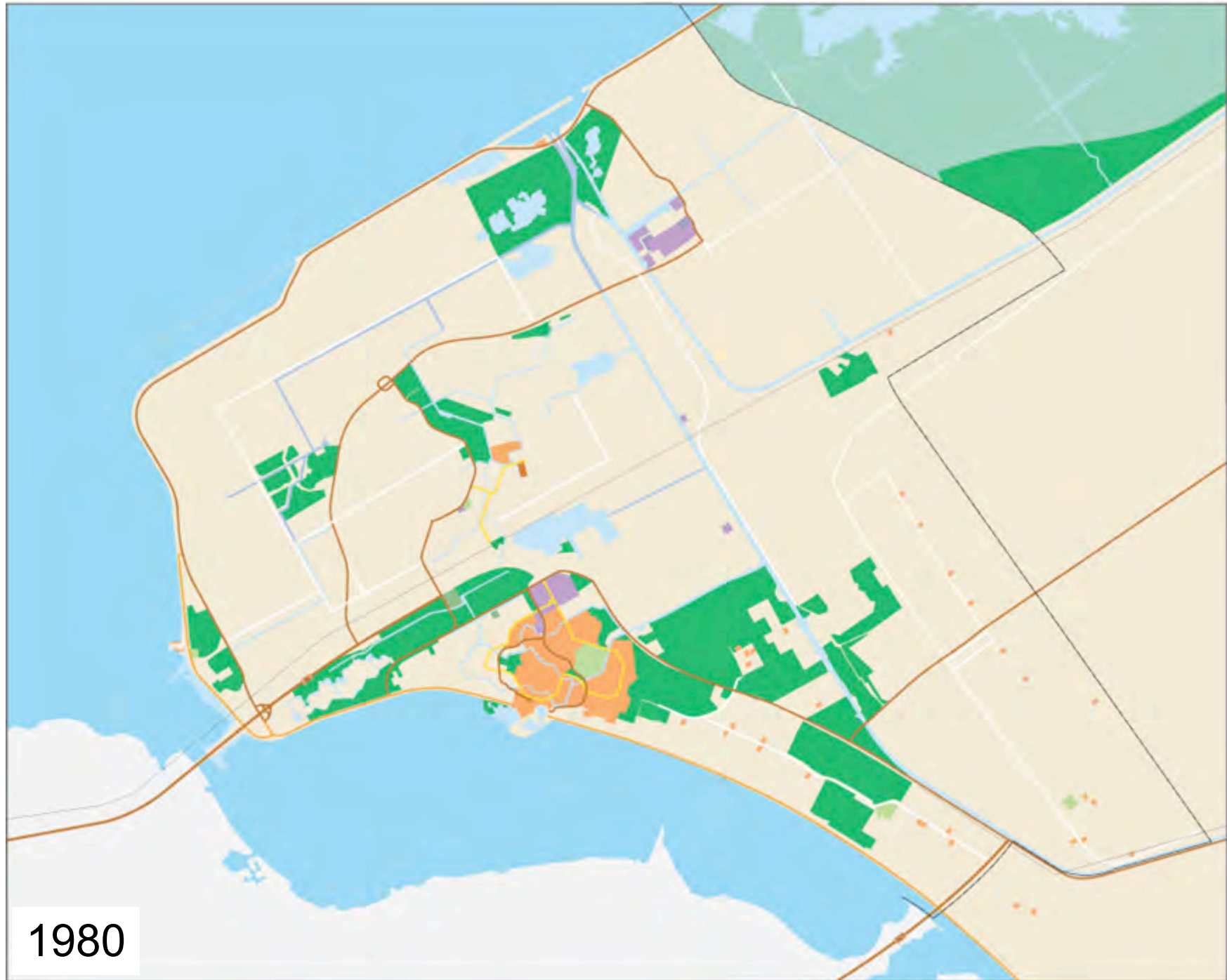


1978





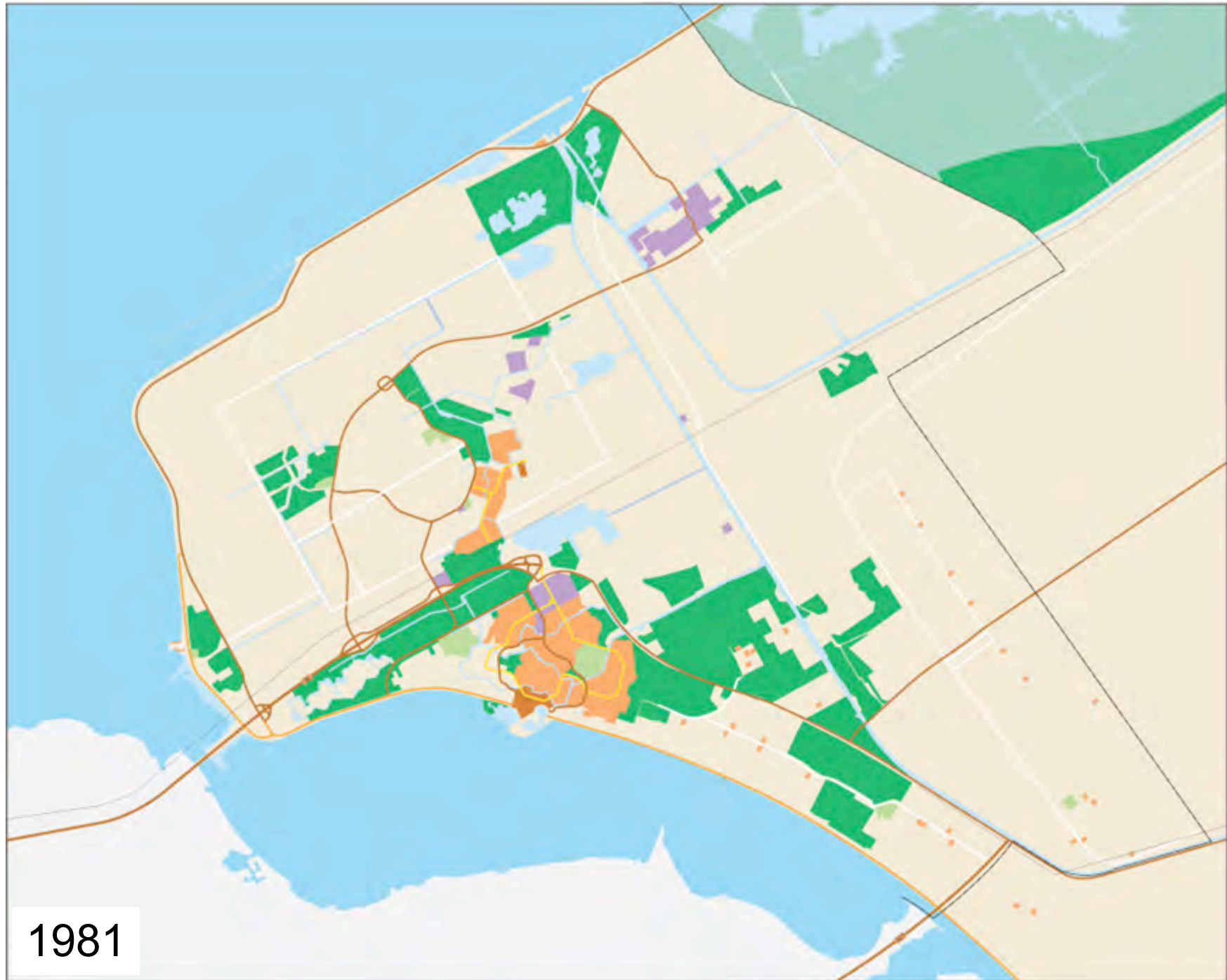
1979



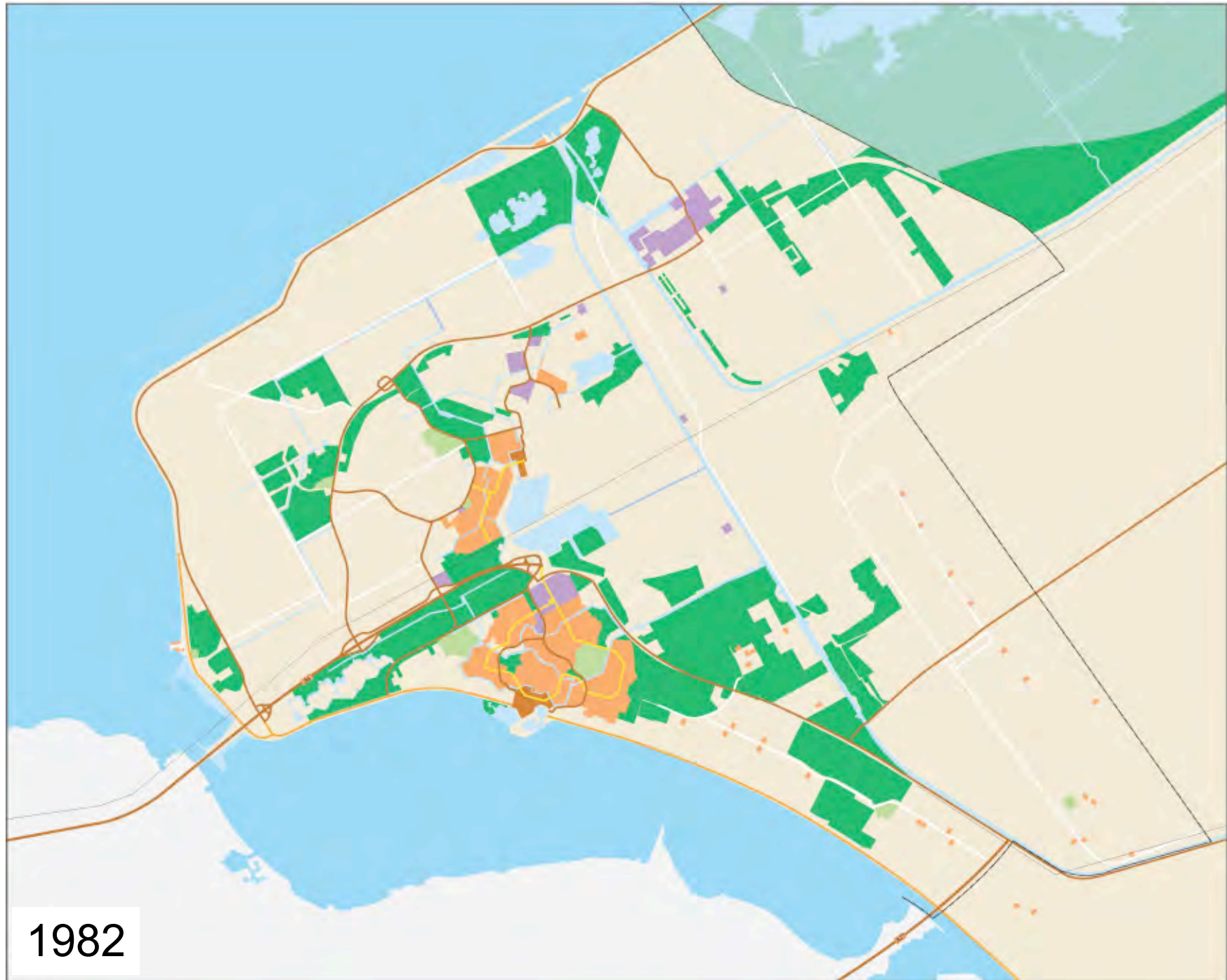
1980

An aerial photograph of a coastal city. On the left, a large body of water (likely a bay or harbor) is visible, with several sailboats scattered across its surface. A prominent marina with numerous white boats is situated on a small peninsula. A long, straight road or promenade runs along the water's edge. To the right of the water, a dense residential area with many houses and buildings is visible. In the foreground, a large green field, possibly a golf course, is partially visible. The background shows a vast expanse of water and distant landmasses under a clear sky.

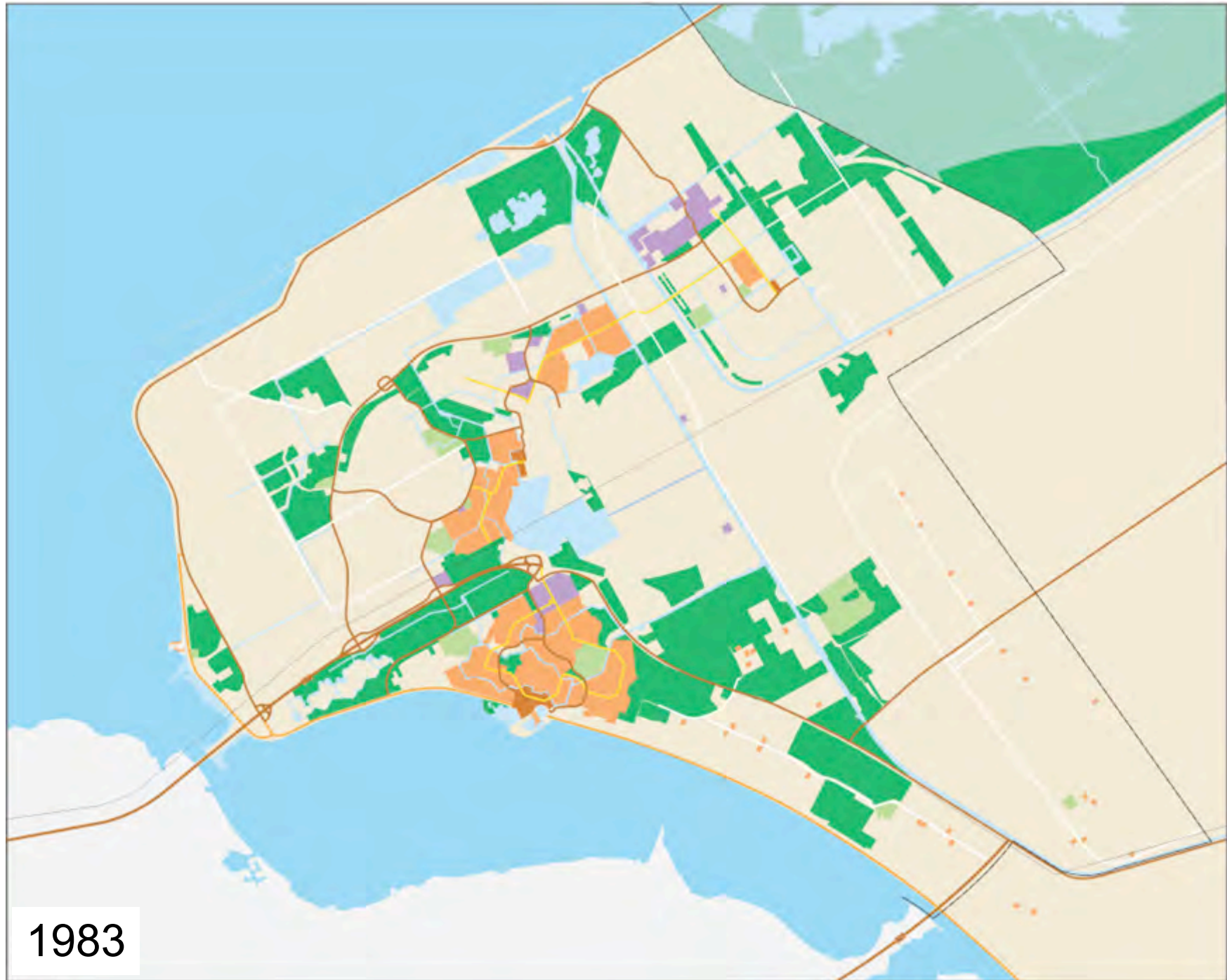
Governance of urban quality



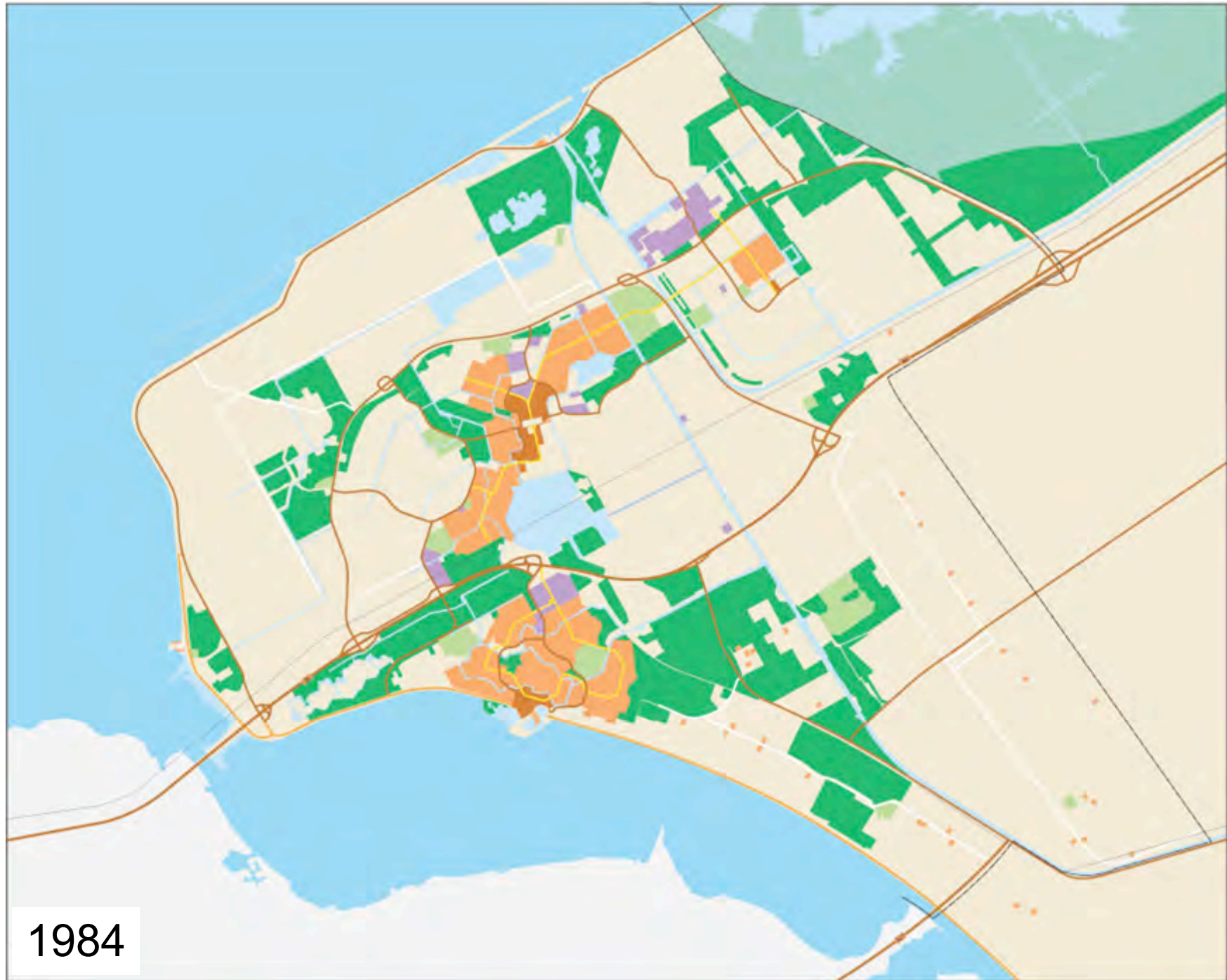
1981



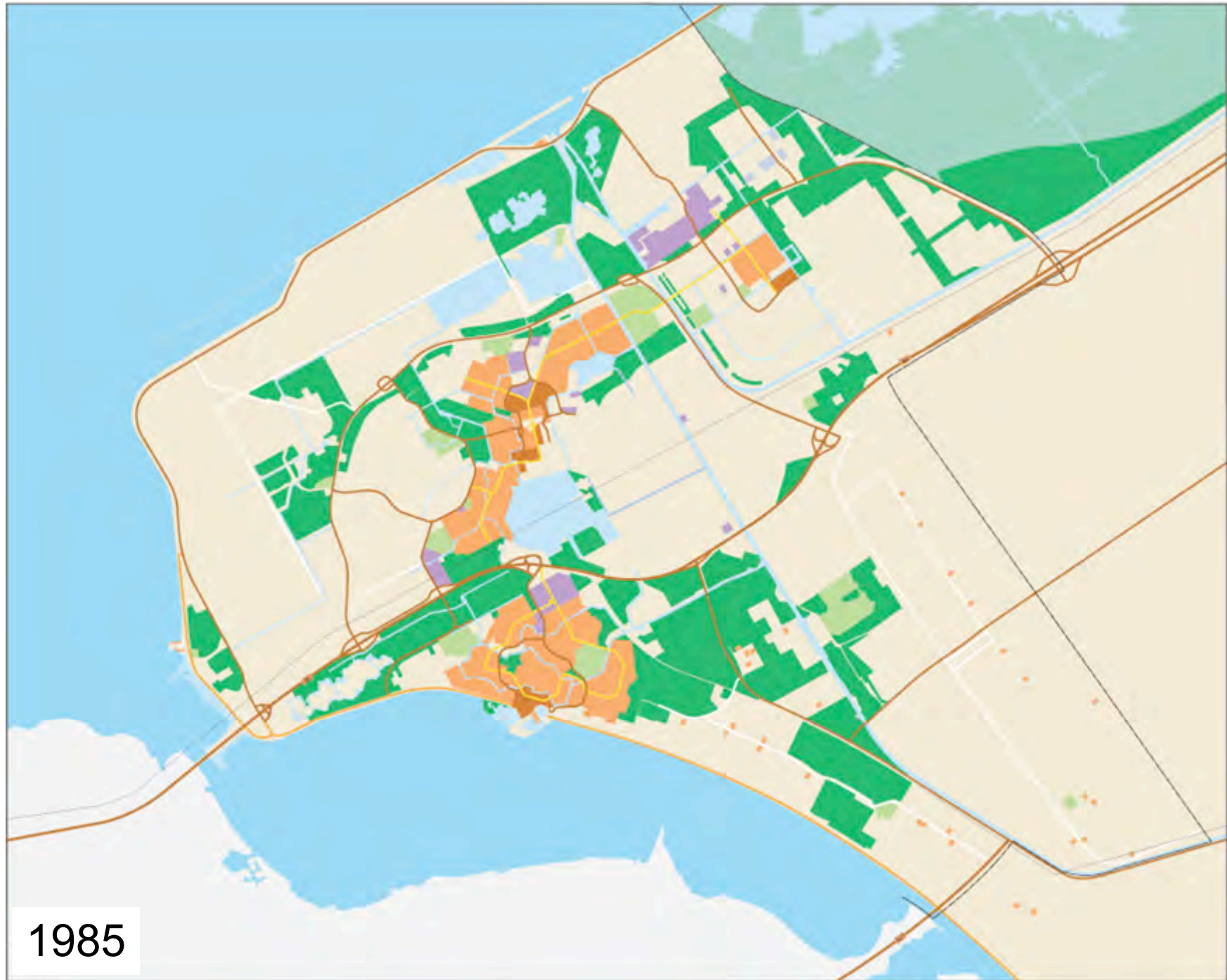
1982



1983

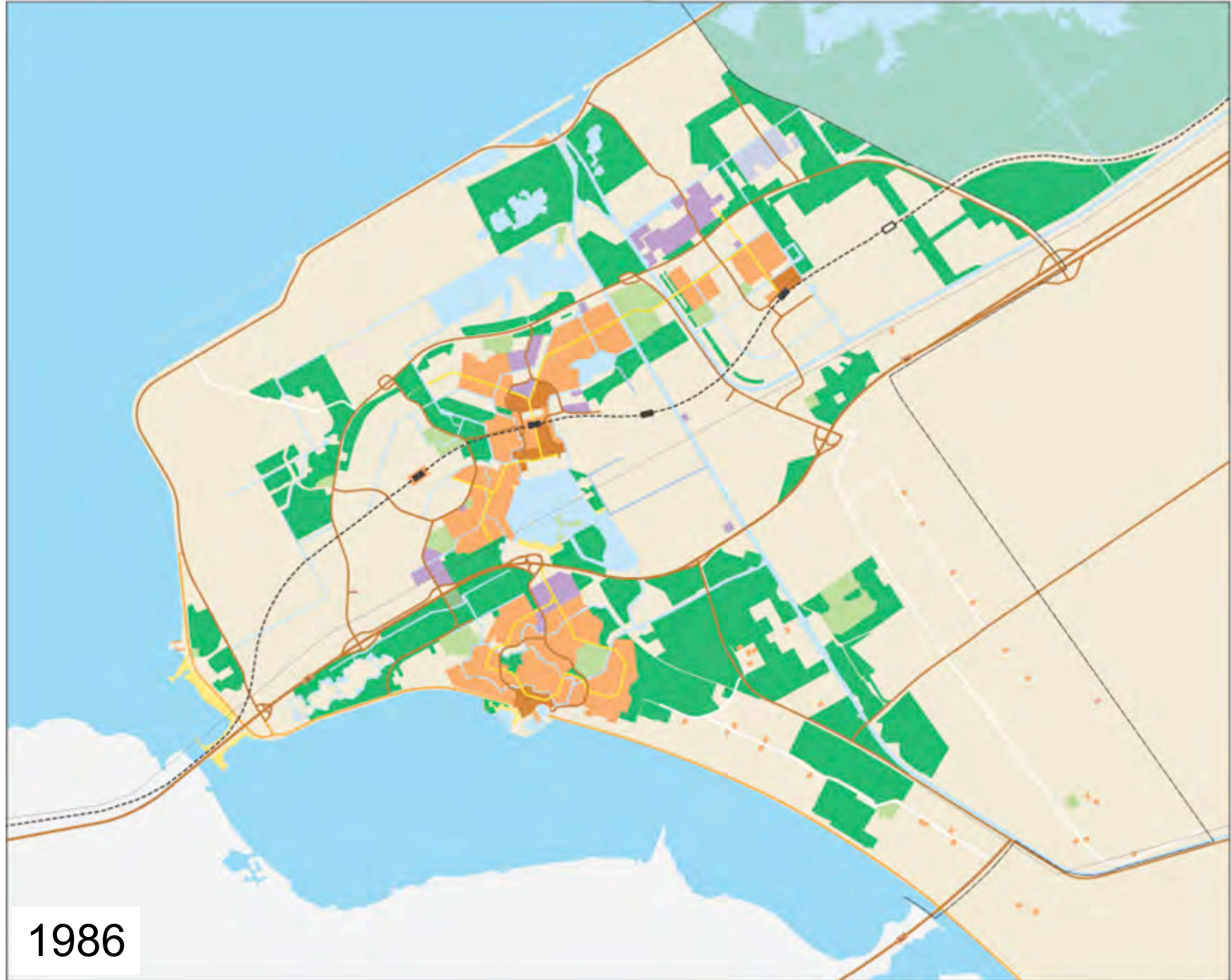


1984

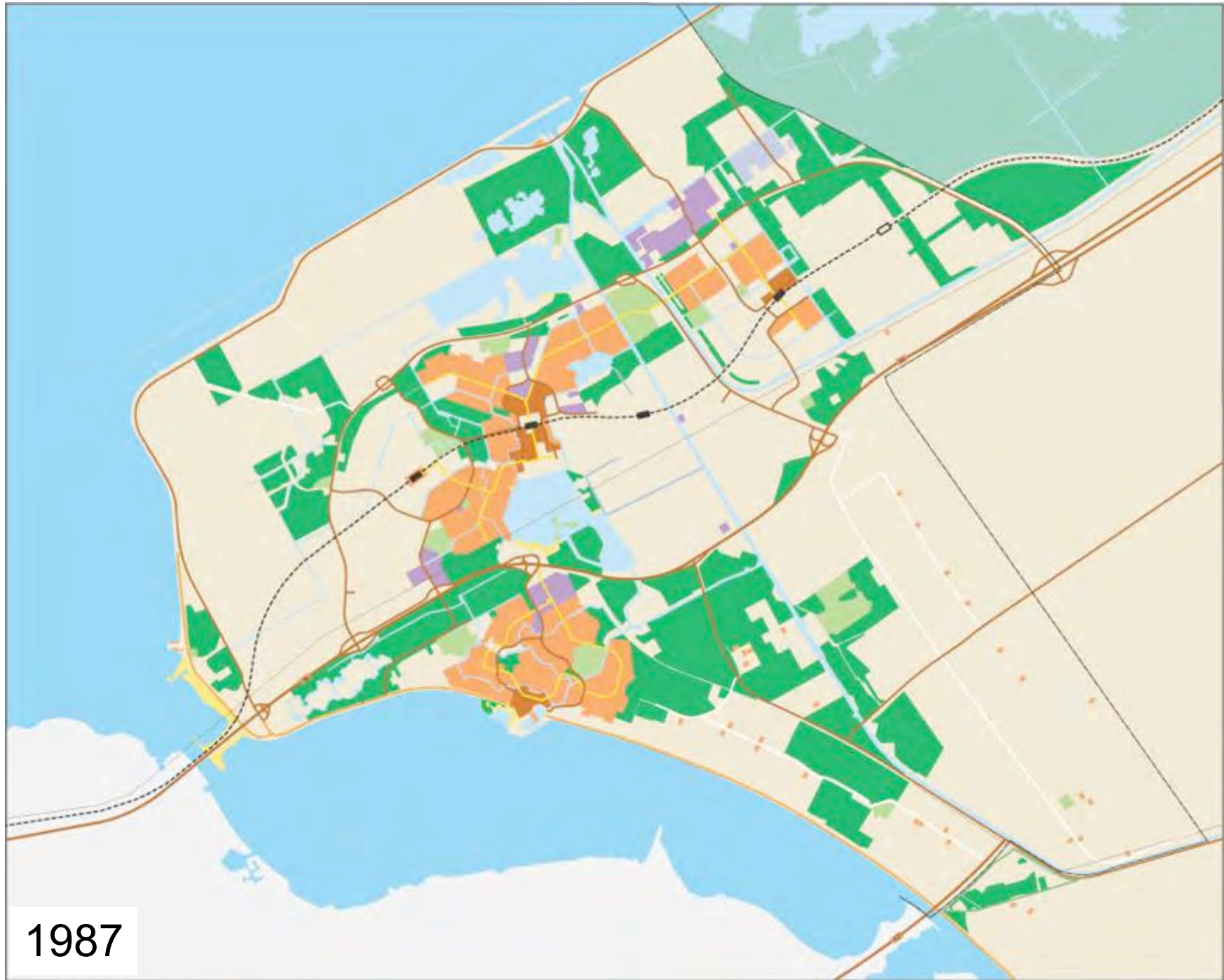


1985





1986



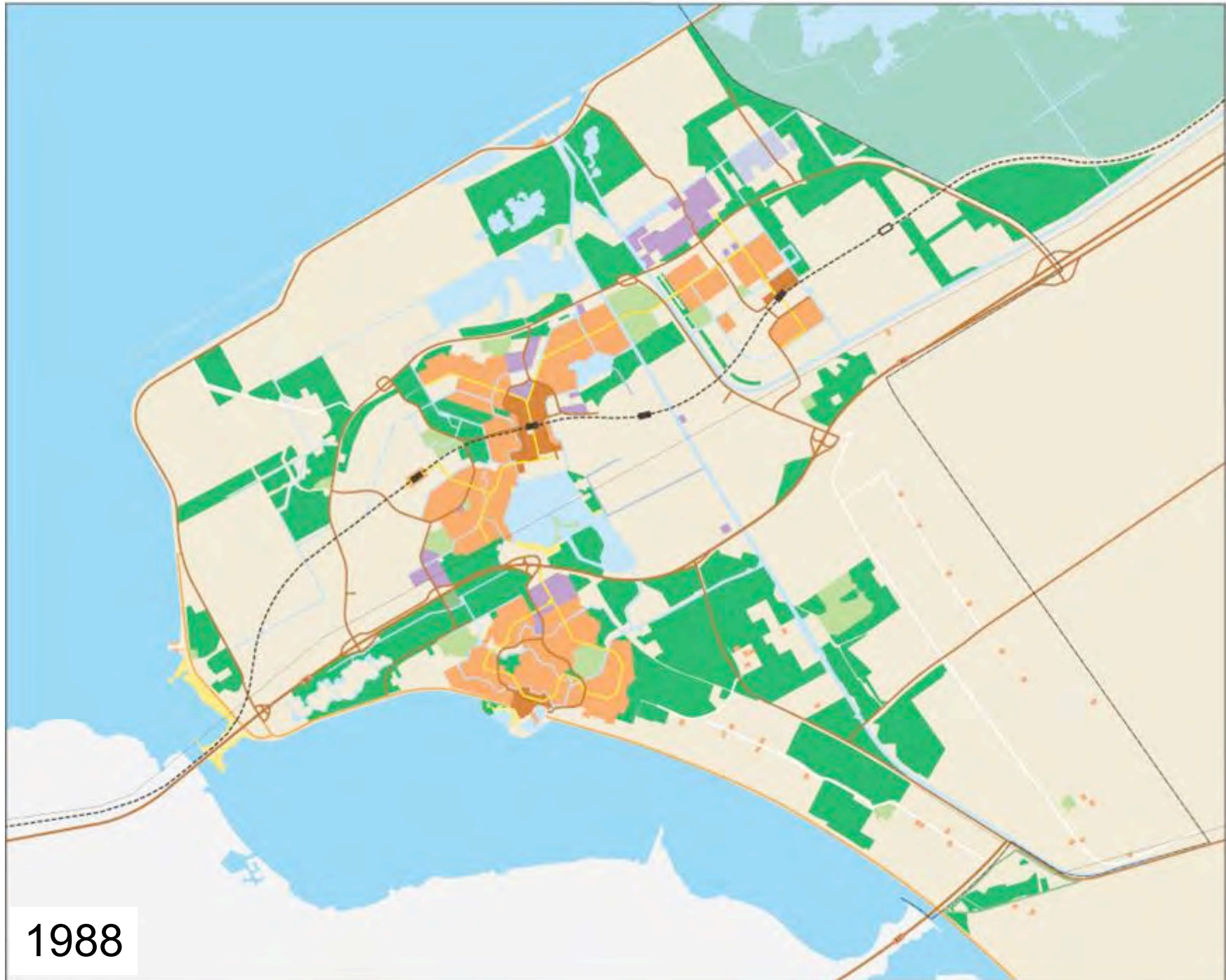
1987



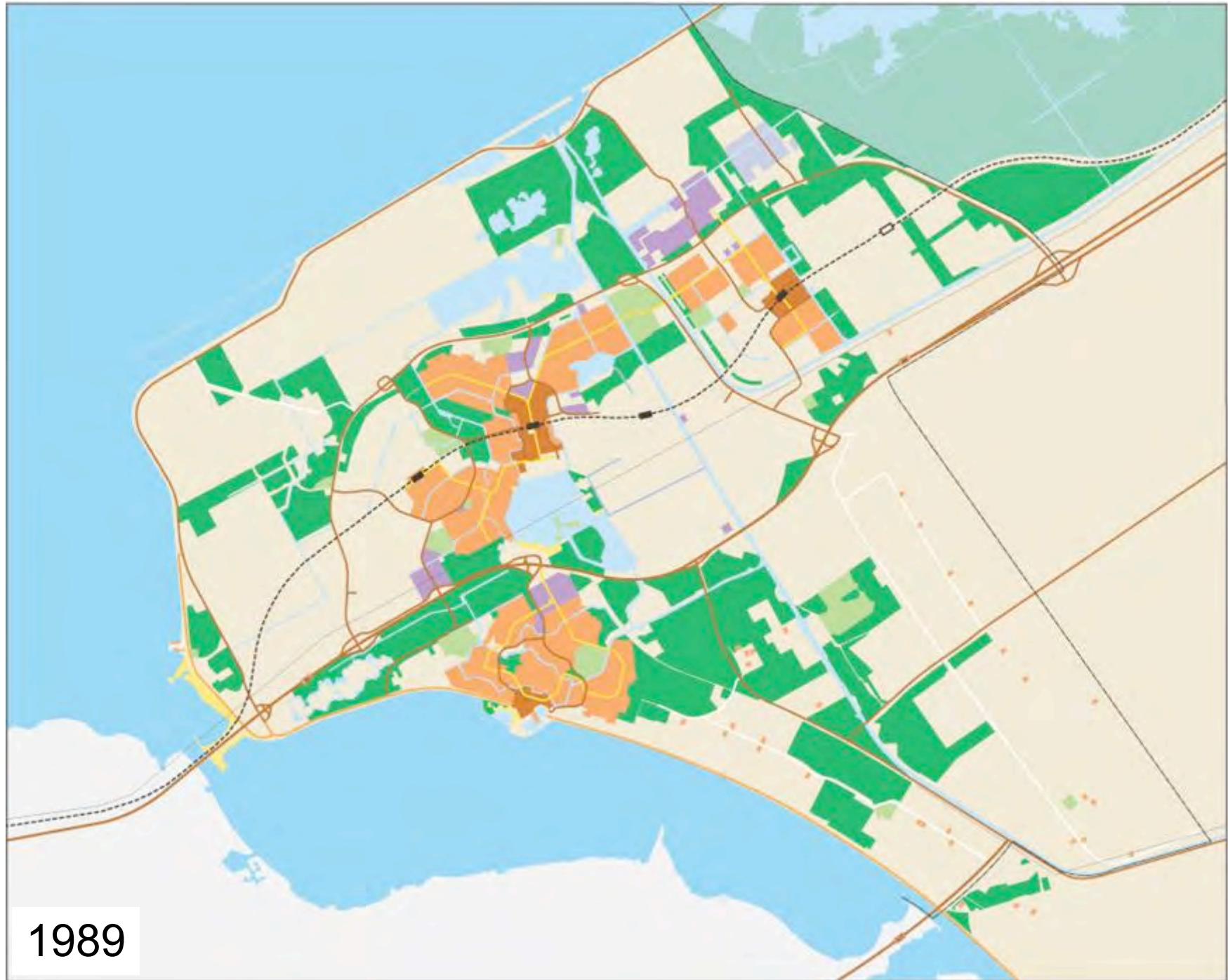
The birth of a natural environment



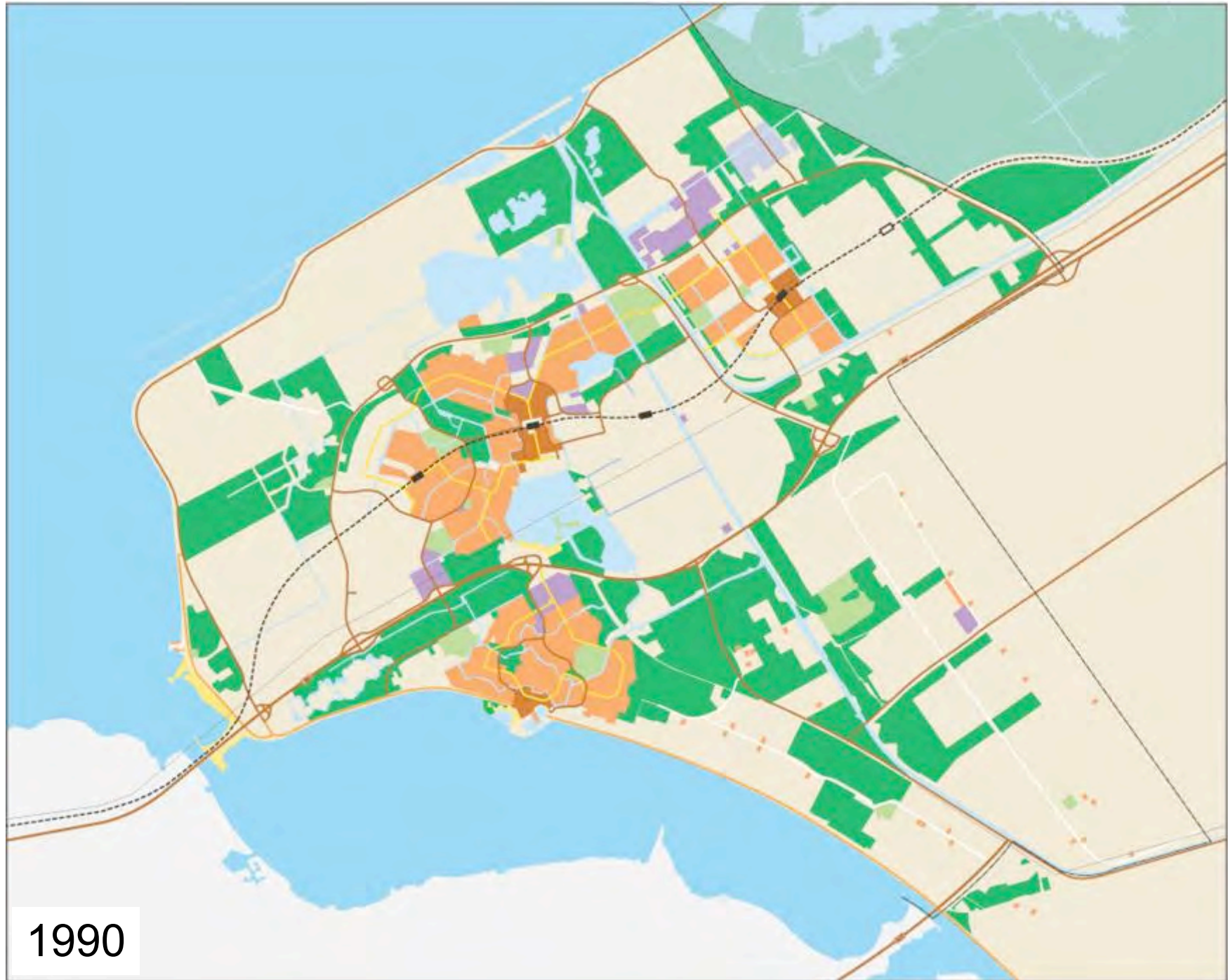
The birth of a natural environment



1988



1989

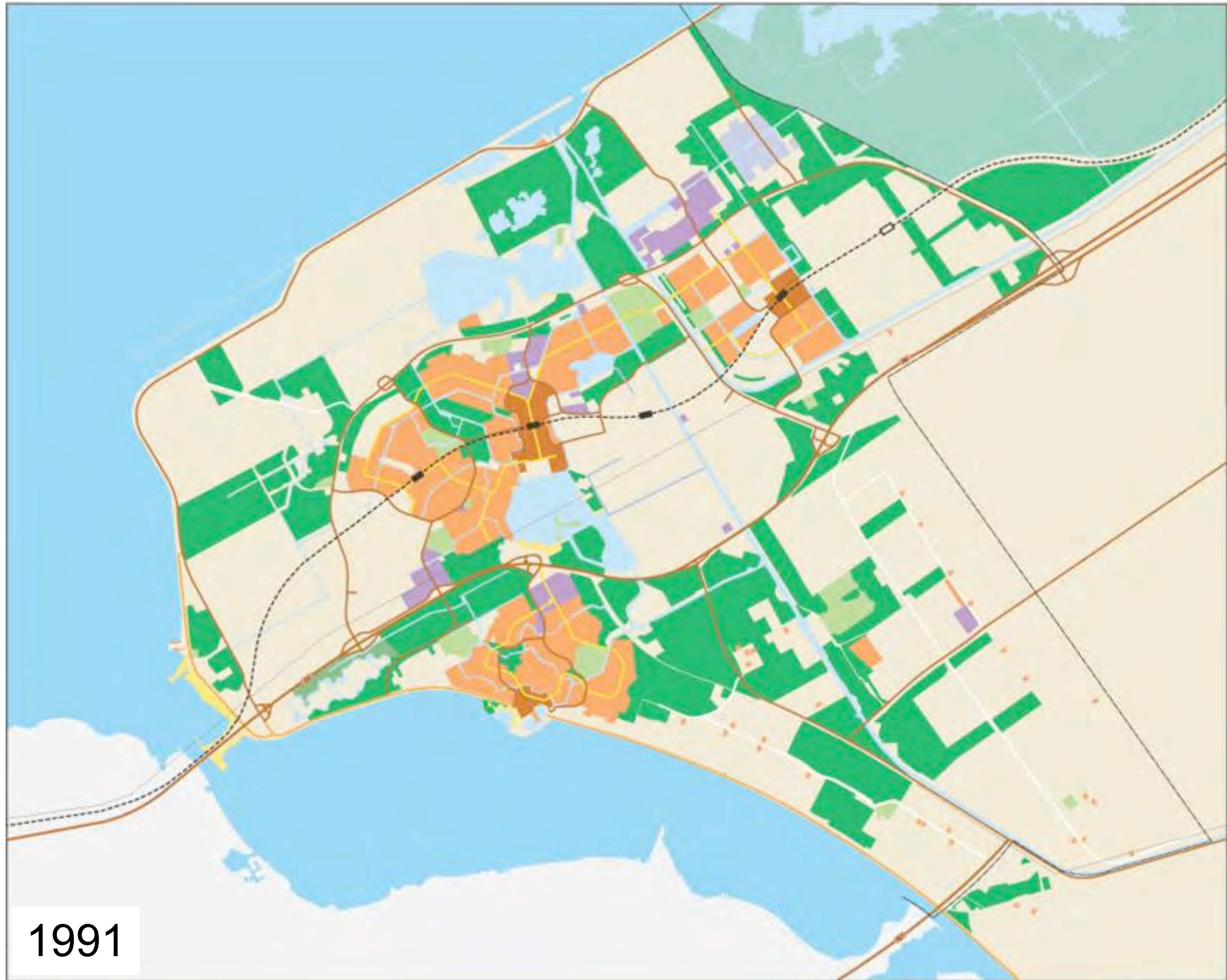


1990

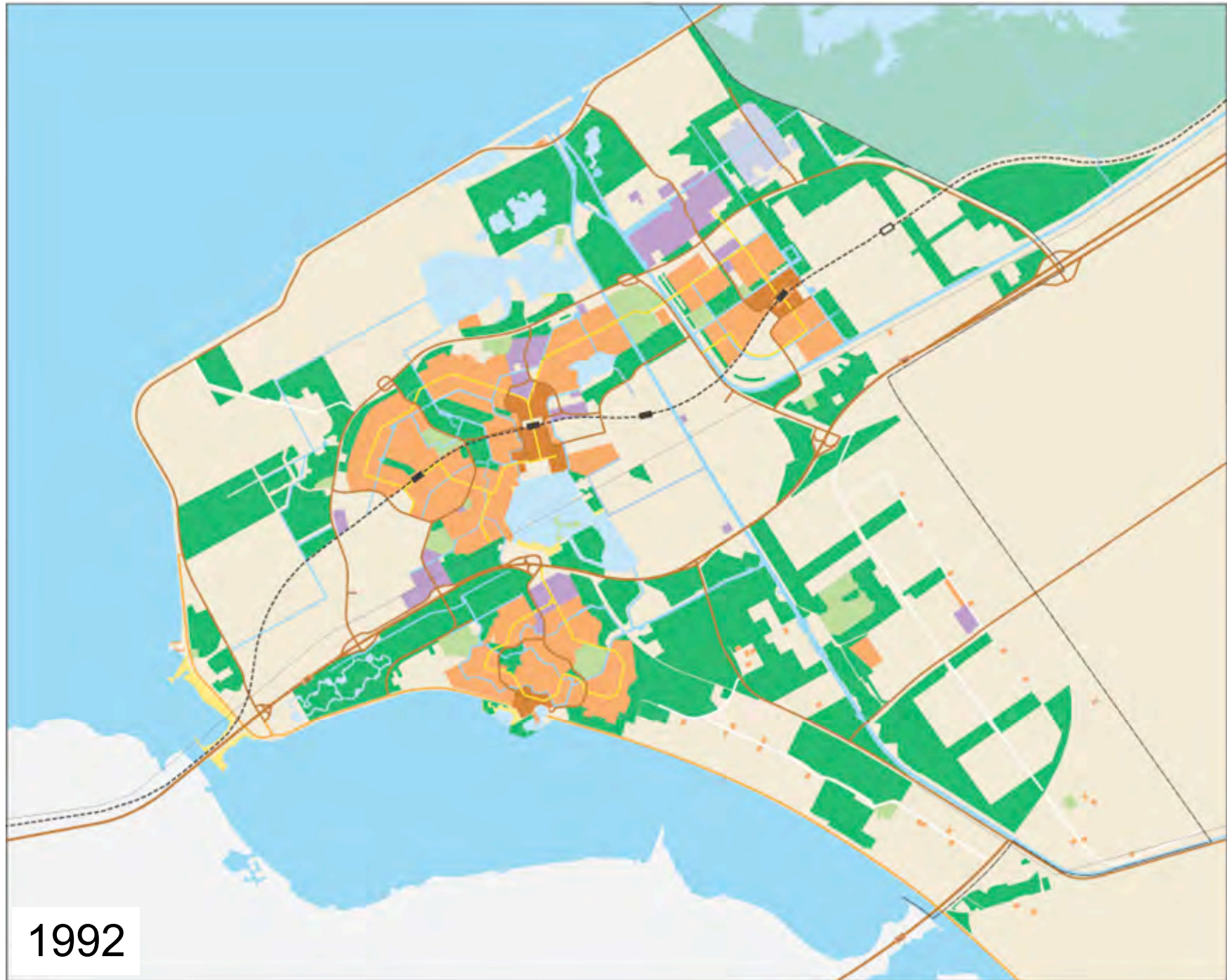
The unicity of the location



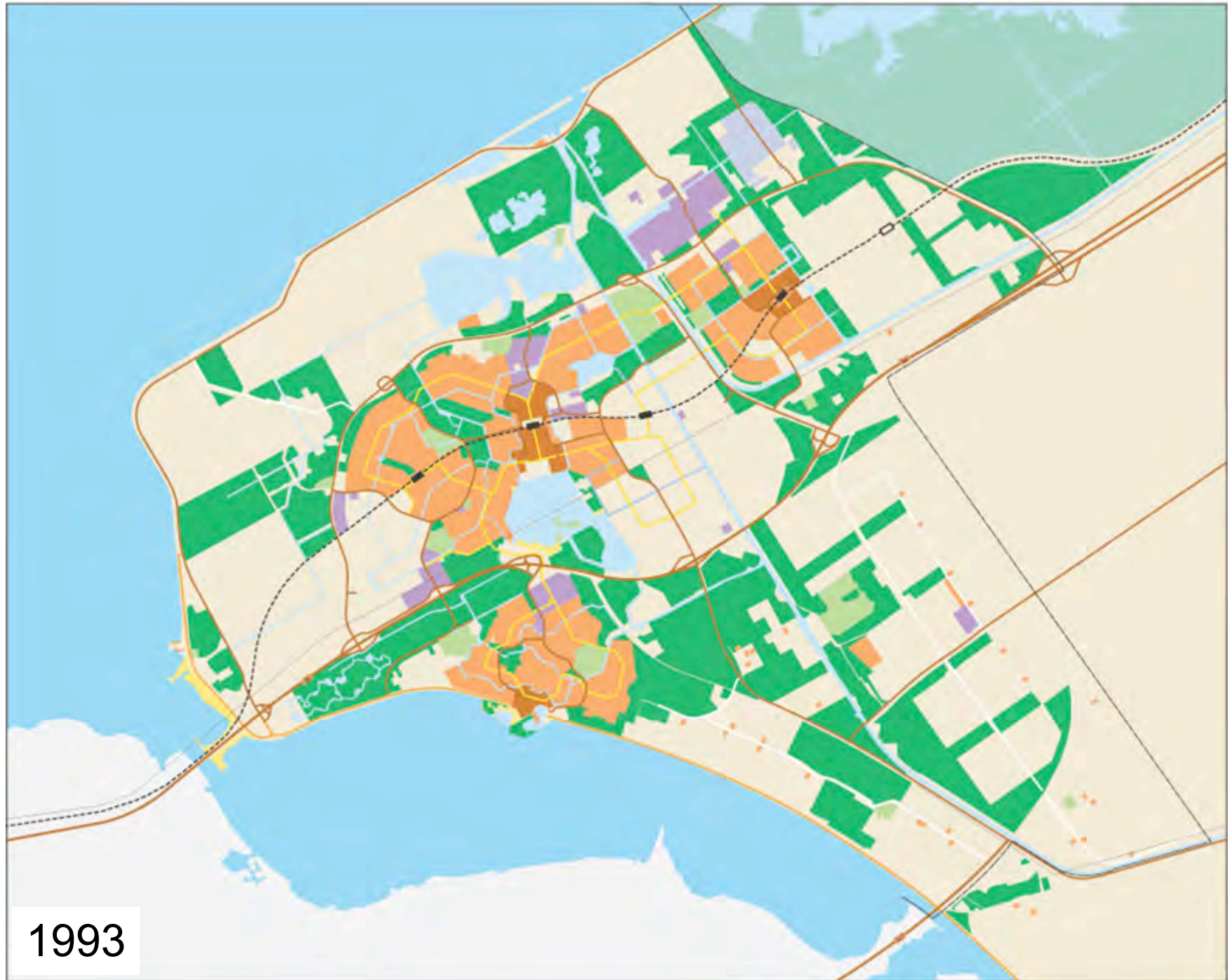




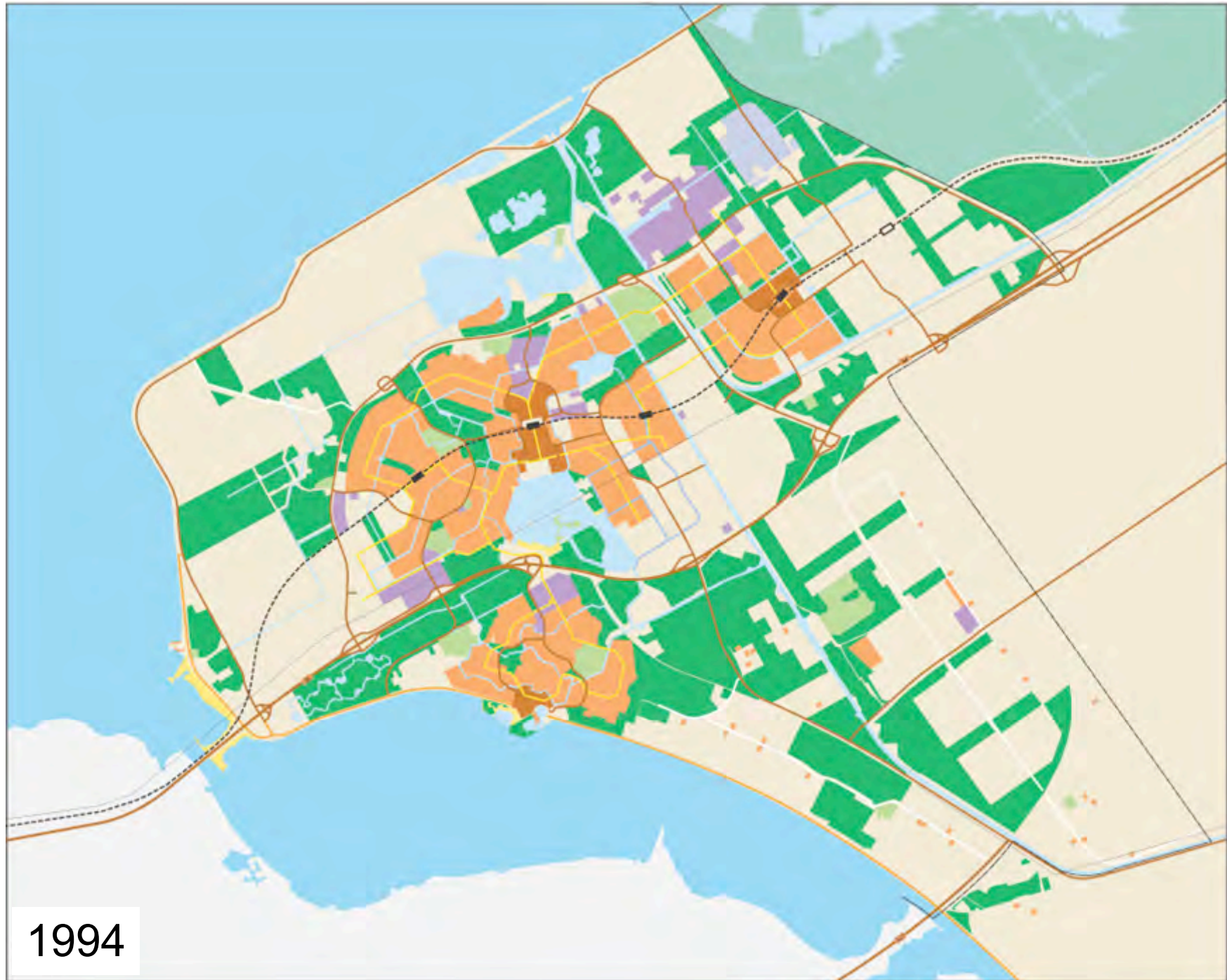
1991



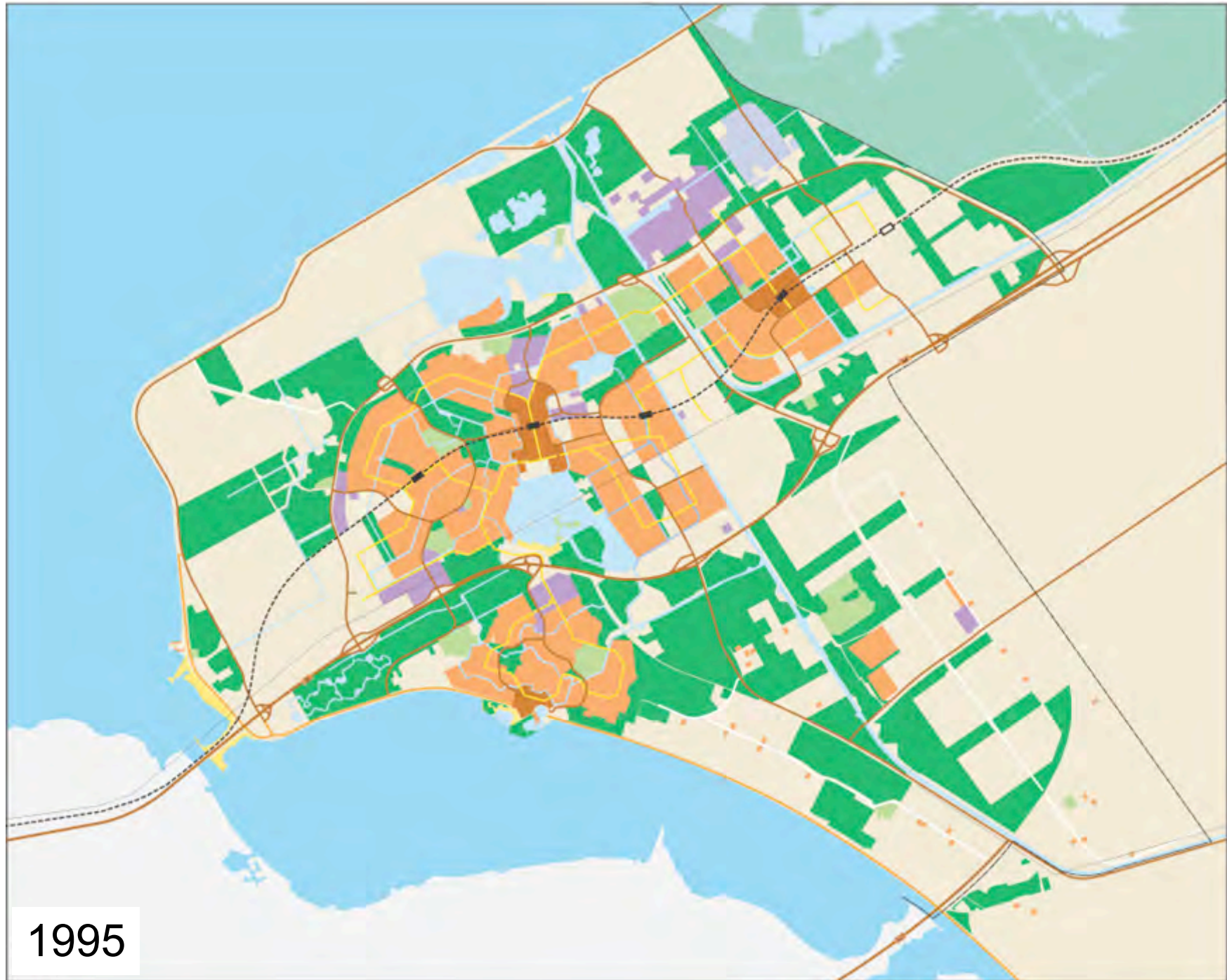
1992



1993



1994



1995



The dominance of mobility

## The top down urban labyrinth



















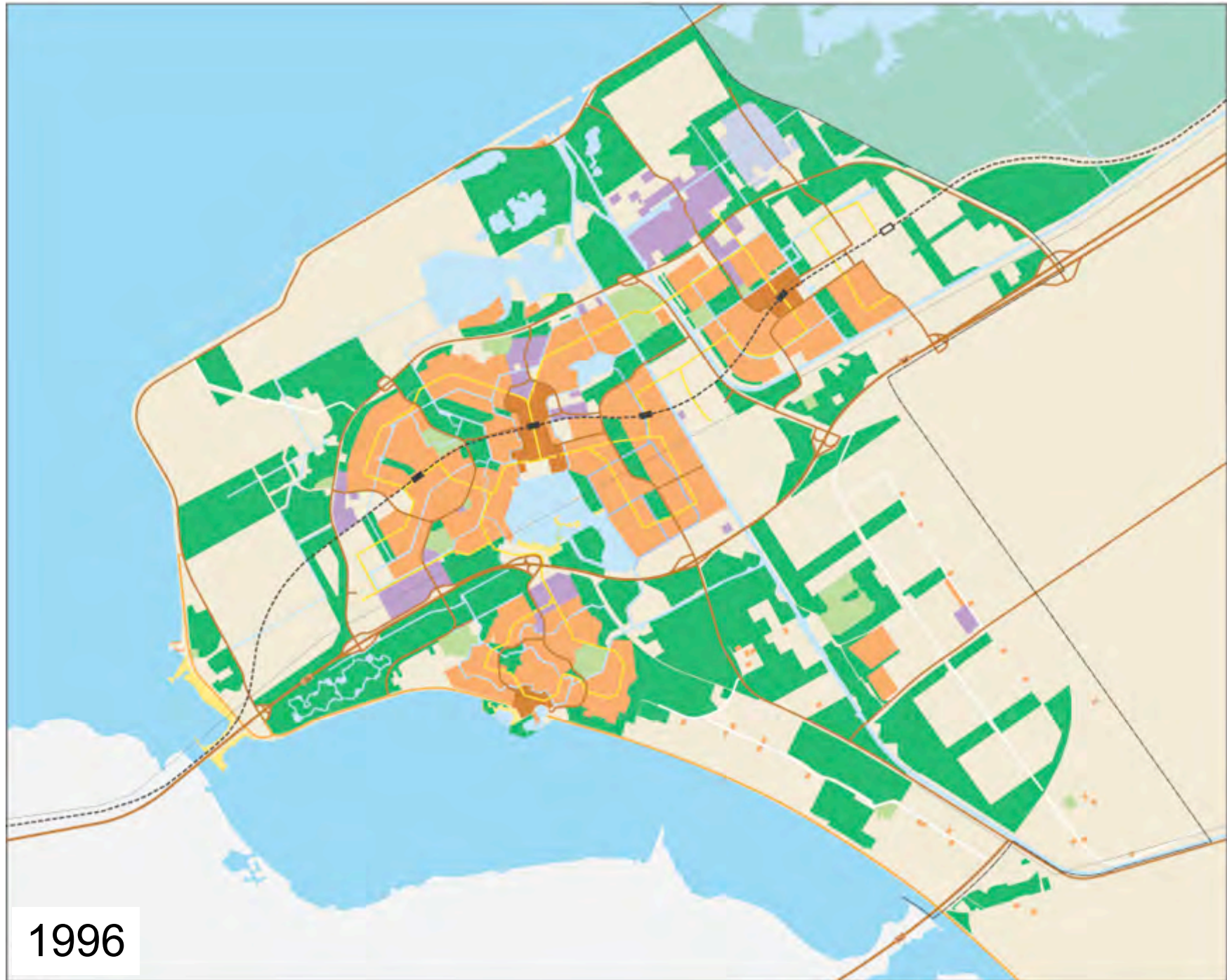




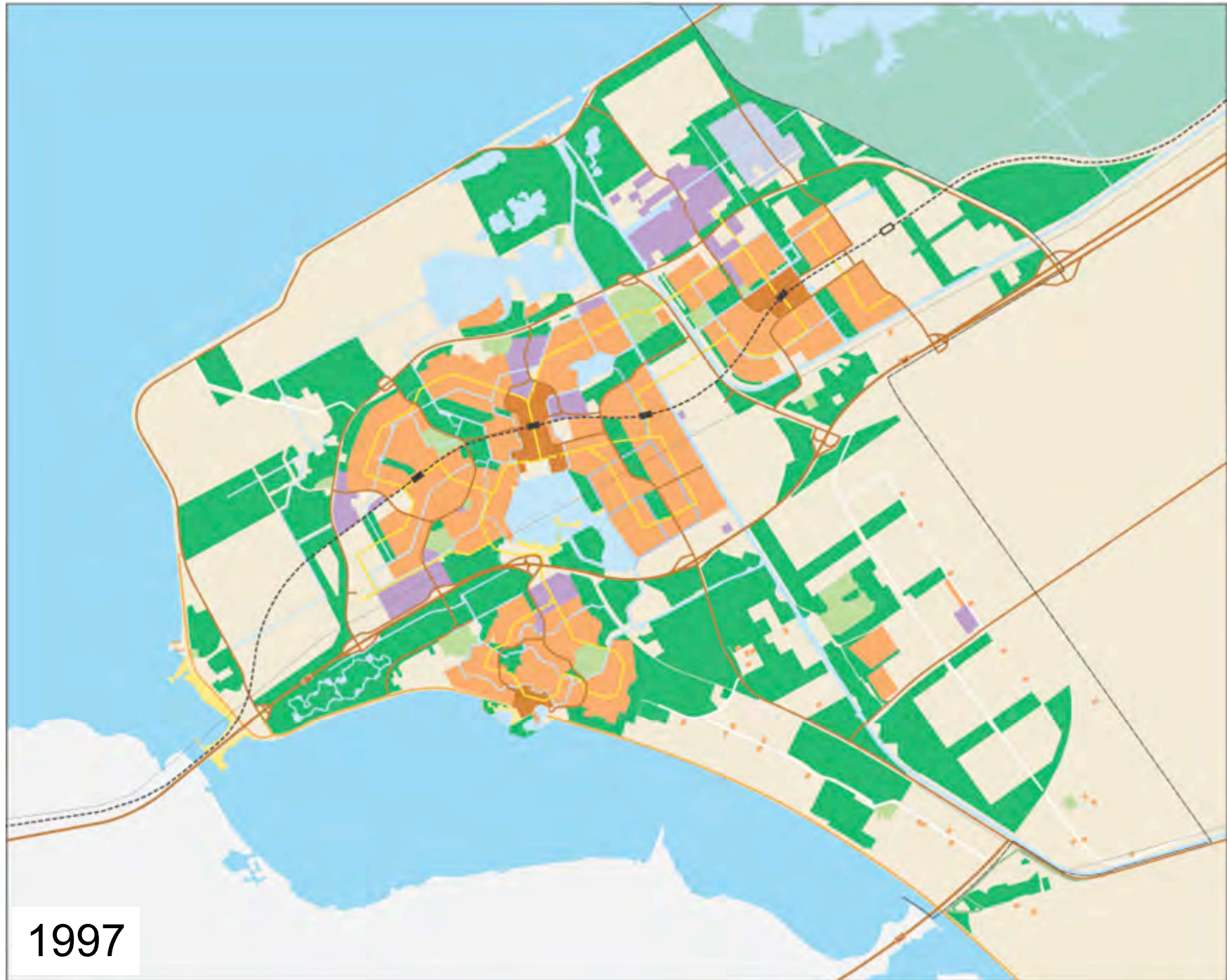




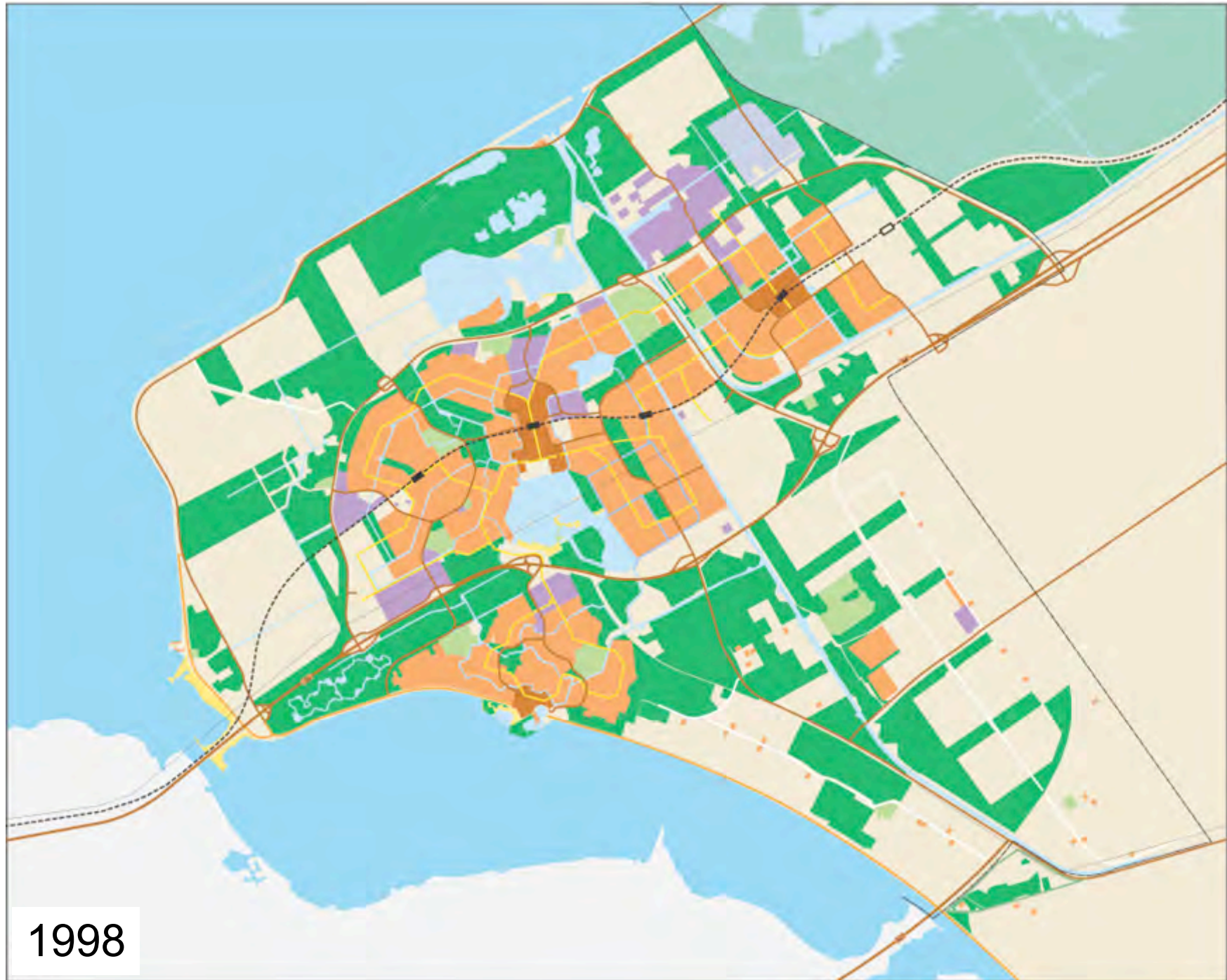




1996



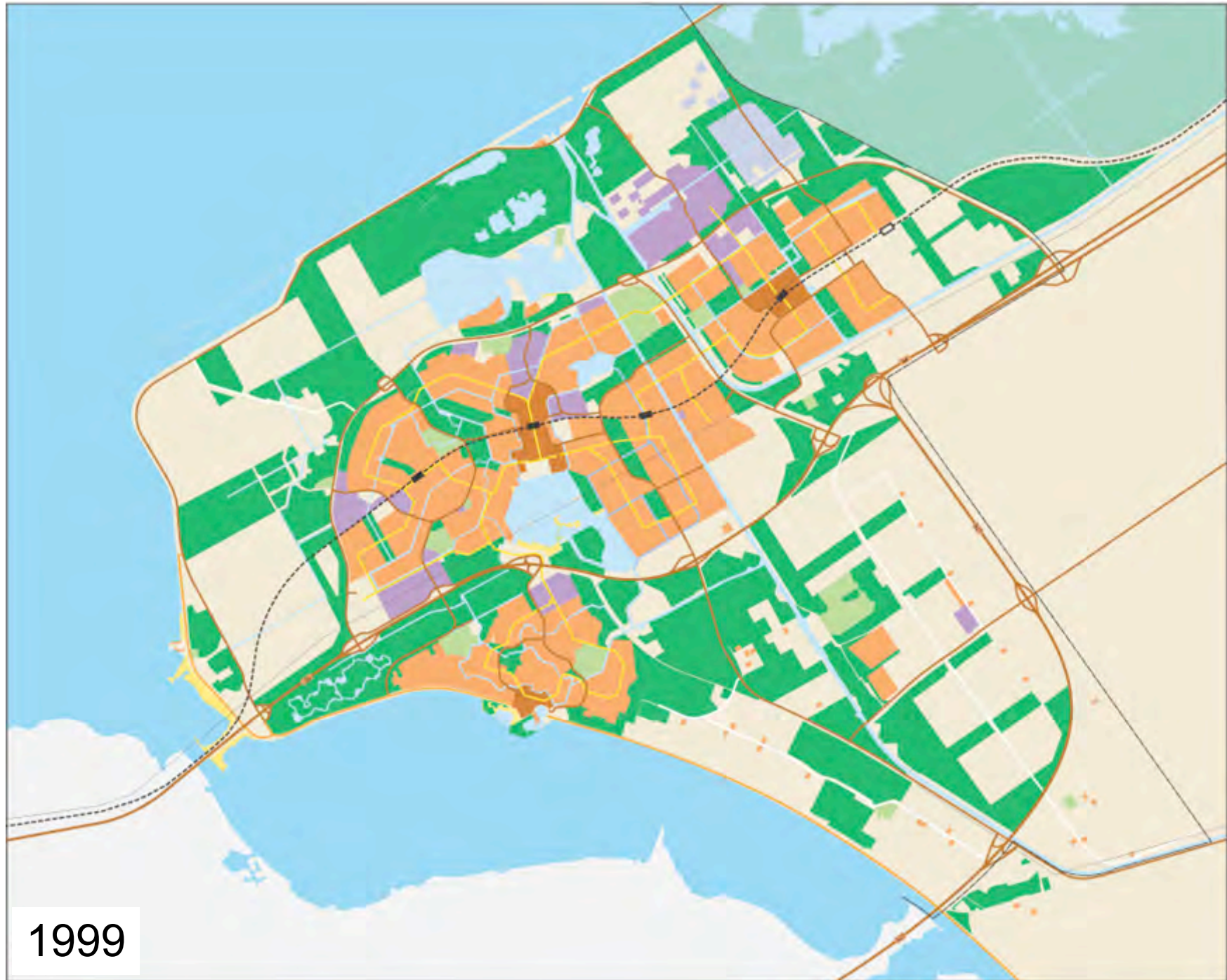
1997



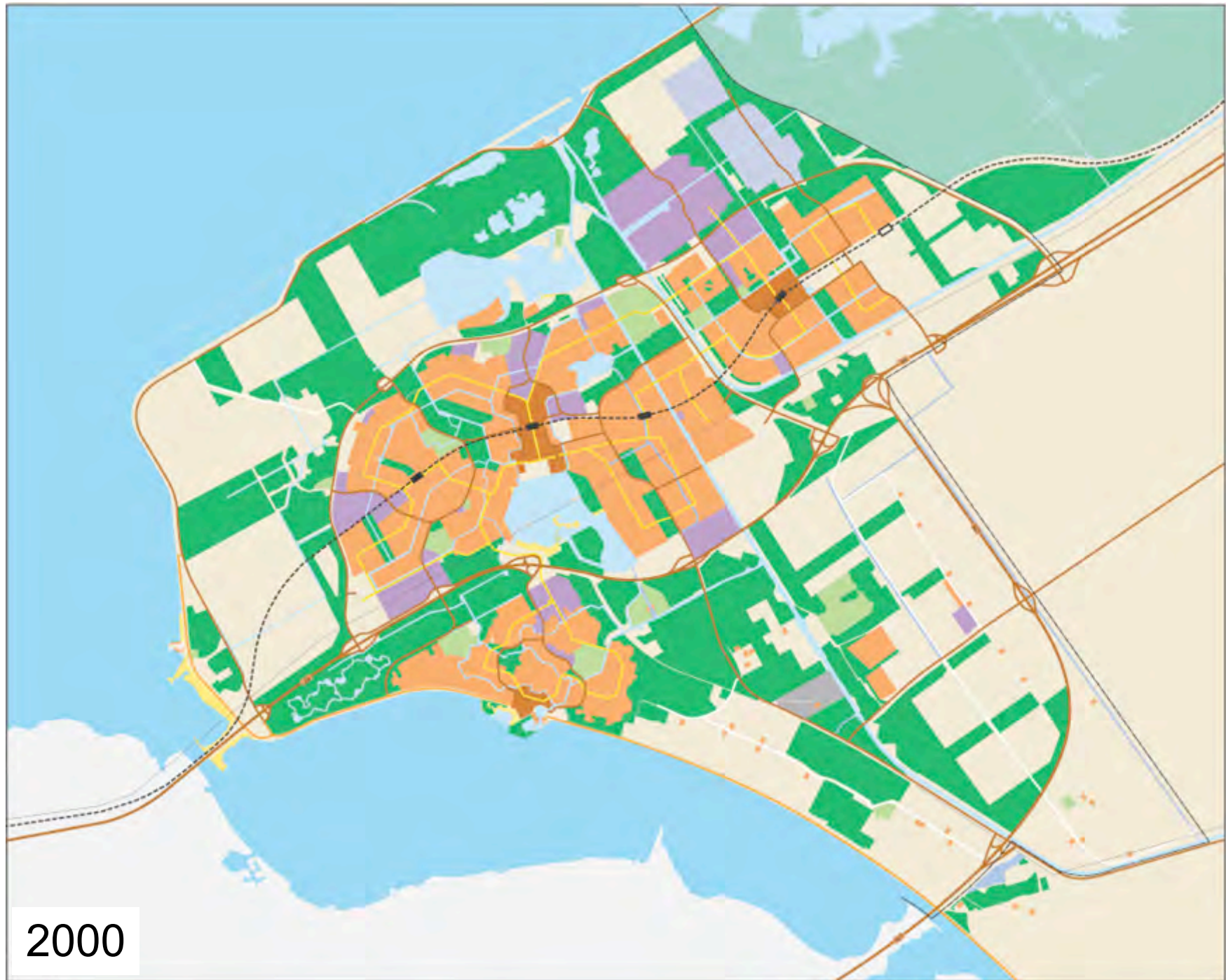
1998



The dominance of urban sprawl and gated communities



1999

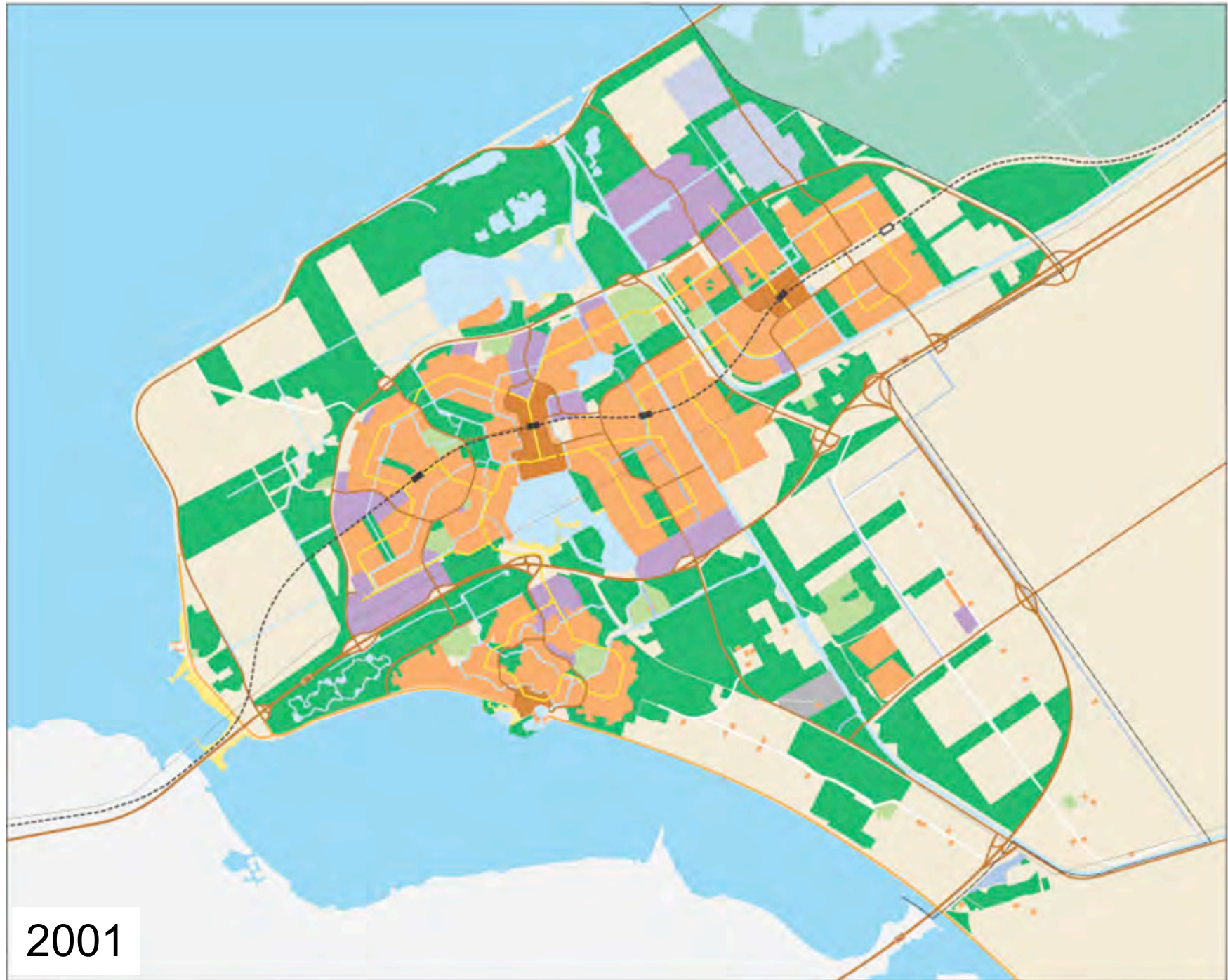


2000



The dominance of the urban architecture





2001

The dominance of the urban planning machine



An aerial photograph of a city grid, likely New Town Almere, with a white spiral diagram overlaid on a specific area. The spiral starts from a central point and expands outwards in a clockwise direction, passing through several blocks of the grid. The grid lines are white against a dark background.

Top down production system, New Town Almere 3000 houses a year

Structure vision

Structure plan

Development plan

## Serial planning

Urban Design pre-conditions

Parcelation plan



Development-plan



Urban design pre-conditions



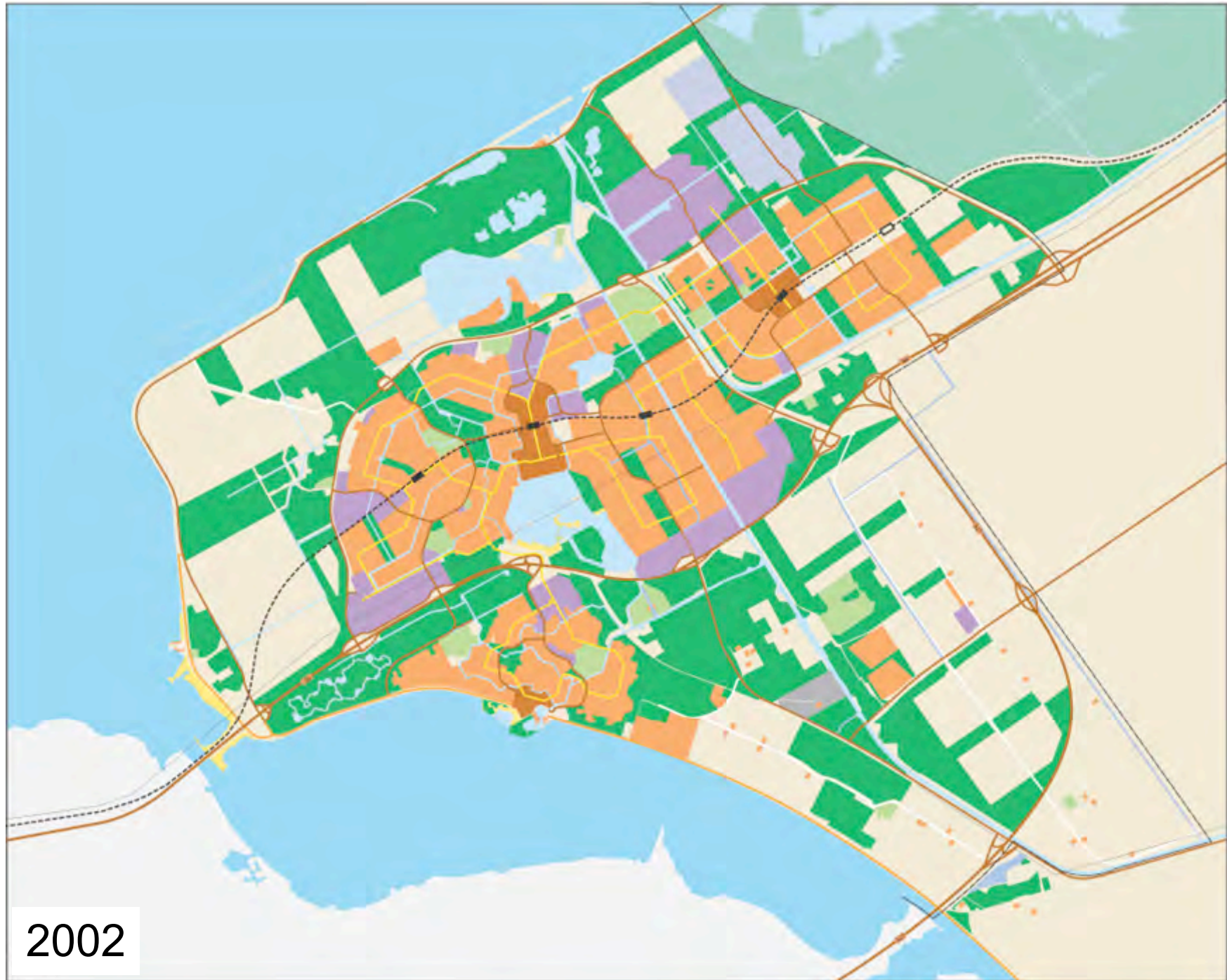
Parcellation-plan



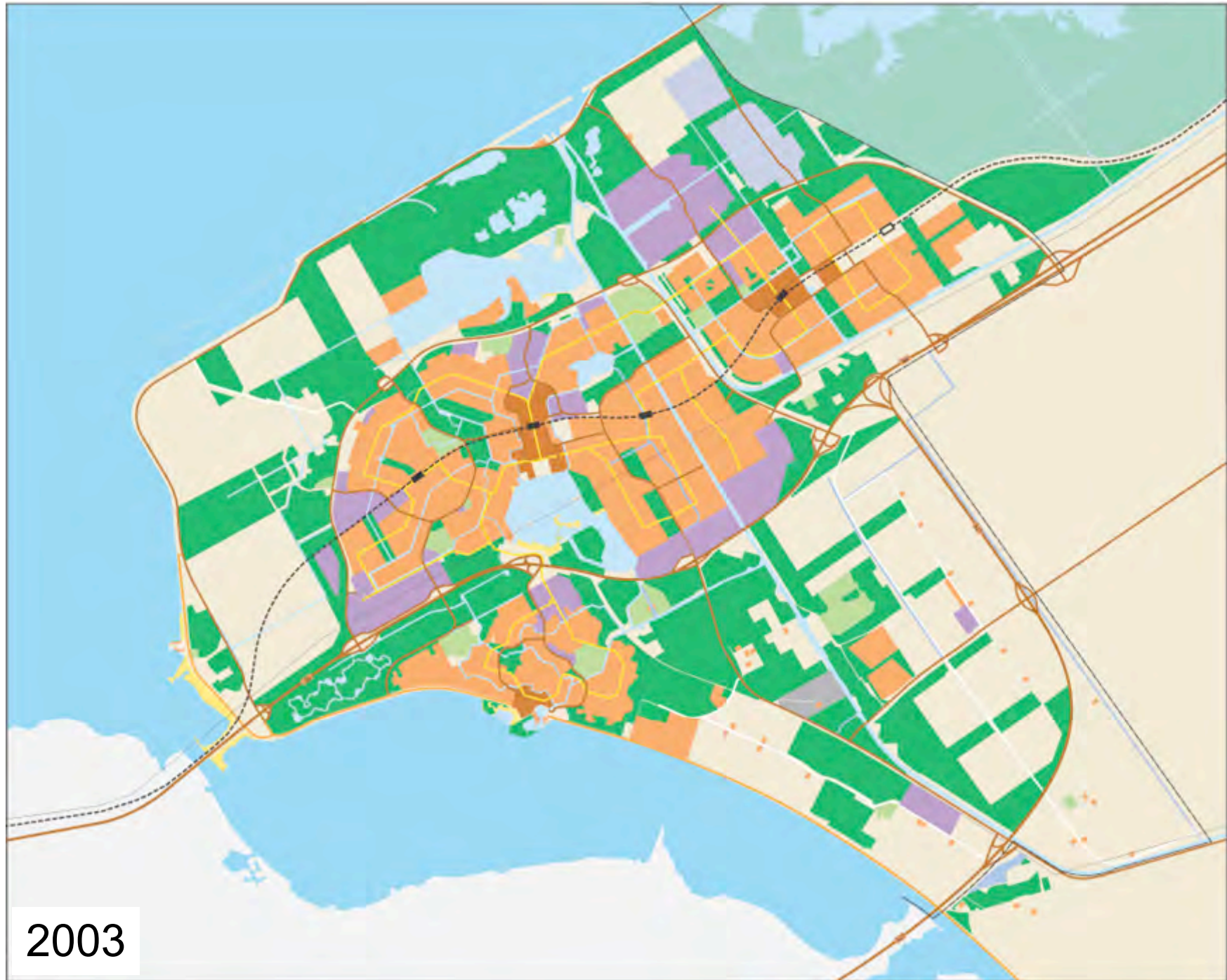
Parcellation  
experiment-design



Actual results



2002



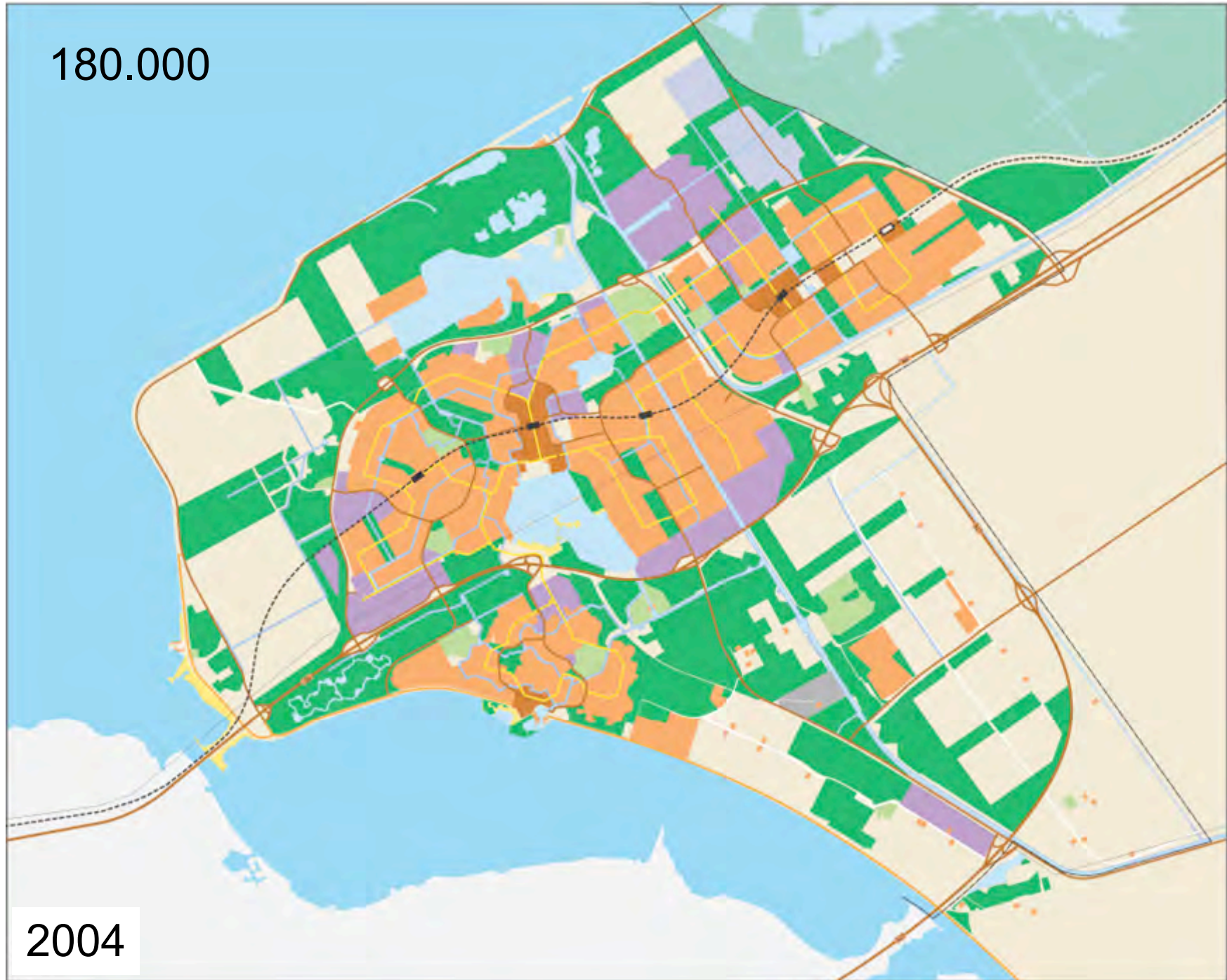
2003

The dominance of the lifestyle concept





180.000



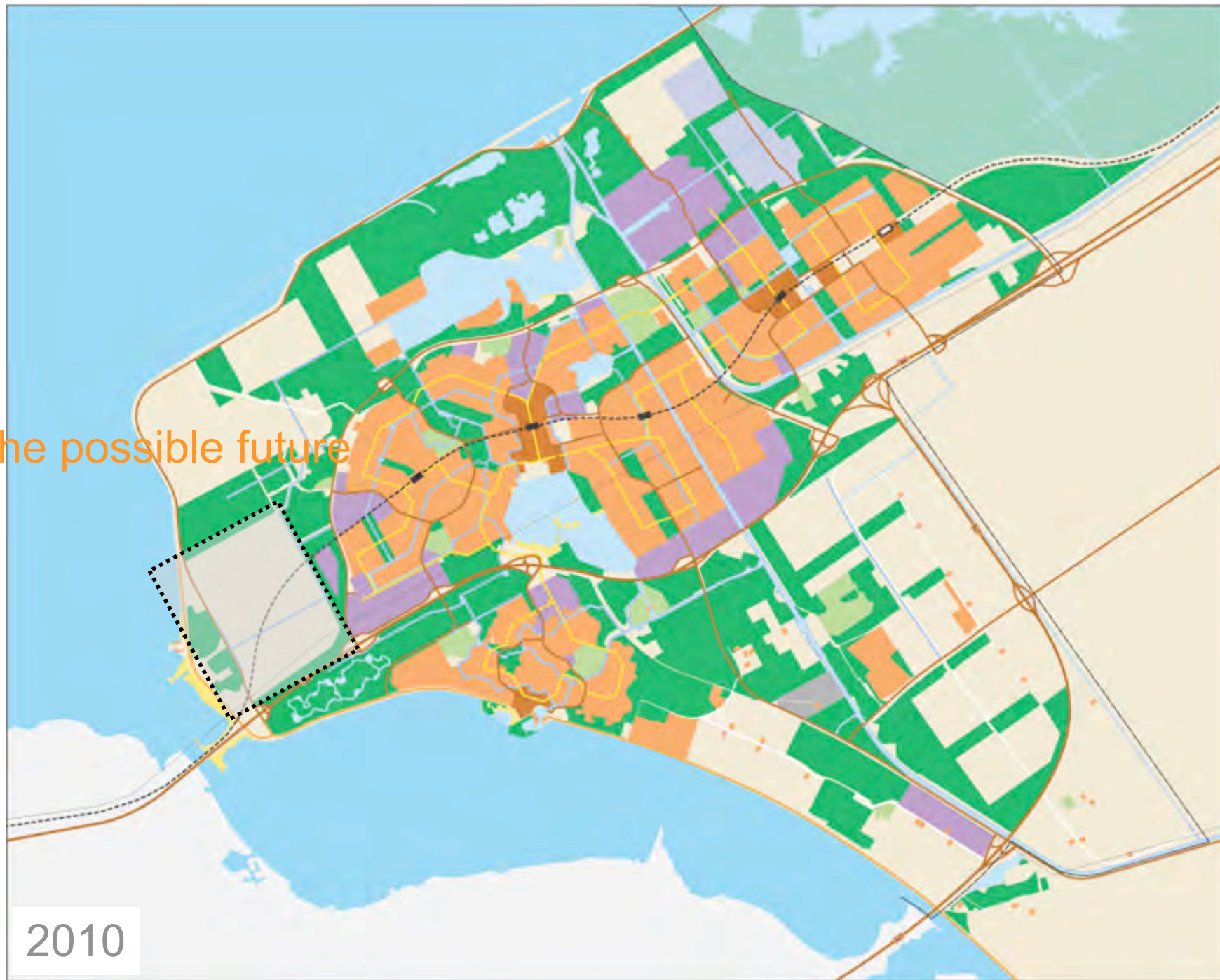
2004



The actual situation

The possible future

2010

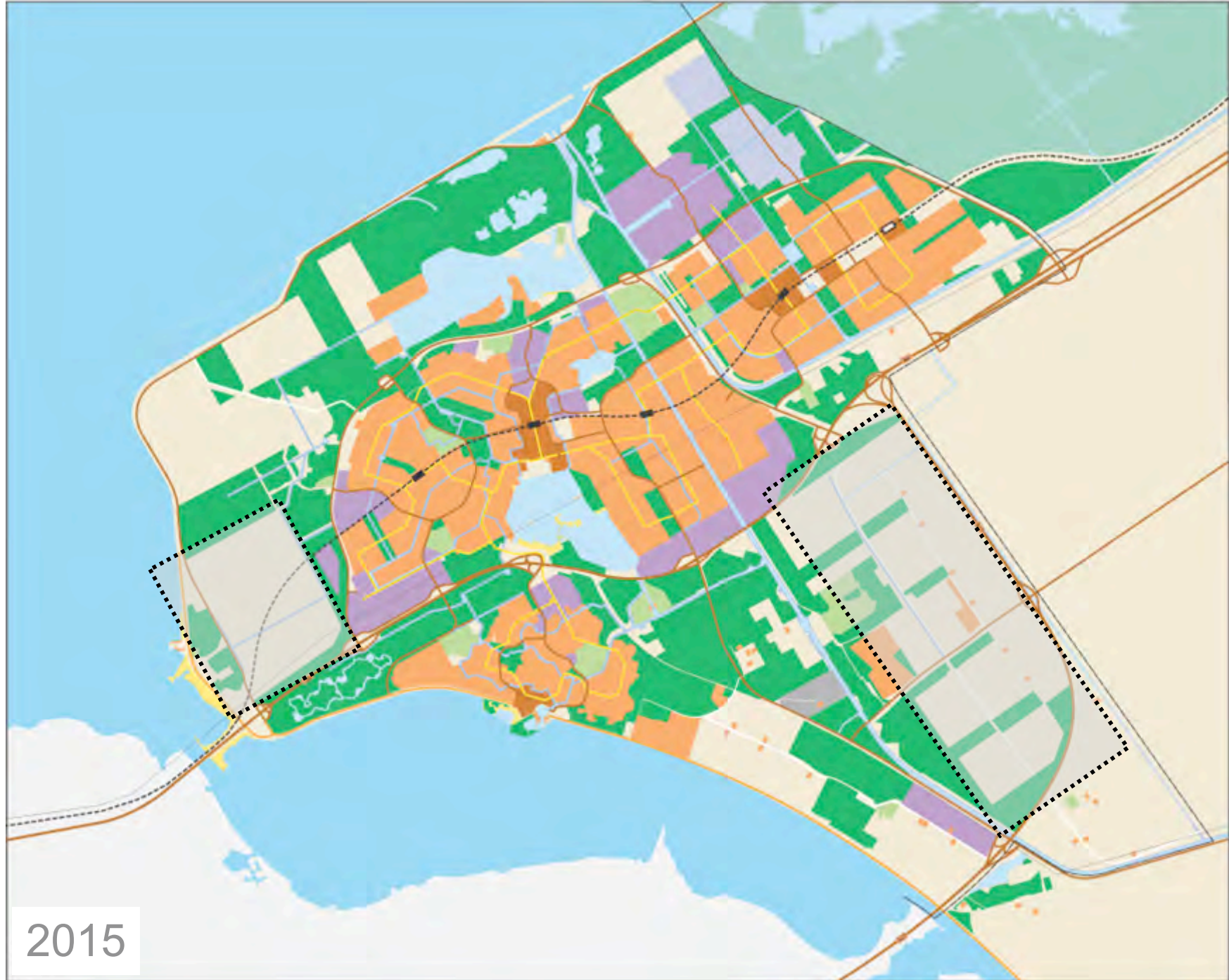




The possible future 1



Bureau Must Almere "Poort"



2015

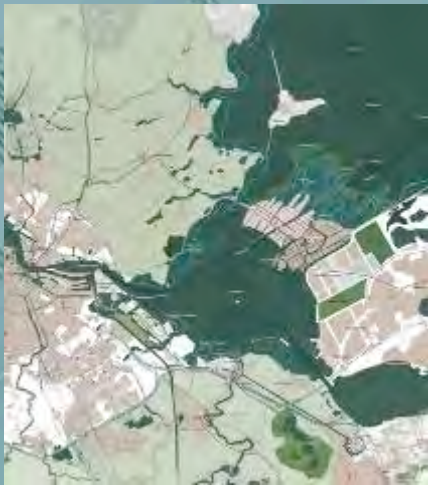
# The possible future 2

# Competition Almere "Hout"

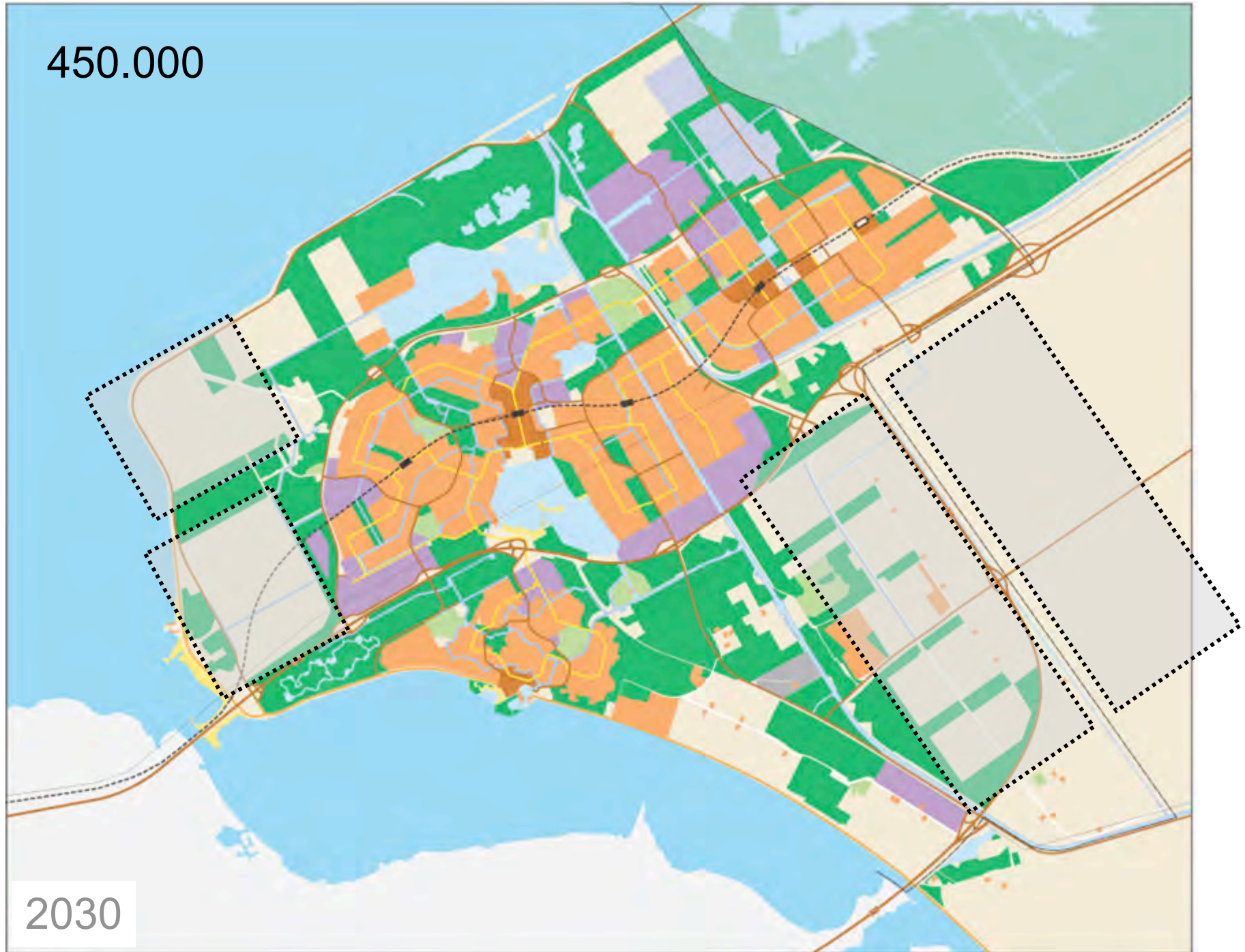


The possible future 3

Bureau West8 Almere "Pampus"



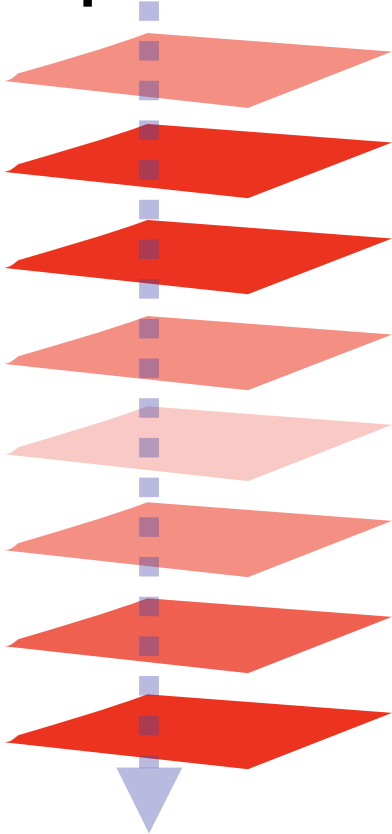
450.000



2030



# top-down



Levels of scale

province

region

municipality

city

district

quarter

neighbourhood

street / block / ensemble

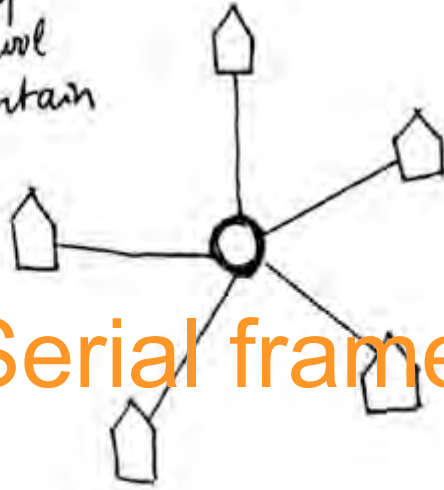
Lack of relation between frame and pattern and circuit

increase of social isolation  
decrease of social encounter  
decrease of social integration

decrease of “generic” transformation and collective / private re-investment

City centre

work  
shop  
school  
entertain



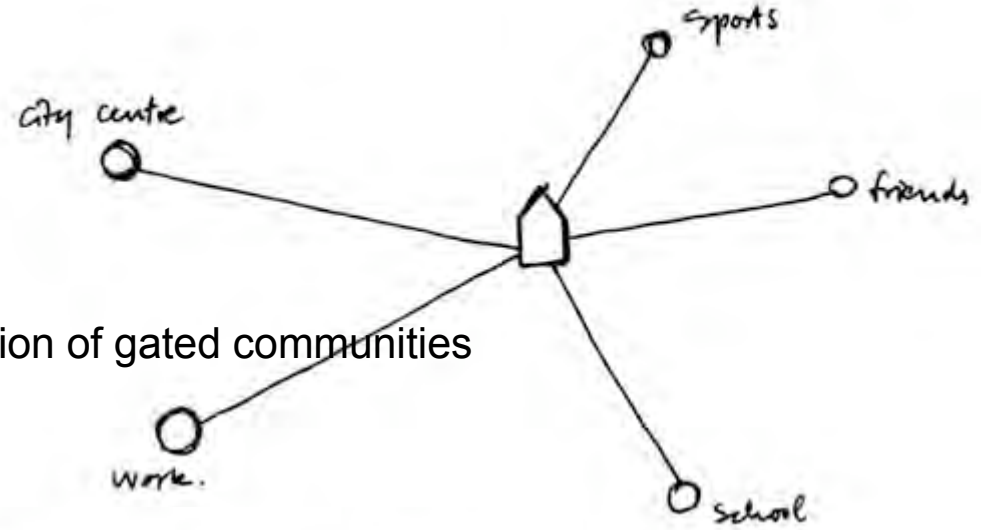
City centre

Sports

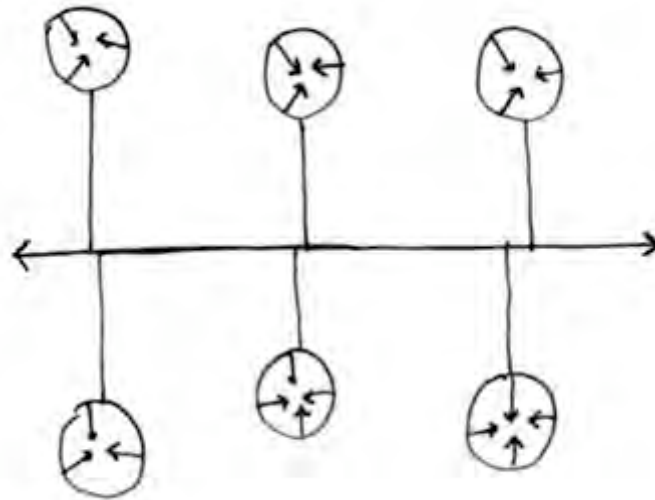
friends

Work.

School

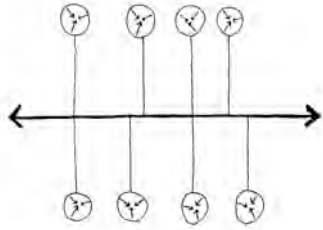


Serial frame, collection of gated communities

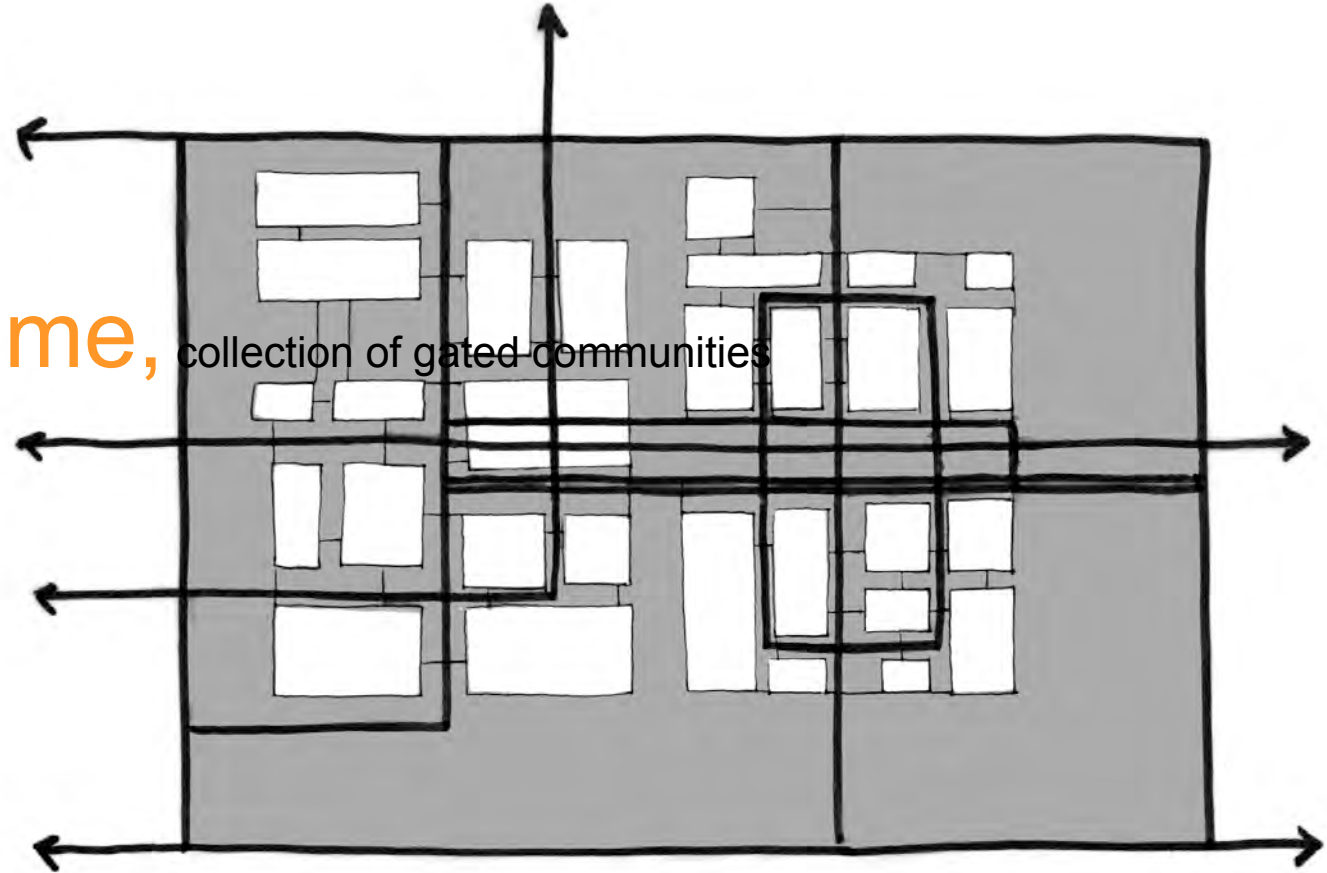


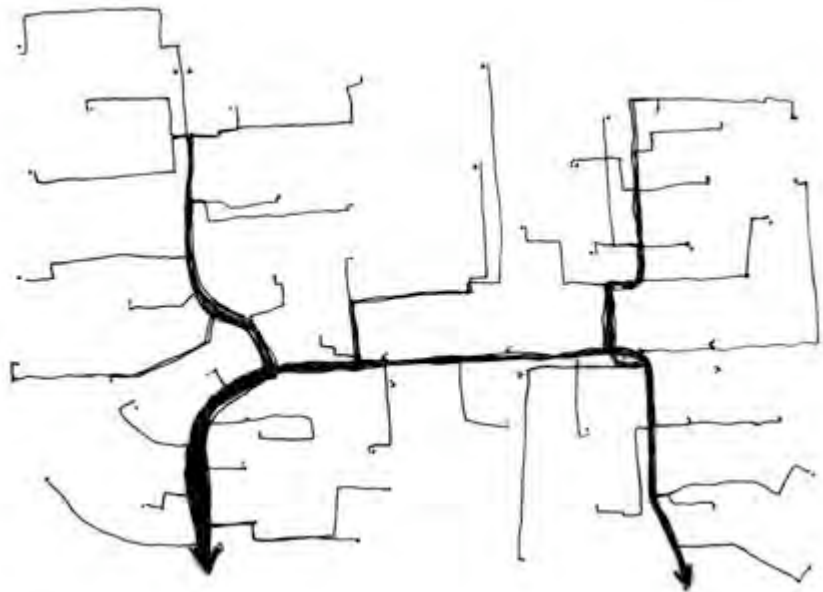
analyses

enclaves



Serial frame, collection of gated communities





40 different routes by car to highway exit



40 different routes by bike to train station

Infrastructure analyses

**cognitive maps**, a collection

car

train | bus

bike



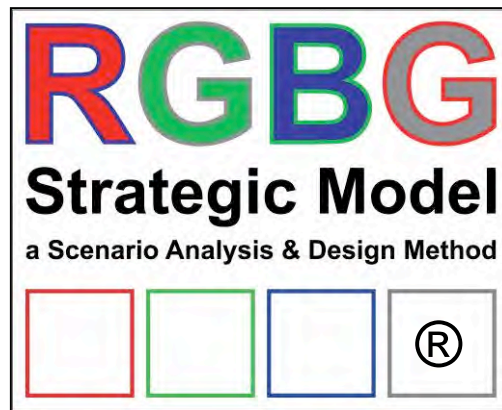
## “Poor” public space

is the result of an **incomplete** urban frame  
which allows only little formation of **circuits** and,  
as such, does not provide a self-generating system  
of socio-economical **pattern**

lack of **overlap** leaves public space void  
less **coinciding** user flows mean  
loss of **cognitive status** in its urban context  
little **significance**

overlap

Cognitive map



significance

coinciding



## Pattern & Frame





## Key to symbols: GREEN



Green condensation area / city park



Large-scale environmental entity



Potential recreational area / park area



Landmark / recreational anchor point



Main landscape route



Environmental connection



Recreational / slow traffic route














Landscape dike / route

# G

Pattern & Frame

®

**Key to symbols: BLUE**





|   |                                      |
|---|--------------------------------------|
|    | Water square                         |
|    | Primary / recreational water surface |
|    | New water surface                    |
|    | Infiltration                         |
|    | Inundation / overflow                |
|    | Landmark / recreational anchor point |
|    | Primary water route                  |
|  | Primary waterline / connection       |
|  | Secondary waterline / connect.       |
|  | Visual relationship / view point     |
|  | Water front                          |

**B**

Pattern & Frame

®

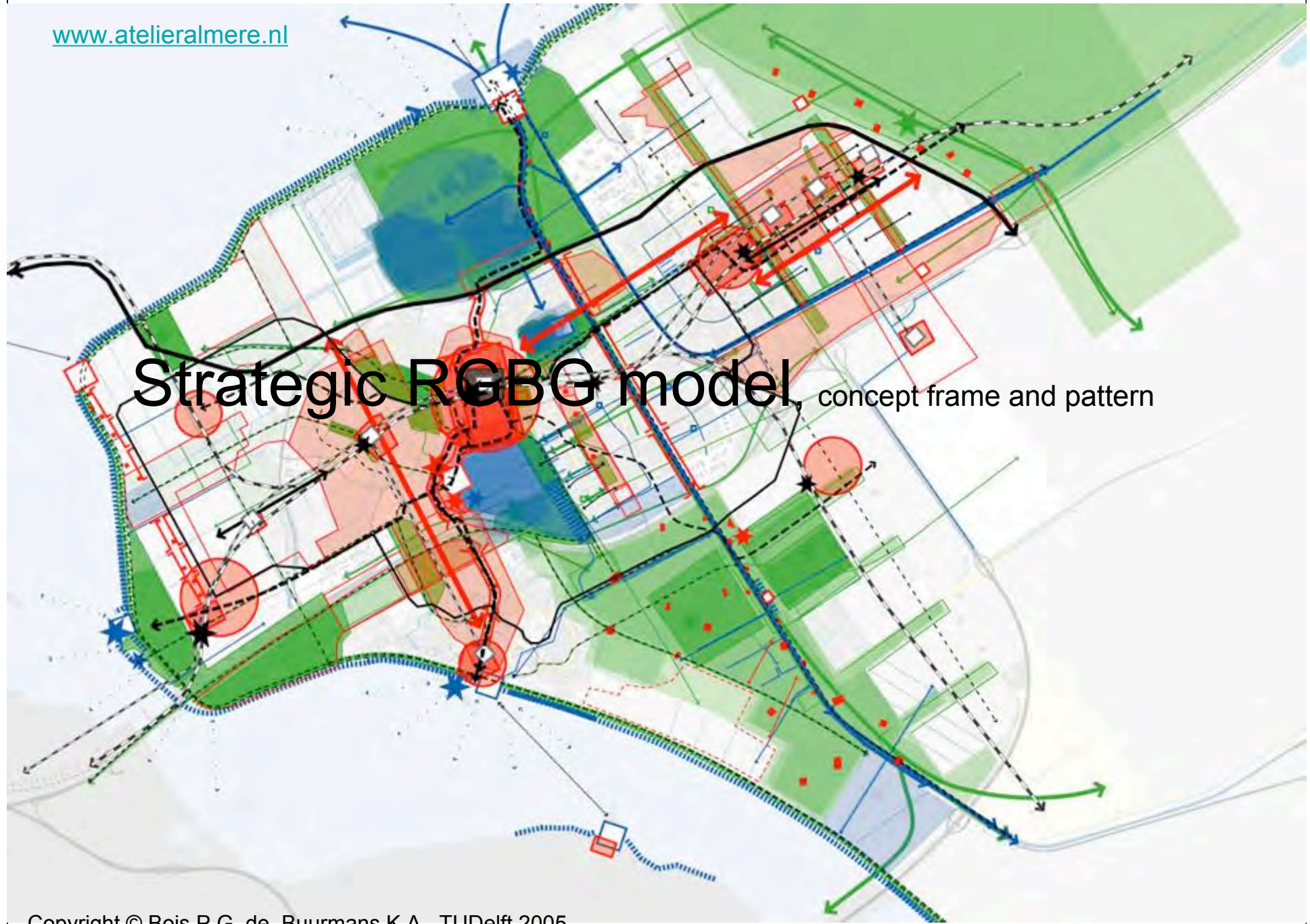
## Key to symbols: GREY

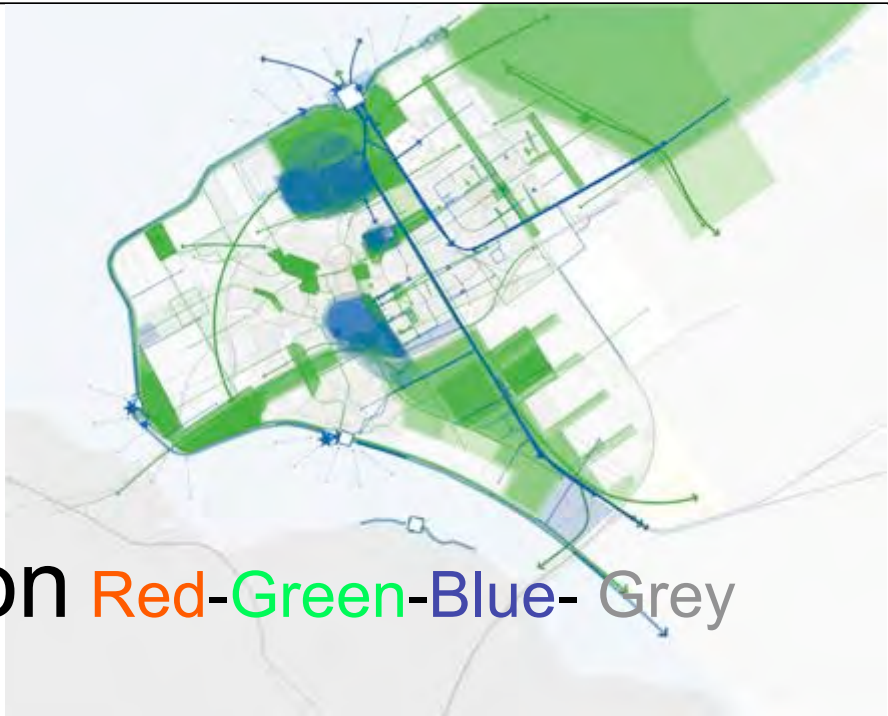
|   |   |
|---|---|
|    | Express train / main station  |
|    | Tram / underground / light-rail station<br>other / railway stations |
|    | Railway line  |
|    | Tramway / underground / light-rail line                             |
|    | Motorway  |
|    | Primary internal connection   |
|    | Secondary internal connection                                       |
|    | City axis   |
|   | city street   |
|  | Recreational / slow traffic route                                   |
|  | Ferry service   |
|  | Parkway   |



Pattern & Frame

# Strategic RGBG model, concept frame and pattern





Collective compilation Red-Green-Blue- Grey



- stedelijke ontwikkeling
- architectonische objecten
- stedelijke wand
- landmark / functioneel zwaartepunt
- stedelijke verbinding
- bedrijvigheid
- bedrijven objecten
- stedelijke wand
- landmark / functioneel zwaartepunt
- verbinding bedrijvigheid
- bestaand bos
- landschappelijke objecten
- landmark / functioneel zwaartepunt
- stedelijk park
- oppervlaktewater
- overlooppgebied
- zichtlijn

Design "Hoge Vaart" dominant water frame within the city



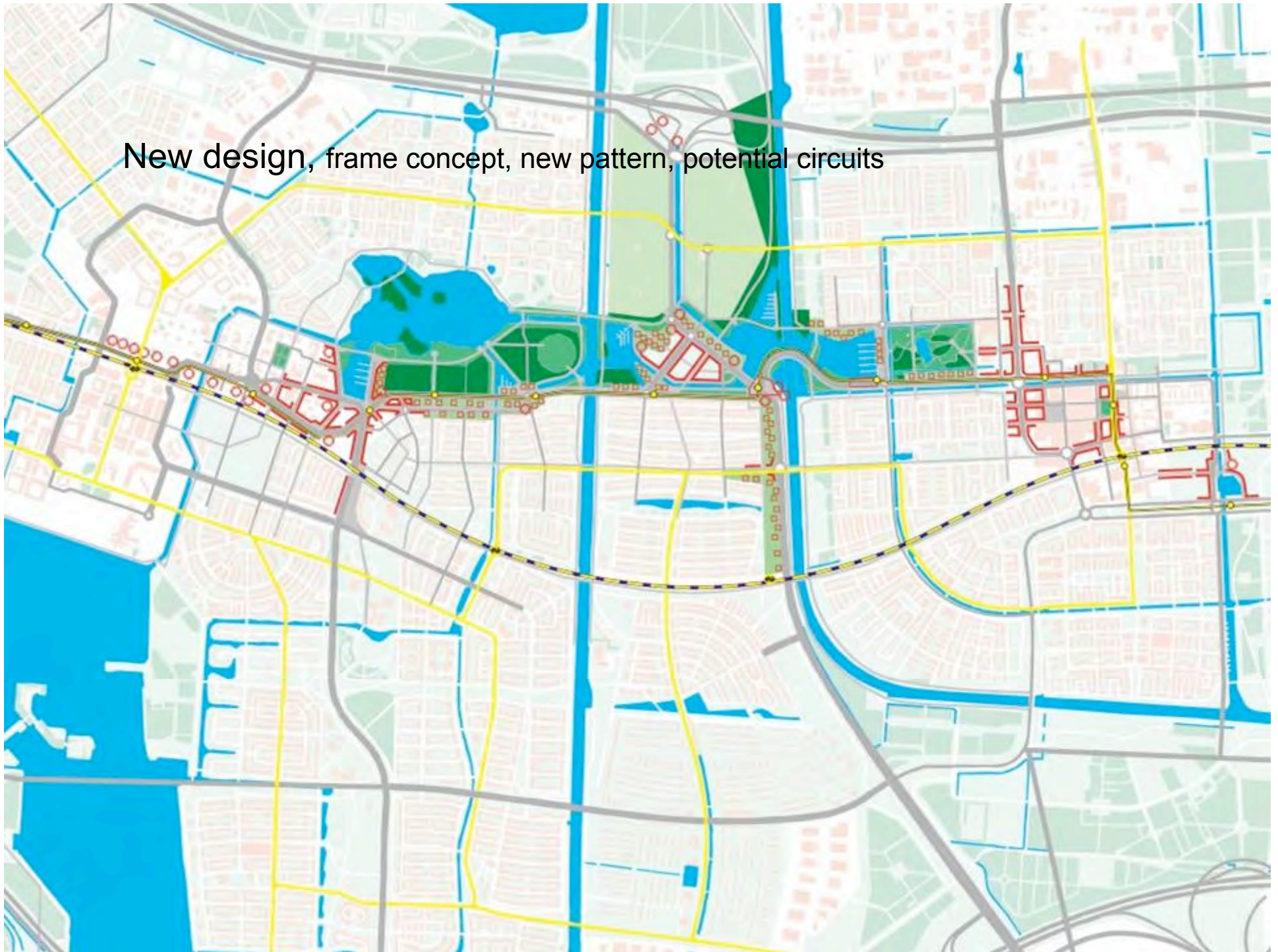
Actual situation

Design, central city development axis

Frame, transformation

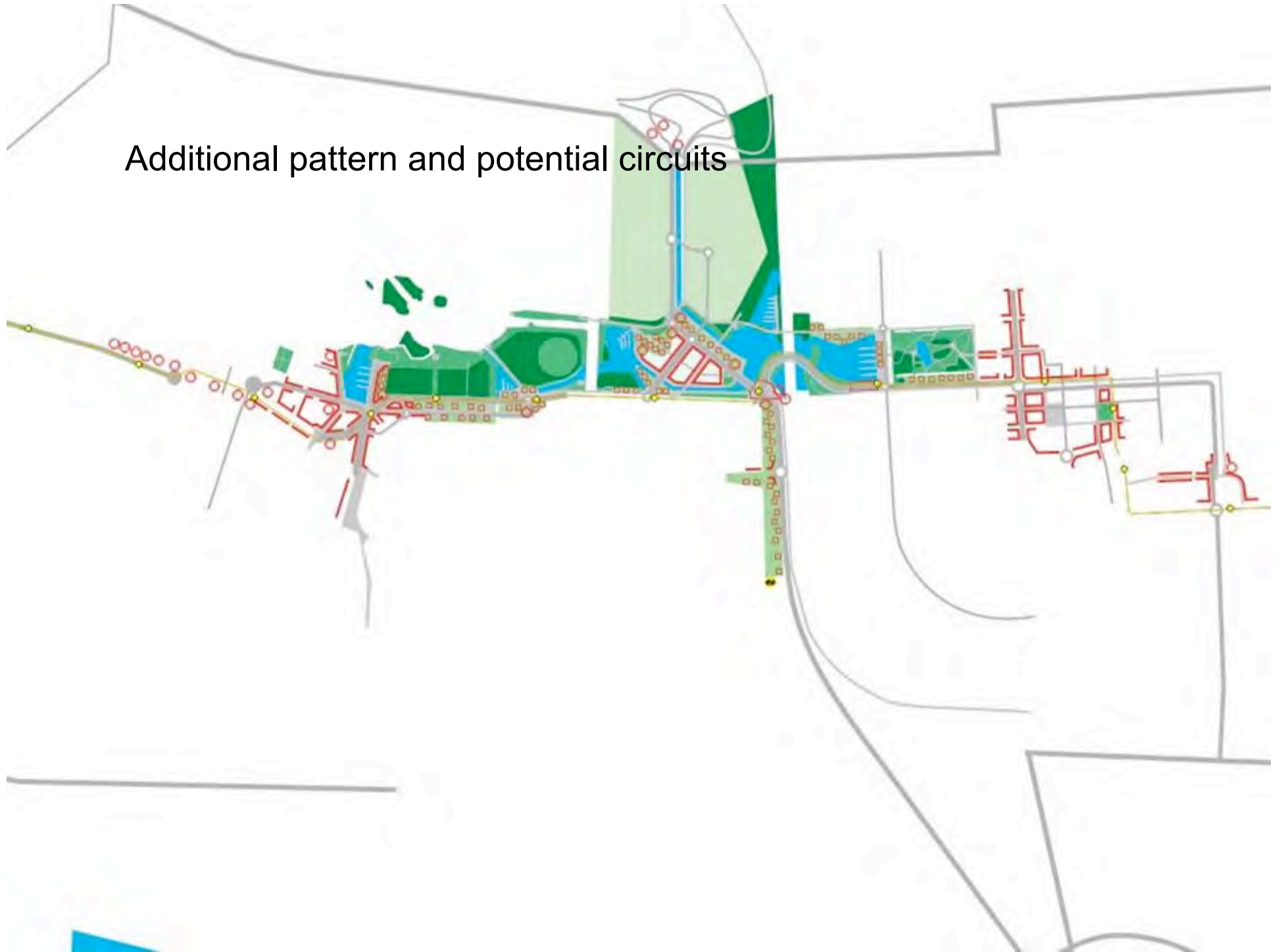


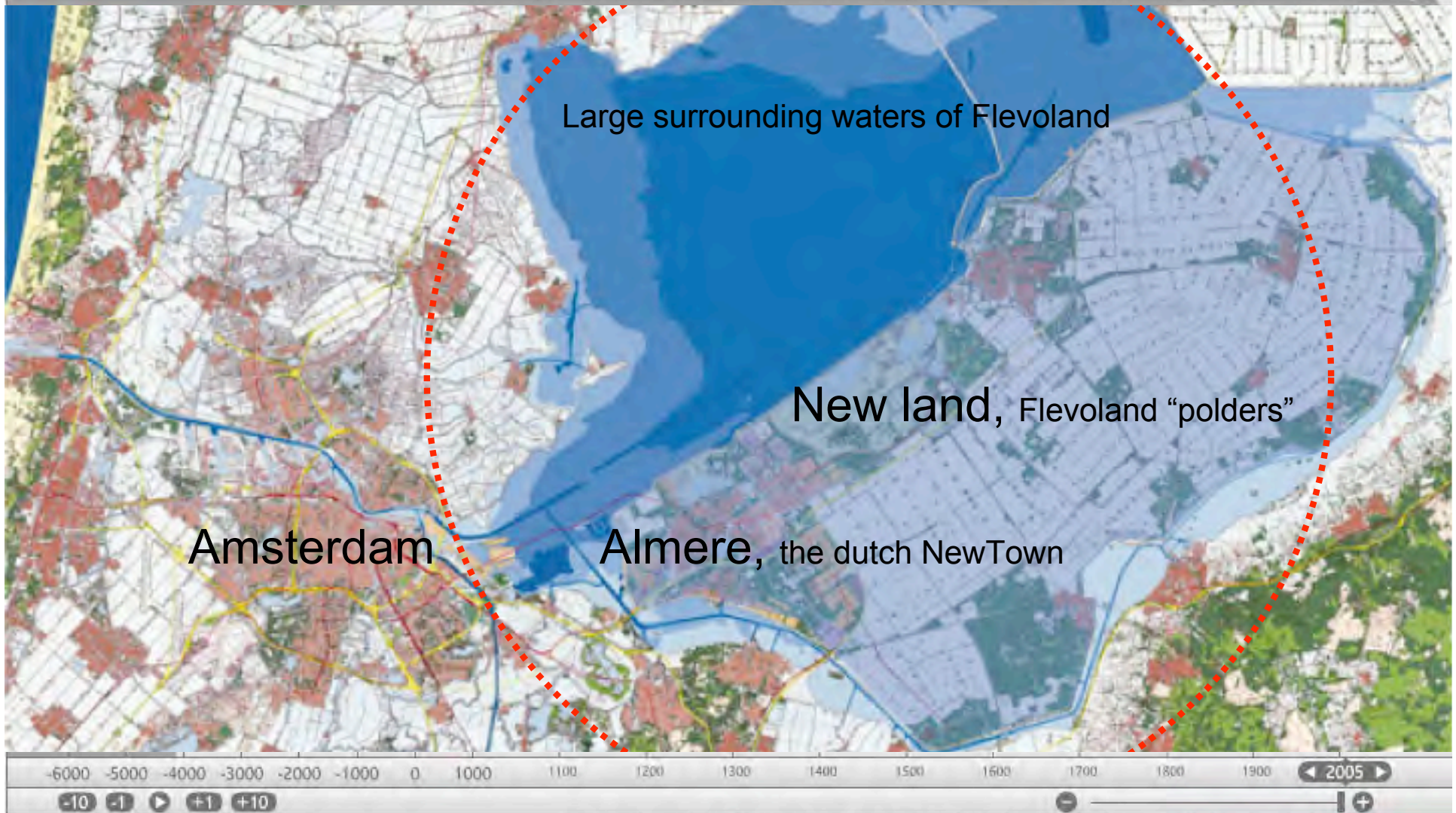
New design, frame concept, new pattern, potential circuits





Additional pattern and potential circuits

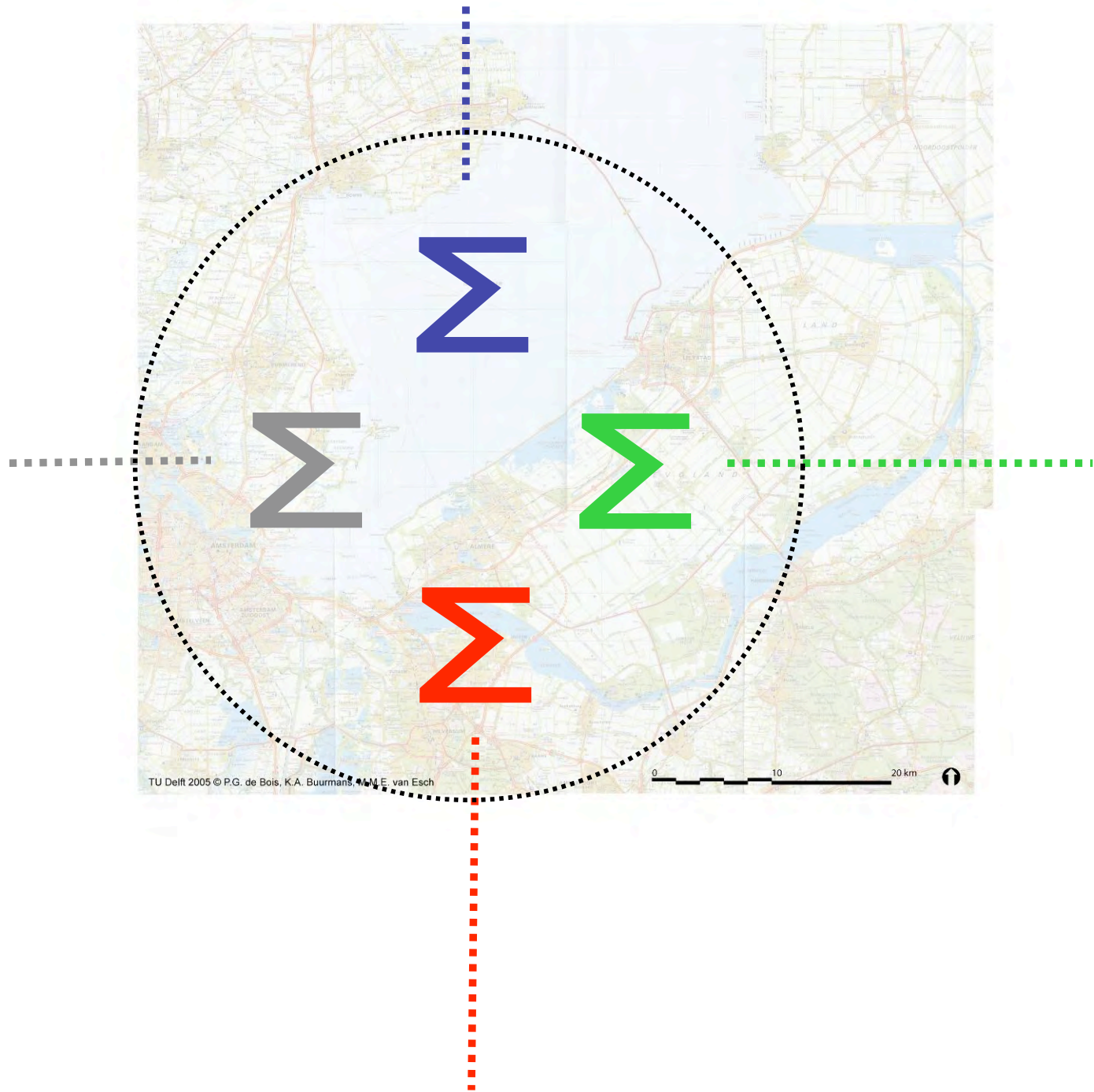




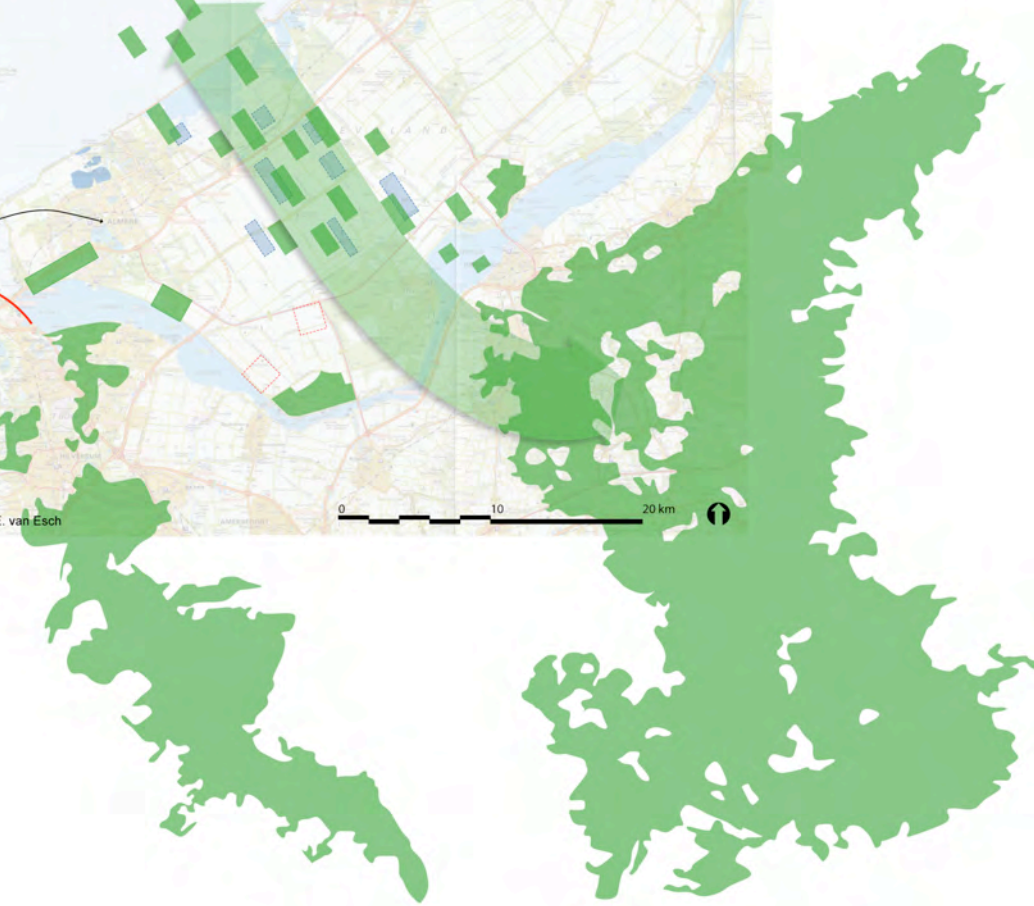
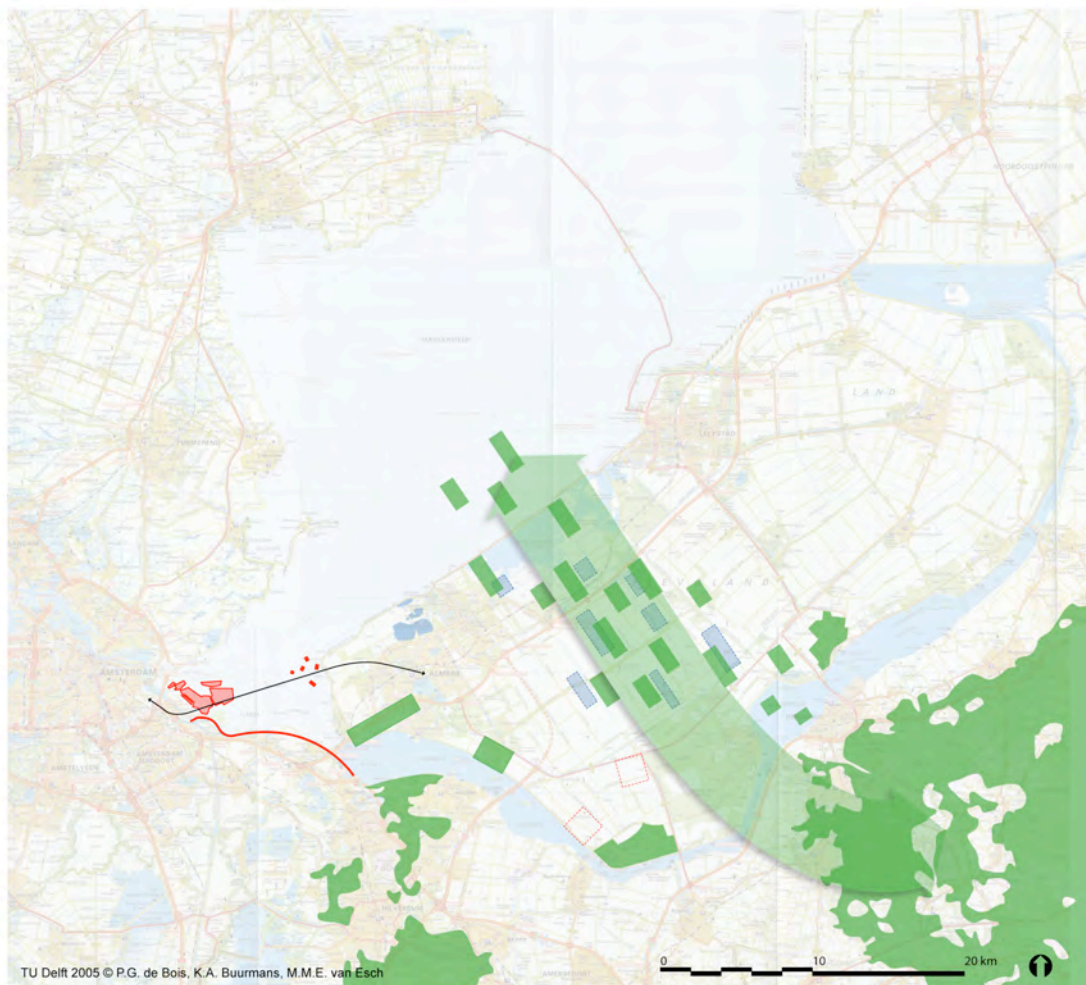
Help us to improve this database. Send complementary information to [info@newtowninstitute.org](mailto:info@newtowninstitute.org)

# ASSIGNMENT

conceptual design of the "Large Waters" and the Flevoland polders.

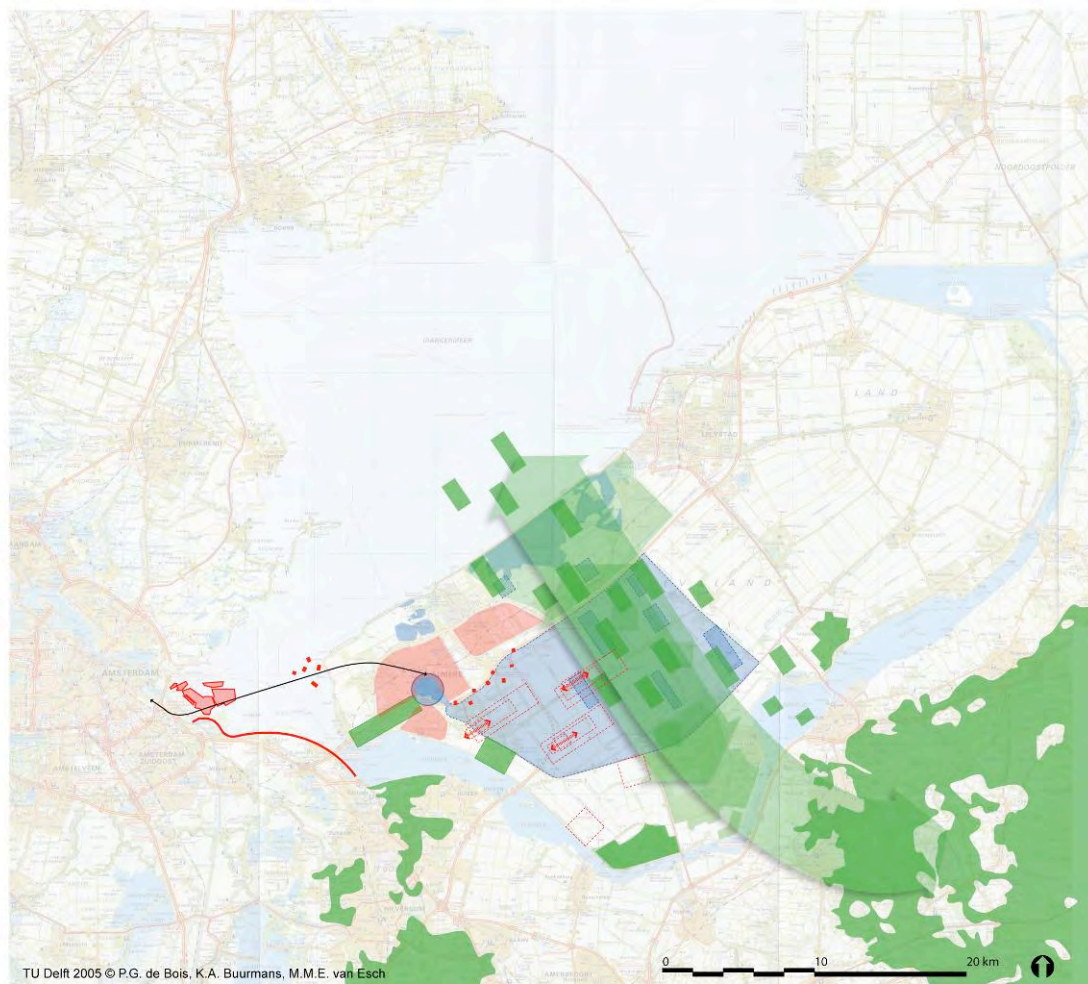


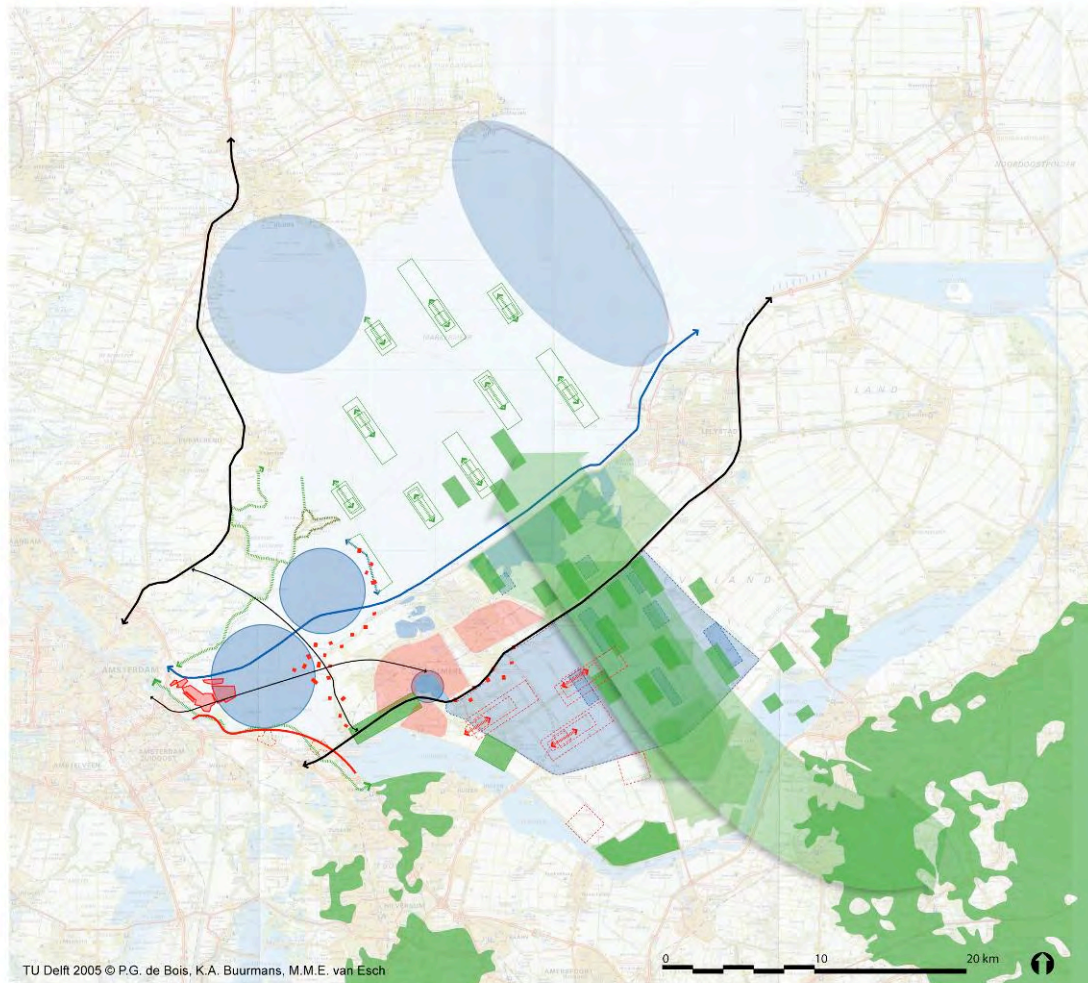
# Stakeholder 1



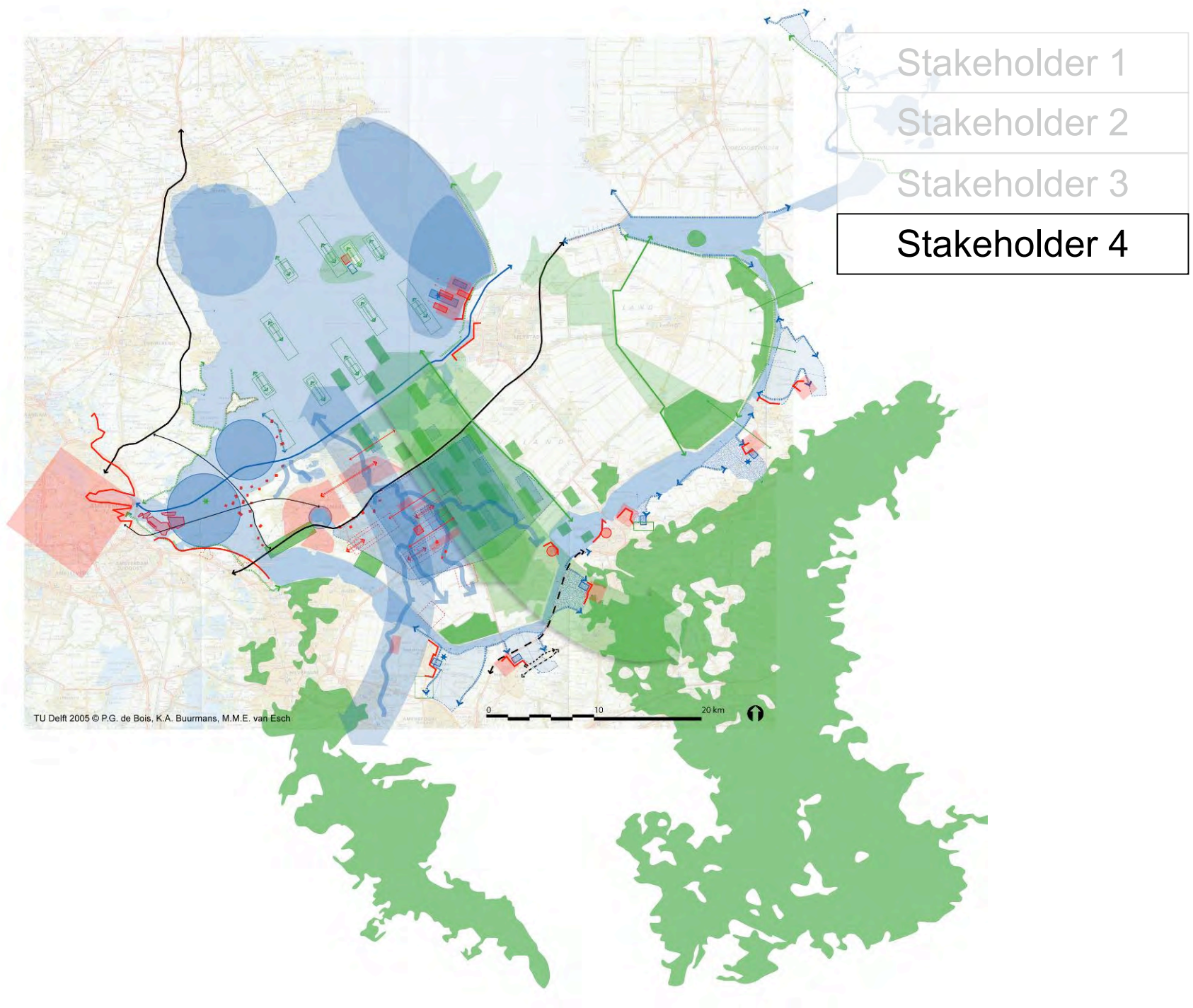
Stakeholder 1

Stakeholder 2





|                      |
|----------------------|
| Stakeholder 1        |
| Stakeholder 2        |
| <b>Stakeholder 3</b> |

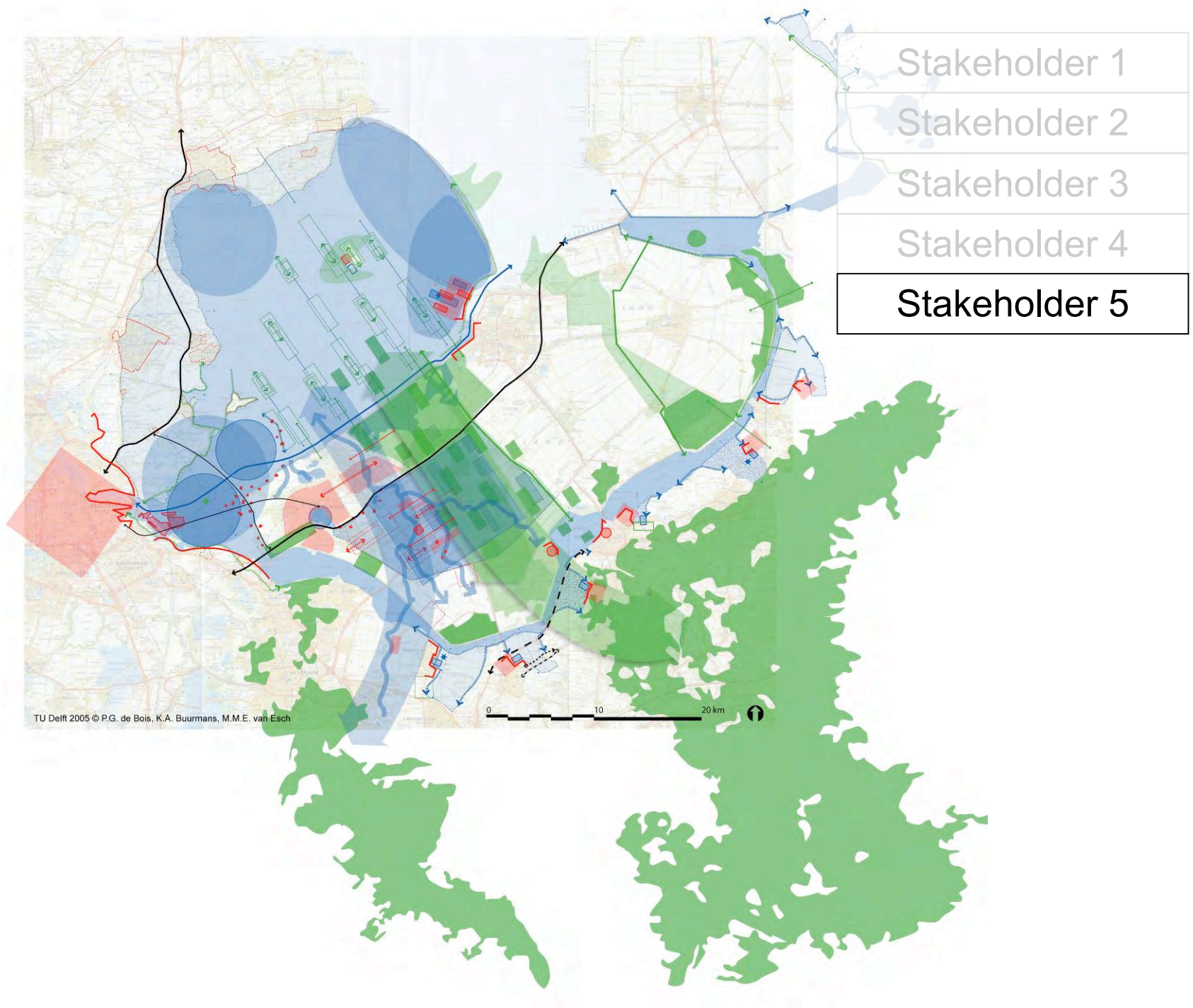


Stakeholder 1

Stakeholder 2

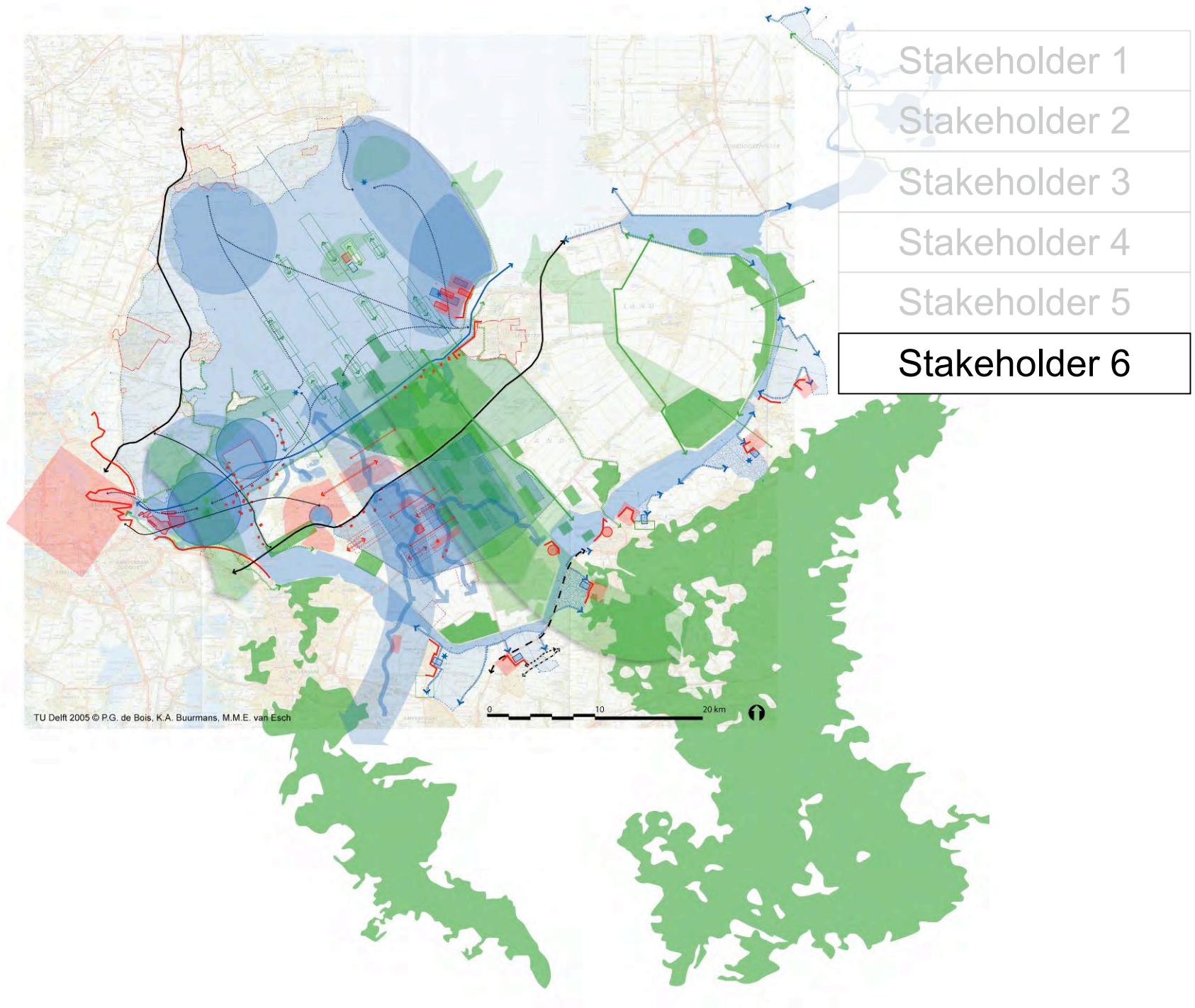
Stakeholder 3

Stakeholder 4

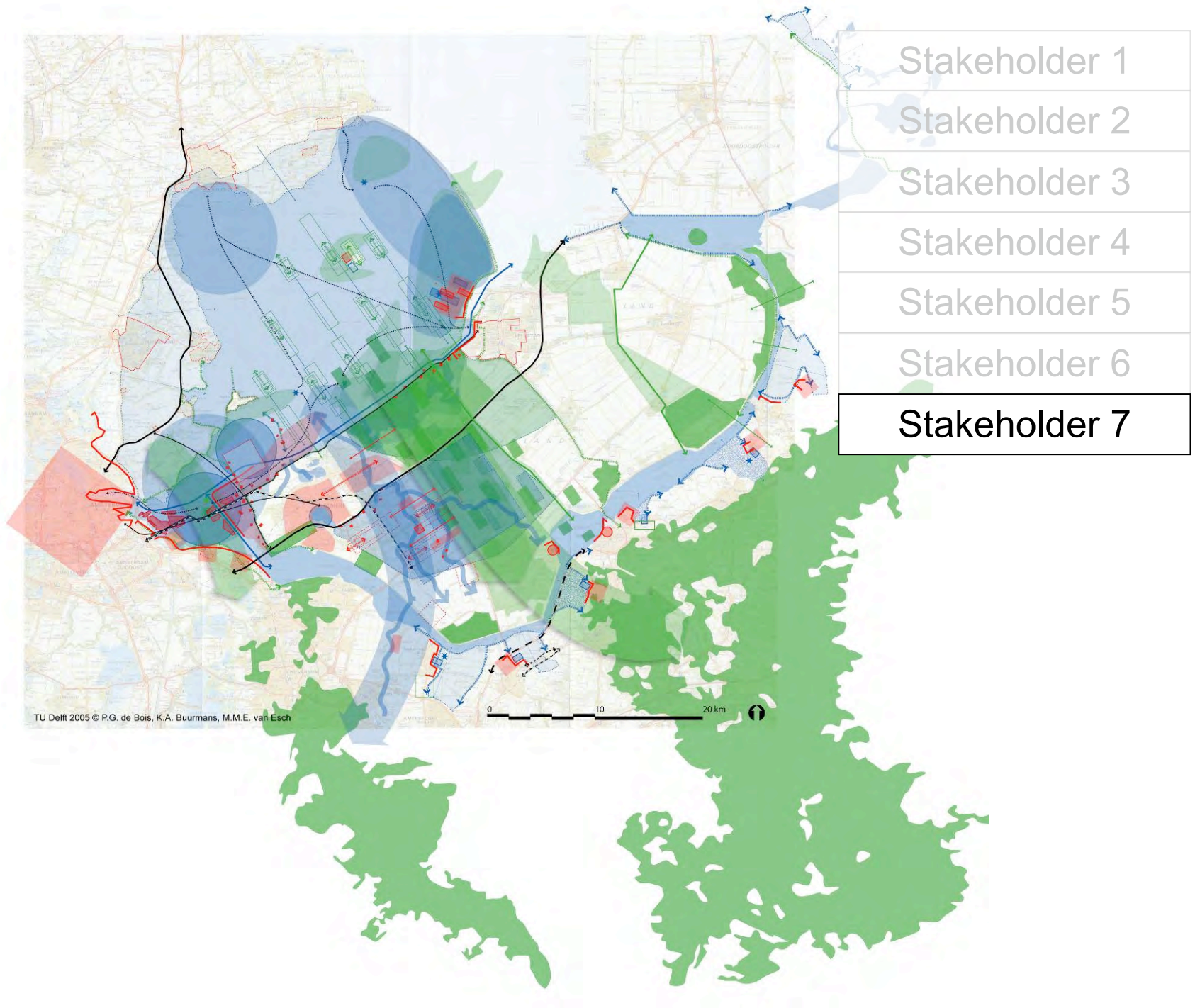


- Stakeholder 1
- Stakeholder 2
- Stakeholder 3
- Stakeholder 4
- Stakeholder 5**

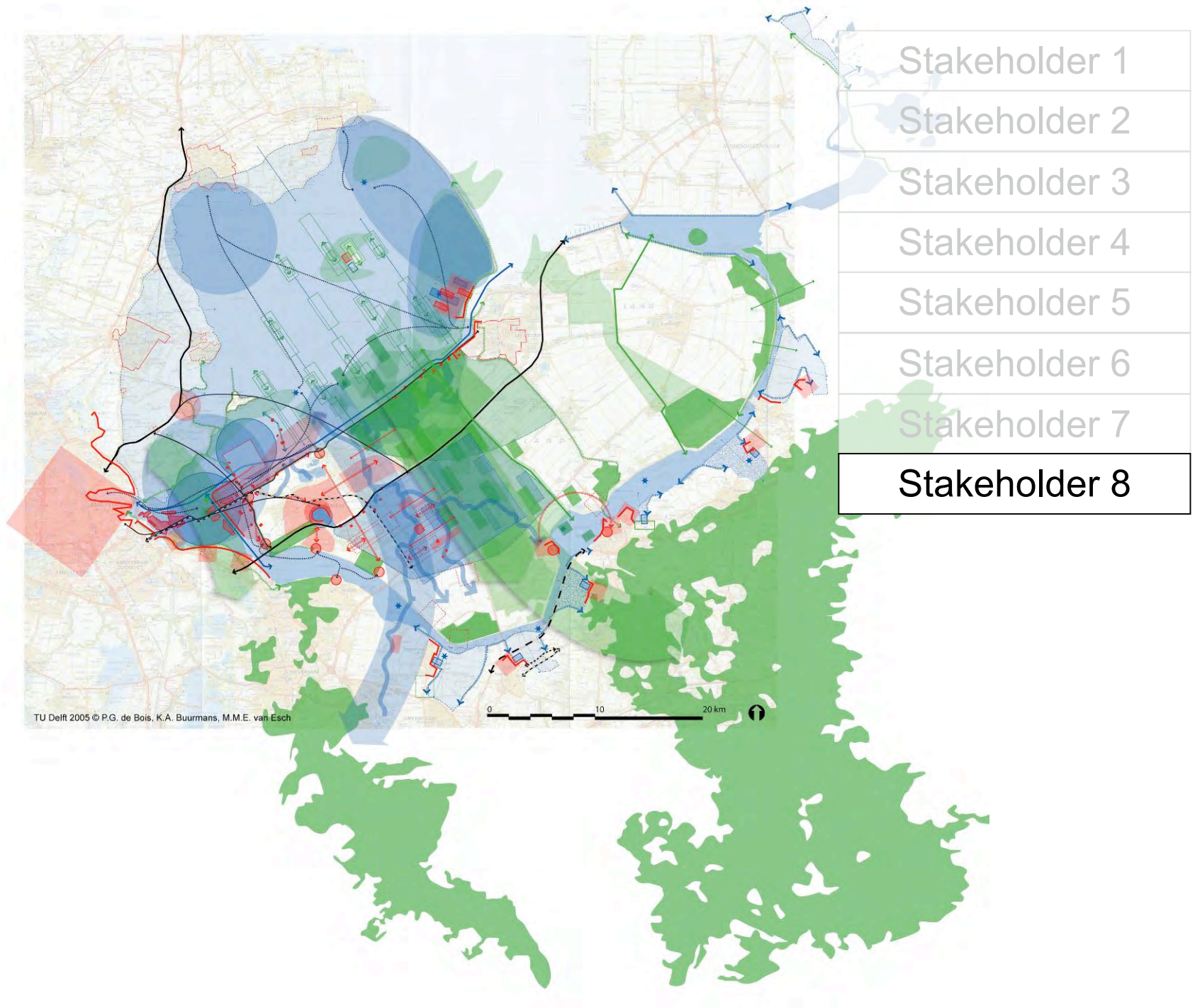




- Stakeholder 1
- Stakeholder 2
- Stakeholder 3
- Stakeholder 4
- Stakeholder 5
- Stakeholder 6**



|                      |
|----------------------|
| Stakeholder 1        |
| Stakeholder 2        |
| Stakeholder 3        |
| Stakeholder 4        |
| Stakeholder 5        |
| Stakeholder 6        |
| <b>Stakeholder 7</b> |



Stakeholder 1

Stakeholder 2

Stakeholder 3

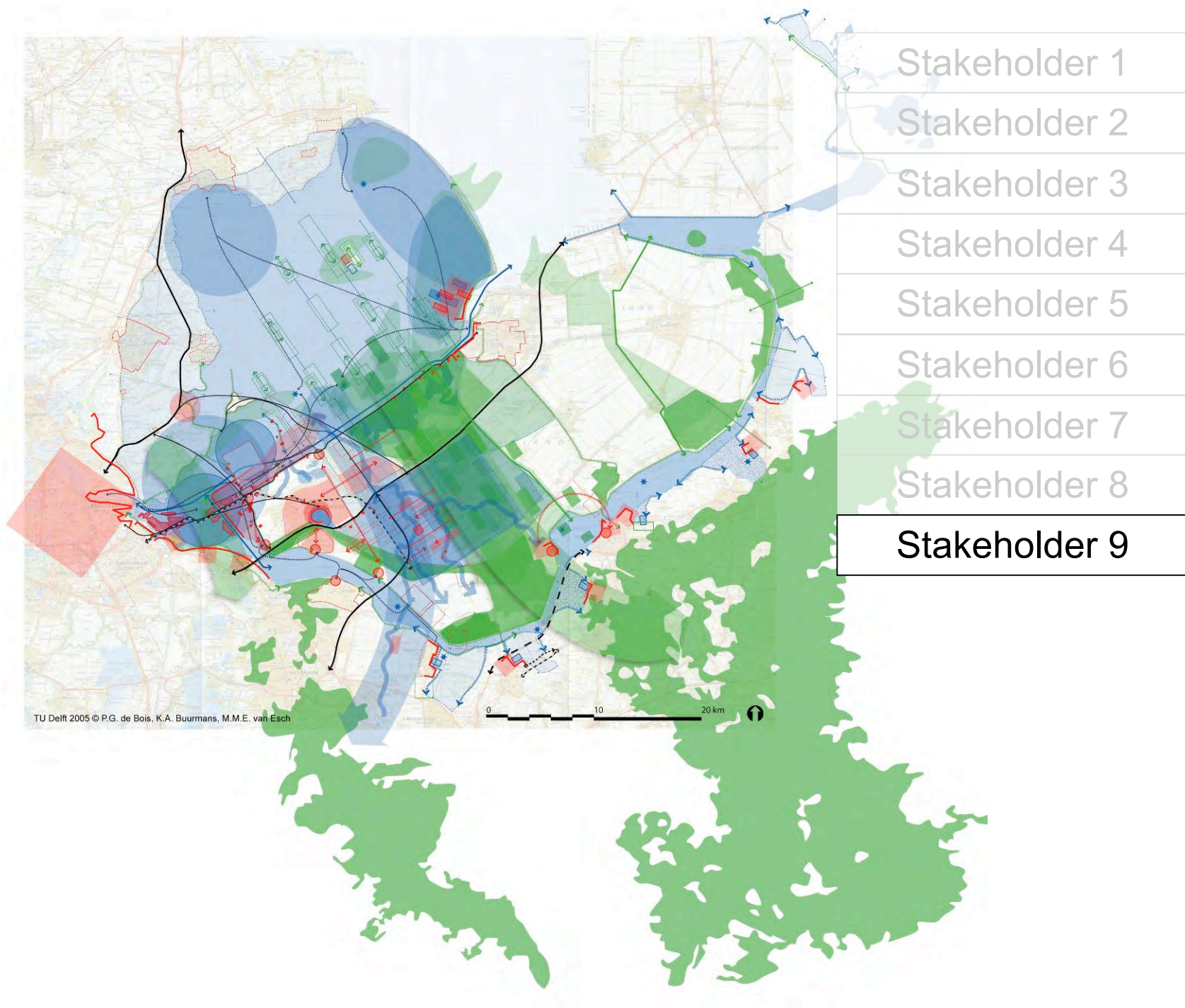
Stakeholder 4

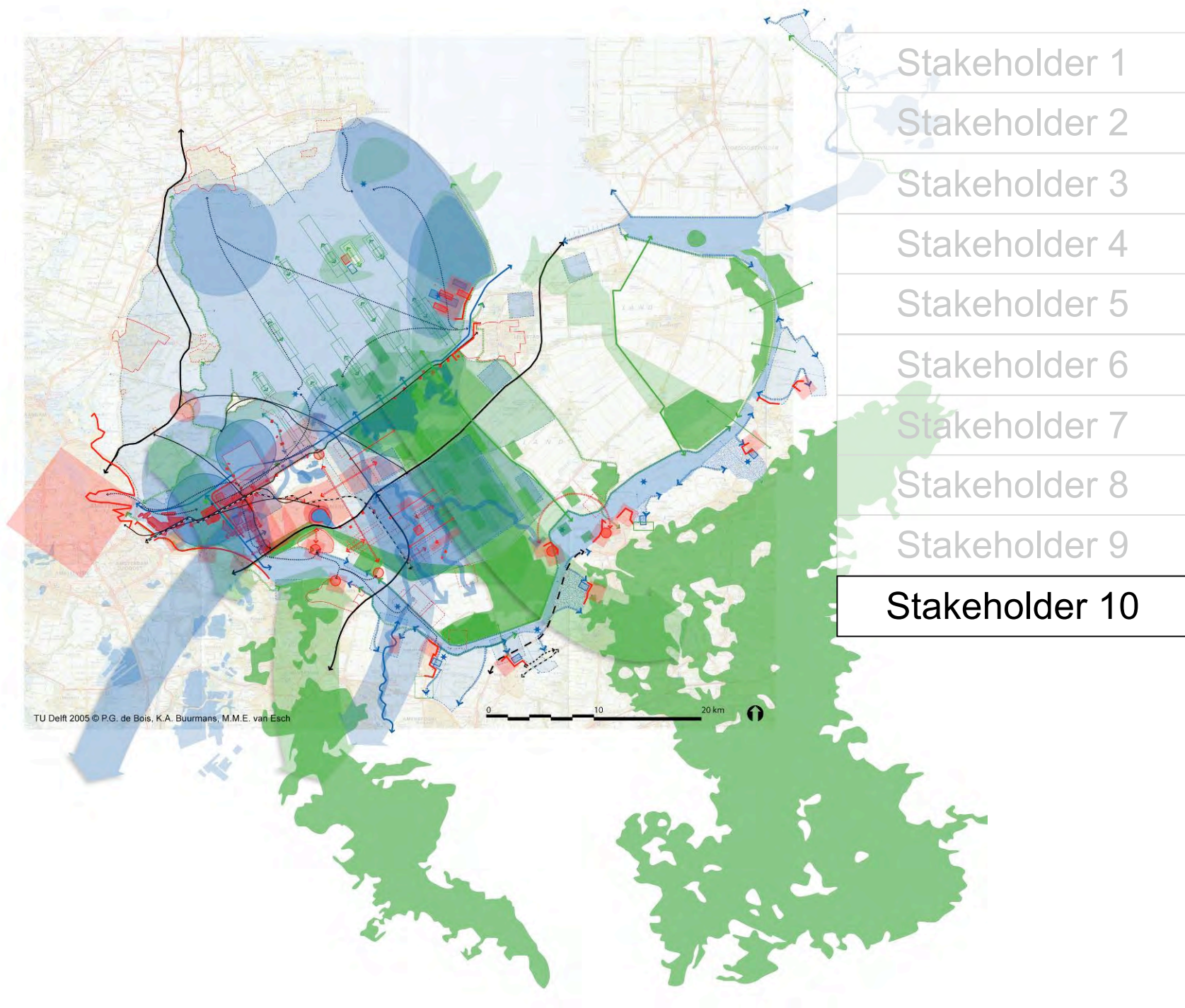
Stakeholder 5

Stakeholder 6

Stakeholder 7

**Stakeholder 8**





Stakeholder 1

Stakeholder 2

Stakeholder 3

Stakeholder 4

Stakeholder 5

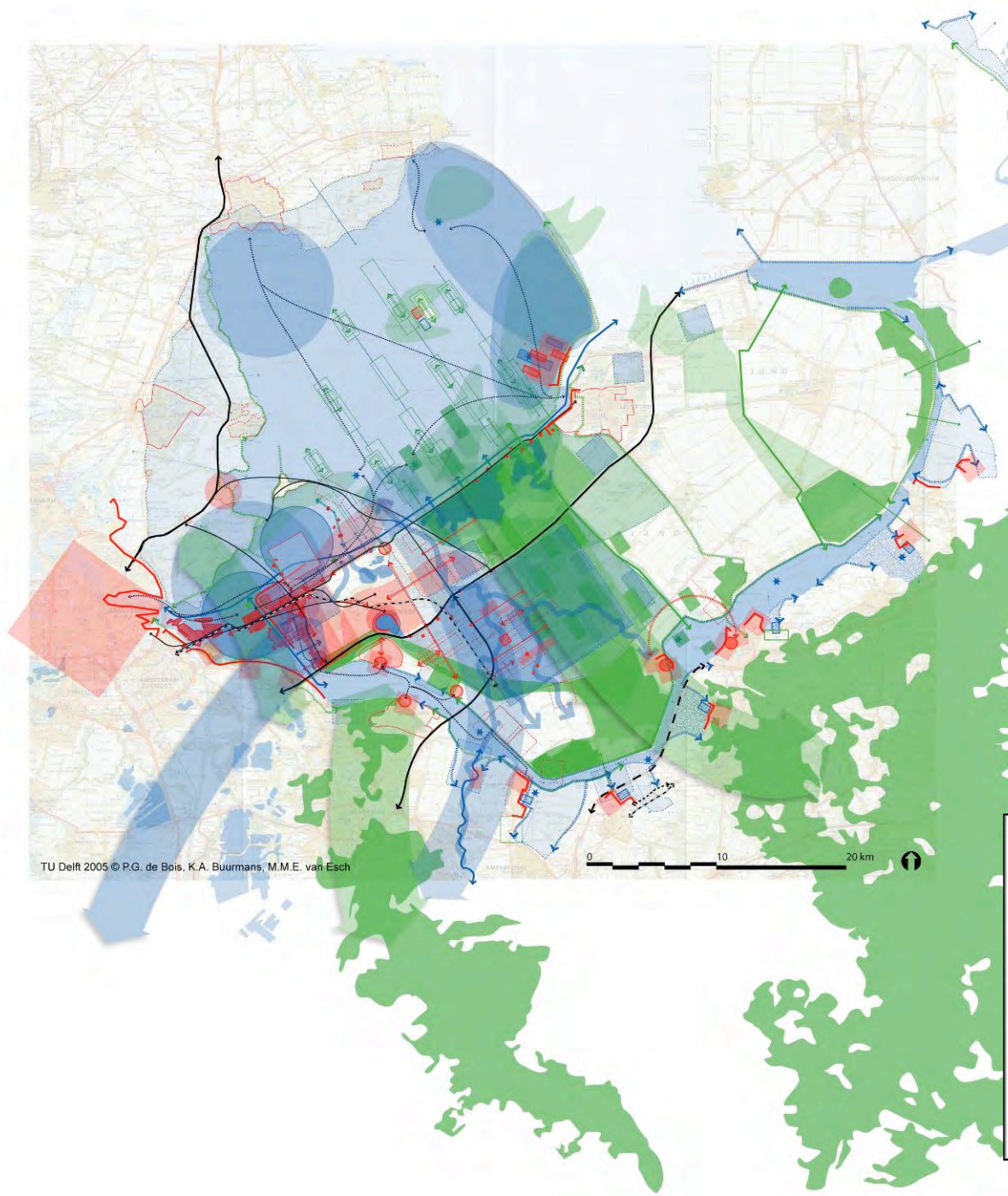
Stakeholder 6

Stakeholder 7

Stakeholder 8

Stakeholder 9

**Stakeholder 10**



TU Delft 2005 © P.G. de Bois, K.A. Buurmans, M.M.E. van Esch

|                |
|----------------|
| Stakeholder 1  |
| Stakeholder 2  |
| Stakeholder 3  |
| Stakeholder 4  |
| Stakeholder 5  |
| Stakeholder 6  |
| Stakeholder 7  |
| Stakeholder 8  |
| Stakeholder 9  |
| Stakeholder 10 |

**RGBG**  
**Strategic Model**  
 a Scenario Analysis & Design Method

|  |  |  |   |
|--|--|--|---|
|  |  |  | ® |
|--|--|--|---|

**Key to symbols: RED**

- Centre development
- Intensification area
- (new) "urban" dwelling area
- (new) "rural" dwelling area
- Programmatical anchor point
- Urban front
- Architectural object in space
- Development axis
- Visual relationship

**Key to symbols: GREEN**

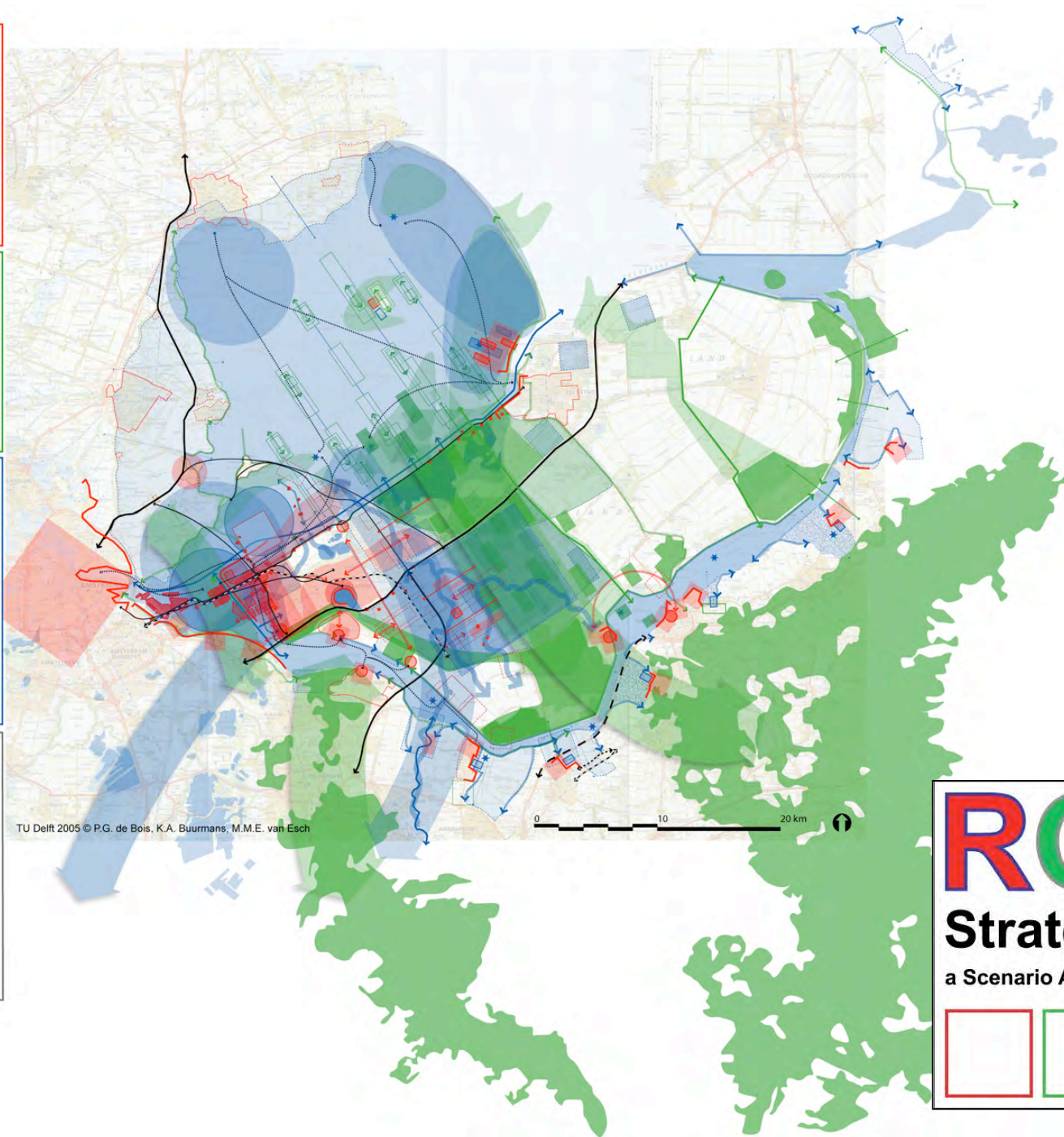
- Green condensation area / city park
- Large-scale environmental entity
- Potential recreational area / park area
- Landmark / recreational anchor point
- Main landscape route
- Environmental connection
- Recreational / slow traffic route
- Landscape drive / route

**Key to symbols: BLUE**

- Water square
- Primary / recreational water surface
- New water surface
- Infiltration
- Inundation / overflow
- Landmark / recreational anchor point
- Primary water route
- Primary waterline / connection
- Secondary waterline / connect.
- Visual relationship / view point
- Water front

**Key to symbols: GREY**

- Express train / main station
- Train / underground / light-rail station other / railway stations
- Railway line
- Tramway / underground / light-rail line
- Motorway
- Primary internal connection
- Secondary internal connection
- City axis
- City street
- Recreational / slow traffic route
- Ferry service
- Pathway



**RGBG**  
**Strategic Model**  
 a Scenario Analysis & Design Method

RGBG®

The Strategic RGBG model, is a dynamic design and analysis scenario instrument, strongly based on topological knowledge, cognitive data and mental mapping.

It is useful and effective in the urban/environmental context of transformation, innovation, and exploration.

## to know the path is to rule the system

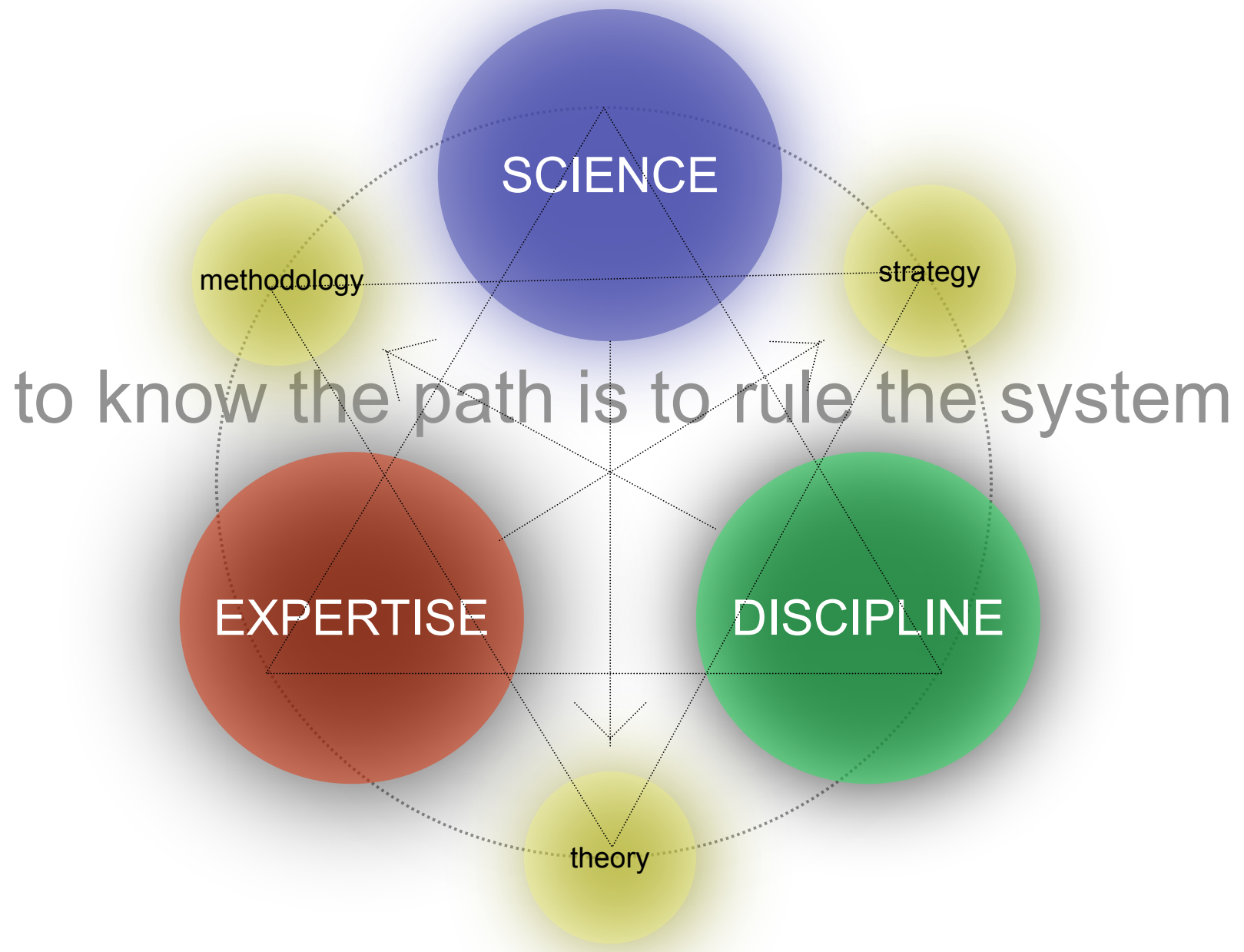
It makes communication possible in a complex interactive and intuitive situation.

It visualises programmatic potentials and physical relations in a conceptual way.

It can be used as a instrument to start and enhance communication between different parties, politicians, professional designers, investors and local inhabitants.

Together with the Frame-Pattern-Circuit method it will enhance the synergy in public and private governance





to know the path is to rule the system