

An aerial photograph of a coastal landscape. On the left, a large body of water (likely a bay or estuary) is visible. To the right, a city is situated in a valley, surrounded by rugged, mountainous terrain. The city's layout is visible, showing a mix of urban development and natural features. The overall scene illustrates the relationship between urbanization and landscape ecology.

Edge city, beyond edge city

Evolutionary urbanization by the dynamics of landscape ecology

Seul Lee



San Francisco

San Francisco
bay

Alviso

Silicon valley

San Jose

Location



San Francisco

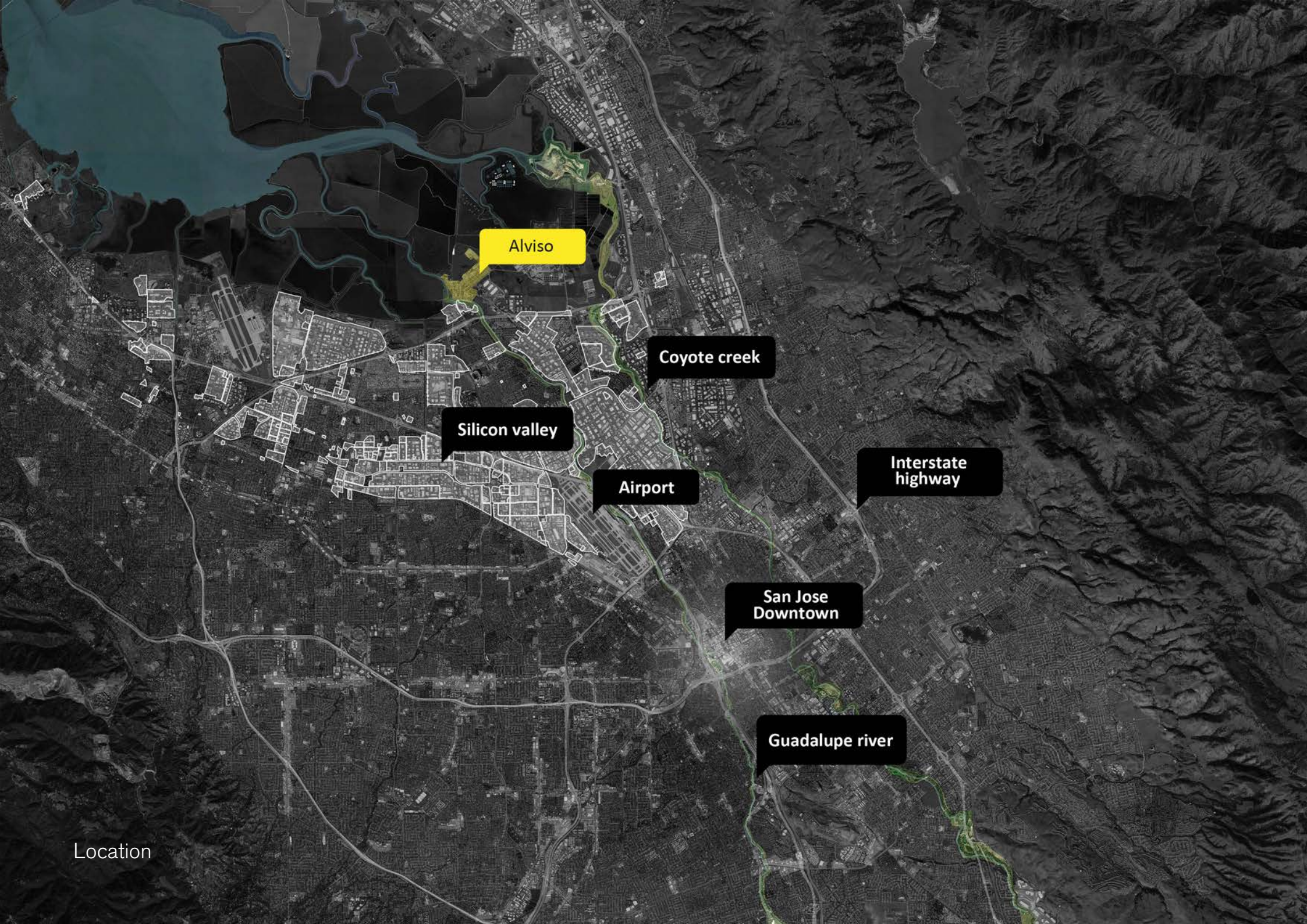
San Francisco bay

Alviso

Silicon valley

San Jose

Location



Alviso

Coyote creek

Silicon valley

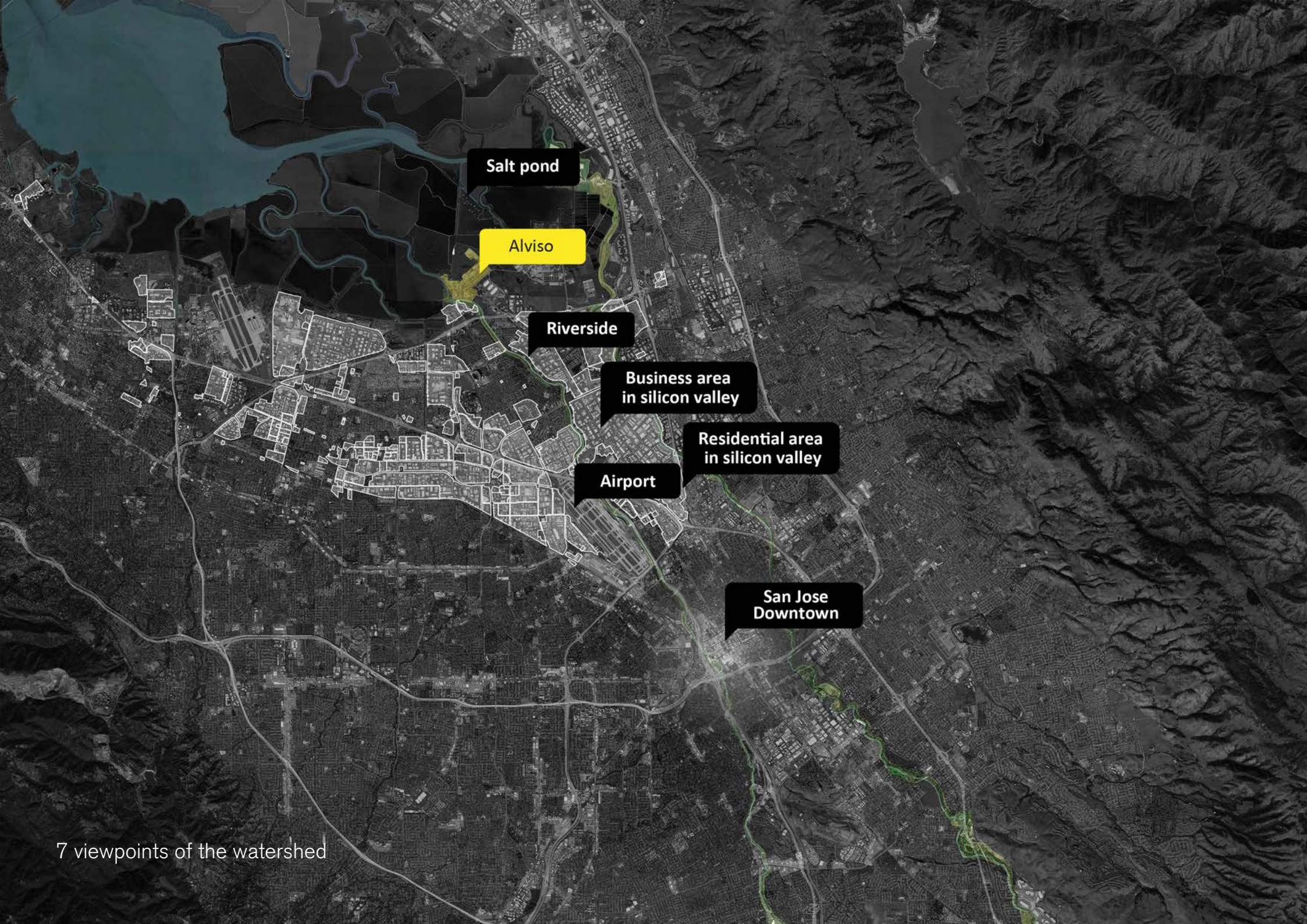
Airport

Interstate highway

San Jose
Downtown

Guadalupe river

Location



Salt pond

Alviso

Riverside

Business area
in silicon valley

Residential area
in silicon valley

Airport

San Jose
Downtown

7 viewpoints of the watershed



San Jose downtown



Airport



Residential area in Silicon valley



Business area in Silicon valley





Riverside



Salt pond

1.5m Sea level rise in 100 years

Salt pond

Alviso

Riverside

Business area
in silicon valley

Residential area
in silicon valley

Airport

San Jose
Downtown





Salt pond with 1.5m sea level risng

Problem field
Nature



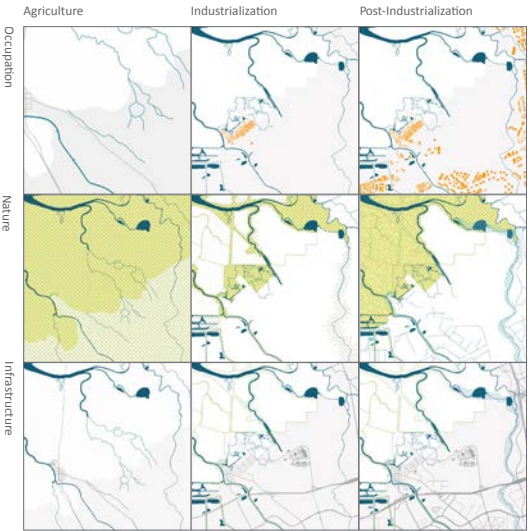
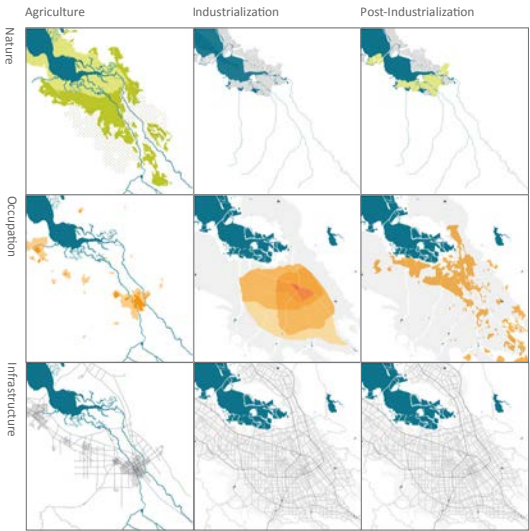
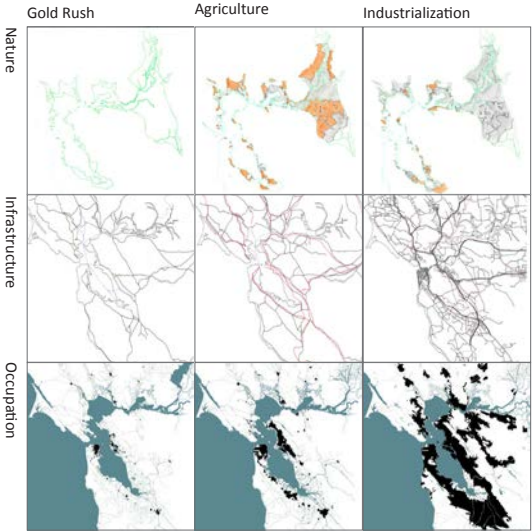
Underated value
of landscape

Occupation

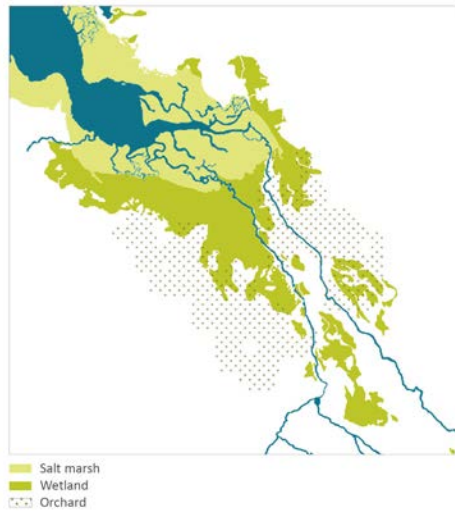


Absence of Urban form
after edge city

Evidence of urban transformation
by transport system in history



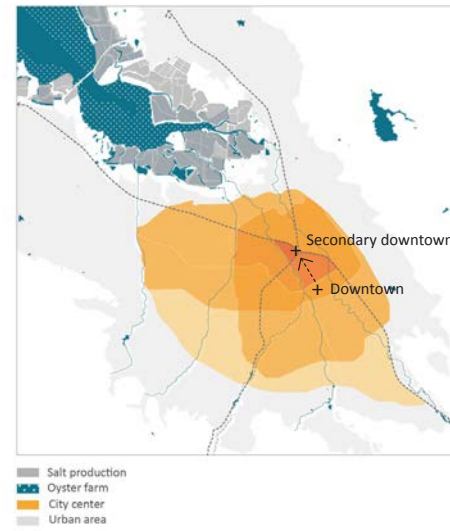
Ecologic pattern of agricultural period



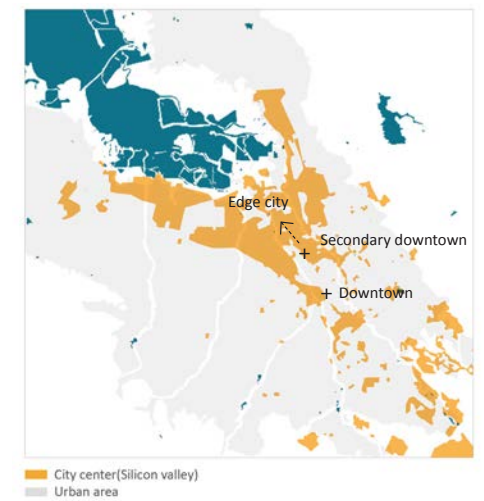
Occupation of agricultural period



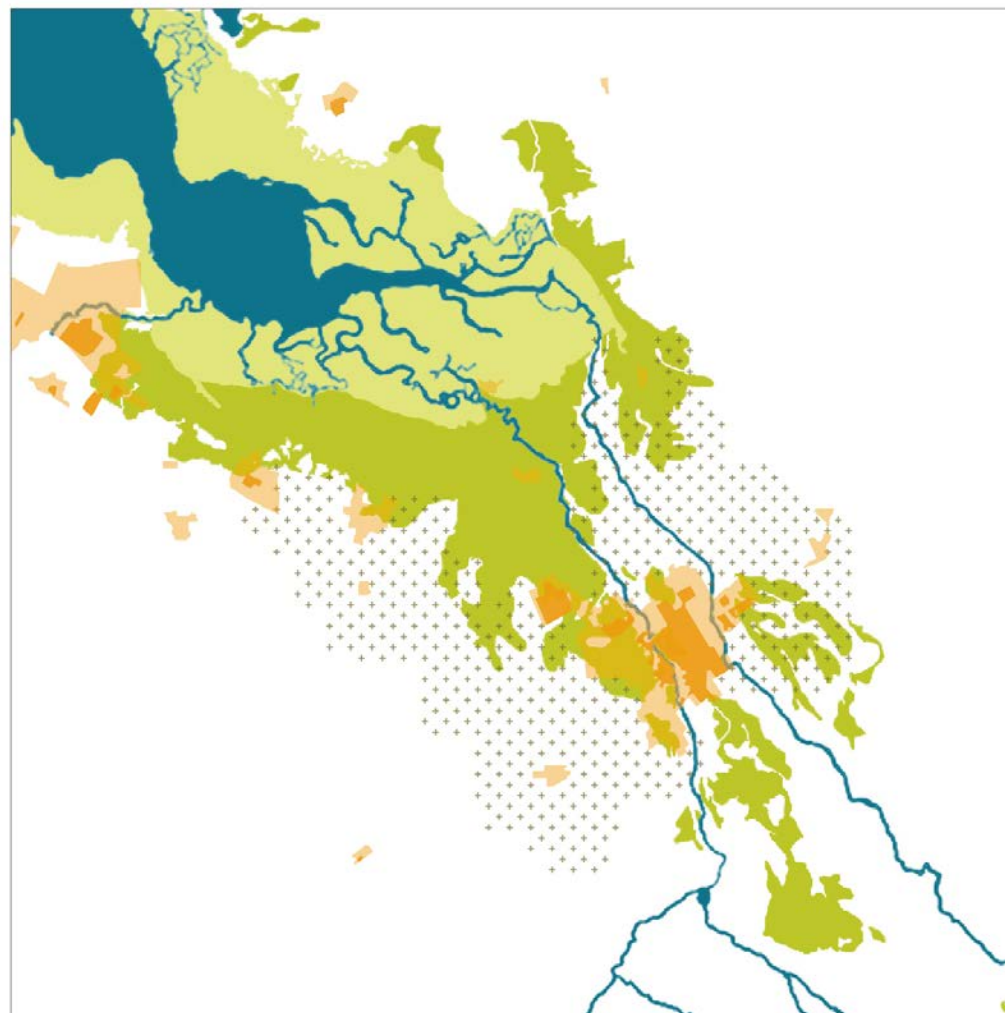
Change of the city center in industrialization



Change of the city center in Post industrialization



Agriculture



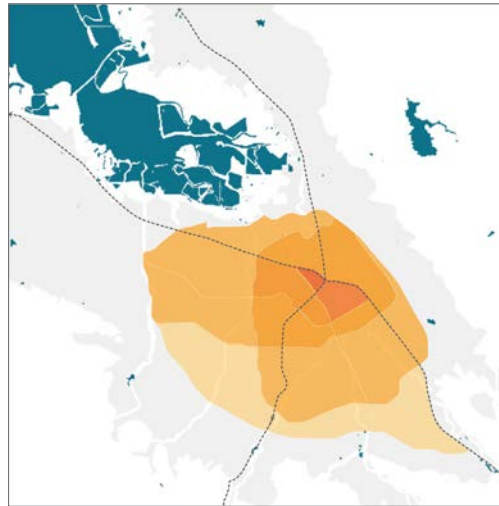
- Salt marsh
- Wetland
- Orchard
- Urban area

Urbanization with the highway structure

Infrastructure



Industrialization

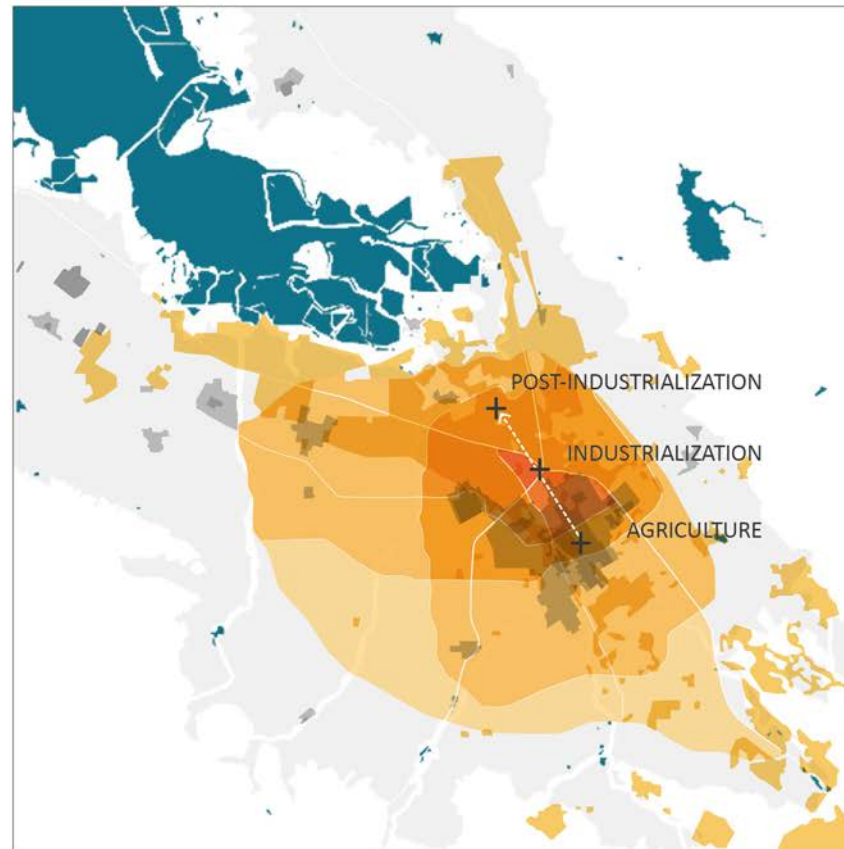


Post-Industrialization



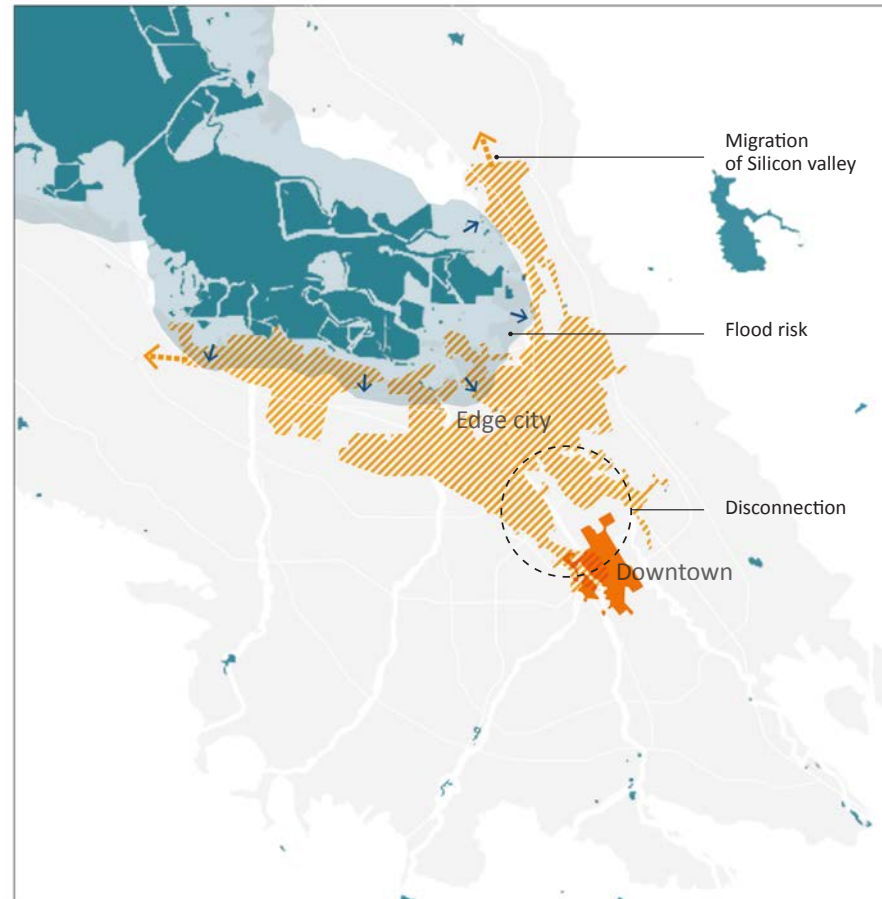
Evidence of Suburbanization

Migration of the city center

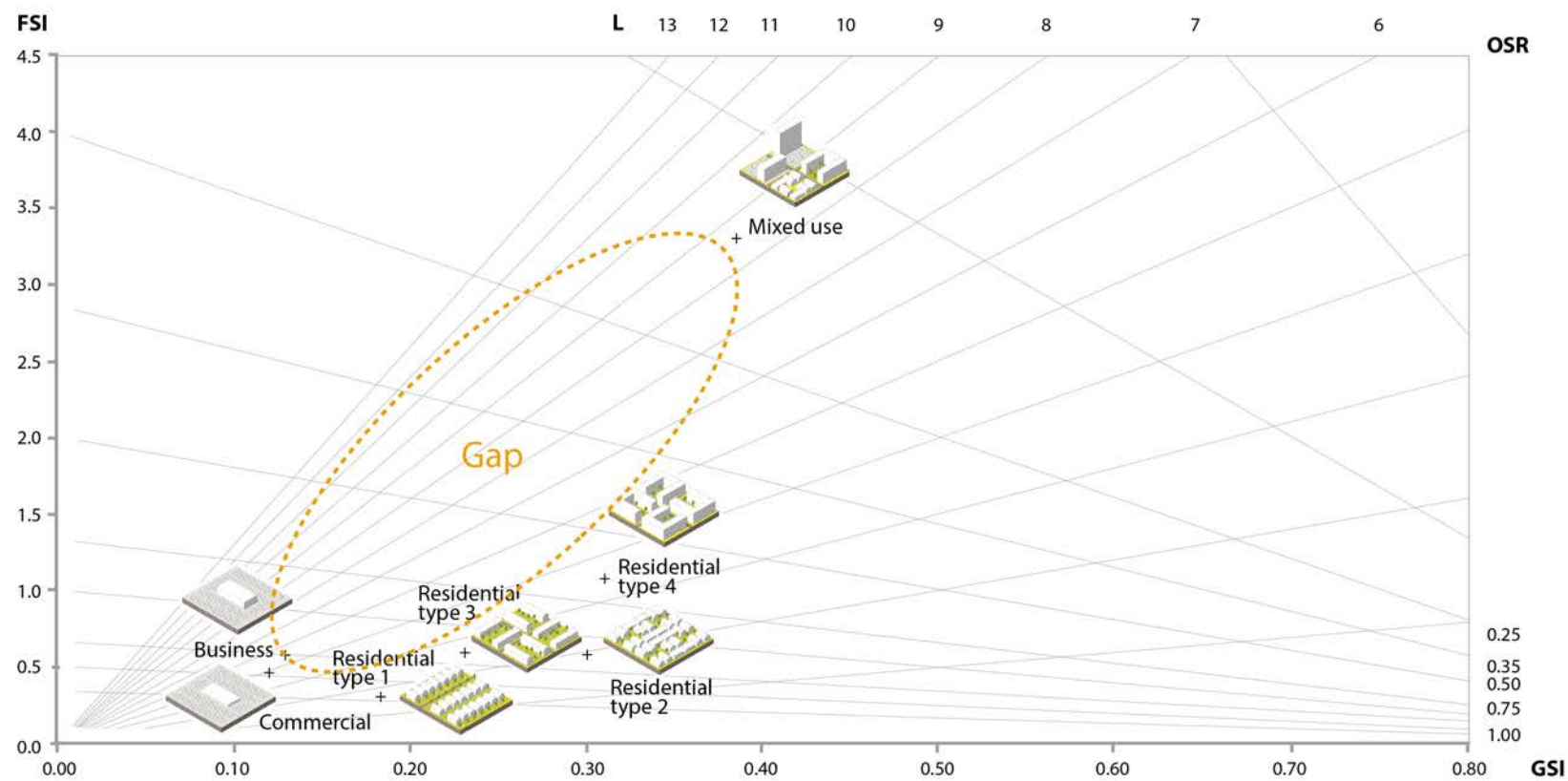


+ City center

Current issues of the area from Suburbanization



Density gap



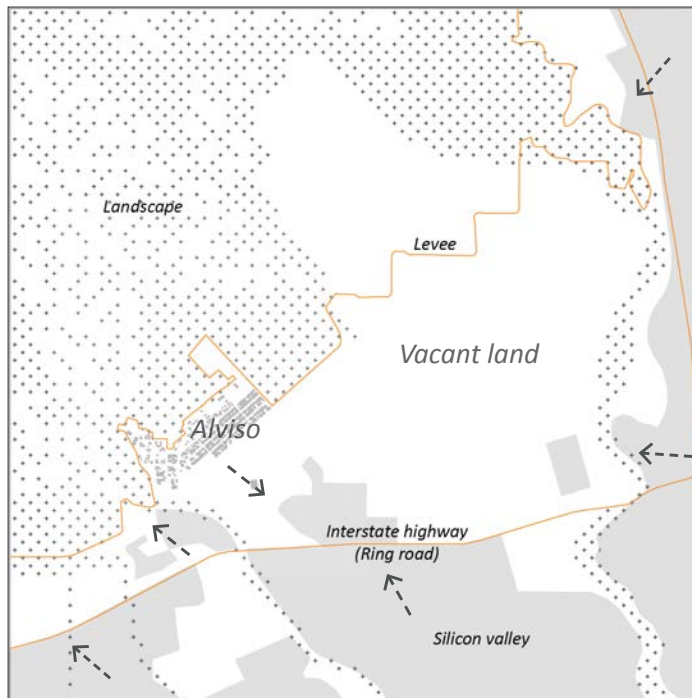
Problem statement

The site is structured by transportation network as the key of agglomerative economy of the region, which caused the current situation of 'disconnection' between city centers, in terms of spatial condition and economy.

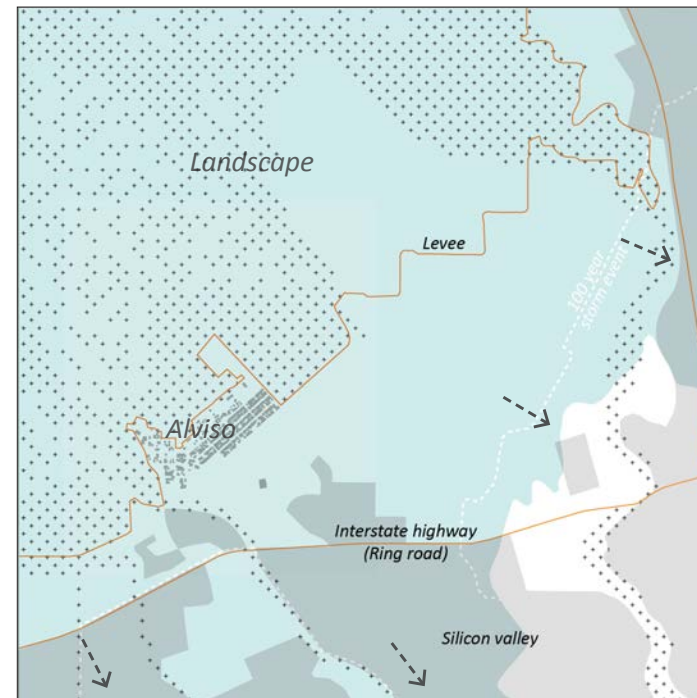
Today, it reveals its limits for providing adaptive urban development model for the edge city in the trend of climate change

How to improve territorial connectivity and water adaptivity
through the restructuring of landscape elements
for future urban development?

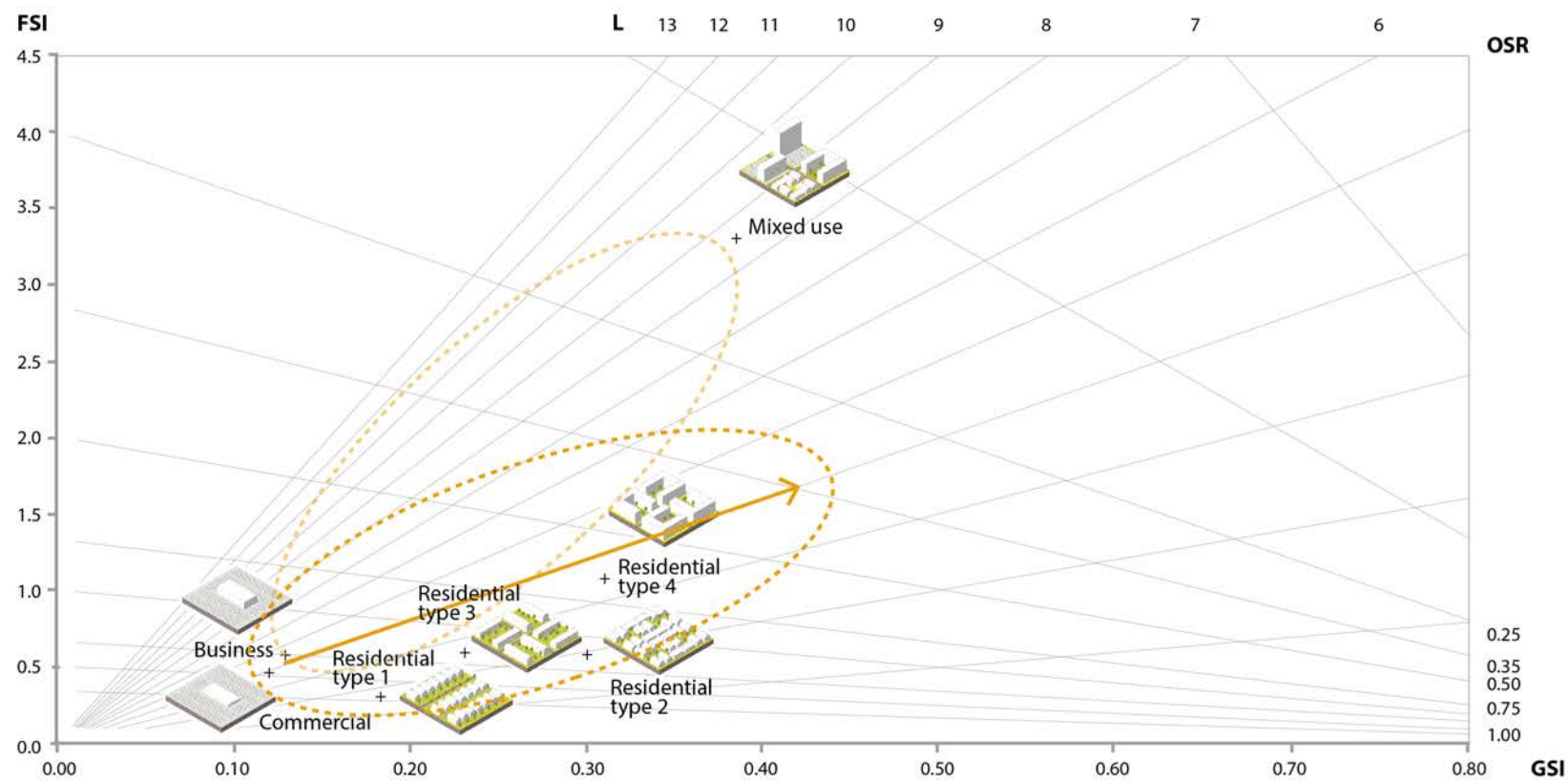
Stage 2 to 3 of a big edge city's life cycle
“push out”, “push up” in Post-industrialization



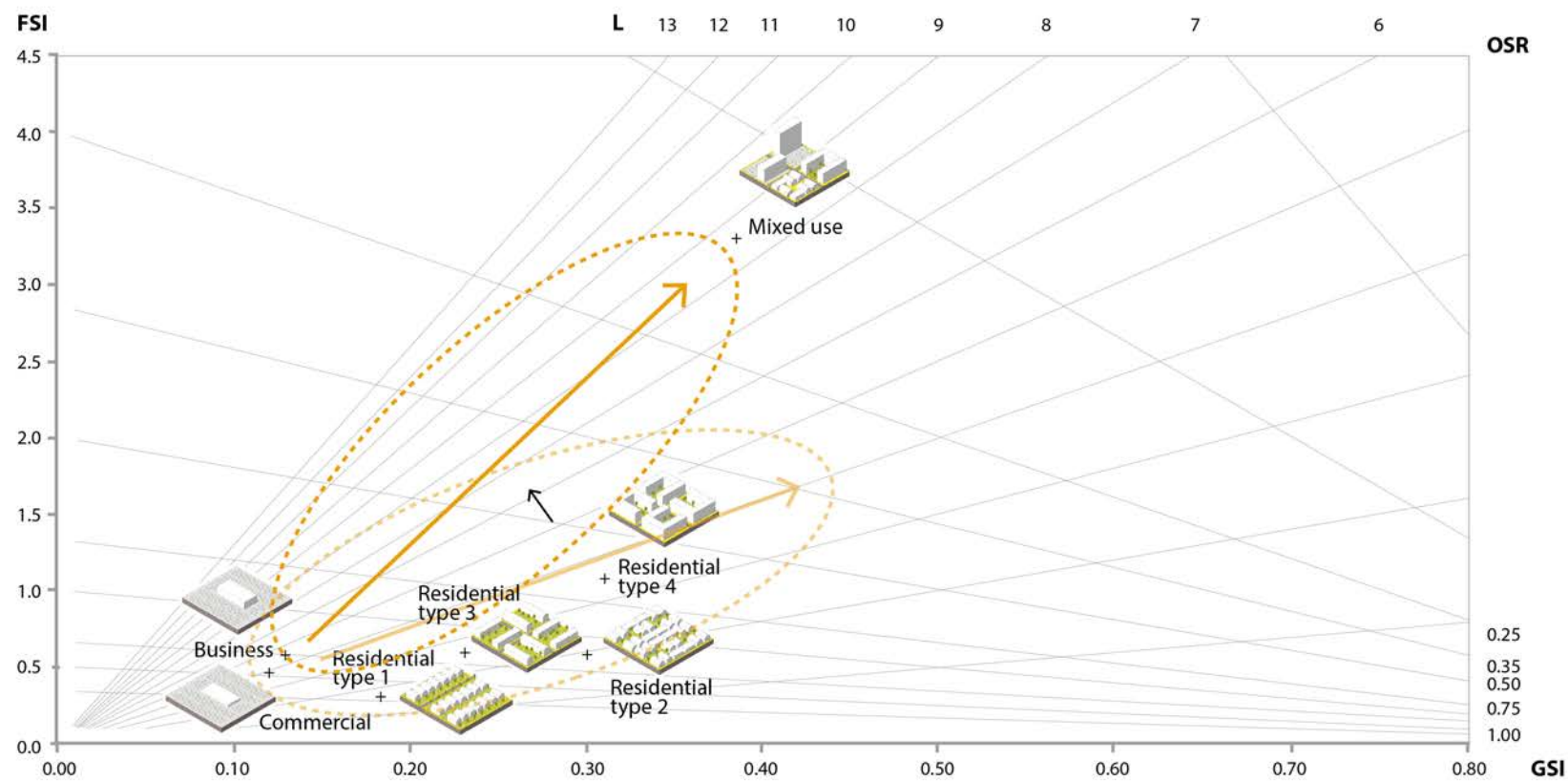
Stage 3 of a big edge city's life cycle
“push up” by sea level rising



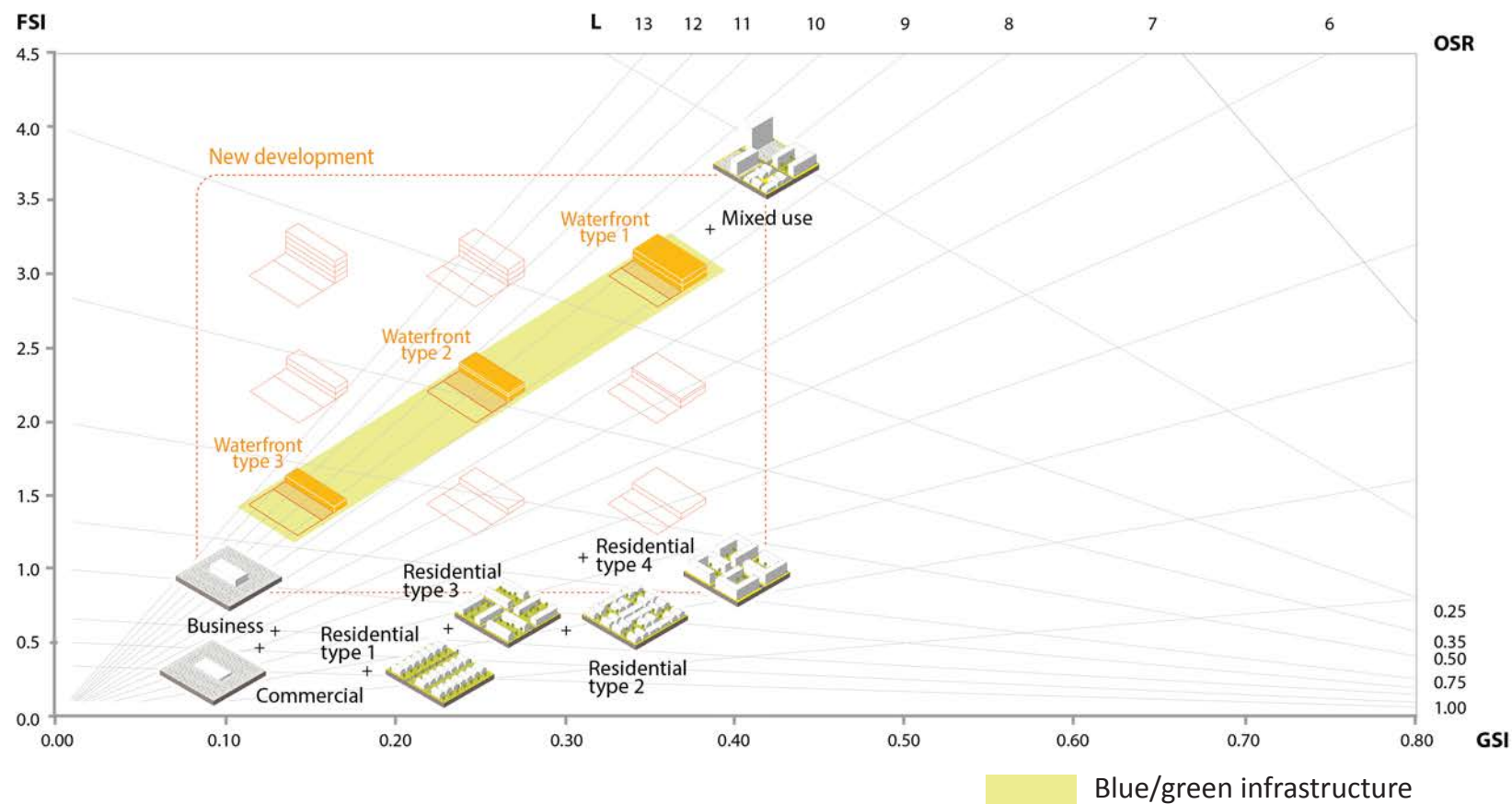
Current development trend



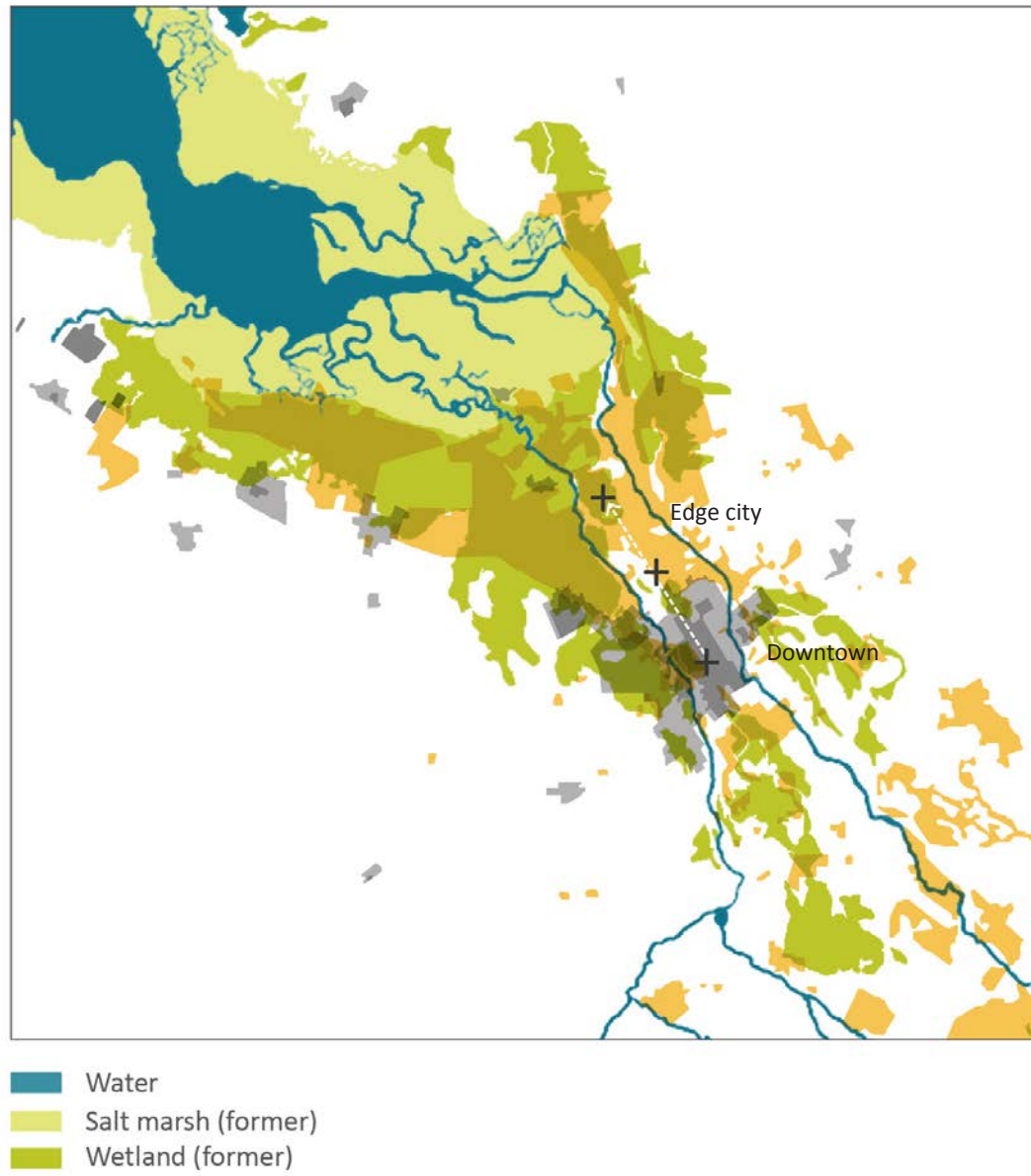
Guiding of development pressure



Bridging by filling the density gap



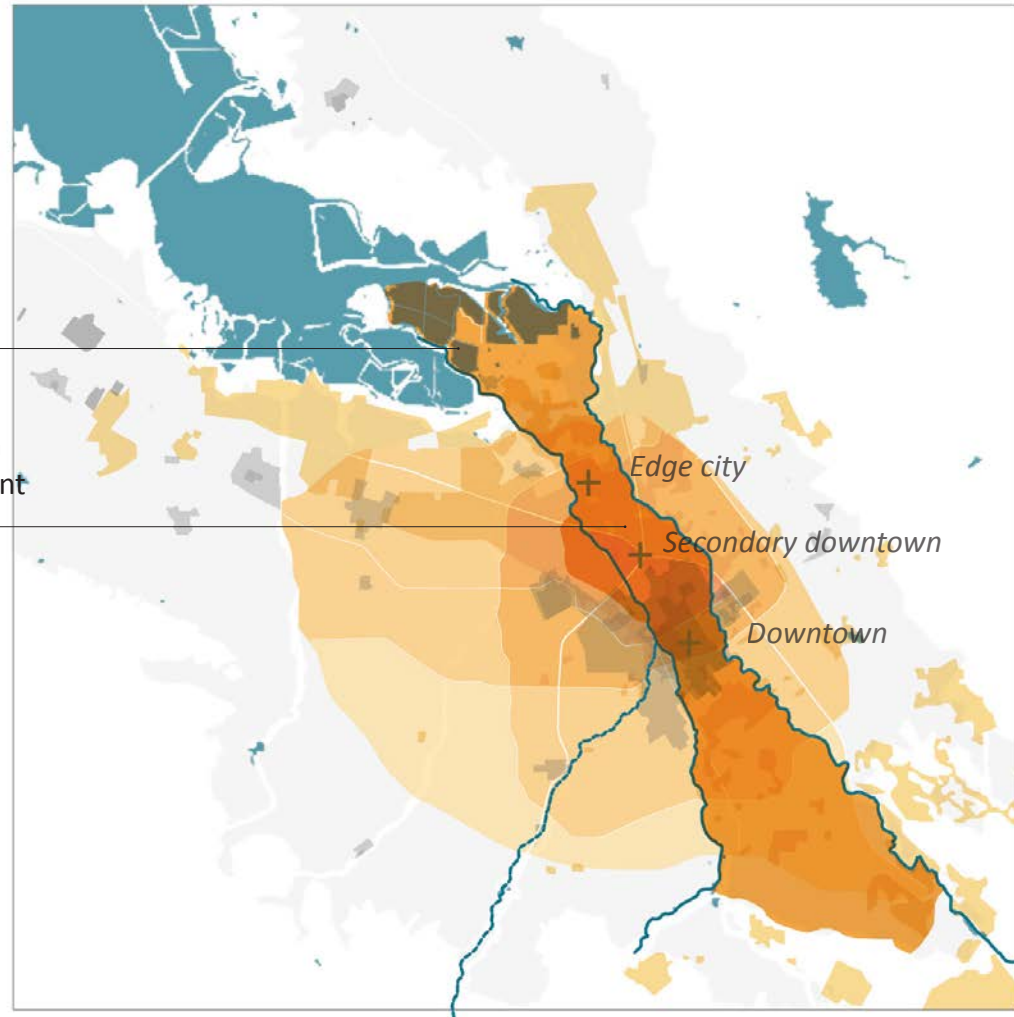
Ecological pattern for bridging



Vision
New Urban core

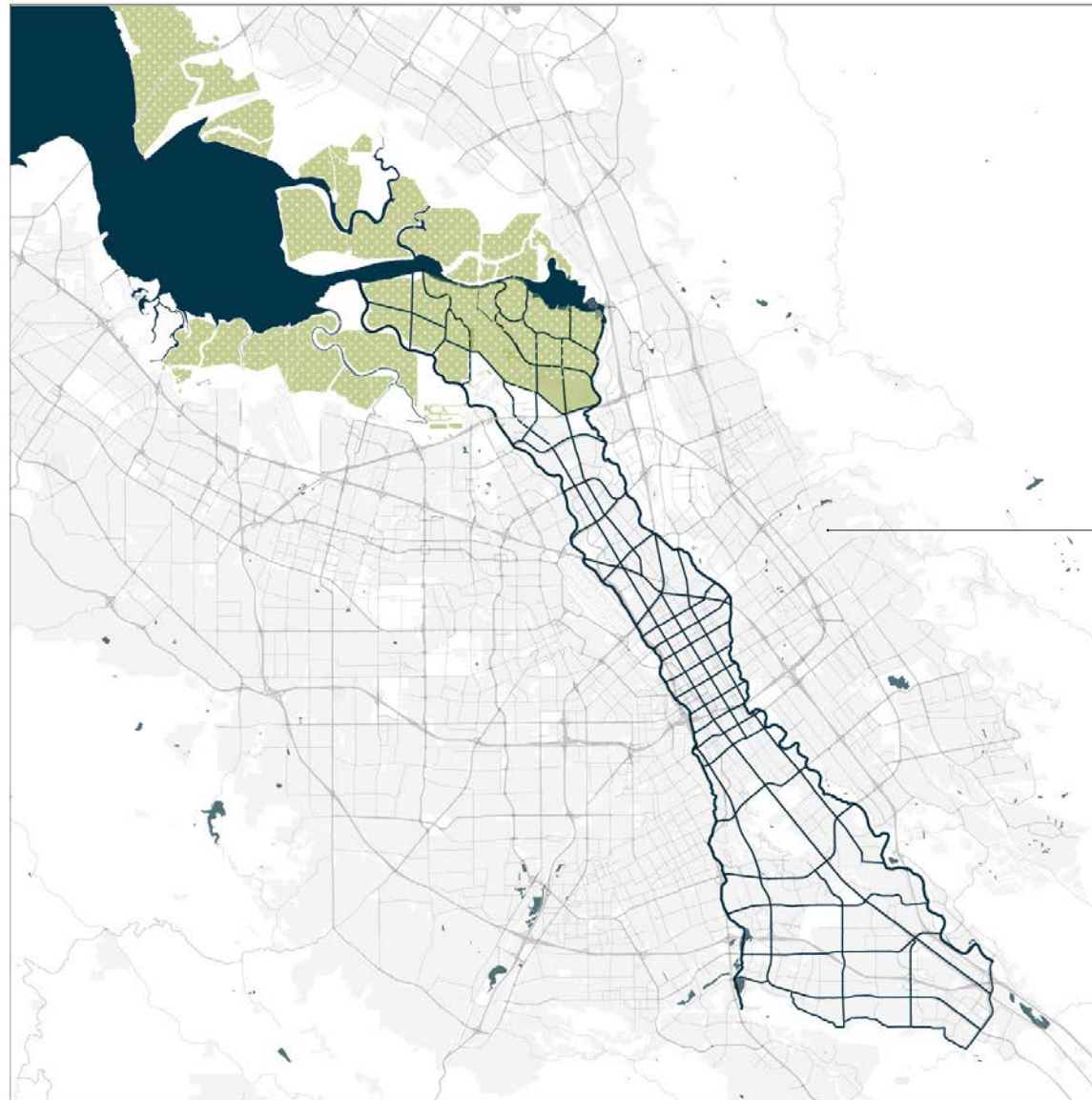
New development
for Silicon valley

Re-concentration
by re-development



New occupation pattern
in **Post-** Post-industrialization

Strategy

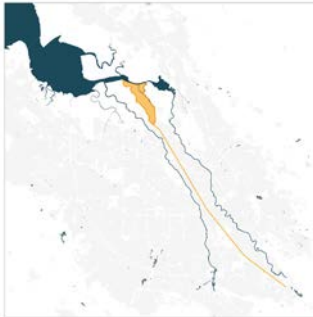


Network of
Blue/green infrastructure

**Connecting two river
streams to make a new ur-
ban core of San Jose**

Tools

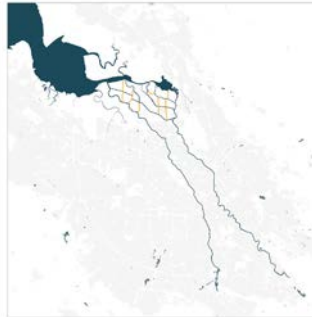
1. Sub-coring



2. Splitting



3. Braiding



4. Stitching



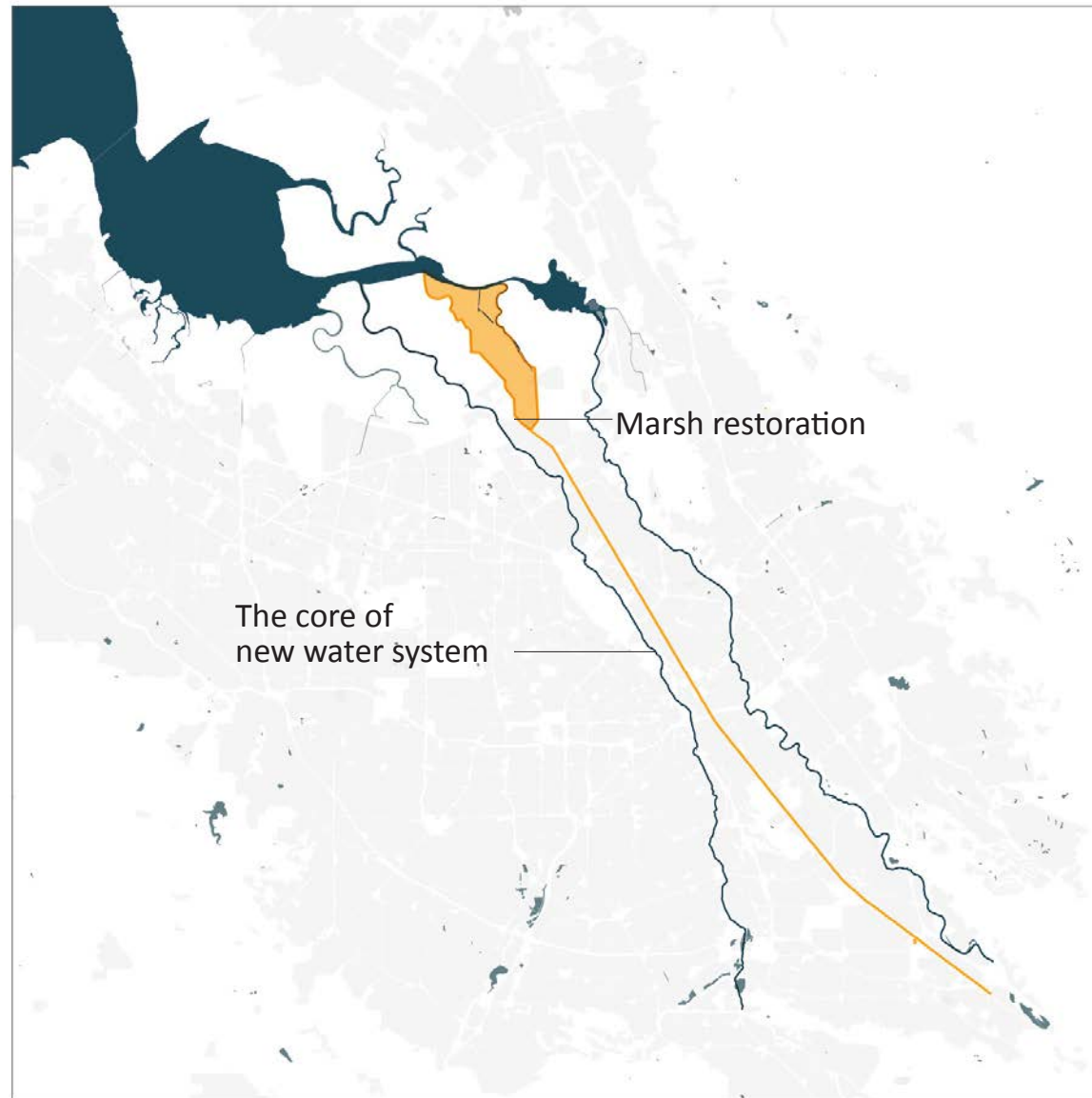
5. Binding



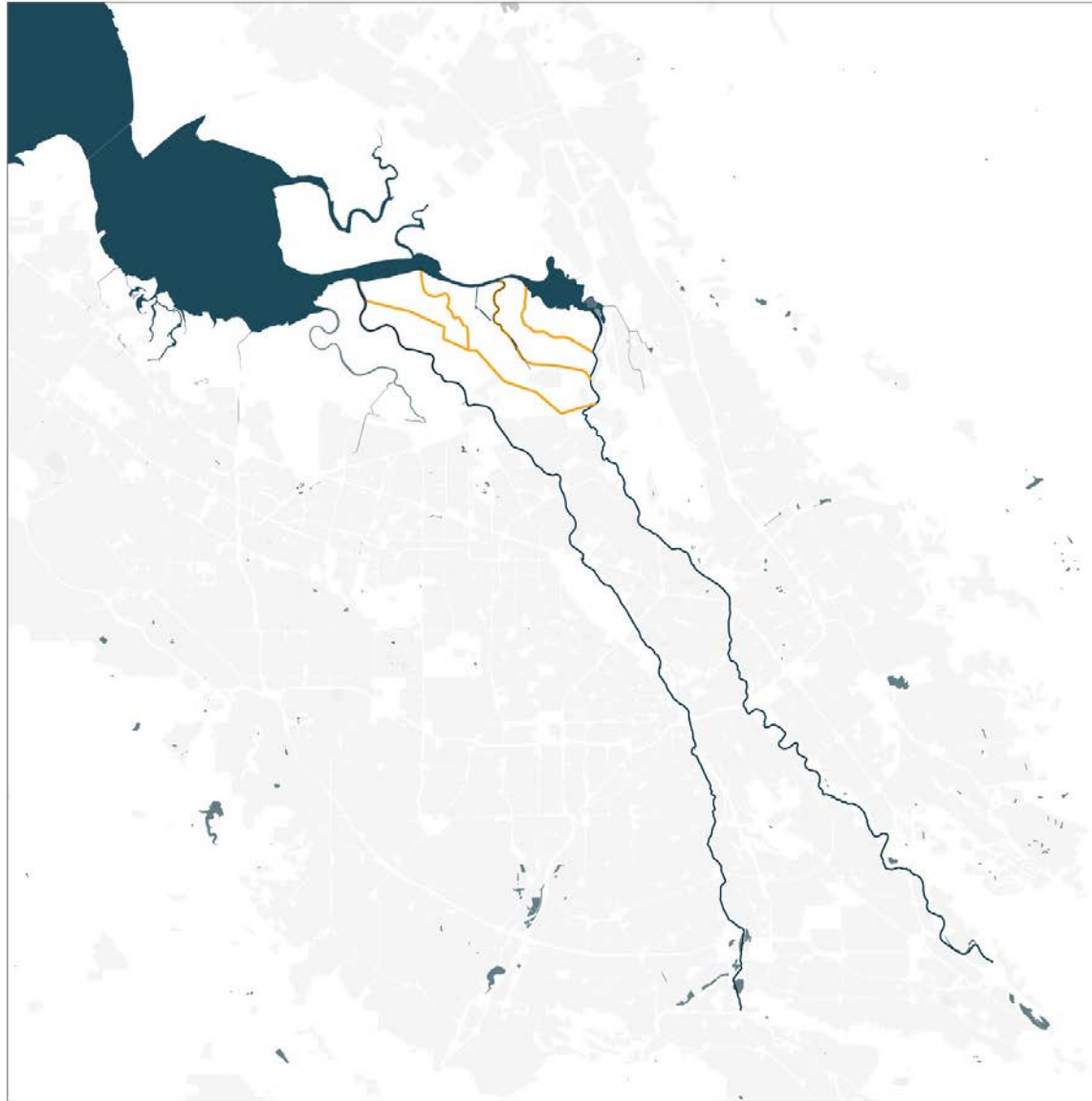
6. Netting



1. Sub-coring

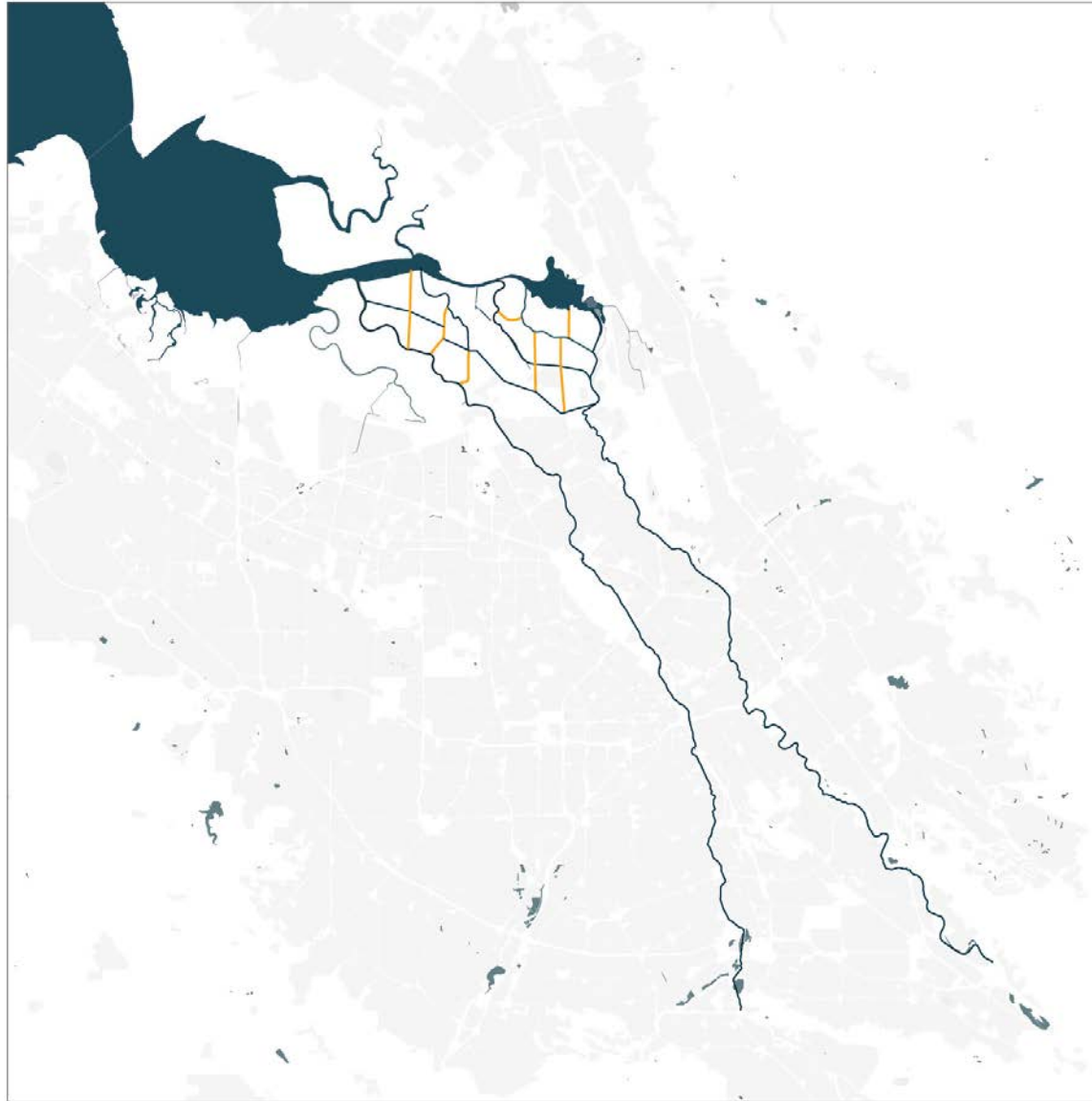


2. Splitting



Splitting the stream of river
to settle sediment through the area

3. Braiding



Splitting the stream of river
to distribute sediment in the area

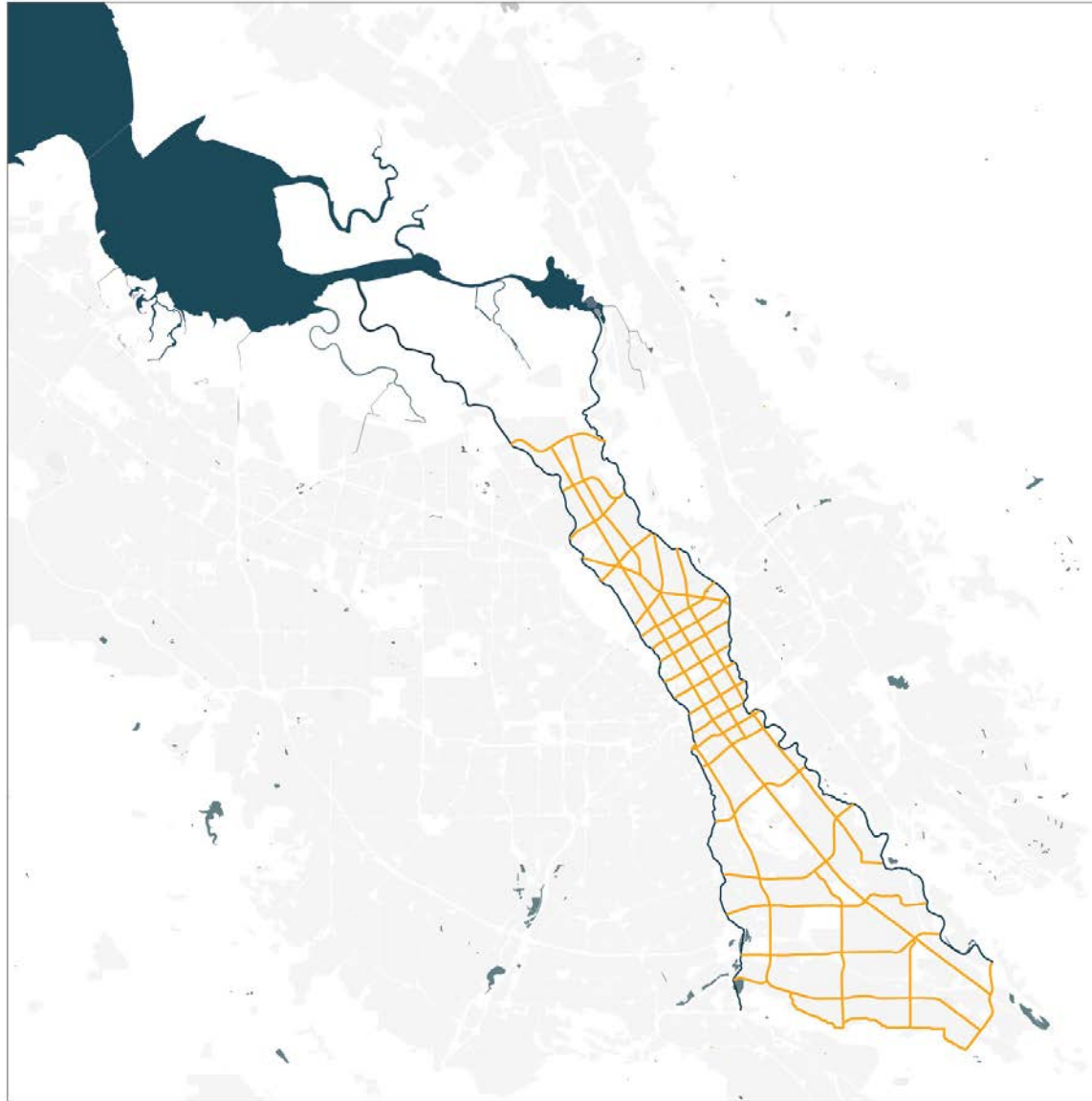
4. Stitching

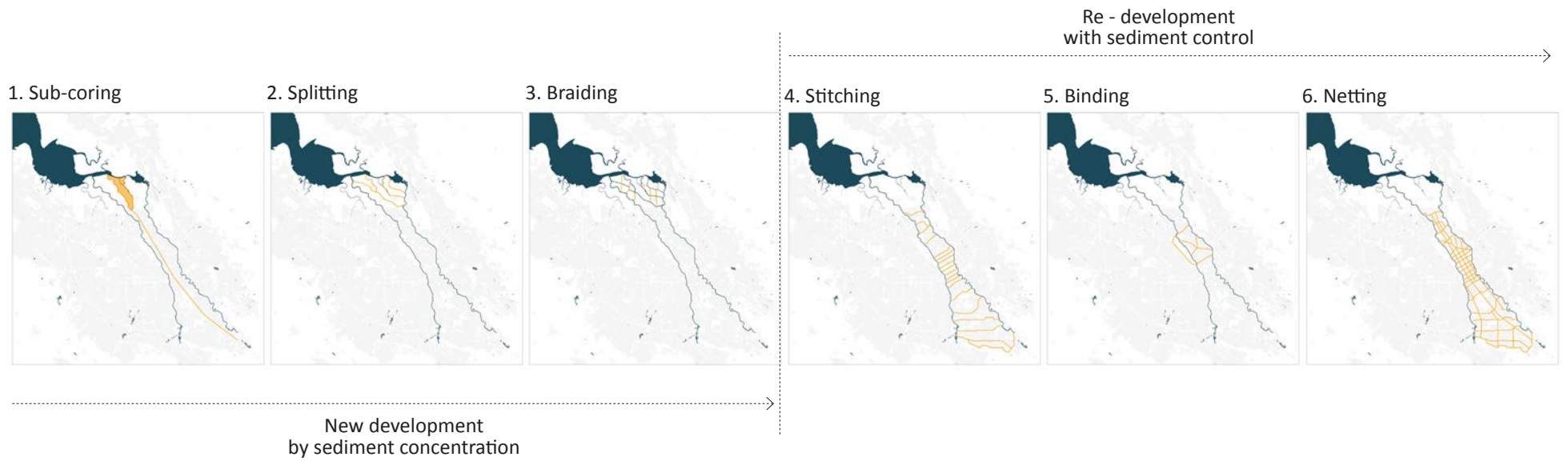


5. Binding



6. Netting

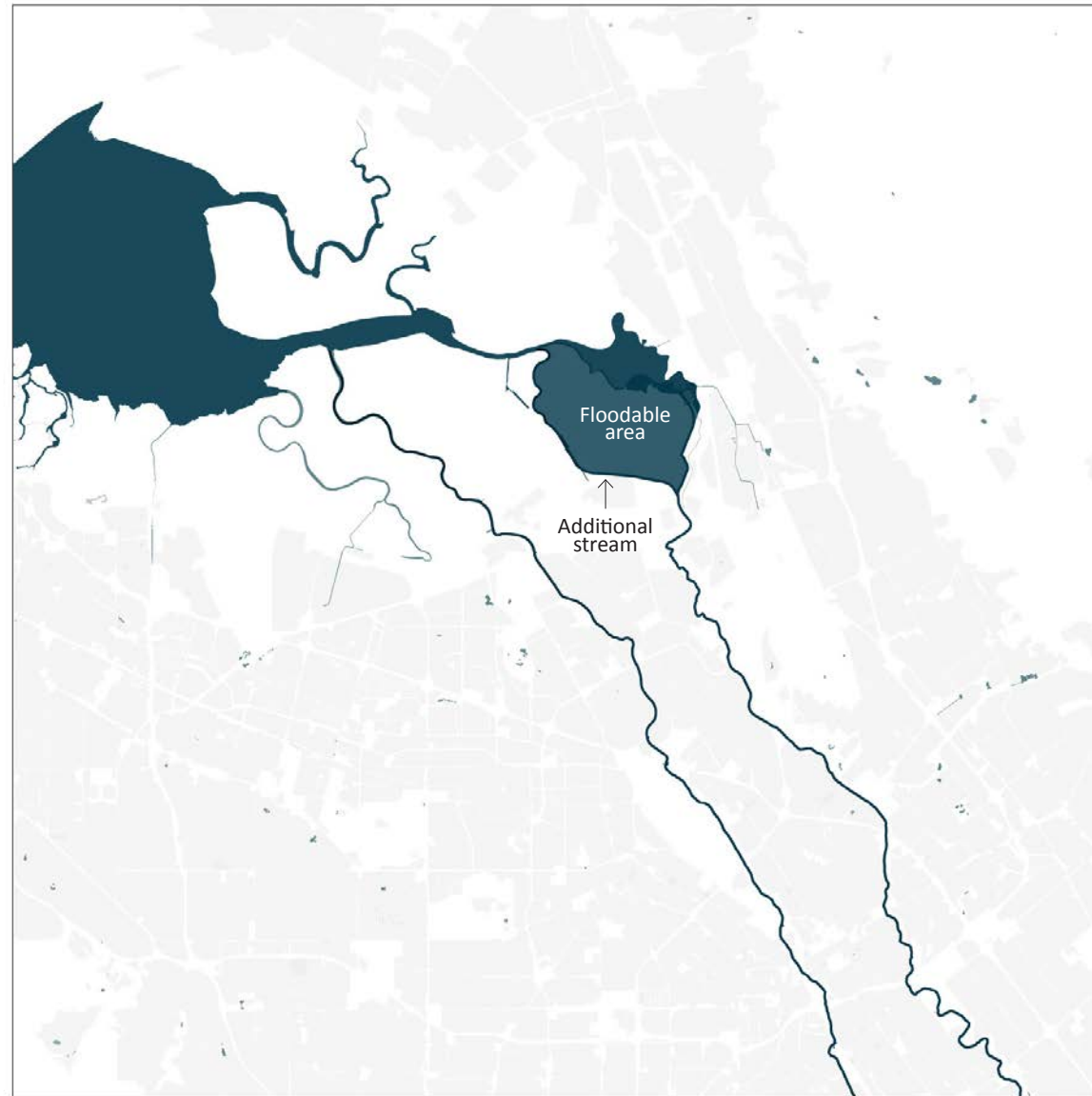




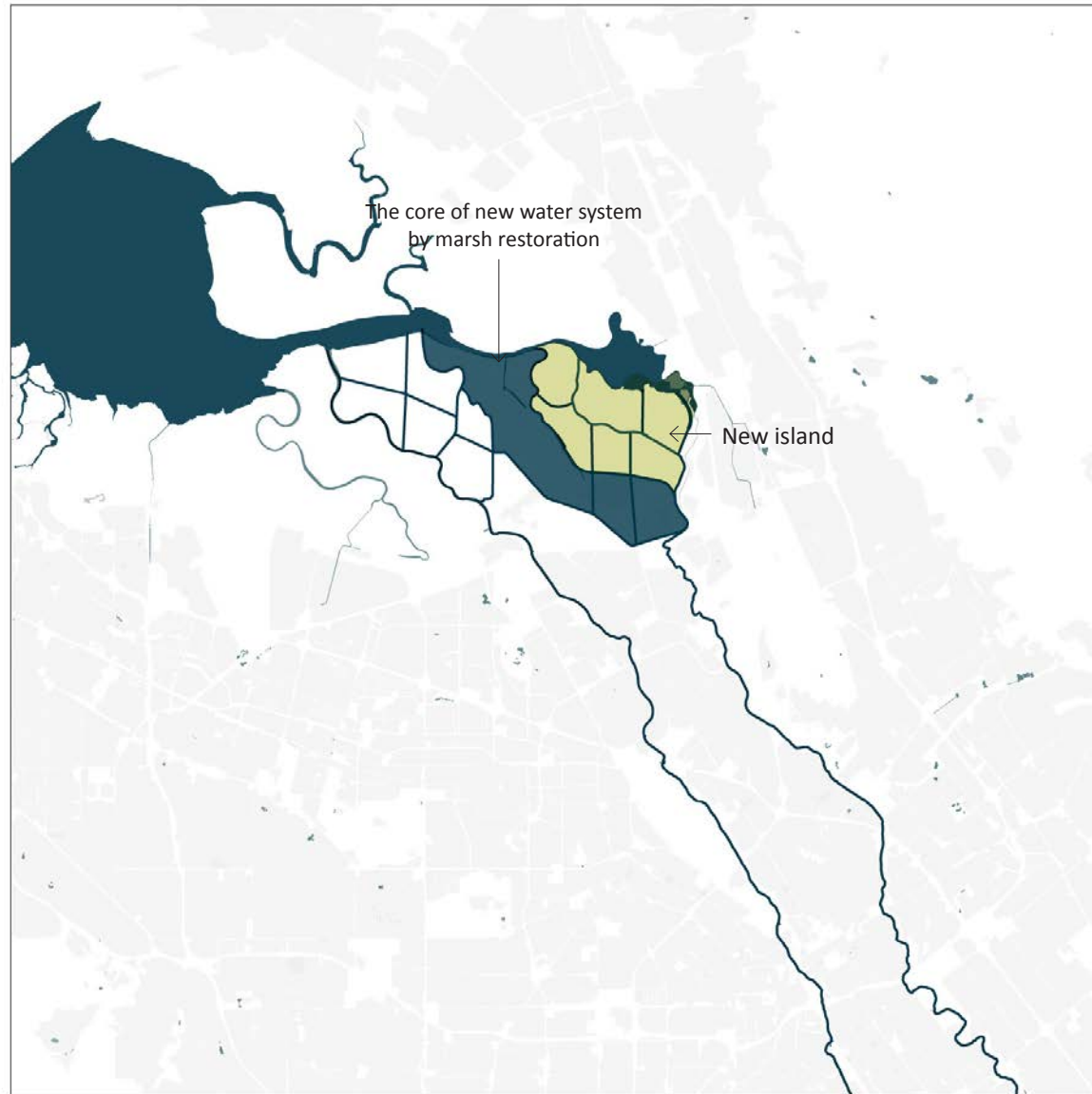
Area



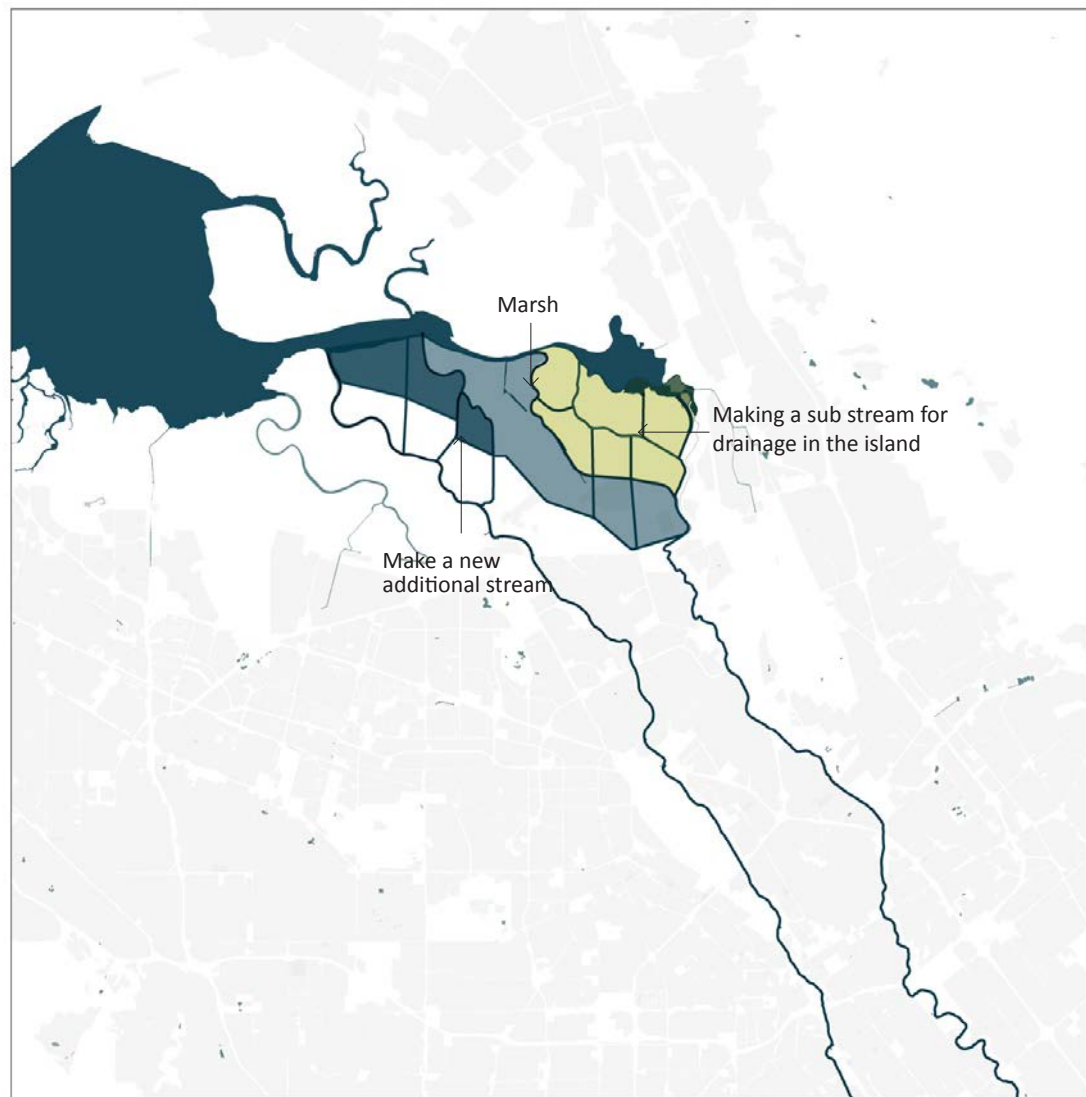
Phase 1.



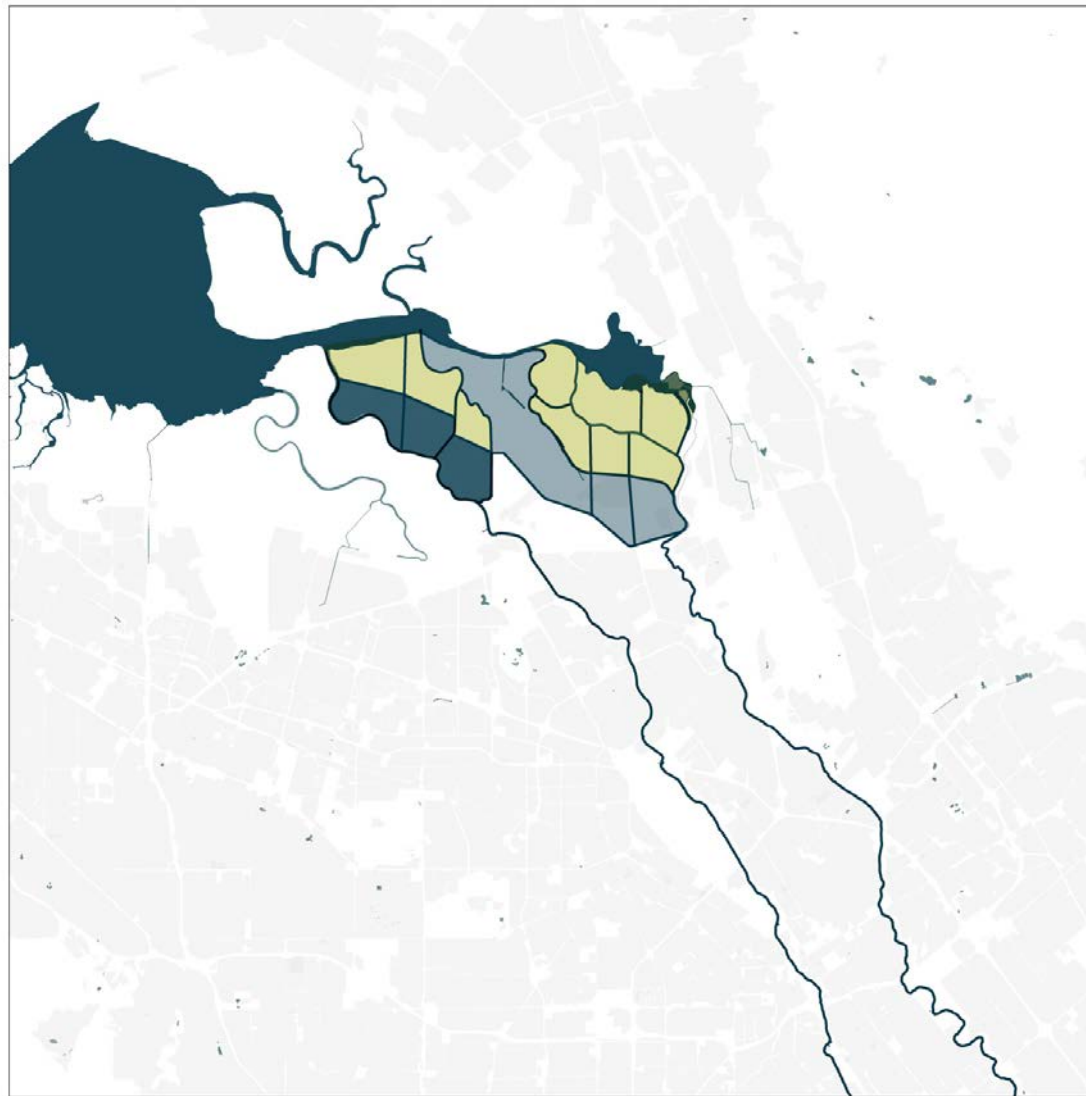
Phase 2.



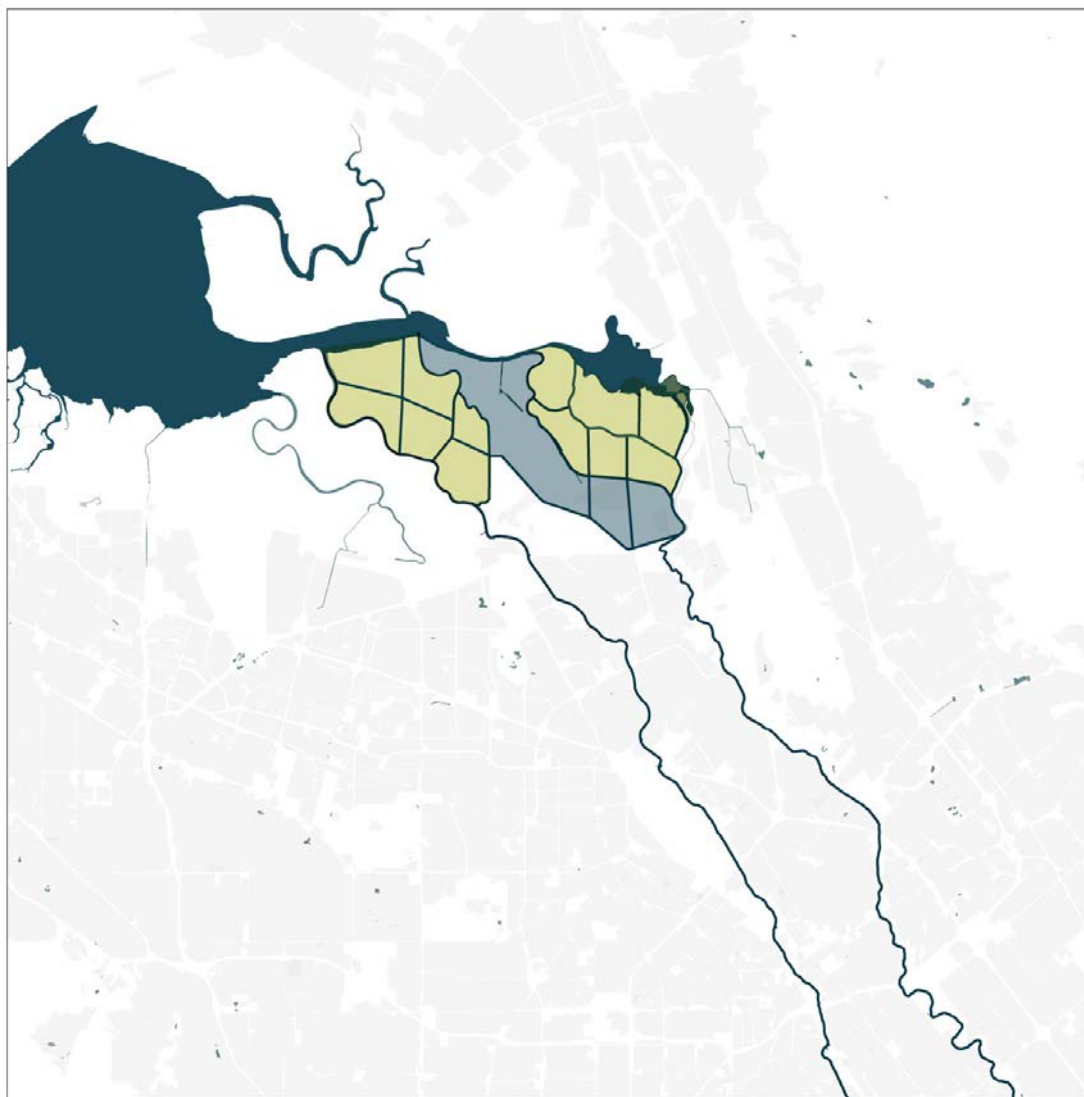
Phase 3.



Phase 4.



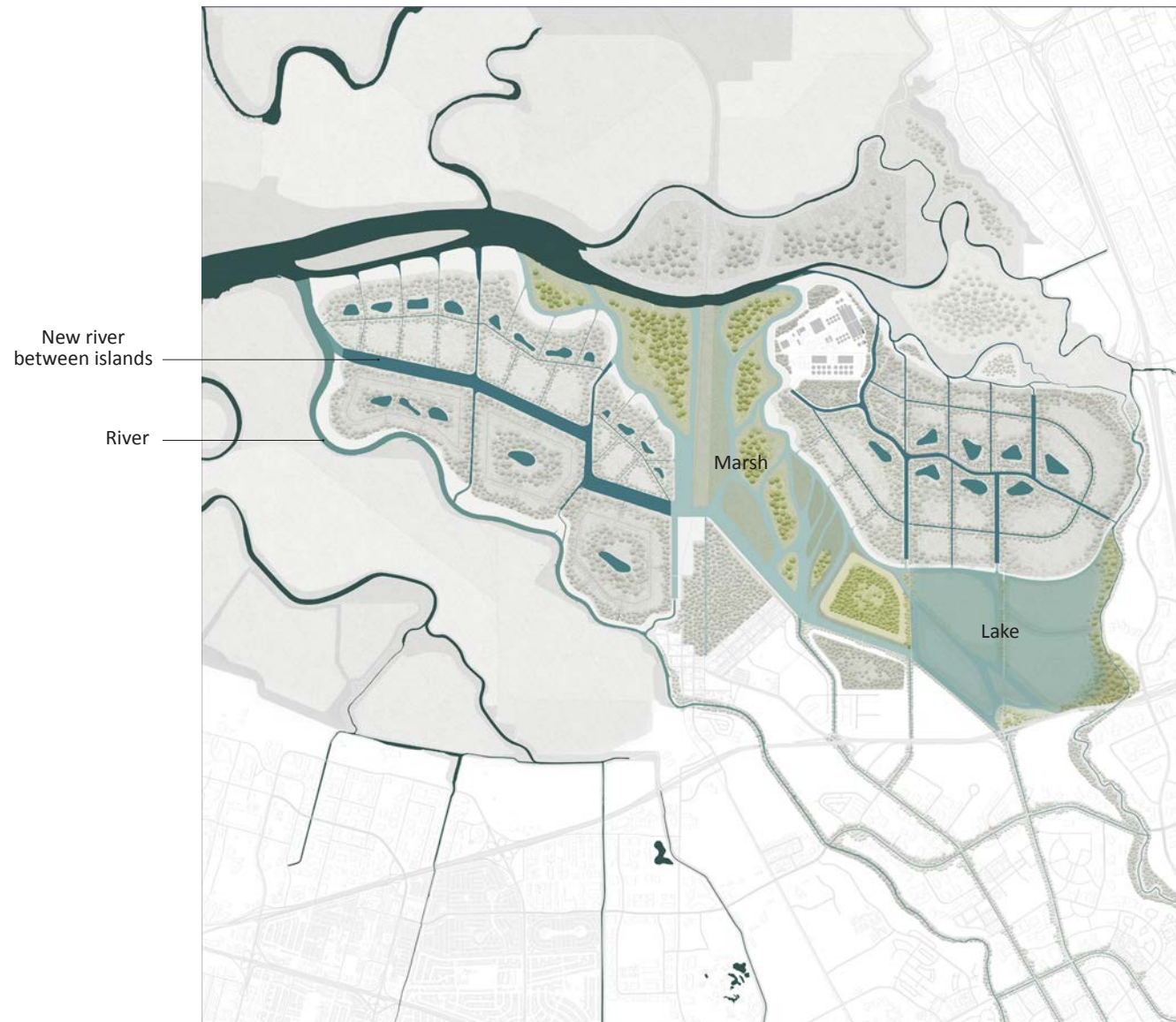
Phase 5.



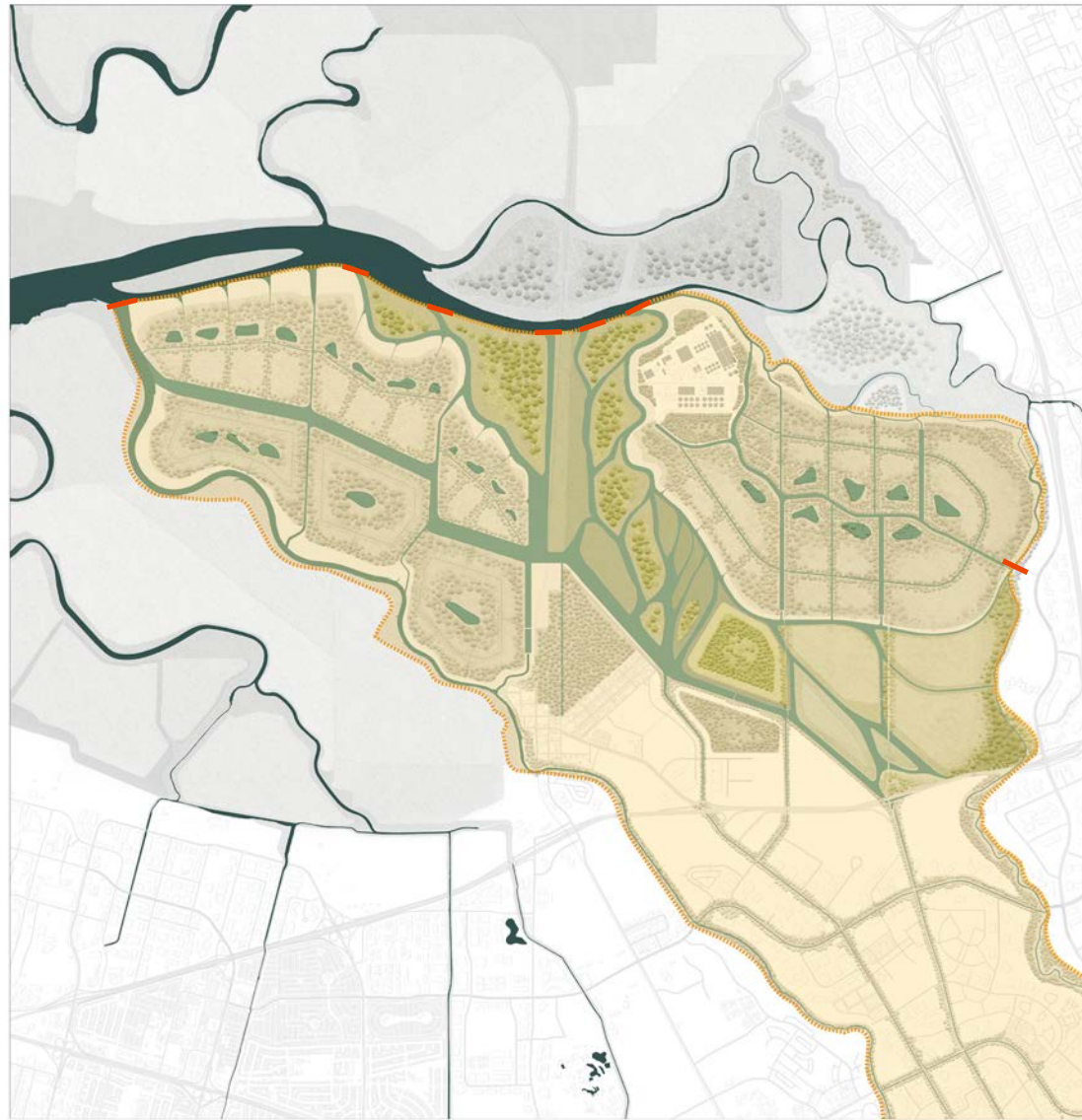
Landscape setting
for the new development area



Different water levels by layered levees
for water management



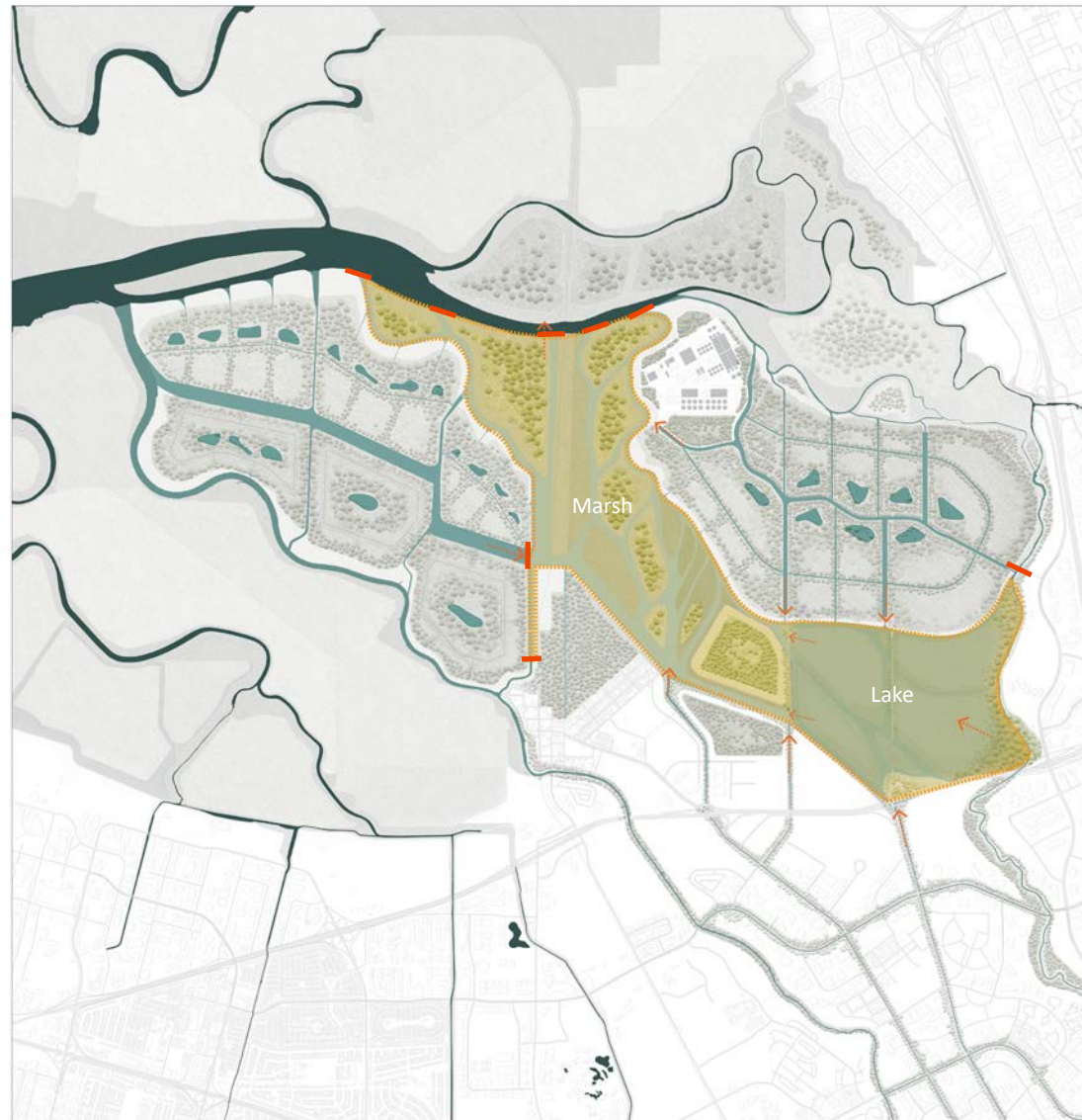
Different water levels by layered levees
for water management



Clustering islands

Different water levels by layered levees
for water management

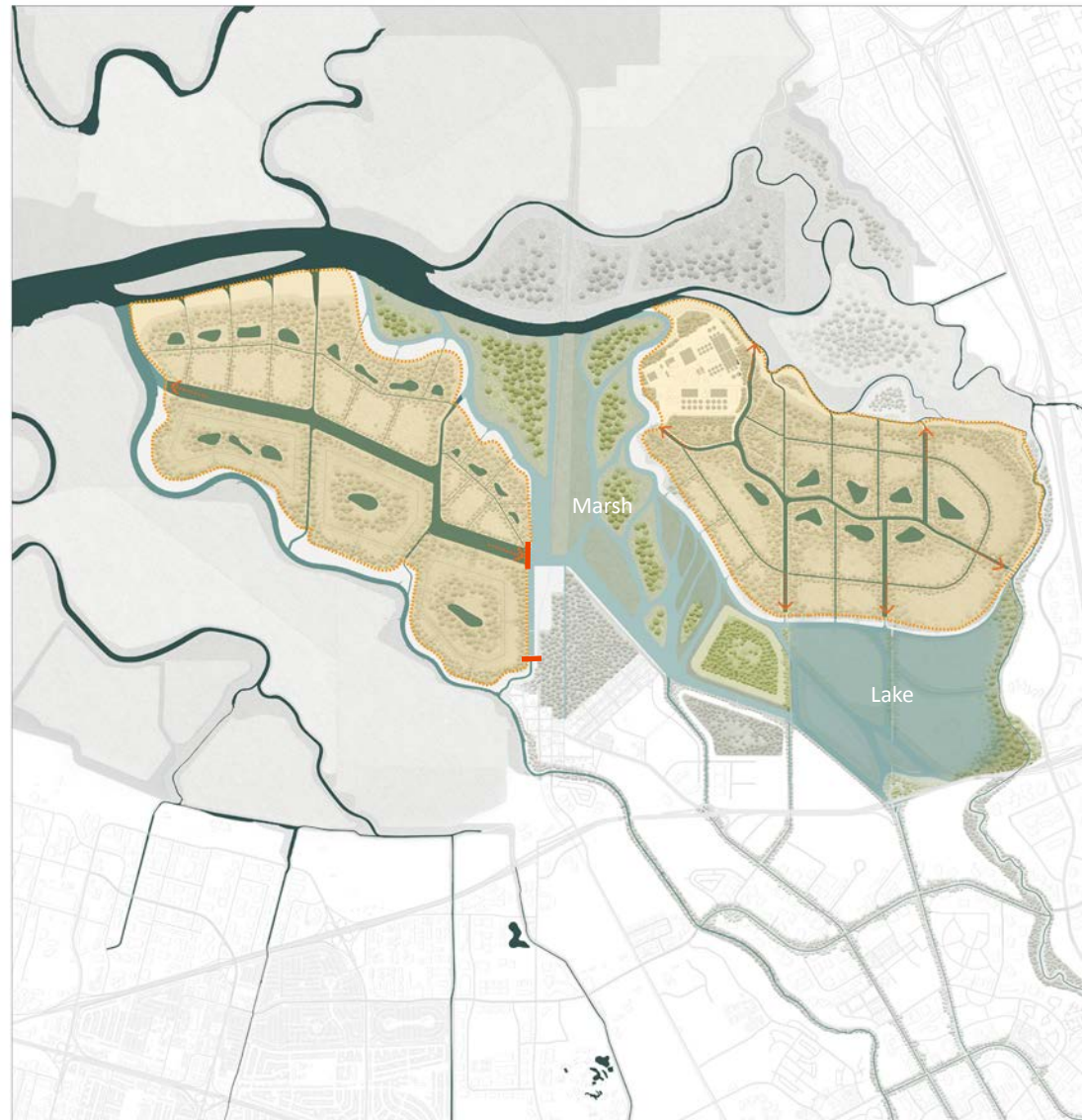
Sub-division 1



The core of water management system
in the new development area

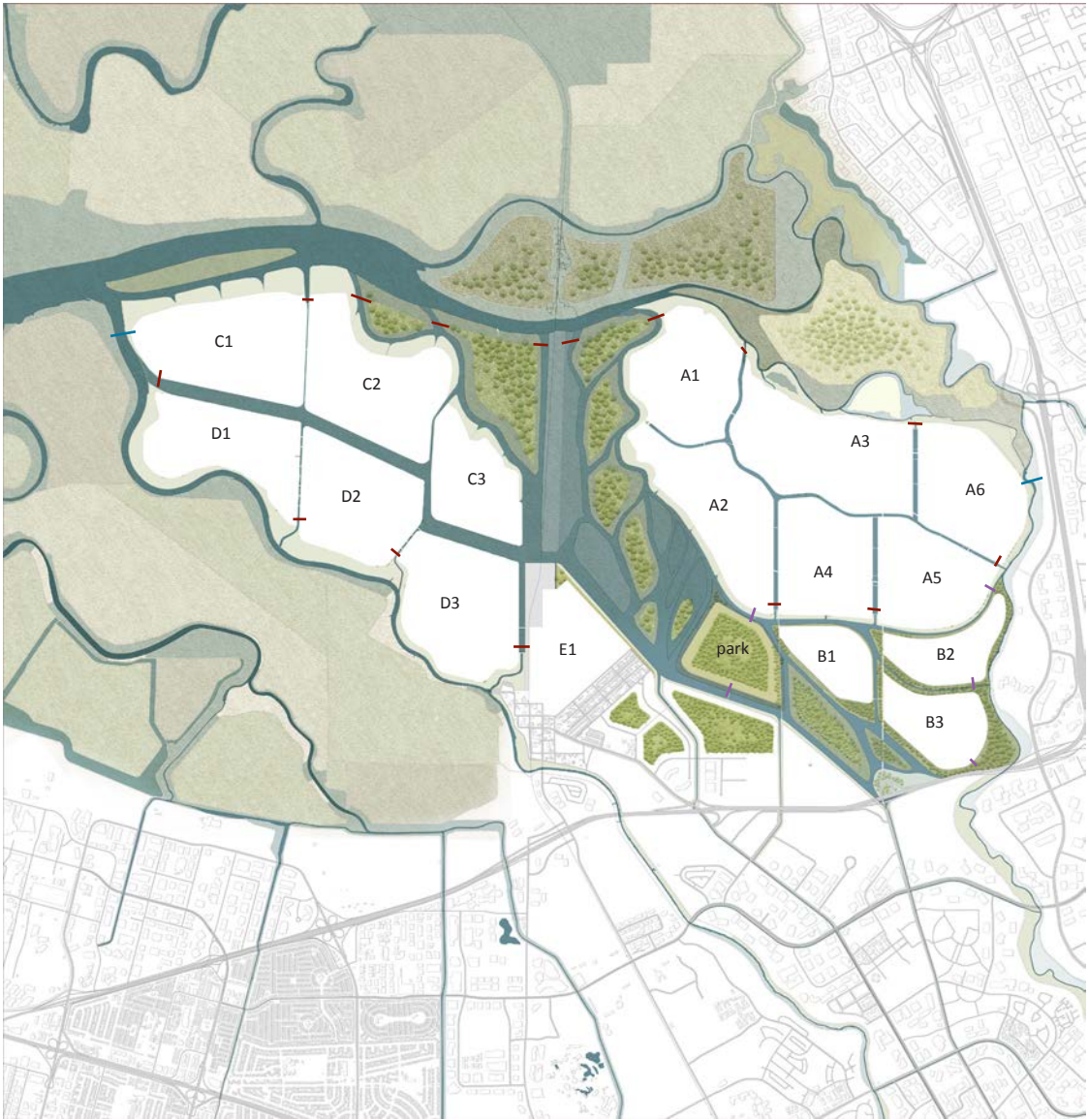
Different water levels by layered levees
for water management

Sub-division 2

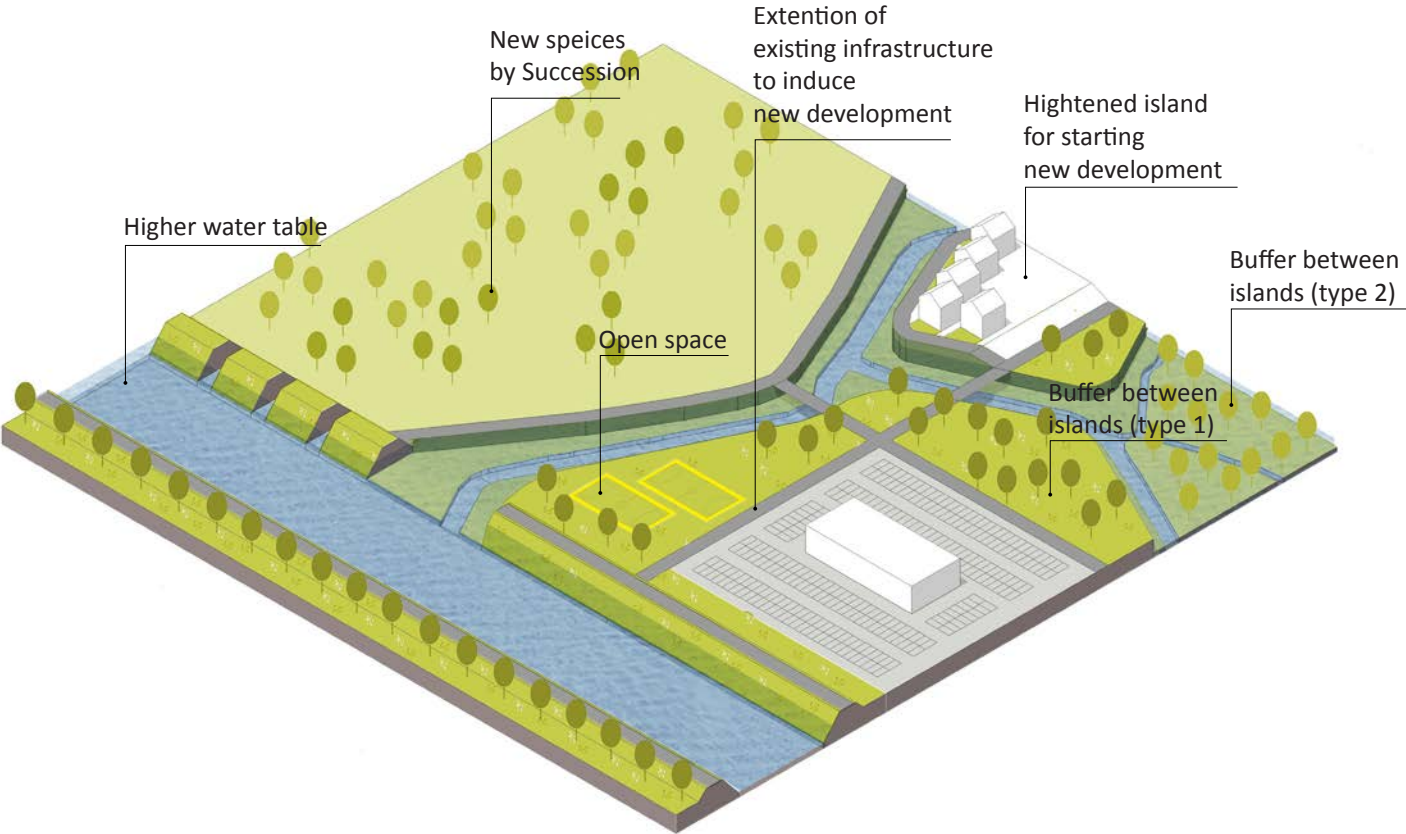


Higher water level for water friendly environment
prompting new development

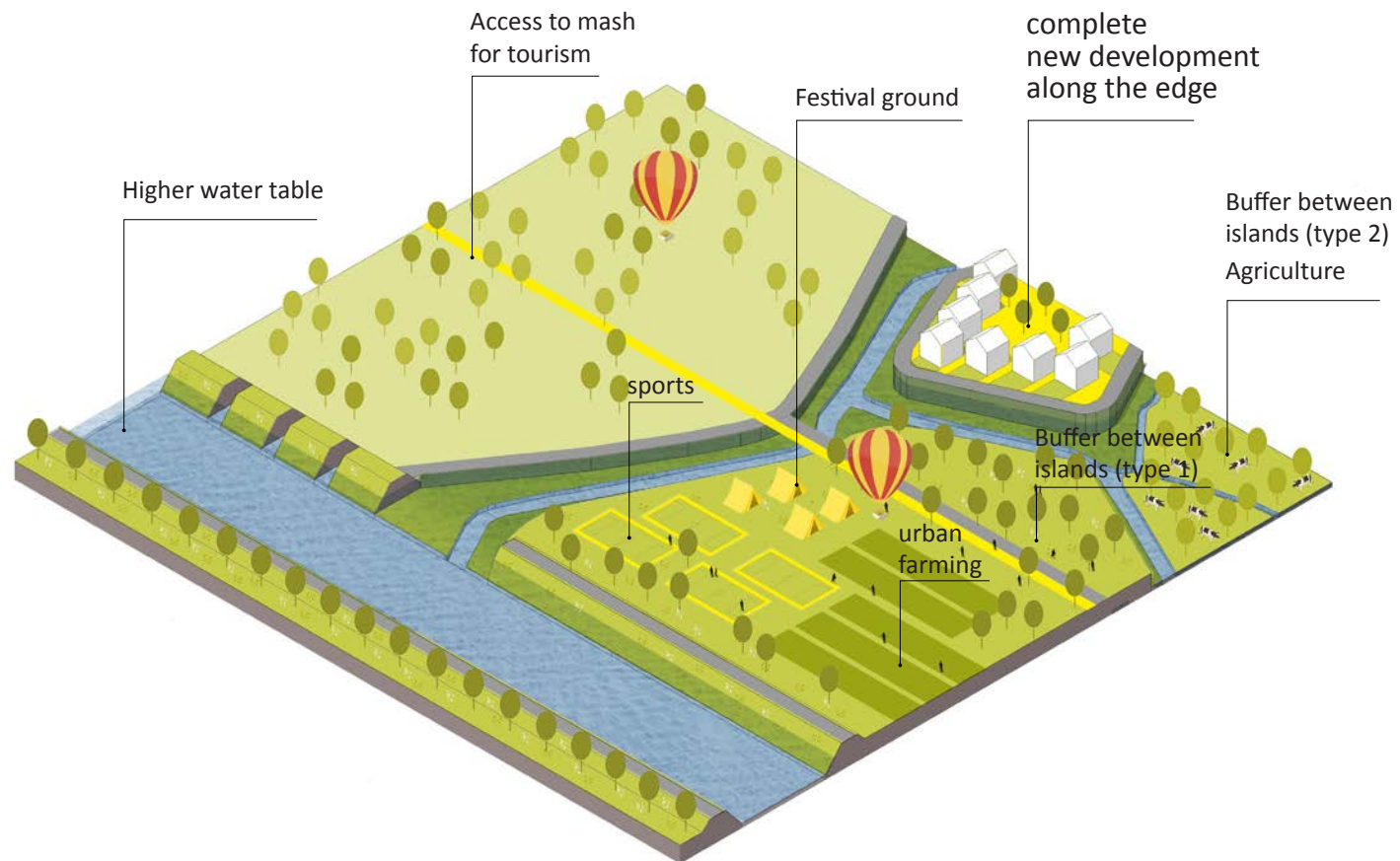
District



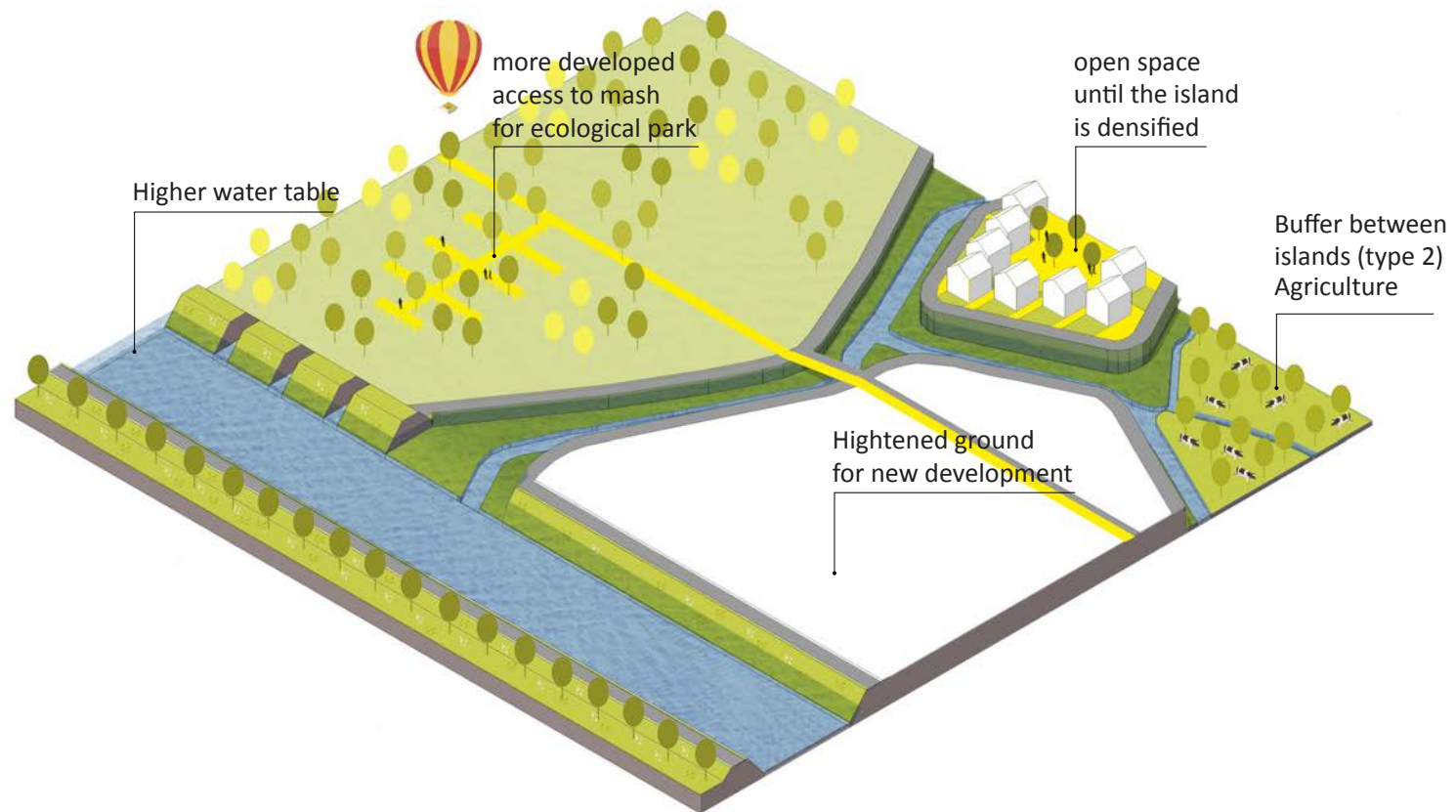
Blue-green infrastructure



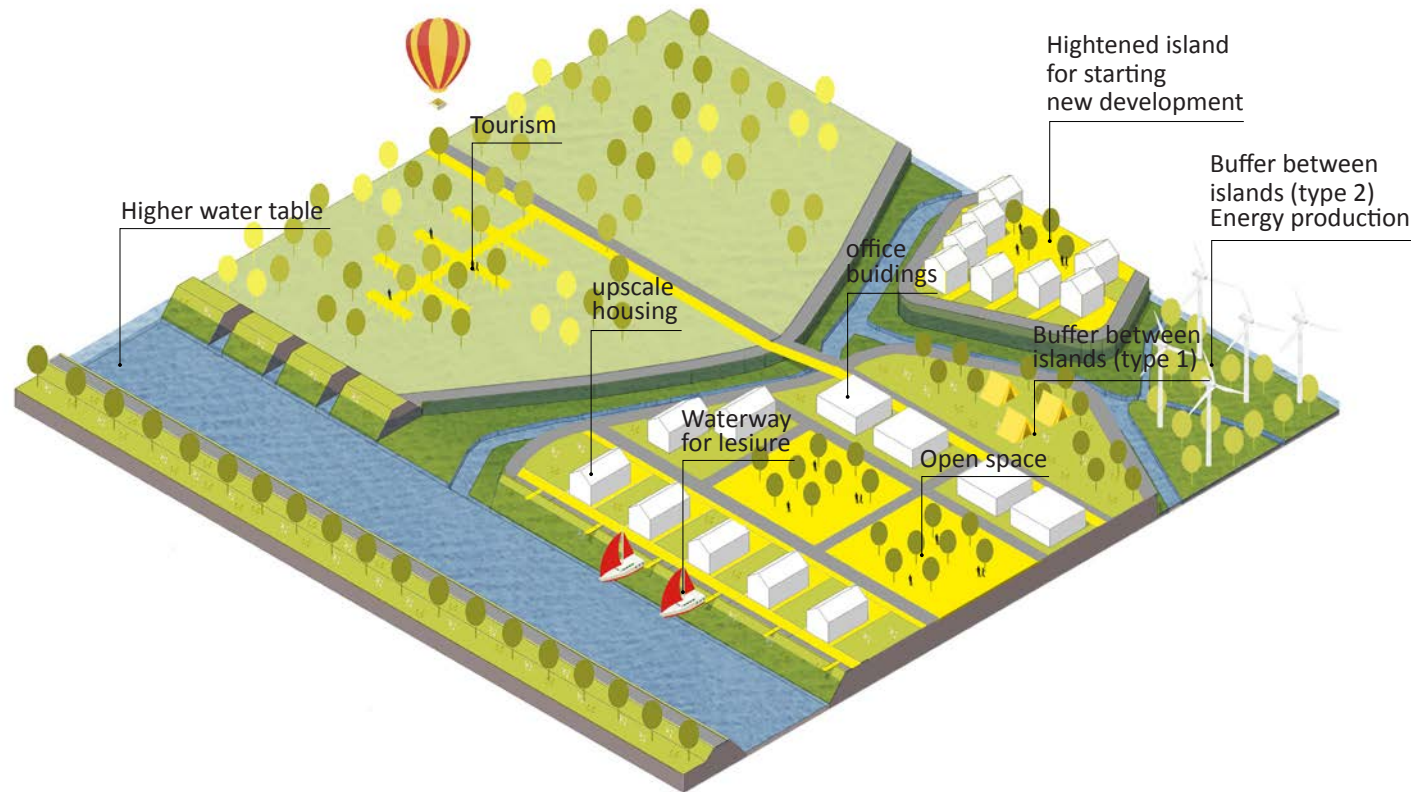
Phase 2
Soft urbanisation



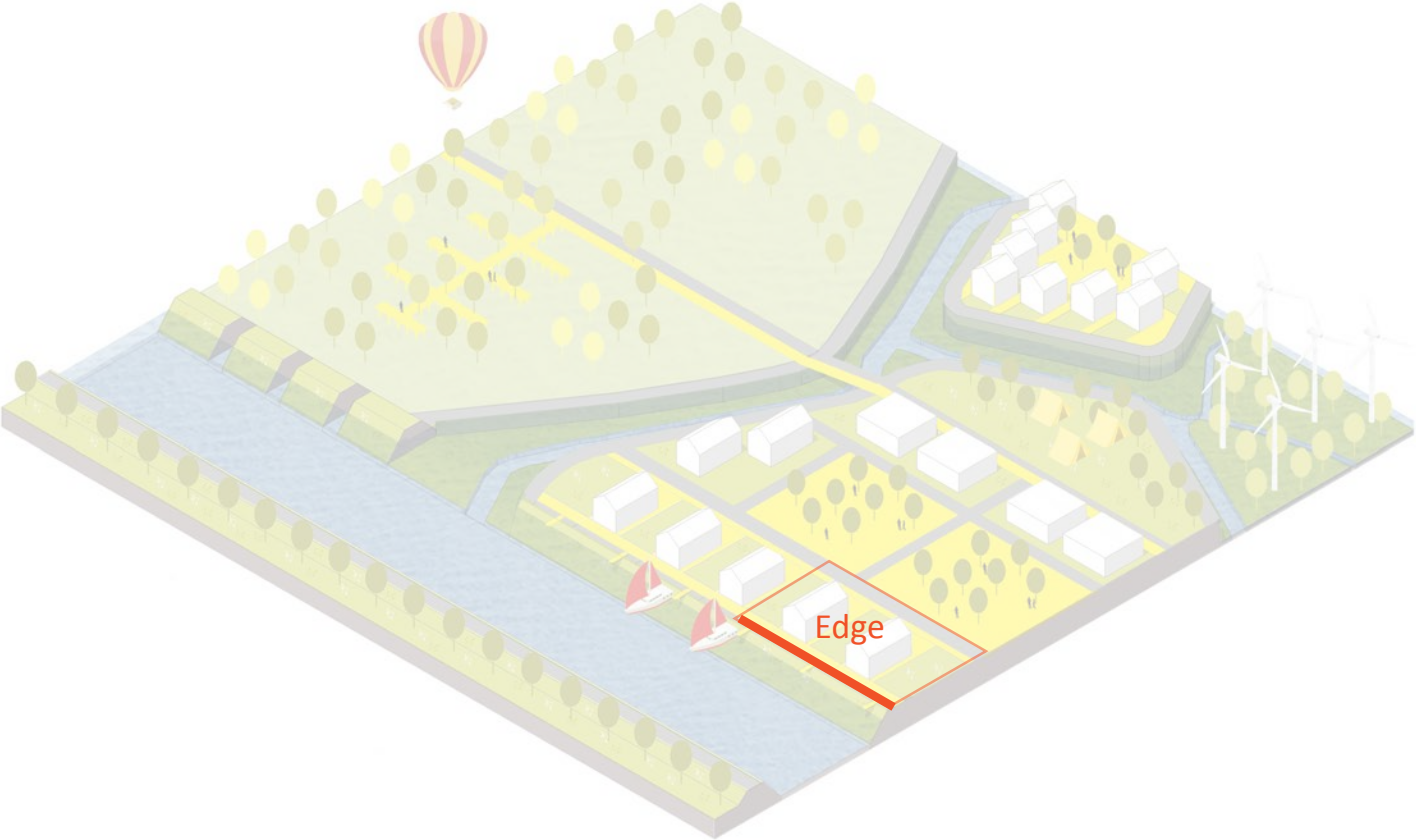
Phase 3
New development I



Phase 4
New development II

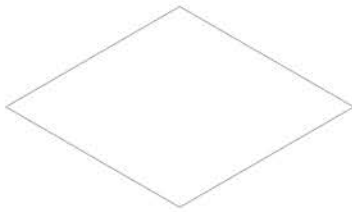


Block

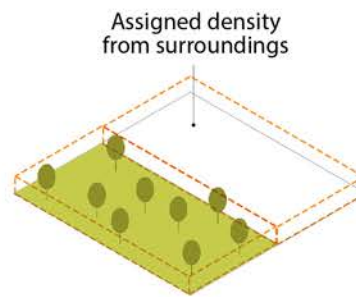


Open space:New(re-) development = 1:1

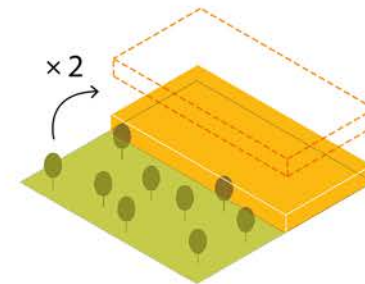
Empty plot



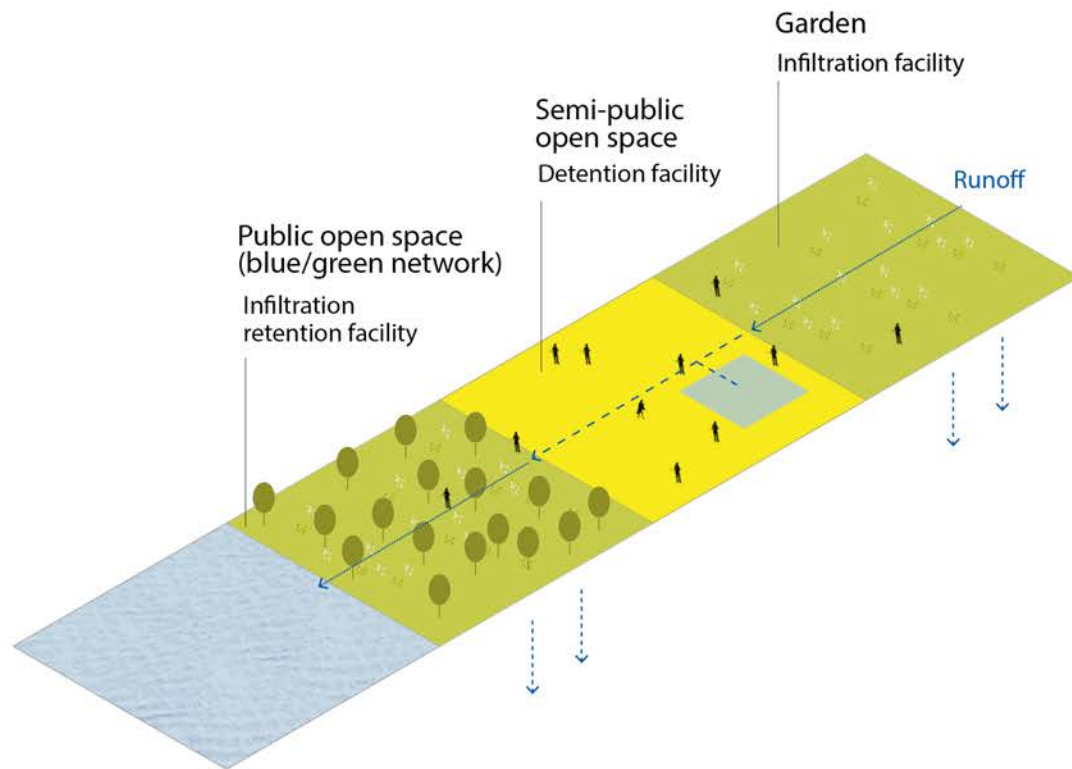
Development of
Open space 50%



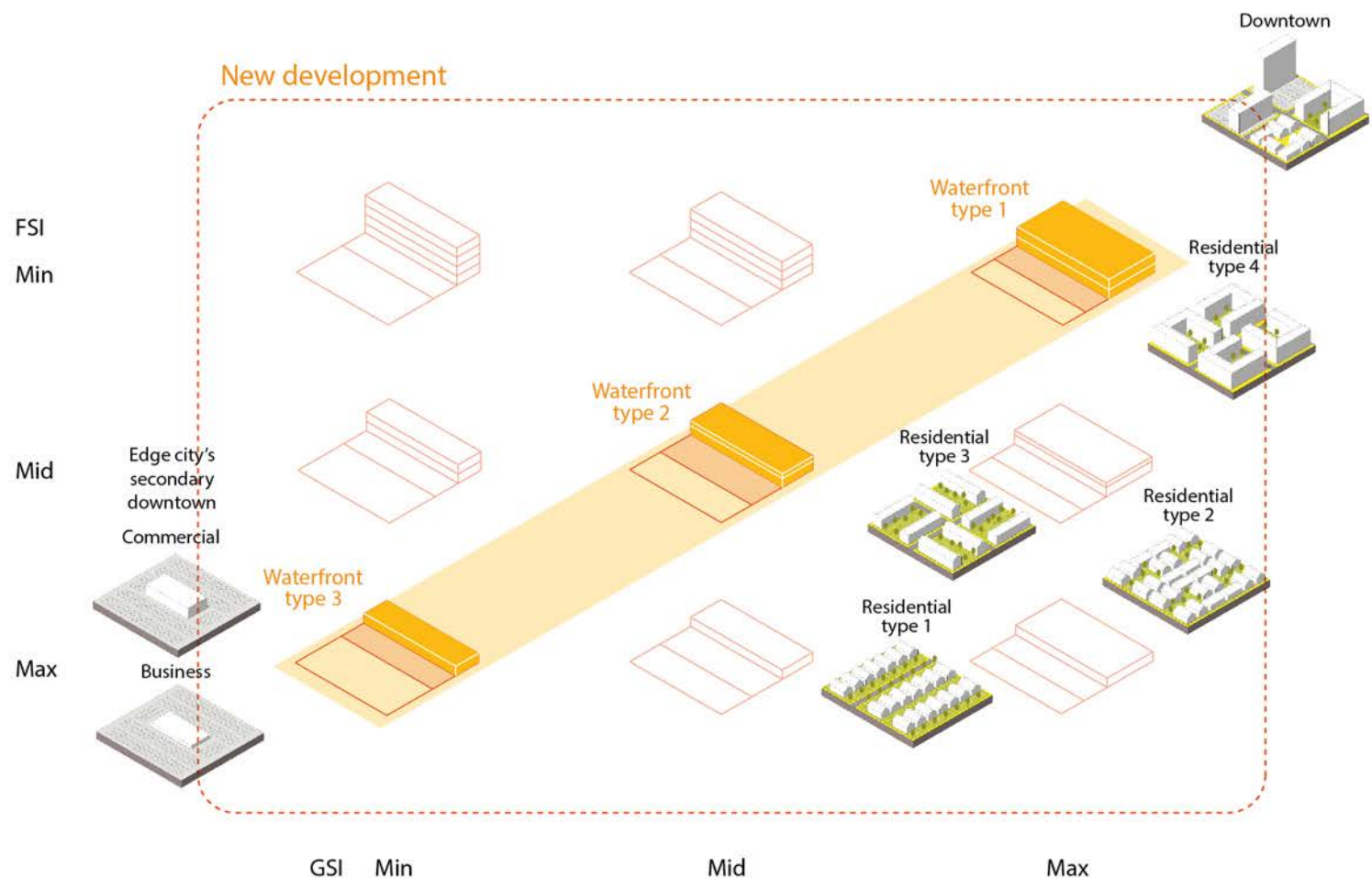
New development



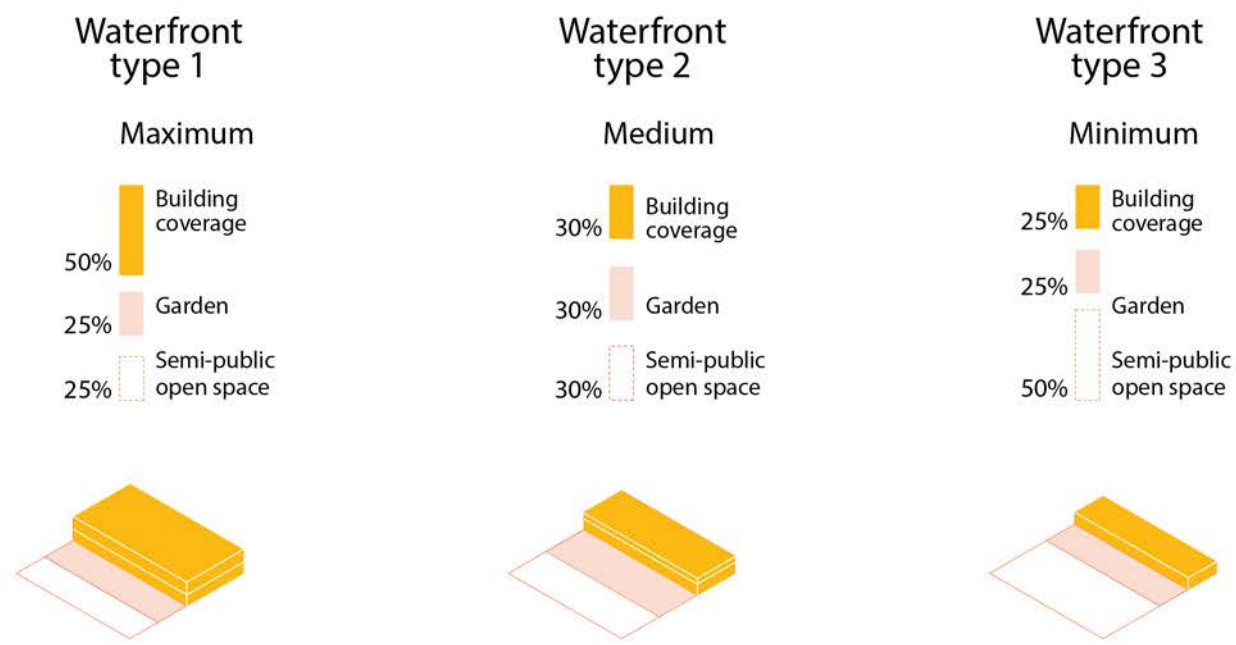
Elements of open space



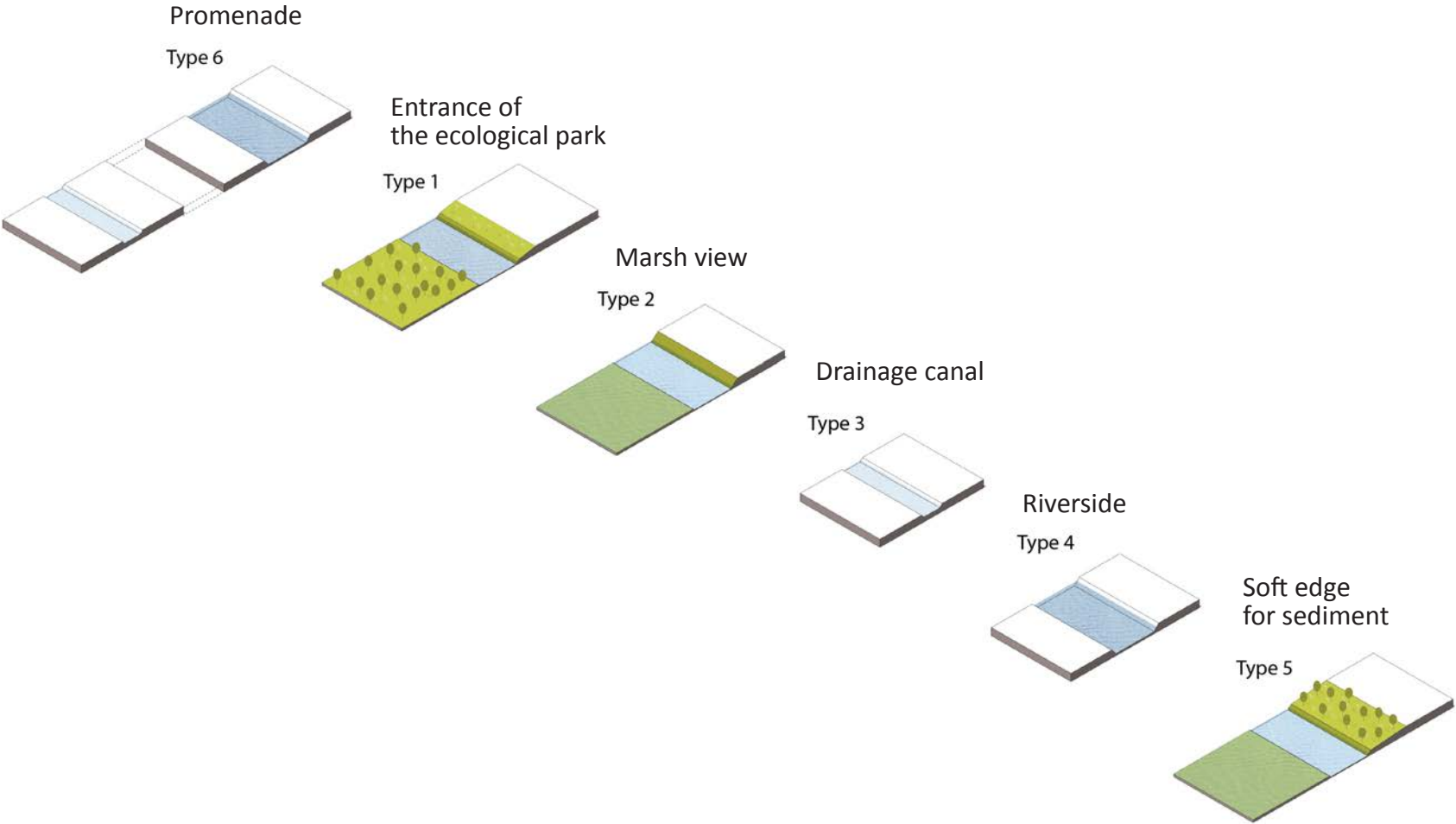
Density for development



Development for the edges



Edge types



Criteria

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite
Housing
park
marsh
commercial/business

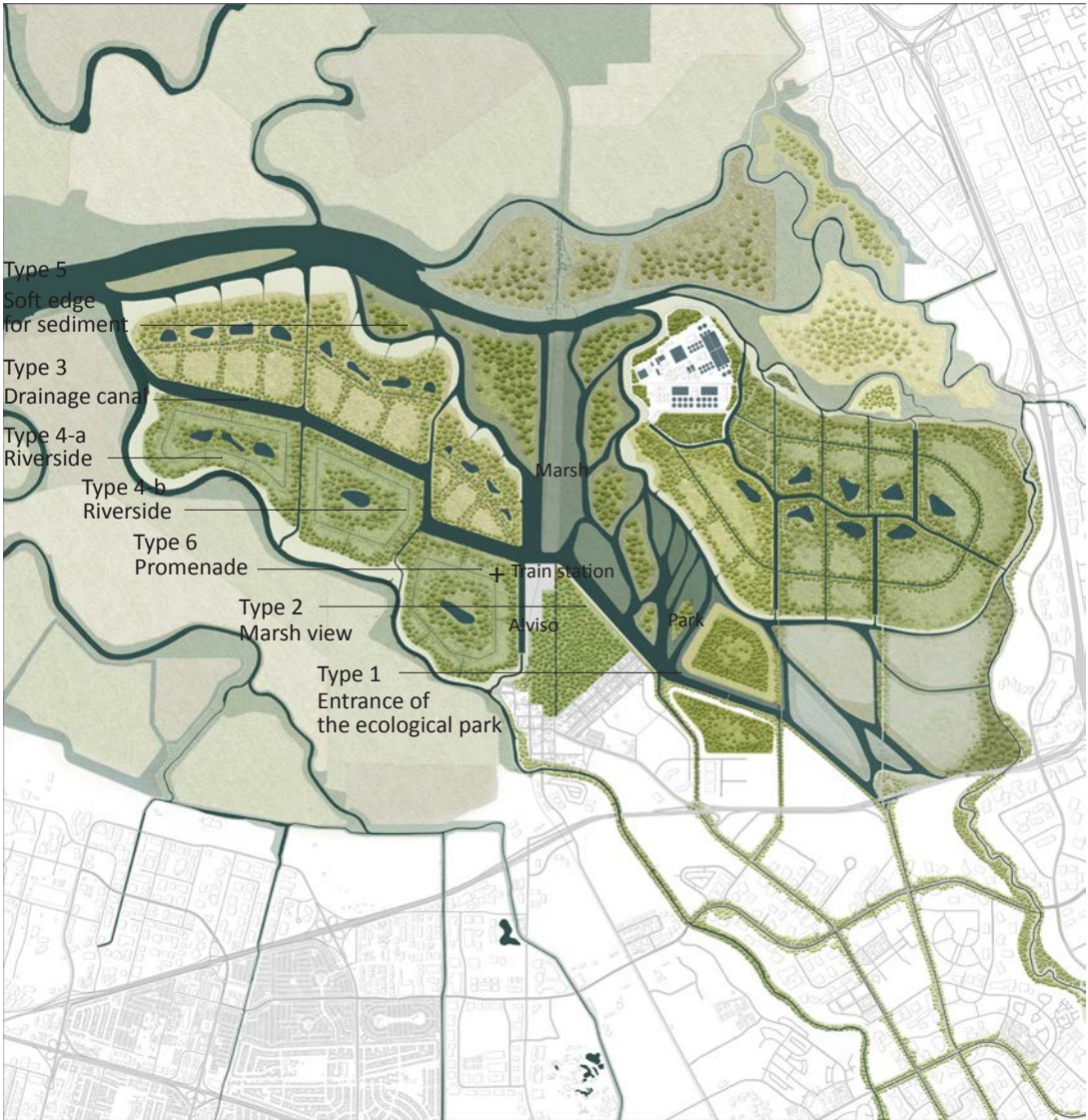
Edge

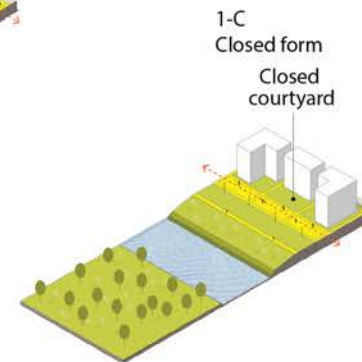
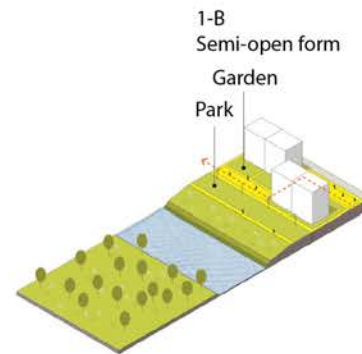
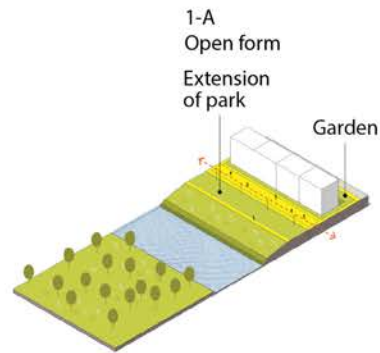
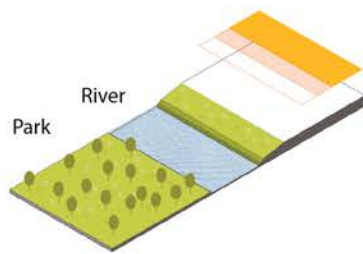
Material	Form
hard	slope (access to water)
soft/hard	slope/no slope
soft(natural)	no slope

Proximity

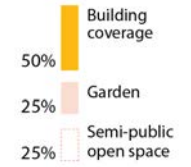
The edge opposite	Infrastructure (Arterial)
close	close
medium	irrelevant
far	far

Location of the edges





Development type
Waterfront type1



Entrance of the ecological park

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite

Housing
park
marsh
commercial/business

Edge

Material	Form
hard	slope
soft/hard	slope/no slope
soft(natural)	no slope

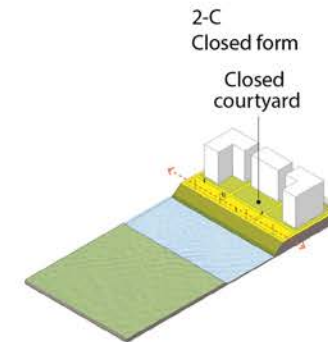
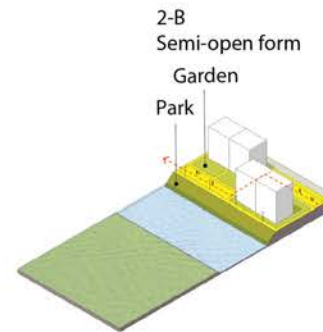
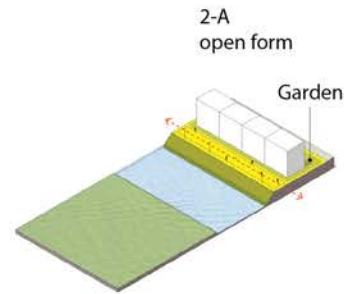
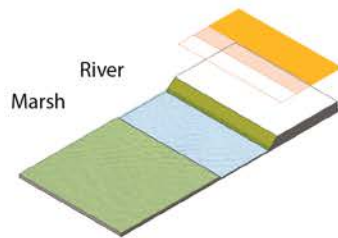
Proximity

The edge opposite

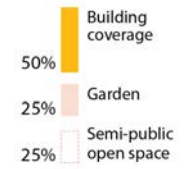
close
irrelevant
far

Infrastructure (Arterial)

close
irrelevant
far



Development type
Waterfront type1



Marsh view

Mixed use
Marsh view

Water way

Type	Width	Depth
River marsh drainage canal	wide(>15m) various narrow(<5m)	deep(>5m) medium(>2m,<5m) shallow(<2m)

View

Program of
the edge oppsite

Housing
park
marsh
commercial/business

Edge

Material	Form
hard soft/hard soft(natural)	slope slope/no slope no slope

Proximity

The edge
opposite

close
irrelevant
far

Infrastructure
(Arterial)

close
irrelevant
far

Drainage canal

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite

Housing
park
marsh
commercial/business

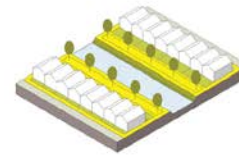
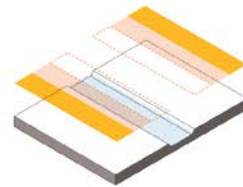
Edge

Material	Form
hard	slope
soft/hard	slope/no slope
soft(natural)	no slope

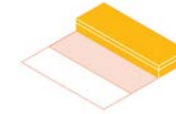
Proximity

The edge opposite

close
irrelevant
far

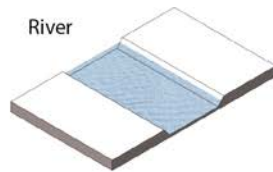


Development type Waterfront type 2

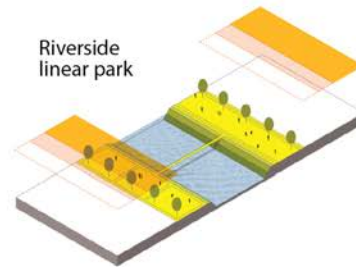


Medium

- 30% Building coverage
- 30% Garden
- 30% Semi-public open space

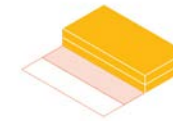


River

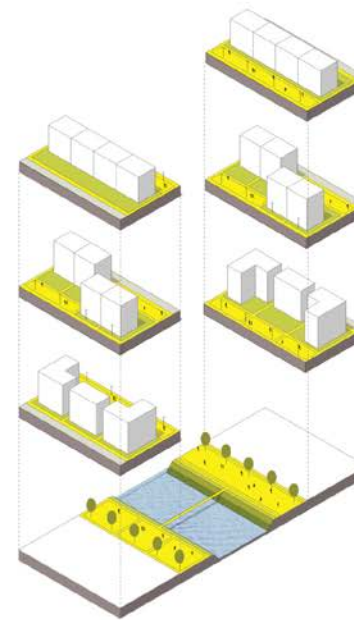


Riverside
linear park

Development type Waterfront type1



- 50% Building coverage
- 25% Garden
- 25% Semi-public open space



Riverside

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite

Housing
park
marsh
commercial/business

Edge

Material	Form
hard	slope
soft/hard	slope/no slope
soft(natural)	no slope

Proximity

The edge opposite

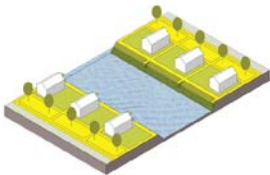
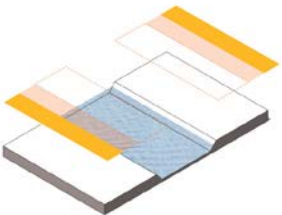
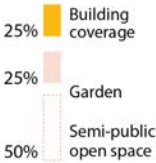
close
irrelevant
far

Infrastructure (Arterial)

close
irrelevant
far

Development type

Waterfront type3



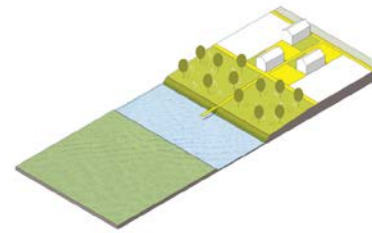
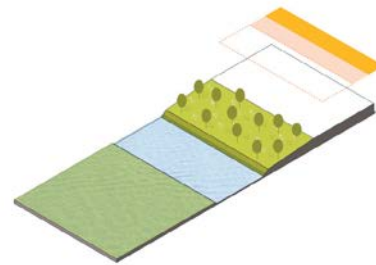
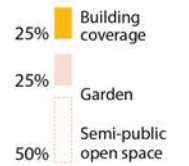
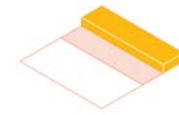
Riverside

Water way			View
Type	Width	Depth	Program of the edge oppsite
River	wide(>15m)	deep(>5m)	Housing
marsh	various	medium(>2m,<5m)	park
drainage canal	narrow(<5m)	shallow(<2m)	marsh
			commercial/business

Edge		Proximity	
Material	Form	The edge opposite	Infrastructure (Arterial)
hard	slope	close	close
soft/hard	slope/no slope	irrelevant	medium
soft(natural)	no slope	far	far

Development type

Waterfront type3



Soft edge for sediment

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite

Housing
park
marsh
commercial/business

Edge

Material	Form
hard	slope
soft/hard	slope/no slope
soft(natural)	no slope

Proximity

The edge oppsite

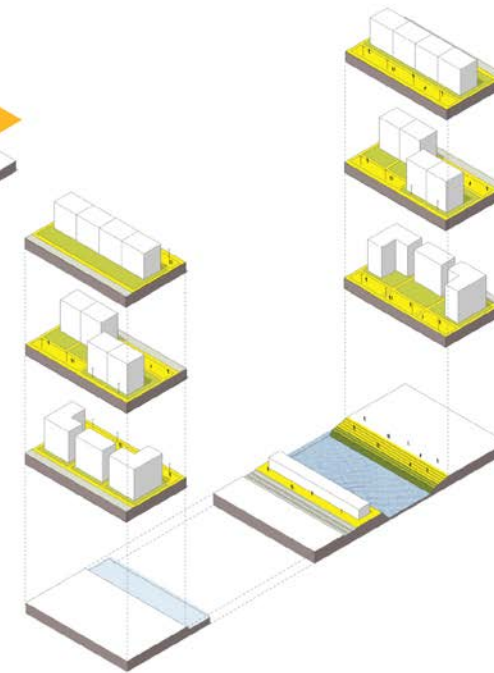
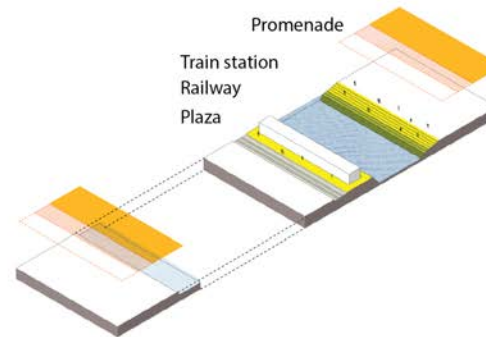
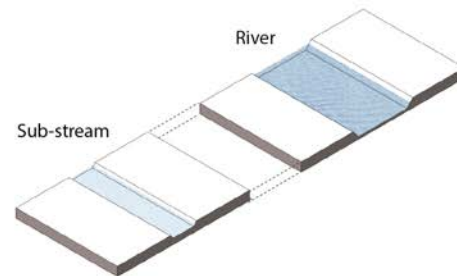
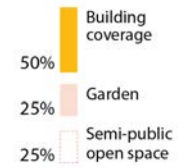
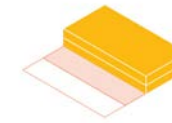
close
irrelvant
far

Infrastructure (Arterial)

close
medium
far

Development type

Waterfront type1



Promenade

Water way

Type	Width	Depth
River	wide(>15m)	deep(>5m)
marsh	various	medium(>2m,<5m)
drainage canal	narrow(<5m)	shallow(<2m)

View

Program of the edge oppsite

Housing
park
marsh
commercial/business

Edge

Material	Form
hard	slope
soft/hard	slope/no slope
soft(natural)	no slope

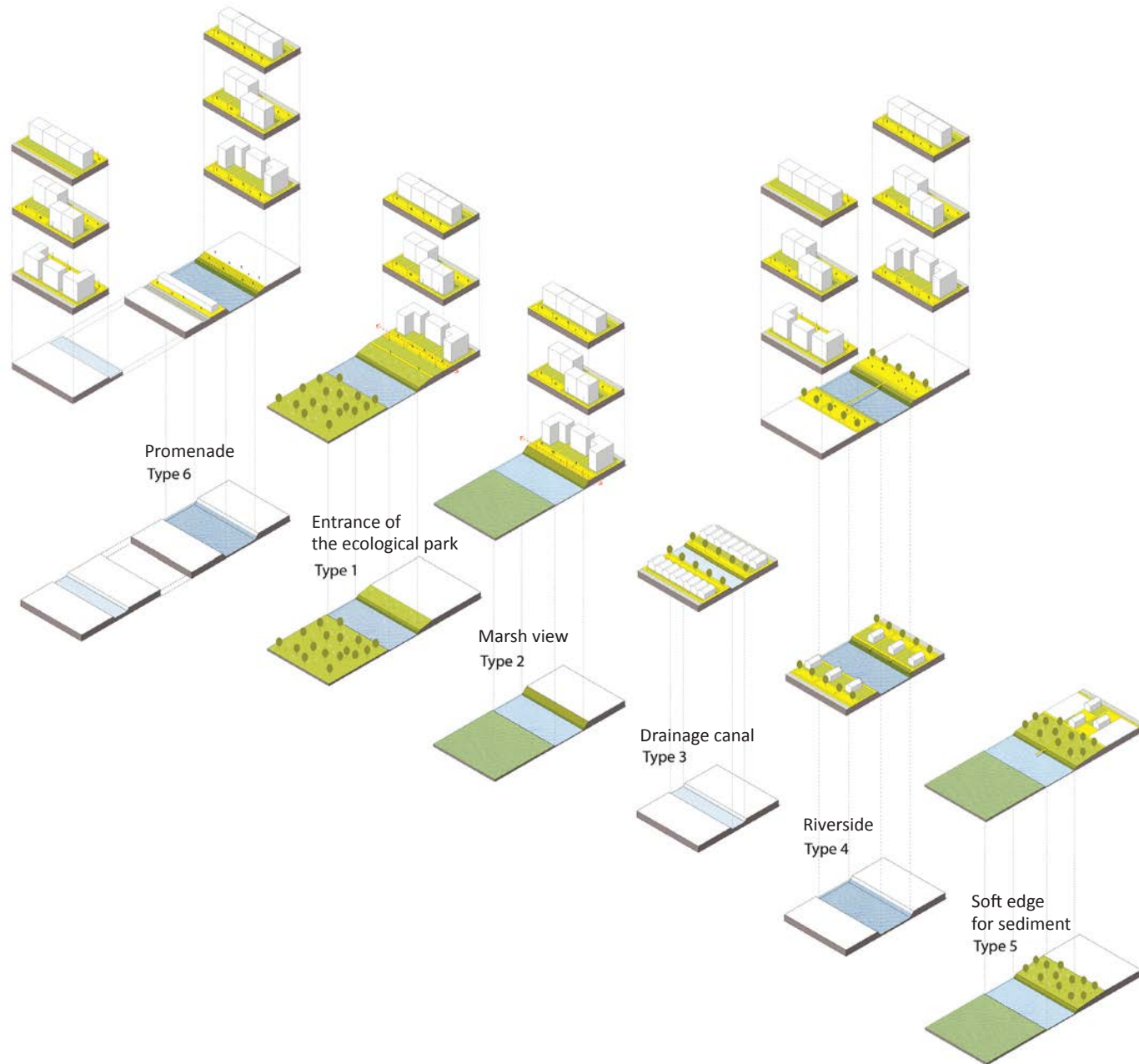
Proximity

The edge oppsite

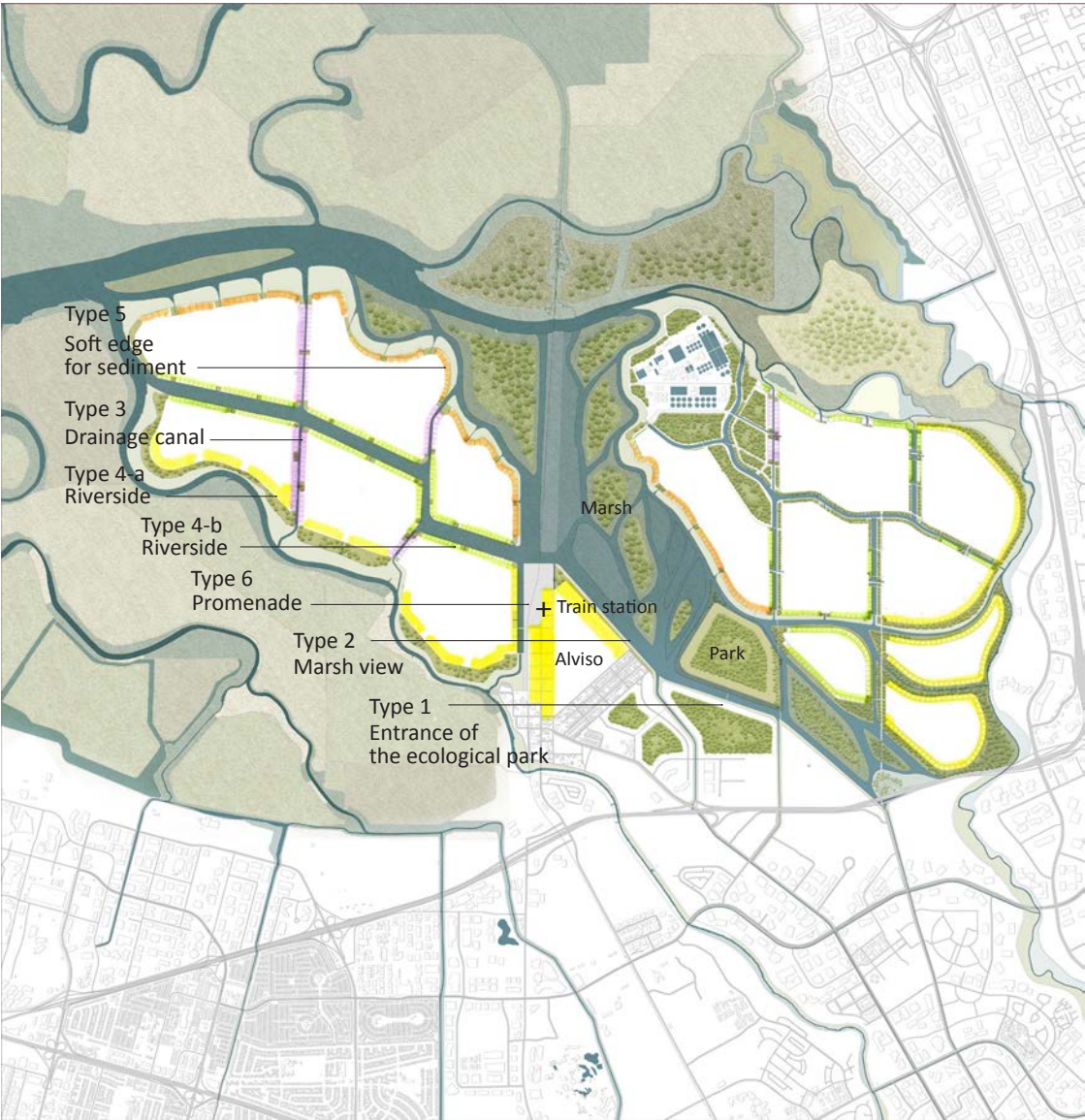
close
irrelevant
far

Infrastructure (Arterial)

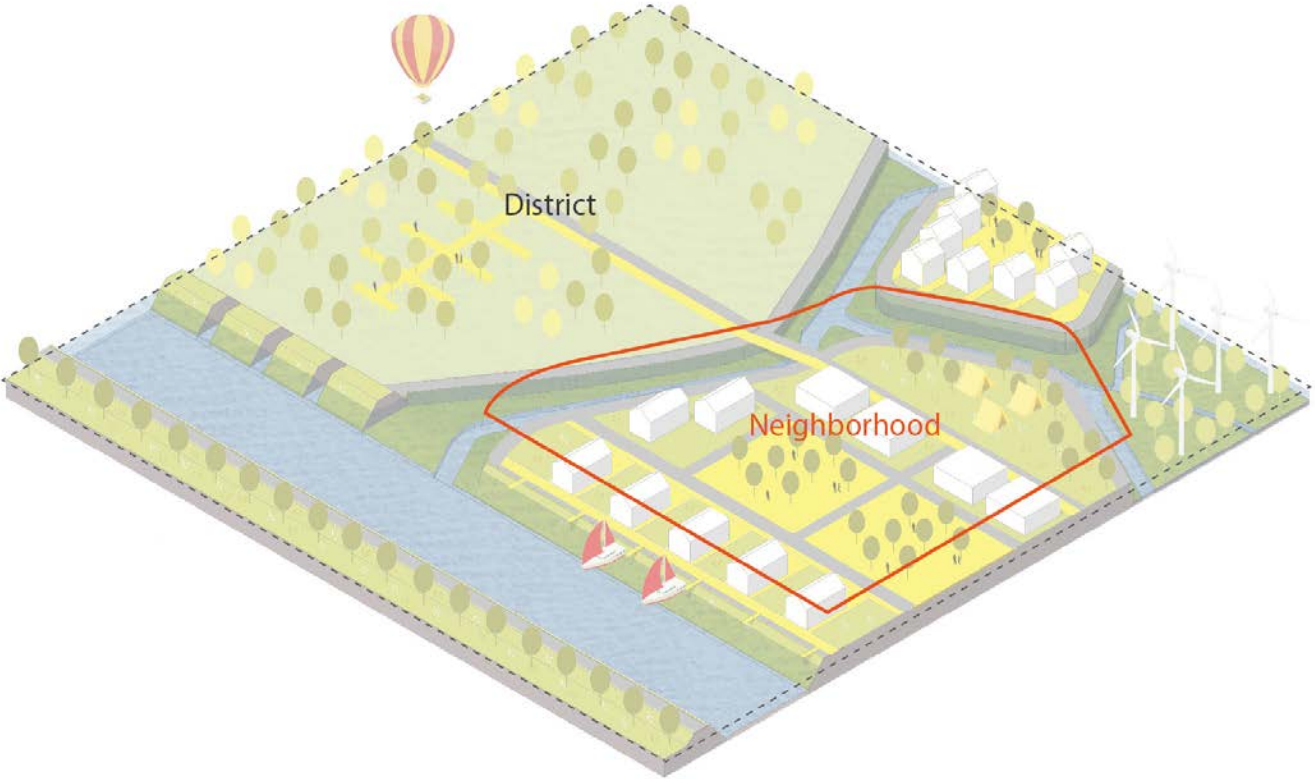
close
medium
far



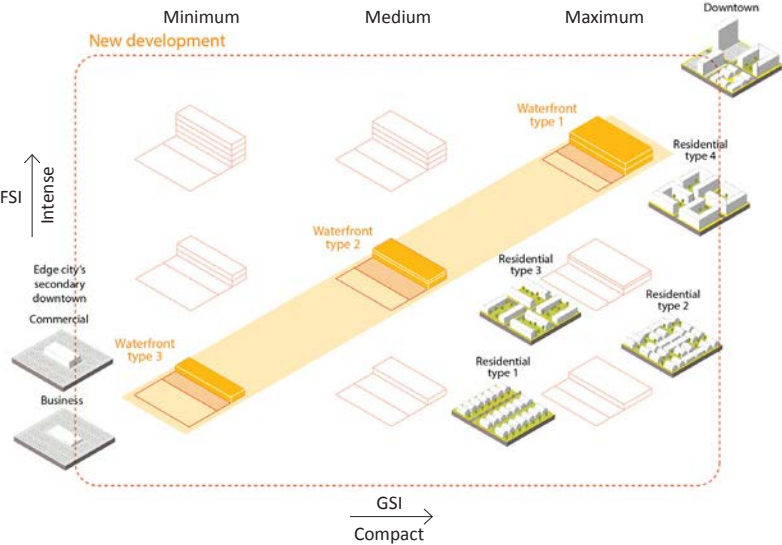
Edge development



Neighborhood

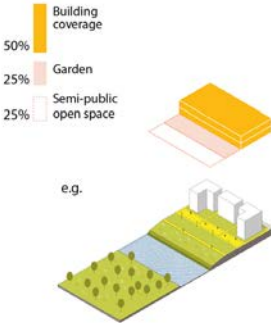


Development of the edges



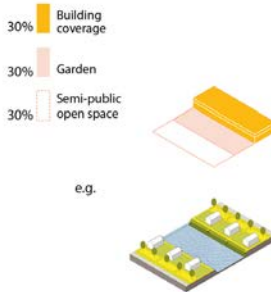
Waterfront type 1

Maximum



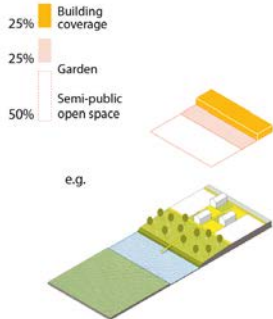
Waterfront type 2

Medium



Waterfront type 3

Minimum

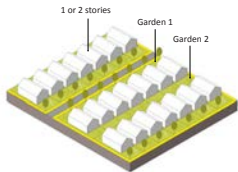


Densification

Existing housing typologies

Type 1

Low density



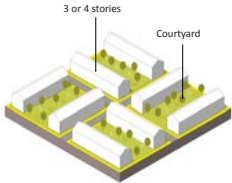
Type 2

Low-medium density



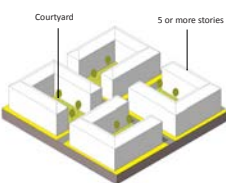
Type 3

Medium density

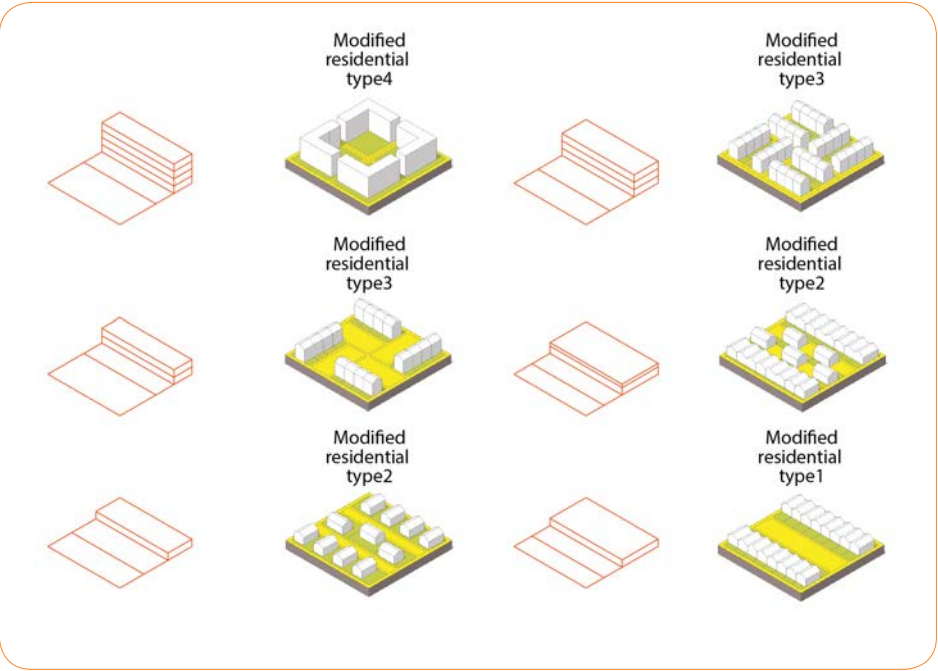


Type 4

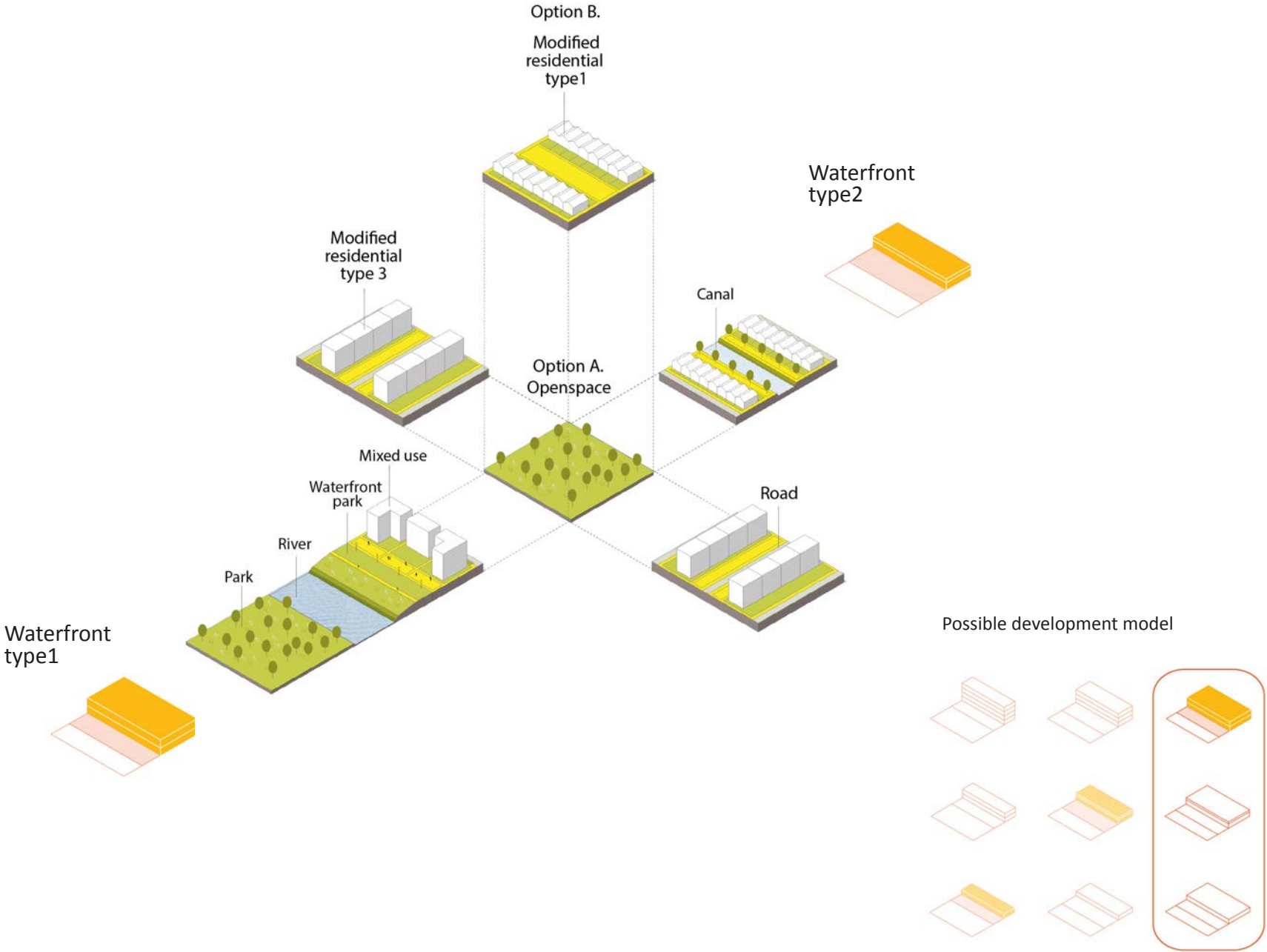
High density



New housing typologies based on existing typologies

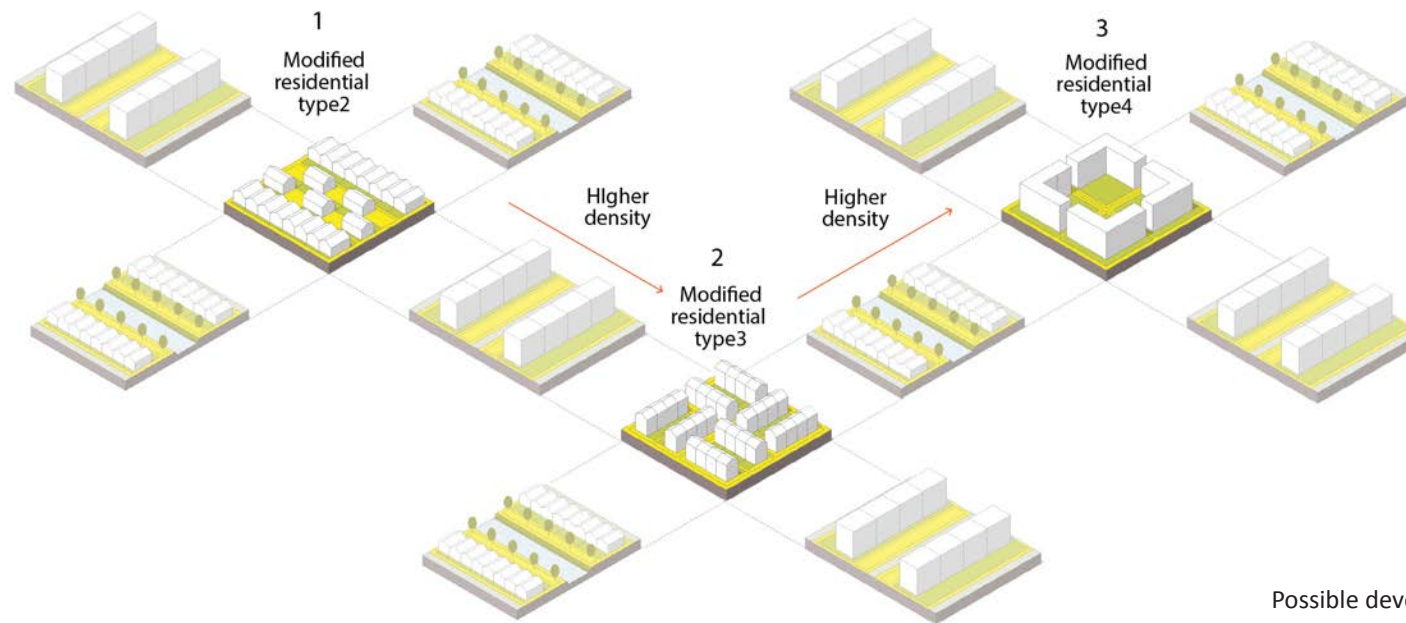


Neighborhood type1

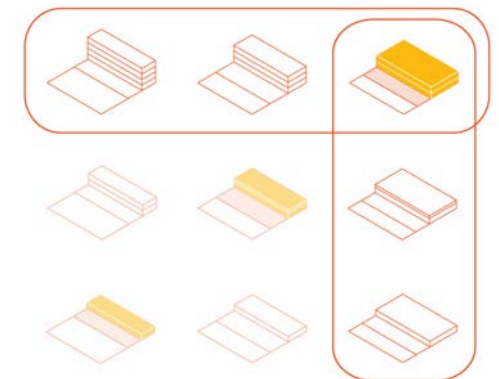


Neighborhood type2

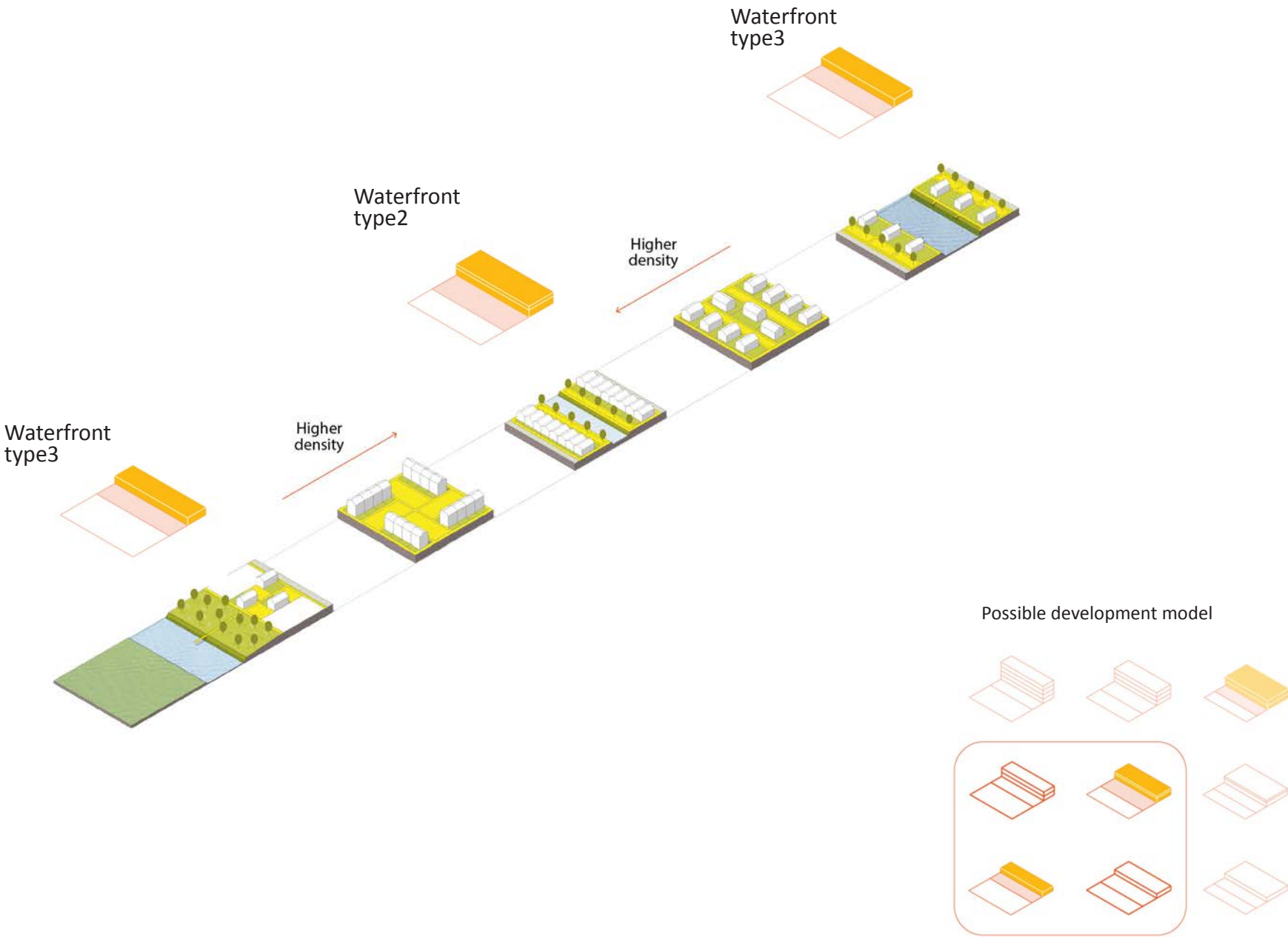
Logic of forming a neighborhood



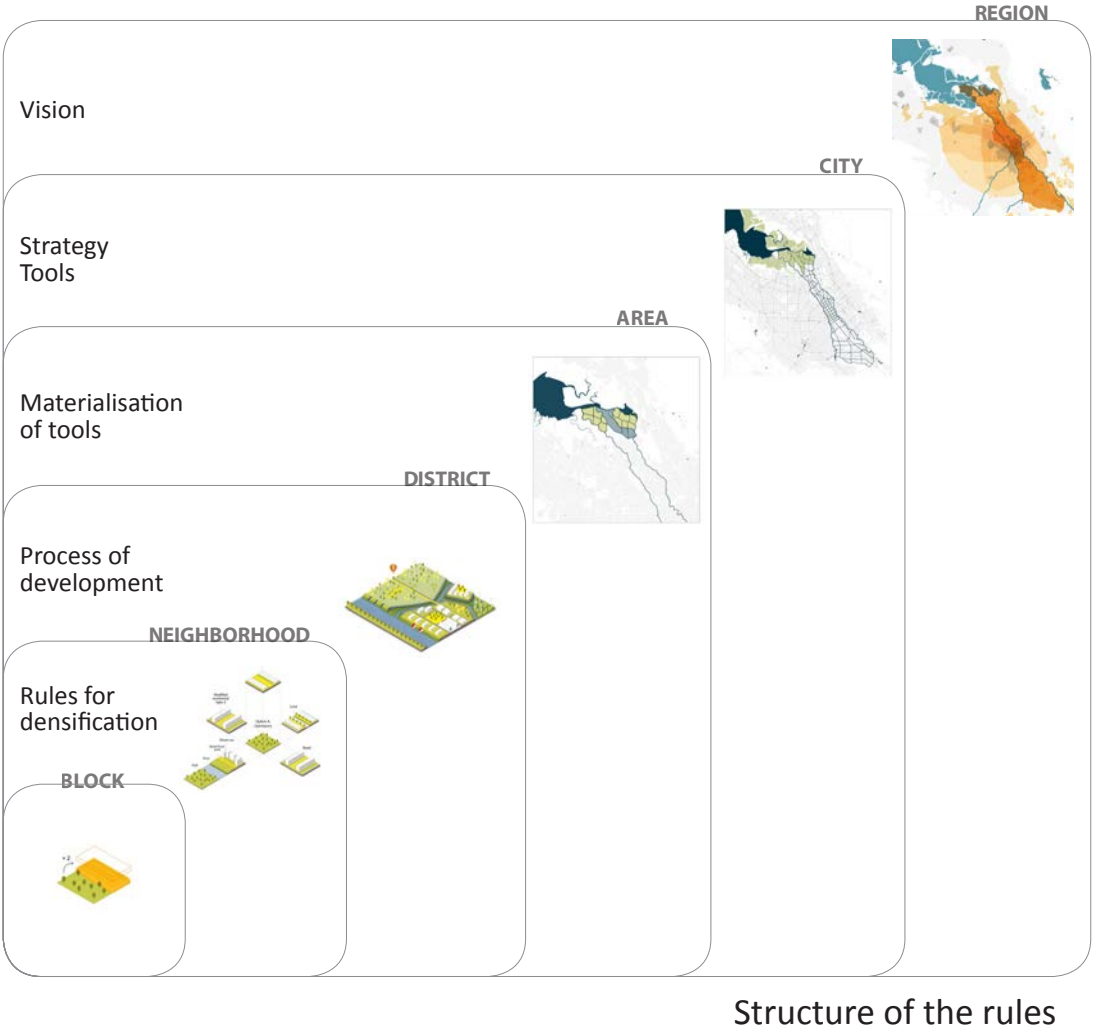
Possible development model



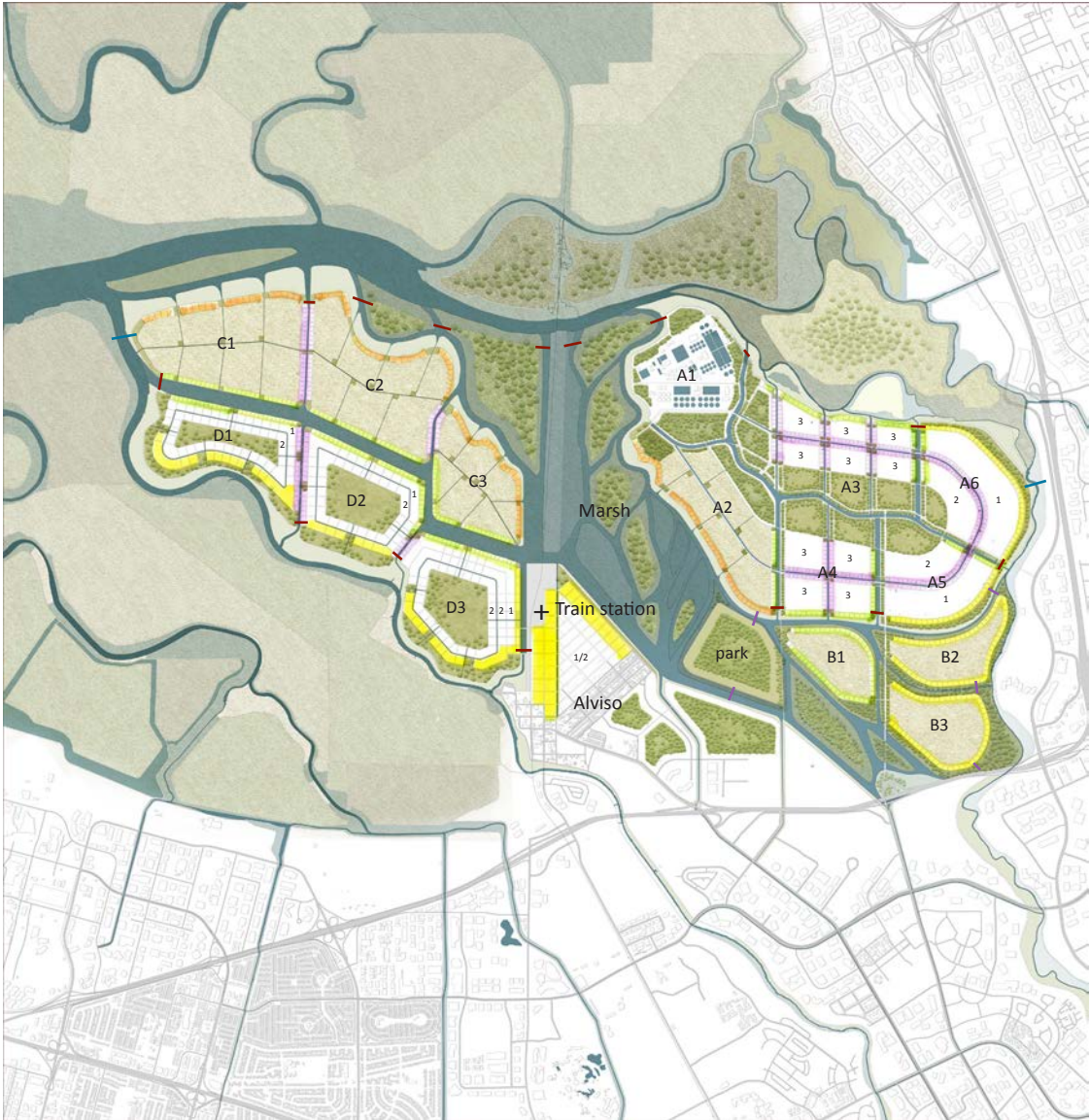
Neighborhood type3



Rules for development

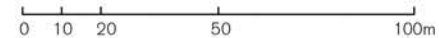
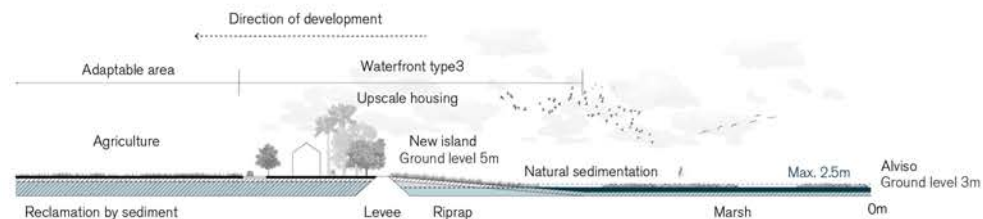
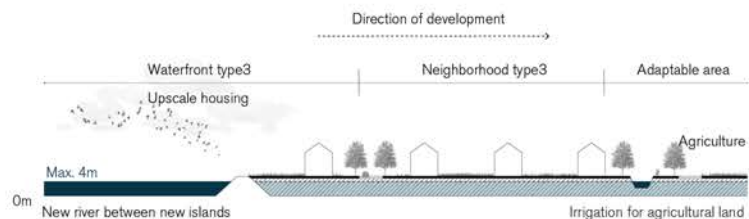
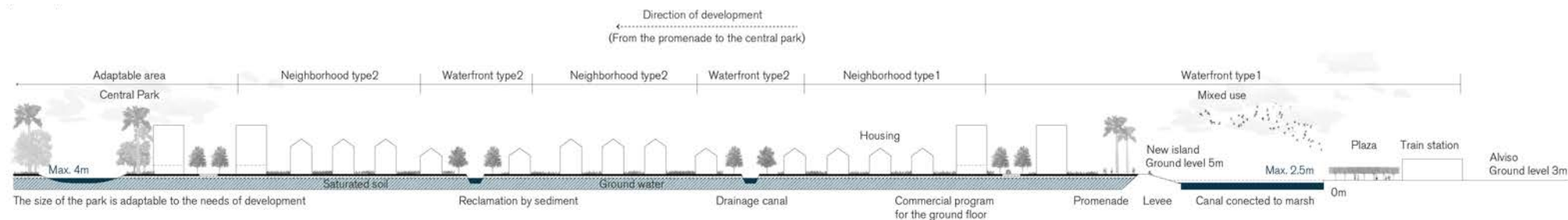


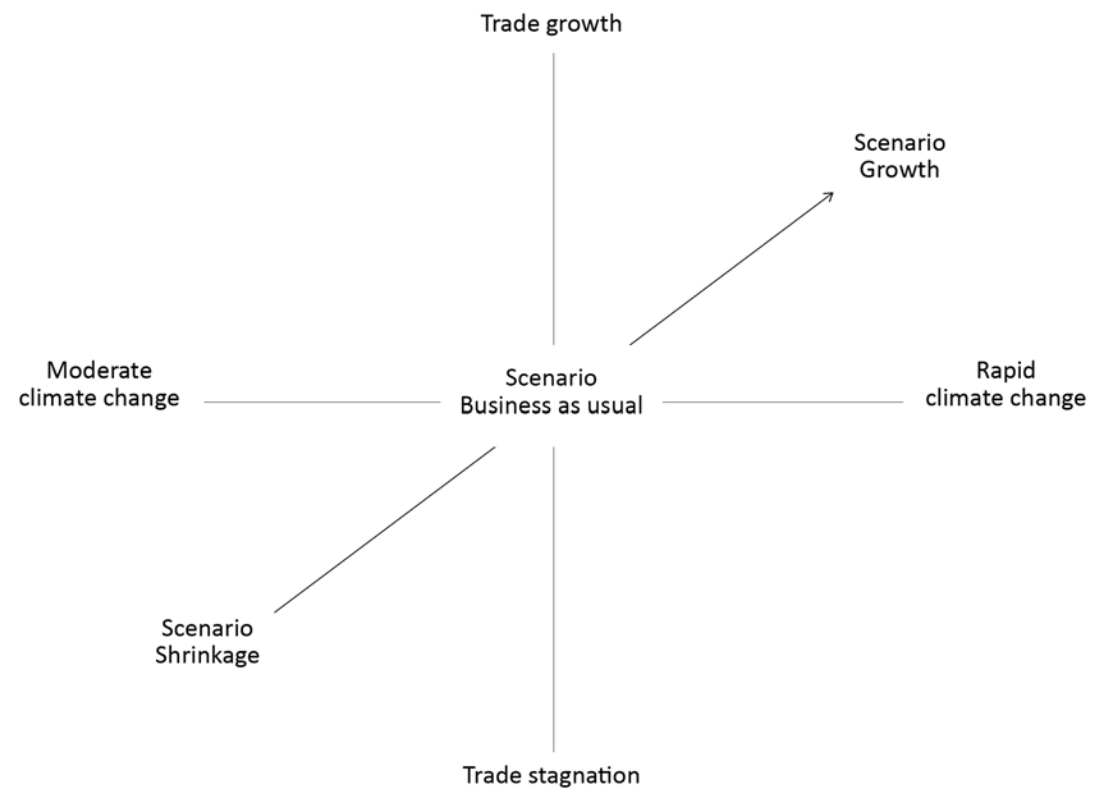
Masterplan



Legend

- A1-D3 Sub-district
1-3 neighborhood type
- waterfront
- type 1 mixed use
 - type2 housing
 - type3 upscale housing
 - type3 upscale housing
- Dike type
- type1
 - type2
 - type3





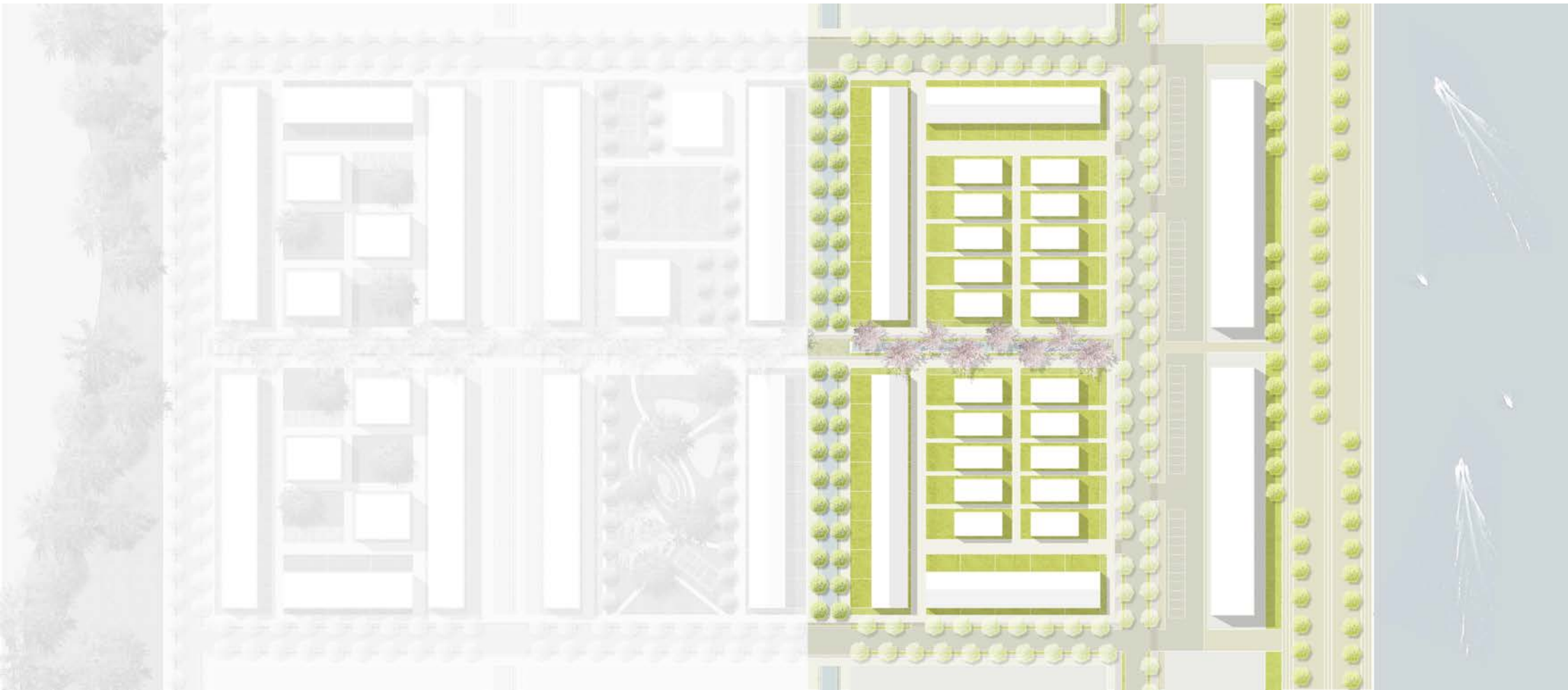
Scenario: Business as usual

Waterfront development type 1
on the edge of island



Scenario: Growth

Forming a neighborhood
based on the rule of neighborhood type1



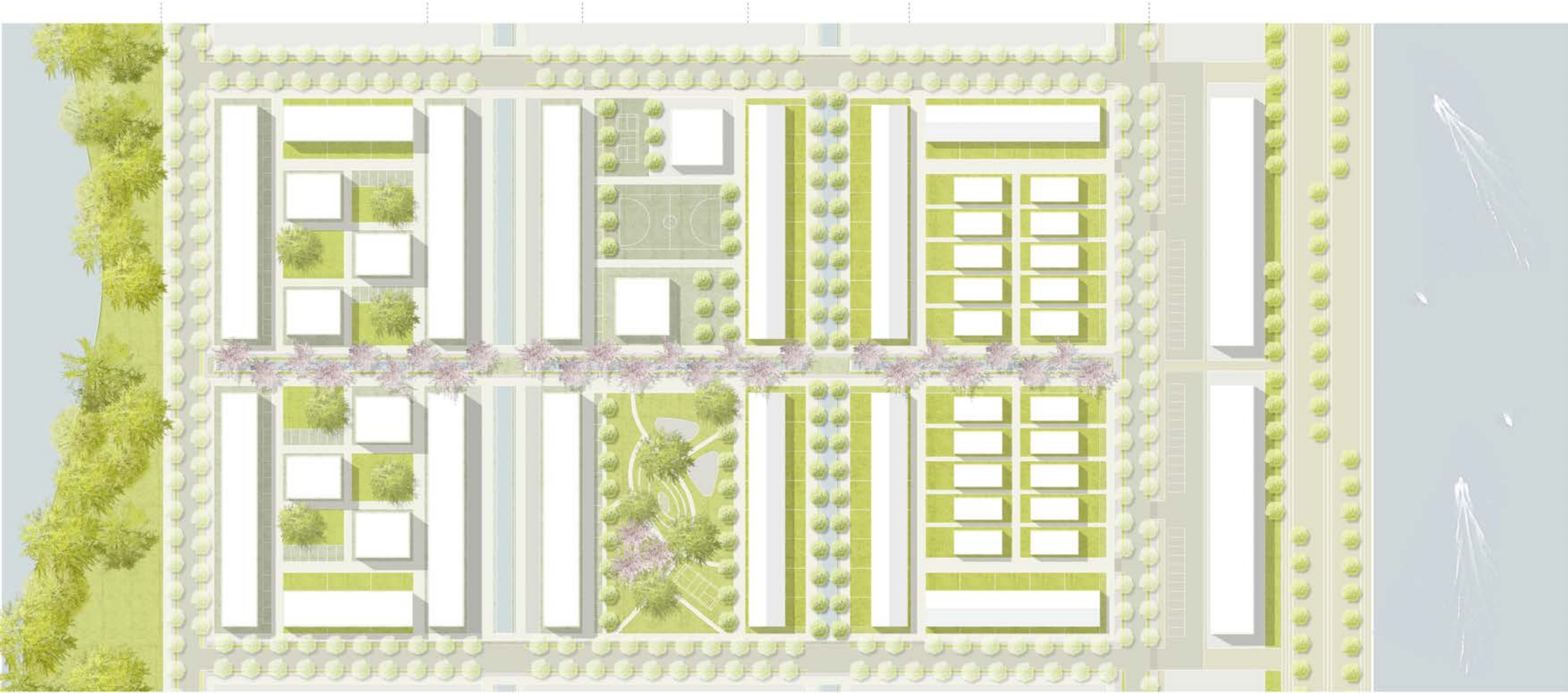
Scenario: Growth

Waterfront type 2

Waterfront type 2

Forming a neighborhood
based on the rule of
neighborhood type2

Public open space

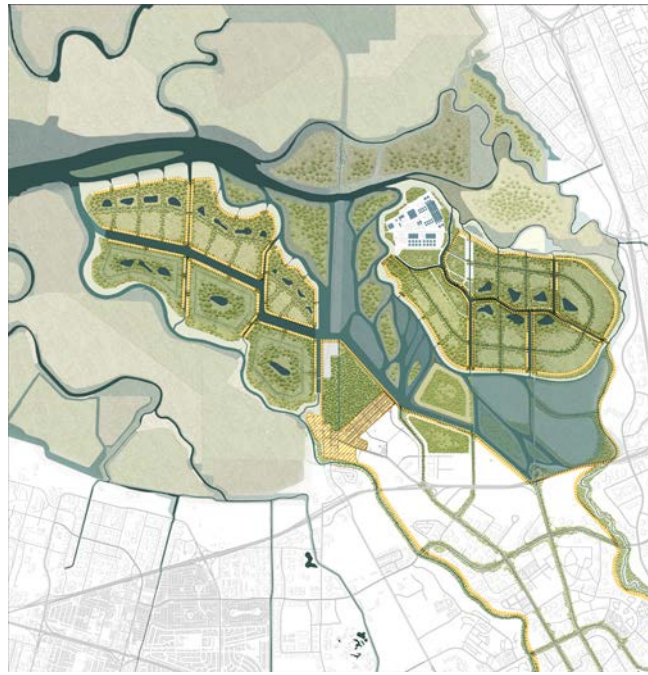


Scenarios

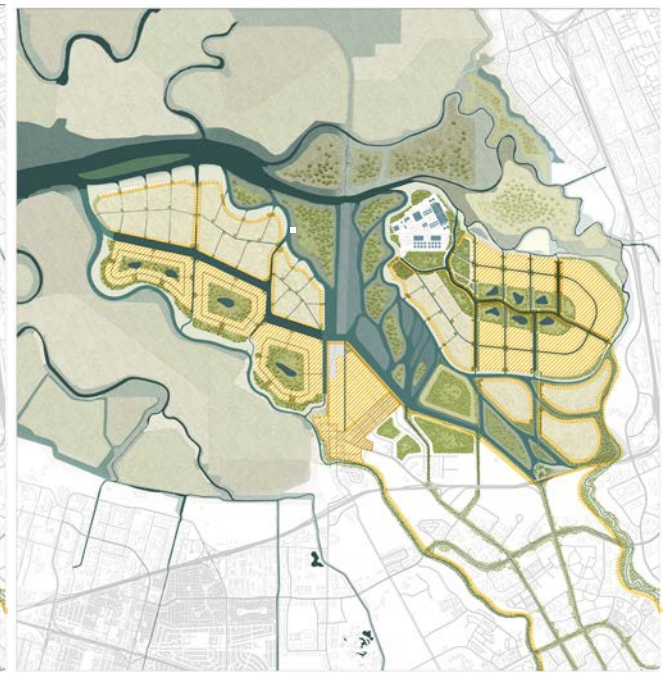
Scenario: Shrinkage

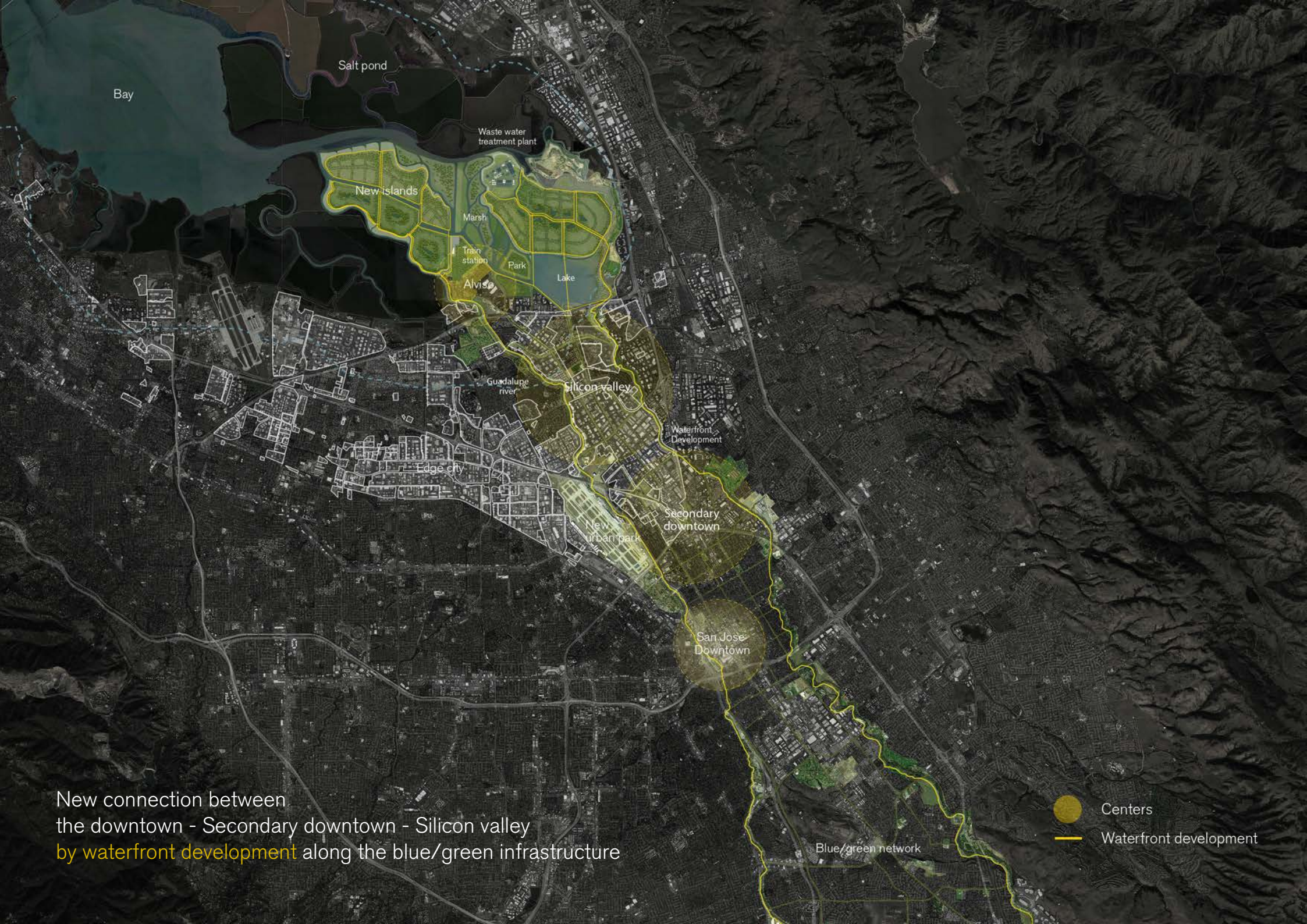


Scenario: Business as usual



Scenario: Growth





New connection between
the downtown - Secondary downtown - Silicon valley
by waterfront development along the blue/green infrastructure

- Centers
- Waterfront development

Blue/green network

New urban core

Bay

Salt pond

Waste water
treatment plant

New islands

Marsh

Train station

Alviso

Park

Lake

Guadalupe
river

Silicon valley

Waterfront
Development

Edge city

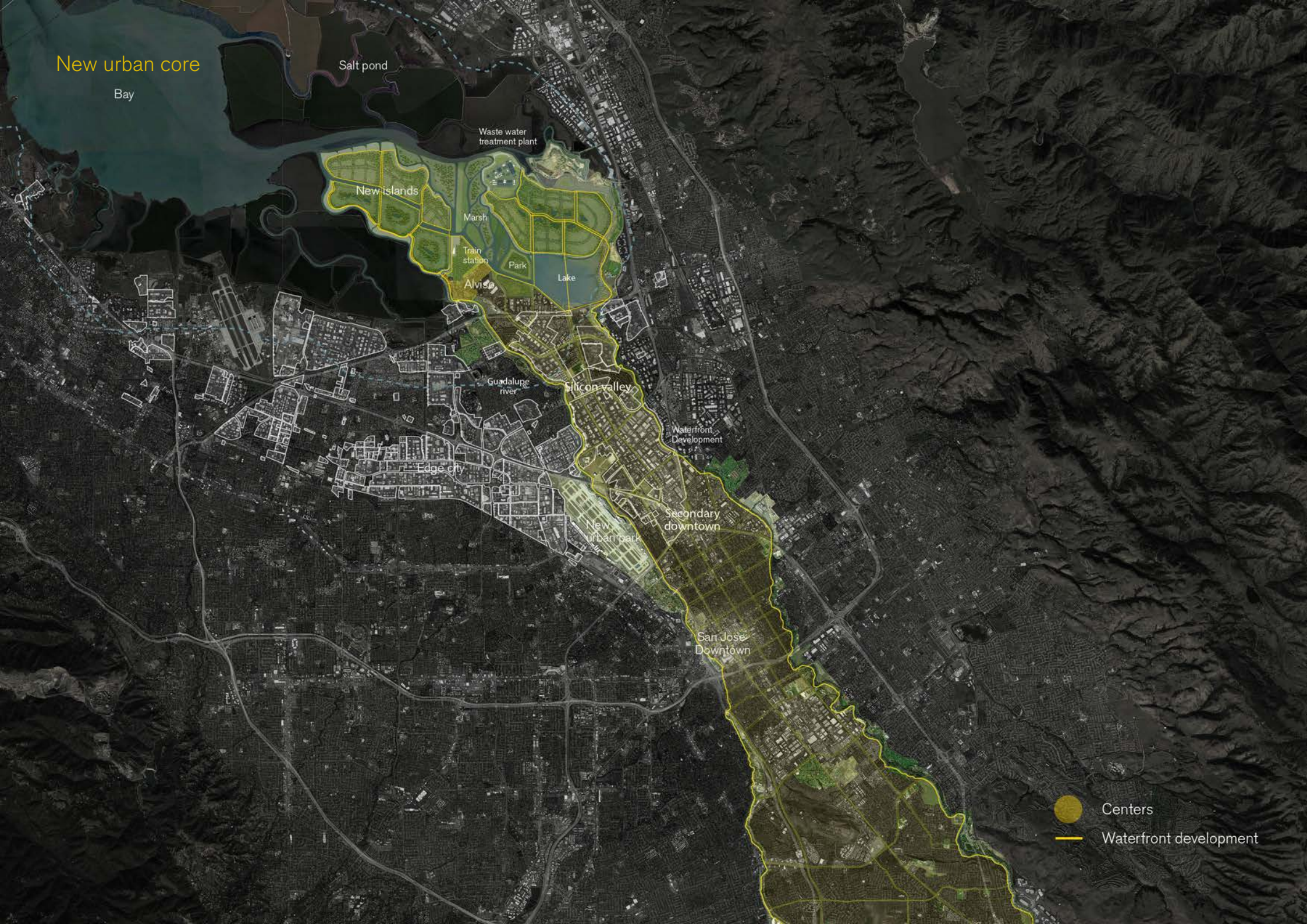
Secondary
downtown

New
urban park

San Jose
Downtown

Centers

Waterfront development







From salt pond to ecological park by marsh restoration

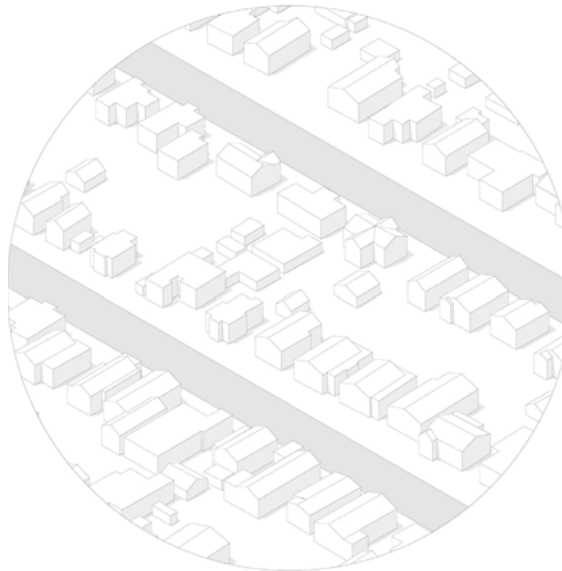


Riverside

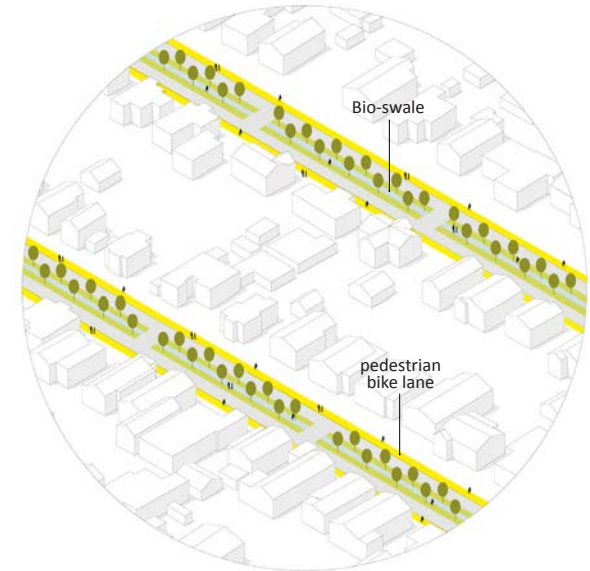
Re-development area
Alviso



View



Existing condition



After the intervention



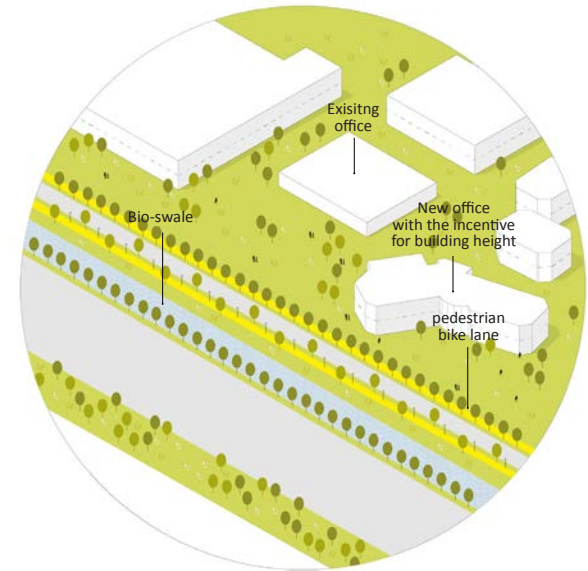
Re-development area
Business area in edge city



View



Existing condition



After the intervention

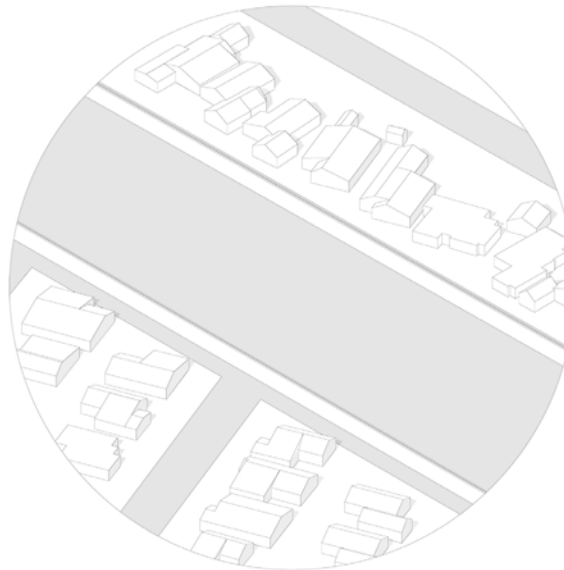


Business area in Silicon valley

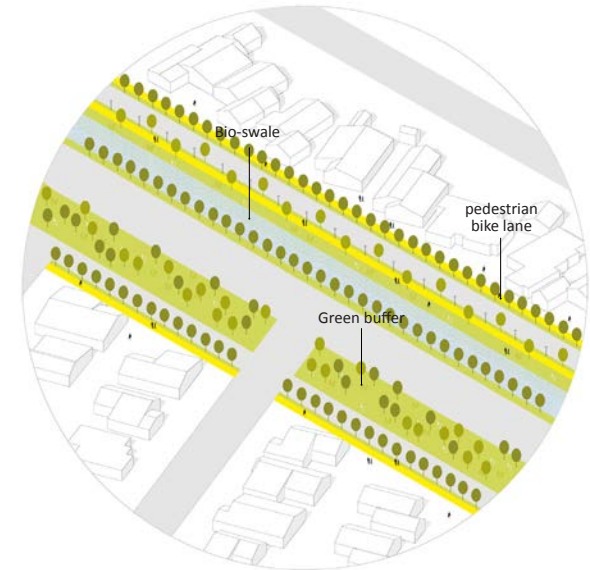
Re-development area
Residential area in edge city



View



Existing condition



After the intervention



Residential area in Silicon valley

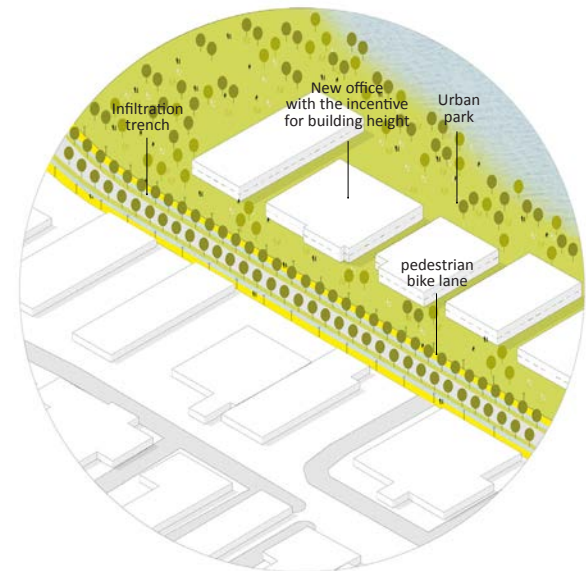
Re-development area
Airport



View



Existing condition



After the intervention

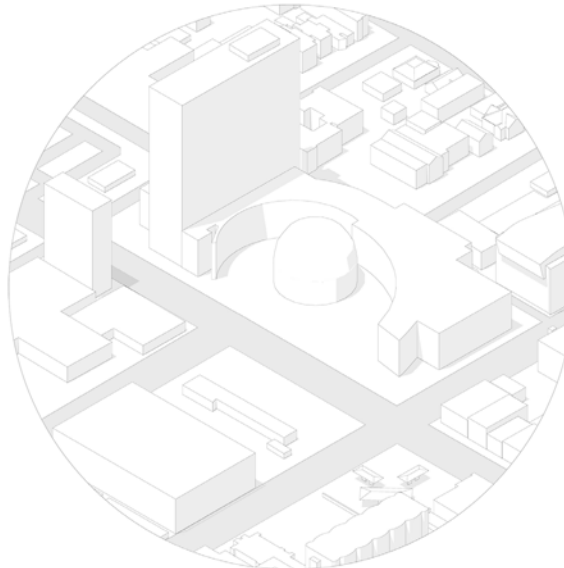


From airport to urban park

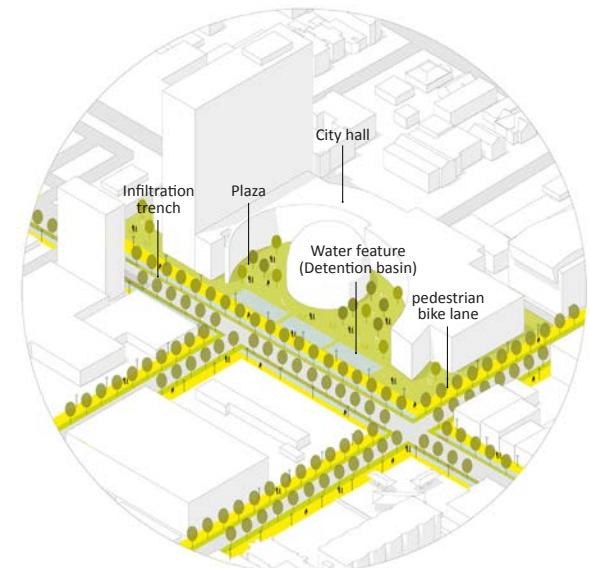
Re-development area
Downtown



View



Existing condition



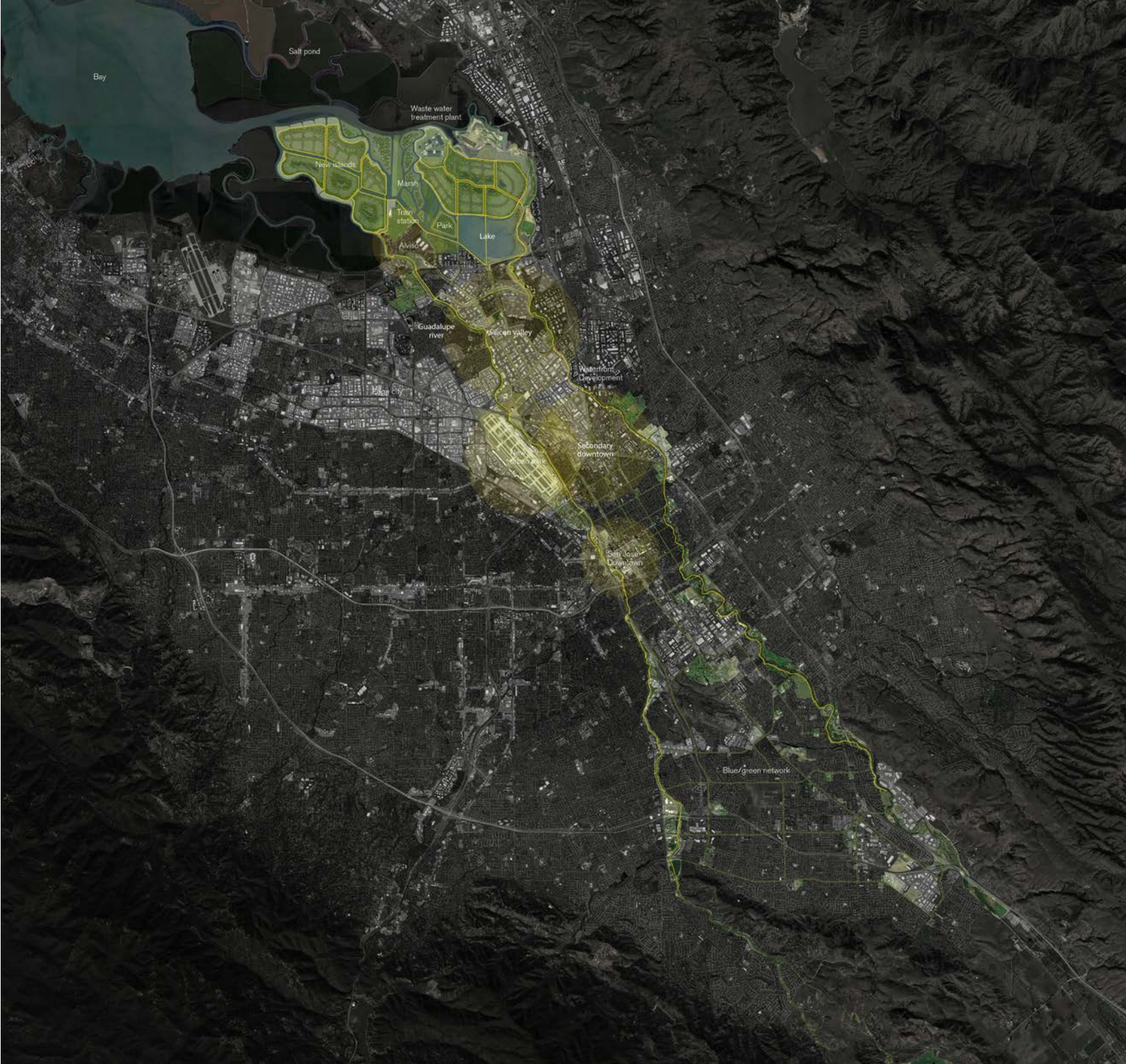
After the intervention



San Jose downtown

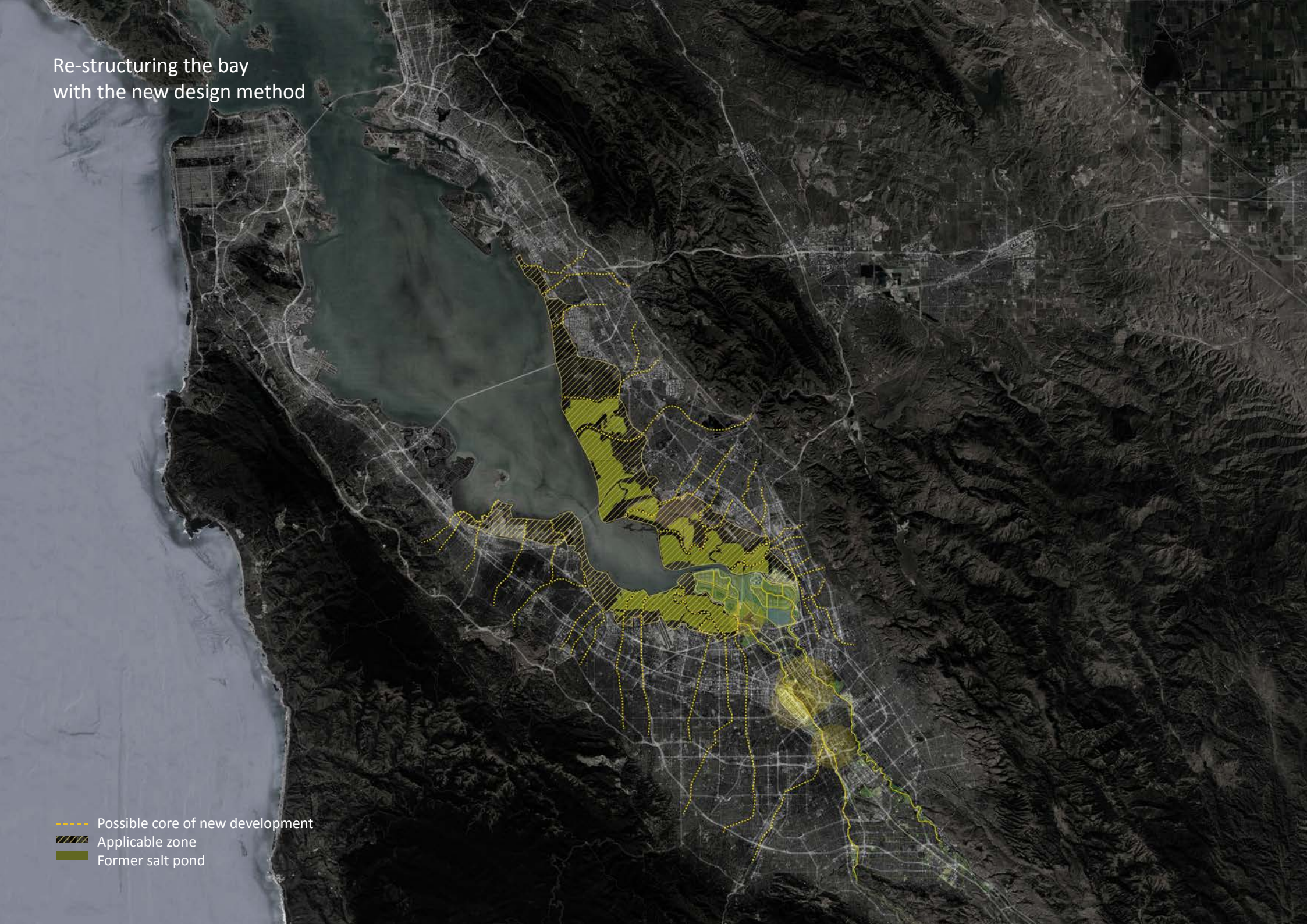
New urban core
by blue-green network

- Waterfront development
- Nodes

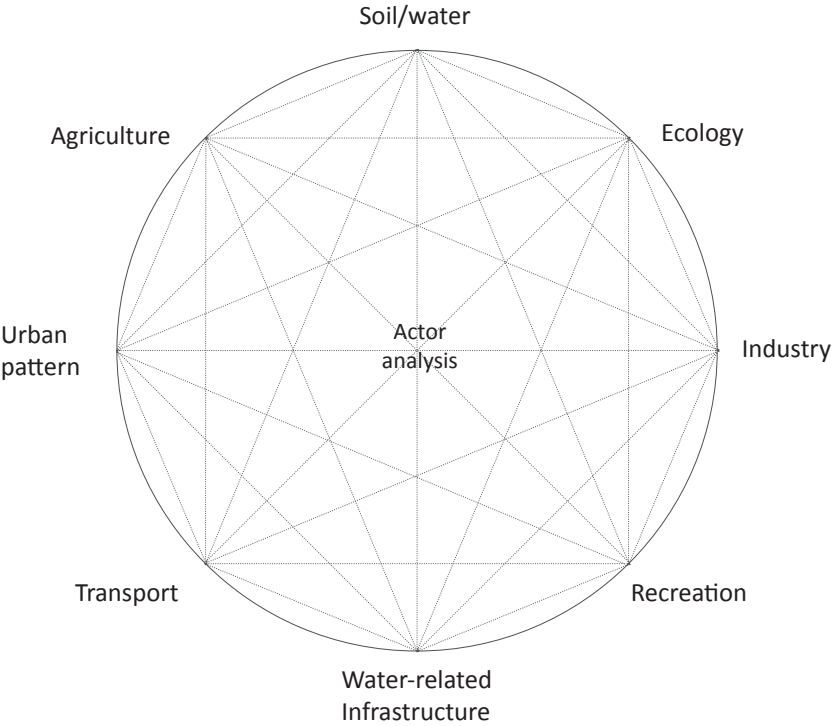


Re-structuring the bay
with the new design method

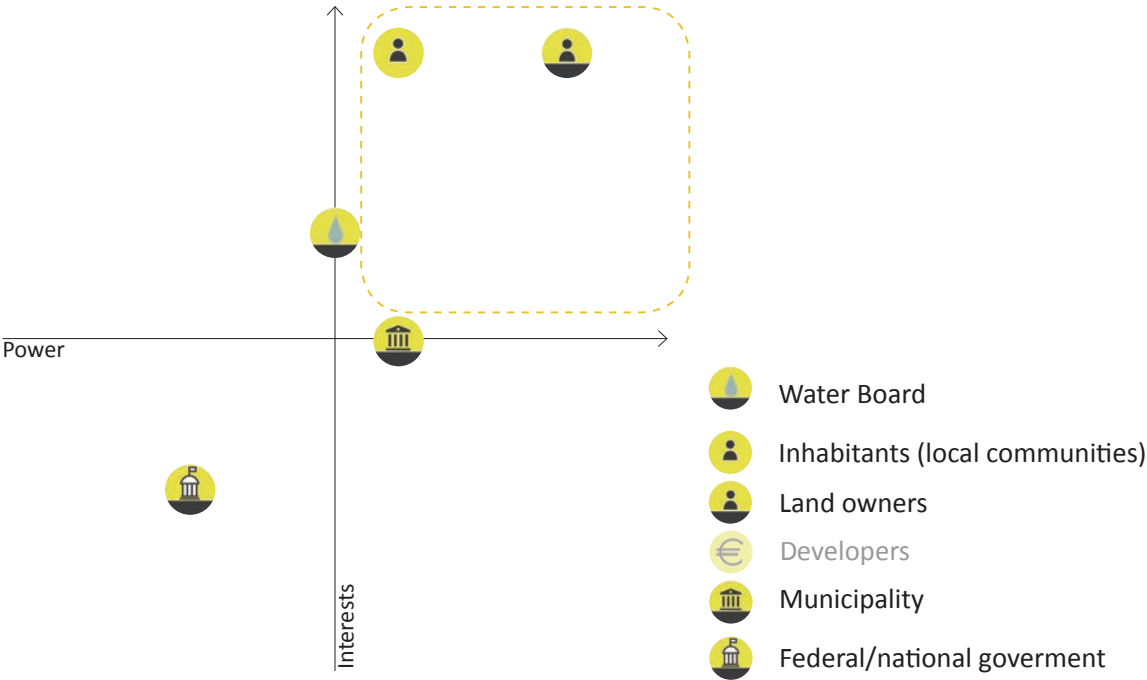
- Possible core of new development
- ▨ Applicable zone
- Former salt pond



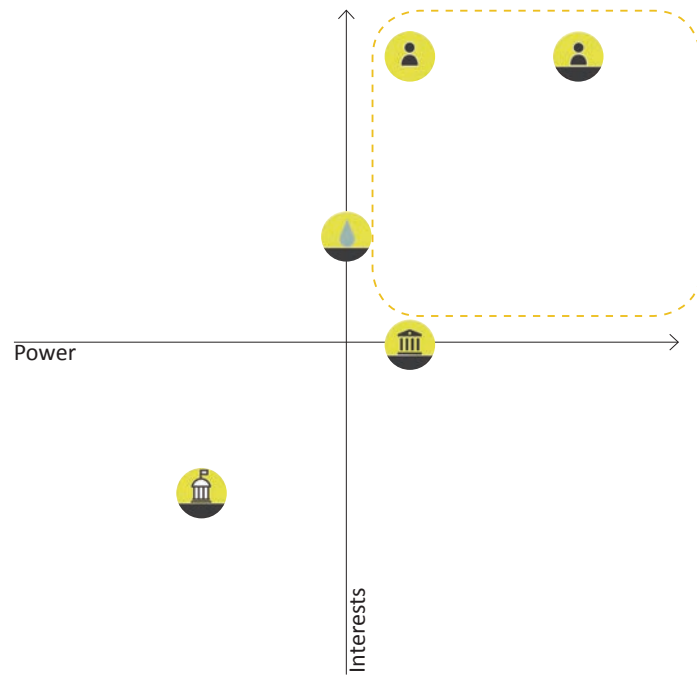
Implementation



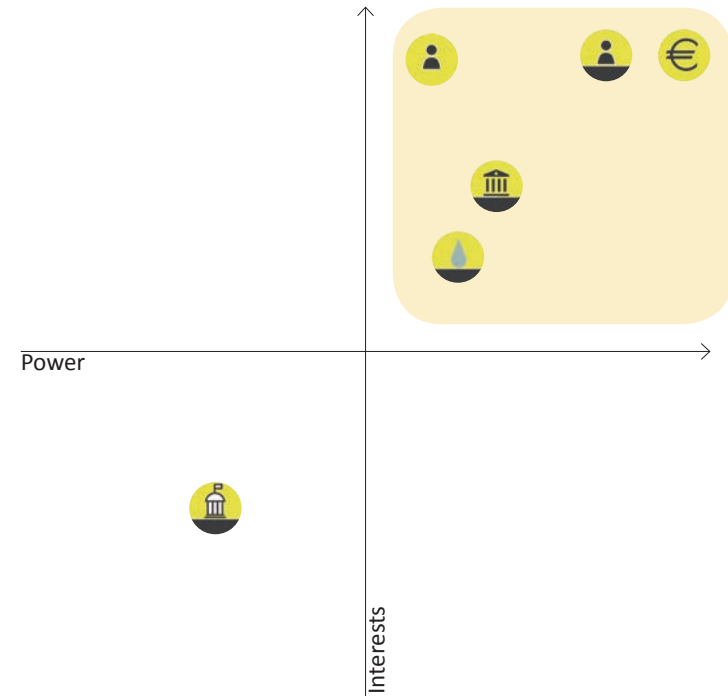
Exsiting condition of Neighborhood
(Alviso)









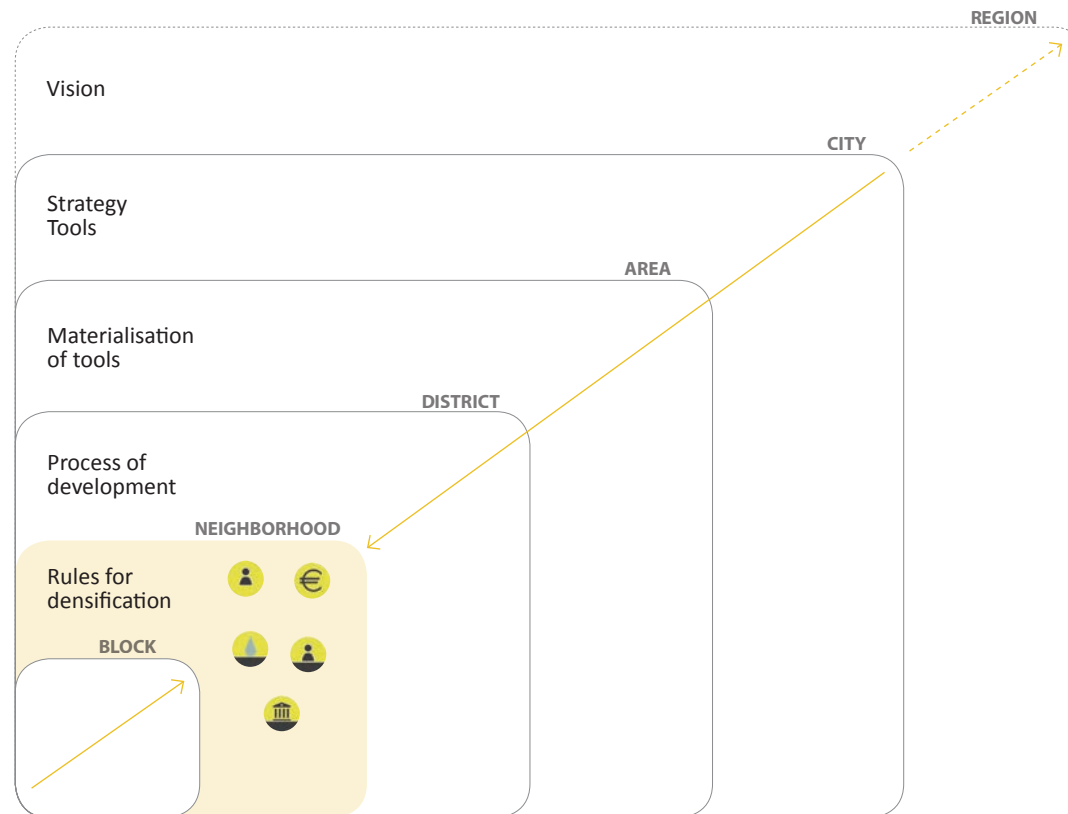
Existing condition of
Neighborhood (Alviso)



Neighborhood



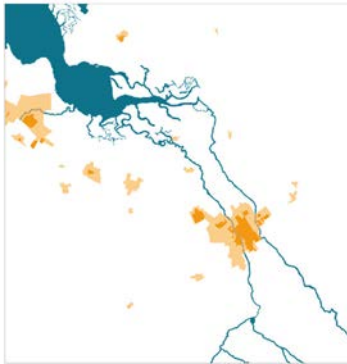
-  Water Board
-  Inhabitants (local communities)
-  Land owners
-  Developers
-  Municipality
-  Federal/national government



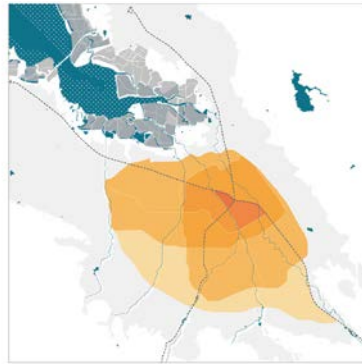
Interests in the neighborhood across the scales

Conclusion

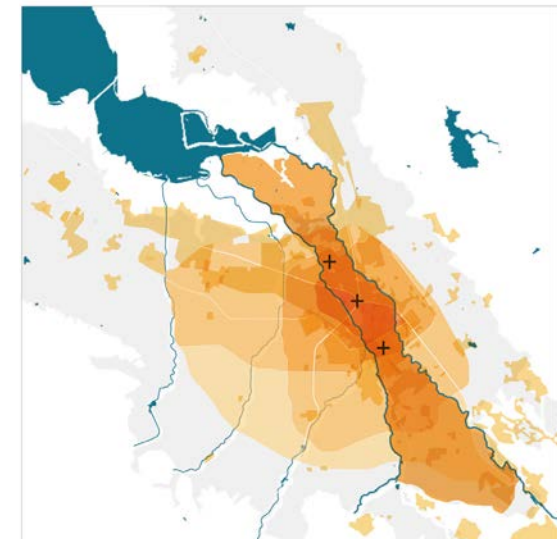
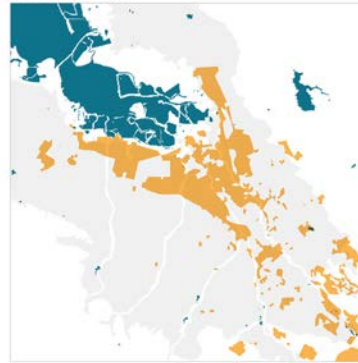
agricultural period



industrialization



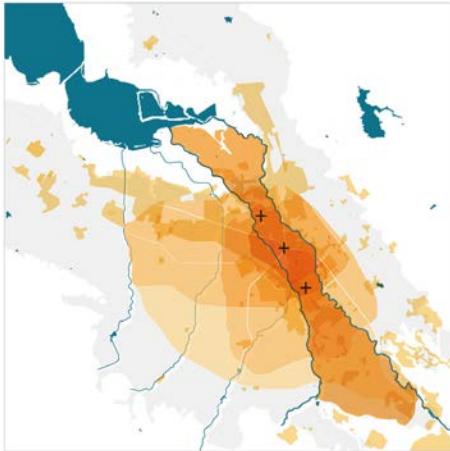
Post-industrialization



Prospect occupation
in Post-post-industrialization

Conclusion

occupation



Nature



Infrastructure

