

Green Bond Amsterdam-Noord

An aerial photograph of the Amsterdam-Noord district, showing a dense urban grid and a network of waterways. Overlaid on the map are green and blue lines and patches, representing planned green infrastructure and water management interventions. The green areas likely represent parks, green corridors, or permeable surfaces, while the blue areas represent water features like canals or retention basins. The map shows how these interventions are integrated into the existing urban fabric.

Re-organize urban forest for future garden city

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MSc Architecture, Urbanism and Building Sciences •
MSc track Landscape Architecture Graduation Studio Flowscales 2019-2020
Delft University of Technology
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Reflection

1

Introduction

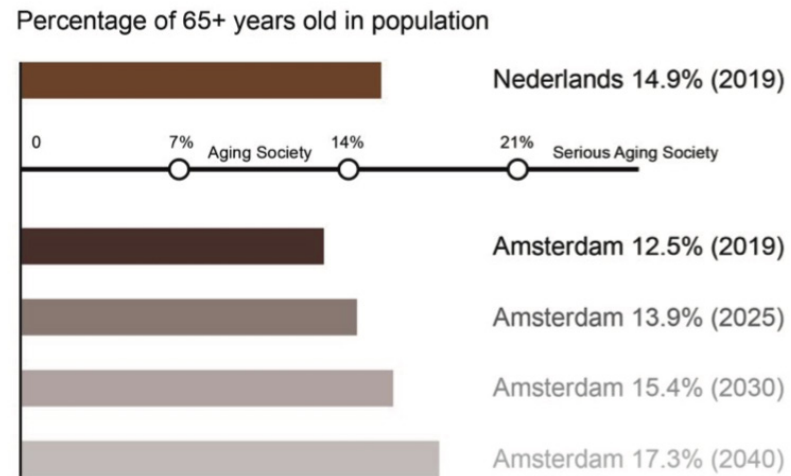
- Context
- Problem Statement
- Methodology

"Population ageing and urbanization are two global trends that together comprise major forces shaping the 21st century."

----World Health Organization, 2007

Introduction

Context



Data from:
<http://worldpopulationreview.com/countries/netherlands-population/>
Kerncijfers Amsterdam 2019 (Gemeente Amsterdam)

Amsterdam, too, is facing aged population.

Introduction

Context

Percentage of 65+ years old in population



Professionals Sociaal Domein > Voor zorgprofessionals

Age Friendly City

Amsterdam sloot zich in 2015 aan bij het netwerk van Age-friendly Cities van de Wereldgezondheidsorganisatie (WHO). Dit is een netwerk van steden die zich inzetten voor een stad waar je prettig en gezond oud kan worden.

Data from:
<http://worldpopulationreview.com/countries/netherlands-population/>
Kerncijfers Amsterdam 2019 (Gemeente Amsterdam)

Age-friendly World

Home About WHO Global Network Age-Friendly in Practice Resource Library

Amsterdam

Committed To Becoming More Age-Friendly

Amsterdam Netherlands

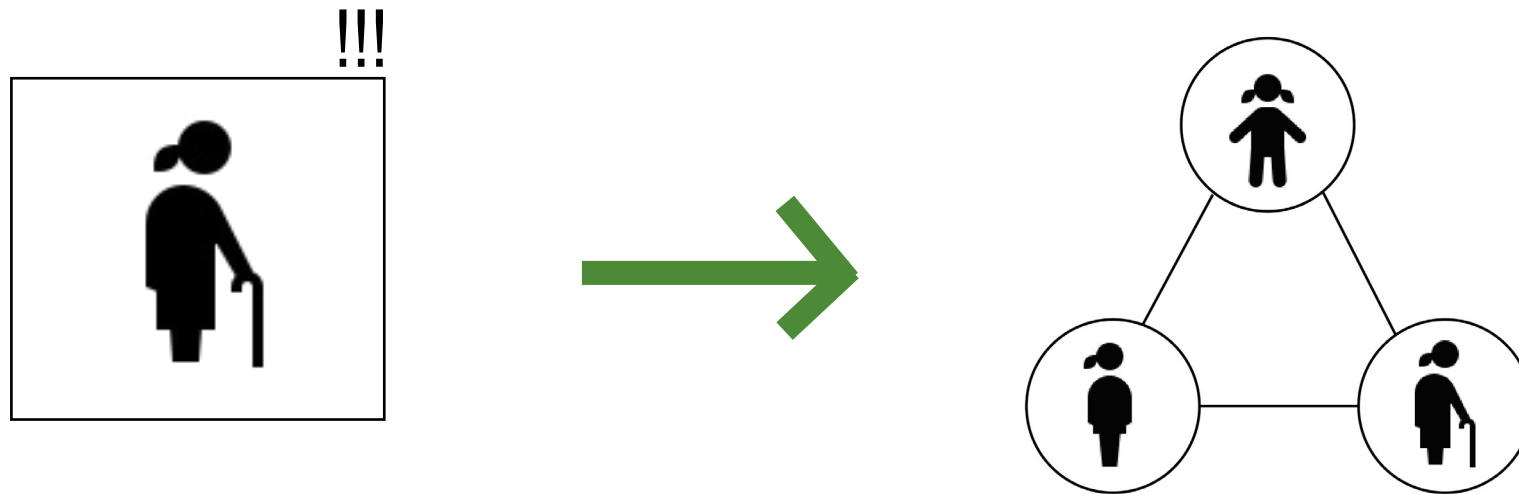
City population: 811185	17 % over 60	Joined Network in 2015	Print this page
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source: Gemeente Amsterdam
<https://extranet.who.int/agefriendlyworld/network/amsterdam/>

Amsterdam, too, is facing aged population.
Building an age-friendly city becomes a urgent misson.

Introduction

Context



From age-friendly city to ***All-age friendly city***: preventive, healthy, and supportive city for all.

Introduction

Context



Orange outline: Picturesque garden villages in 1920s

Blue outline: Open garden city neighborhood in 1960s



Garden villages in Amsterdam.

Amsterdam has a Garden City tradition that explores healthy urbanization(1920s and 1960s).

Introduction

Context

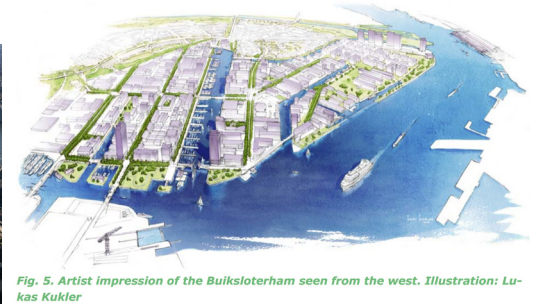
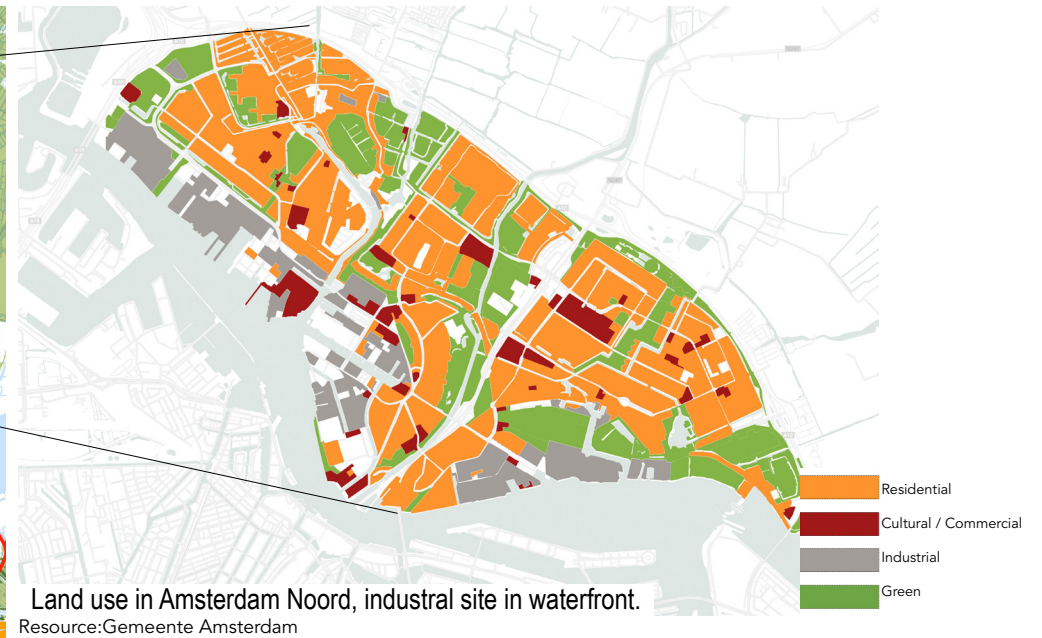
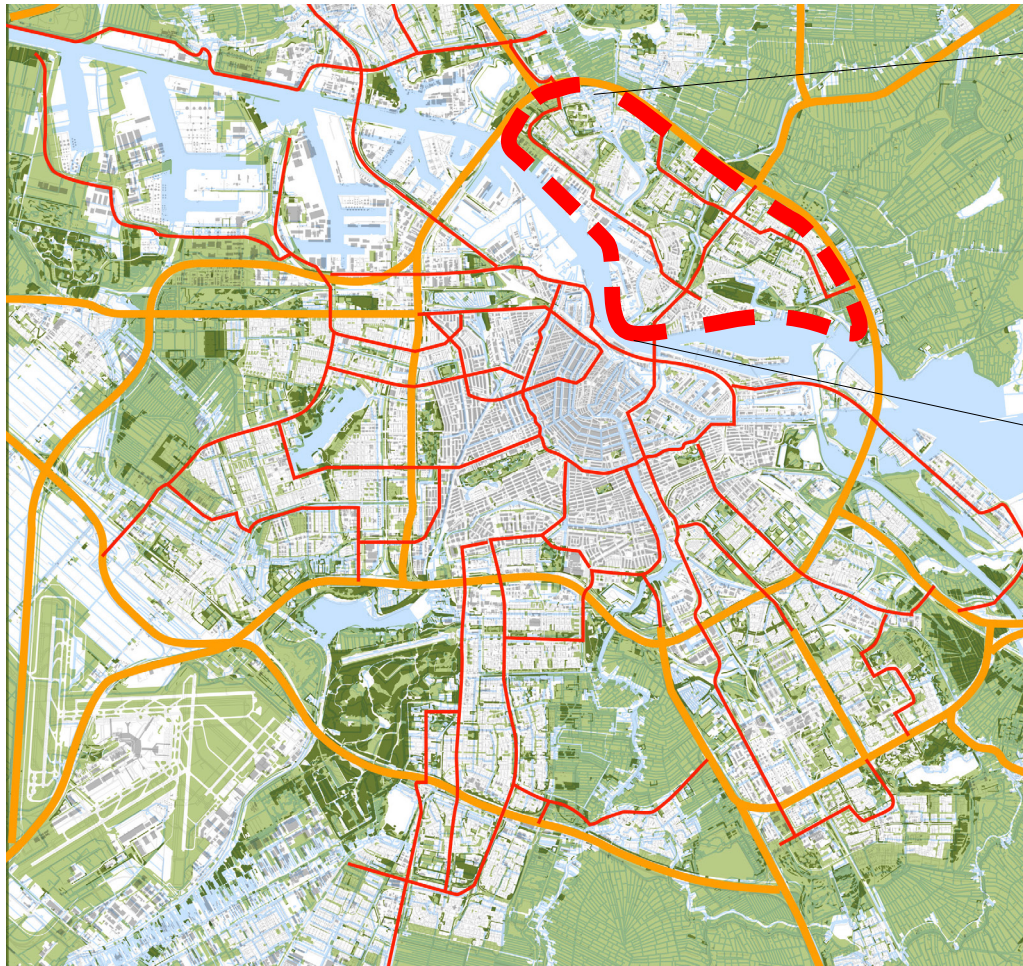


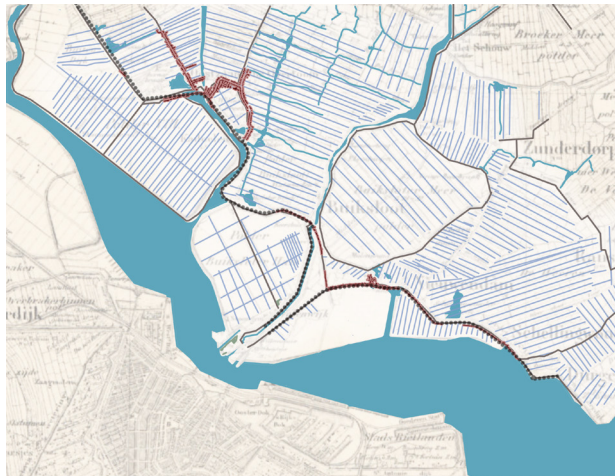
Fig. 5. Artist impression of the Buiksloterham seen from the west. Illustration: Lukas Kukler

Amsterdam Noord, a garden city "green getaway" facing high density transformation and crisis in its rural identity.

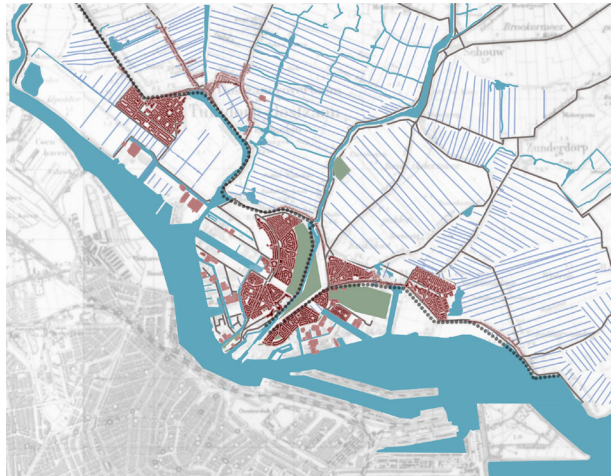
Introduction

Problem Statement

Before 1920



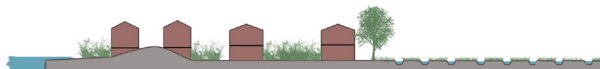
1920-1960



1960-2000



Dike Village



Garden Village



Open Garden City Neighborhood

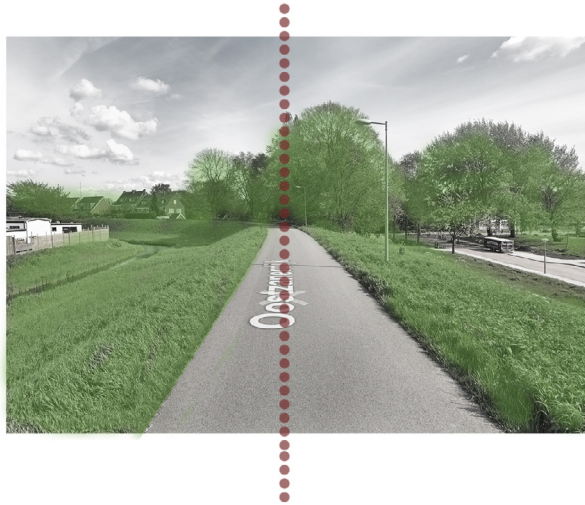
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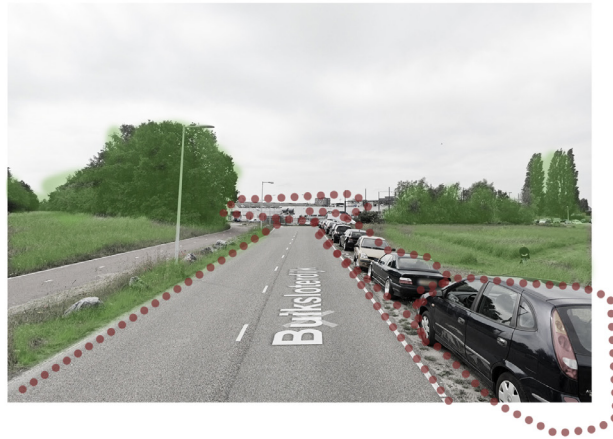


Introduction

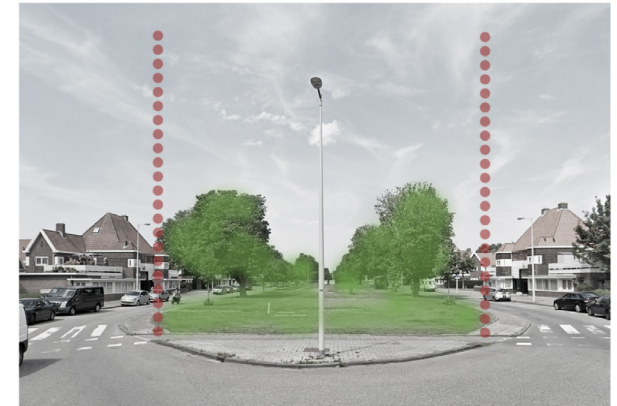
Problem Statement



Topos feature, dike, becomes barrier for connectivity



Dike is fragmented as traffic infrastructure

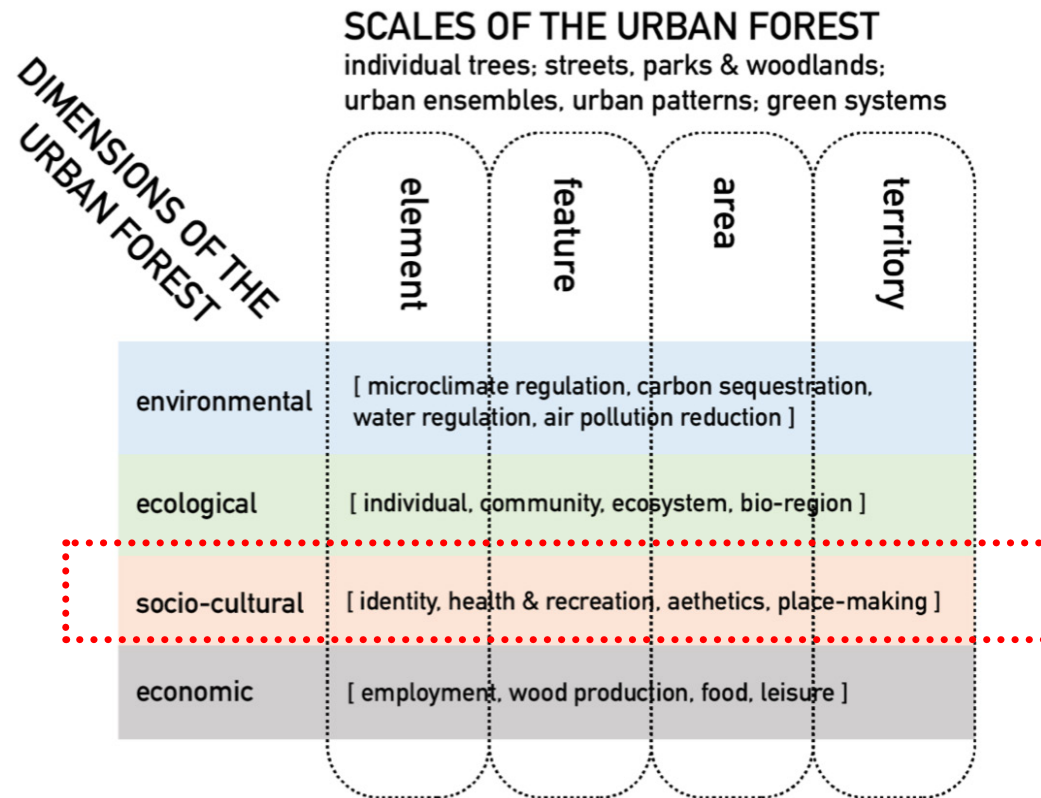


Public space in Garden villages lacking relation to the surrounding landscape

With the tradition garden city ideas, green spaces in Amsterdam Noord were built as buffers or enclosed entities from the industrial nuisance, this results in disconnection and lost in its green identity.

Introduction

Problem Statement

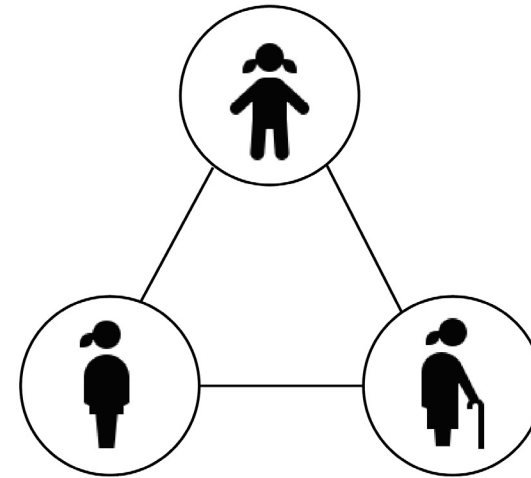


Urban Forest Matrix
(Source: Urban Forest Places Graduation Lab 2019-20,
René van der Velde (2019))

In Urban Forest lab, urban forest, defined as urban green spaces with trees as its backbone, are considered as an important resource of the city.

Introduction

Problem Statement



The challenge from the expanding high-dense city that threatens its rural identity, and the requirement to build an all-age-friendly city.

Urban forest, could be the key element the renovate Amsterdam Noord.

This leads to the research objectives and research questions:

Introduction

Problem statement

Research Objectives

To explore design principles for re-organizing urban forest to promote the urban identity and all-age-friendly network for Amsterdam Noord.

To explore landscape design principles for place making, to improve the material quality that would develop the identity and provide all-age-friendly value.

Main Research Question

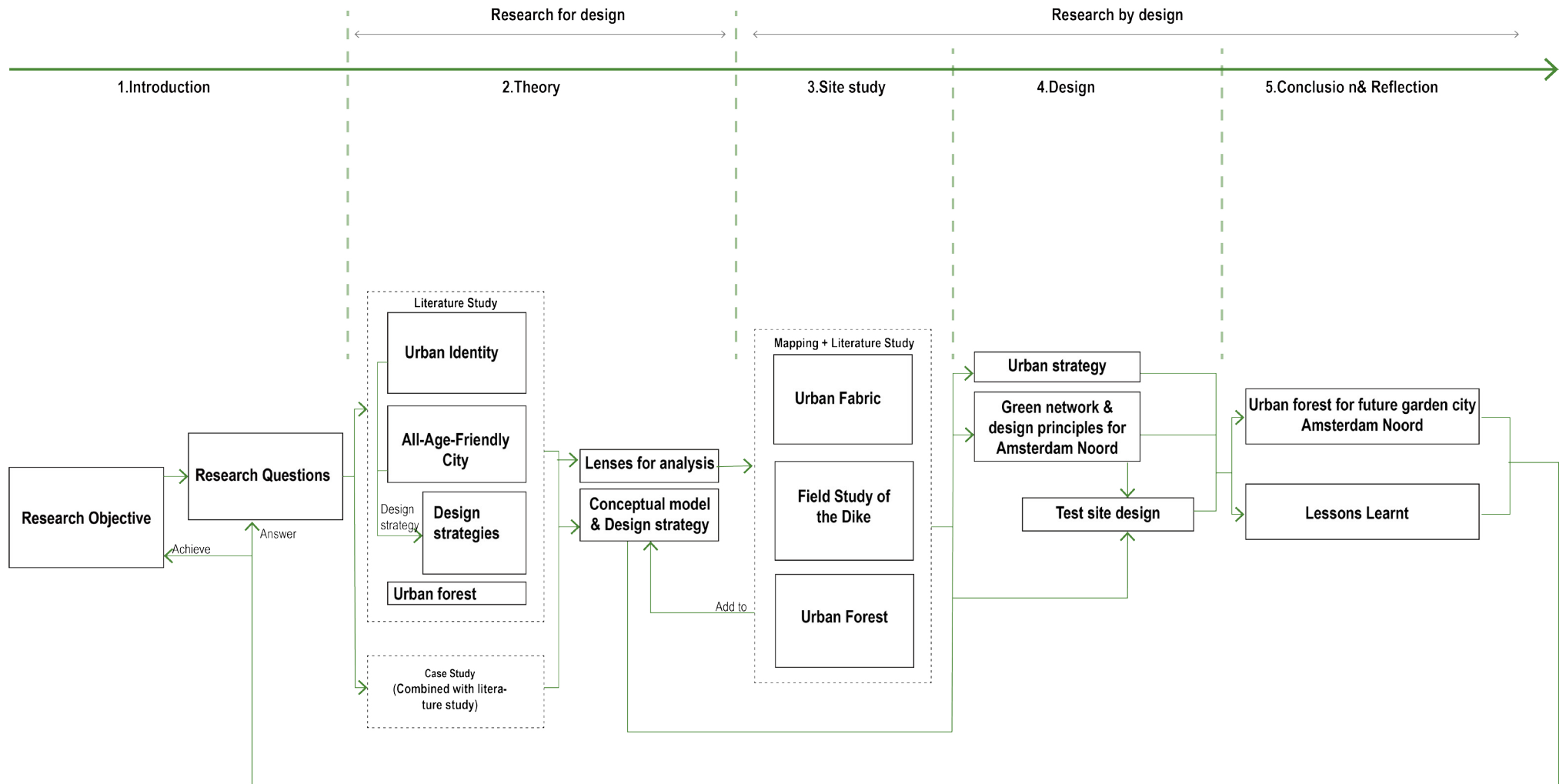
How can urban forest be used to develop a future sustainable garden city in dialogue with the green urban identity and Garden City tradition of Amsterdam Noord, and to promote an age-friendly city? How can this prototype for Amsterdam Noord be used as a case study to provide universal value?

Sub-question

- 1.What is the urban forest tradition in Amsterdam Noord?
- 2.What element represents the identity of Amsterdam Noord? What potential do the representative elements have to be included in the urban forest?
- 3.What defines an all-age-friendly city for Amsterdam Noord? How can urban forest contributes to it?

Introduction

Methodology



2

Theory

Literature Study
Theoretical Framework

Theory

Literature study

Urban Identity

Design goal to enhance urban identity

Design strategy: Landscape narratives

All Age-friendly City

Design goal to enhance age-friendly

Design strategy: Supportive landscape

Urban Forest

Urban Forest Matrix

Theory

Literature study

Urban Identity

Design goal to enhance urban identity

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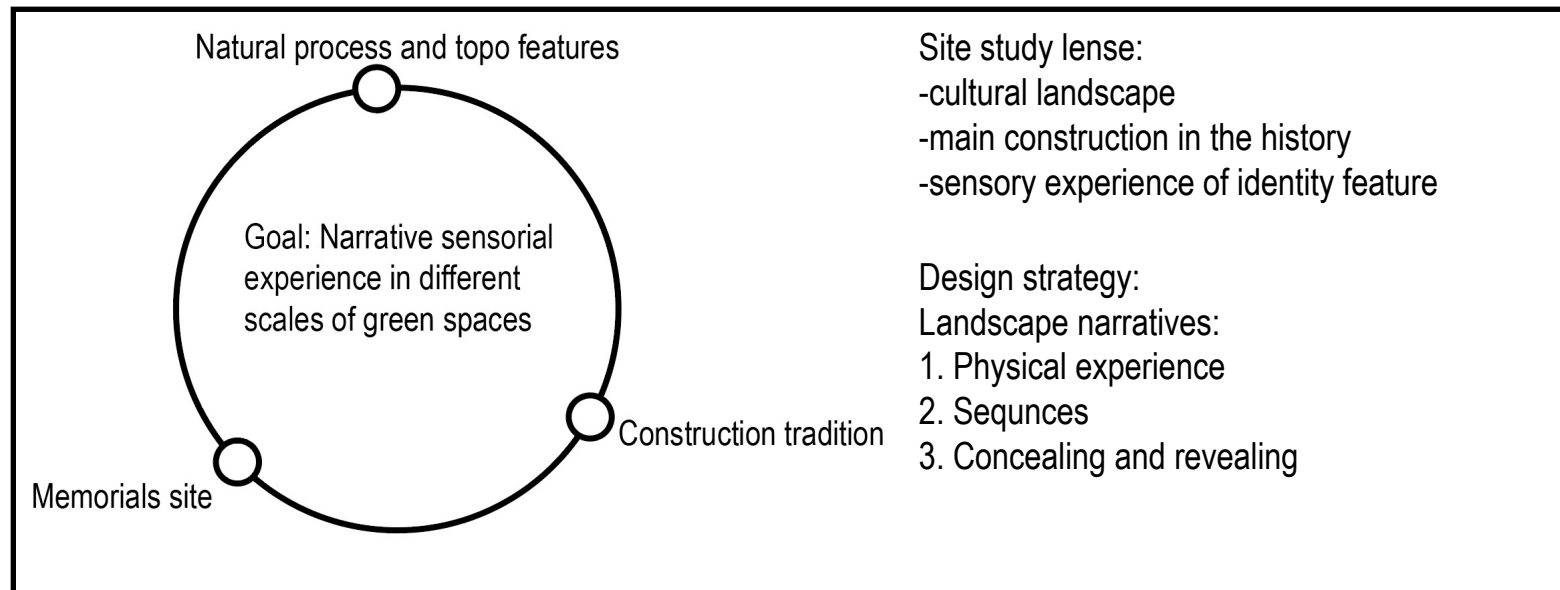
All Age-friendly City

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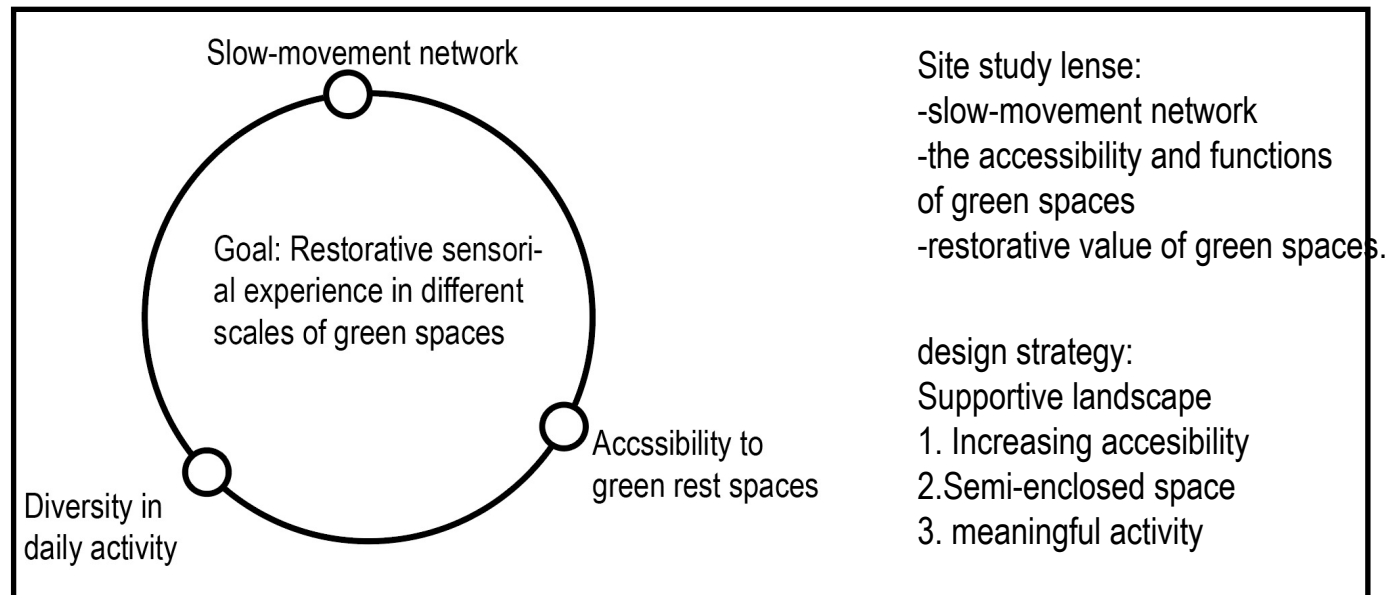
All Age-friendly City

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Design strategy: Supportive landscape

Urban Forest

Urban Forest Matrix



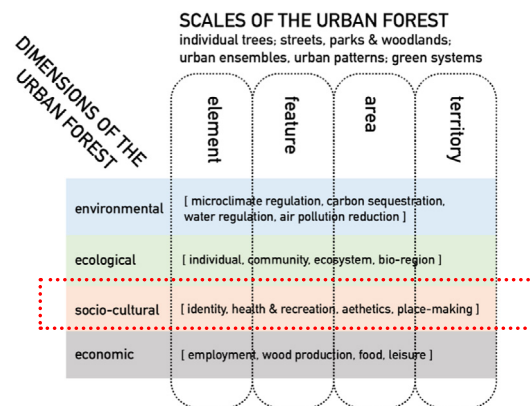
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(Source: Urban Forest Places Graduation Lab 2019-20, René van der Velde (2019))

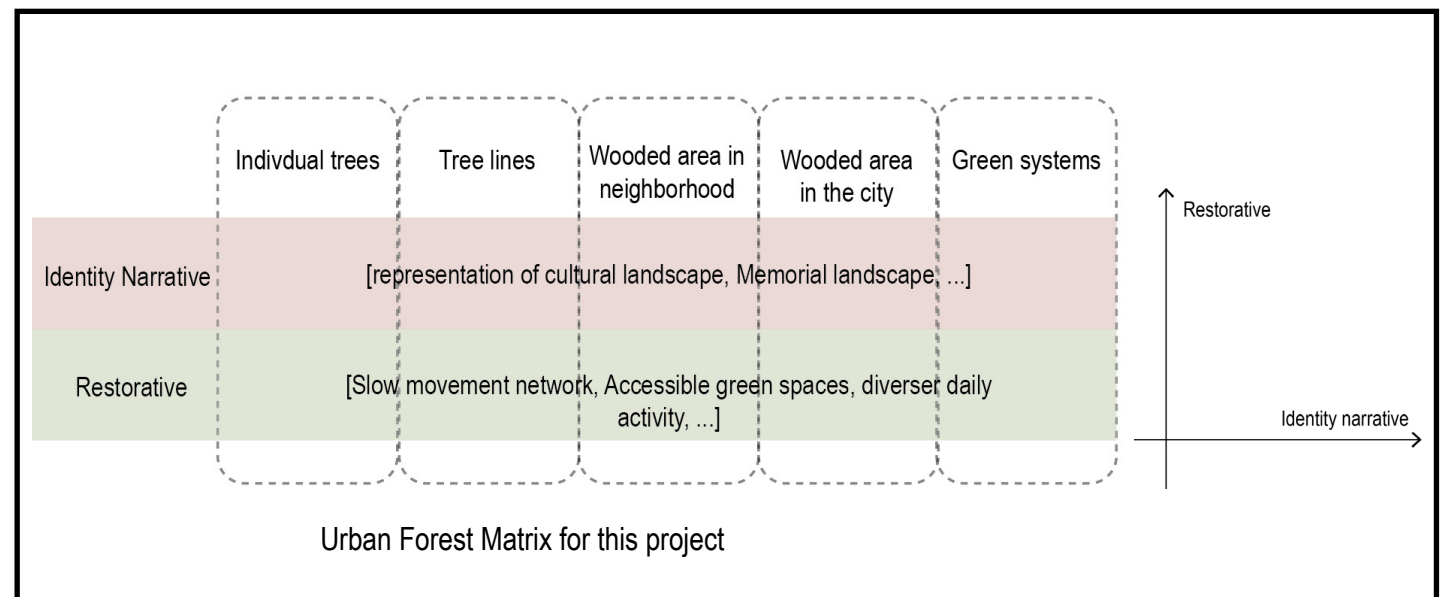
All Age-friendly city

Design goal to enhance age-friendly

Design strategy: Supportive landscape

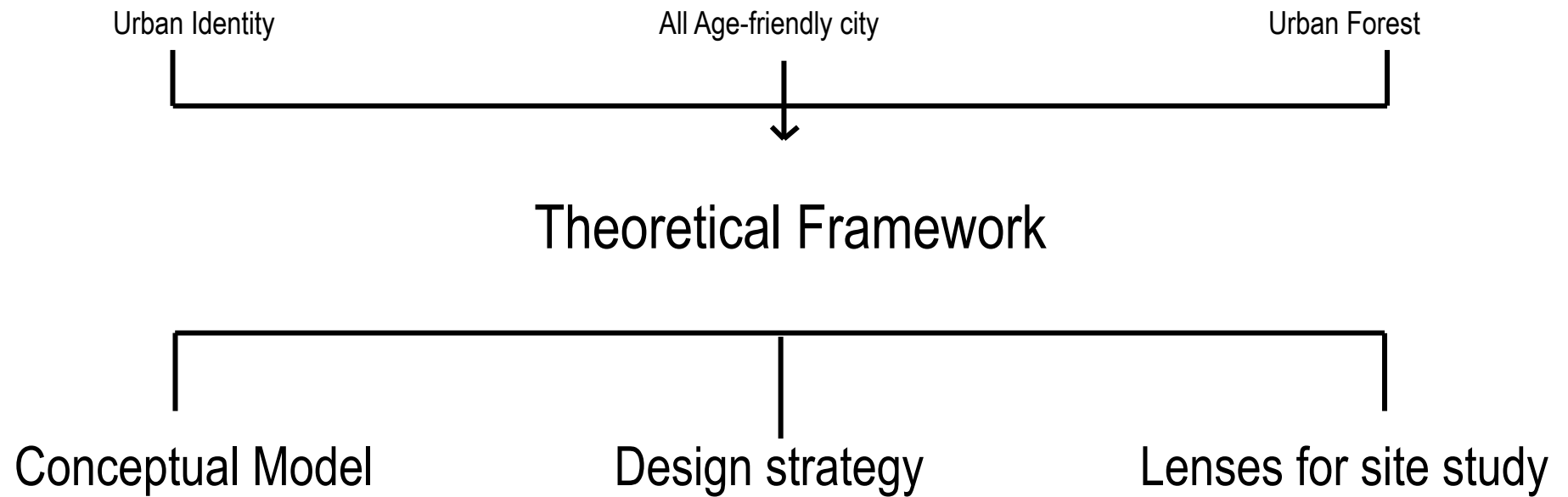
Urban Forest

Urban Forest Matrix



Theory

Theoretical framework



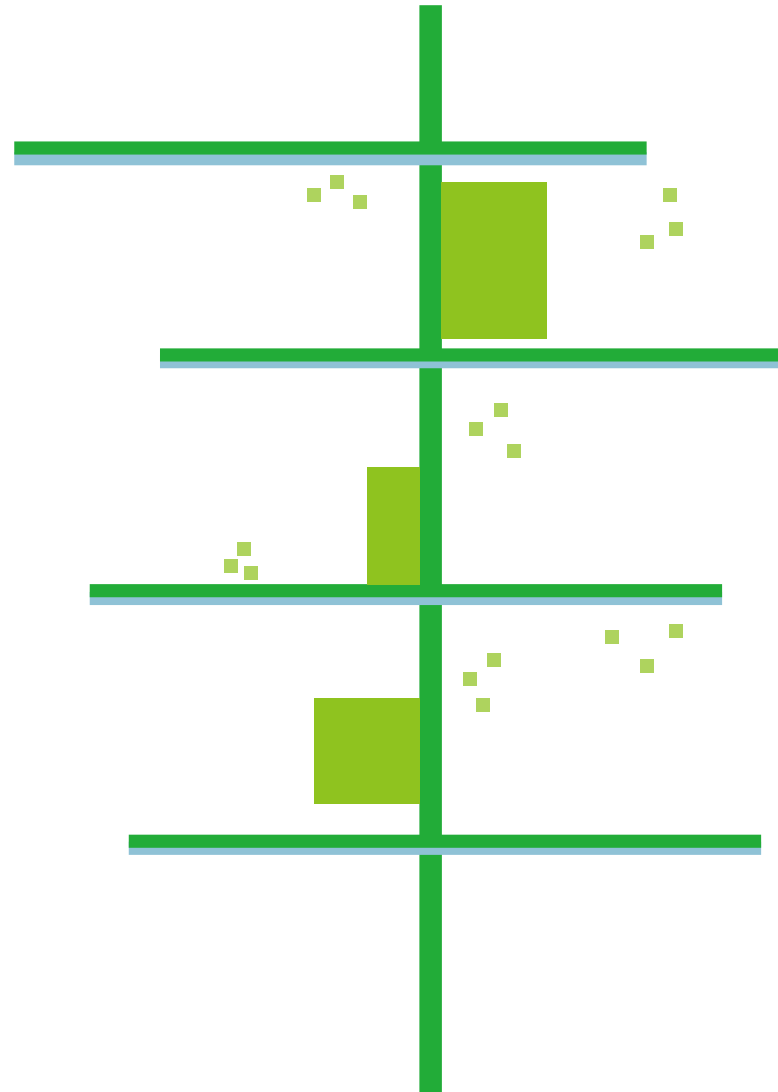
Theory

Theoretical Framework

Conceptual model:

Green network in the city

- (Wooded) lines for slow-movement network
- (Wooded) nodes for identity narrative and restorative experience



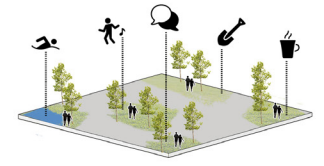
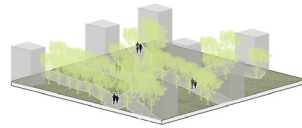
Theory

Theoretical Framework

City network scale:

- A slow-movement network with accessibility to green spaces

- Connection of identity representative elements that can create sequences for identity narratives and restorative activities



Design Strategy:

Green network in the city

Green spaces scale:

Lines:



- Non-obstacle design: smooth surface, at least 1.2m wide for pathways, use ramp instead of steps.



- Concealment of busy traffic and high-rise building
- Revelation of polder landscape and garden villages
- Sensory experience of being on a dike/waterside
- Sensory experience of seasonal change with plants

Nodes:



- Semi-enclosed space for stay and rest
- Activity to encourage intergenerational inclusion

Theory

Theoretical Framework

Lenses for site study:

To investigate:

- cultural landscape
- main construction in the history
- sensory experience of identity feature
- slow-movement network
- the accessibility and functions of green spaces
- restorative value of green spaces.

Urban fabric

- cultural landscape
- main construction in the history
- sensory experience of identity feature
- slow-movement network
- the accessibility and functions of green spaces
- restorative value of green spaces.

Field study of the dike

- cultural landscape
- main construction in the history
- sensory experience of identity feature
- slow-movement network
- the accessibility and functions of green spaces
- restorative value of green spaces.

Urban forest

- cultural landscape
- main construction in the history
- sensory experience of identity feature
- slow-movement network
- the accessibility and functions of green spaces
- restorative value of green spaces.

3

Site study

Site Analysis

Urban Fabric

Field Study of the Dike

Urban Forest

Potential Exploration

Urban Fabric

Field Study of the Dike

Urban Forest

Urban Fabric

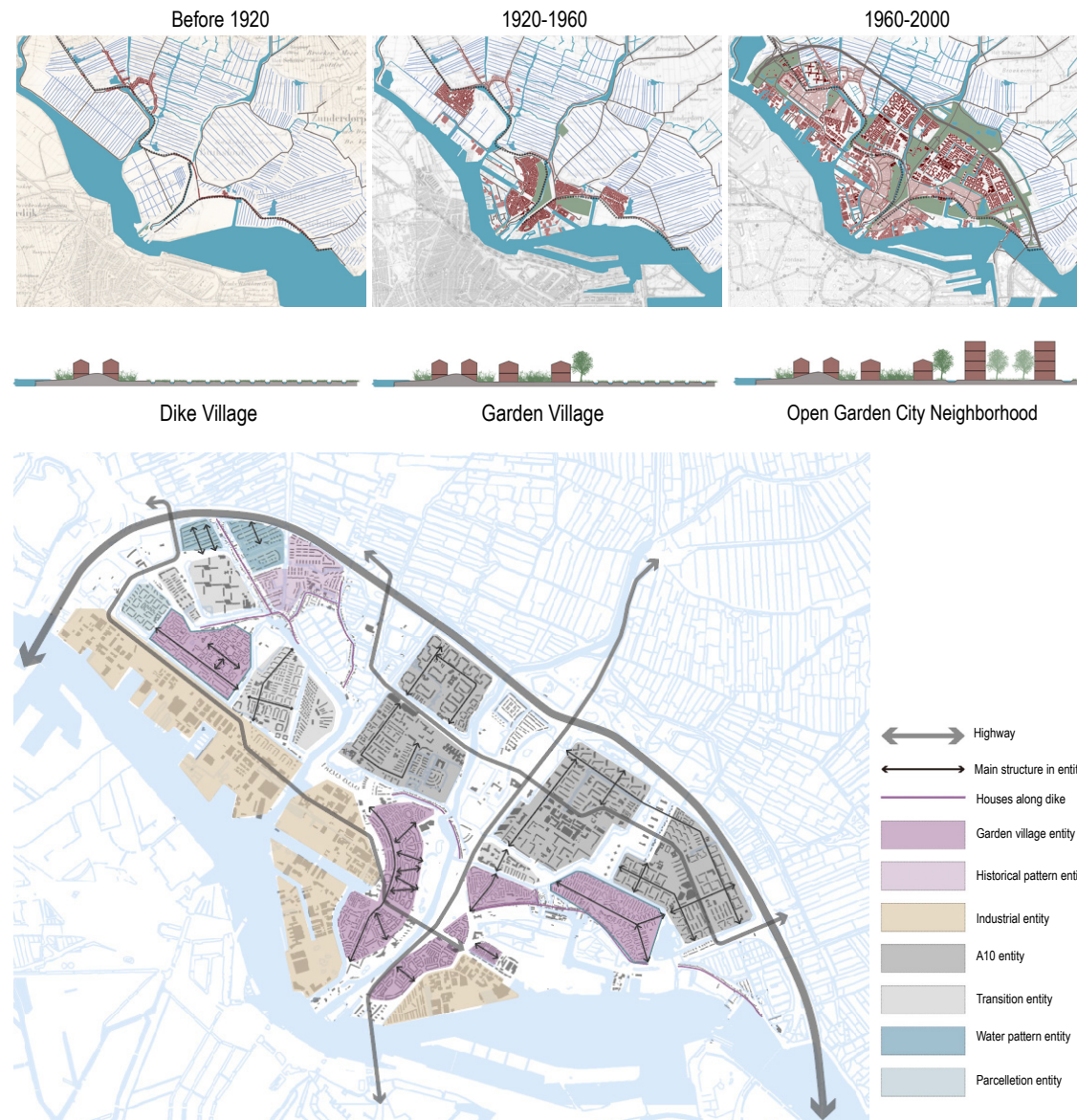
Field Study of the Dike

Urban Forest

Site Study

Site Analysis_Urban Fabric

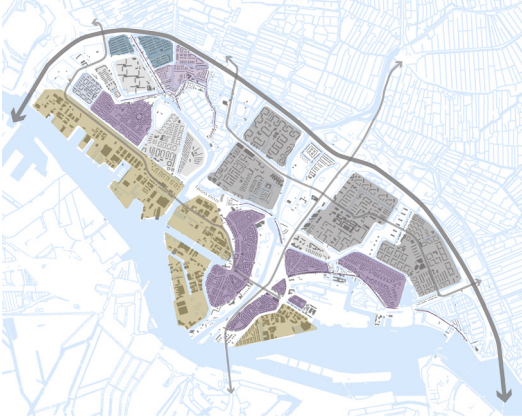
History and entities



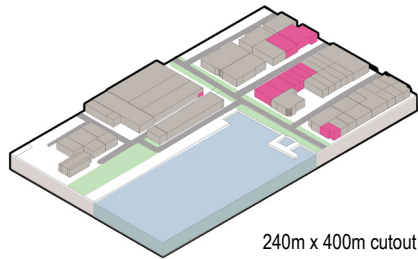
Site Study

Site Analysis_Urban Fabric

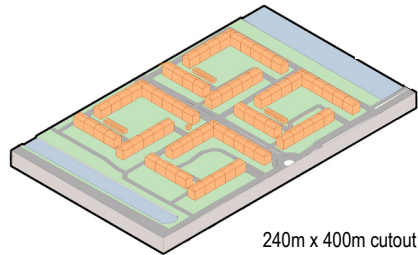
Entities and buildings



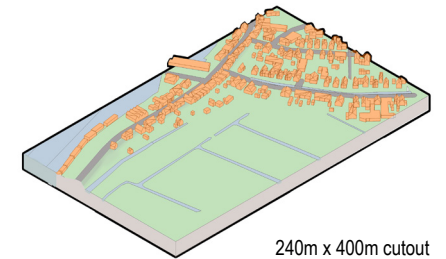
Industrial site
 Function: industrial +commercial
 Average unit size: 80m x 140m
 Buildings: 2 Floors (10m) with flat roof



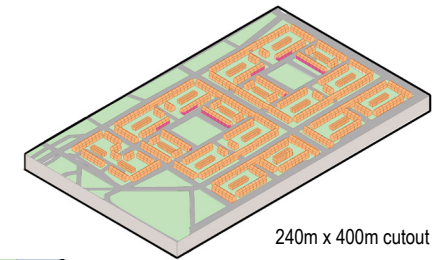
Open garden city neighborhood(1960s)
 Function: residential
 Average unit size: 120m x 120m
 Buildings: 2-5 Floors (8-15m) with gable roof
 5-12 Floors (15-50m) with flat roof



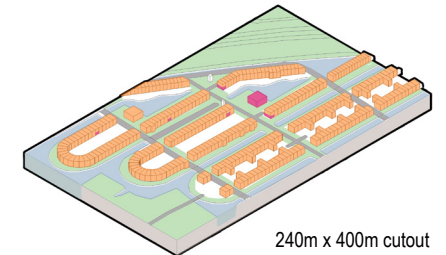
Dike villages
 Function: residential
 Average unit size: 10m x 20m
 Buildings: 2-3 Floors (8-12m) with gable roof



Picturesque garden villages (1920s)
 Land-use: residential +commercial
 Average unit size: 50m x 50m
 Buildings: 2-3 Floors (8-12m) with gable roof



Polder neighborhood(1990s)
 Function: residential +commercial
 Average unit size: 60m x 100m
 Buildings: 2 Floors (8m) with flat roof



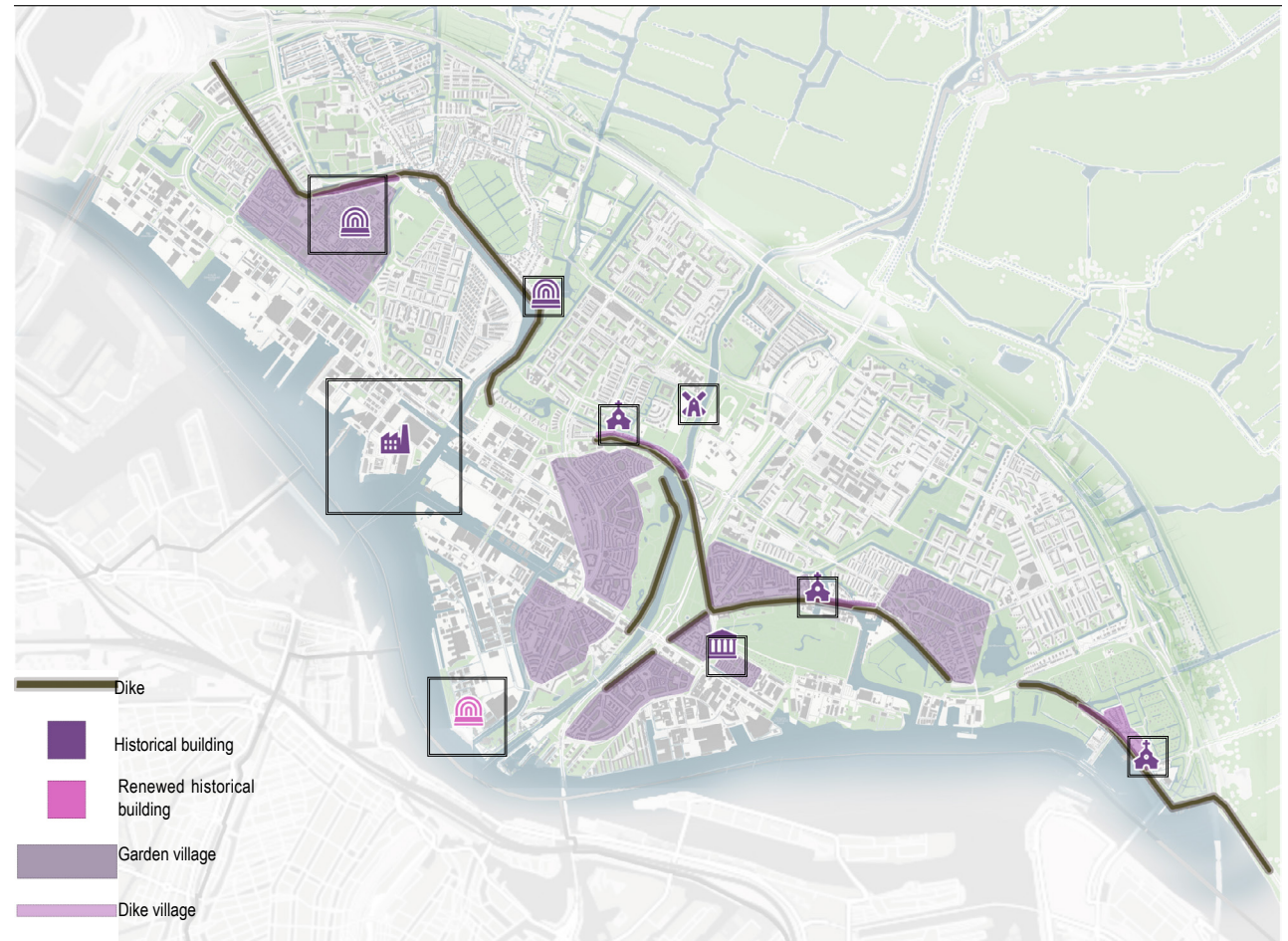
Site Study

Site Analysis_Urban Fabric

Identity and historical elements

- The dike
- Dike villages
- Garden villages
- Historical buildings

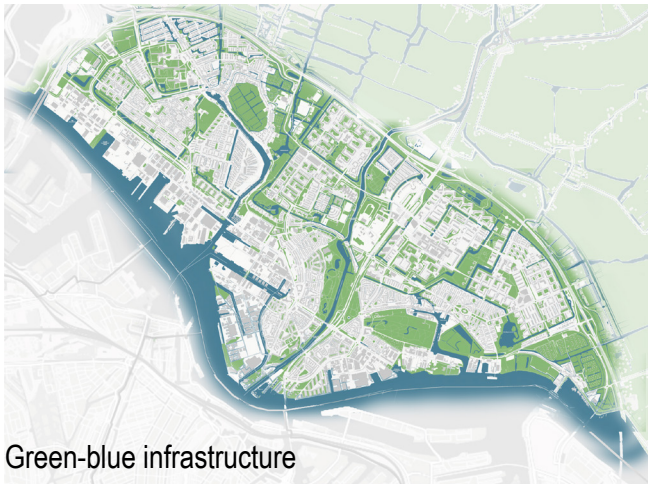
Dike as a connecting element.



Site Study

Site Analysis_Urban Fabric

Green and Blue Infrastructure

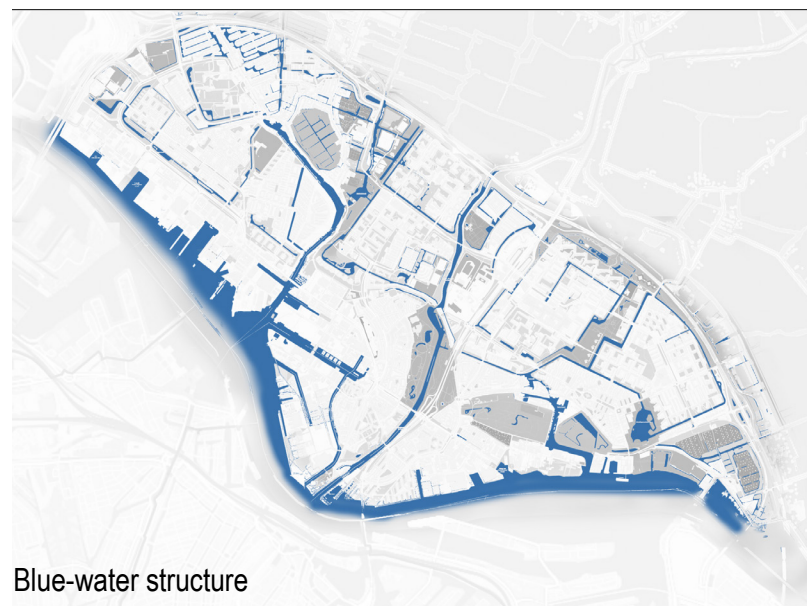


Green-blue infrastructure



Green- public green amenities

- Undeveloped green
- Park
- Allotment garden
- Sports facilities
- Cemetery



Blue-water structure

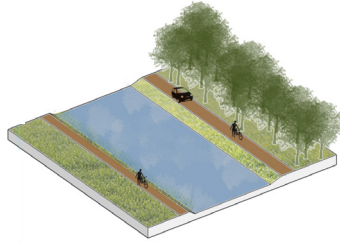
- IJ
- Noordhollandcanal
- Waterways
- Water body around entities
- Polders

Site Study

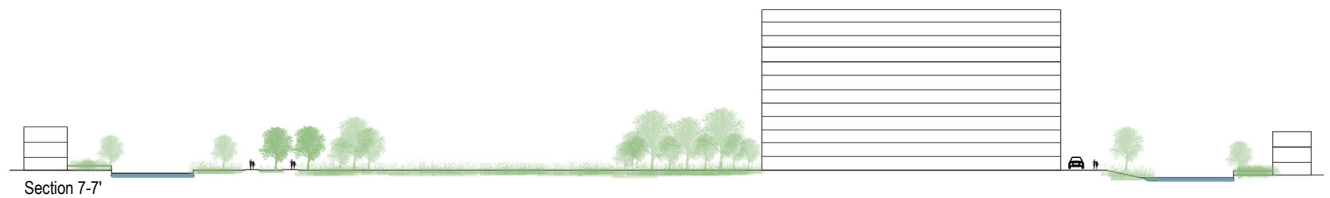
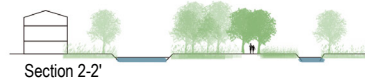
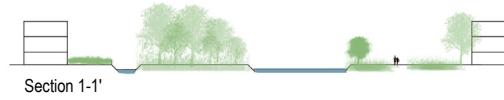
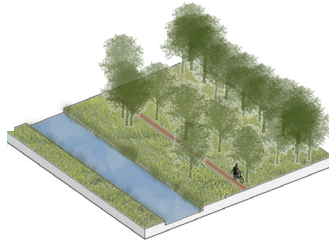
Site Analysis_Urban Fabric

2 typologies of waterlines

-waterside road (5-5') with car roads



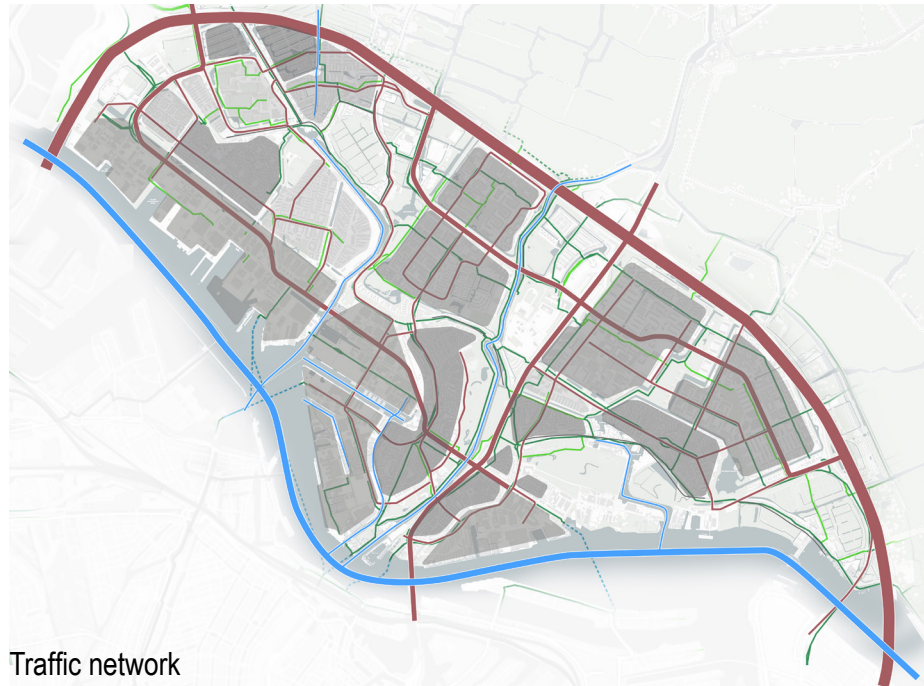
-waterside lane (1-1', 2-2', 3-3', 4-4', 6-6', 7-7') with bike-only lanes



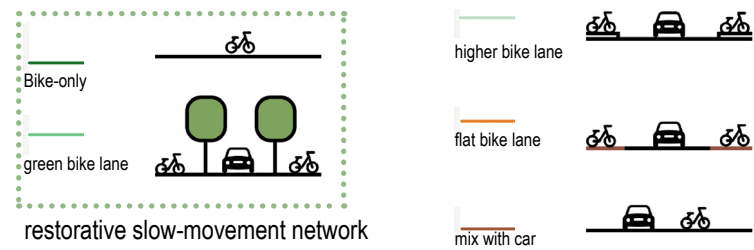
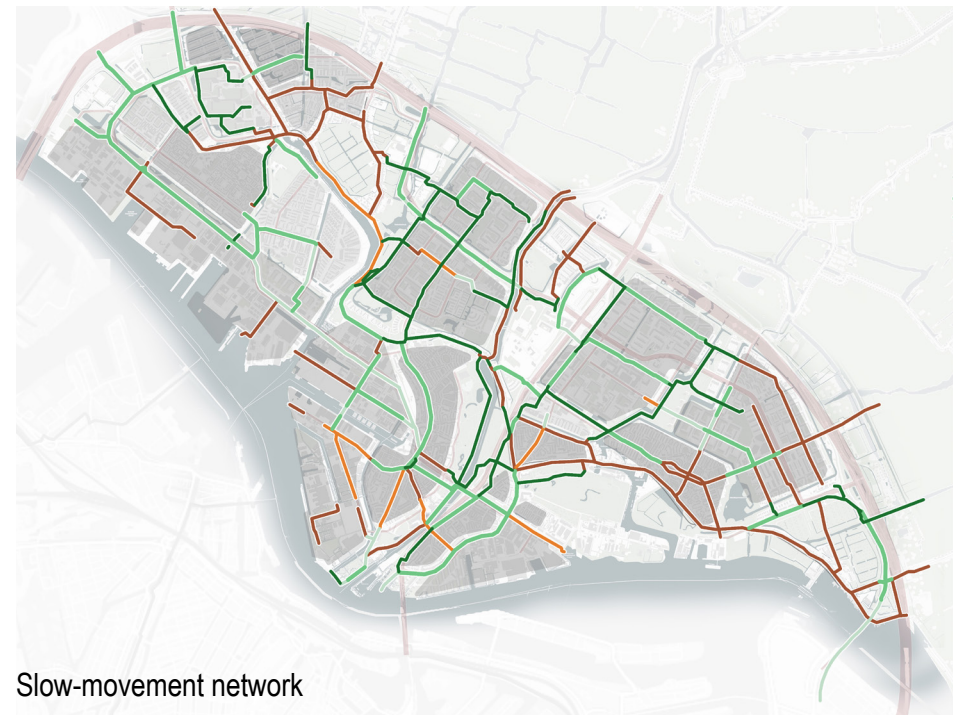
Site Study

Site Analysis_Urban Fabric

Connectivity

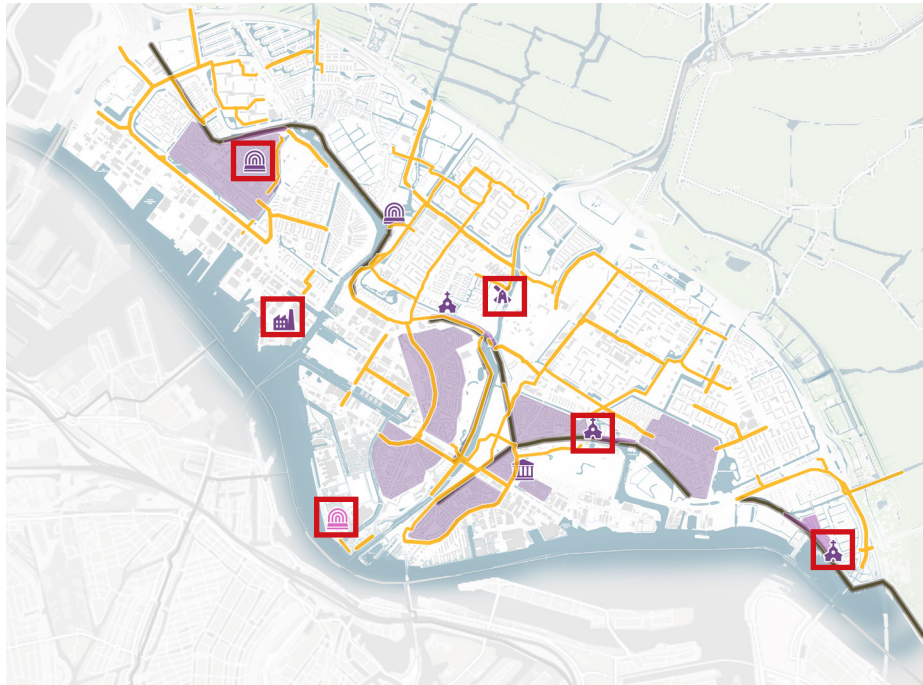


- A10 Highway
- City street
- Busy car road
- Main water traffic
- Secondary water traffic
- Plusnet bike traffic
- Main bike traffic

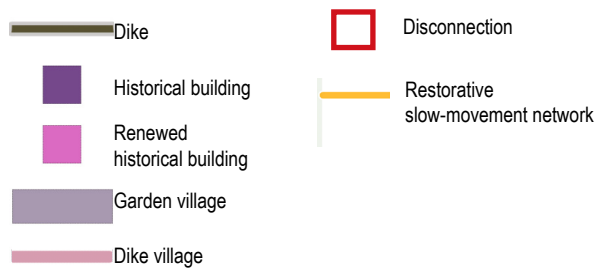


Site Study

Site Analysis_Urban Fabric



Existing slow movement-network + Identity and historical elements



Existing slow movement-network + Public green amenities



Site Study

Site Analysis_Urban Fabric

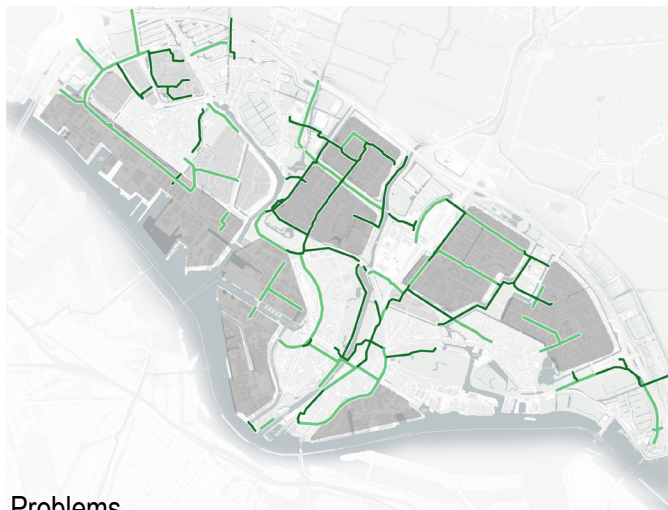
Conclusion of Urban Fabric

Problems:

1. Disconnected cross-entity slow movement network
2. Open garden city neighborhood and industrial entities need renovation

Potential values:

1. Dikes and waterlines have the potential as restorative connecting elements
2. Dike villages, picturesque garden villages, polder neighborhood still preserve the dike city identity.



Problems



Potential value

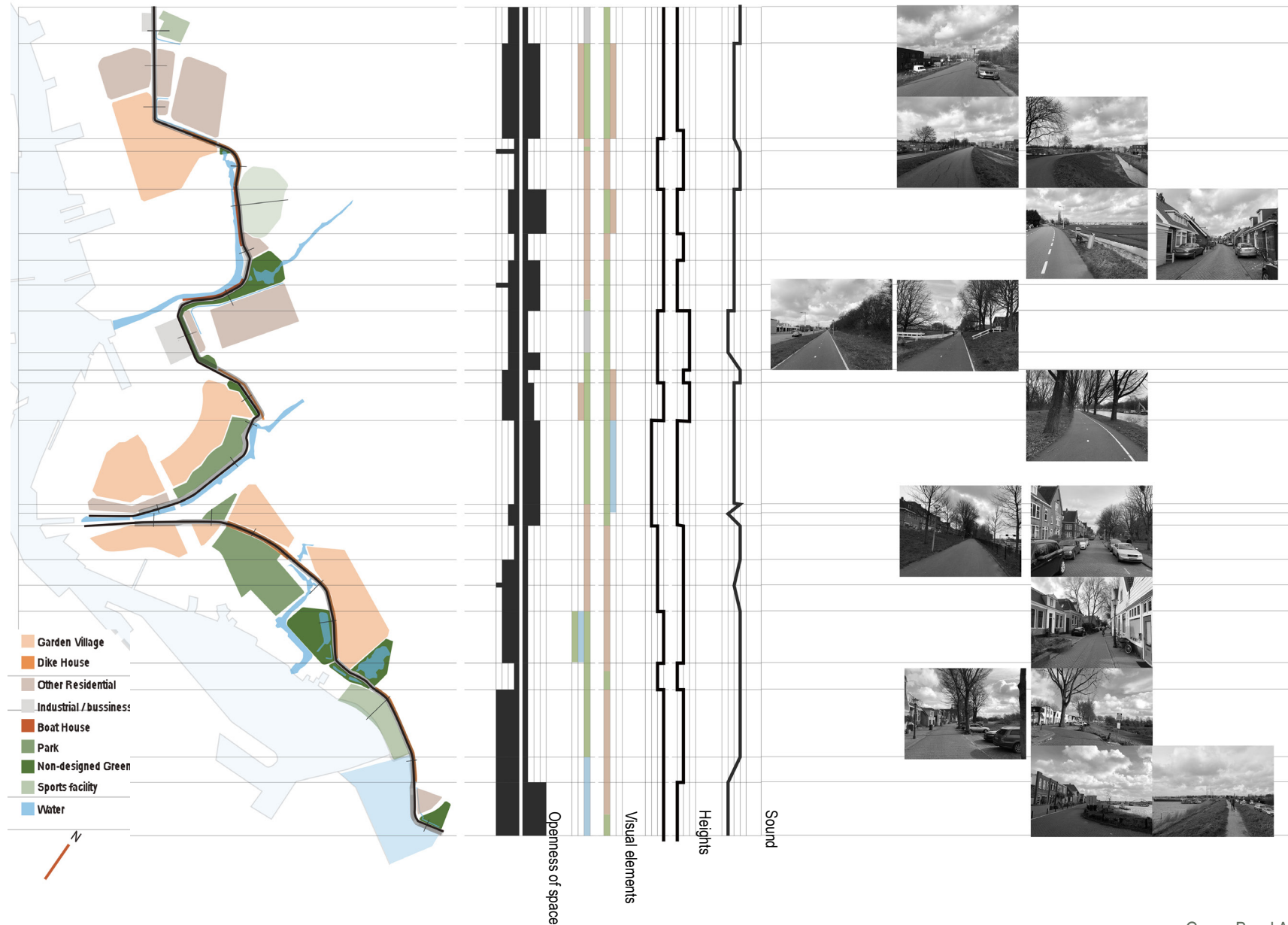
Urban Fabric

Field Study of the Dike

Urban Forest

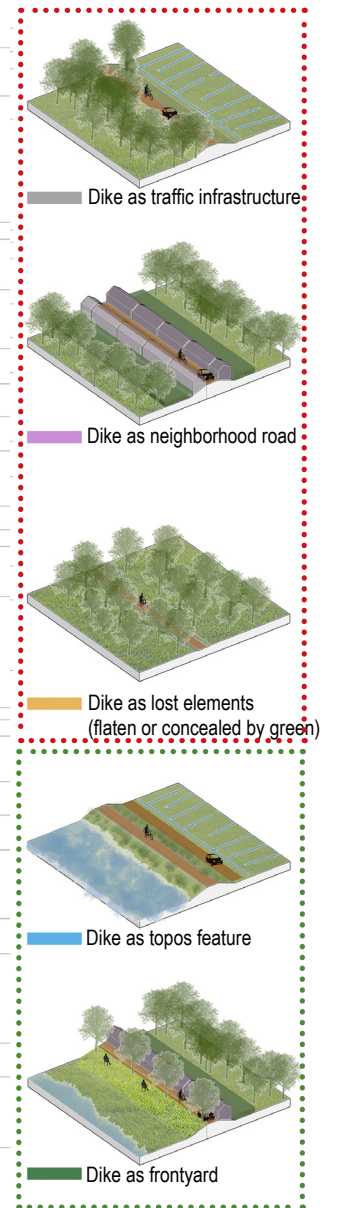
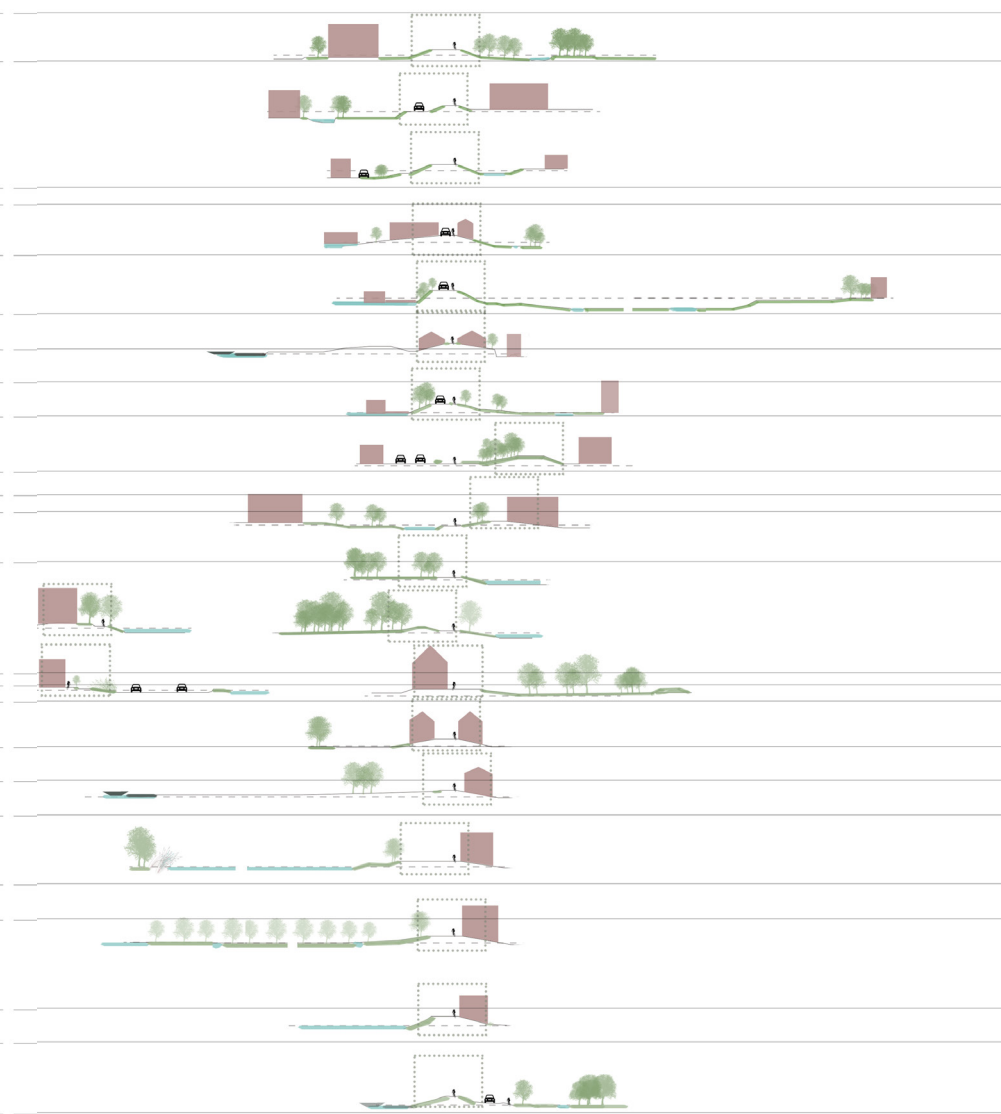
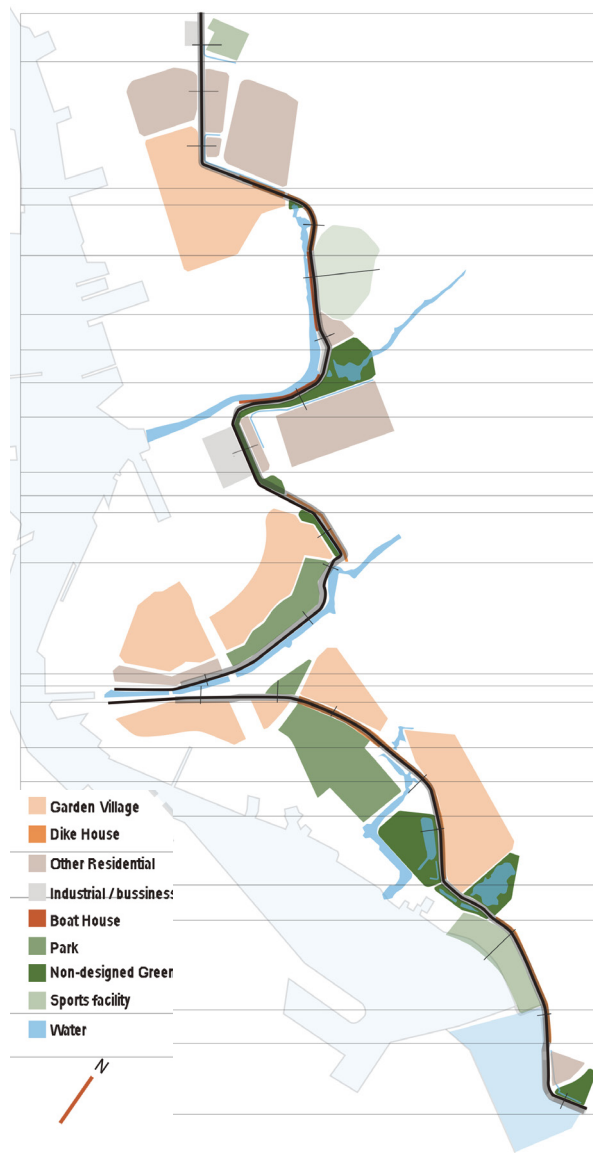
Site Study

Site Analysis_Field Study of the Dike



Site Study

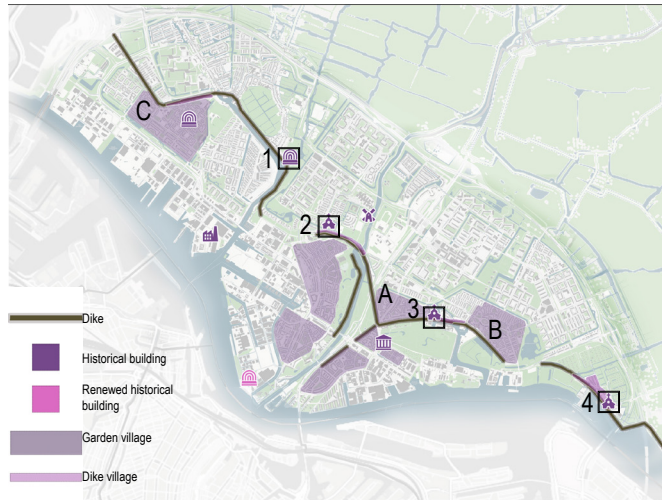
Site Analysis_Field Study of the Dike



Site Study

Site Analysis_Field Study of the Dike

Dike and identity elements



Historical buildings



1. Concertgemaal

Built in: 19?? (1984)
Original Function: Power station
New Function: Concert hall, workplace

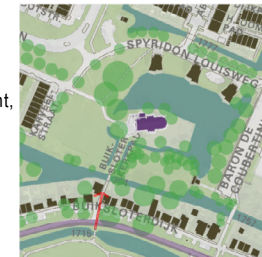


view from the dike



2. Buiksloterkerk

Built in: 1609
Original Function: Church
New Function: Church, monument, concert hall



3. Augustinuskerk

Built in: 1888
Original Function: Church
New Function: Church (locked)



4. Schellingwouderkerk

Built in: 1866
Original Function: Church
New Function: Church, Dining place



Site Study

Site Analysis_Field Study of the Dike

Garden villages

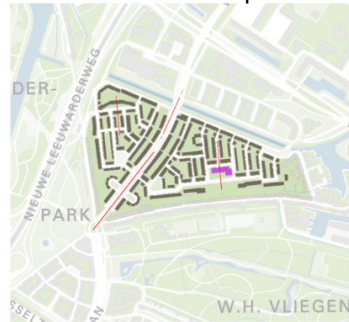
Border map

Green map

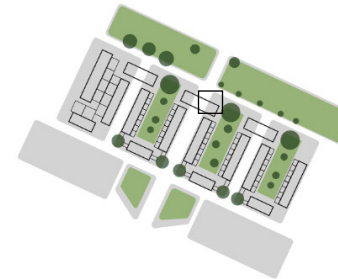
Neighborhood
structure map

Typical block

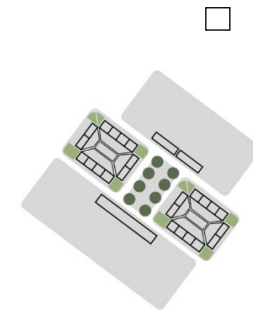
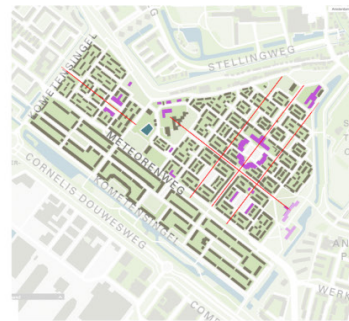
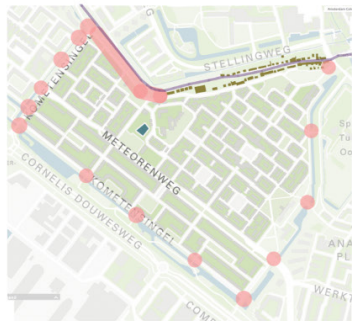
A. Tuindorp Buikstoot



B. Tuindorp Nieuwendam



C. Tuindorp Oostzaan



— Dike
— Dike villages
● Entrance

● Courtyard
● Square / Playground
● Other green
— Trees

— Buildings
— Historical buildings
— Symmetric line

Site Study

Site Analysis_Field Study of the Dike

Conclusion of Field Study of the Dike

Problems:

1. Lost sensorial experience of dike.
2. Important historical elements are concealed and disconnected in lanscape.

Potential values:

- 1.The dike itself provides rich sensorial experience.
- 2.New green spaces can be made to link historical elements to the dike.



Problems



Potential value



Urban Fabric

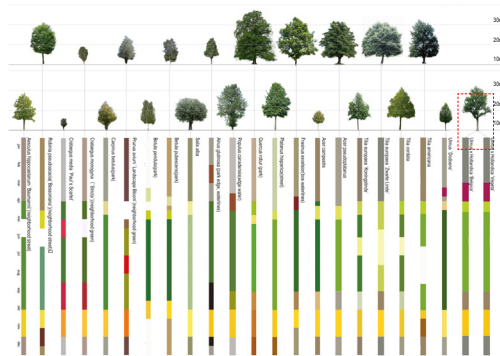
Field Study of the Dike

Urban Forest

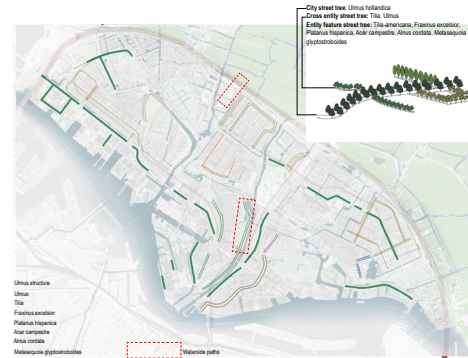
Site Study

Urban Forest

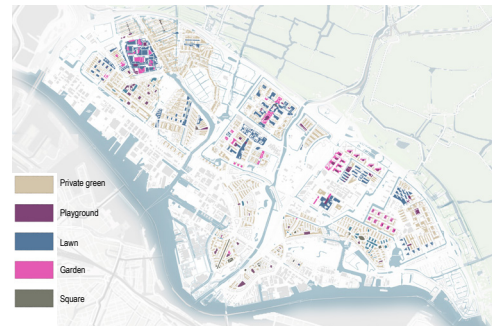
Individual trees



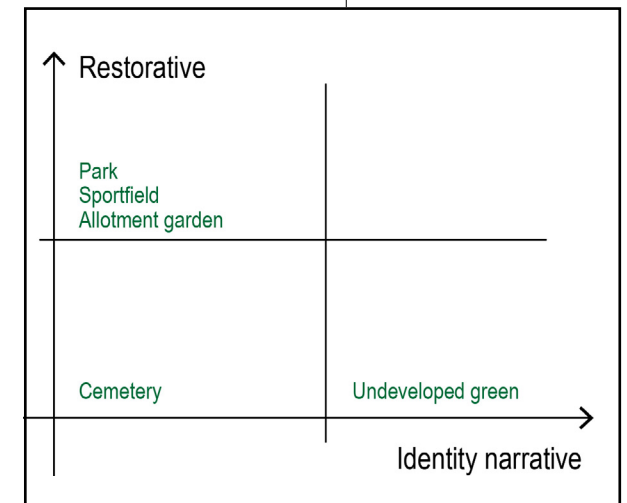
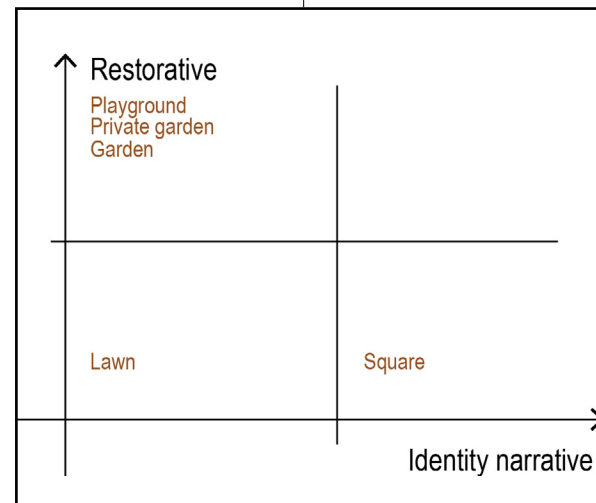
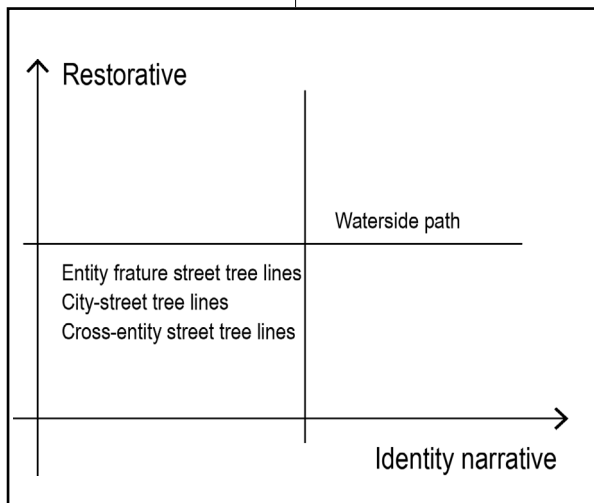
Single-species tree lines



Wooded area
in neighborhood

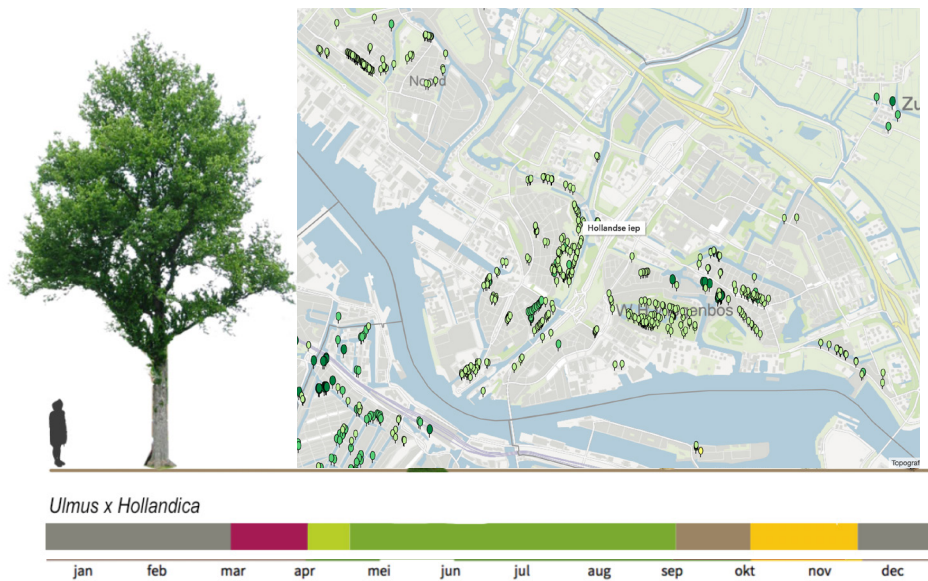


Wooded area
in the city

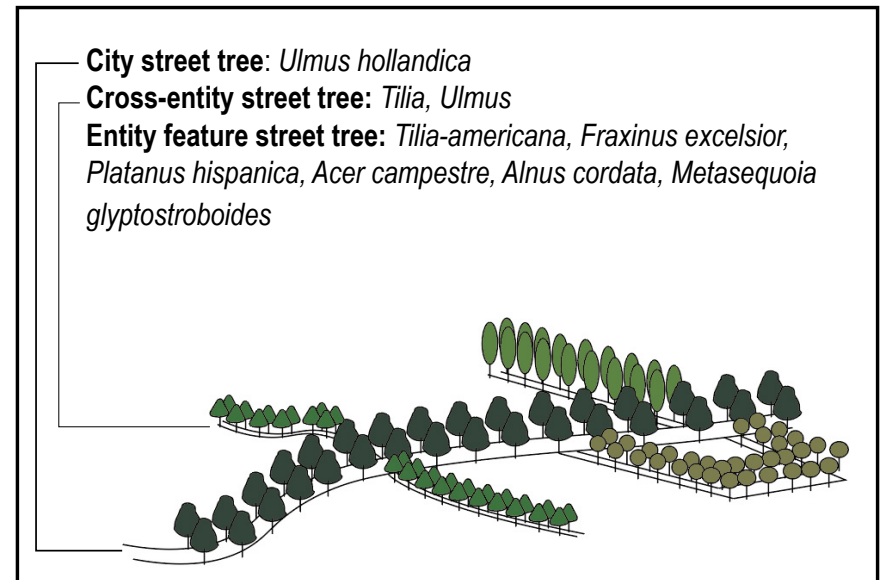


Site Study

Urban Forest



Monument trees along the old dike structure: *Ulmus hollandica*
(Source: Het Amsterdamse Bomenboek, Gemeente Amsterdam)



Species language in street tree lines.

Site Study

Site Analysis_Urban Forest

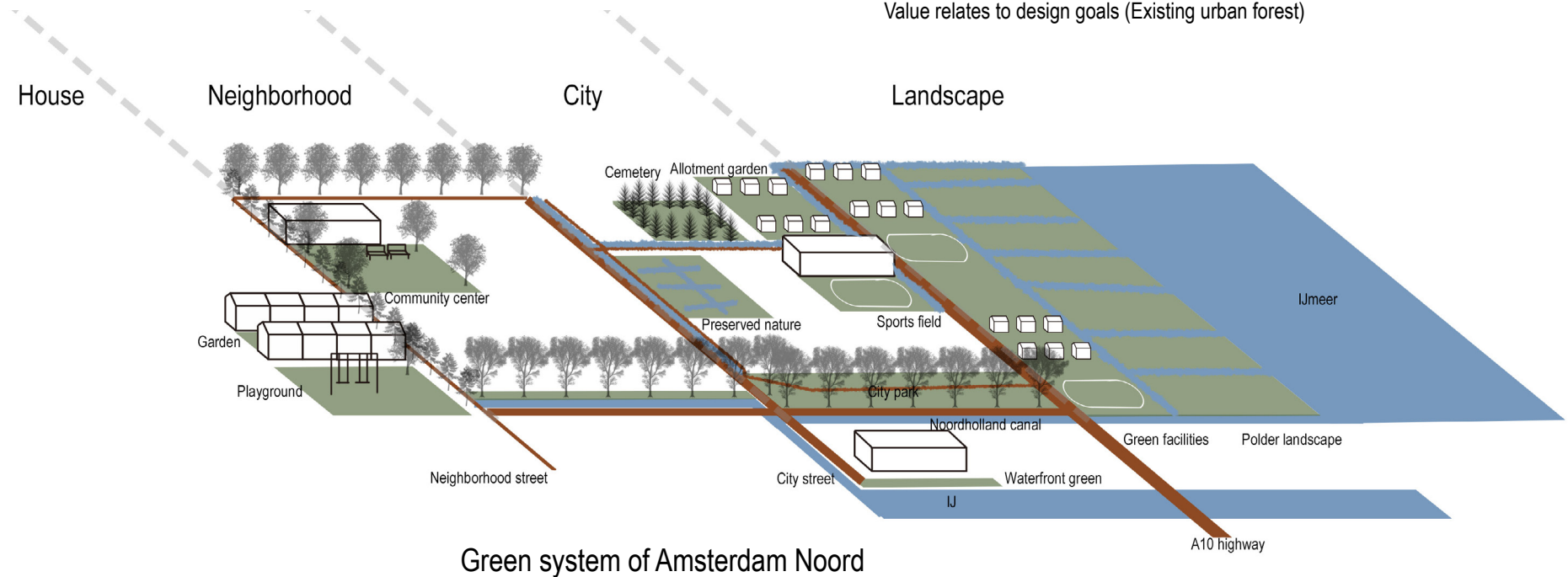
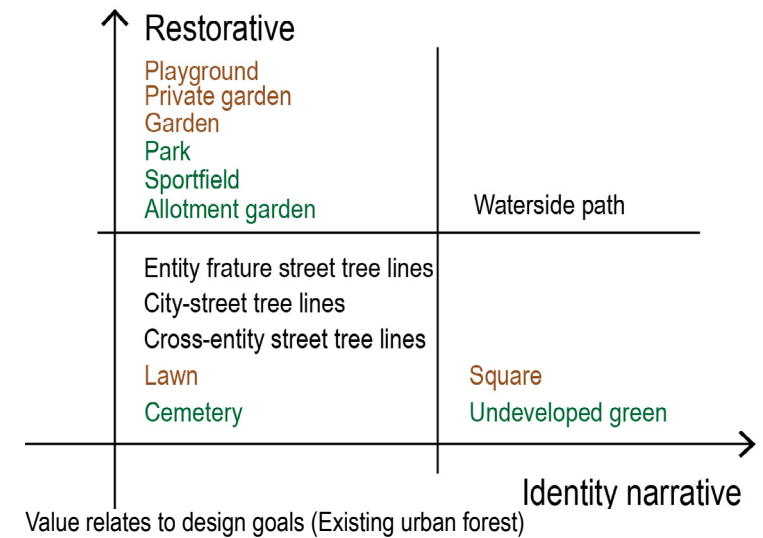
Conclusion of Urban Forest

Problem:

The existing tree features are mostly function-oriented. Identity elements such as dike is seldomly recognized in the existing tree features and areas.

Potential values:

1. *Ulmus hollandica* is recognized as a simbol tree for dike identity
2. Tree lines and green areas in the city already provide high restorative value.



Site Study

Exploration

Probelms and potential values

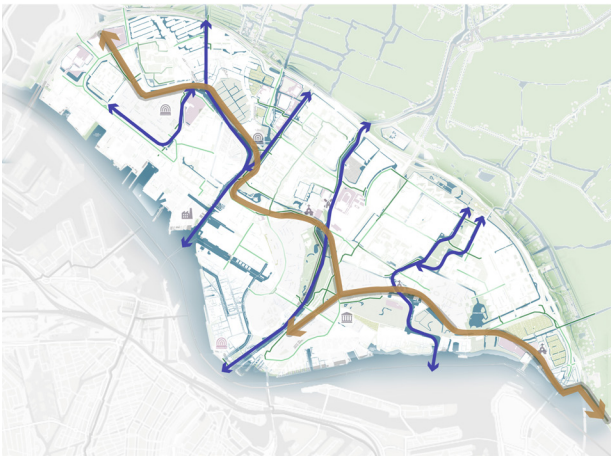
Conclusion of Urban Fabric

Problems:

1. Disconnected cross-entity slow movement network
2. Open garden city neighborhood and indutrail entities need renovation

Potential values:

1. Dikes and waterlines have the potential as restorative connecting elements
2. Dike villages, picturesque garden villages, polder neighborhood still preserve the dike city identity.



Conclusion of Field Study of the Dike

Problems:

1. Lost sensorial experience of dike.
2. Important historical elements are concealed and disconnected in lanscape.

Potential values:

1. The dike itself provides rich sensorial experience.
2. New green spaces can be made to link historical elements to the dike.



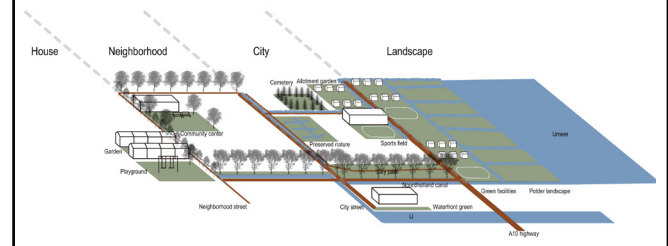
Conclusion of Urban Forest

Problem:

The existing tree features are mostly function-oriented. Identity elements such as dike is seldomly recognized in the existing tree features and areas.

Potential values:

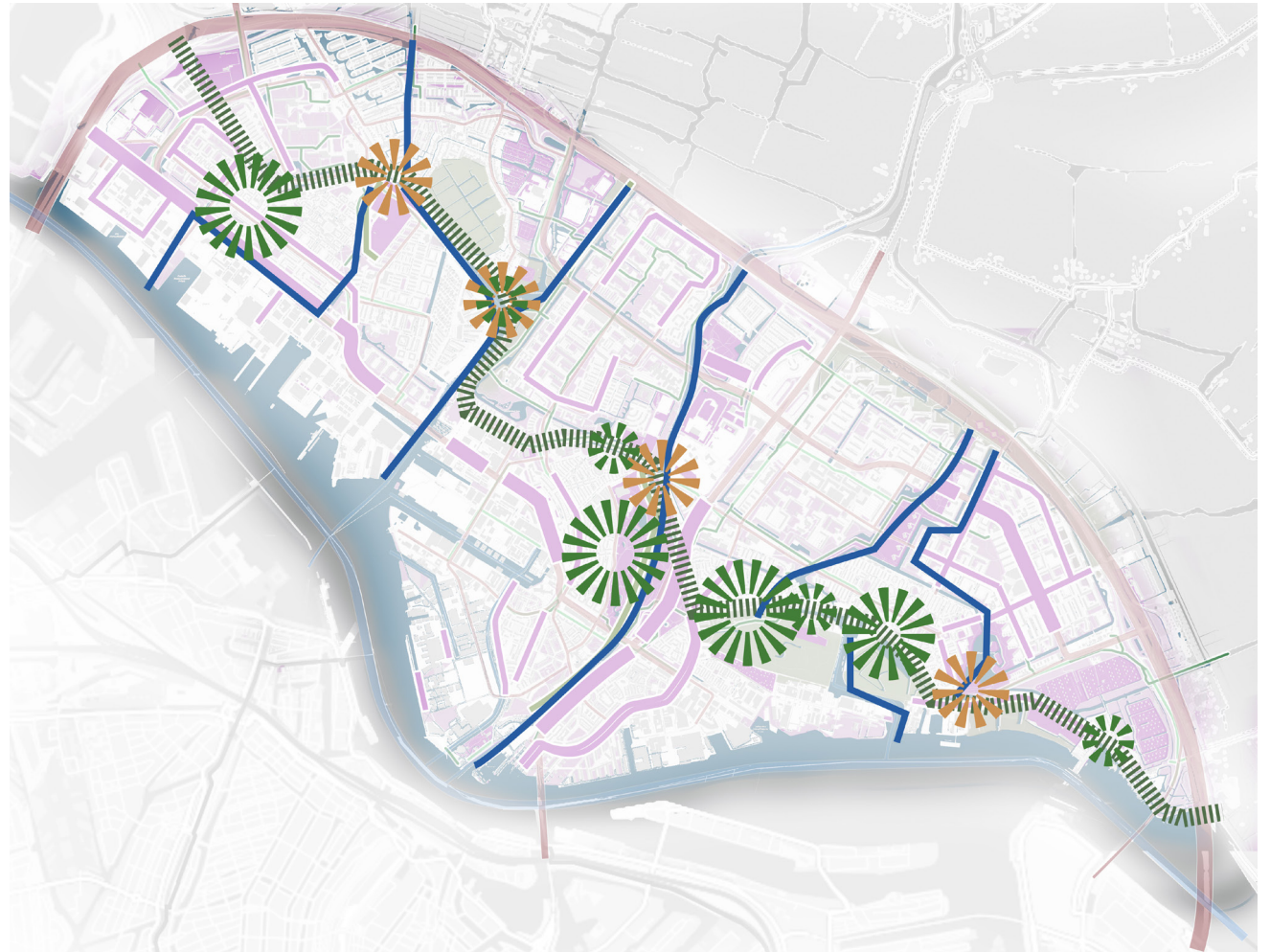
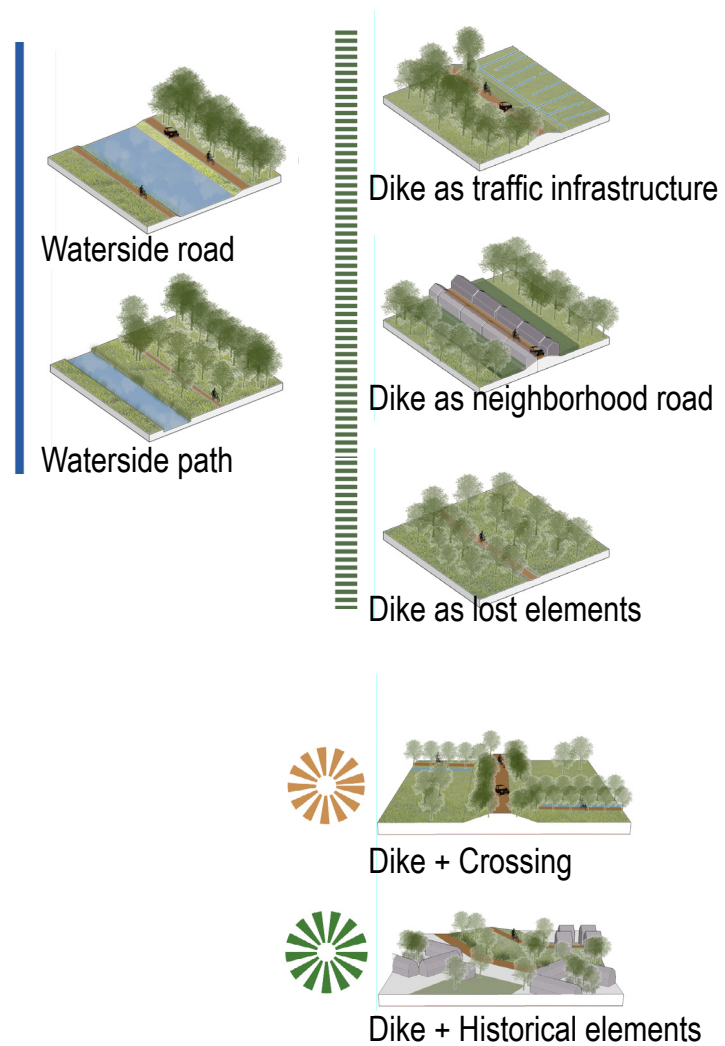
1. *Ulmus hollandica* is recognized as a simbol tree for dike identity
2. Tree lines and green areas in the city already provide high restorative value.



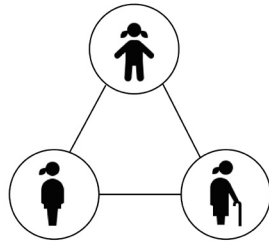
Site Study

Exploration

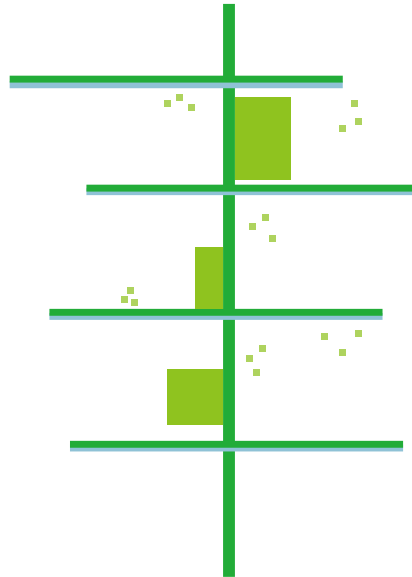
Potenrial values for design:



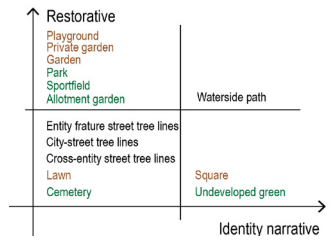
Challenges



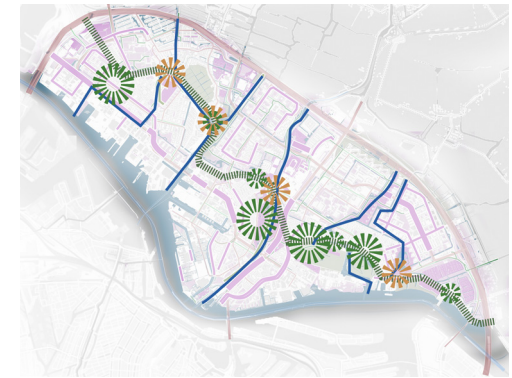
Ideal



Problems



Potential values



The desired future

4

Design

L : Urban Strategy
M: Green Bond
S: Place Making

Design

L : Urban Strategy

Proposed urban structure
Urban Design

M: Green Bond

Proposed Urban Forest Network
Landscape design principles

S: Place Making

Test Sites Design

L : Urban Strategy

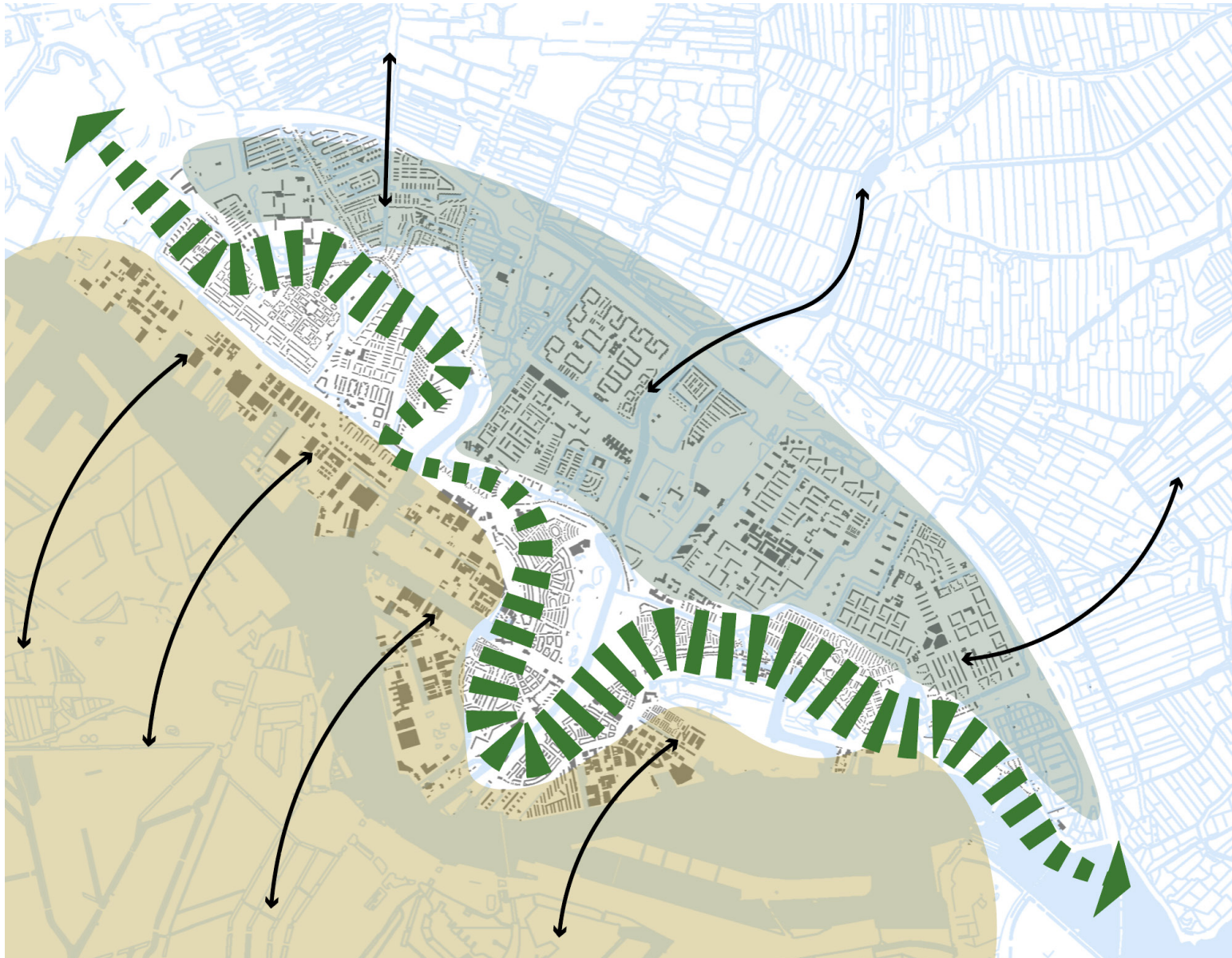
Proposed urban structure
Urban Design

M: Green Bond

Proposed Urban Forest Network
Landscape design principles

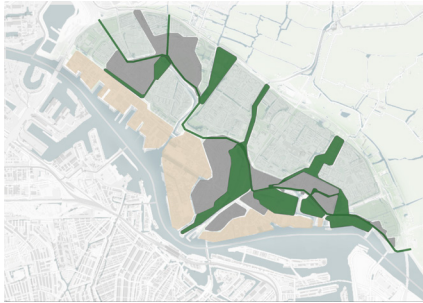
S: Place Making

Test Sites Design



Design

L: Urban Strategy



Development zone



Major car traffic





Slow-movement network

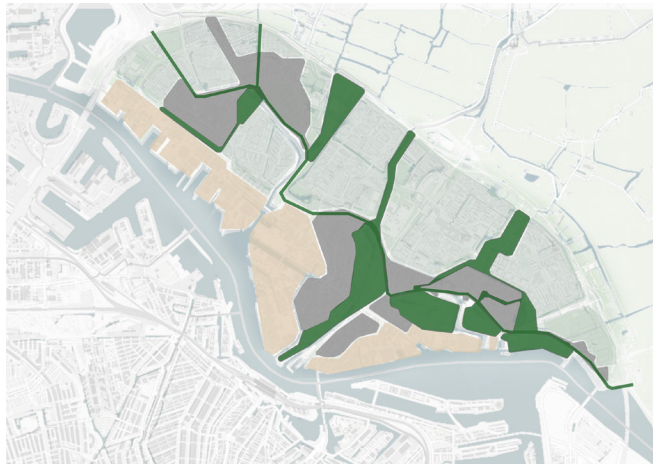
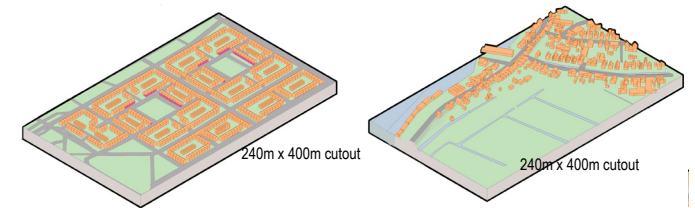



Design


L: Urban Strategy

 Green bond Amsterdam-Noord


 Preserved historical area



 Transformed IJ bank (high density)

Function: residential 

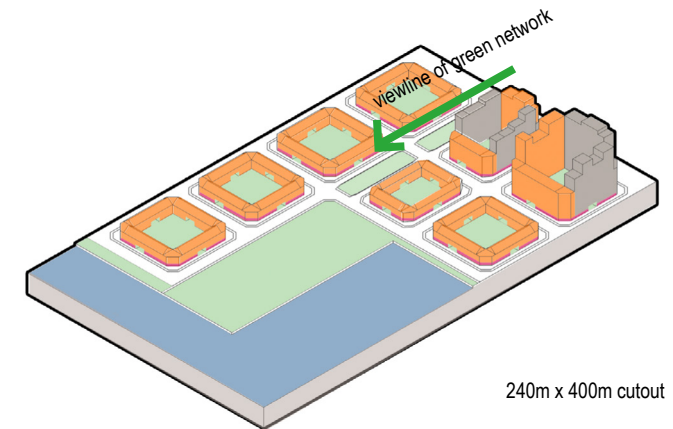
office 

commercial (ground floor) 


Average unit size: 60m x 60m


Buildings: 3 Floors (12m) with gable roof

5-12 Floors (15-50m) with flat roof



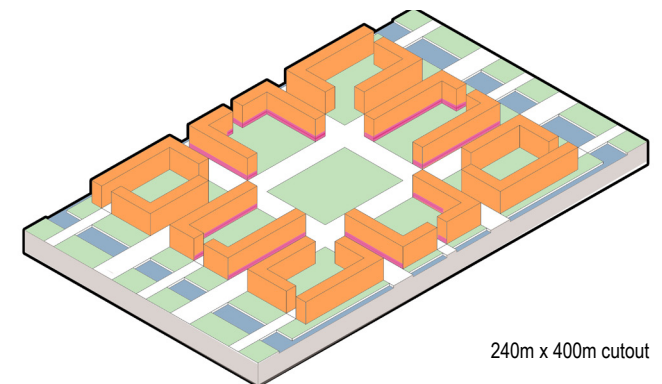
 Noord suburb neighborhood (low density)

Function: residential 

Commercial(ground floor around central green) 

Average unit size: 60m x 80m

Buildings: 5 Floors (20m) with flat roof



Design

L: Urban Strategy



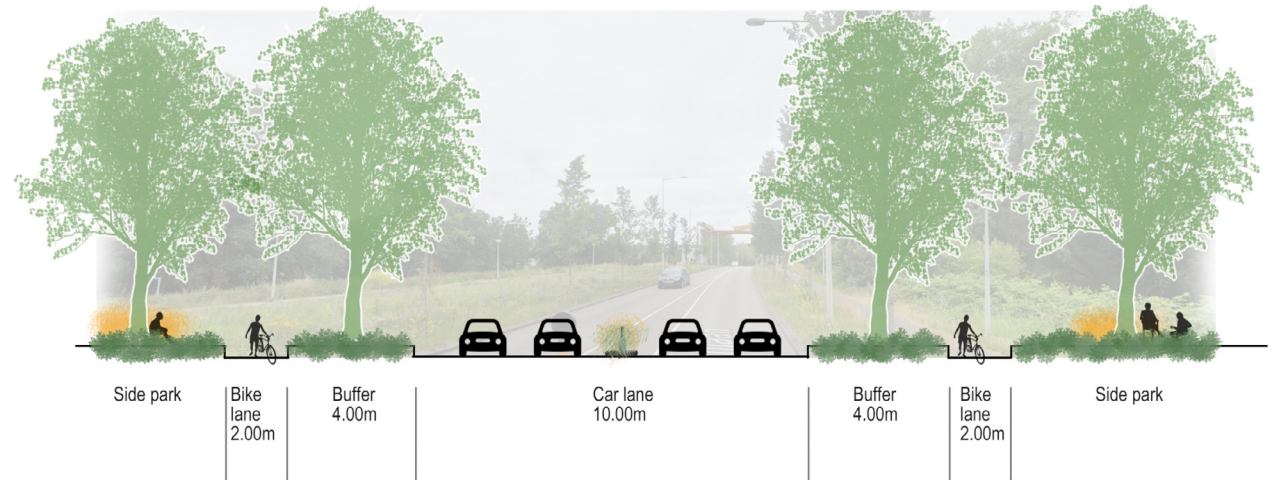
↔ A10 highway

↔ City street

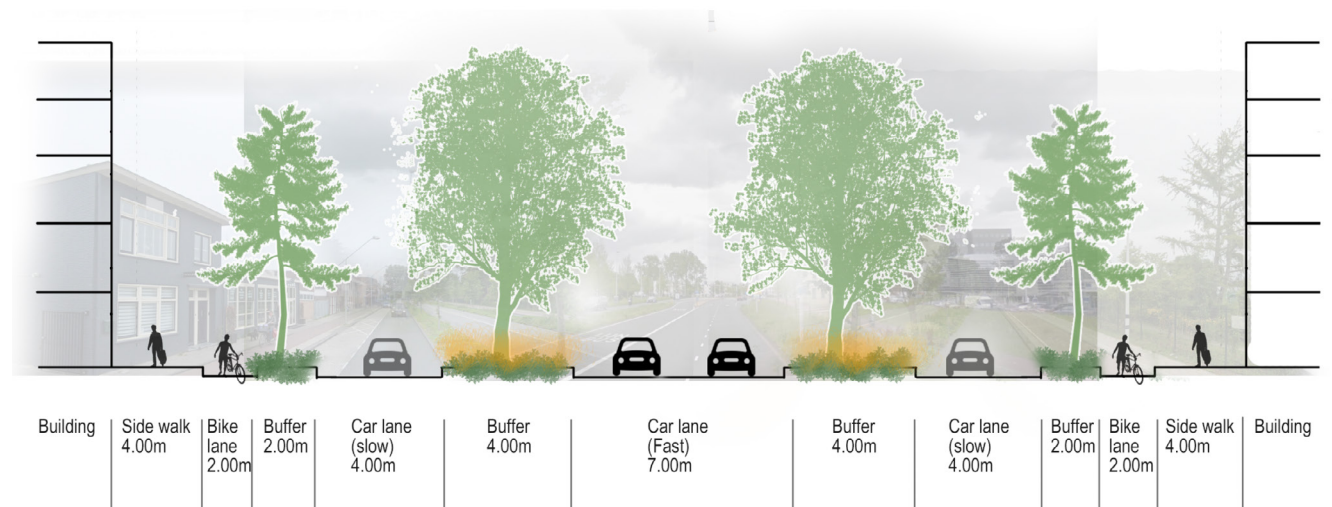
⋯ Slow street on dike



— Restorative network
- - Restorative bike path



Proposed street in Noord suburb neighborhood (low density)



Proposed street in transformed IJ bank (high density)

L : Urban Strategy

Proposed urban structure
Urban Design

M: Green Bond

Proposed Urban Forest Network
Landscape design principles

S: Place Making

Test Sites Design

Design

M: Green Bond



Design

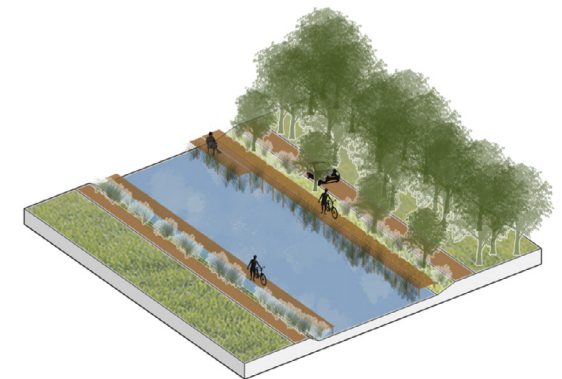
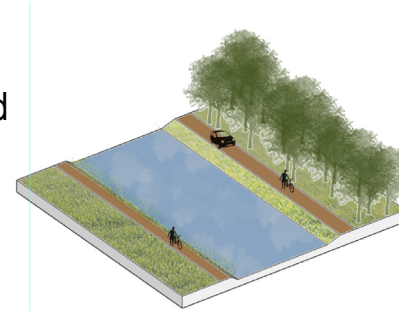
M: Green Bond



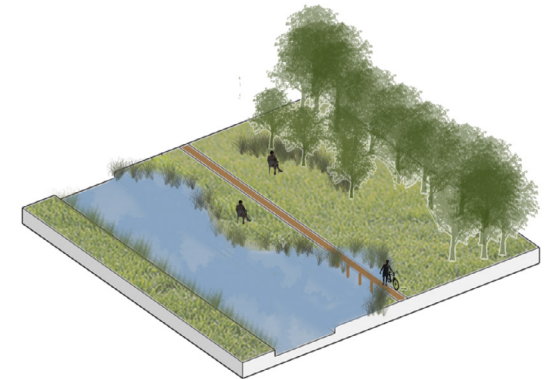
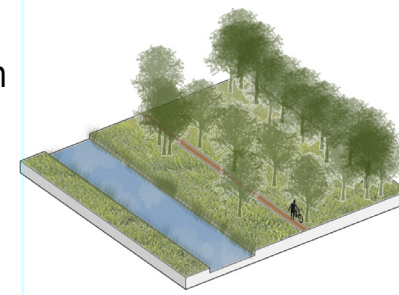
Waterside lines

- Non-obstacle design: smooth surface, at least 1.2m wide for pathways, use ramp instead of steps.
- Concealation of busy traffic and high-rise building
- Sensory experience of being on a waterside
- Sensory experience of seasonal change with plants
- Semi-enclosed space for stay and rest

Waterside road



Waterside path



Design

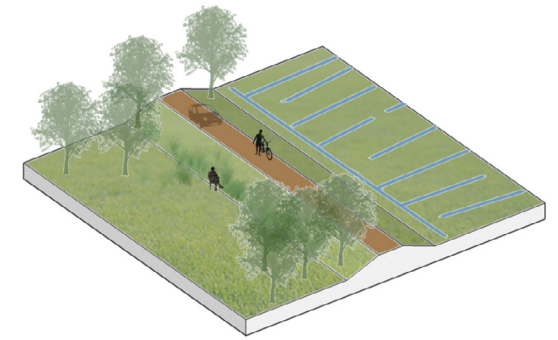
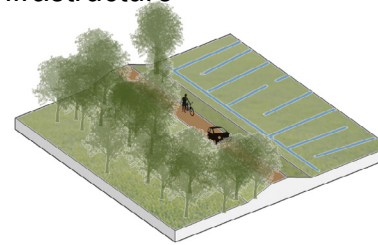
M: Green Bond



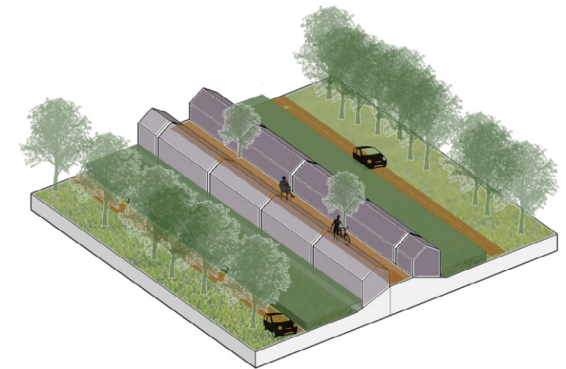
Dike lines:

- Non-obstacle design: smooth surface, at least 1.2m wide for pathways, use ramp instead of steps.
- Concealation of car traffic
- Sensory experience of seasonal change with plants
- Semi-enclosed space for stay and rest

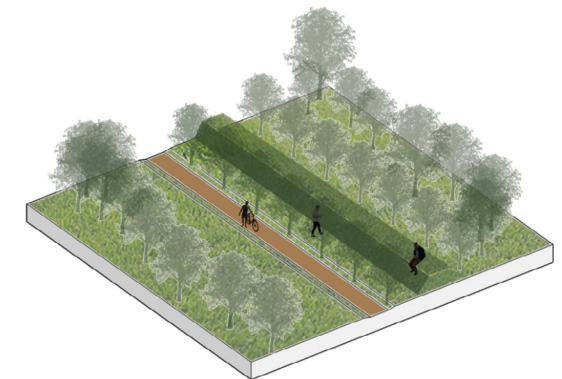
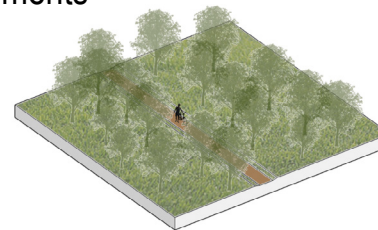
Dike as traffic infrastructure



Dike as neighborhood road



Dike as lost elements



Design

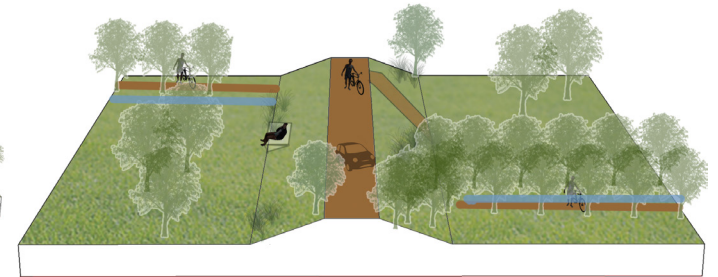
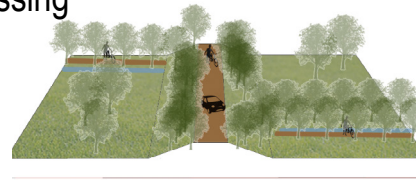
M: Green Bond



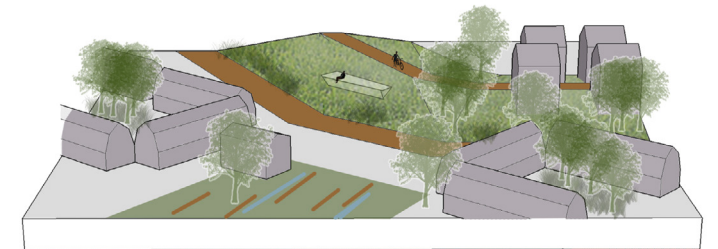
Dike nodes:

- Non-obstacle design: smooth surface, at least 1.2m wide for pathways, use ramp instead of steps.
- Revelation of the dike
- Sensory experience of being on a dike
- Sensory experience of seasonal change with plants
- Semi-enclosed space for stay and rest

Dike + Crossing



Dike + Historical elements

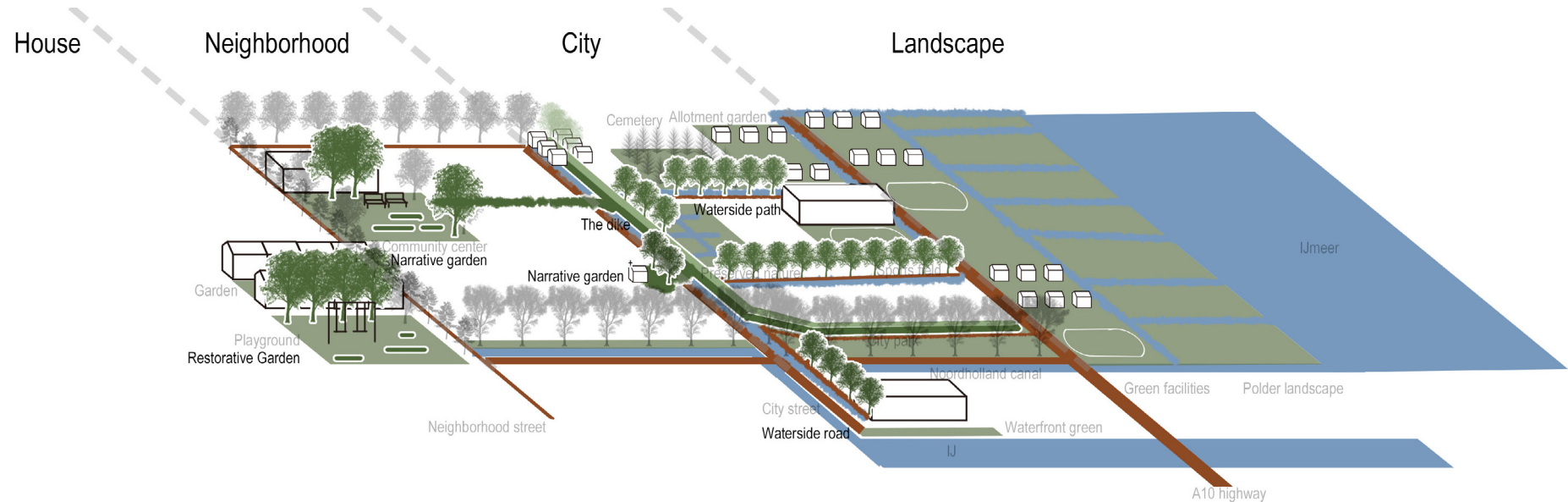
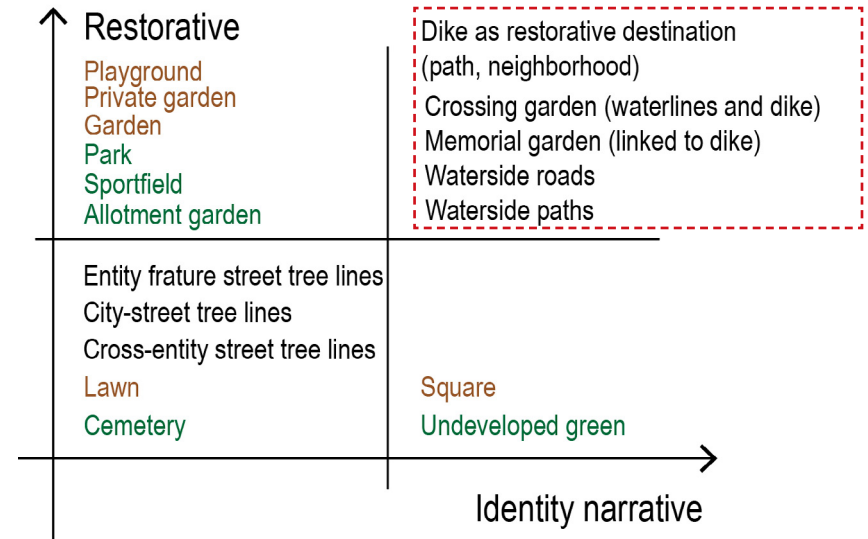


Design

M: Green Bond

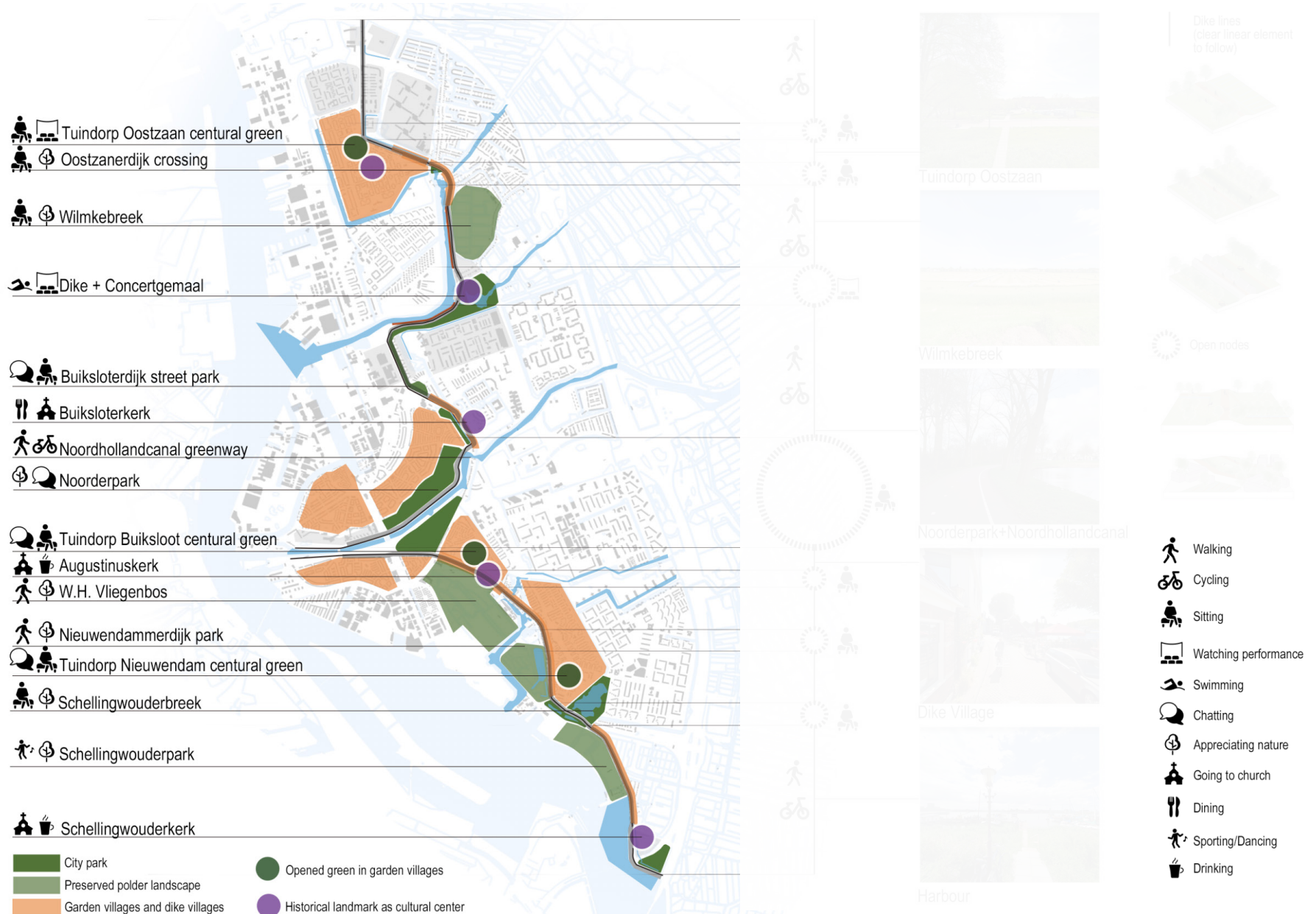
In the proposed urban forest system

- The dike and waterside as central feature lines that connects green nodes
- The dike becomes the spine of this network



Design

M: Green Bond



Design

M: Green Bond



L : Urban Strategy

Proposed urban structure
Urban Design

M: Green Bond

Proposed Urban Forest Network
Landscape design principles

S: Place Making

Test Sites Design



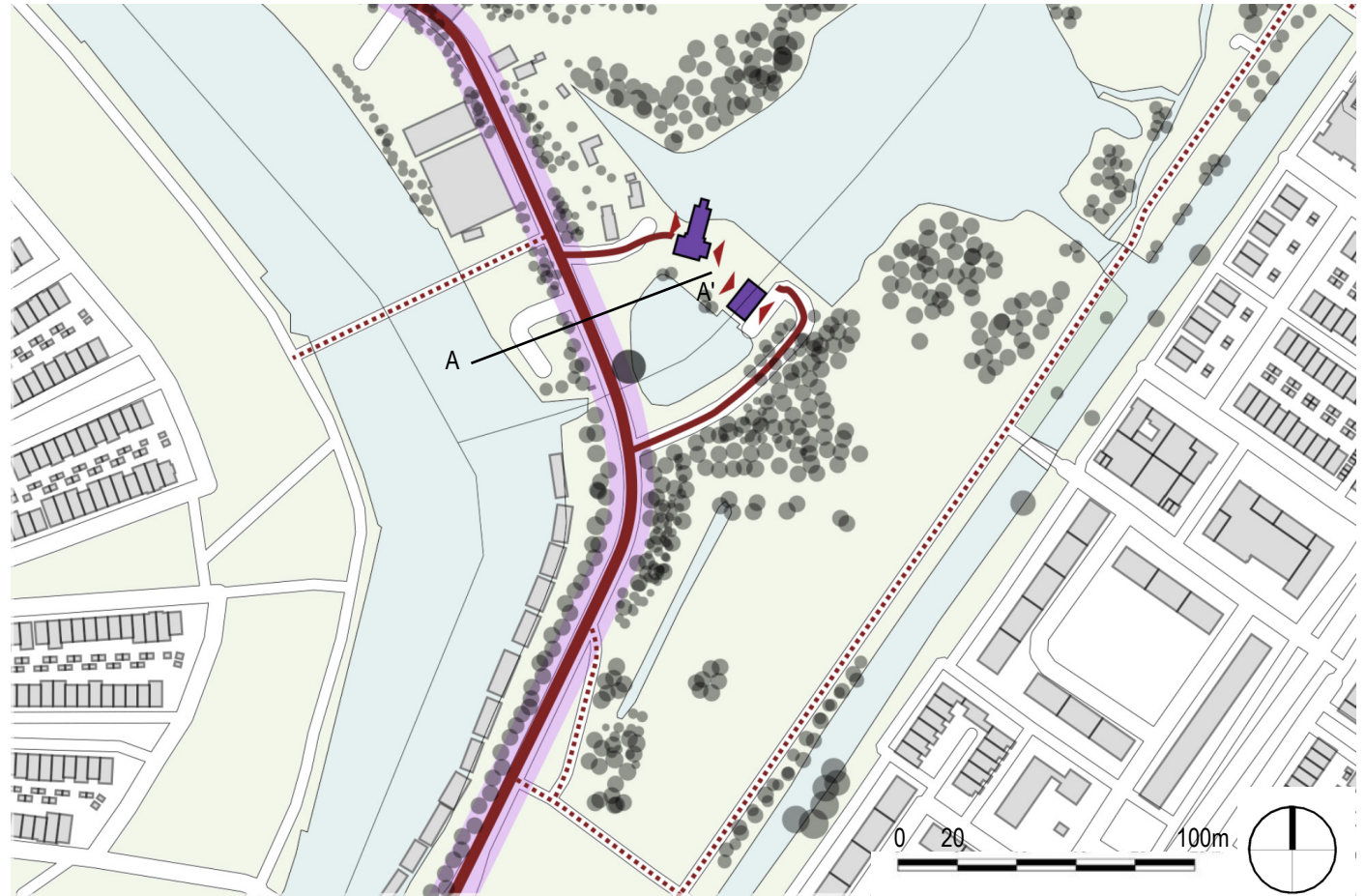
Test site 1: Dike + Concertgemaal

Test site 2: Dike + Tuindorp Oostzaan

Design

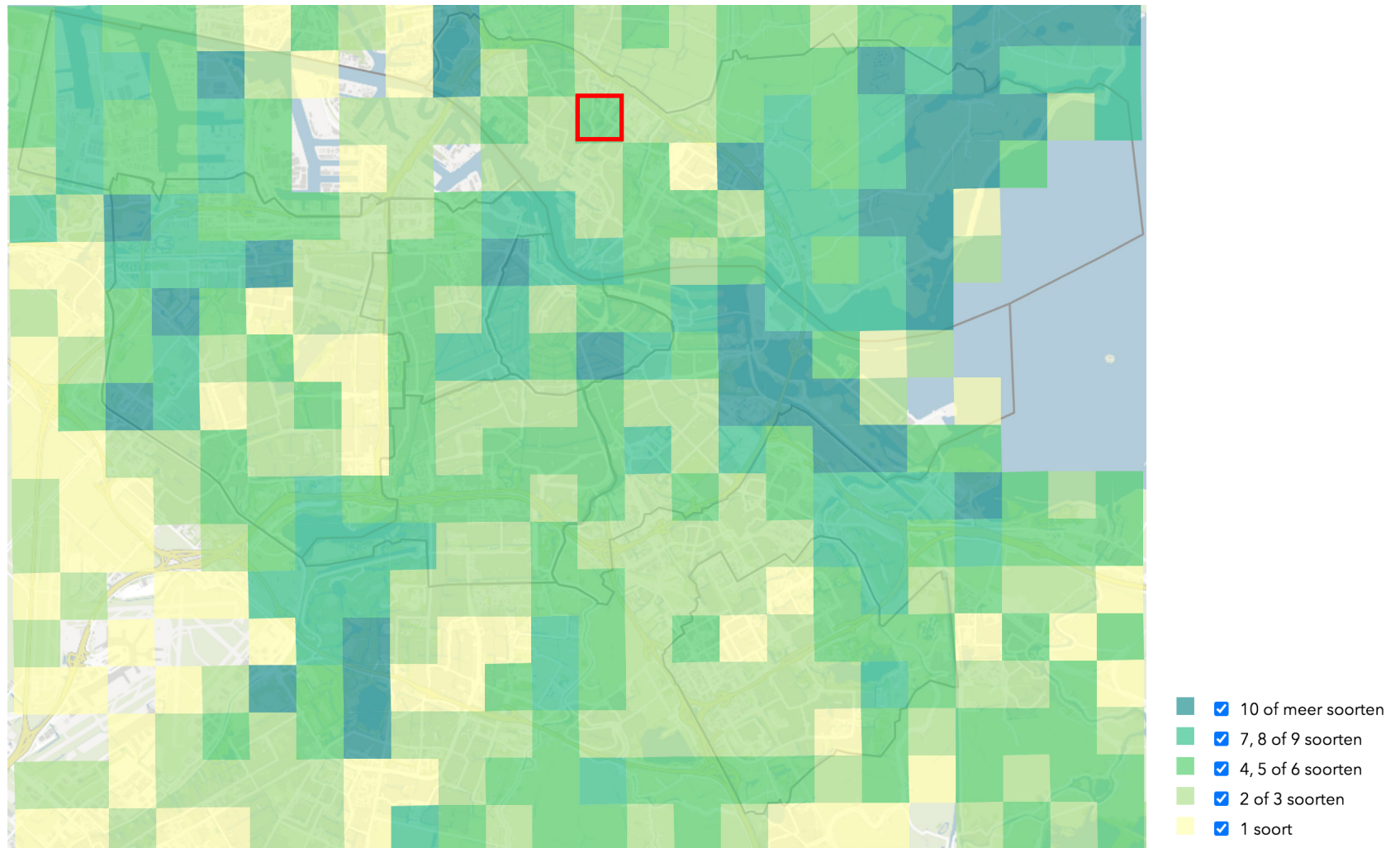
S: Place Making

Test site 1: Dike + Concertgemaal



- Car road
- ... Pedestrian/bike path
- The dike
- ▼ Entrance to building
- Historical building
- Existing tree





Test site 1 is an area of higher bio-diversity.
Source: Protected Flora and Fauna, Gemeente Amsterdam

Design

S: Place Making

Diagnosis:

1. Dike as traffic infrastructure: Car traffic is not separate from the bike lane; undeveloped water front area(hidden by trees)
2. Disconnection in landscape to Concertgemaal(hidden by trees)
3. Waterside path missing the node
4. Bio-diversity needs to be protected

Design

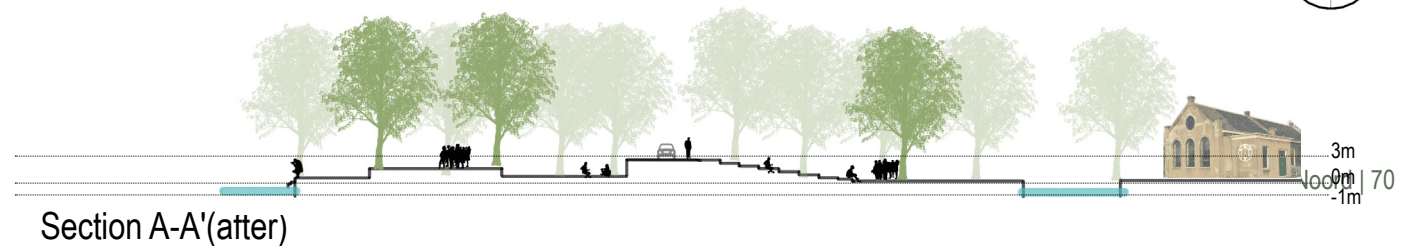
S: Place Making

Diagnosis:

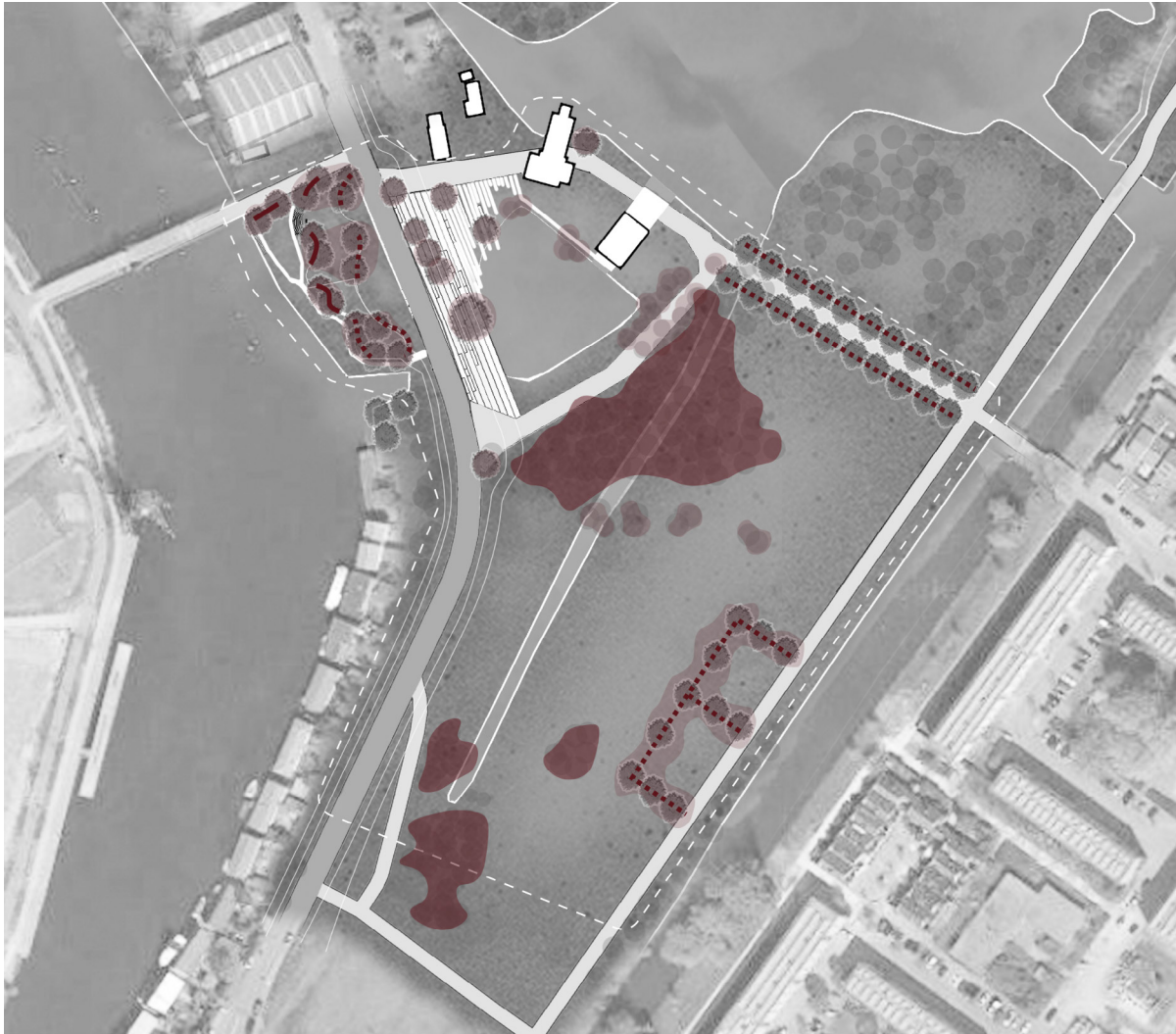
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2. Disconnection in landscape to Concertgemaal (hidden by trees)
3. Waterside path missing the node
4. Bio-diversity needs to be protected

Design interventions:

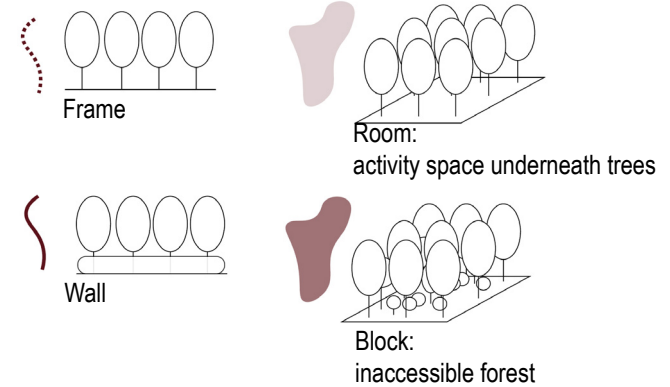
1. - Car traffic is limited by speed <30 km/h
- Waterfront urban forest
2. - Outdoor theater space connecting dike to Concertgemaal
3. - New connection of lines, with tree lines as guidance
- Along the waterside path, garden, which uses the size of garden city community green spaces, is made as resting spot.
4. - Original plantations around the polder is kept to keep the original eco system and biodiversity



Plantation scheme



View line from the dike through the waterfront forest



Design

S: Place Making

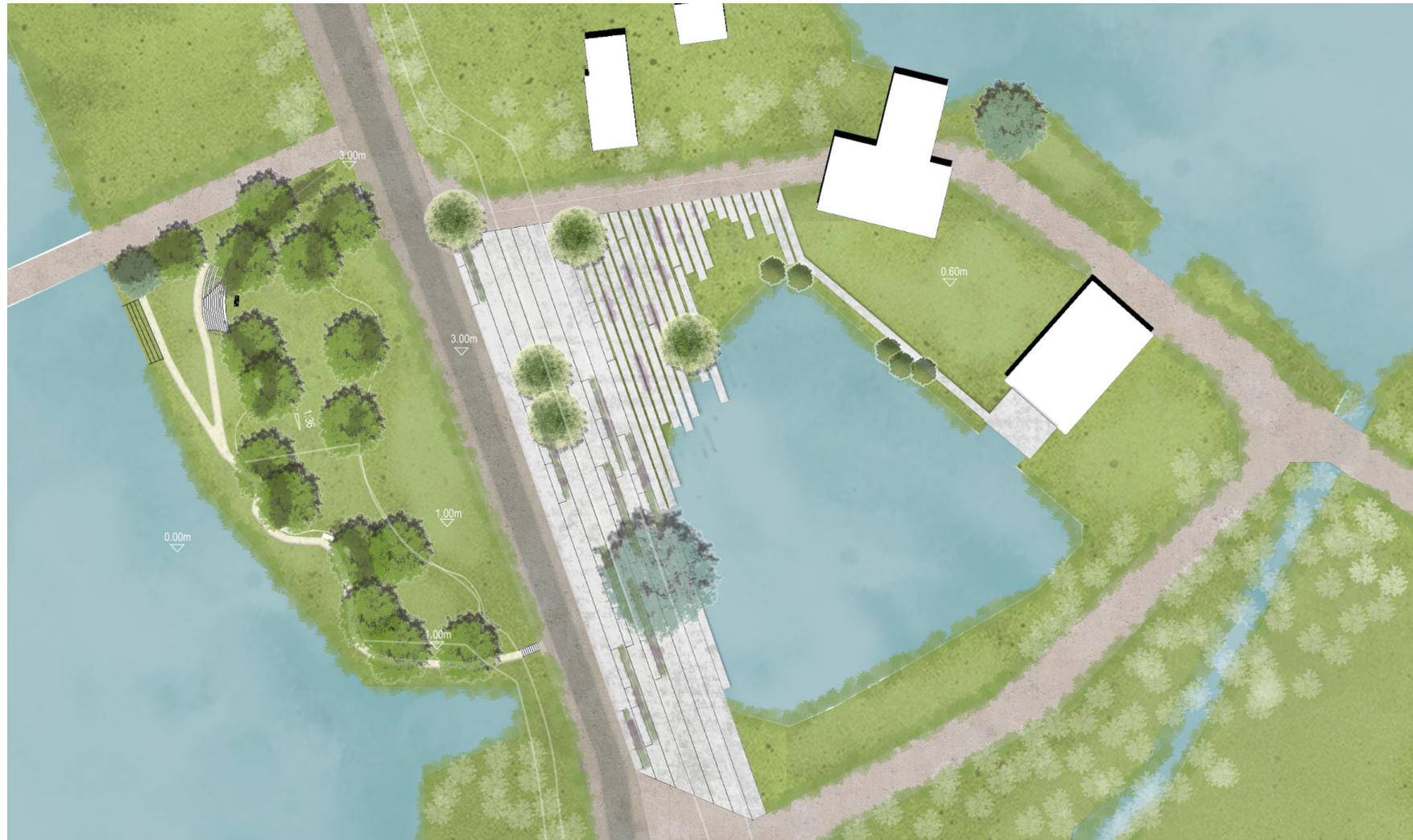
Circulation and main program




- 1 The dike
- 2 Sunken space
- 3 Slope terrace
- 4 Waterfront terrace
- 5 Outdoor theater
- 6 Waterside garden

Design

S: Place Making



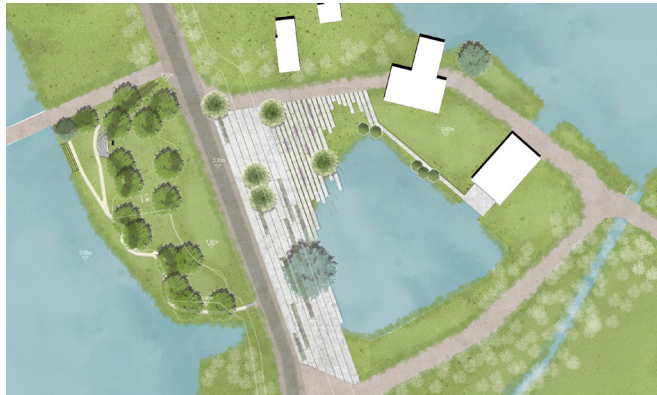
- | | | | | | |
|---|-------------------------------|---|--------------------------------|---|-----------------|
|  | <i>Ulmus hollandica</i> |  | <i>Buxus sempervirens</i> |  | Asphalt |
|  | <i>Salix alba</i> |  | <i>Muhlenbergia capillaris</i> |  | Smooth concrete |
|  | <i>Aesculus hippocastanum</i> | | | | |








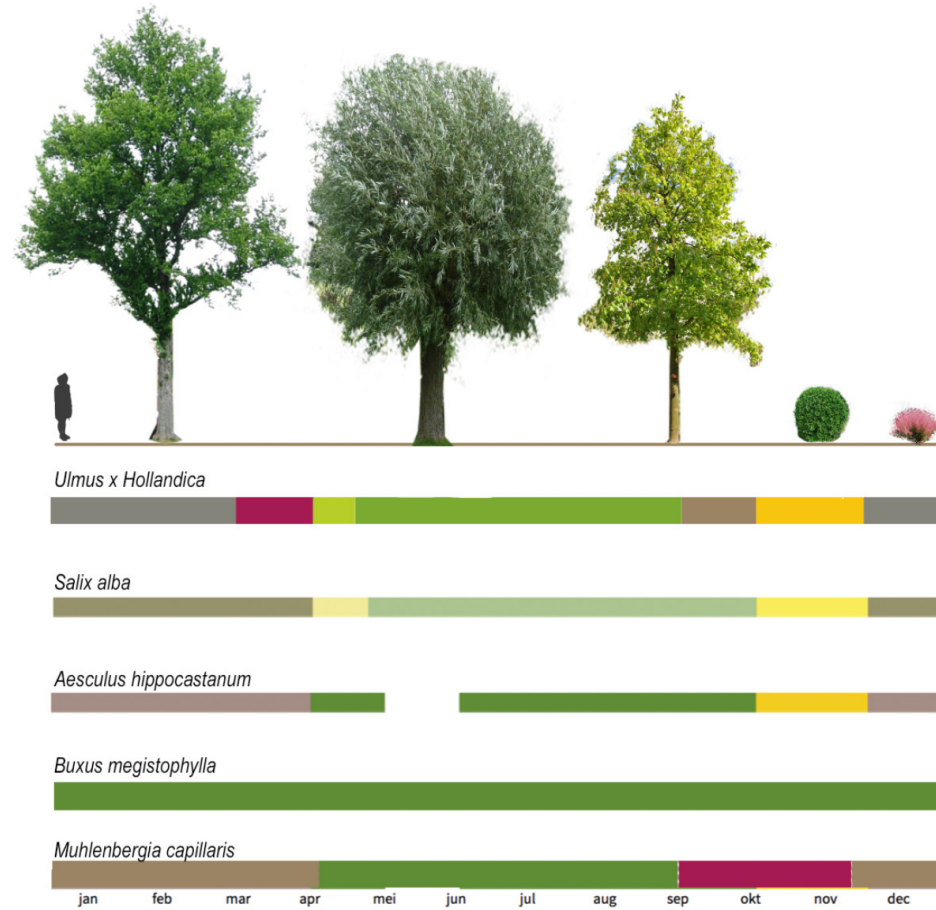
Design

S: Place Making

Secasonal color change of trees

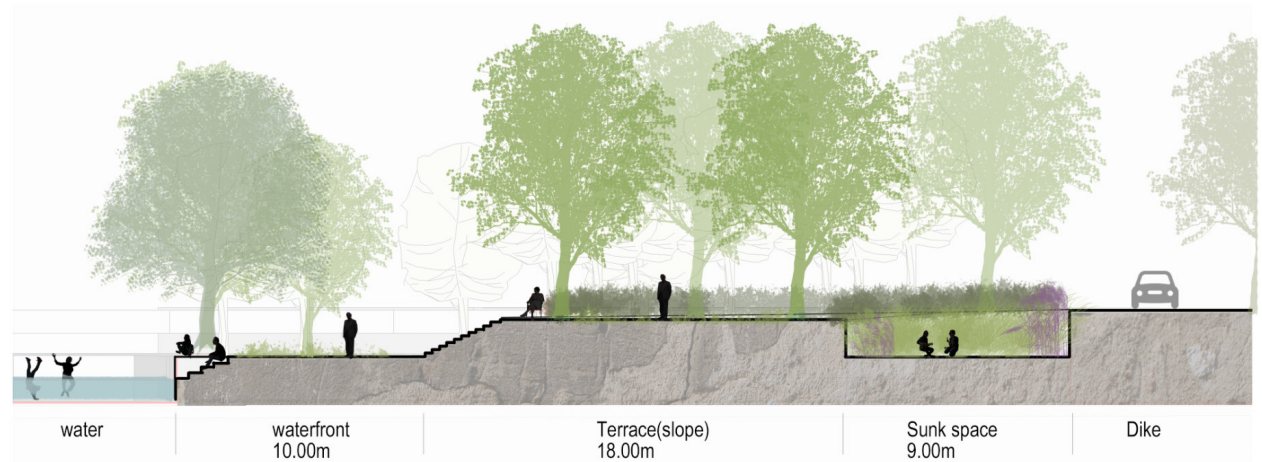
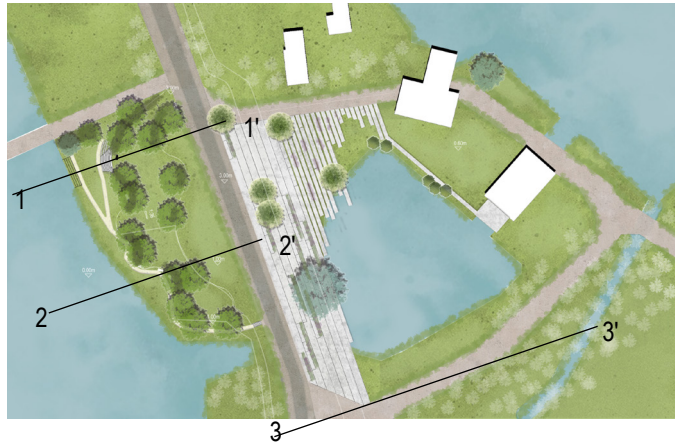


-  *Ulmus hollandica*
-  *Salix alba*
-  *Aesculus hippocastanum*
-  *Buxus sempervirens*
-  *Muhlenbergia capillaris*

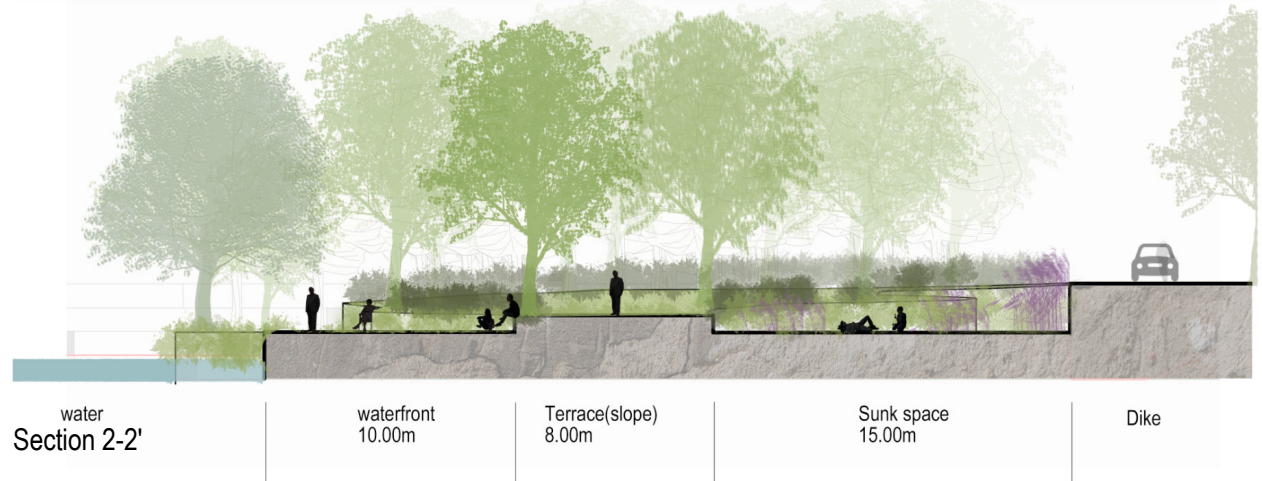


Design

S: Place Making



Section 1-1'

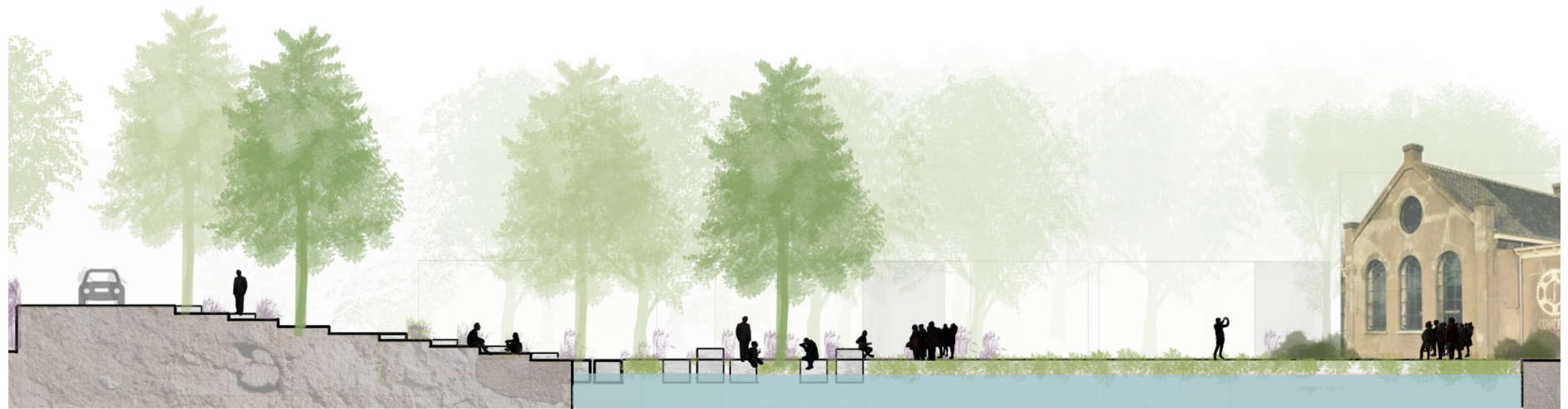
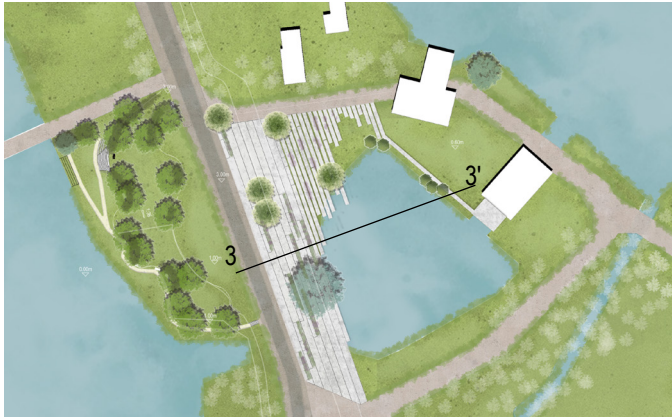


Section 2-2'



Design

S: Place Making



Dike
7.00m

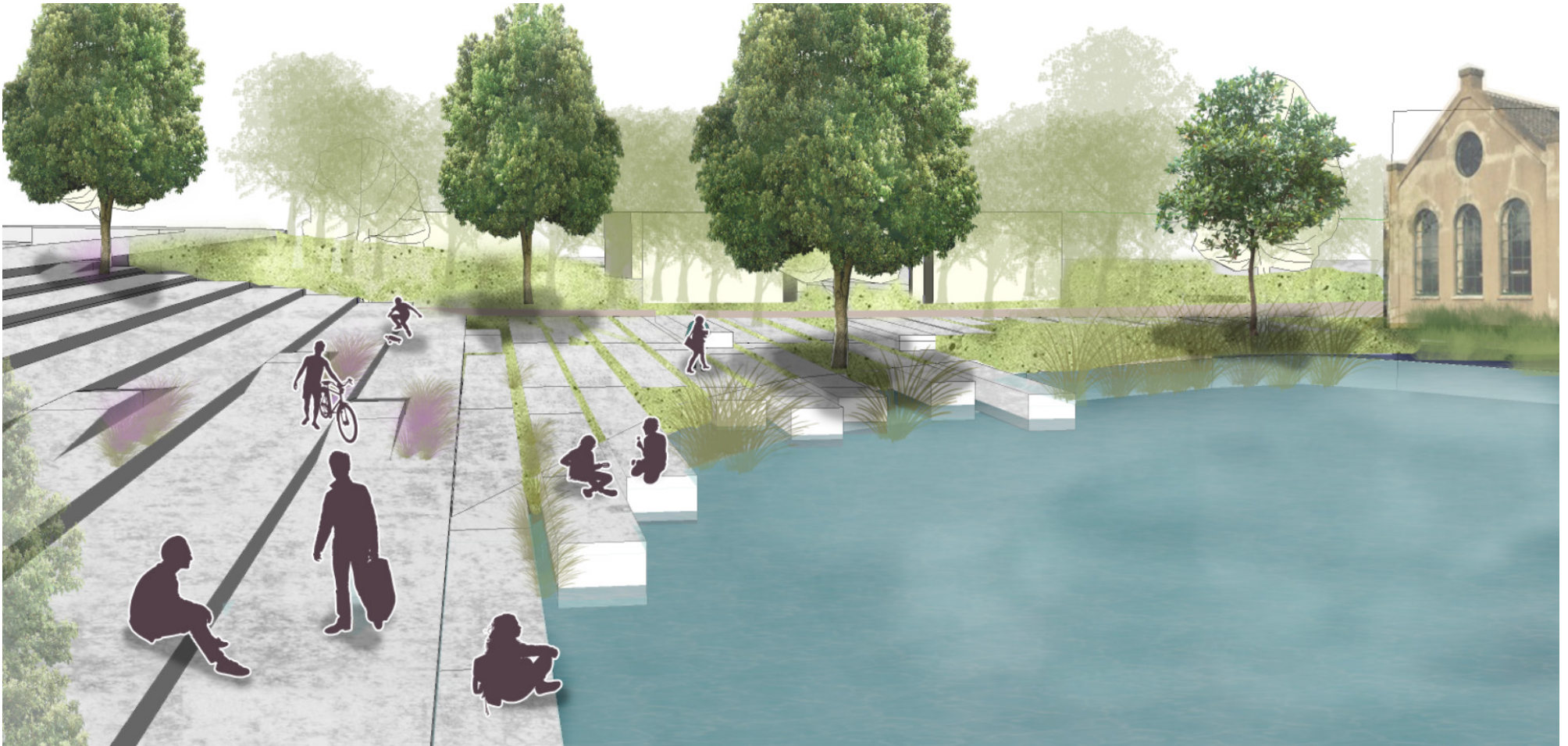
Outdoor
theater
16.00m

Pond
42.00m

Section 3-3'

Design

S: Place Making



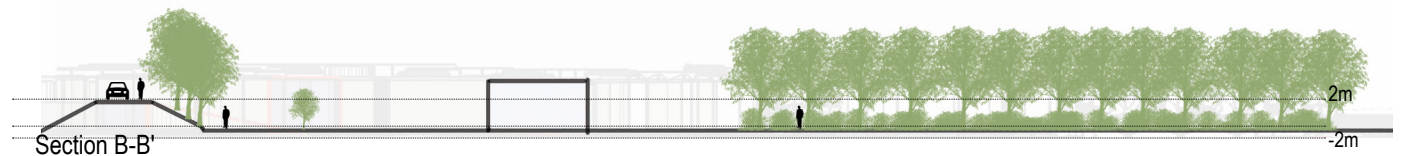
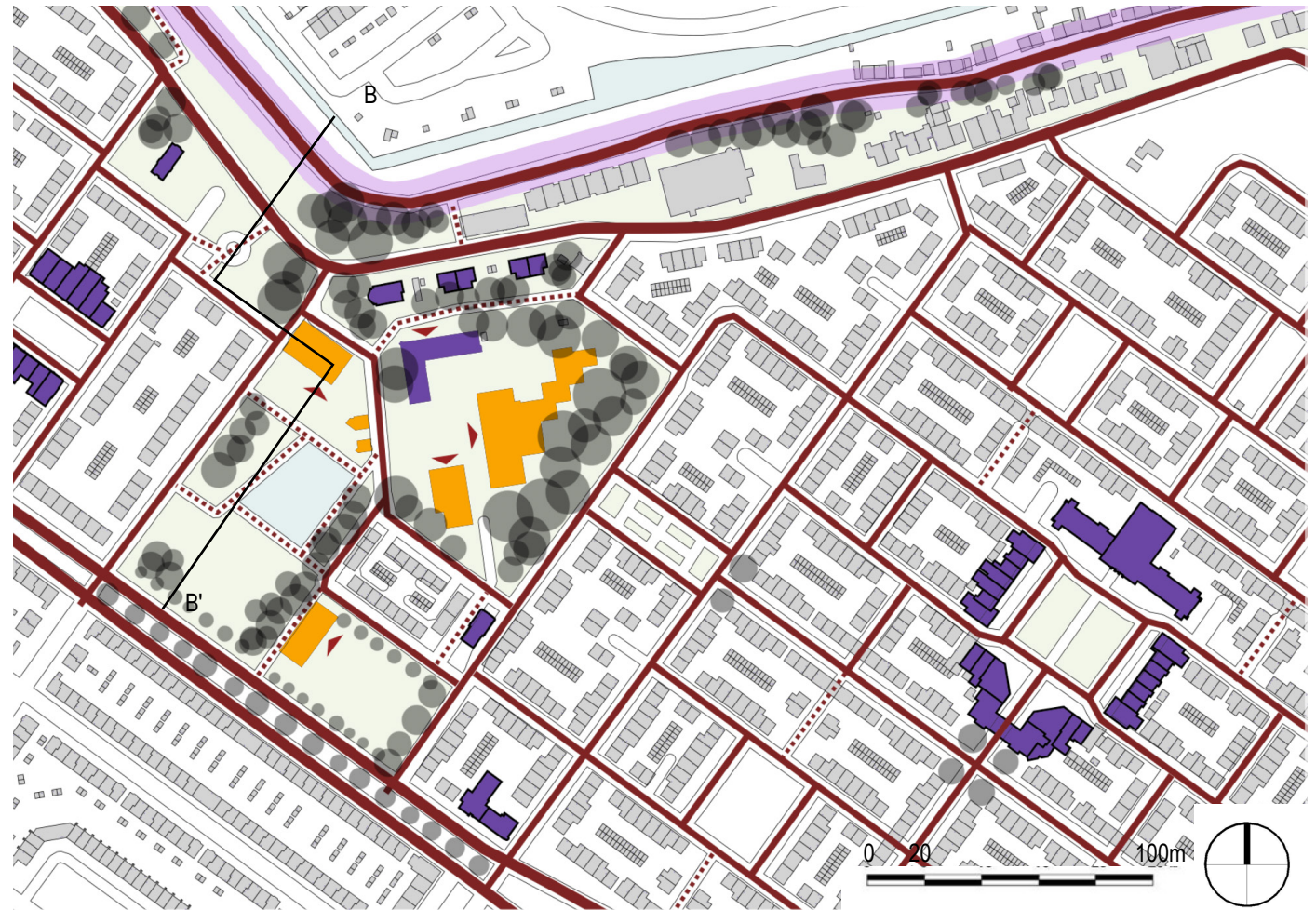
Design

S: Place Making

Test site 2: Dike + Tuindorp Oostzaan



- Car road
- - - Pedestrian/bike path
- The dike
- ▲ Entrance to building
- Historical building
- Public service building
- Existing tree



Design

S: Place Making

Diagnosis:

Dike and Garden village:

1. Disconnection in landscape

Public space in Garden Village:

1. Single tree species, lack of variety in plants
2. Swimming pool as important public space, but only used in summer
3. Entrance of public service buildings are hard to find

Design

S: Place Making

Diagnosis:

Dike and Garden village:

1. Disconnection in landscape

Public space in Garden Village:

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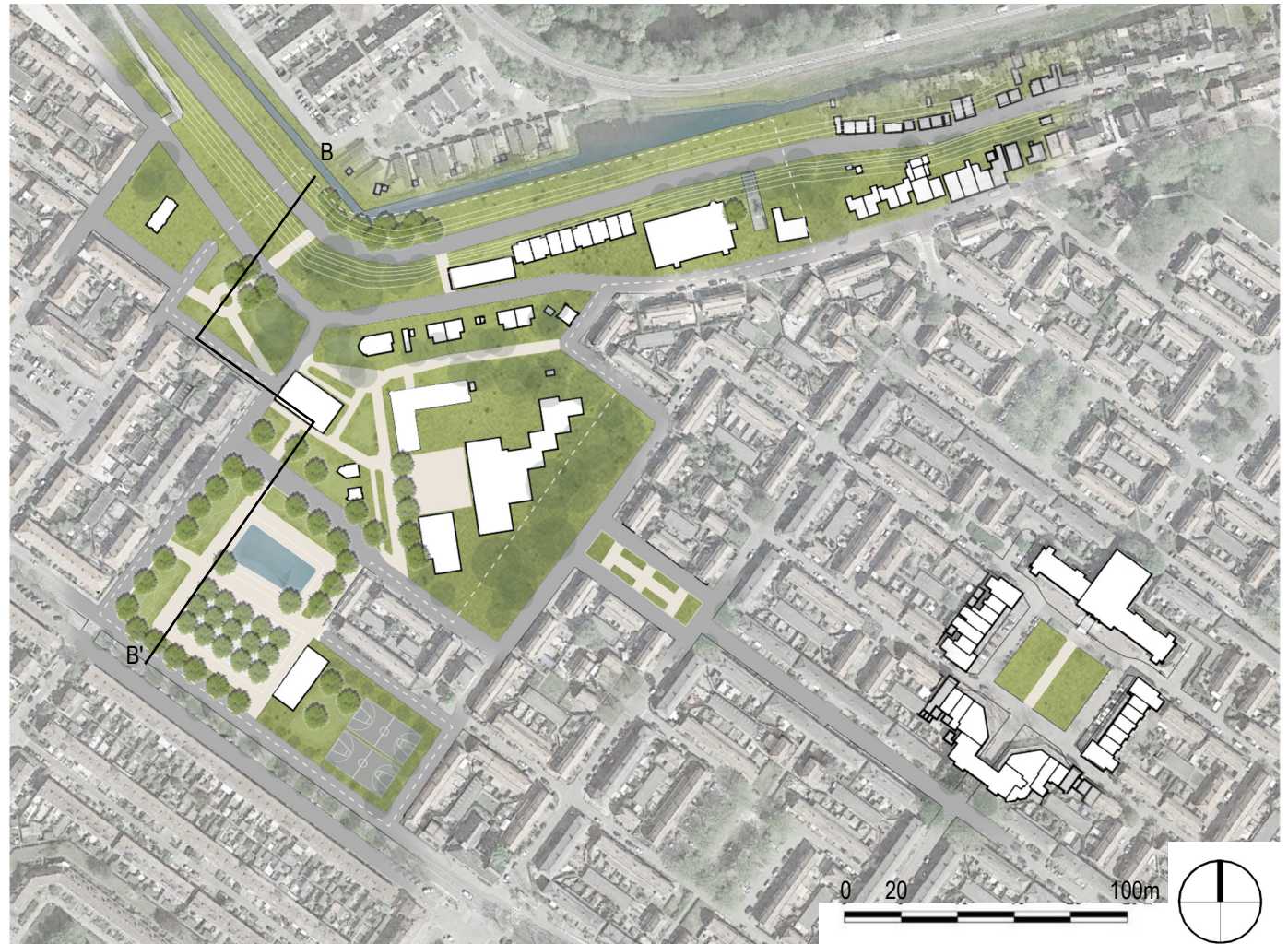
Design intervention:

Dike and Garden village:

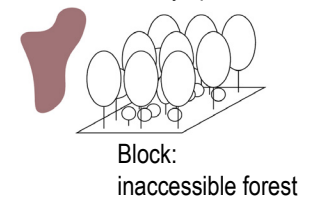
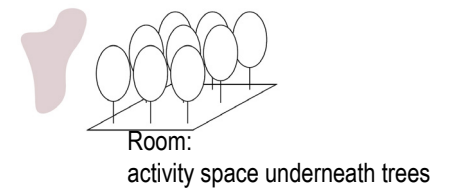
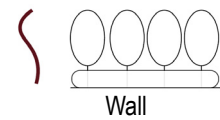
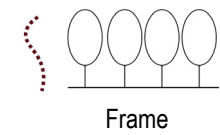
1. Connect the dike to the front garden

Public space in Garden Village:







2. Build square that connects all entrances of Public service buildings
3. Multi-functional central green with more sub-space (water pond, semi-enclosed lawn, shaded square cafe) that has more functions through the years and more diverse plants. The size of the sub-space is the same as the typical neighborhood plants.



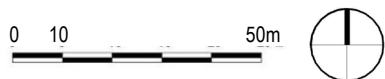
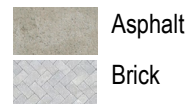
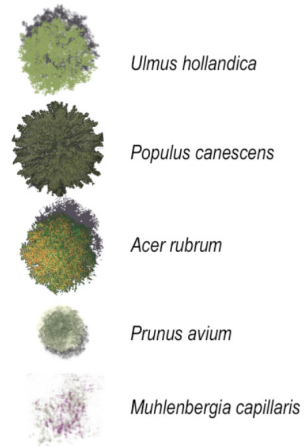
Plantation scheme



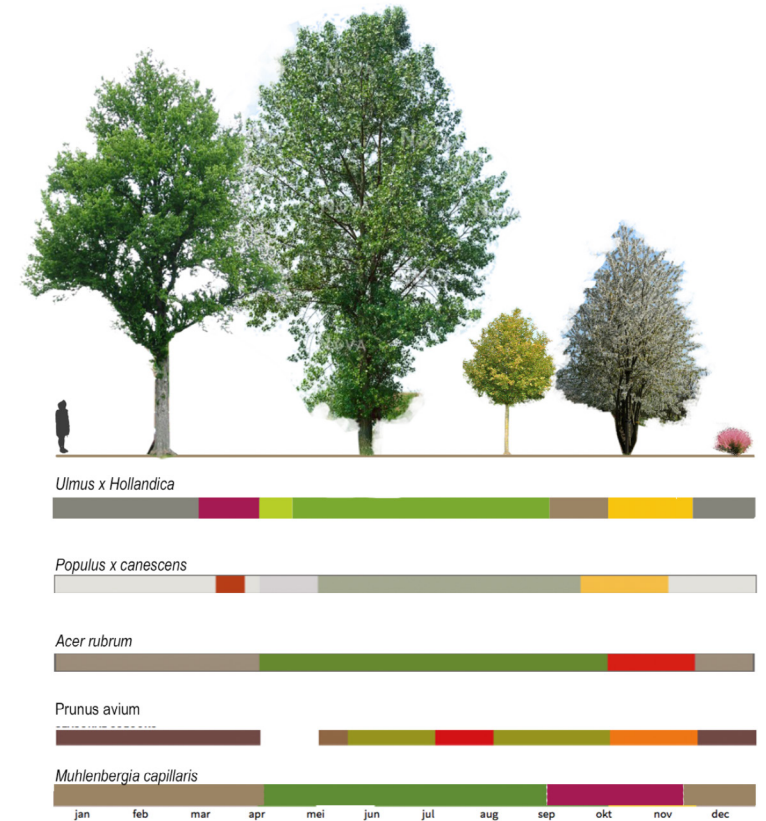
S: Place Making

- 1 Descending filed from the dike 
- 2 Neighborhood frontgarden 
- 3 Public central green spaces 
- 4 Square of public service buildings 
- 5 Public Garden 
- 6 Zonneplein 

Detailed plan 1: dike and garden village



Secasonal color change of trees



Design

S: Place Making



House	Sidewalk +parking 6.00m	Neighborhood road 4.00m	Neighborhood front garden 32.00m	Neighborhood main road 9.00m	Descending field 25.00m	Dike road 8.00m
Section 4-4'						

Design

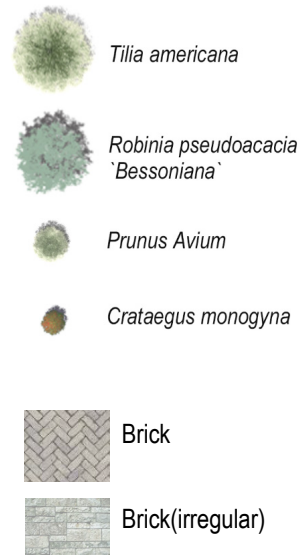
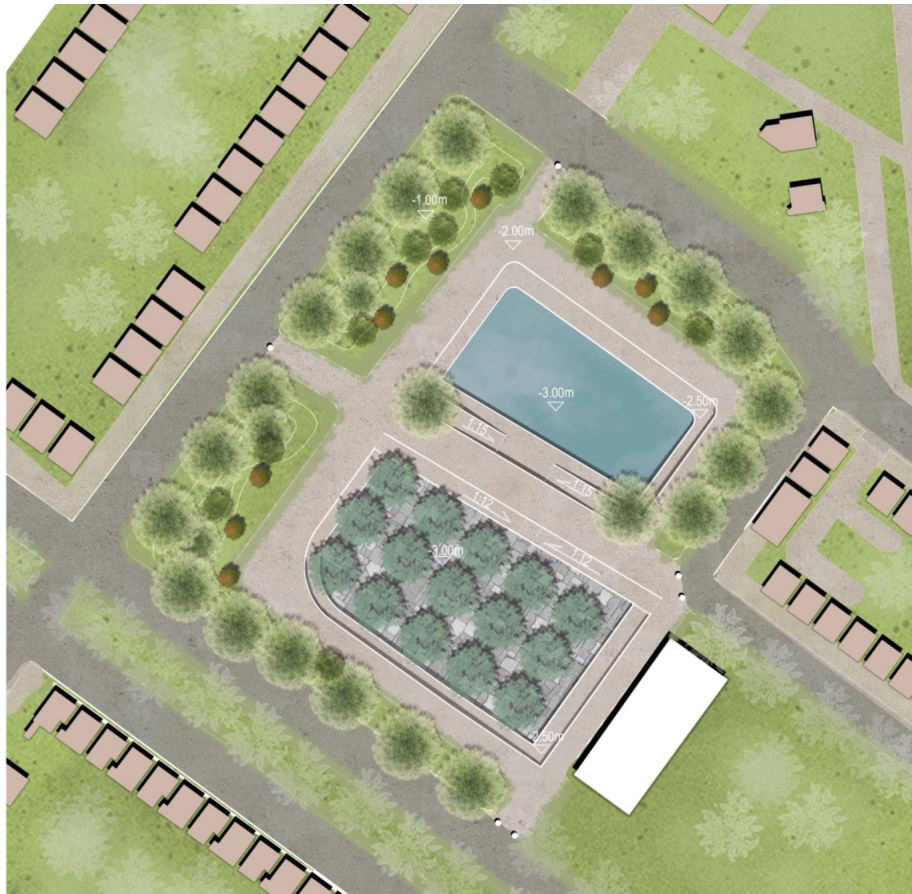
S: Place Making



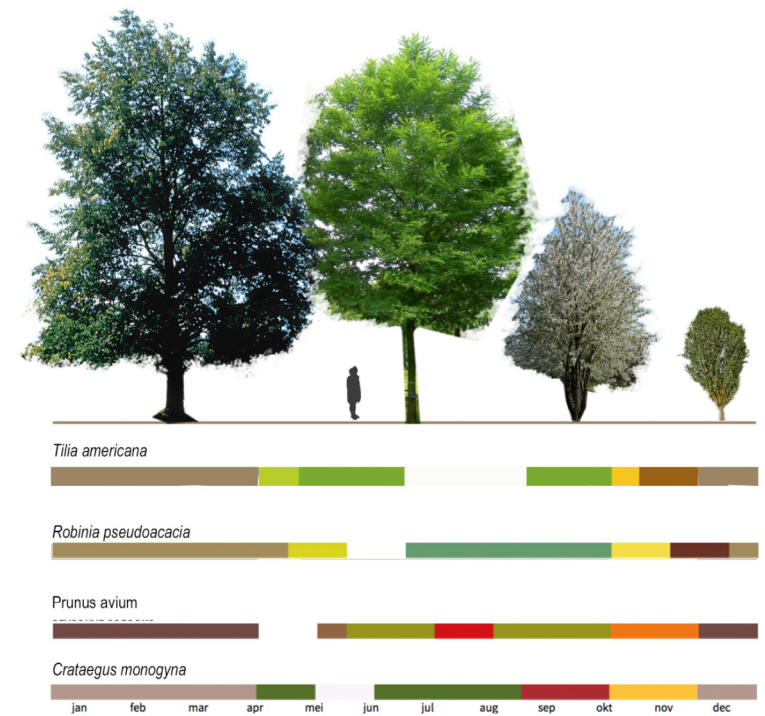
Design

S: Place Making

Detailed plan 2: public green spaces

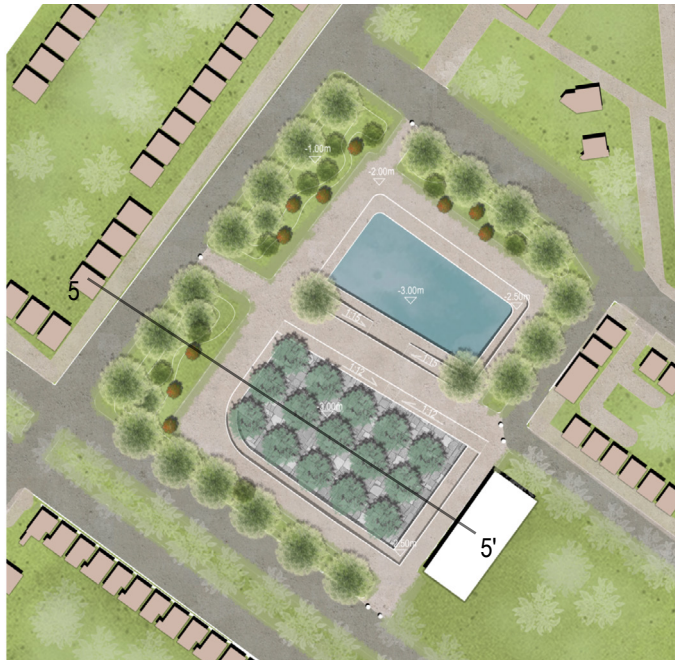


Secasonal color change of trees



Design

S: Place Making



House	Sidewalk +parking 6.00m	Neighborhood road 6.00m	Green fence 7.00m, 1.00m e.	Sitting lawn 10.00m, 1.00m e.	Path 6.00m	Sunken square 4.00m+46.00m+4.00m -2.50m -3.00m -2.50m	Path 4.50m	Cafe
Section 5-5'								

Design

S: Place Making



5

Conclusion & Reflection

Conclusion & Reflection

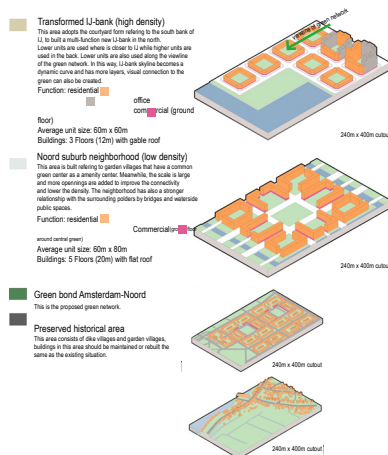
Cross-scale work

In this project, urban forest is used and re-organized for future garden city in 3 scales:

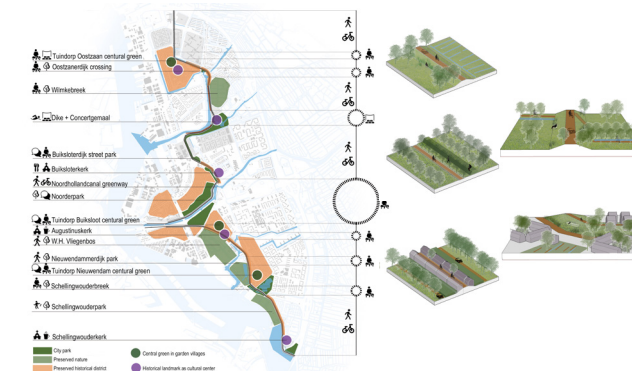
-L-City scale:

Urban design & Proposed buildings

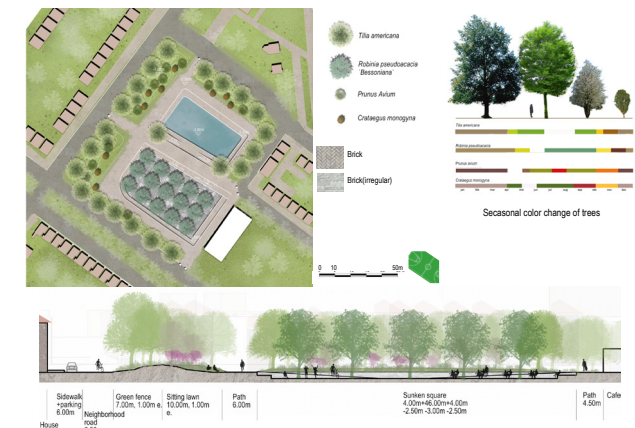
Amsterdam Noord is given new structure in my project. The proposed green network and preserved historical area forms a belt to stop Amsterdam from over-expansion, it divided as well as connected the transformed U-bank (high density) which is included into center Amsterdam, and the Noord suburb neighborhood (low density) in the back.



-M-Green system scale:



-S-urban forest place scale:



Conclusion & Reflection

Post-industrial transformation



Fig. 5. Artist impression of the Bulksloterham seen from the west. Illustration: Lukas Kukier



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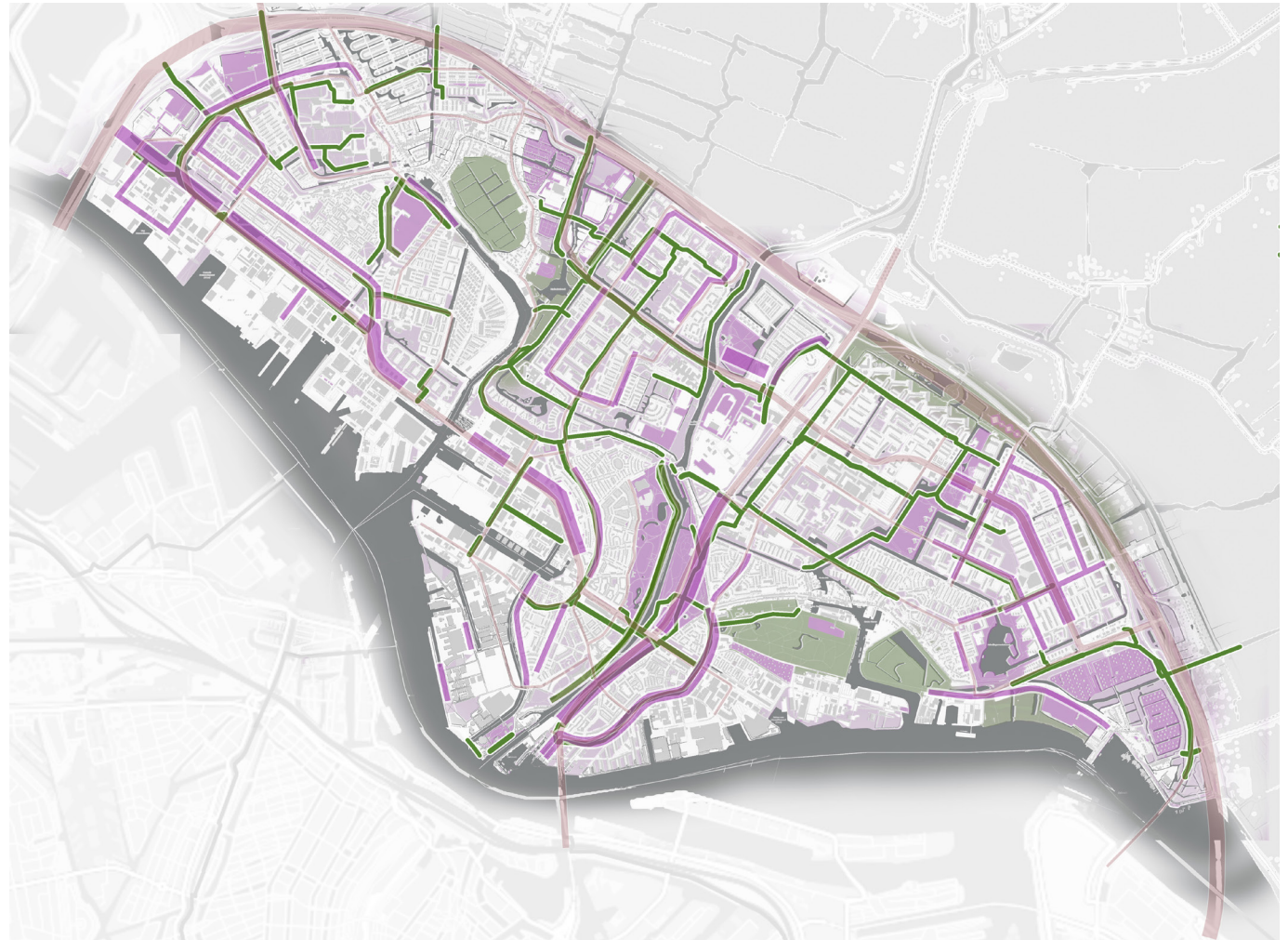
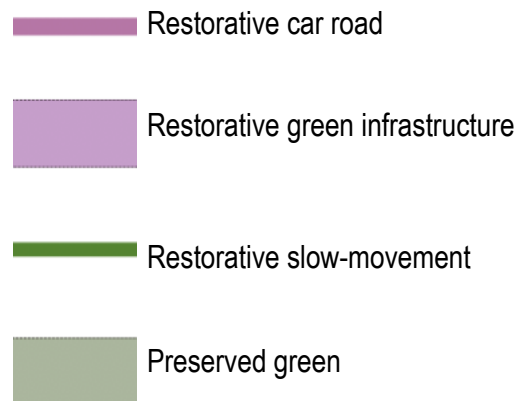


Site Study

Reflection of the existing urban forest

Amsterdam Noord:

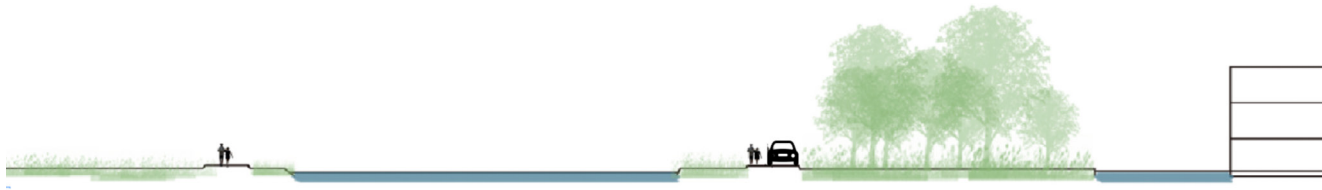
- Function-oriented green spaces.
- Identity elements are separate and disconnected.
- Slow movement system also need to be further developed.



Design

Concpetual design_waterside roads

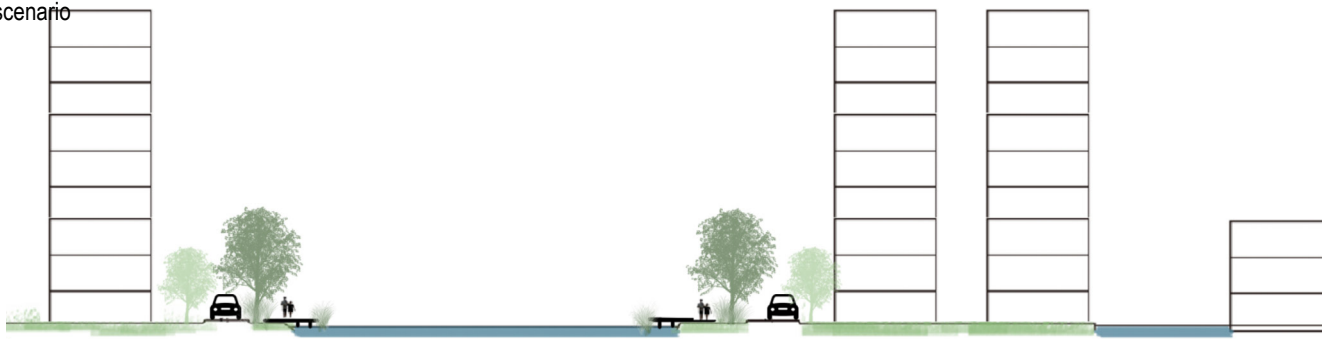
Before



After



Future scenario



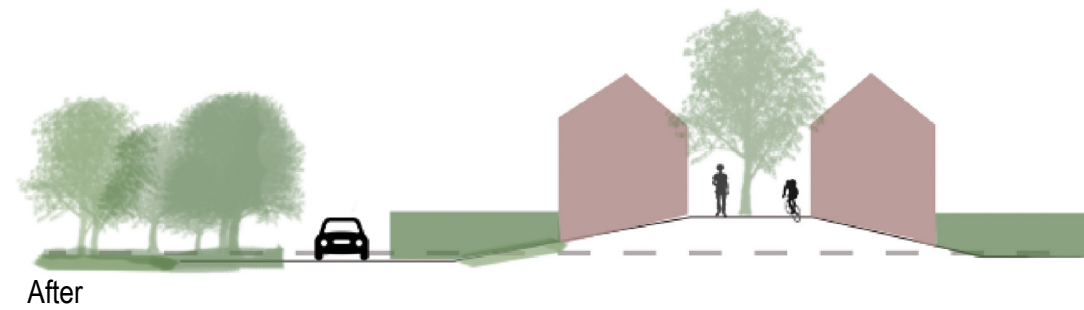
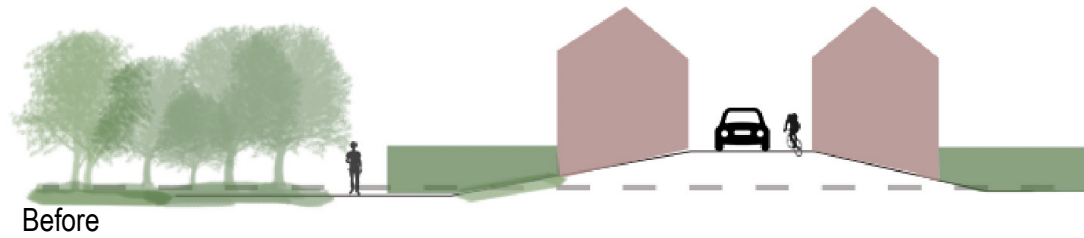
Before



Reference

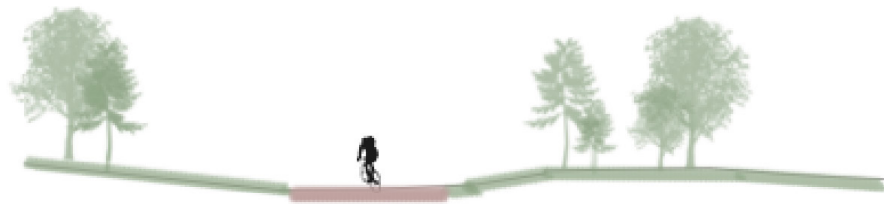
Design

Conceptual design_Dike as neighborhood road

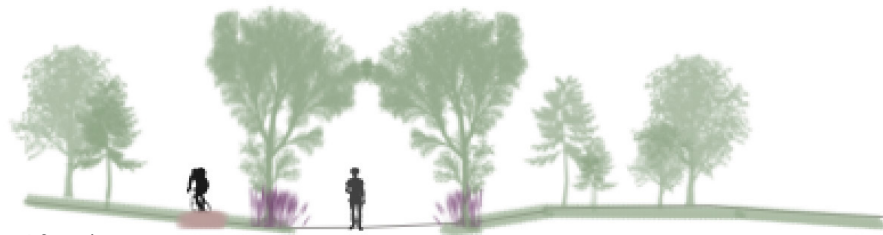


Design

Conceptual design_Dike as lost elements



Before



After 1



After 2

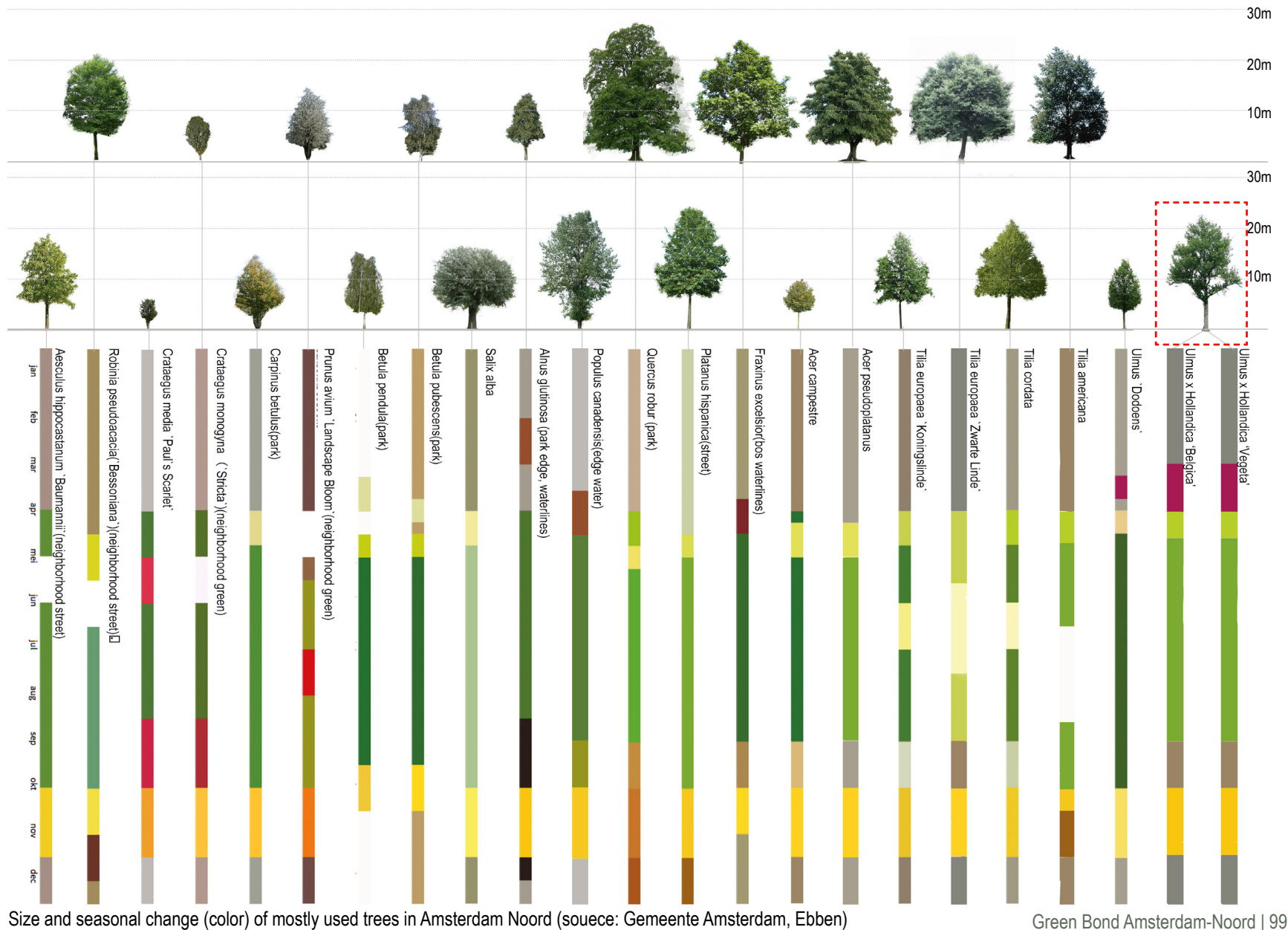


Before



Reference

The mostly used tree is *Ulmus hollandica*. This is also the most used tree in the whole, Amsterdam because it suits well with the salty water and soil condition. In Amsterdam Noord, *Ulmus hollandica* is also seen as monument trees along the old canal structures, thus it is the representative tree of the dike identity. (Source: Stiller, L., & Blankers, E. (2011). Het Amsterdamse Bomenboek).



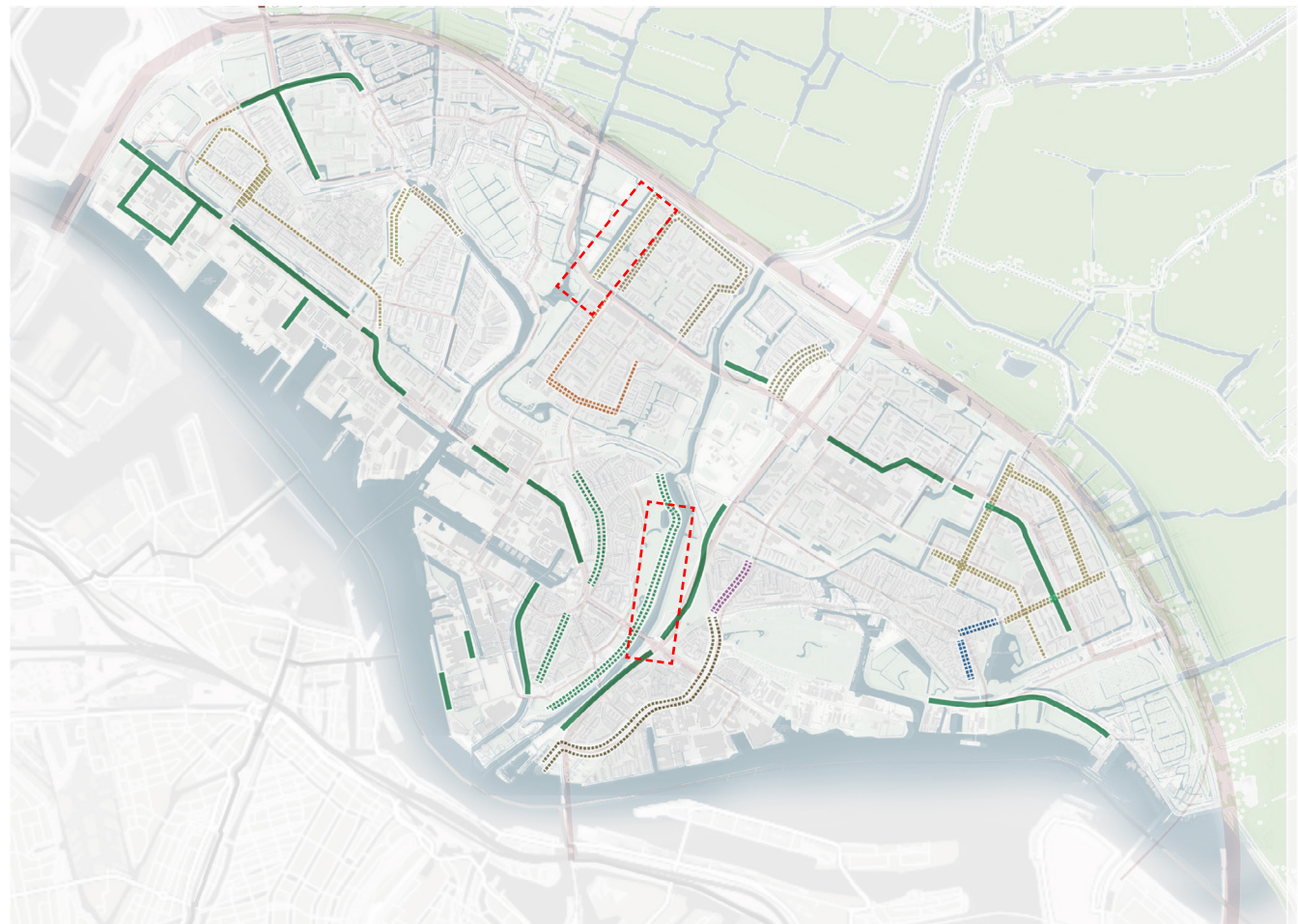
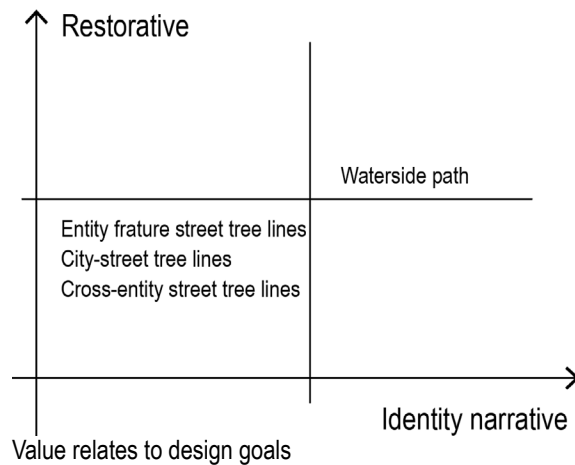
3.3 Urban forest

Features: single-species tree lines

A single-species tree line can create a strong sense of place and identity, thus is an important identity representative element.

Apart from 2 watersiden paths, the single-species tree lines in Amsterdam Noord are mostly used along car roads as street tree lines. There is a species language in hierarchy of 3 streets: City street tree lines (which is planted along city street, usually *Ulmus Hollandica*), cross-entity street tree lines (which is planted along main street that cross entities, usually *Ulmus* and *Tilia*) and entity feature tree.

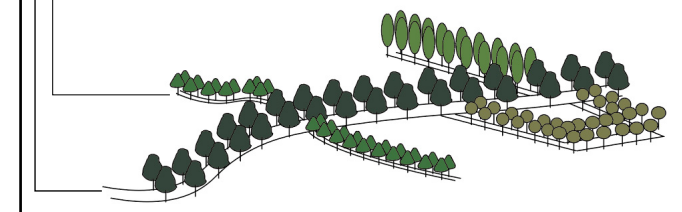
Landscape features such as dikes and most waterside features can not be recognized in this network.



- Ulmus city street lines
- Ulmus
- Tilia
- Fraxinus excelsior
- Platanus hispanica
- Acer campestre
- Alnus cordata
- Metasequoia glyptostroboides

Waterside paths

City street tree: *Ulmus hollandica*
Cross-entity street tree: *Tilia*, *Ulmus*
Entity feature street tree: *Tilia-americana*, *Fraxinus excelsior*, *Platanus hispanica*, *Acer campestre*, *Alnus cordata*, *Metasequoia glyptostroboides*



Species language in street tree lines.

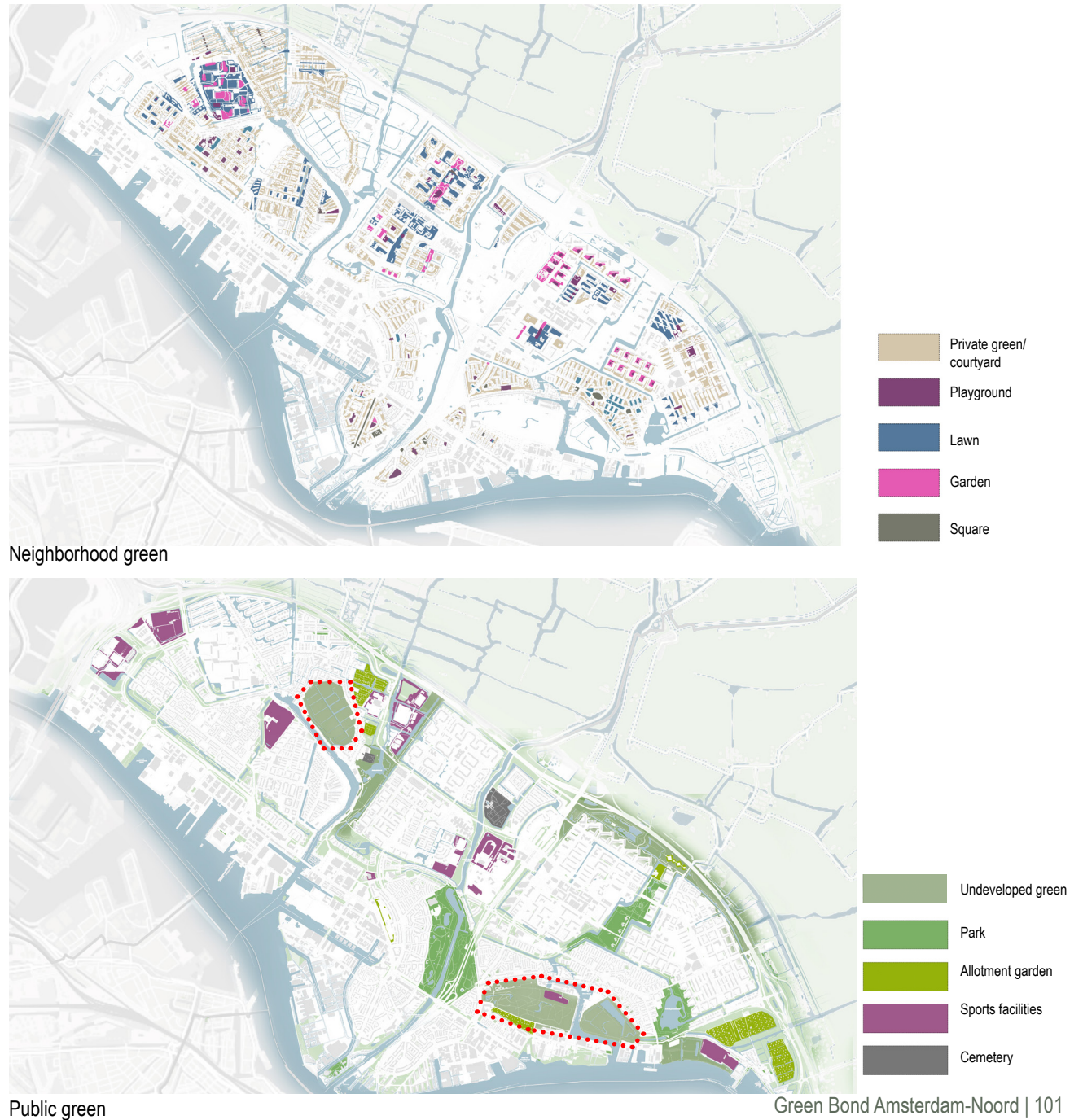
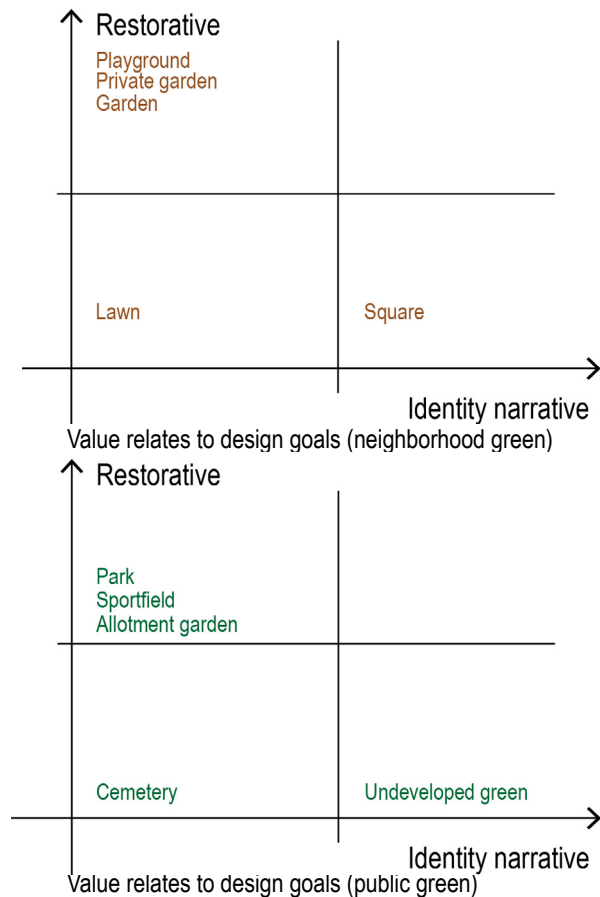
3.3 Urban forest

Areas: single-species tree lines

Neighborhood green and public green areas in the city are most functional oriented, such as playgrounds and sportfields.

Only a few has an enclosed space that can provide restorative value, such as gardens and city parks.

Only in 3 public areas can the green urban identity be seen in the landscape, such as a preserved polder and preserved forest.



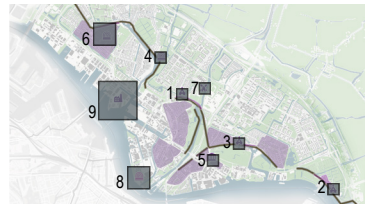
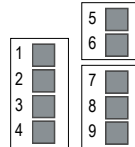
Site Study

Site Analysis_Urban Fabric

Historical buildings with new functions

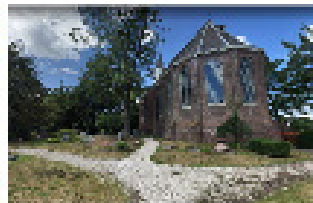
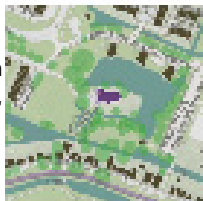
Mostly hidden from the dike

Index:

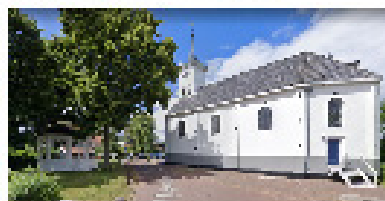
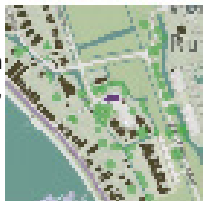


Historical buildings along the dike

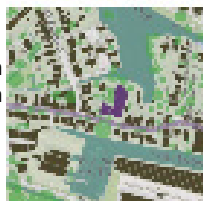
Buiksloterkerk
Built in: 1609
Original Function: Church
New Function: Church, monument, concert hall



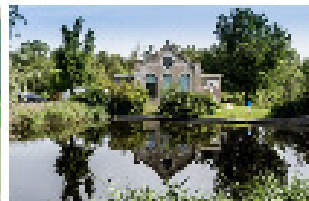
Schellingwouderkerk
Built in: 1866
Original Function: Church
New Function: Church, Dining place



Augustinuskerk
Built in: 1888
Original Function: Church
New Function: Church (locked)

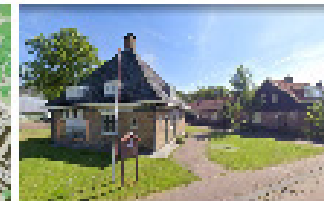
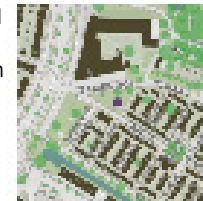


Concertgemaal
Built in: 19?? (1984)
Original Function: Power station
New Function: Concert hall, workplace



Historical buildings in Garden villages

Museum Amsterdam-Noord
Built in: 1918
Original Function: Bath house
New Function: Museum

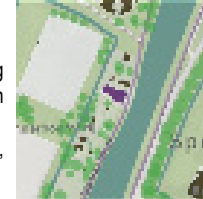


Zonnehuis
Built in: 1932
Original Function: Community center
New Function: Cultural center



Historical buildings at waterfront

Krijtmolen d'Admiraal
Built in: 1792 (1992)
Original Function: Grinding limestone to chalk and from tuff to trass
New Function: Monument, event place for renting



Eye Film Museum/A'DAM Lookout
Built in: 1930(2011)
Original Function: -
New Function: Entertainment



NDSM
Built in: 1900
Original Function: Factory
New Function: Events space

