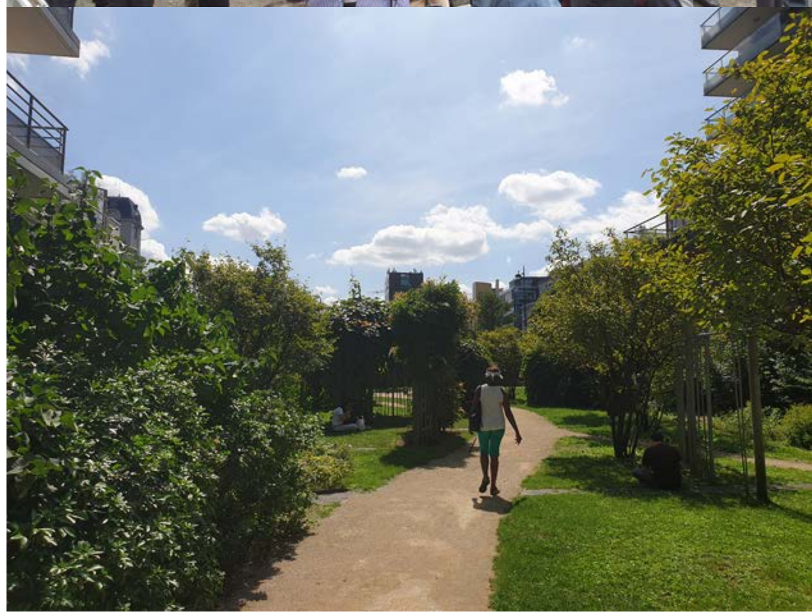


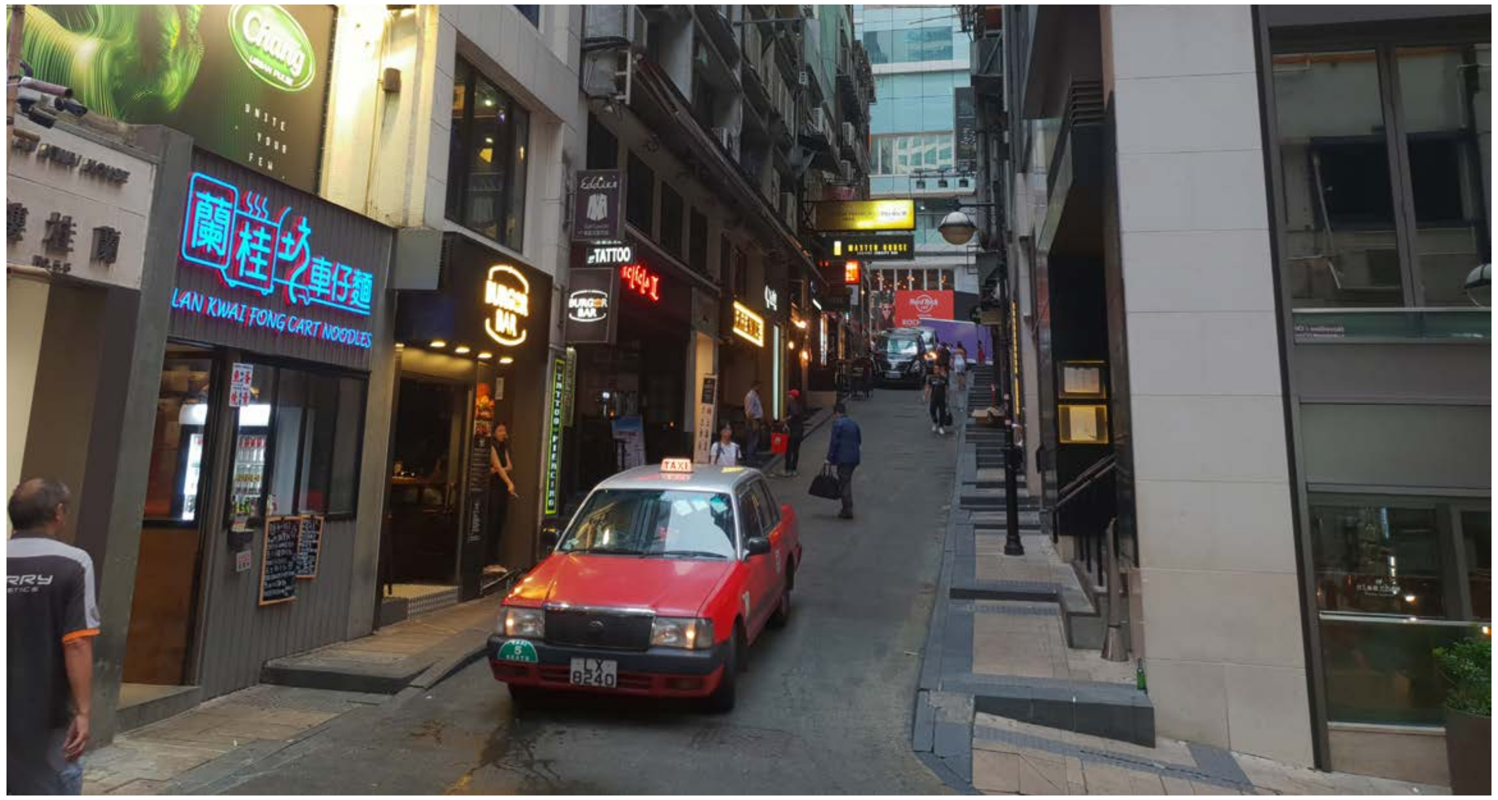

Eco-Inclusive Opportunity

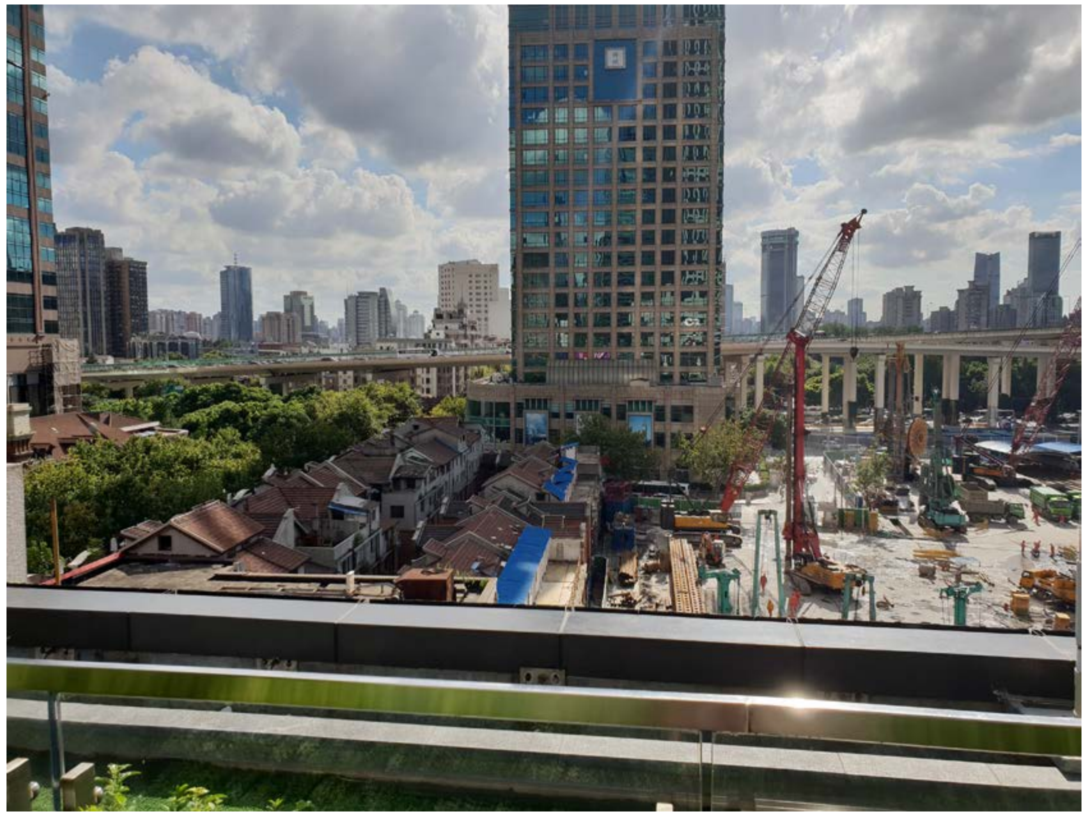
Operationalizing Environmental assets towards a resilient densification.

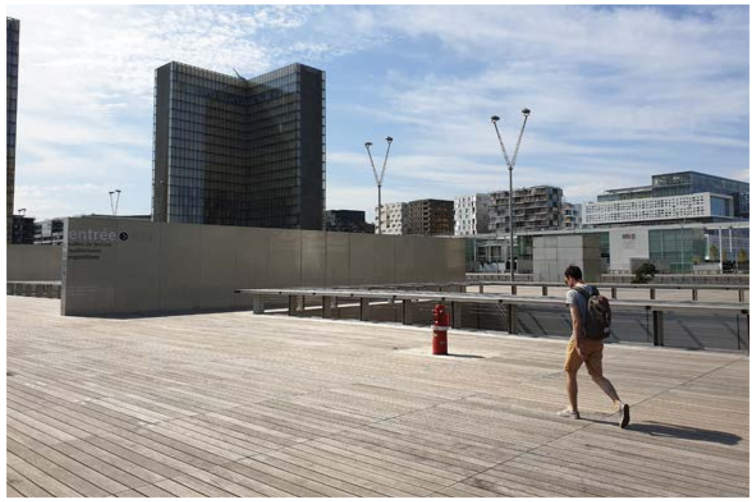
What we were promised



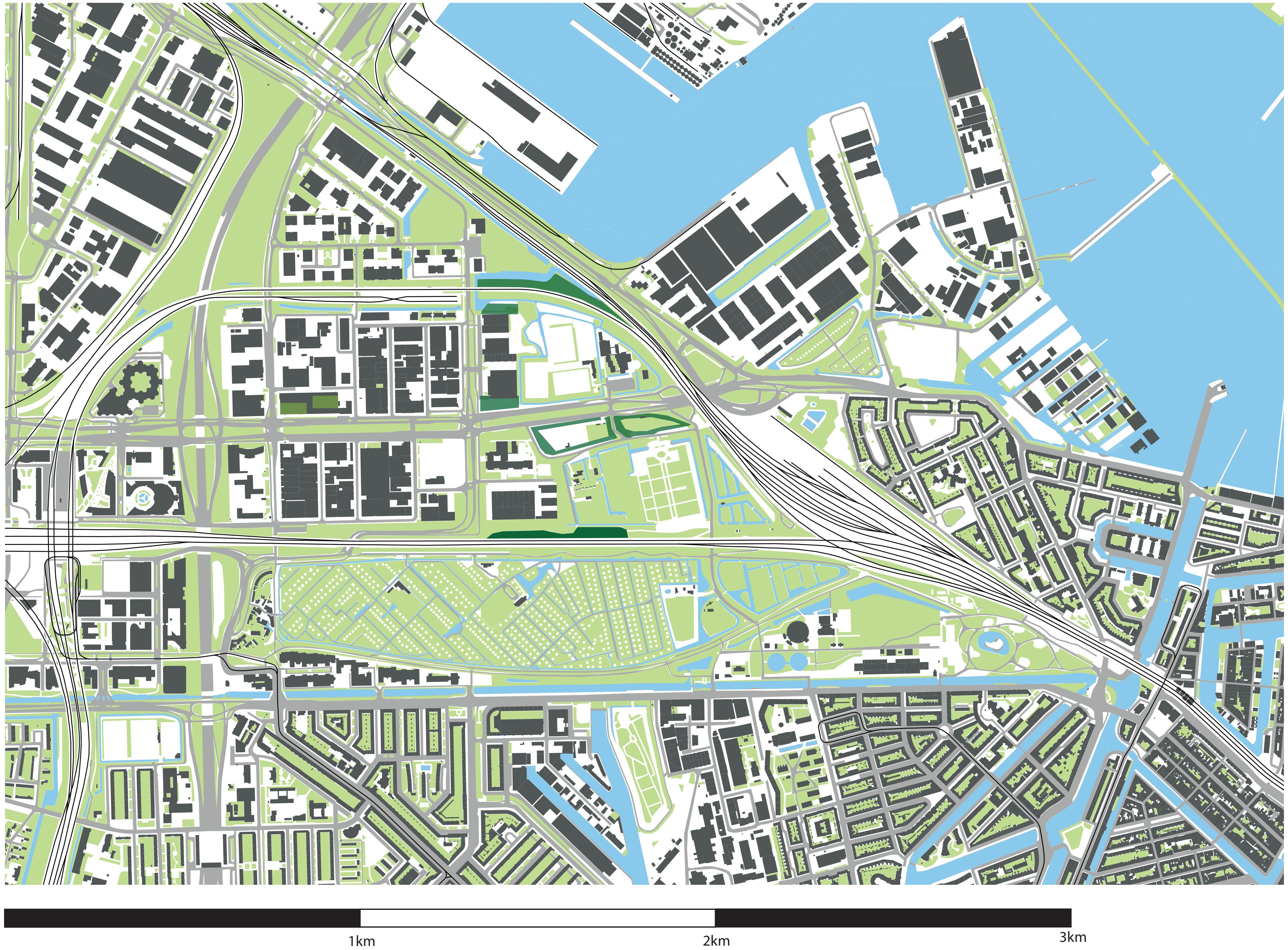
What we often receive



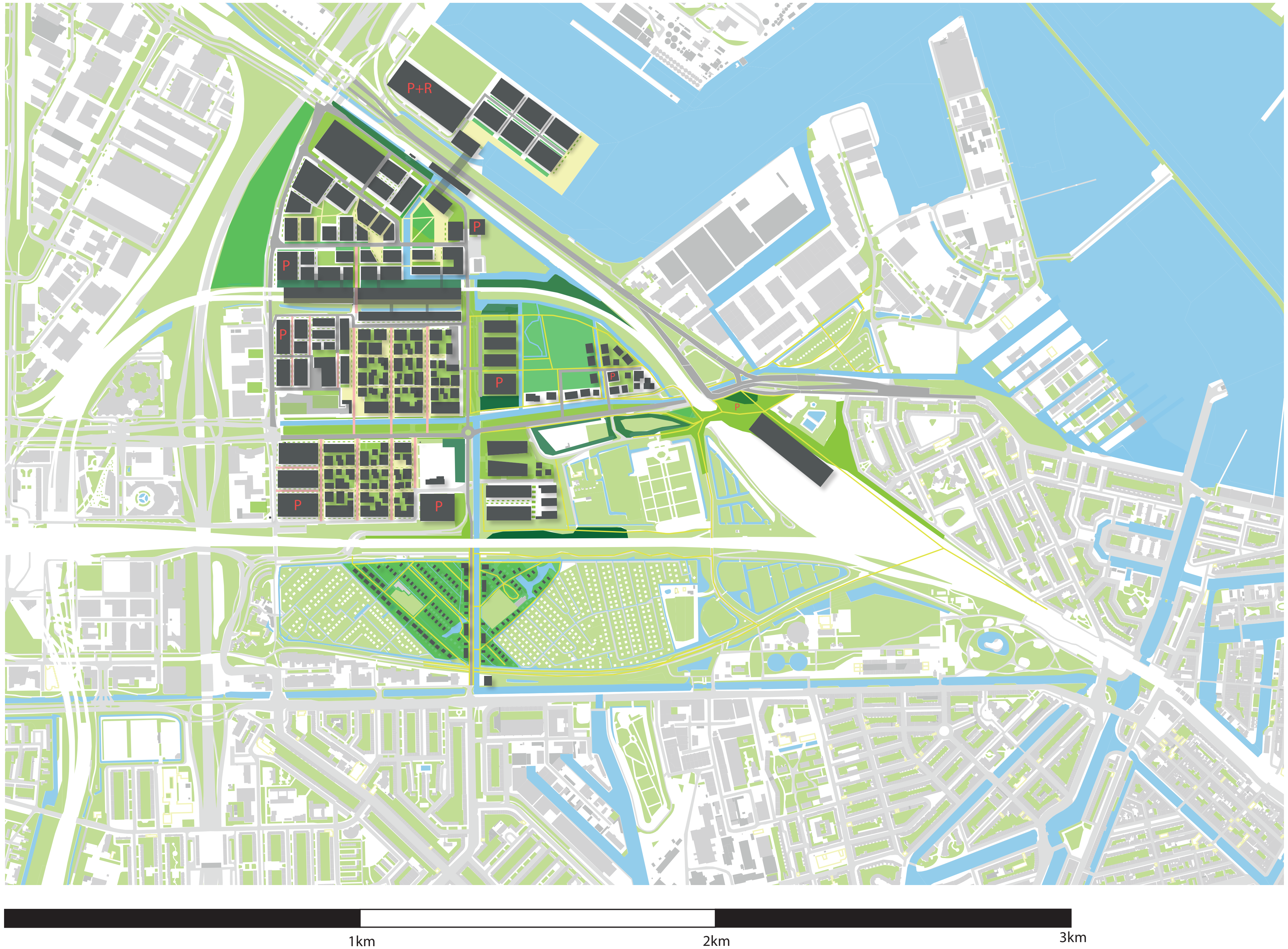




But how do we go from this?



To this?



Problem and Challenges

City for the Future

Integration

Assessment

Synthesis

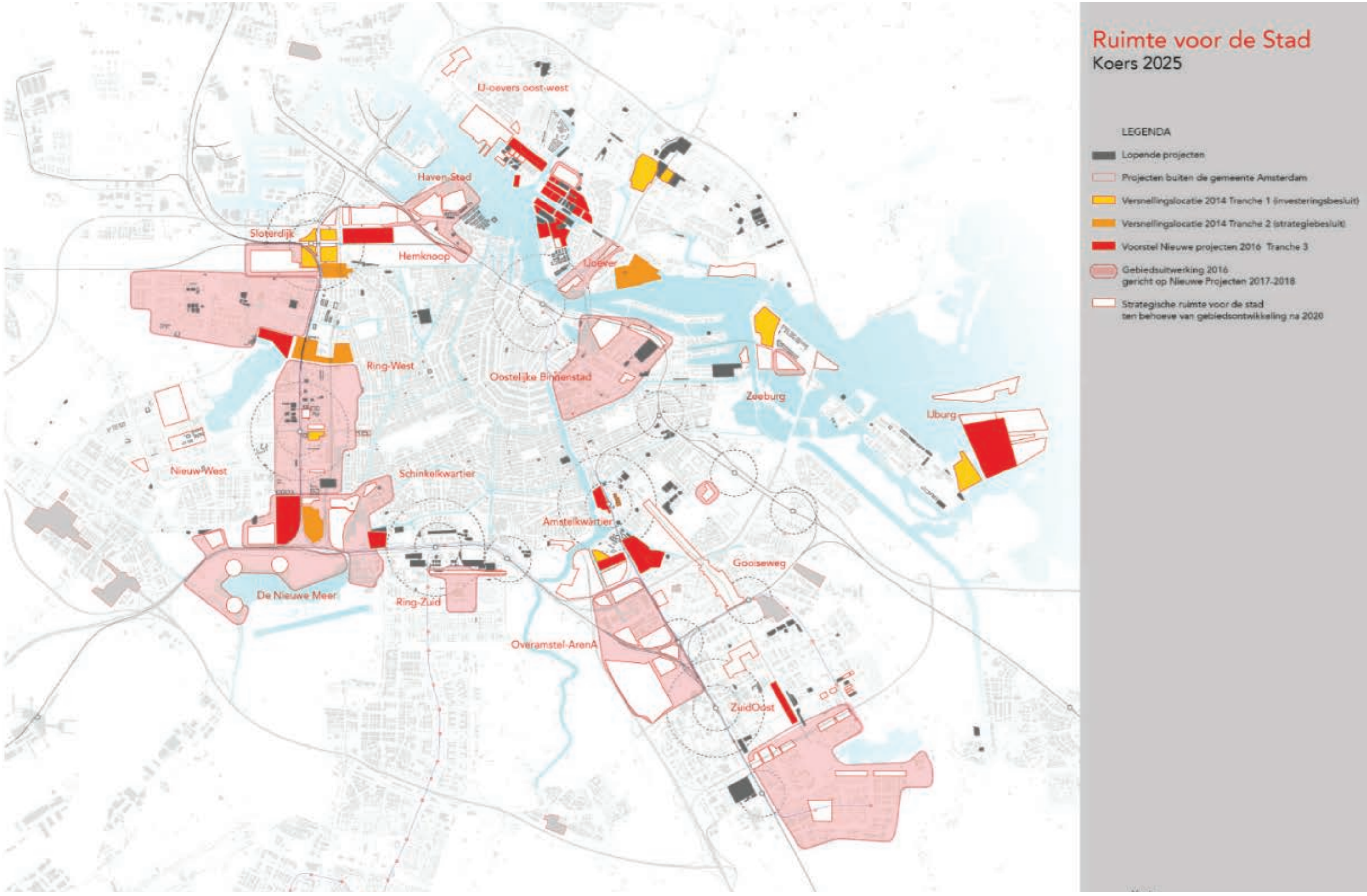
Design Vision

Phasing

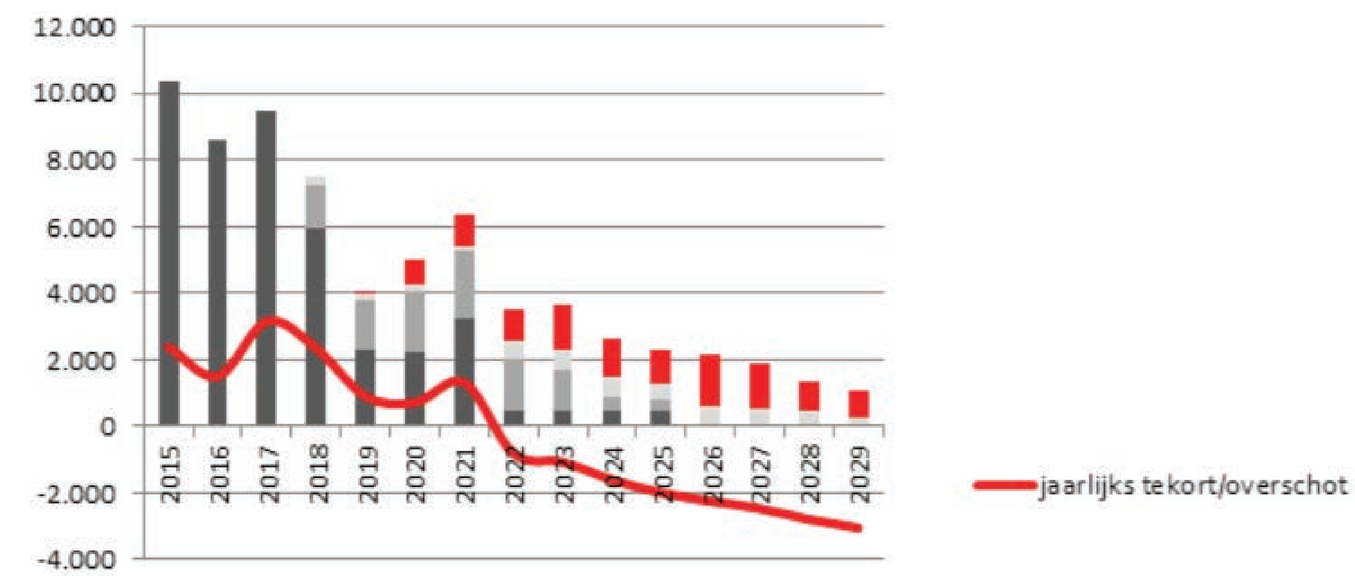
Conclusion

Problem and challenges

Accommodating population growth



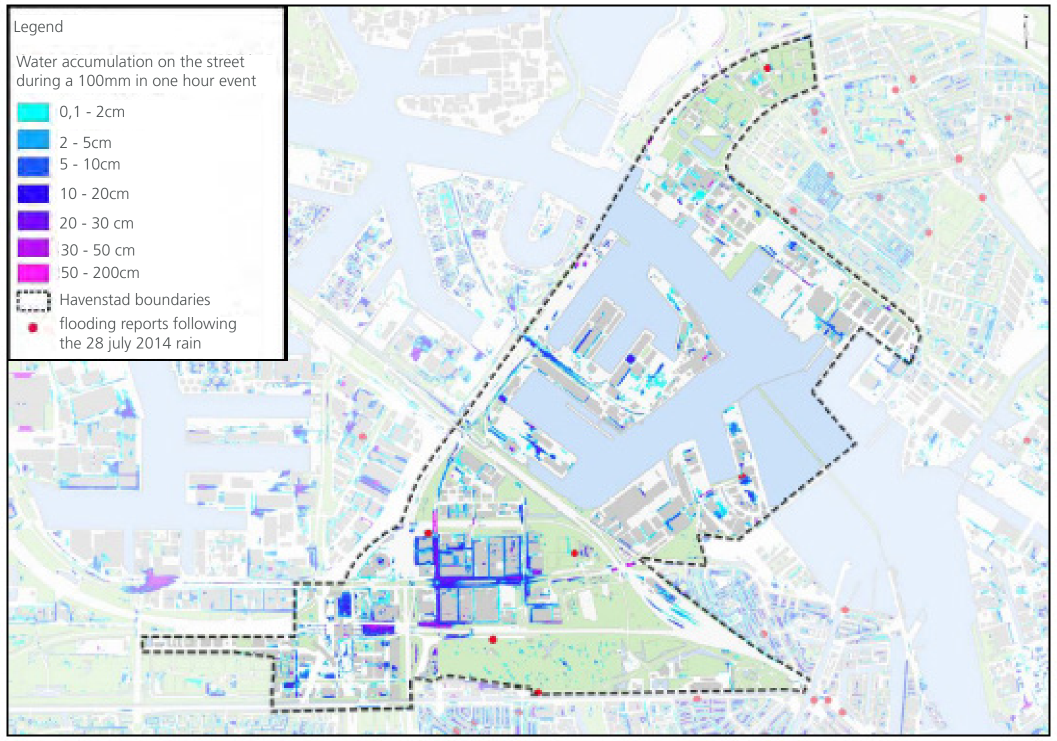
Development areas assigned by the municipality of Amsterdam. Source: Gemeente Amsterdam (2016). Koers 2025. Ruimte Voor de Stad



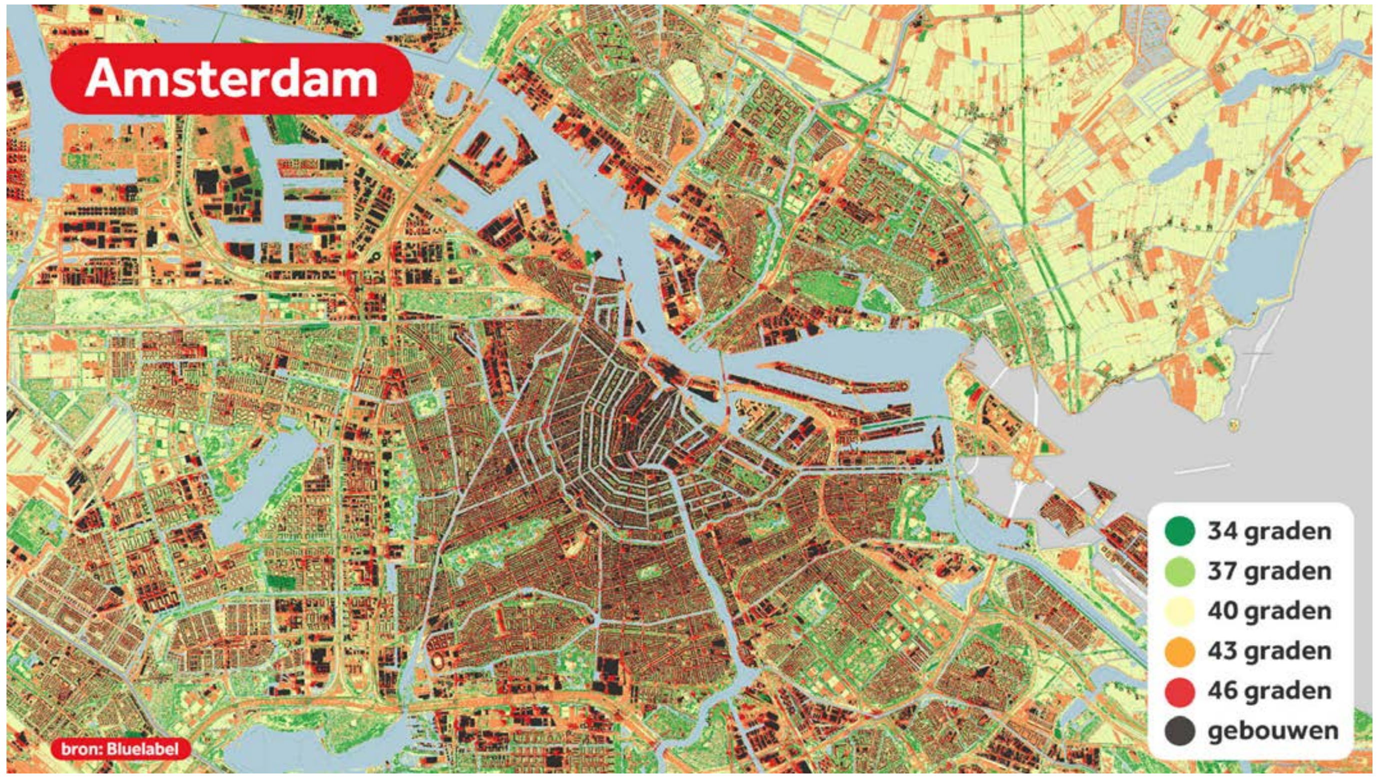
Figuur 4: jaarlijks overschot/tekort bij planvoorraad, versnellingslocaties en werkprogramma 2016

Development of the housing production and the potential absolute shortage. The colors here correspond to the same legend as the map on the previous page. Source: Gemeente Amsterdam (2016). Koers 2025. Ruimte Voor de Stad

Climatic challenges

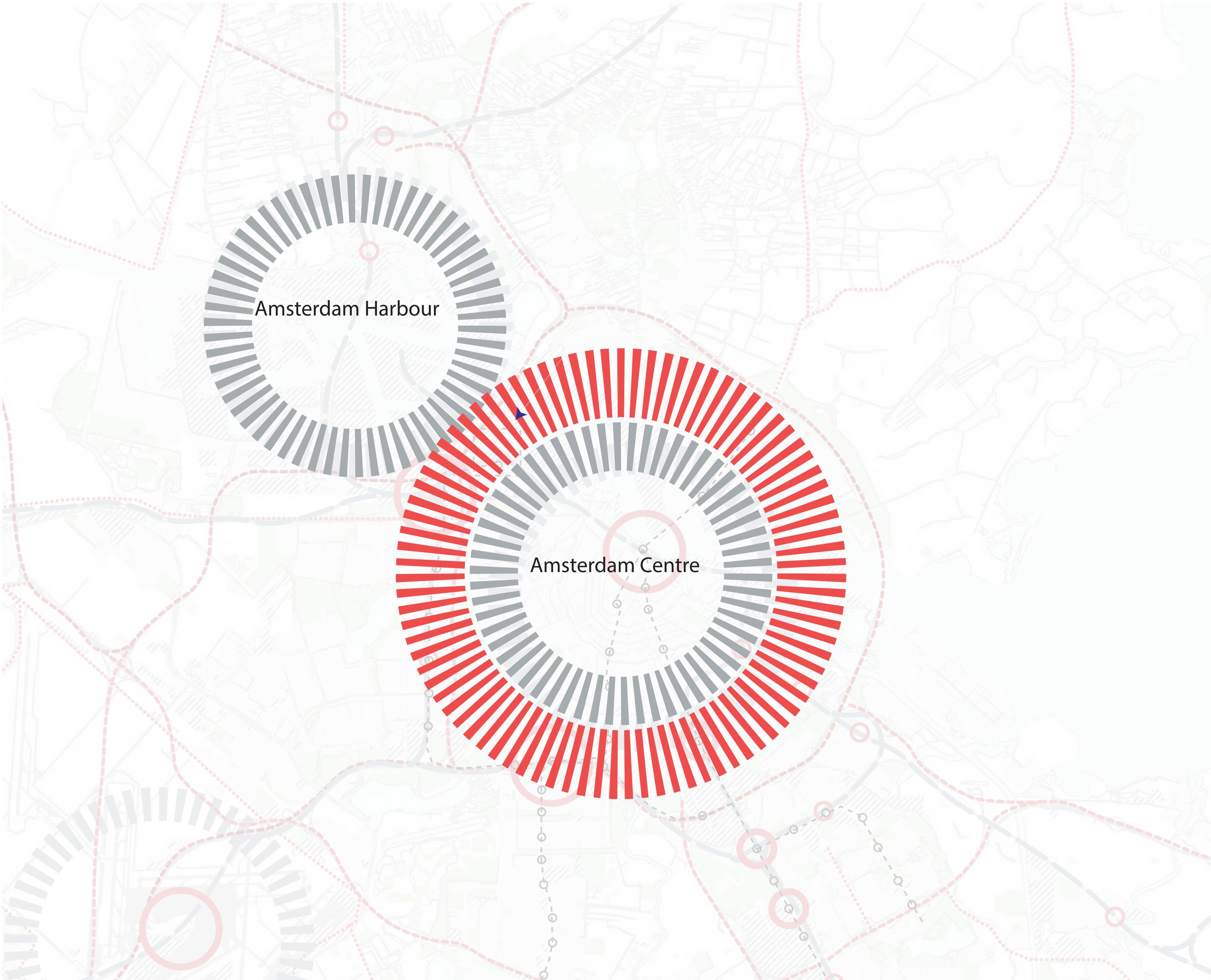


Pluvial flooding risk at 100mm/h.
Source: Gemeente Amsterdam **MER water** (2017, p.17). Bijlage 10 Achtergrondrapport Water MER Haven-Stad
Simulation of amount of rainwater on the street during a simulated 100mm in an hour event. This includes the locations where a water nuisance was reported during a rainfall event of 50 - 80mm in the span of three hours. A combination of a high groundwater table, adding to the low level of infiltration of the soil and a mostly impermeable surface causes the rainwater to accumulate.



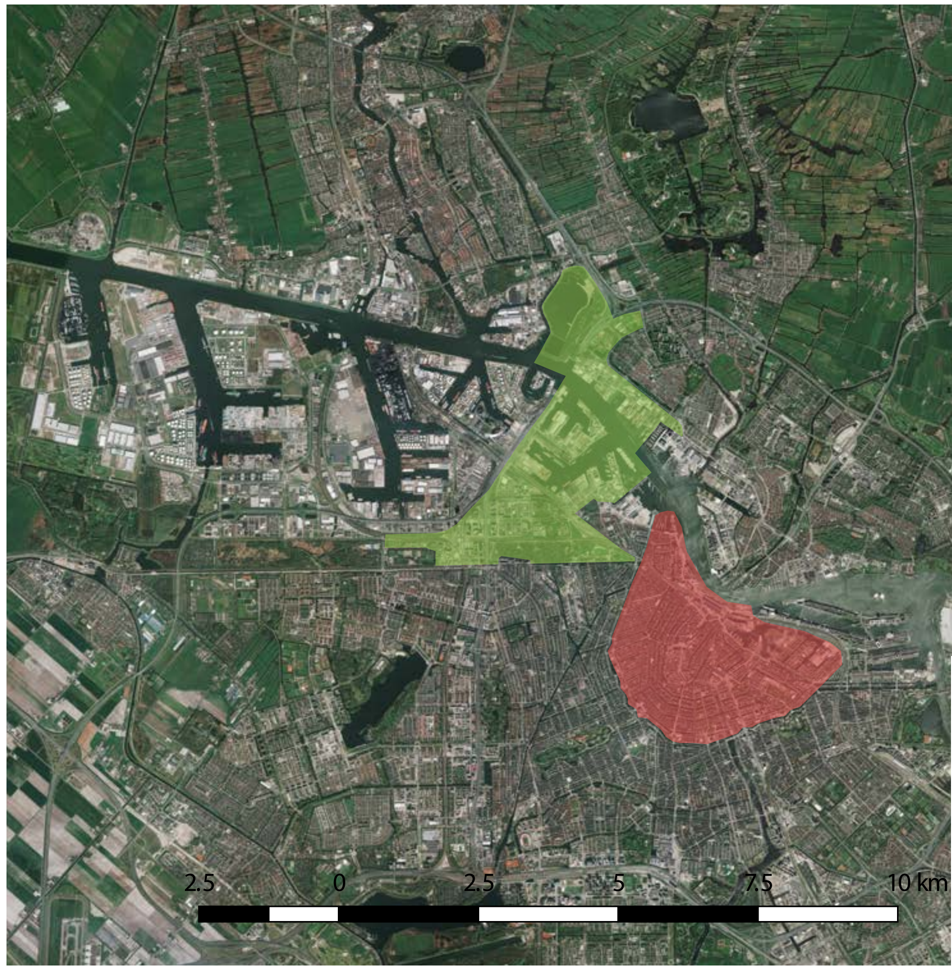
The perceived temperature on a hot summer day.
Source: Bluelabel, "De gevoelstemperatuur op een hete zomerdag". Retrieved on 14-09-2019 from https://nos.nl/artikel/2290680-overal-een-warme-zomerdag-toch-grote-verschillen-in-gevoelstemperatuur.html
It is visible that the perceived temperature can differ depending on the typology and the design of public space.

The new land of opportunity



Accommodating population growth

The location of Havenstad in the city of Amsterdam. Adaptation of Bing maps.



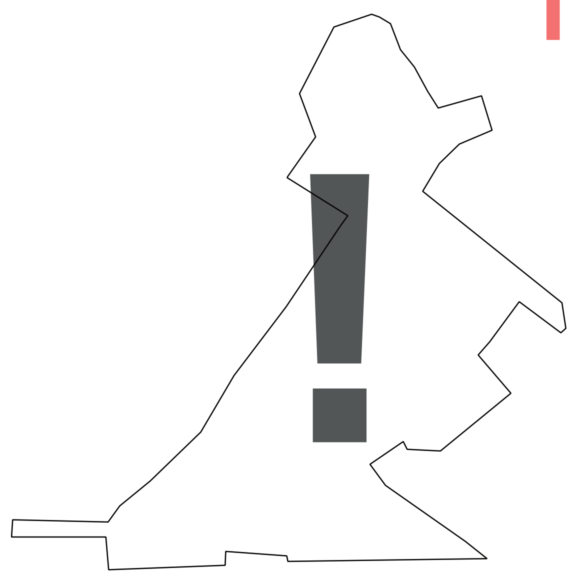
Havenstad
Land Area: 6,5km2
Projected Population: 100.000 inhabitants
Population Density: 15.385 inhabitants/km2

Amsterdam centrum
Land Area: 8,04km2
Population: 86.395 inhabitants
Population Density: 13.750 inhabitants/km2

Accommodating population growth

Space

Mobility

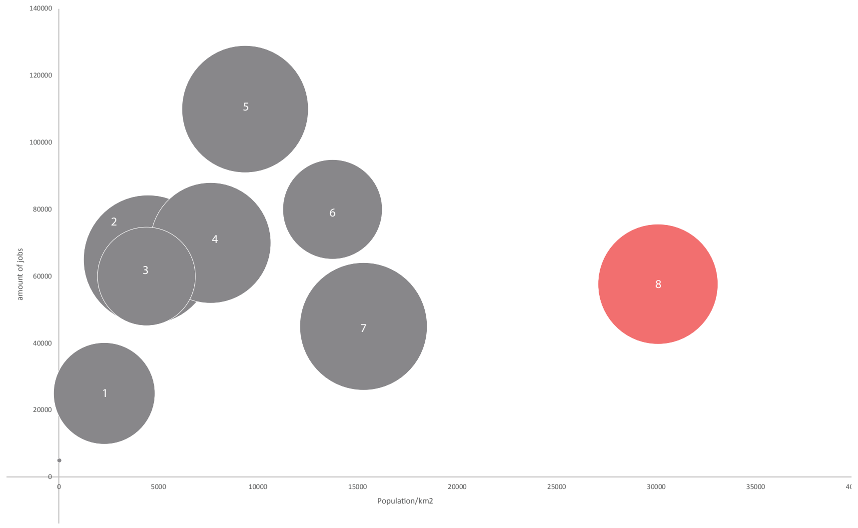


Water

Heat

City ~~of~~ for the Future

Projected demographics



Jobs per district vs population density
Data compiled using data from the city (Gemeente Amsterdam, 2017).

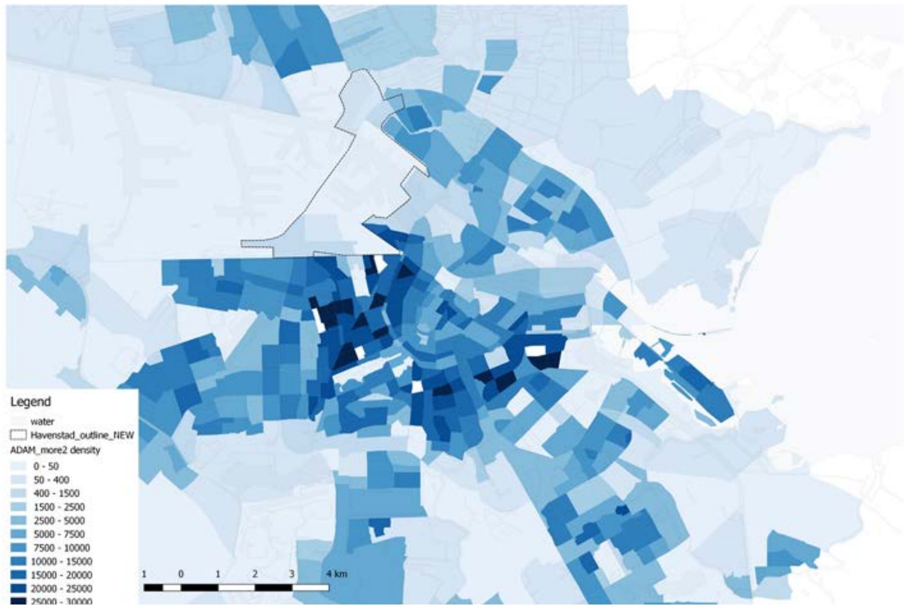
The size of the bubbles correlates to the population size in the districts.

1 Noord
2 Nieuw West
3 Zuid Oost
4 Oost
5 West
6 Centrum
7 Zuid
8 Havenstad

	neighbourhood	population	GFA change (%)	jobs change (%)	current FSI	future FSI
1	Sloterdijk Centrum	12967	103	7,1	0,79	1,6
2	Sloterdijk I	19635	211	58,1	0,64	2
3	Zaanstraat emplacement	3185	1450	2932	0,12	2
4	Minervahaven	20335	407	4,5	0,39	2
5	Sportpark Transformatorweg	3290	3358	6165	0,06	2
6	Alfadriehoek	9100	386	98,3	0,41	2
7	Cornelis Douwes 0-1	12075	586	252,2	0,29	2
8	Cornelis Douwes 2-3	16800	435	189,6	0,37	2
9	Melkweg Oostzanerwerf	2800				0,47
10	Coen en Vlothaven	26950	652	1081,5	0,27	2
total*		127137	340	78,3	0,41	1,82

Some of the most significant changes proyected for Havenstad. Data taken from MER Haven stad (Gemeente Amsterdam, 2017)

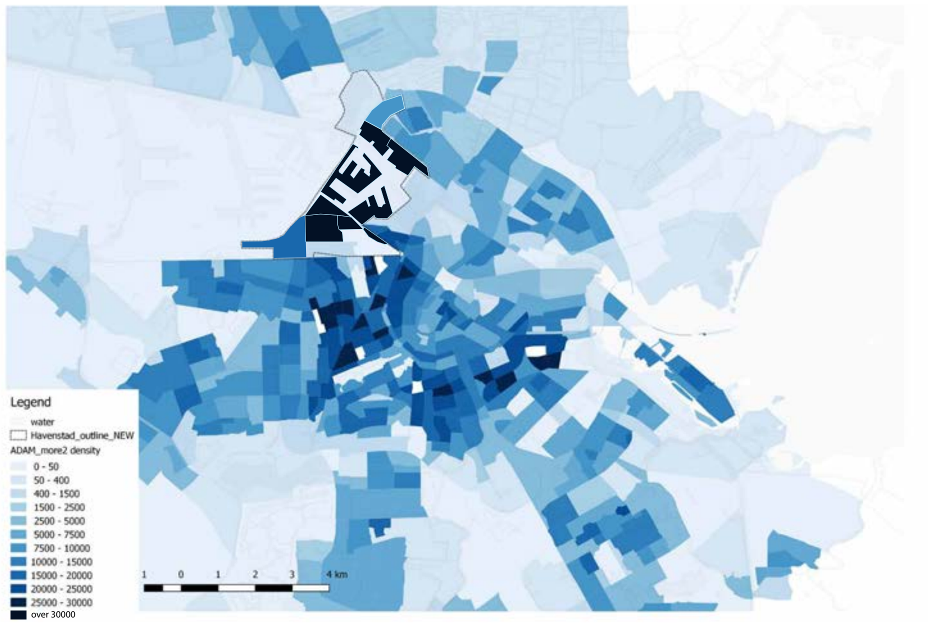
Density comparison in the city



Population density per km2 current situation

Created using dataset CBS wijk en buurtkaart 2018

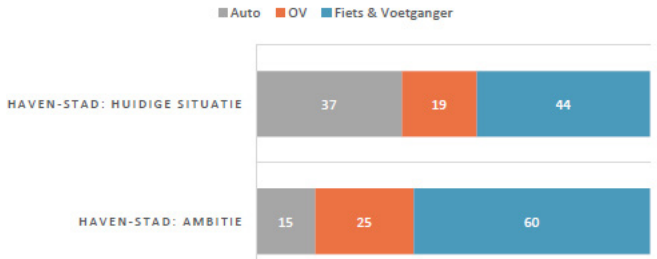
In this map the density of the population per km2 for the neighbourhoods has been shown. This map illustrates that the highest densities of population are present in the areas developed between 1903 and 1940.



Population density per km2 projection with Havenstad

Created using dataset CBS wijk en buurtkaart 2018 and MER Havenstad (2017)

This map illustrates how the projected population density in the new neighbourhoods of the Havenstad district would compare to the rest of the city. With most of the neighbourhoods projected with a density of 35000 inhabitants/km2 this area would be truly unique in the city.



Ambition modal shift

Source: Gemeente Amsterdam (2017, p.12). Bijlage 3 Achtergrondrapport Mobiliteit MER Haven-Stad

It is visible that the Havenstad development is not only slated to vastly decrease the share of personal private transport in the form of cars, but also reach a higher share for active mobility than the city centre.

Accommodating population growth

?

Havenstad

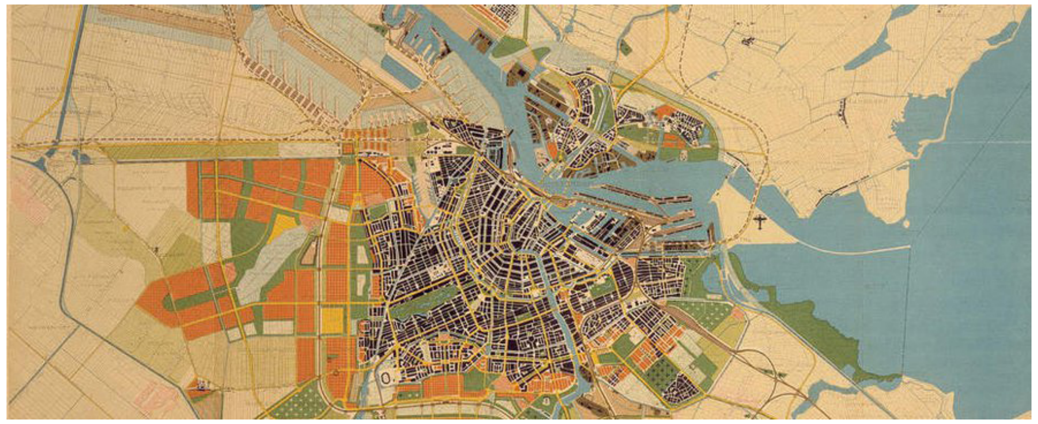
A city for the future, allowing for flexibility and offering a framework for development into a high intensity mixed area, optimising its environmental assets

Previous iterations of the city of the future

Plan Zuid by Hein Berlage - Gemeente Amsterdam, Public Domain, https://commons.wikimedia.org/w/index.php?curid=15479626

Initially: 31.000 inhabitants/km2

Currently: over 20.000 inhabitants/km2



The "Algemeen Uitbreidingsplan van Amsterdam" (AUP) 1935 Source: Gebiedsontwikkeling.nu (2017) Leren van het Algemeen Uitbreidingsplan Amsterdam

Plan: 20.000 inhabitants/km2

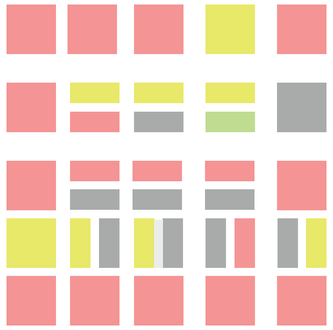
Currently: 12.000 inhabitants/km2

On the left: Aerial footage of Bijlmer Oost during its construction, part D and E, Karspeldreef. Photo Stadsarchief Amsterdam (1973) On the right: Footage of then Dutch queen Juliana on a balcony in the new development, January 21 1971 Source: 99percentinvisible (2018) Bijlmer City of the Future Part 1. Retrieved on 05-08-2019 from https://99percentinvisible.org/episode/bijlmer-city-future-part-1/

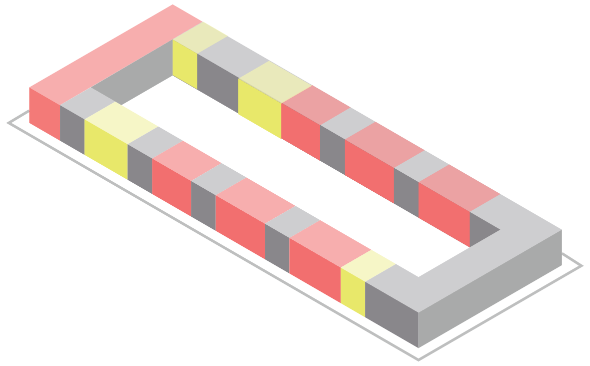
Plan: over 15.000 inhabitants/km2

Currently: 11.000 inhabitants/km2

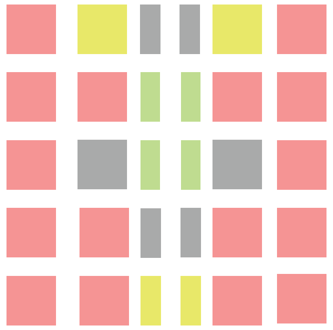
Evolution of functions and the block



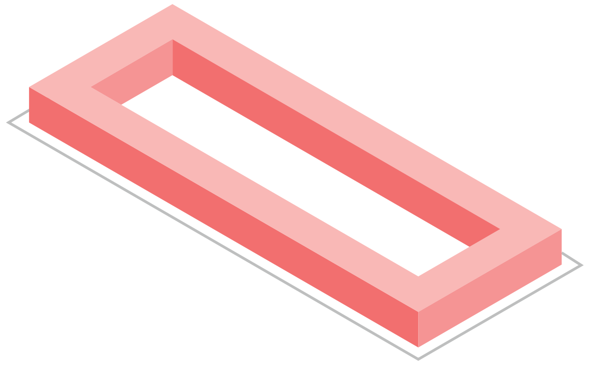
Mix of functions in the old city
The original city was perceived as disorganised. in particular in the Jordaan district.



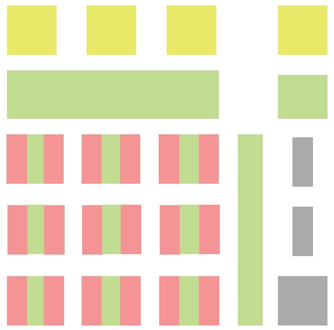
Parcel based development
A representation of the parcel based development



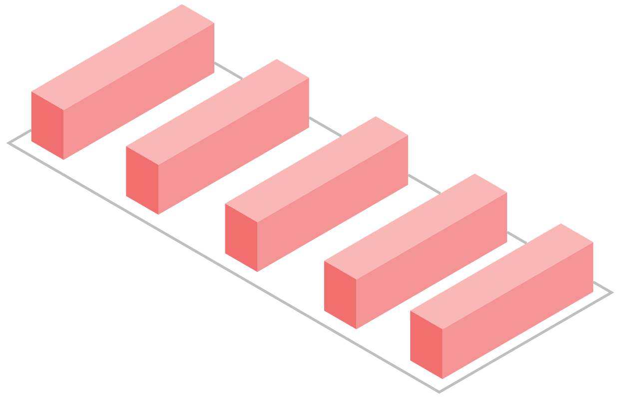
Plan Zuid
Hierarchy and the spatial relations become important. The city as a visual composition.



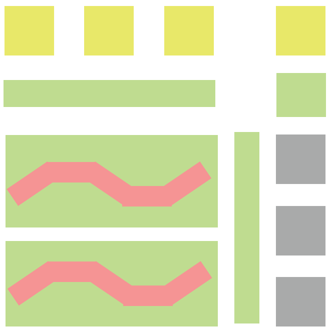
Plan Zuid
The building block becomes leading in the development.



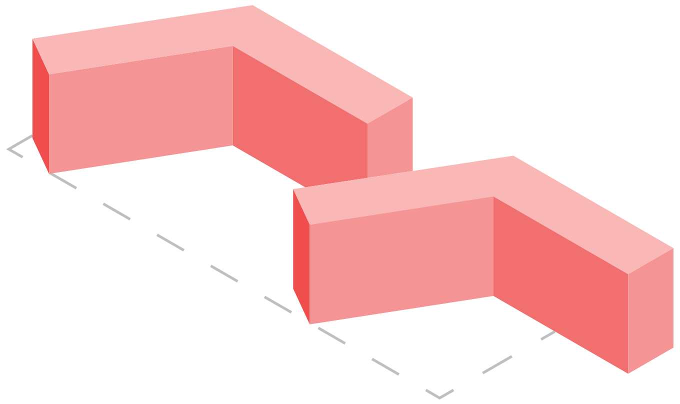
AUP
Separation of functions, introduction of large green spaces and the rejection of the closed building block. The city as a composition of functional relations.



AUP
Rejection of the closed building block in favour of the individual building, introducing large scale green and open space.

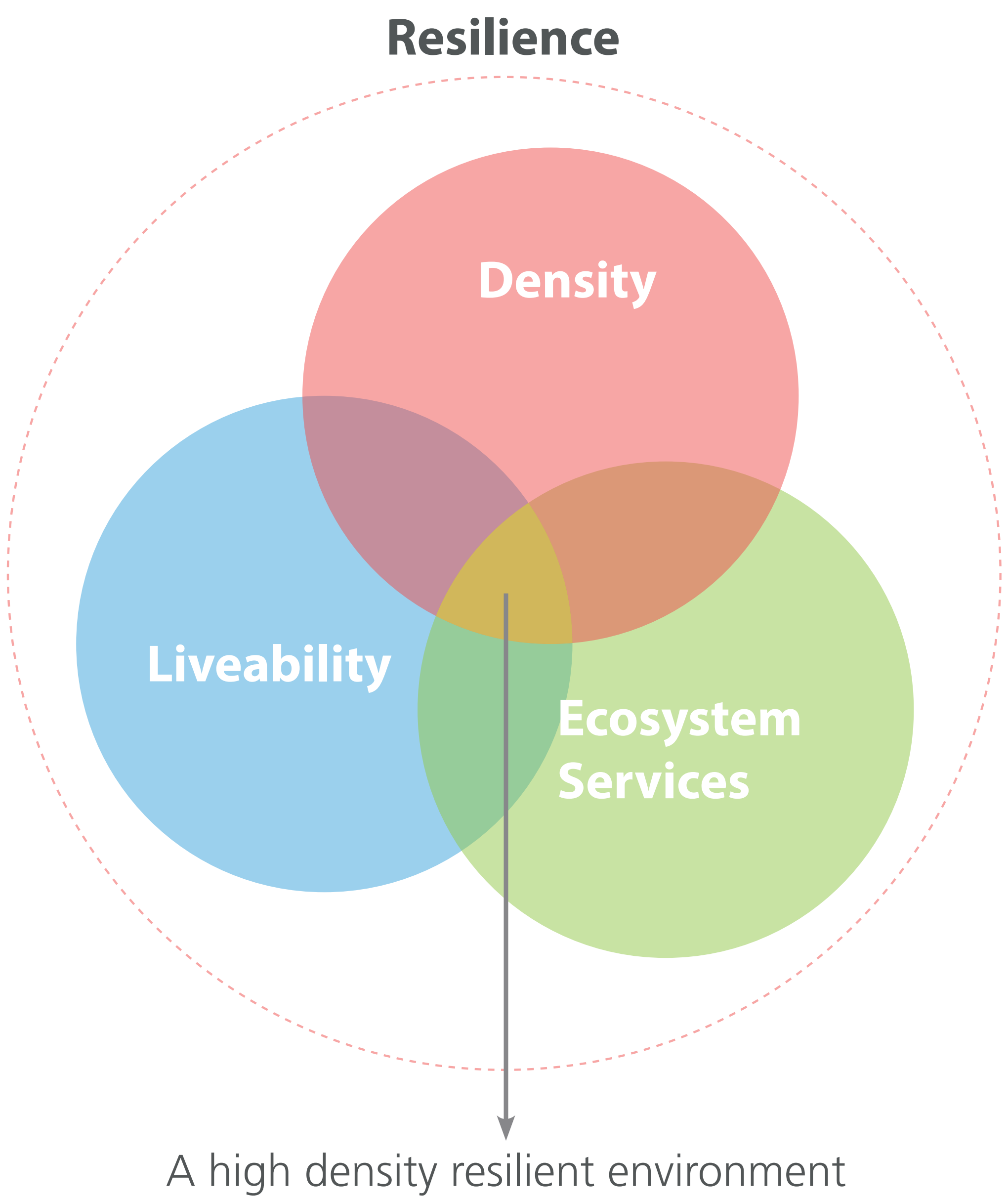


Bijlmermeer
Further separation of functions, increase of the green space and a vastly different relation between the built and the open.

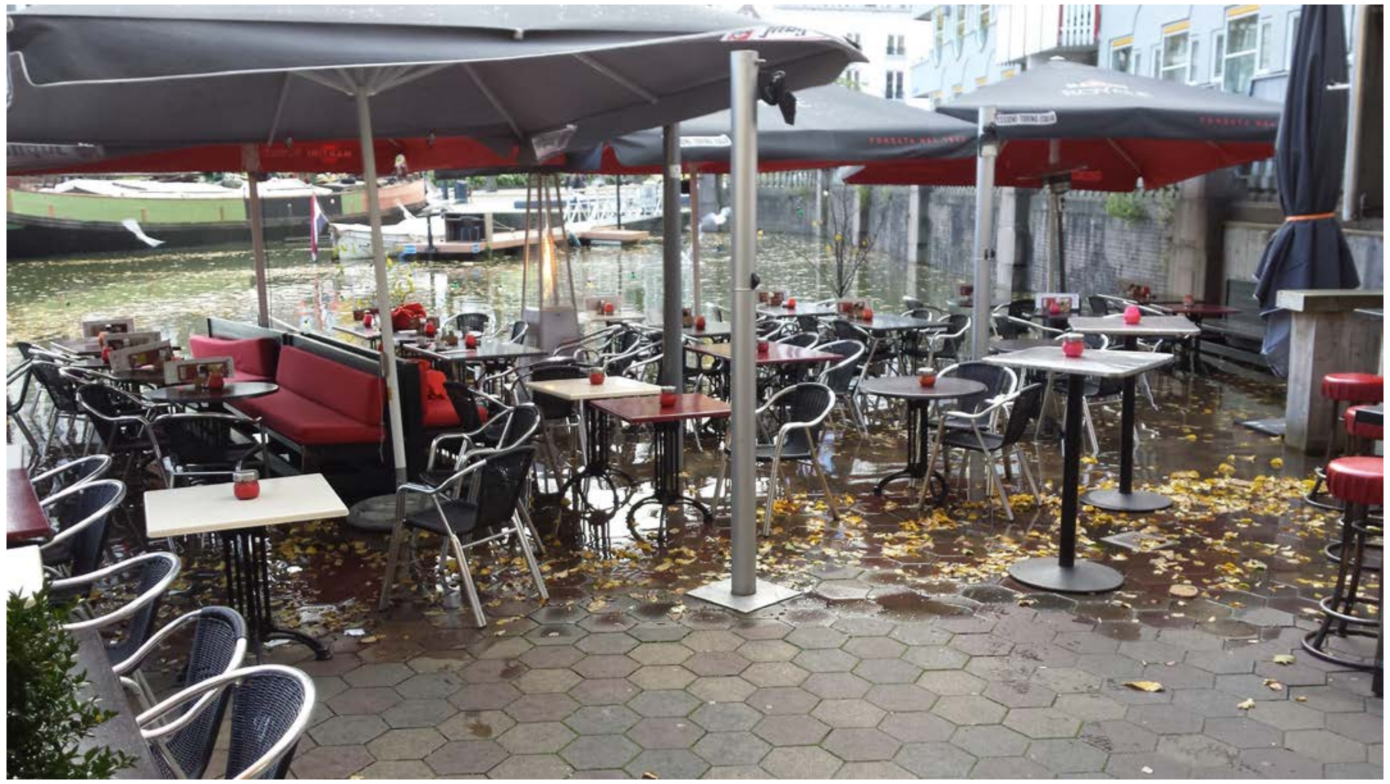


Bijlmermeer
Further development of new highrise typologies. The borders in the public domain become less clear.

Integration


Resilience
Density
Liveability
Ecosystem Services
A high density resilient environment

Resilience



Oudehaven in Rotterdam

Venice during a flood
Foto Slavoj Žižek

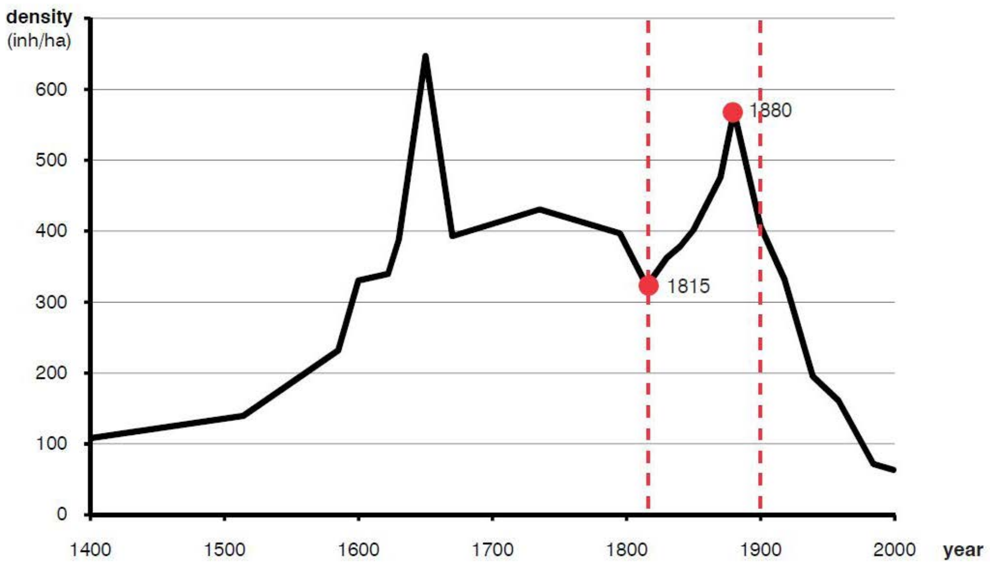
The three pillars

Density

Ecosystem Services

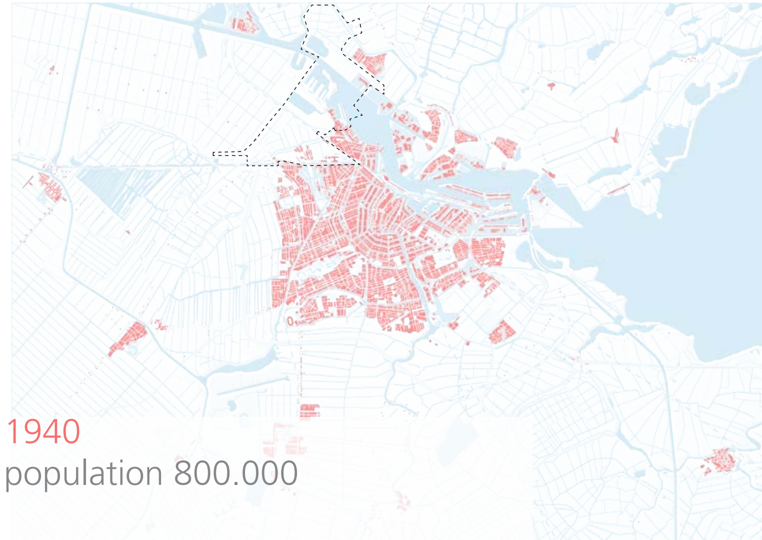
Liveability

Density

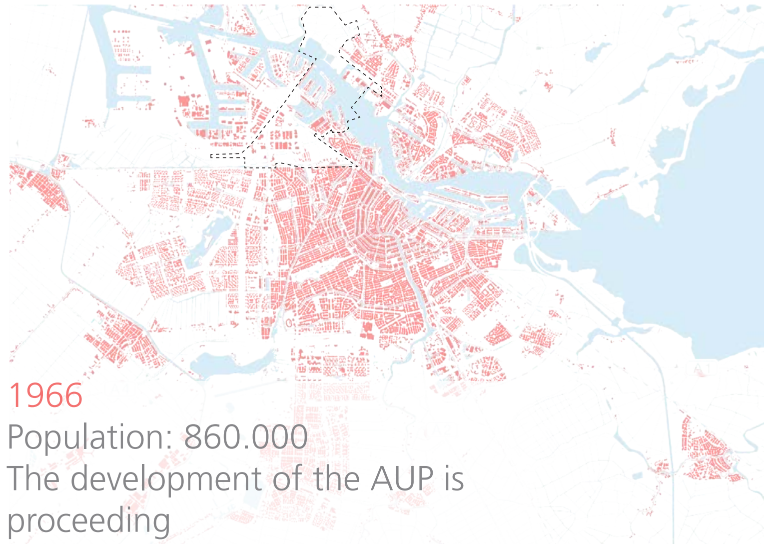


Population density in Amsterdam 1400-2000. *Space, Density and Urban Form* (p.33), by Berghauser Pont, M.Y.; Haupt, P. A., 2009, Delft, The Netherlands: TU Delft. Copyright 2009 by Berghauser Pont, M.Y.; Haupt, P.A

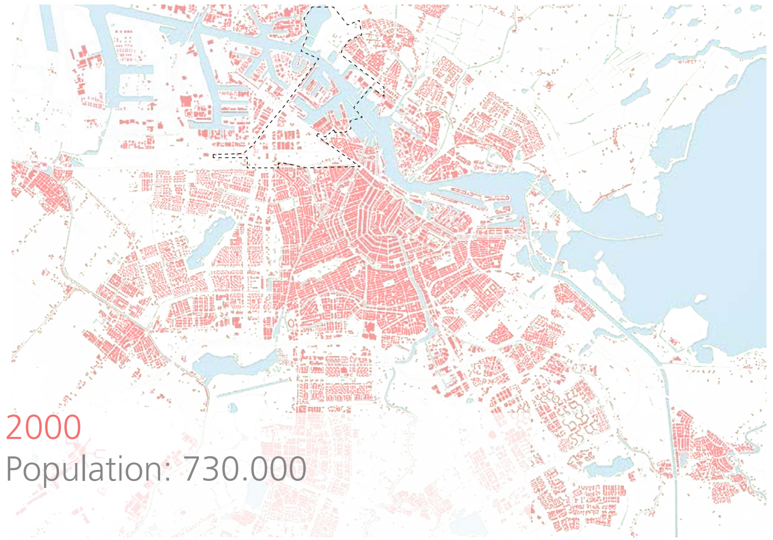
This graph shows the development of the population density in the city of Amsterdam, while highlighting several peaks (such as the golden age) and valleys (such as the Napoleonic wars and their aftermath). The last peak being the year the woningwet, or Housing Act was instated.



1940
population 800.000



1966
Population: 860.000
The development of the AUP is proceeding



2000
Population: 730.000

These maps are adapted from the Groeikaart van Amsterdam (Historisch Museum Amsterdam and Haartman, 2000). In these maps the outline of the plan area of Havenstad has been added.

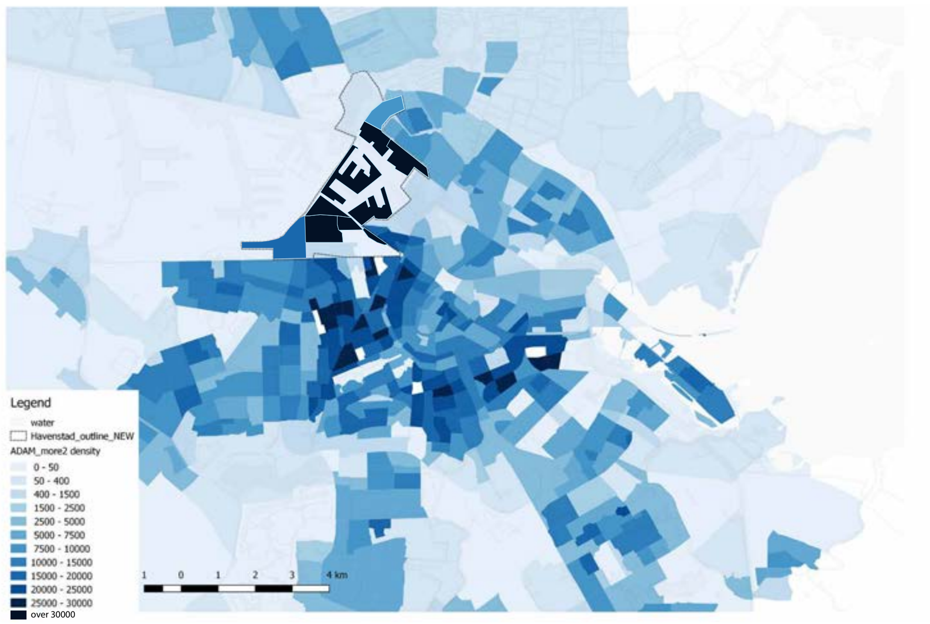
Population decline
+
spatial growth

To actually fulfill the desire of limiting greenfield development a shift is warranted.

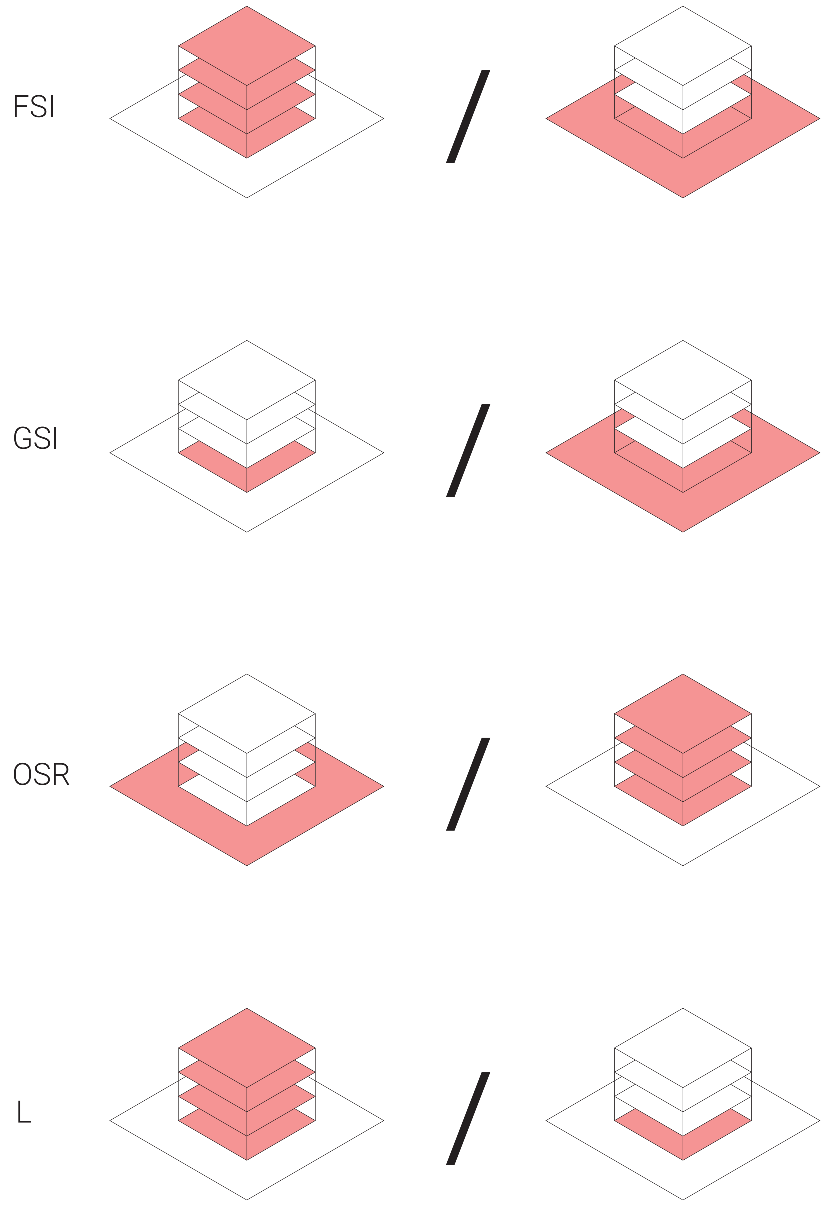
By assuming this is a strong negative correlation one neglects the influence that can be attributed to the vast improvements in hygiene, the changed land use patterns and increase in public amenities through the enactment of the Housing Act.

Types of density

Population density



Spatial density



How to calculate the various density indicators using the spacematrix approach by Berghauser Pont and Haupt (2009)

Functional Density

MXI

Liveability

A secondary shopping street in the city centre of Cologne in 2019. This is the example of a space that is designed to allow for social and optional activities such as strolling interacting with others and of course travel.

Considering the need for social and optional activities in the city, one could then argue that higher densities, such as those argued by Lozano and Jacobs would be beneficial to the overall liveability, as long as the spatial design stimulates social activities and optional activities, as well as taking different mobility needs into account.

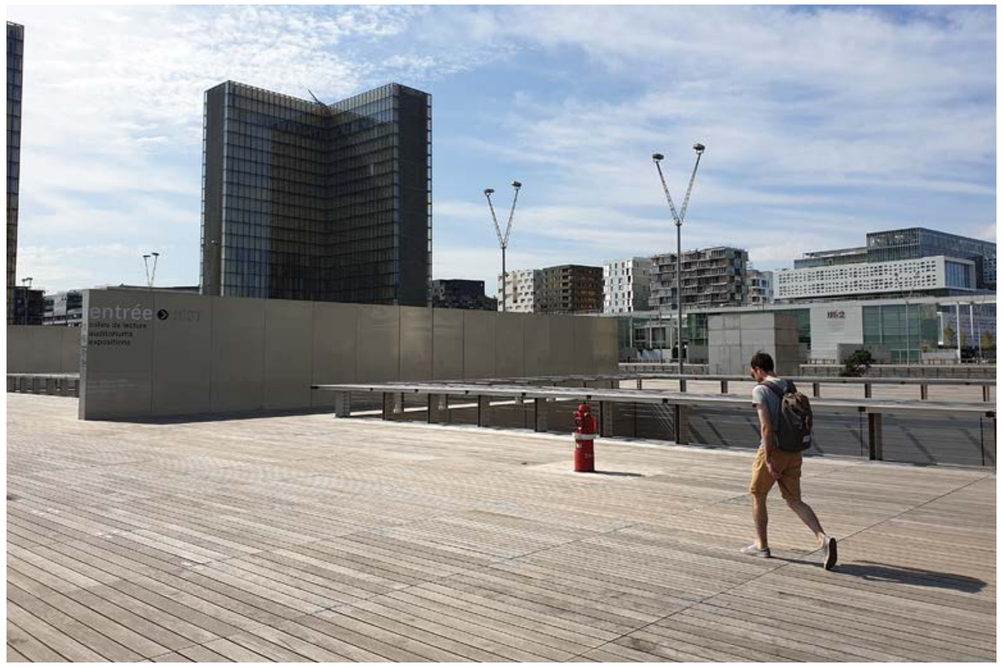
City redevelopment in the city of Shanghai in 2018. Here one form of spatial density, the lowrise neighbourhood, is removed to make place for a different typology, that of the commercial and/or residential tower. One could question what the effect on the use of public space will be.

So, the risk of a lowered liveability due to higher pressure on the open and public space requires a strong design to balance the loss in the OSR.

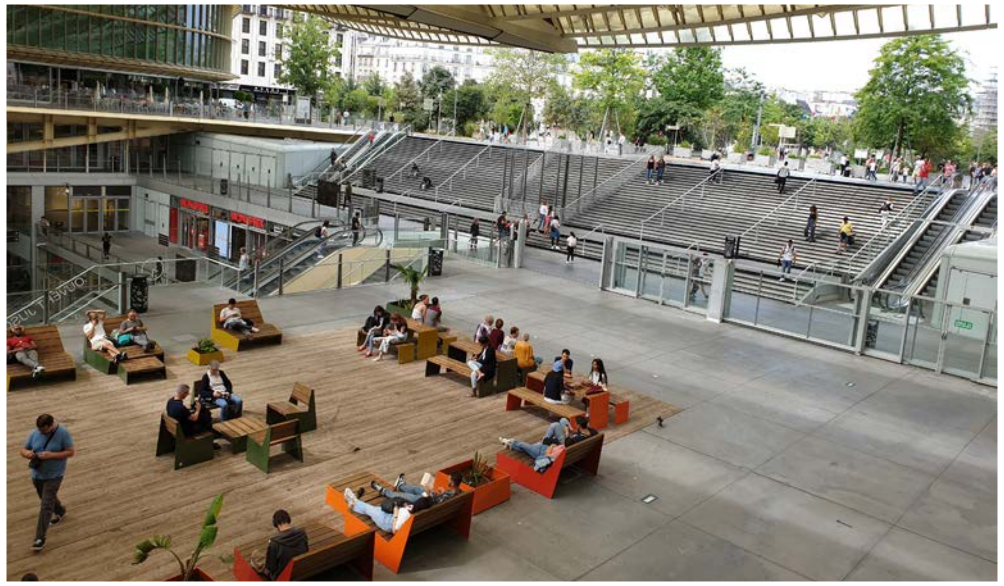
The Bouwpub at TU Delft faculty of architecture in 2017. An example of an environment that allows for optional activities and social activities, due to the connection of functions and space design.

Vertical layering of the edge zone in Wuhan, China 2018. Through the layering of density in public space, the space remains legible and interaction with the lower floors of the buildings remains possible.

space for humans



The National library of France, in Paris 2019. An example of how overdimensioning the public space creates a space with few social and optional activities.



Forum les Halles in Paris, 2019. Here it is clear how attempts have been made to break down the large space in the building in order to stimulate optional and social activities.

The aptly named tunnel/bridge Woestenij or Wasteland, near Eindhoven station in 2018.
Conceived as a solution to the conflict between active mobility and the automobile near Eindhoven train station. Although a the conflict has been resolved, the resulting spatial quality of the route discourages optional activities or social activities, resulting in a non-place.

One of the elevated walkways at Pudong, Shanghai in 2018
Here the conflict between pedestrians automobiles has been used to create a totally new elevated infrastructure that functions as a place as it not only connects different buildings, but also allows for optional and social activities as part of the identity of the Pudong district.

Ecosystem services

A neighbourhood acitivity in the Poptapark in Delft, 2017
An example of a park fulfilling cultural functions.

This project operates within the classifications applied by McPhearson, Kremer and Hamsted (2013). They classify ecosystem services in four categories, one being provisioning services, the next being regulating services, the third being support services and the last being cultural services.

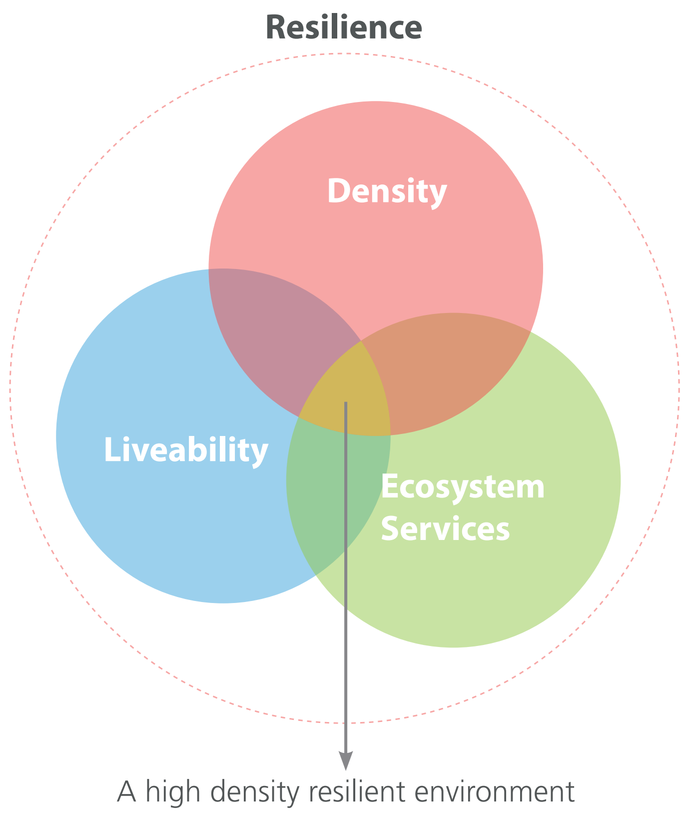
A pond in the Jardins Grand Moulin Abbé Pierre in Paris, 2019. This is an example of a park where runoff regulation has been integrated with provision of habitat for biodiversity as well as cultural services.

The inner court of the National Library of France in Paris, 2019. Here a forest has been transplanted into the court. While it may provide several ecosystem services, the forest remains largely disconnected from other green spaces as it lacks corridors or clearly accessible stepping stones.

Judging from the research to liveability and density, the fate of ecosystem services has mostly focused on preserving and defending landscape elements from development, as their value was not entirely understood or appreciated. At the same time our cities need to adapt to an increase of extreme climatic events, for which current environments are not built to cope.

The park around Annenborch elder care building in Rosmalen, 's-Hertogenbosch, 2019. Here the green space not only provides support and regulatory ecosystem services, but it is an important part of the privacy zoning.

Integration



Guidelines for the design (Resilience):

- Designate a hierarchy of protection, with the effects of failure spatially designed to improve the situation when there is no calamity.
- Be resourceful, by treating possible complications as assets for the development, rather than as impediments.
- Focus on the integration of different layers as an opportunity for new applications within the same space. Multifunctional solutions are the goal.
- Create robustness in the system by allowing insight in the performance while allowing for adaptability.

Guidelines for the design (Density):

- Population density and amount of dwellings can be used when the spatial density and dwelling size has been determined.
- A higher adaptability may lead to a higher MXI.
- The spatial density is defined according to the indicators from the research of Berghauser Pont and Haupt.
- The functional density is defined using the MXI developed by Van den Hoek.

Guidelines for the design (Liveability):

- There are minimal densities for the presence of a number of amenities.
- The likelihood of optional and social activities is determined by the perceived quality of the space.
- To reach the potential liveability of a higher density, accessibility and spatial quality are paramount. This requires a reevaluation of space as car mobility can place a disproportionate burden on the city.
- The spatial quality relies for a great part on the possibility for interaction and therefor on the design of the edge zone.
- The vertical potential for social interaction is limited to 5 floors, with most of it limited to the first two floors.
- The scale of the space must align with its intended use. Do not overdimension space.
- There is a need for diversity of functions and therefor different spatial configurations.
- A higher population density may be better serviced via collective and active transport, although different functions have different mobility needs.

Guidelines for the design (ES):

- Embed ecosystem services into areas that currently do not possess them.
- Expand ecosystem services to innovative locations and combinations. This is particularly beneficial in high density environments.
- Embedding ecosystem services within the corridors has a potential to increase the spatial quality while reducing the pressure on engineered systems as well as making them visible.

But how do we then transform this area?

Businesses with their own landscaping. 2018

The Mosque. 2018

The A10. 2018

Hotel and parking in the area. 2018

Creative industries. 2018

Businesses. 2018

The freight rail line beneath the A10. 2018

The soon to be decommisioned coal plant. 2018

Landscaping of the allotment gardens. 2019

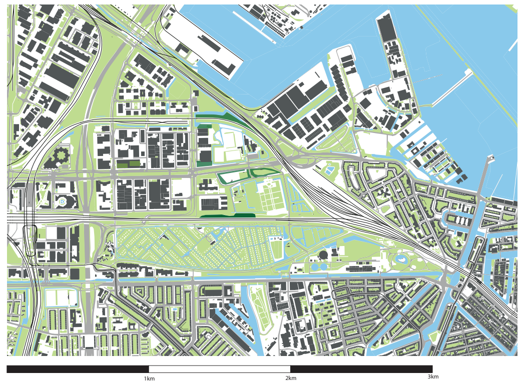
Soberly designed outdoor space. 2019

Renmants of the preindustrial landscape. 2019

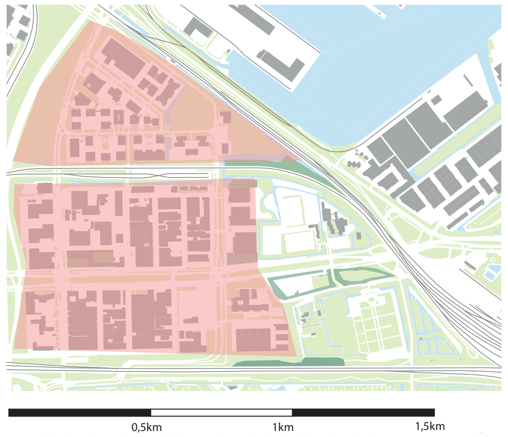
Recreation in the park. 2019

the scales of interventions

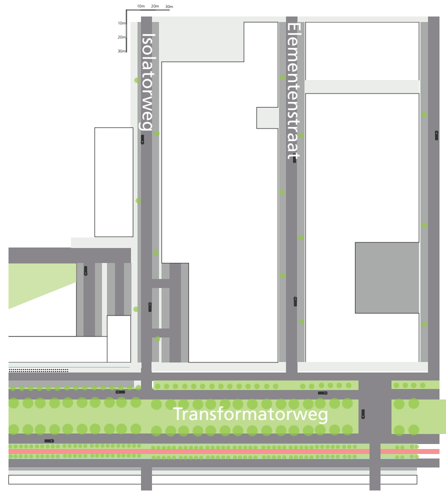
City



District

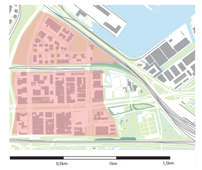
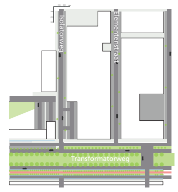


Neighbourhood



Block/street

Performance Indicators

Density performance indicators:

		City	District	Neighbourhood	Block/street
Population density	(quantitative)	●	●	●	
FSI	(quantitative)		●	●	●
GSI	(quantitative)		●	●	●
OSR	(quantitative)		●	●	●
L	(quantitative)		●	●	●
MXI	(quantitative)		●	●	●

Liveability performance indicators:

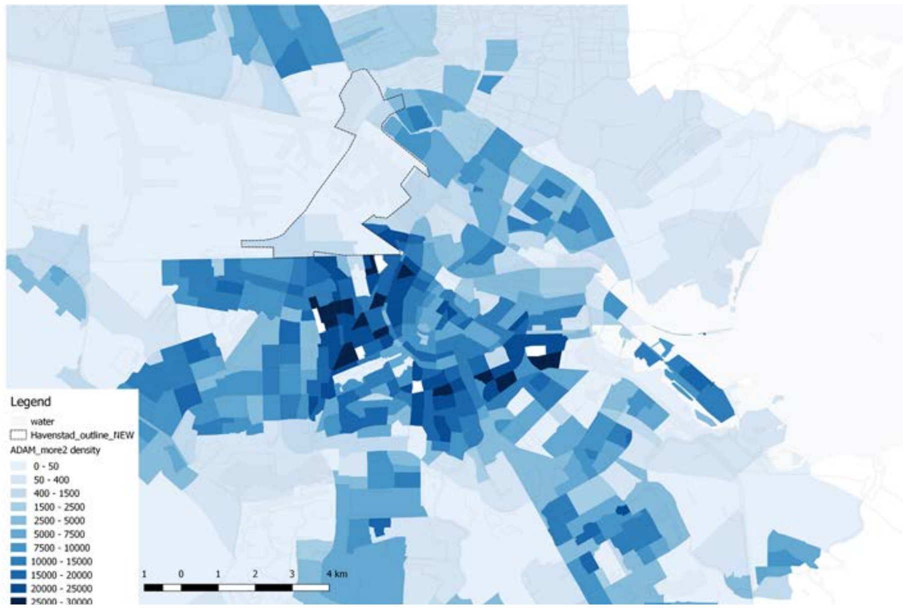
		City	District	Neighbourhood	Block/street
Privacy zoning	(qualitative)			●	●
legibility	(qualitative)		●	●	●
pedestrian accessibility	(qualitative)		●	●	●
public transit accessibility	(quantitative*)	●	●	●	
cyclist accessibility	(quantitative*)	●	●	●	
car accessibility	(quantitative*)	●	●	●	
differentiation of qualities	(qualitative)		●	●	●
green space accessibility	(quantitative*)		●	●	●

ES performance indicators

		City	District	Neighbourhood	Block/street
soil type	(qualitative)		●	● ●	●
soil quality	(qualitative)			●	●
soil carry capacity	(qualitative*)		●	●	●
ground water table	(quantitative)		●	●	
water system	(qualitative)		●	●	
runoff	(quantitative)			●	●
retention capacity	(quantitative)			●	●
climatope	(qualitative)	●	●		
vegetation	(qualitative)	●	●		
ecostructure	qualitative)	●	●		

Assessment

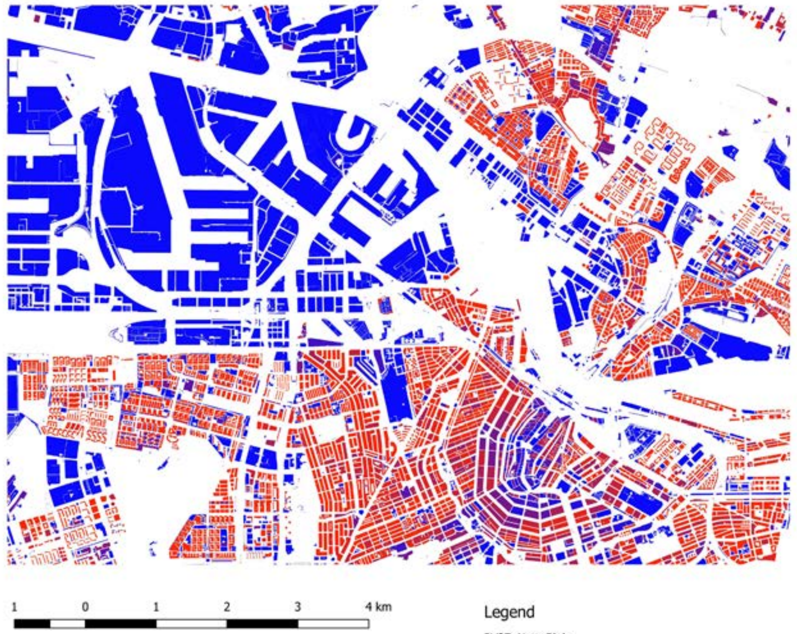
Density



Population density per km2 current situation

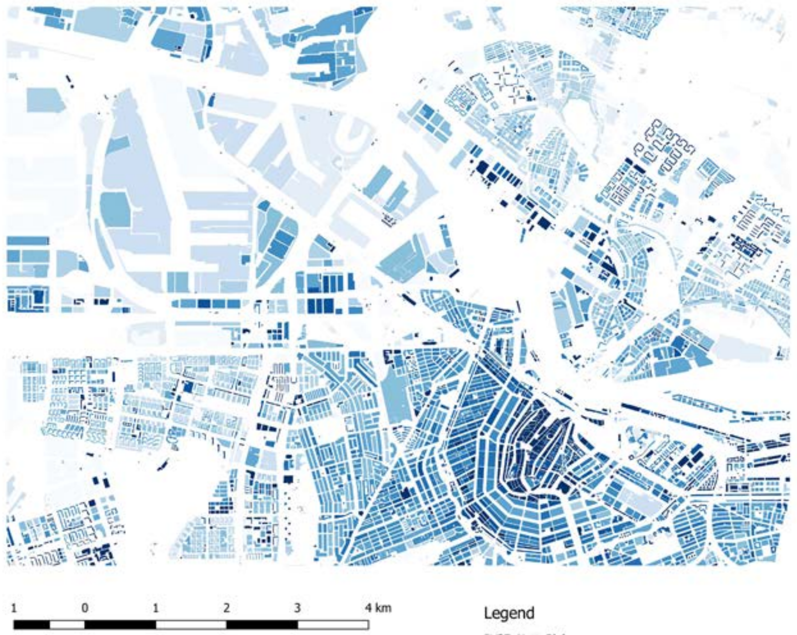
Created using dataset CBS wijk en buurtkaart 2018

In this map the density of the population per km2 for the neighbourhoods has been shown. This map illustrates that the highest densities of population are present in the areas developed between 1903 and 1940.



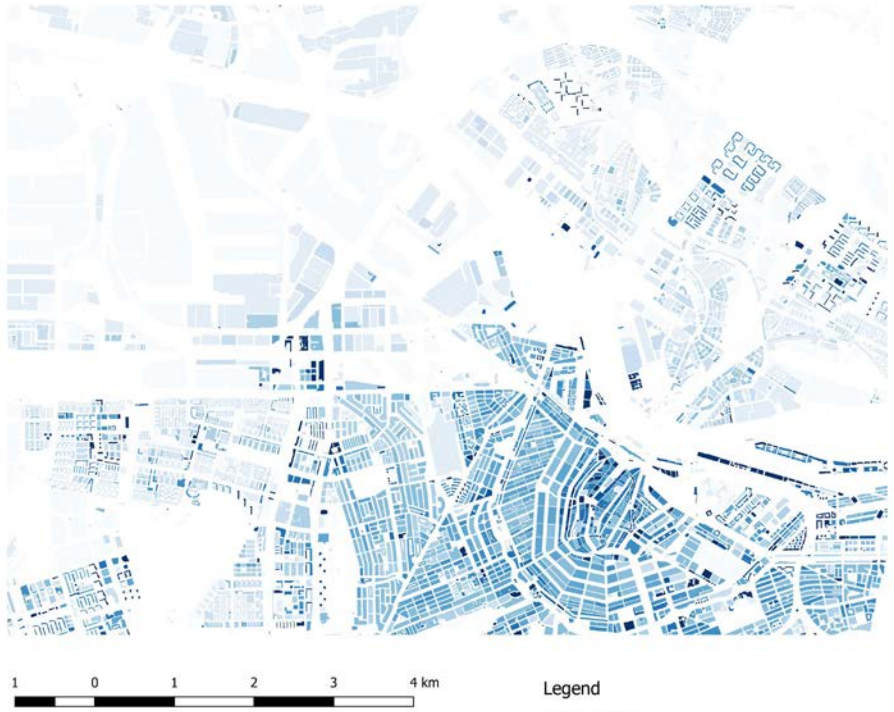
MXI in Amsterdam

Created using dataset RUDIFUN by PBL



GSI in Amsterdam

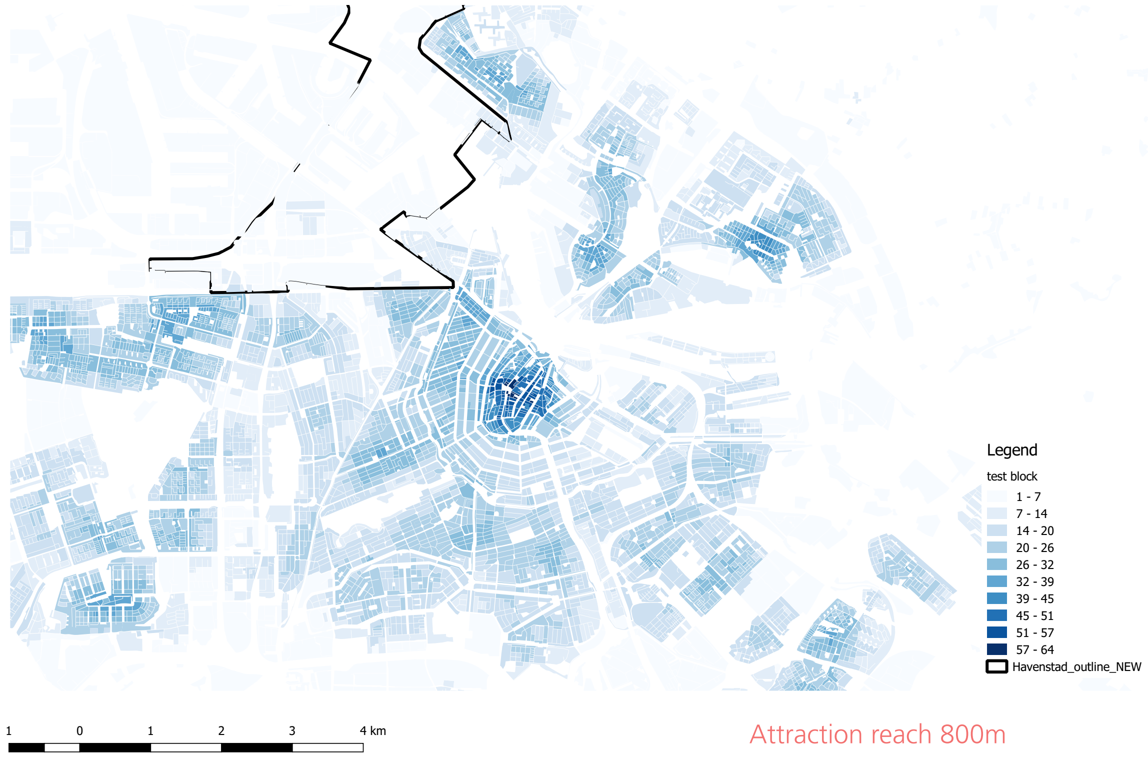
Created using dataset RUDIFUN by PBL



FSI in Amsterdam

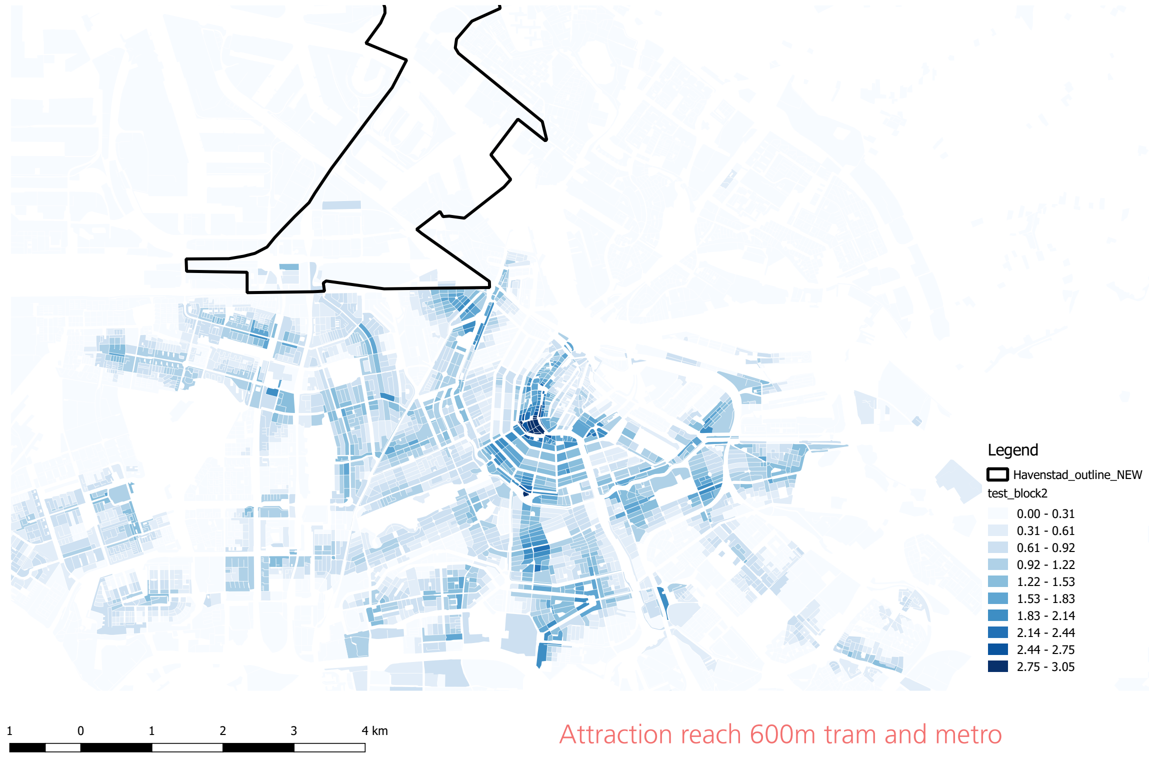
Created using dataset RUDIFUN by PBL

Accessibility



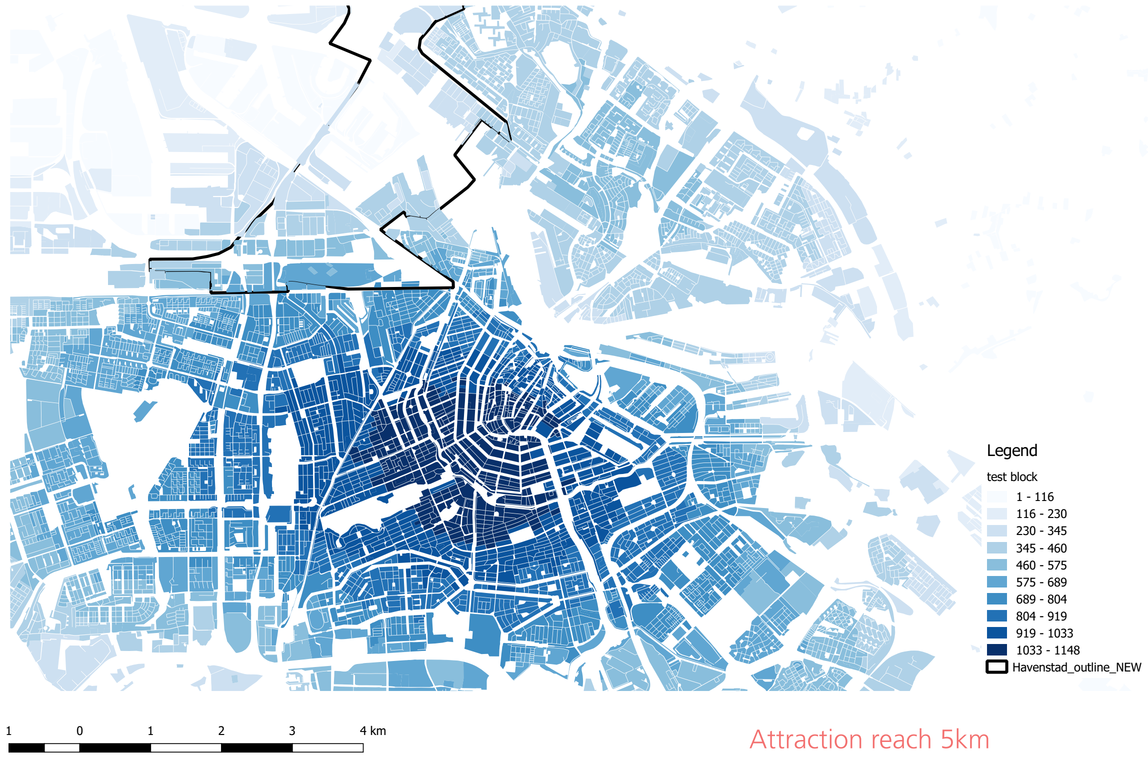
Attraction reach 800m

Compiled using MRA blocks



Attraction reach 600m tram and metro

Compiled using MRA blocks and maps.amsterdam



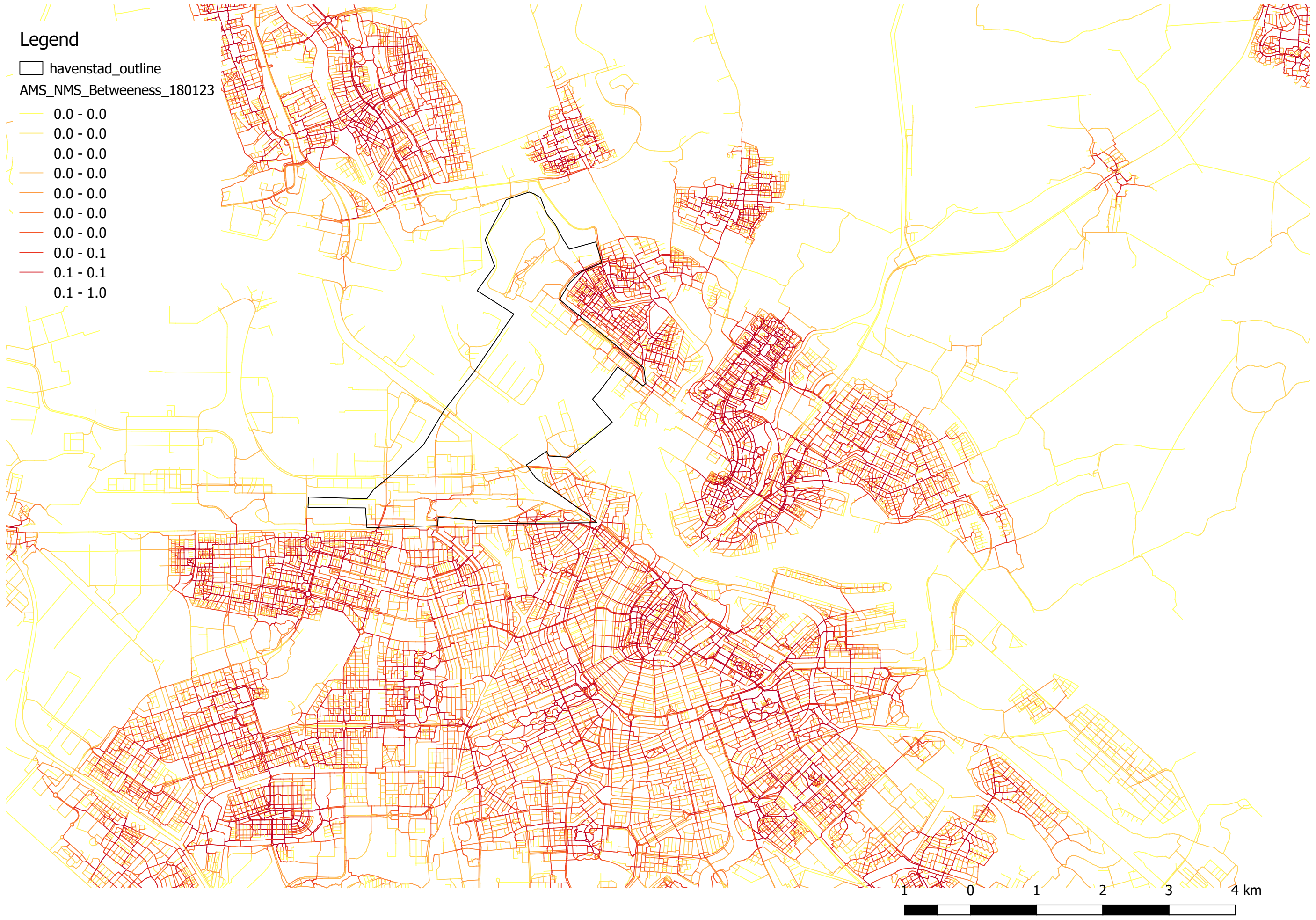
Attraction reach 5km

Compiled using MRA blocks

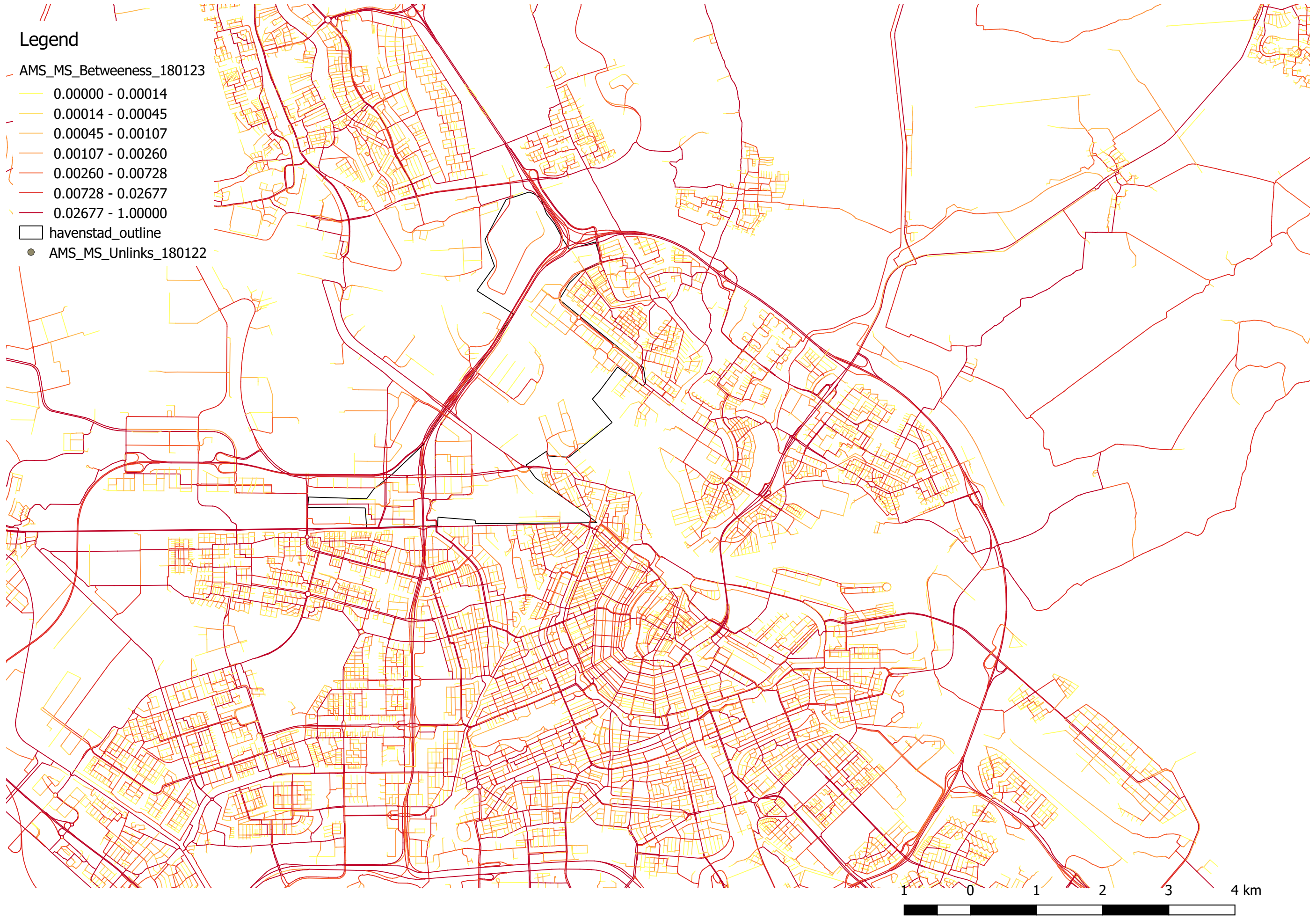
Attraction reach 900m train and metro

Compiled using MRA blocks and maps.amsterdam

Connectivity

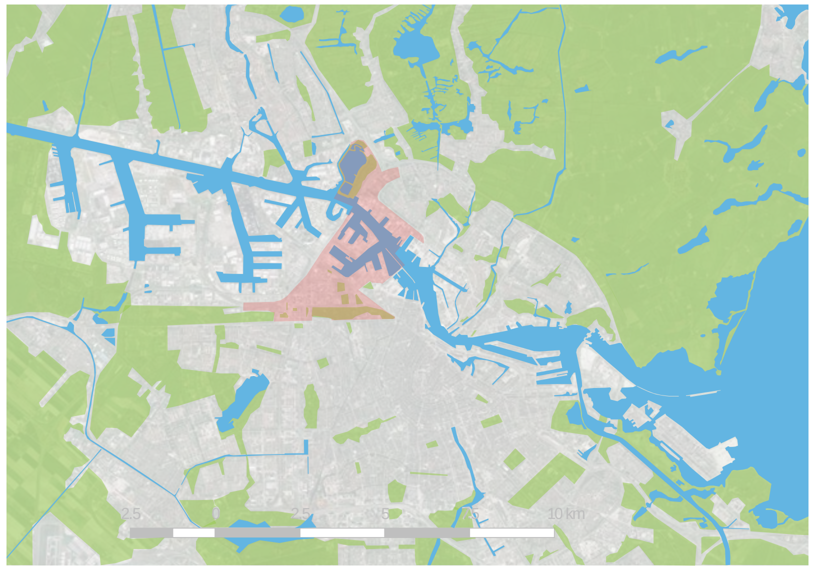


pedestrian network betweennes 800m



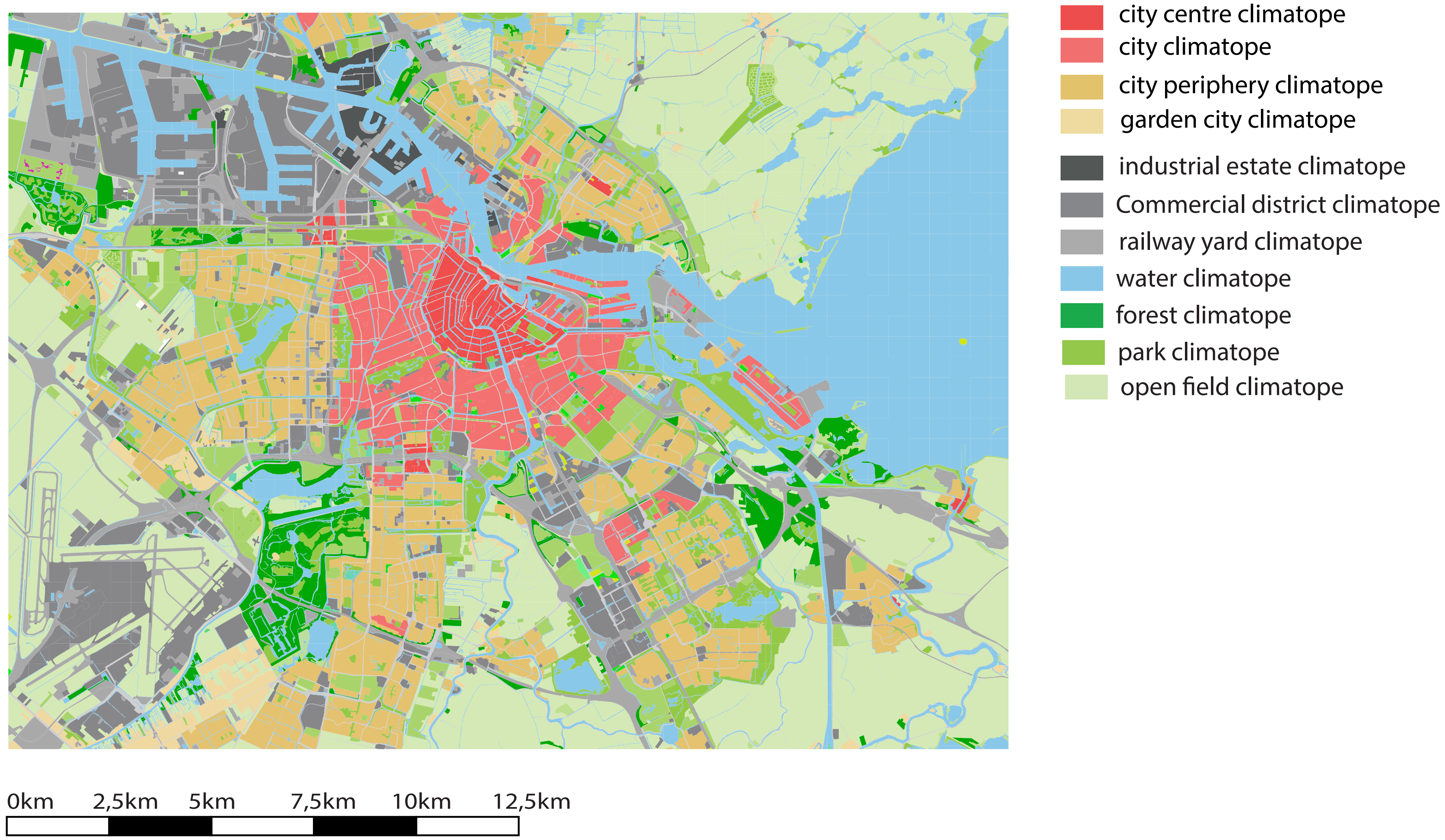
Automobile network betweenness 20km

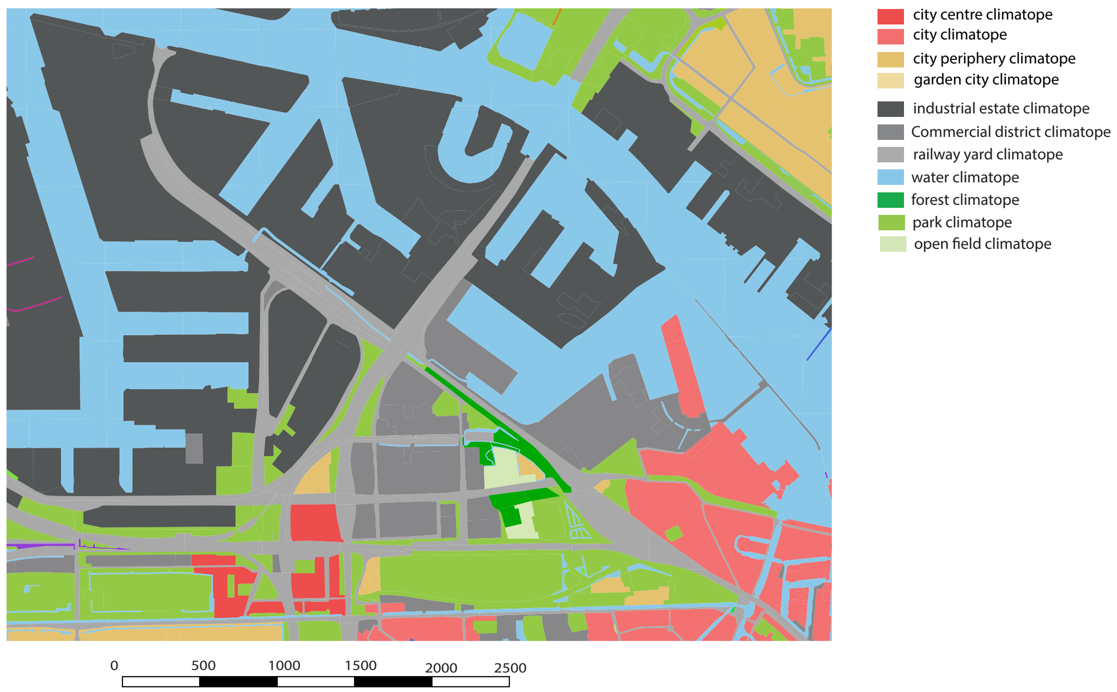
Green Blue System and resulting climatopes



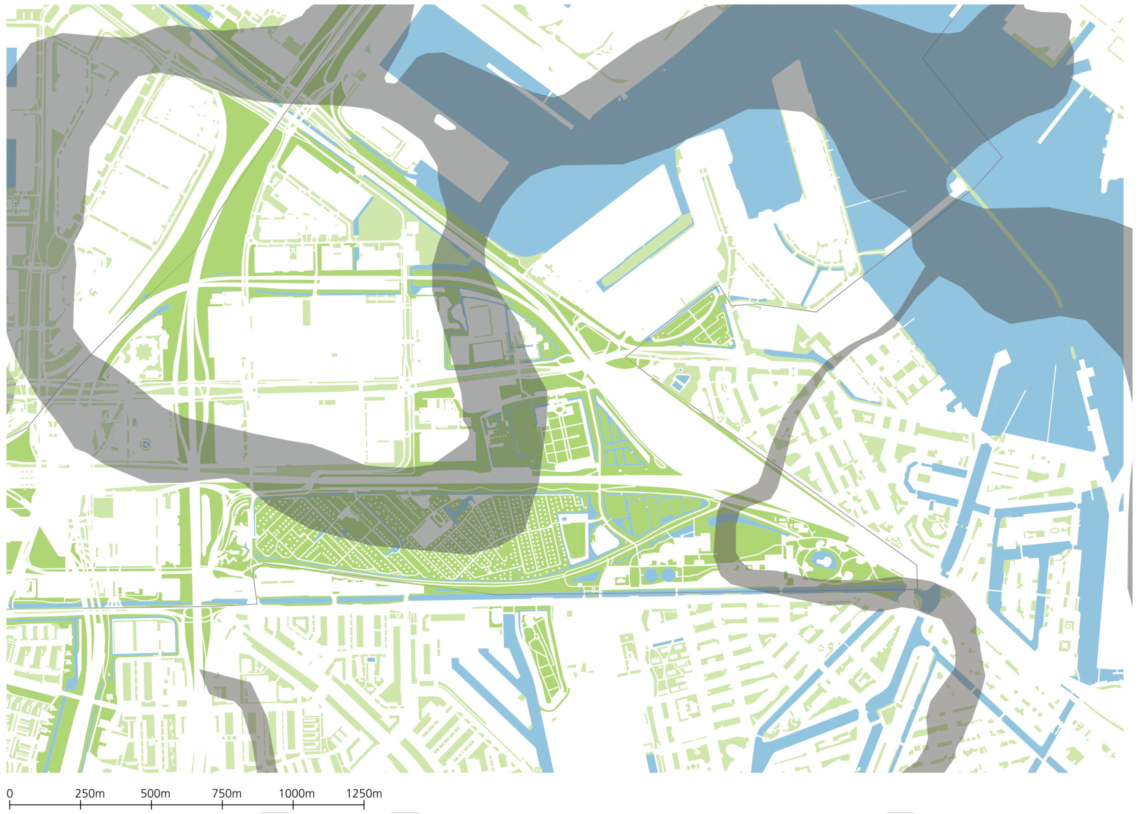
Green blue area
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

Havenstad is located along one of the city's green wedges, the so-called Brettenscheg ends in the Westerpark. In addition to that it is also connected to the IJ.

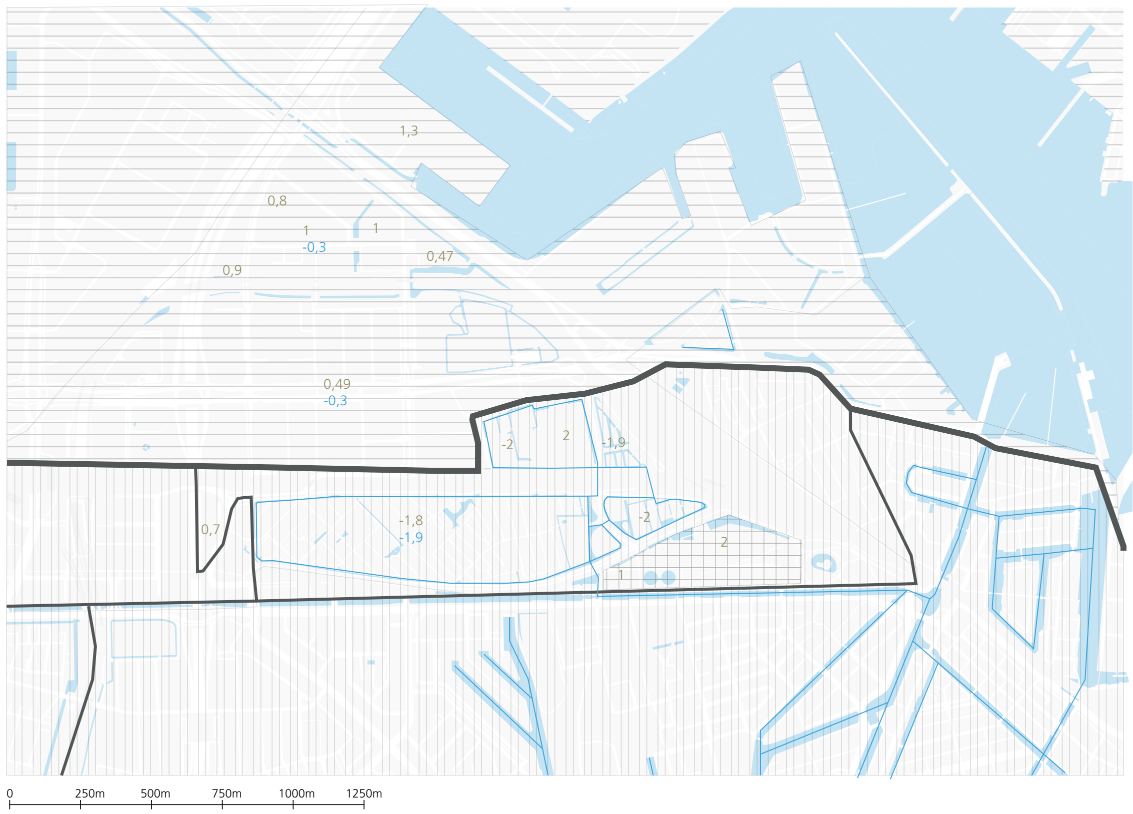




Technical systems



Green structure



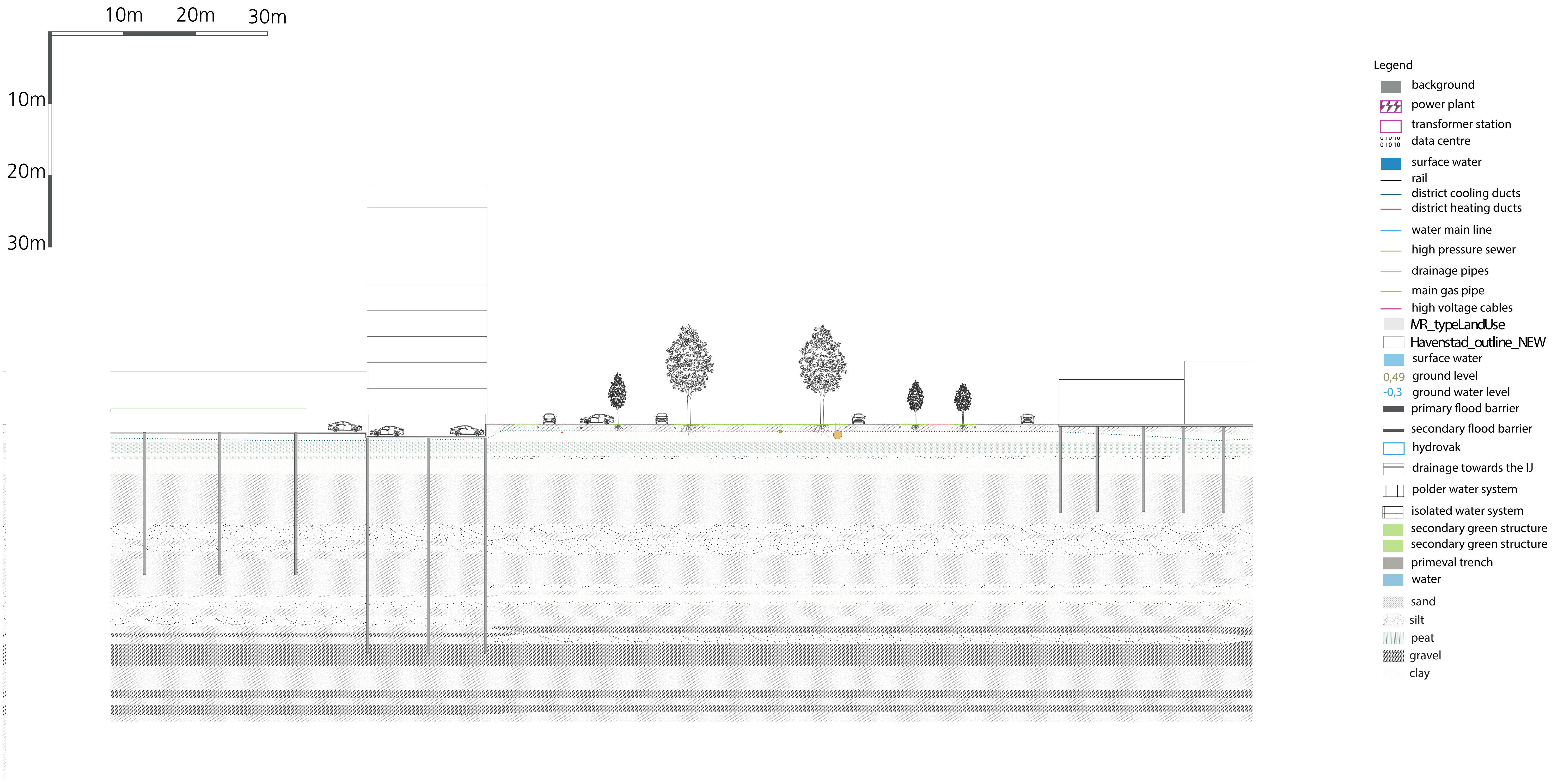
water system

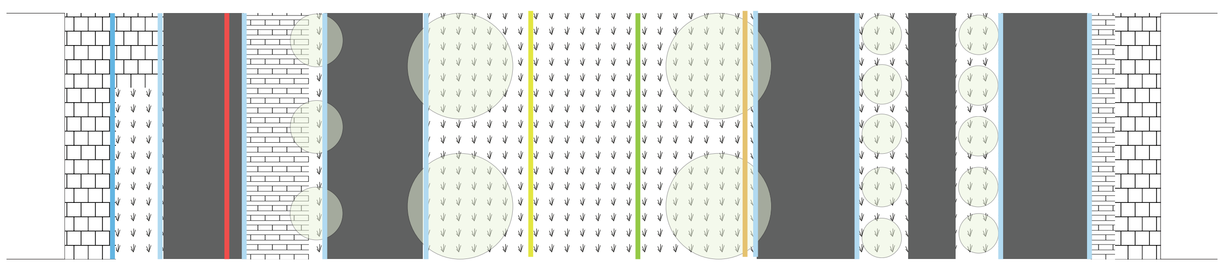
infrastructures

Legend

- background
- power plant
- transformer station
- data centre
- surface water
- rail
- district cooling ducts
- district heating ducts
- water main line
- high pressure sewer
- drainage pipes
- main gas pipe
- high voltage cables
- MR_typeLandUse
- Havenstad_outline_NEW
- surface water
- 0,49 ground level
- -0,3 ground water level
- primary flood barrier
- secondary flood barrier
- hydrovak
- drainage towards the IJ
- polder water system
- isolated water system
- secondary green structure
- secondary green structure
- primeval trench
- water
- sand
- silt
- peat
- gravel
- clay

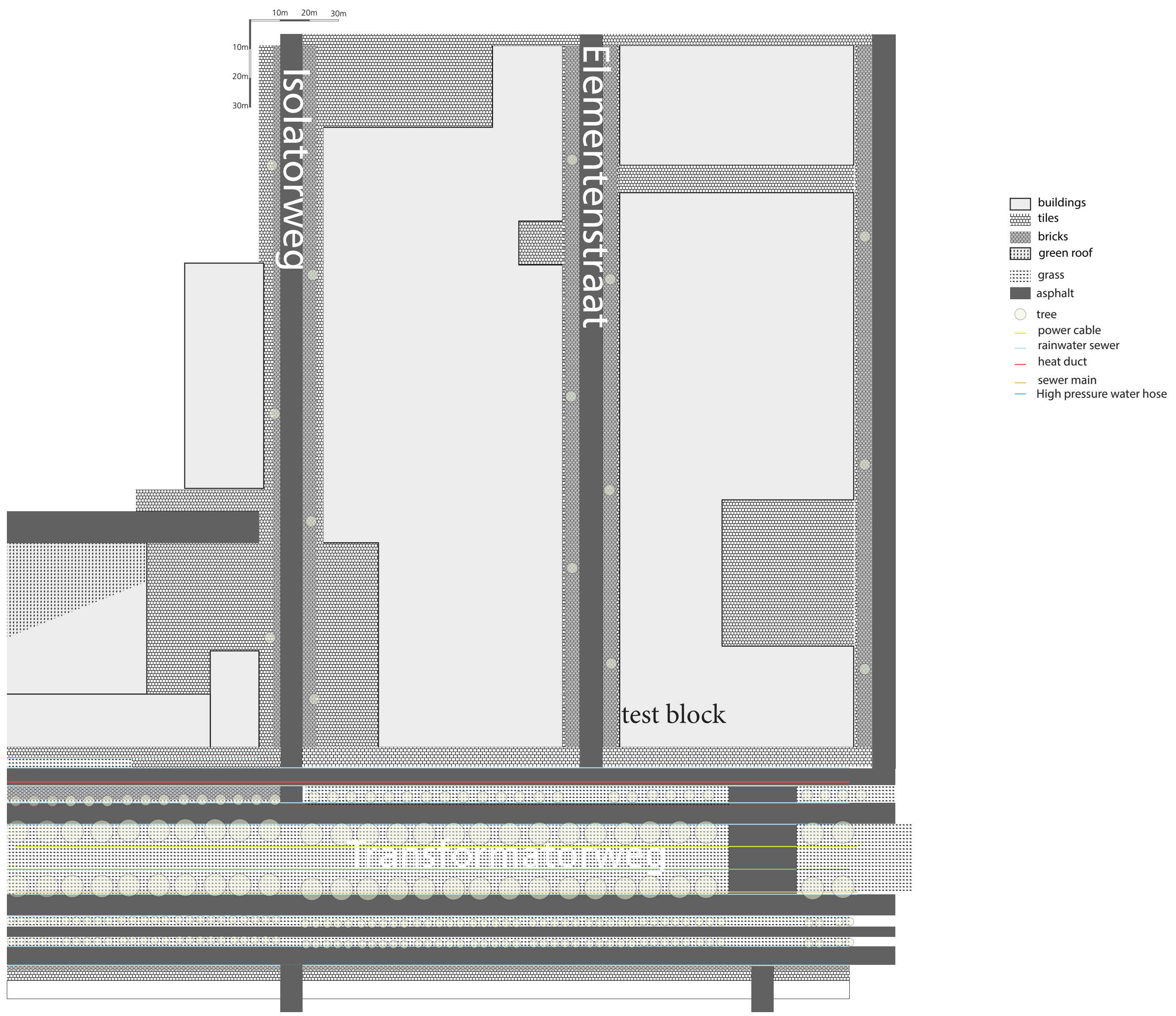
Section transformatorweg

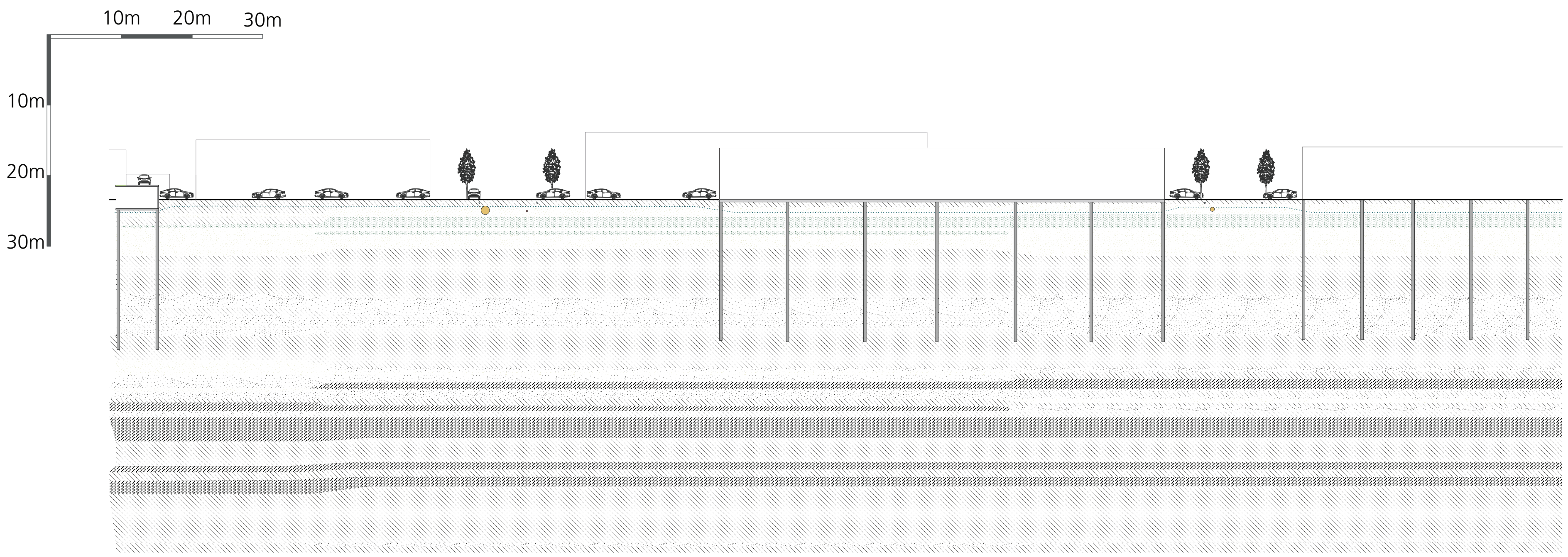




Seciton Transformatorweg

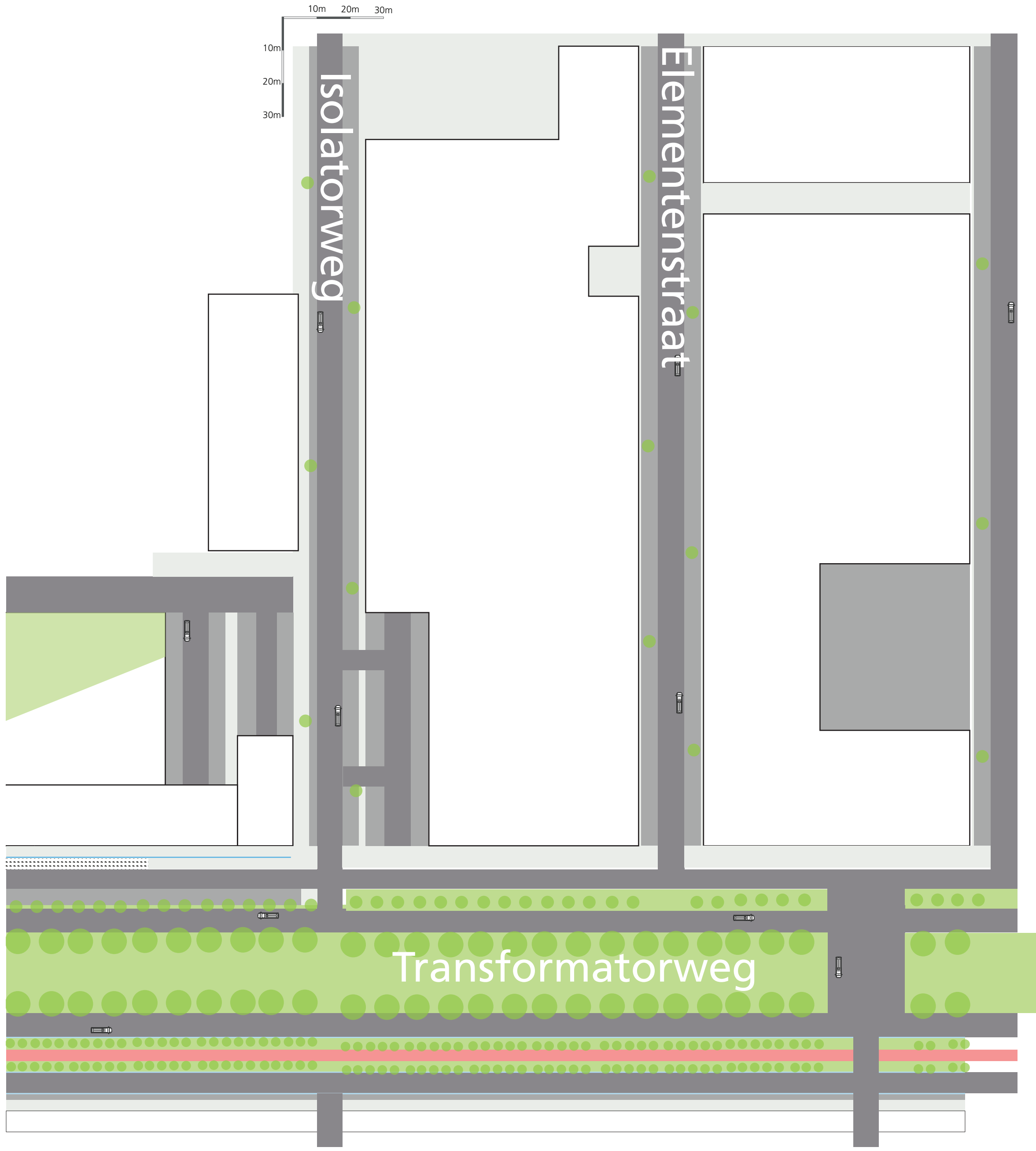
Isolatorweg elementenstraat





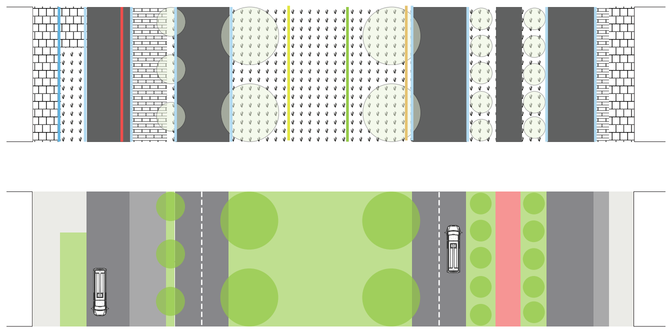
Seciton elementenstraat

Functional system



rain calculations

Transformatorweg current 30mm



BK3TE4 ST water flow calculation sheet

version 021018

formula: **surplus (or shortage) of water = (0,03 - (depression storage * 0,001) - (2 * infiltration loss * 0,001)) * surface m²**

explanation: is to make meters in the formula

is the amount of rainwater in m³ falling per hour

is per hour so needs to be doubled to show 2 hours

NB. Calculation is suitable for a flat urban area, with sandy topsoil

NB. Column specific storage is the base for setting depression loss and infiltration loss

Colum for Delay is the time it takes to discharge, only when it is over 30 mins it can be taken ito account.

Land cover type:	Your area surface in m²	x 30 mm water in 1 hour = m³ water	Depression storage [mm]	Infiltration loss [mm/h]	Specific storage capacity	Delay [min]	Your area water coming in	Your area without 'negatives' *
UNPAVED								
private								
Garden open soil (private)	0	0	15	50	0.1 m3/m2	15	0	0
public								
Surface water	0	0	0	0	0.5 m3/m2	0	0	0
Rain garden, infiltration field	0	0	25	75	0.1 m3/m2	60	0	0
Lawn, green belt, shrub (public)	618,5	18,555	15	50	0.1 m3/m2	15	-52,5725	0
Playground, footpath	0	0	5	5	0.1 m3/m2	5	0	0
Vegetated swales	0	0	10	10	0.5 m3/m2	30	0	0
PAVED								
private								
Roofs – sloping	0	0	1	0	0	0	0	0
Roofs – flat, tar	0	0	5	0	0.05 m3/m2	10	0	0
Green roofs – extensive	0	0	10	0	0.1 m3/m2	15	0	0
Green roofs – intensive	0	0	25	0	0.2 m3/m2	15	0	0
Garden tiled	0	0	3	8	0.05 m3/m2	5	0	0
public								
Roads, car parks – asphalt	518,5	15,555	1	0	0.05 m3/m2	5	15,0365	15,0365
Roads, car parks – porous asphalt	0	0	1	40	0.05 m3/m2	5	0	0
Roads, car parks – brick	123,5	3,705	3	10	0.05 m3/m2	5	0,8645	0,8645
Roads, car parks – porous pavement	0	0	3	40	0.05 m3/m2	5	0	0
Sidewalk, terraces –tiles	176,5	5,295	3	8	0.05 m3/m2	5	1,9415	1,9415
total private area in m²	0	0	total of water					
total public area in m²	1437	43,11	total of water					
Total area in m² and total m3 water	**1437**	**43,11**						

remarks:

* when the formula result is negative (column H), it changes to 0 (column I). To calculate the actual surplussurface water is always 0 for this calculation (column I), because there is no runoff. But it does add to the larger water unit. So to be able to relate this in %, you need to know how much. Therefore in column H the negatives are

Does it concern the front or the back garden? Does the rainwater run off to the sewer system or not?

sewer capacity: 20 mm per day

1,7 mm in 2 hours

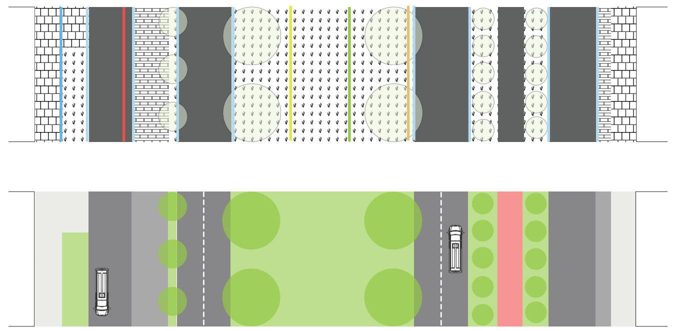
mm of water going to the sewer in 2 hours: **21,7990226**

17,8425	m³ directly to sewer
0	m³ delayed to the sewer
99	m³ to natural system
-34,73	= total amount of water m3 that enters your area
17,8425	= **total of surplus in m³**

% open water: **0**

NB. when there is open water, you can store 0,5 m³ per m² open water; when there is not, you have to find another solution

Transformatorweg current 60mm



BK3TE4 ST water flow calculation sheet

version 021018

formula: **surplus (or shortage) of water = (0,03 - (depression storage * 0,001) - (2 * infiltration loss * 0,001)) * surface m²**

explanation: is to make meters in the formula

is the amount of rainwater in m³ falling per hour

is per hour so needs to be doubled to show 2 hours

NB. Calculation is suitable for a flat urban area, with sandy topsoil

NB. Column specific storage is the base for setting depression loss and infiltration loss

Colum for Delay is the time it takes to discharge, only when it is over 30 mins it can be taken ito account.

Land cover type:	Your area surface in m²	x 30 mm water in 1 hour = m³ water	Depression storage [mm]	Infiltration loss [mm/h]	Specific storage capacity	Delay [min]	Your area water coming in	Your area without 'negatives' *
UNPAVED								
private								
Garden open soil (private)	0	0	15	50	0.1 m3/m2	15	0	0
public								
Surface water	0	0	0	0	0.5 m3/m2	0	0	0
Rain garden, infiltration field	0	0	25	75	0.1 m3/m2	60	0	0
Lawn, green belt, shrub (public)	618,5	37,11	15	50	0.1 m3/m2	15	-34,0175	0
Playground, footpath	0	0	5	5	0.1 m3/m2	5	0	0
Vegetated swales	0	0	10	10	0.5 m3/m2	30	0	0
PAVED								
private								
Roofs – sloping	0	0	1	0	0	0	0	0
Roofs – flat, tar	0	0	5	0	0.05 m3/m2	10	0	0
Green roofs – extensive	0	0	10	0	0.1 m3/m2	15	0	0
Green roofs – intensive	0	0	25	0	0.2 m3/m2	15	0	0
Garden tiled	0	0	3	8	0.05 m3/m2	5	0	0
public								
Roads, car parks – asphalt	518,5	15,555	1	0	0.05 m3/m2	5	30,5915	30,5915
Roads, car parks – porous asphalt	0	0	1	40	0.05 m3/m2	5	0	0
Roads, car parks – brick	123,5	3,705	3	10	0.05 m3/m2	5	4,5695	4,5695
Roads, car parks – porous pavement	0	0	3	40	0.05 m3/m2	5	0	0
Sidewalk, terraces –tiles	176,5	5,295	3	8	0.05 m3/m2	5	7,2365	7,2365
total private area in m²	0	0	total of water					
total public area in m²	1437	43,11	total of water					
Total area in m² and total m3 water	**1437**	**61,665**						

remarks:

* when the formula result is negative (column H), it changes to 0 (column I). To calculate the actual surplussurface water is always 0 for this calculation (column I), because there is no runoff. But it does add to the larger water unit. So to be able to relate this in %, you need to know how much. Therefore in column H the negatives are

Does it concern the front or the back garden? Does the rainwater run off to the sewer system or not?

sewer capacity: 20 mm per day

1,7 mm in 2 hours

mm of water going to the sewer in 2 hours: **51,7990226**

42,3975	m³ directly to sewer
0	m³ delayed to the sewer
99	m³ to natural system
8,38	= total amount of water m3 that enters your area
42,3975	= **total of surplus in m³**

% open water: **0**

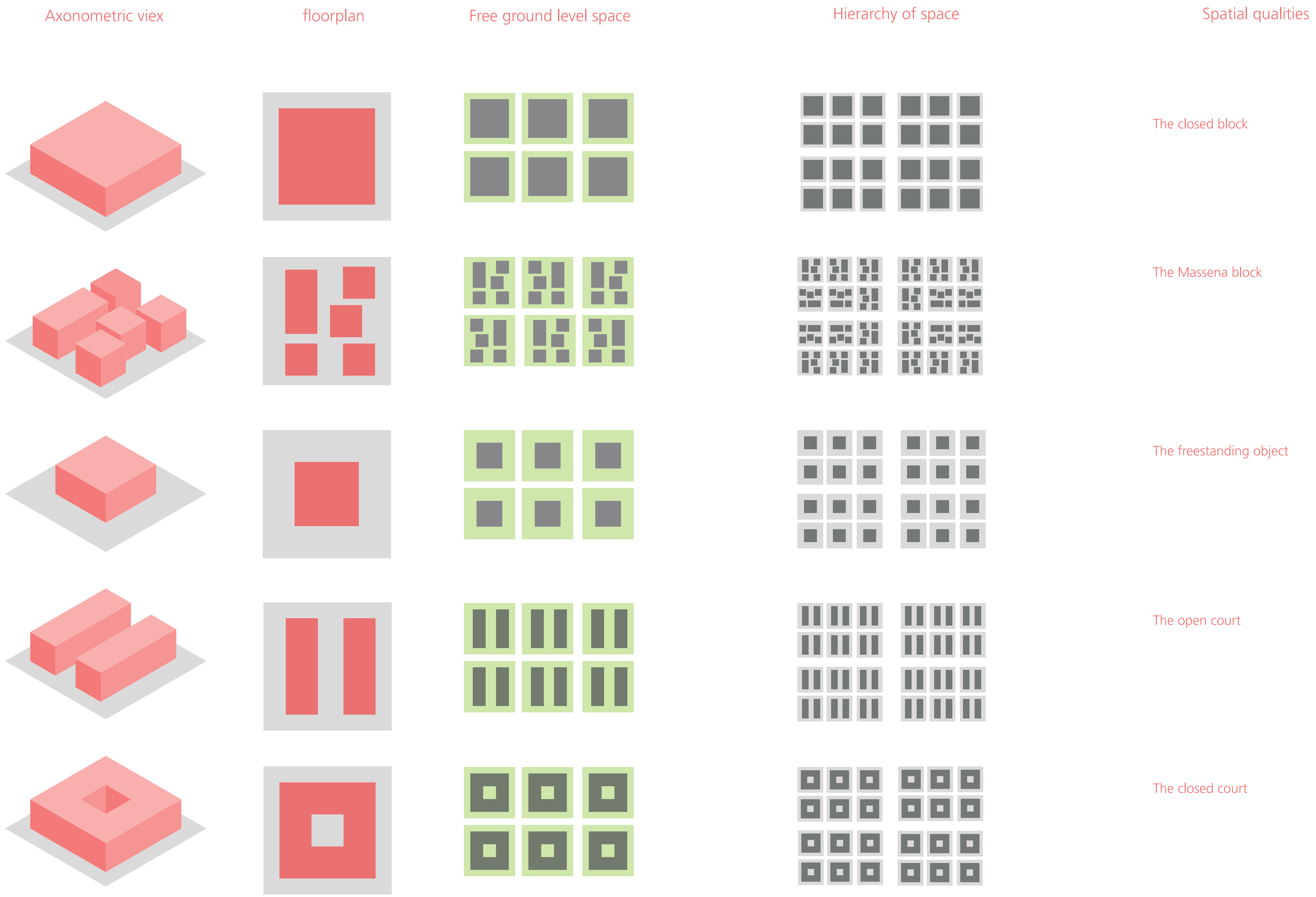
NB. when there is open water, you can store 0,5 m³ per m² open water; when there is not, you have to find another solution

Water Excel

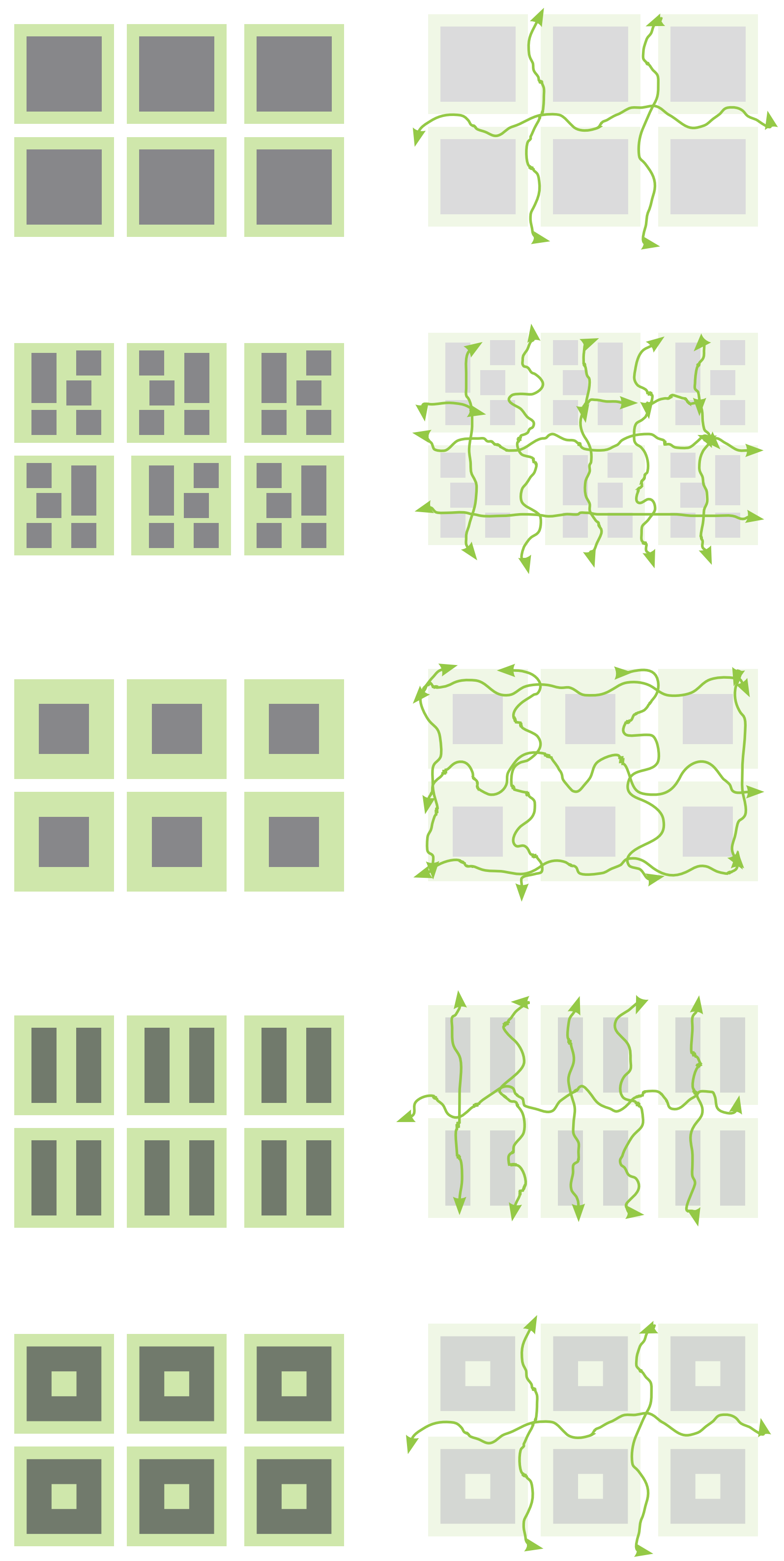
(Van De Ven, Hooijmeijer, Aalbers,personal communication, 2018)

Synthesis

block interactions



Free ground level space | potential green connectivity



The closed block

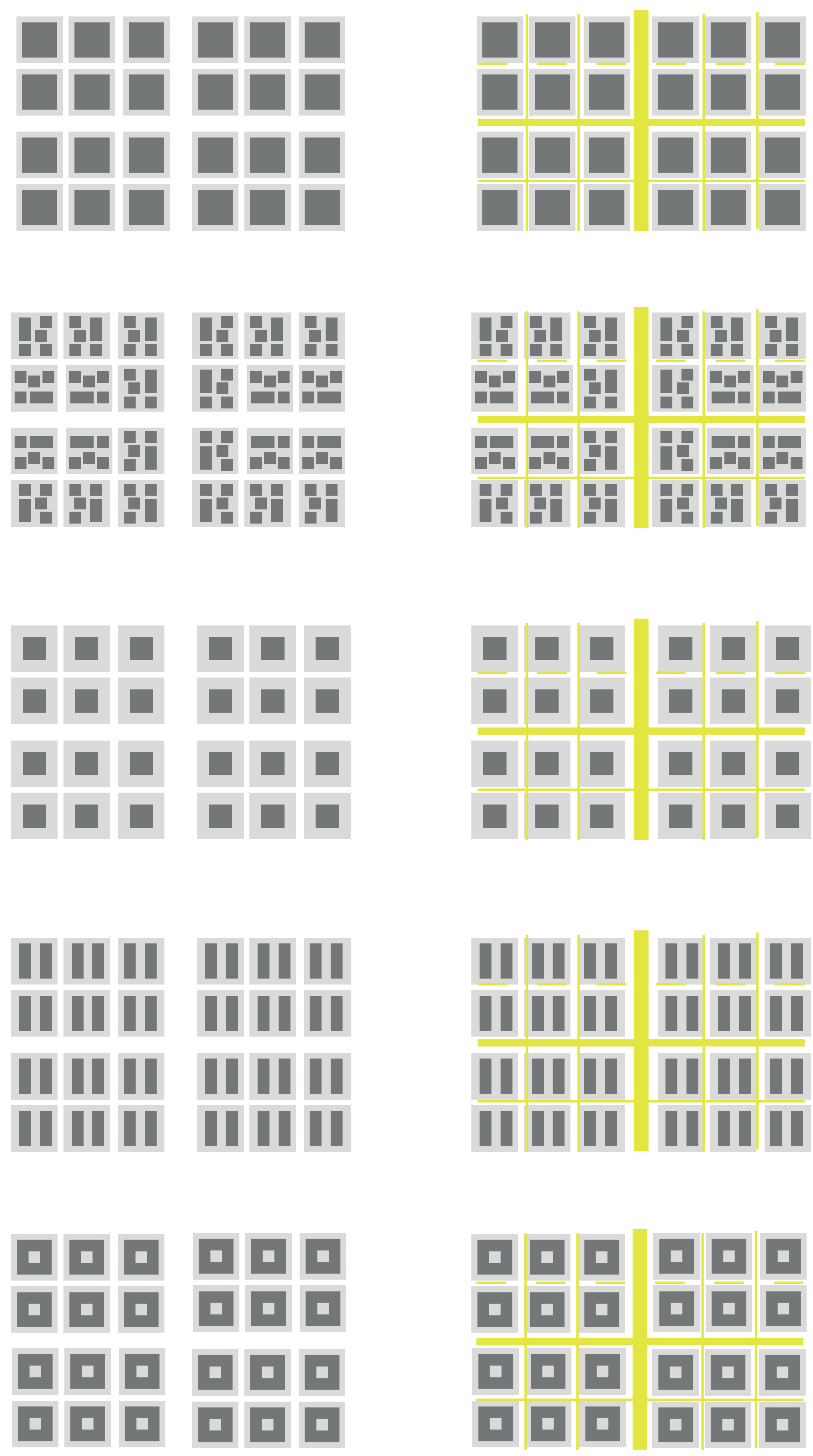
The Massena block

The freestanding object

The open court

The closed court

neighbourhood composition | hierarchy of space



The closed block

The Massena block

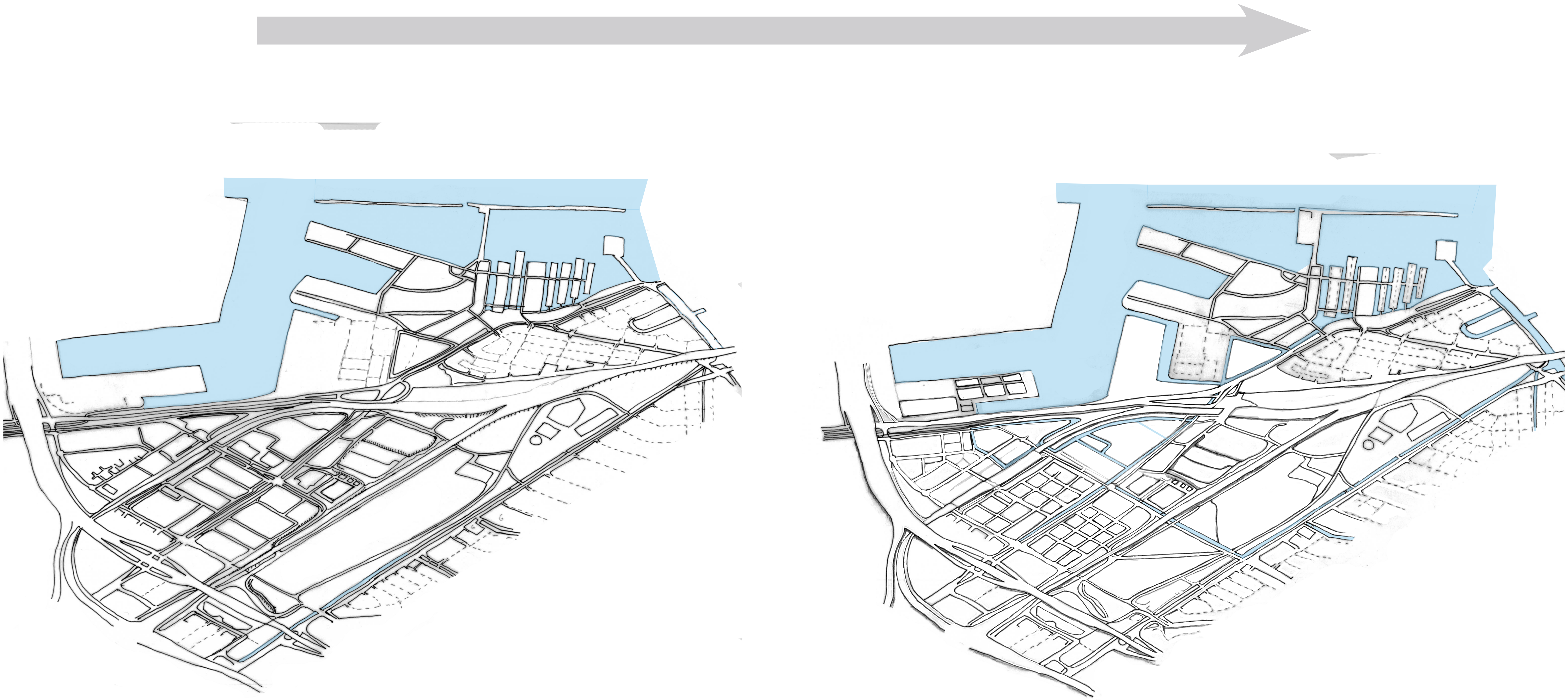
The freestanding object

The open court

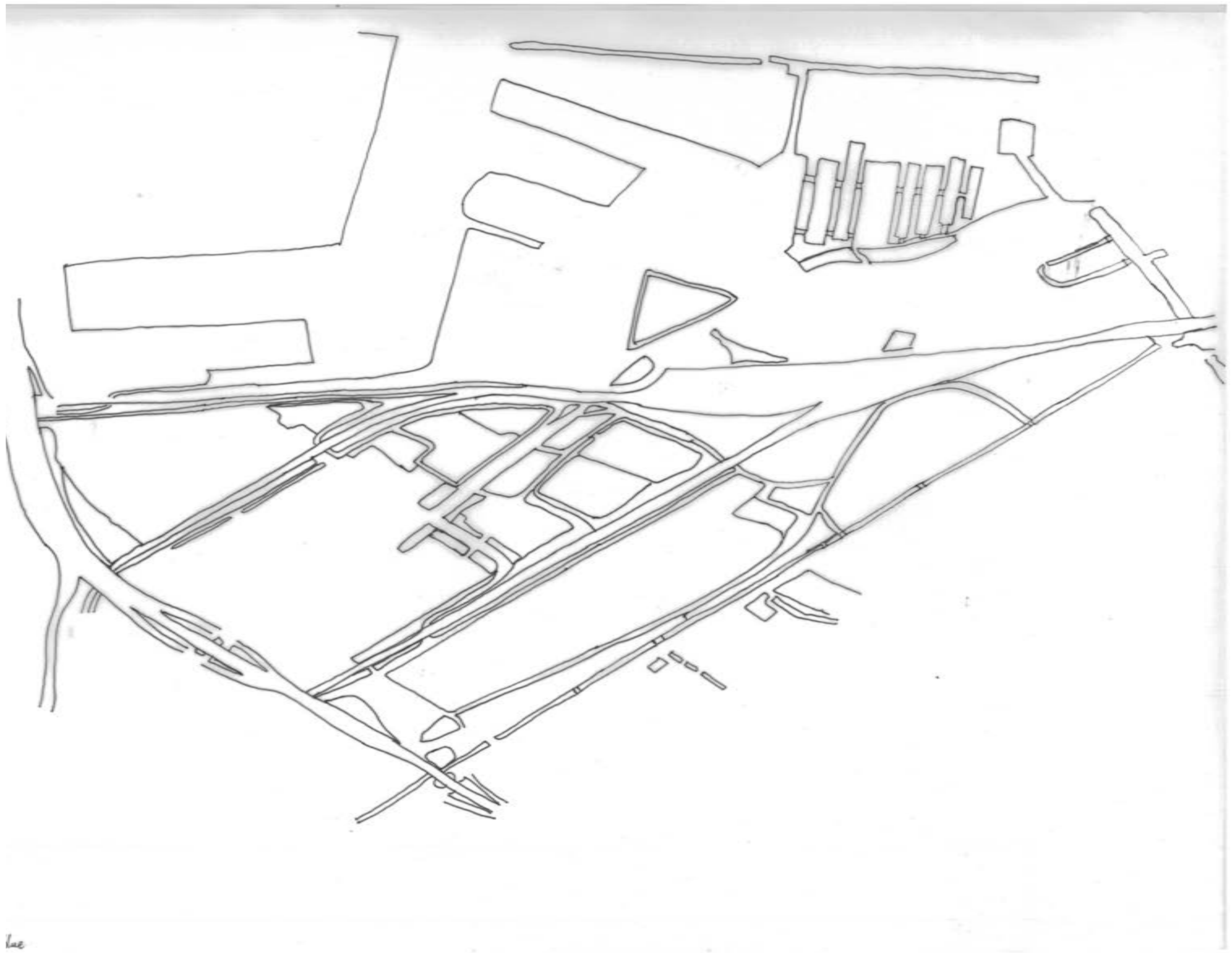
The closed court

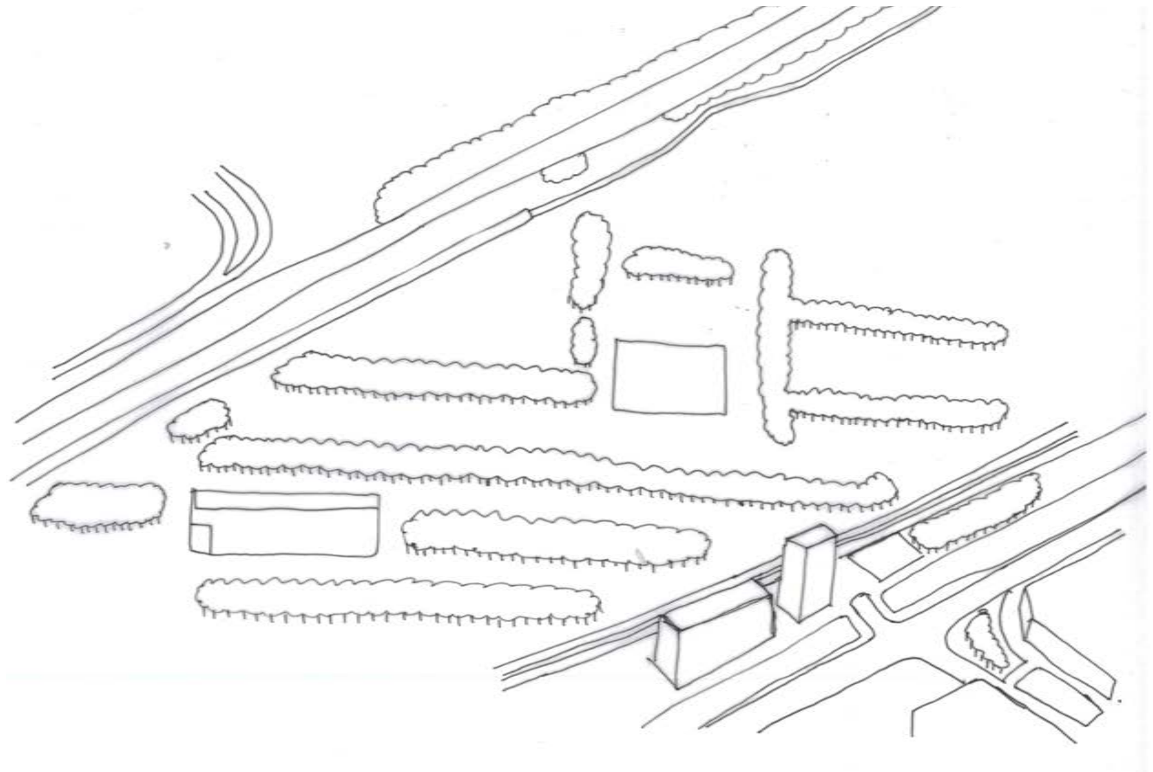
Design vision

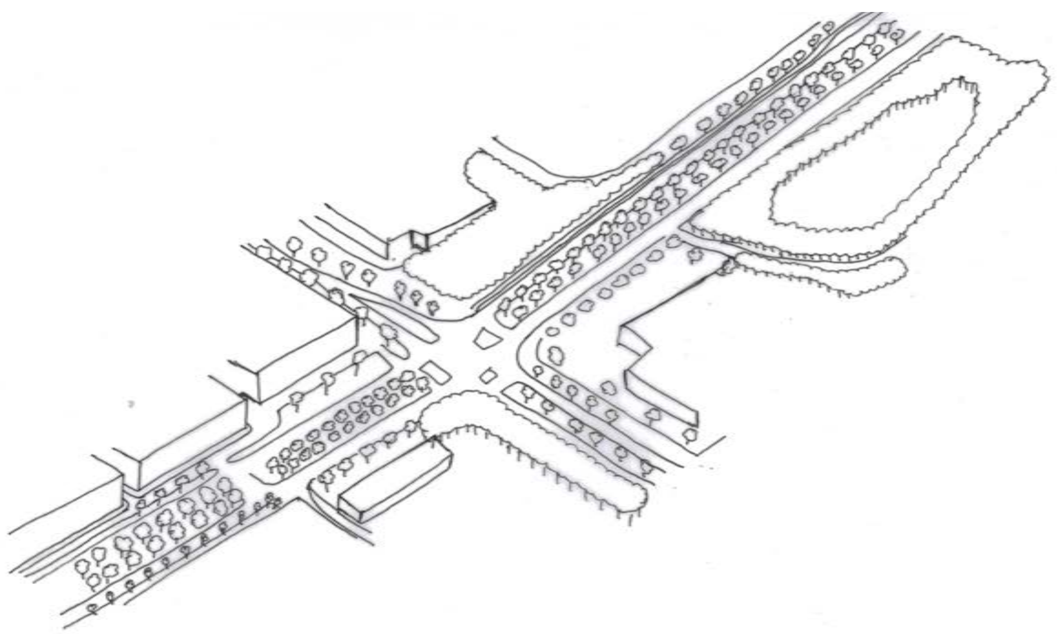
Design vision



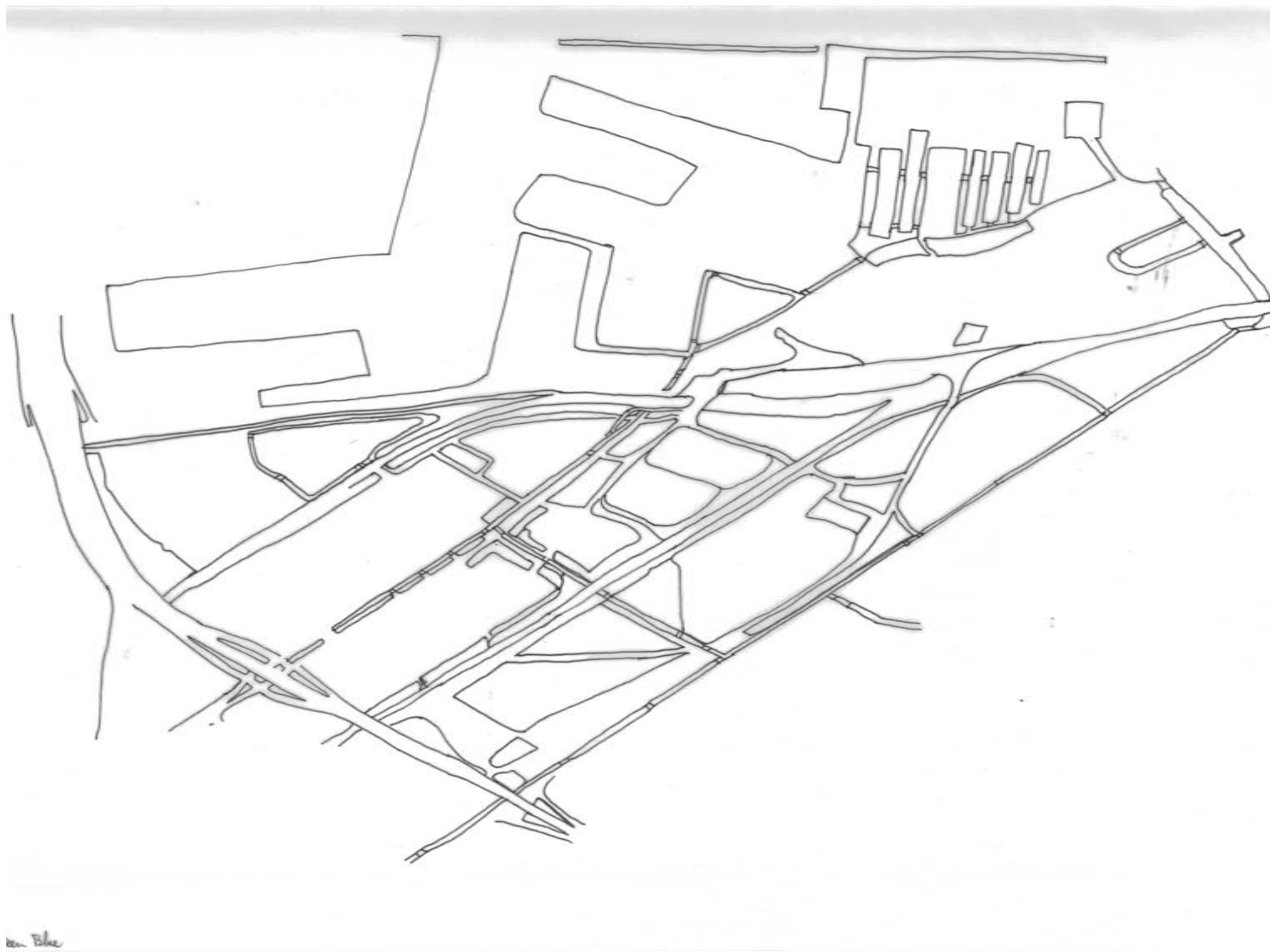
From the current situation

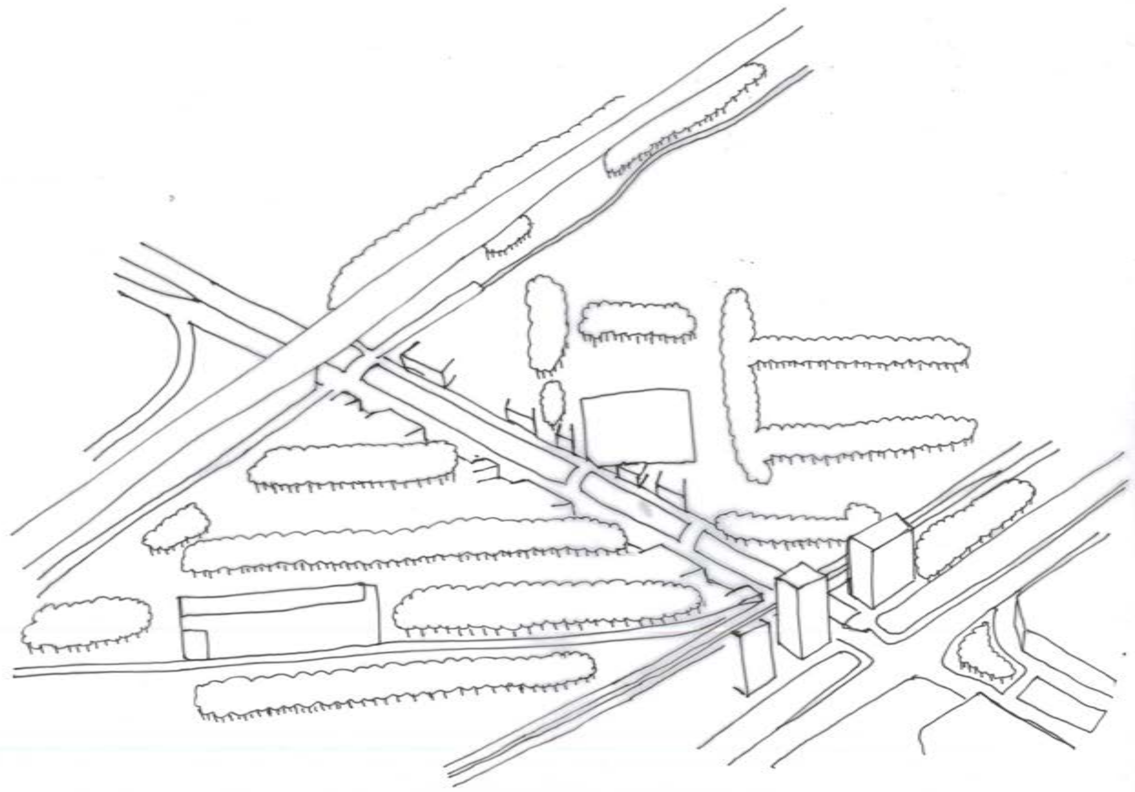


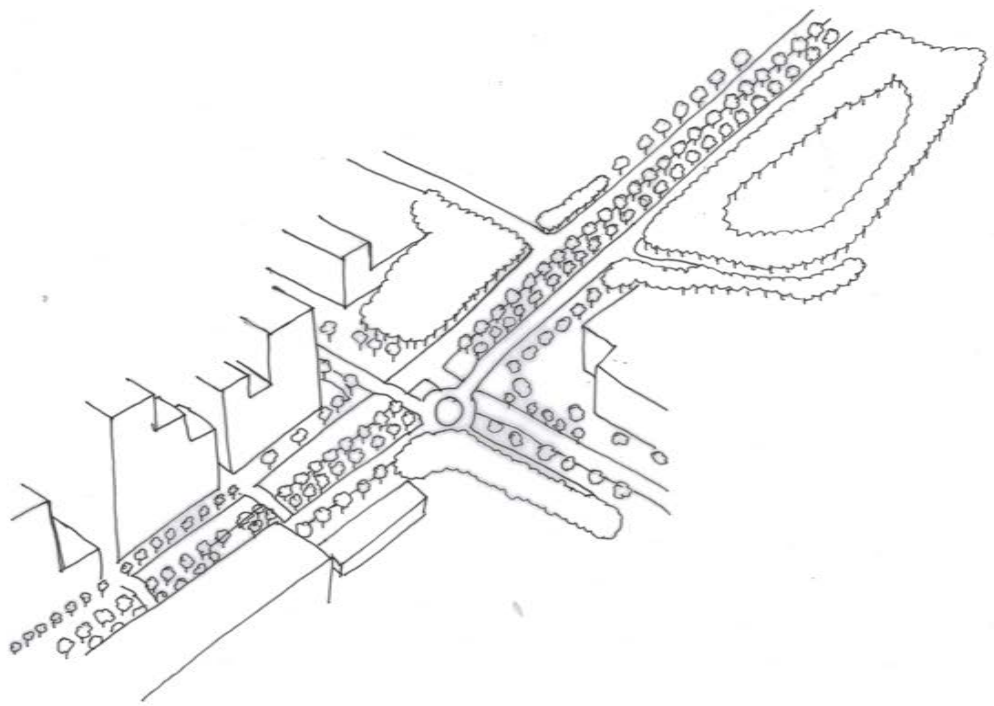




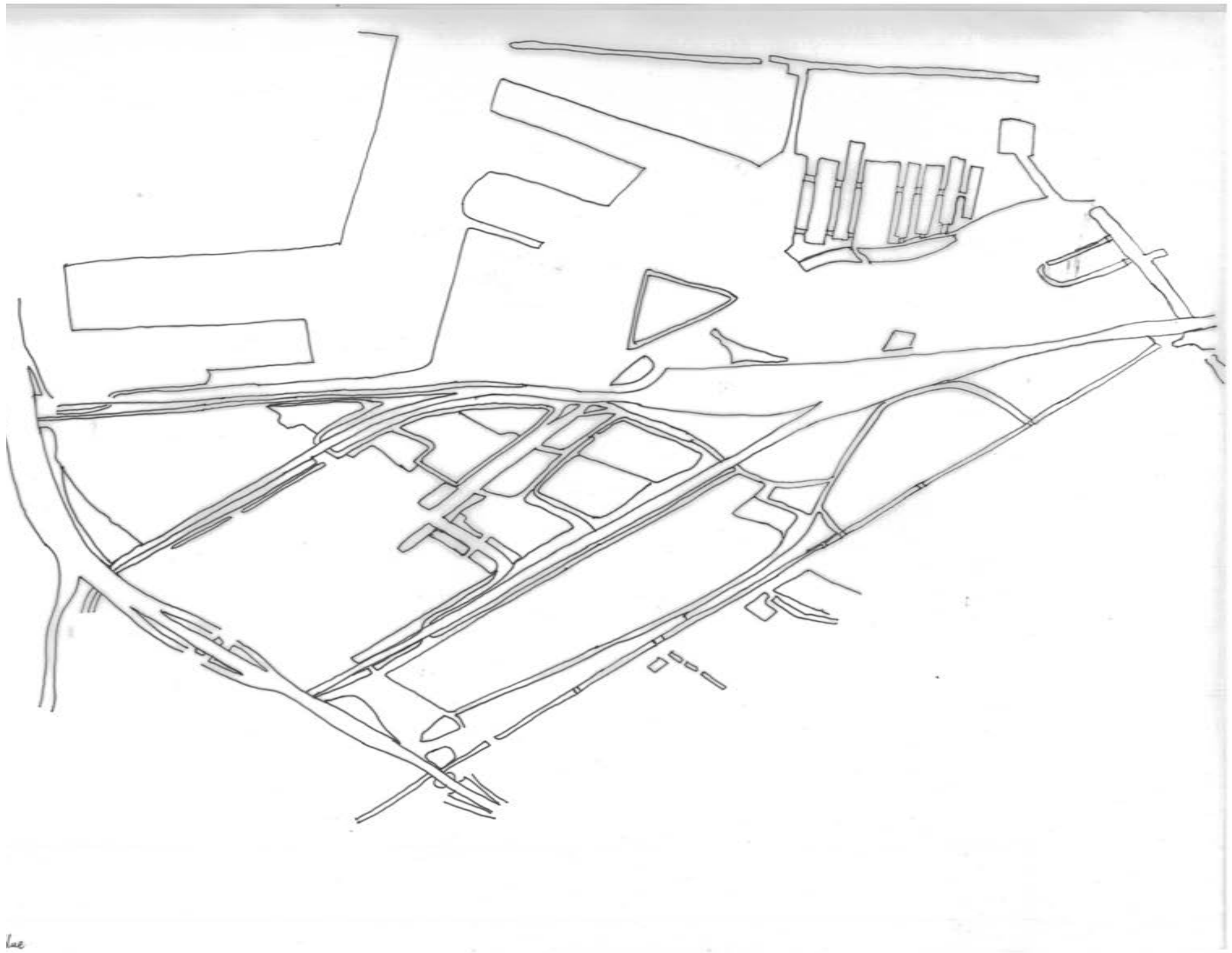
To this situation

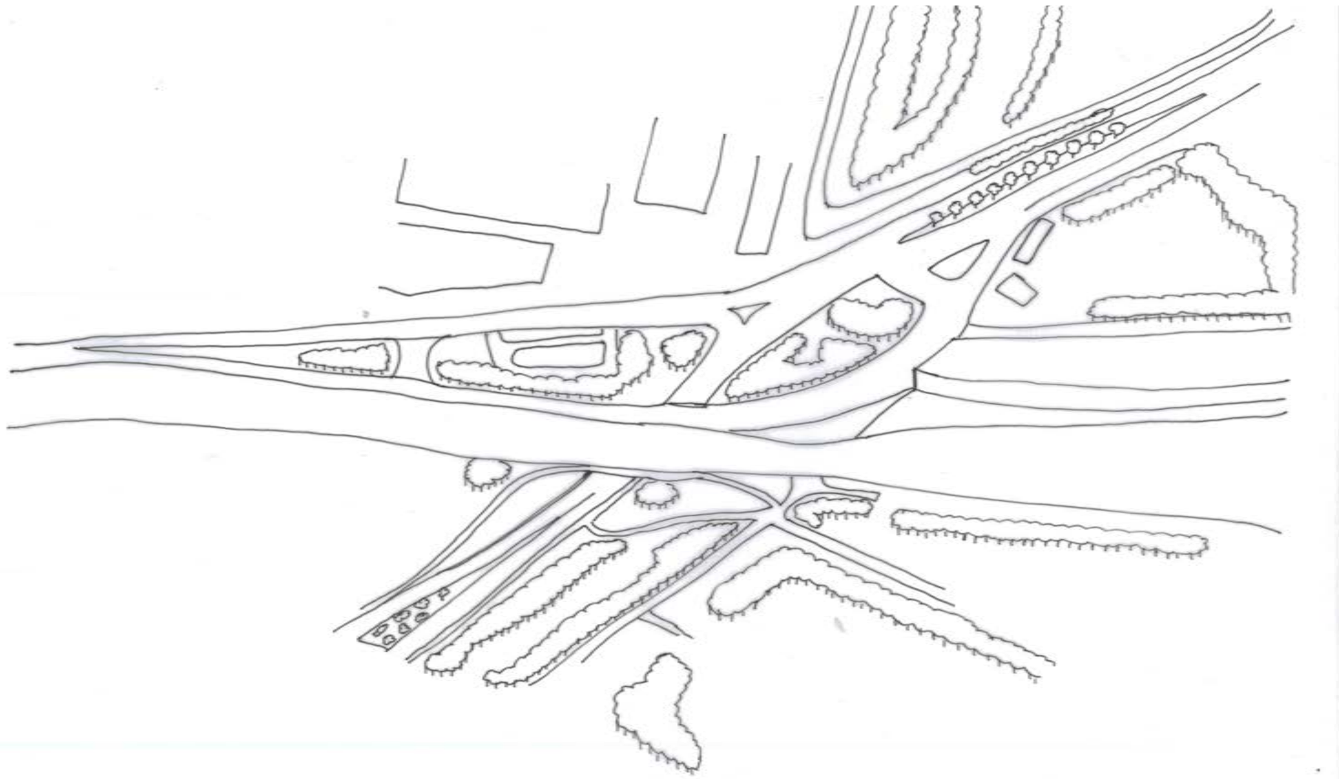




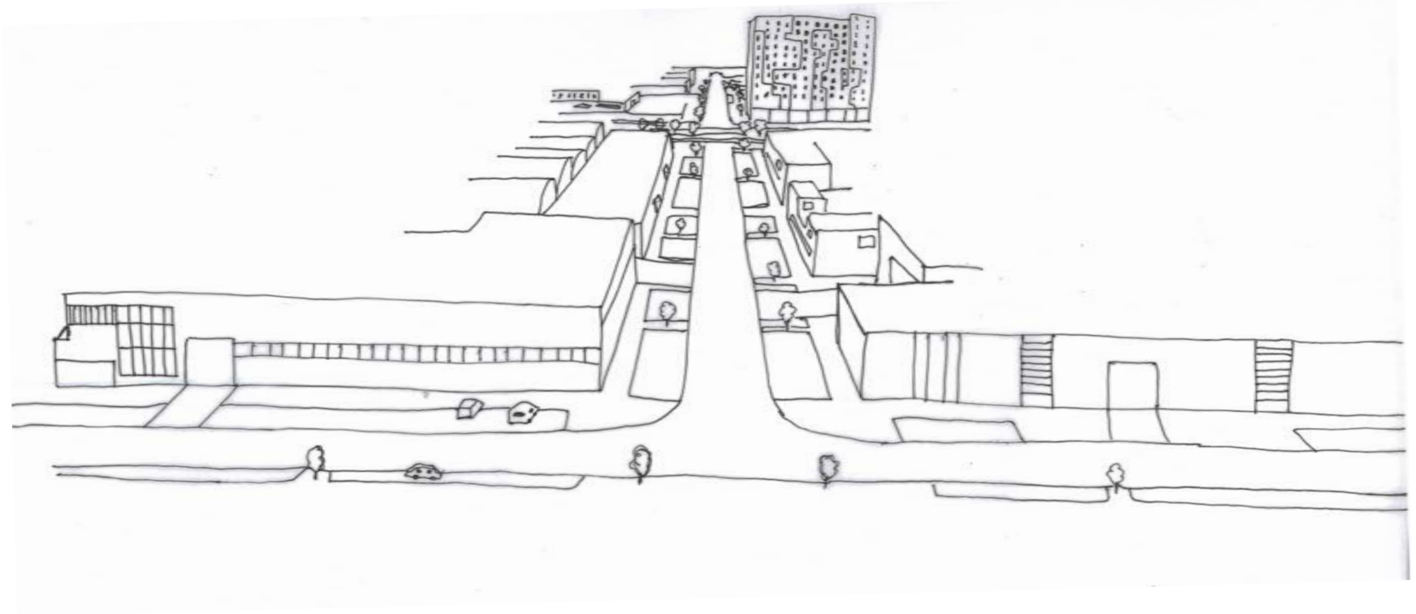


From the current situation

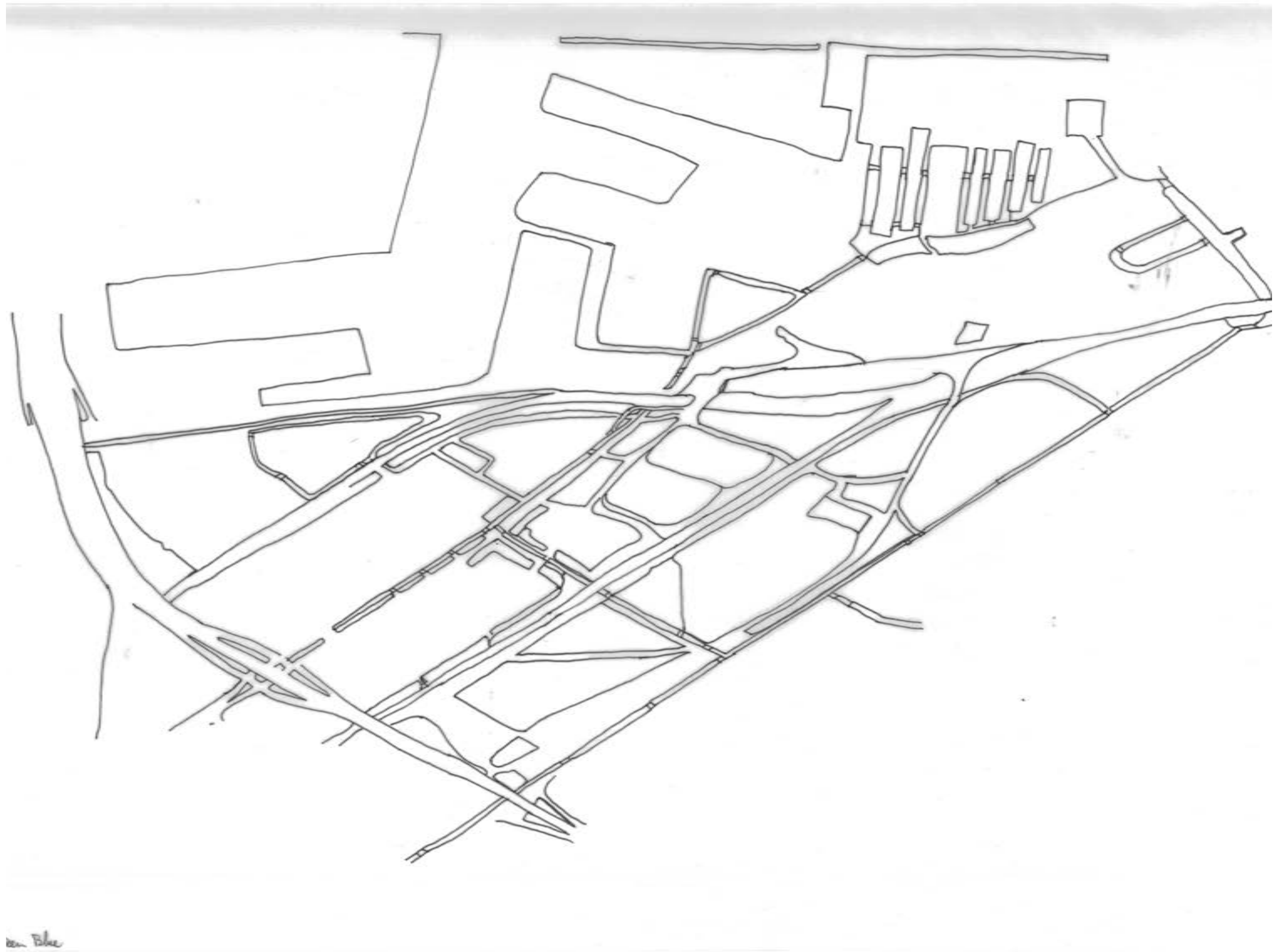


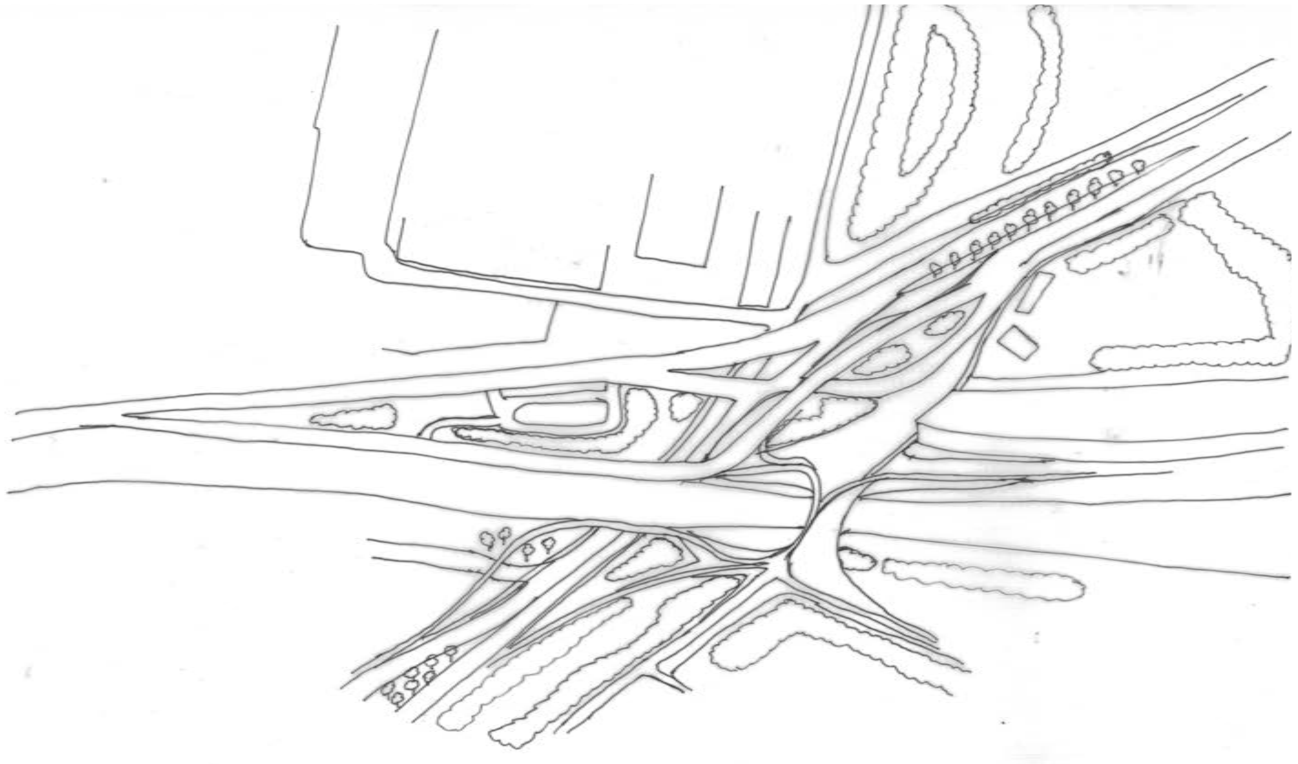


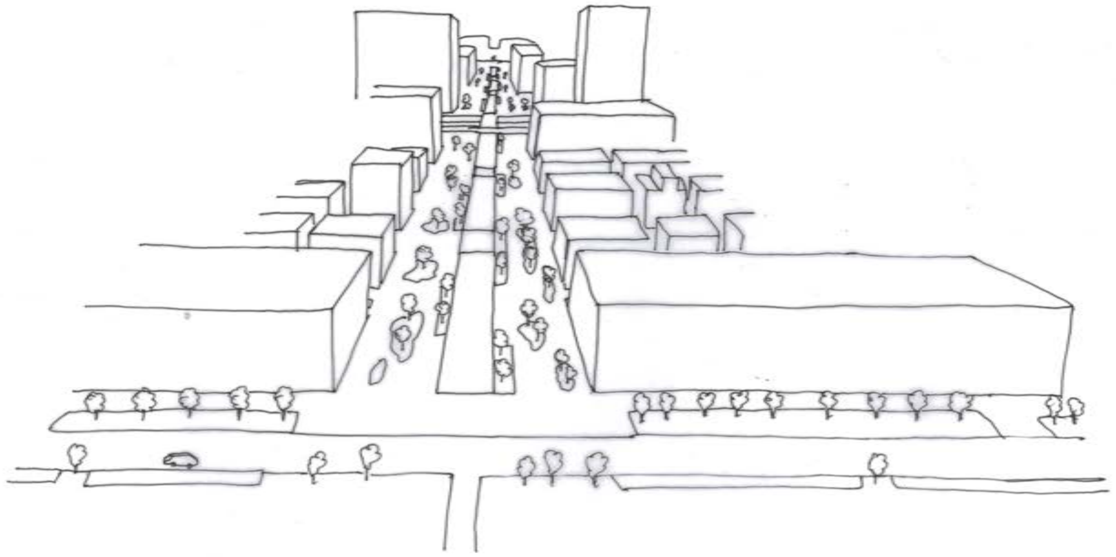
Current Hemweg X transformatorweg



To this situation







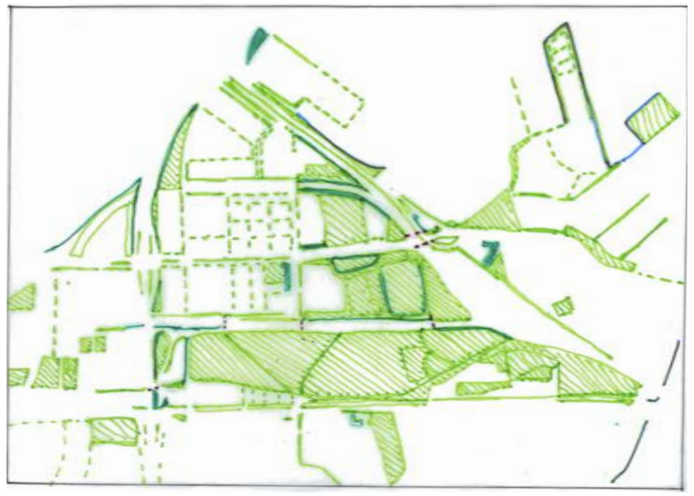
Plan vision


high FSI
low FSI
closed block
mix block
building in field
slabs
court

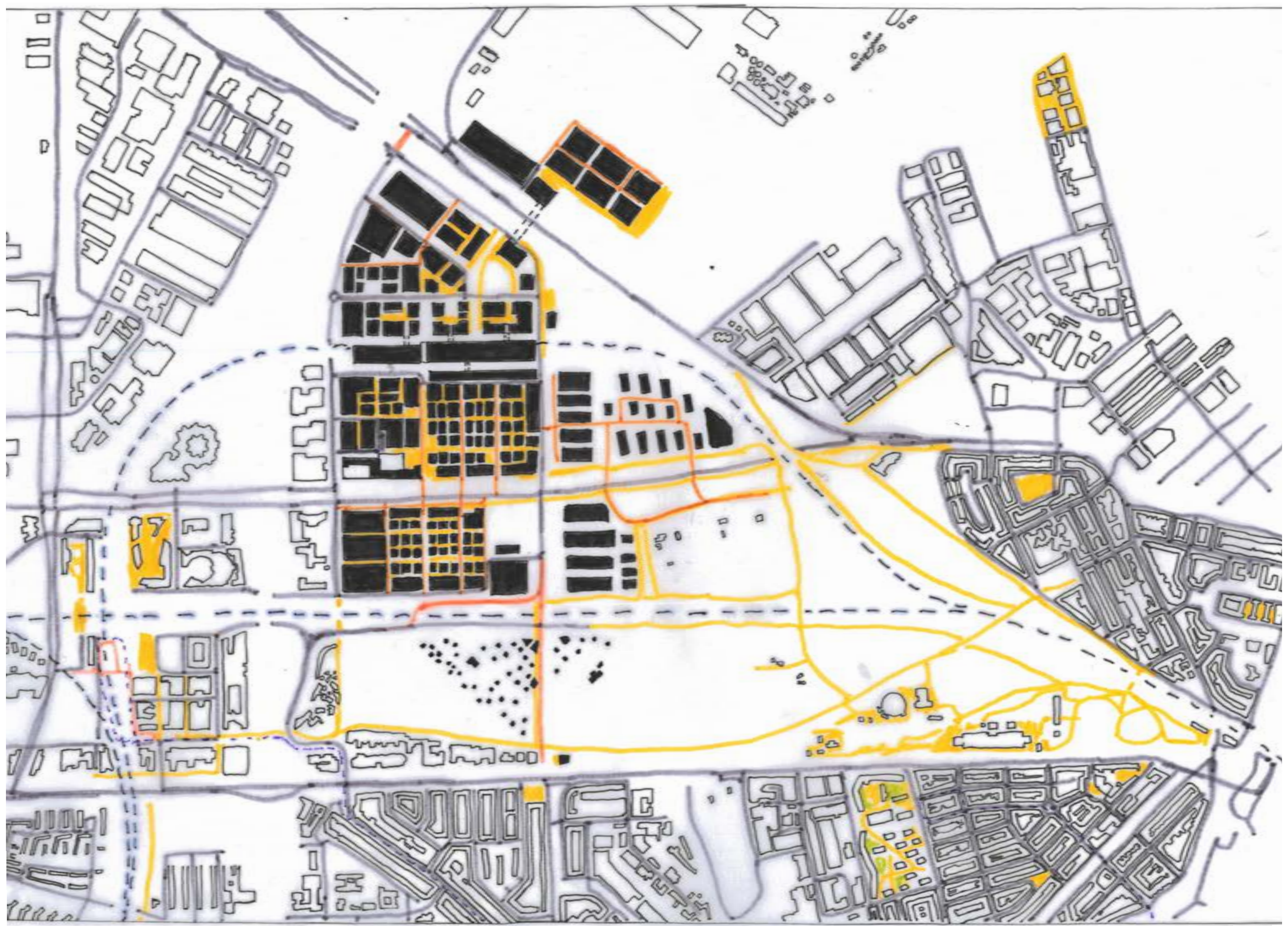
Plan vision components

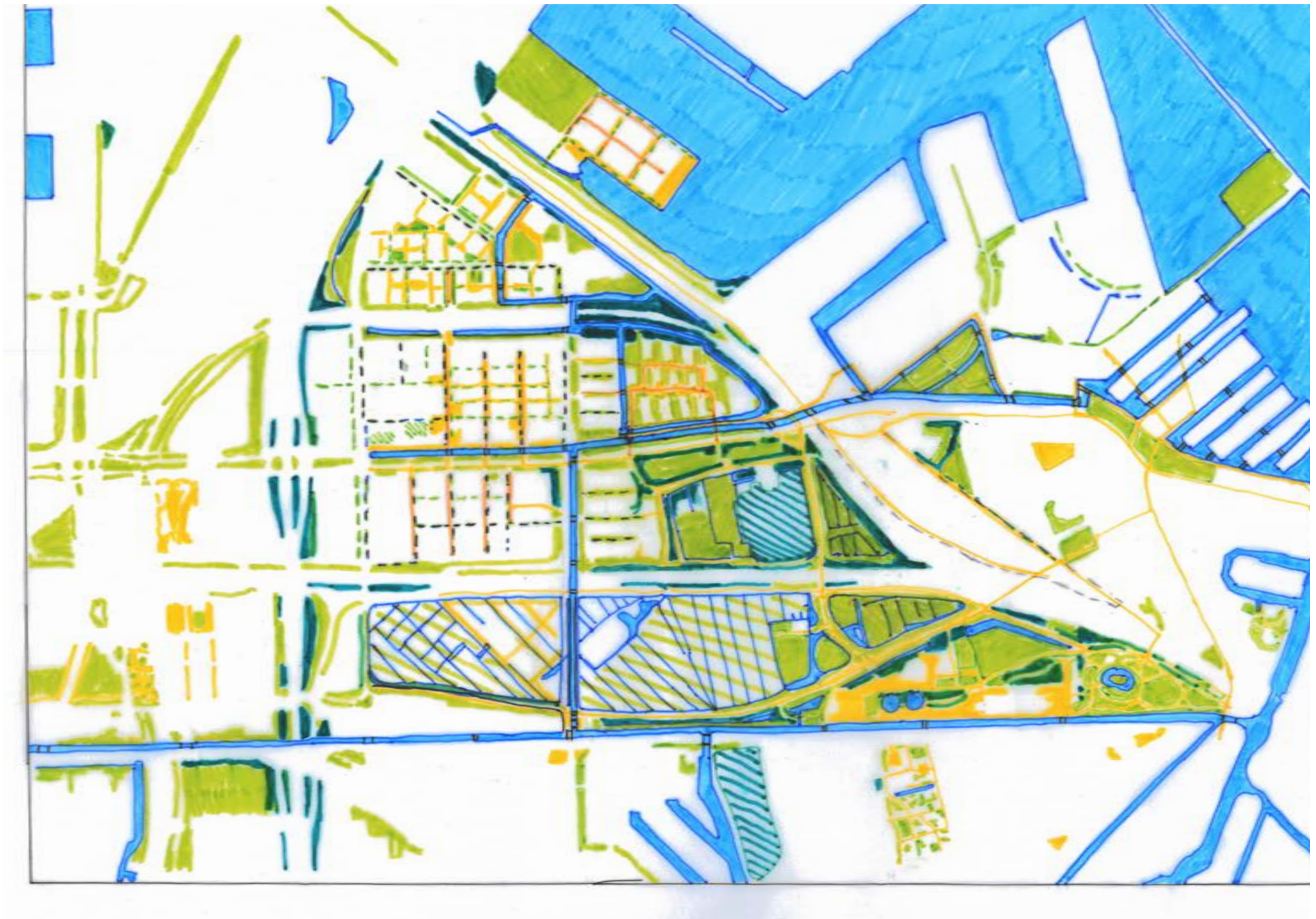
Hubs and their modalities

Proposed rainwater management system
The polder, with the exception of the western part of the allotment gardens maintains its current drainage system. Also flooding fields are introduced in the area.



Proposed green structure
The proposed structure of the district





Vision for the greenblue system
Expanding on the qualities and the borders of Groot Westerpark, and introducing them to the rest of the district, through green connections and increased pedestrian and bycicle access to the park and surrounding neighbourhoods.

The proposal

People strolling through the former British concession in Wuhan, 2018

People shopping at Wanda Centre near Chuhehanje metro station in Wuhan, 2018

Havenstad eco-inclusive

Increase interaction and density of activities

A new space of interaction. The High Line in New York City, 2018

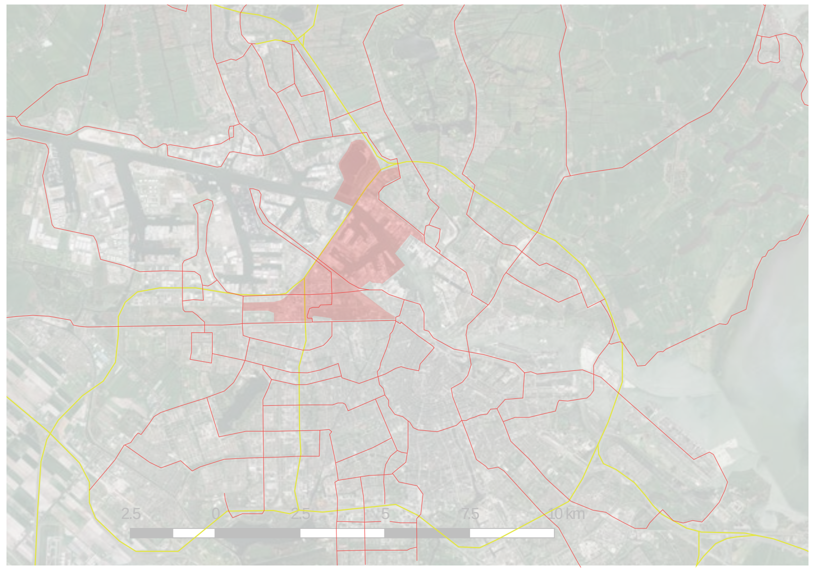
Various The High Line in New York City, 2018

Public transit network
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

The image to the left shows that while the city of Amsterdam as a whole is strongly connected to through an extensive HOV public transit network consisting of metros and trams, Havenstad is not. However there is an extensive freight rail system present in the harbour.

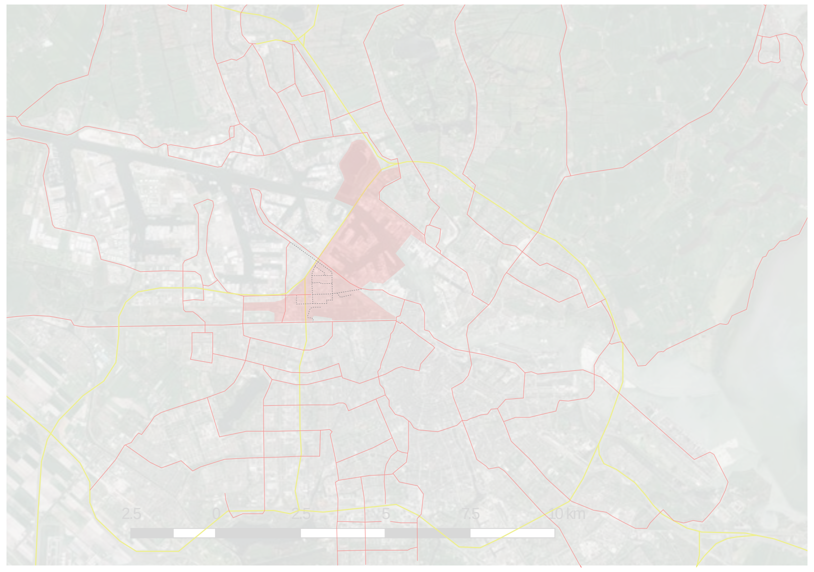
Public transit proposal
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

As is visible in the picture, the main change to the public transit in the scale of the s-train, similar in type to the s-bahn model applied in Germany, that uses the existing rail infrastructure, while adding two stations in the west direction and offering the opportunity to add one additional station. The S-train will be using some of the capacity that becomes available due to the transfer of trains to Amsterdam Zuid.



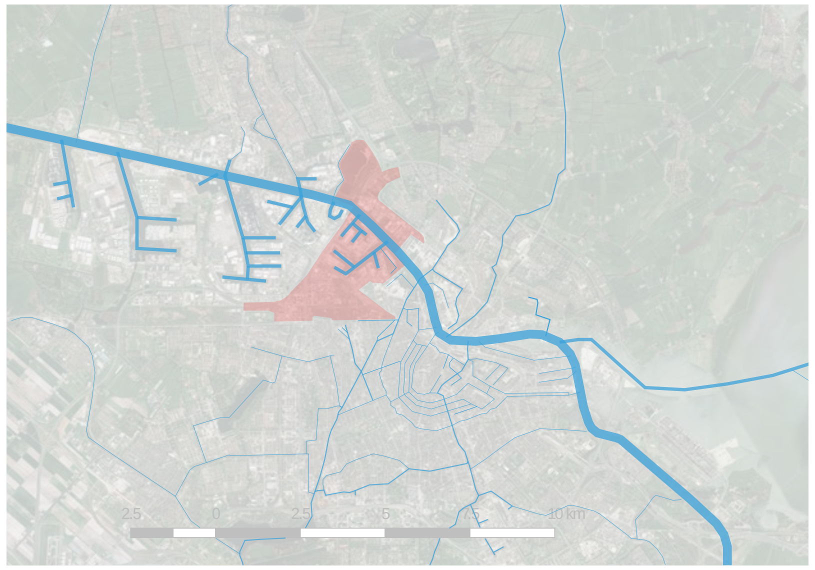
Main road network
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

As is visible in the picture to the left, Havenstad has a strong connection to the A10 highway (yellow) and the main/regional road network (red). It is intersected by various main roads.



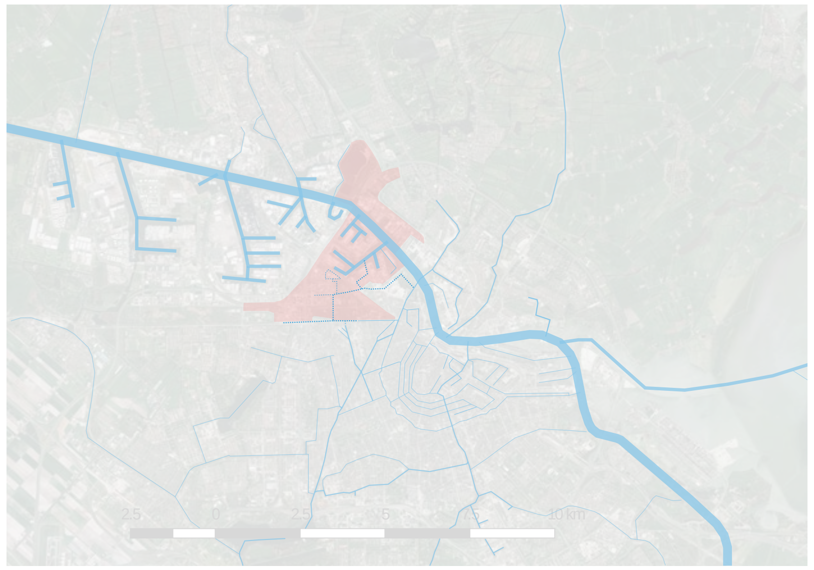
Road network proposal
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

Part of the mobility shift for Havenstad consists of the shift in priority from Transformatorweg to Hemweg. Through adaptation of the exisitng road system, the suitability of the roads bisecting the havenstad development is strongly decreased, in favour of traffic headed towards the area itself.



Water mobility
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

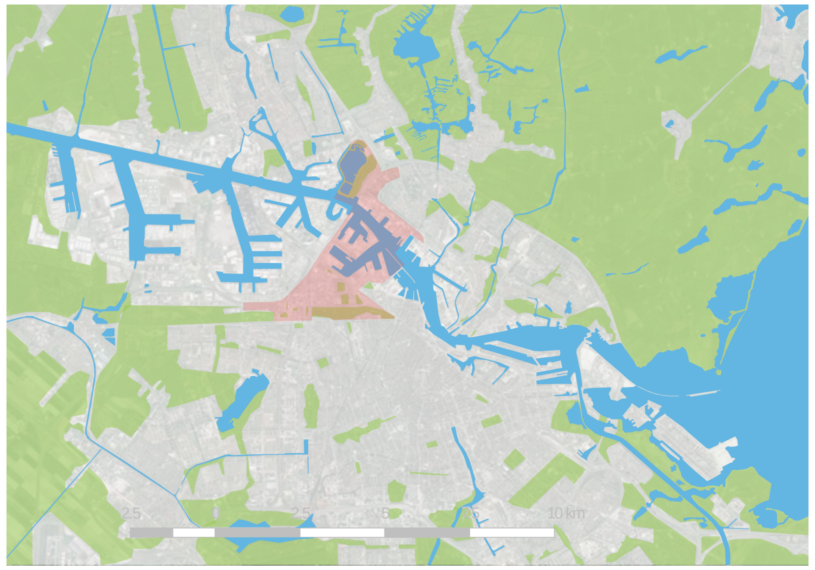
The image to the left illustrates the current routes for water travel and transport over water (blue). It is visible that the Havenstad area is only connected to the IJ part of this system.



Water mobility proposal
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

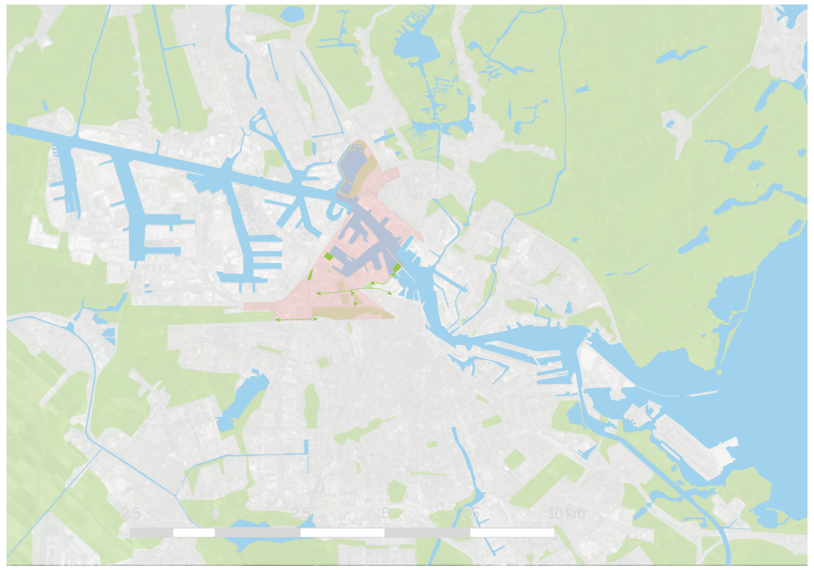
While the area needs more internal waterways to deal with the extent of rainfall and a high groundwatertable, this also allows for the opportunity to reintroduce shipping as a viable ,and potentially main, form of transport.

Through the creation of navigable canals throughout Havenstad an additional transport option becomes available for the district.



Green blue area
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

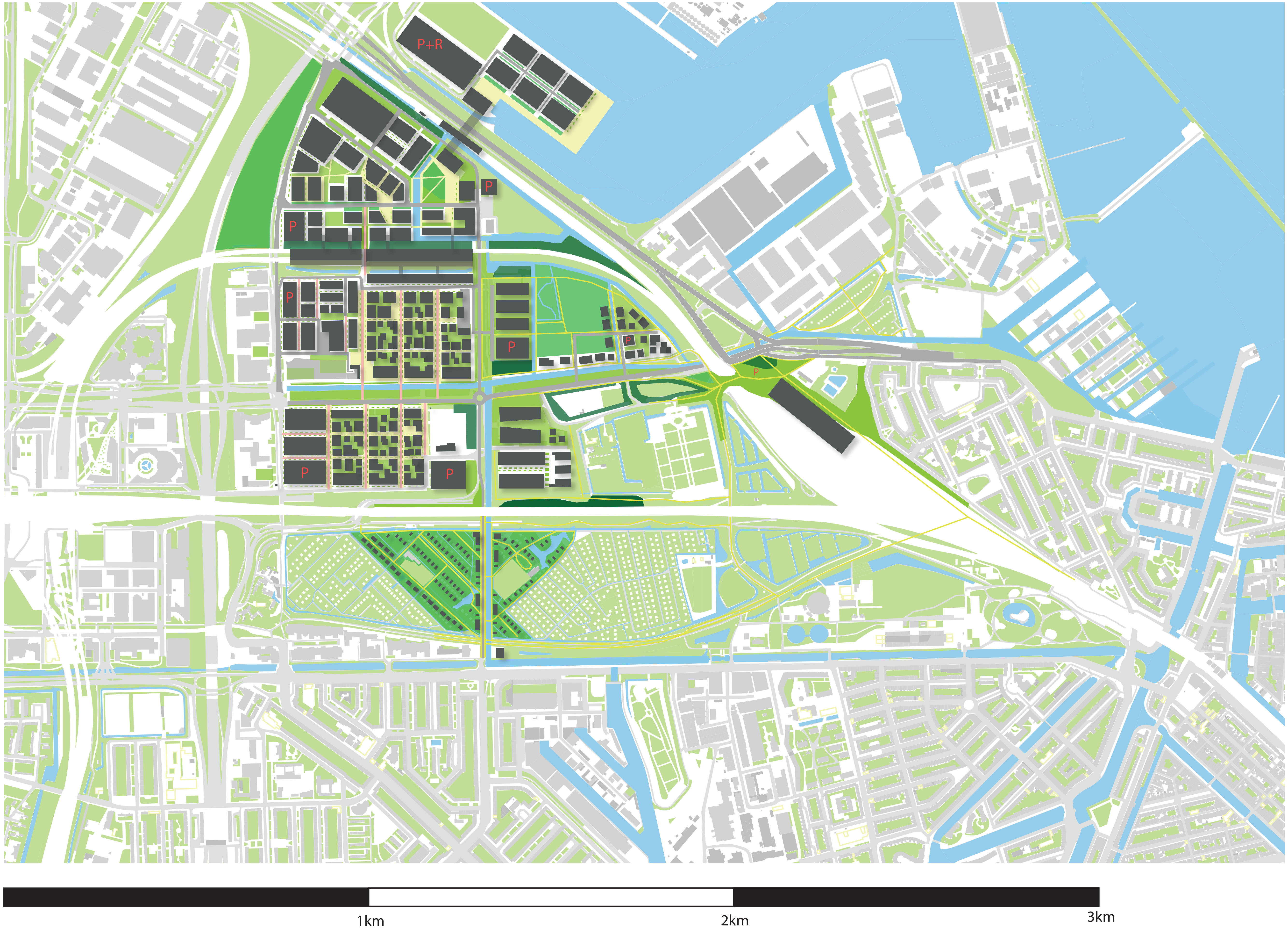
Havenstad is located along one of the city's green wedges, the so-called Brettenscheg ends in the Westerpark. In addition to that it is also connected to the IJ.

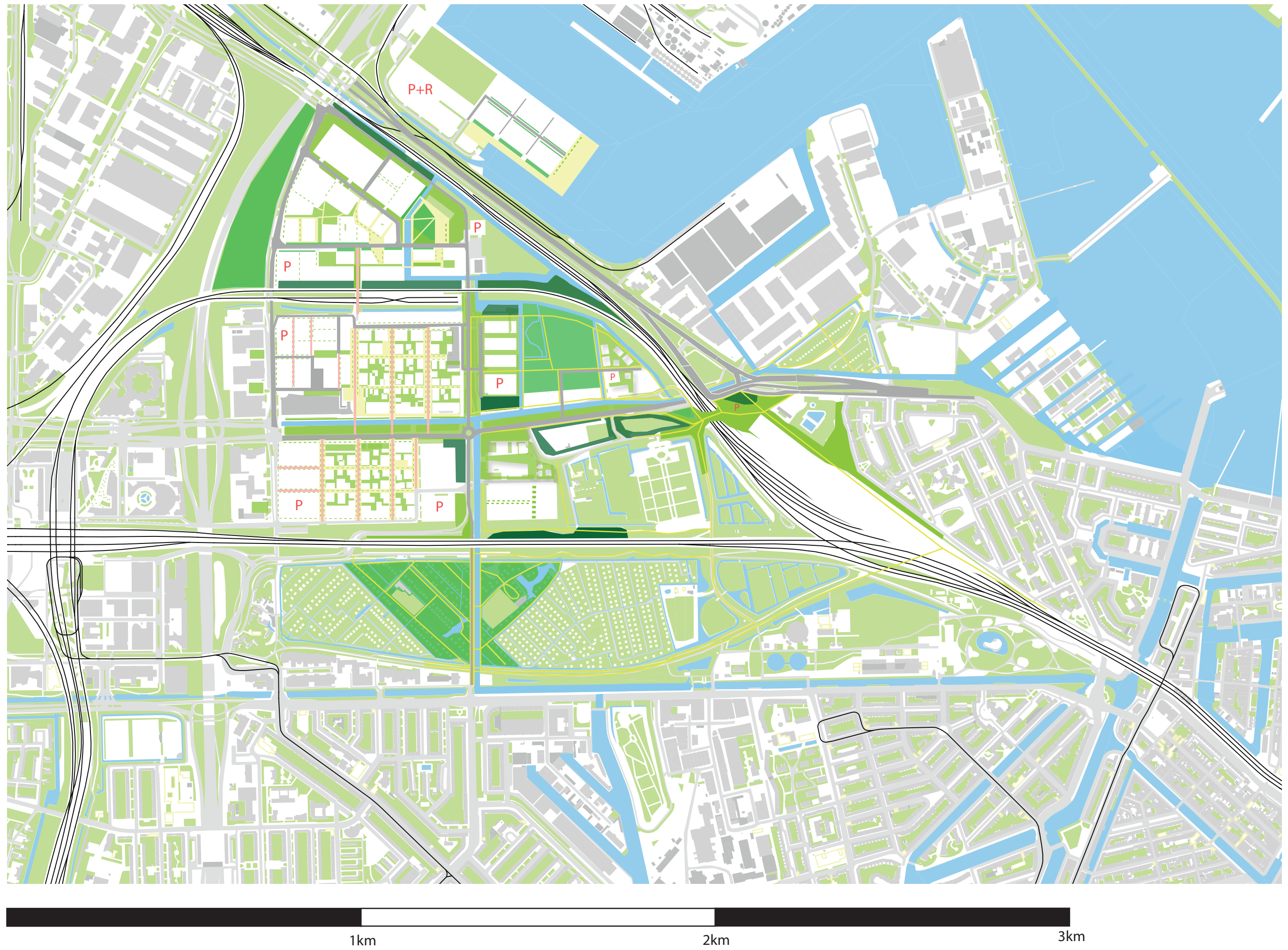


Green blue area proposal
Adaptation of Bing maps and Gemeente Amsterdam GIS data.

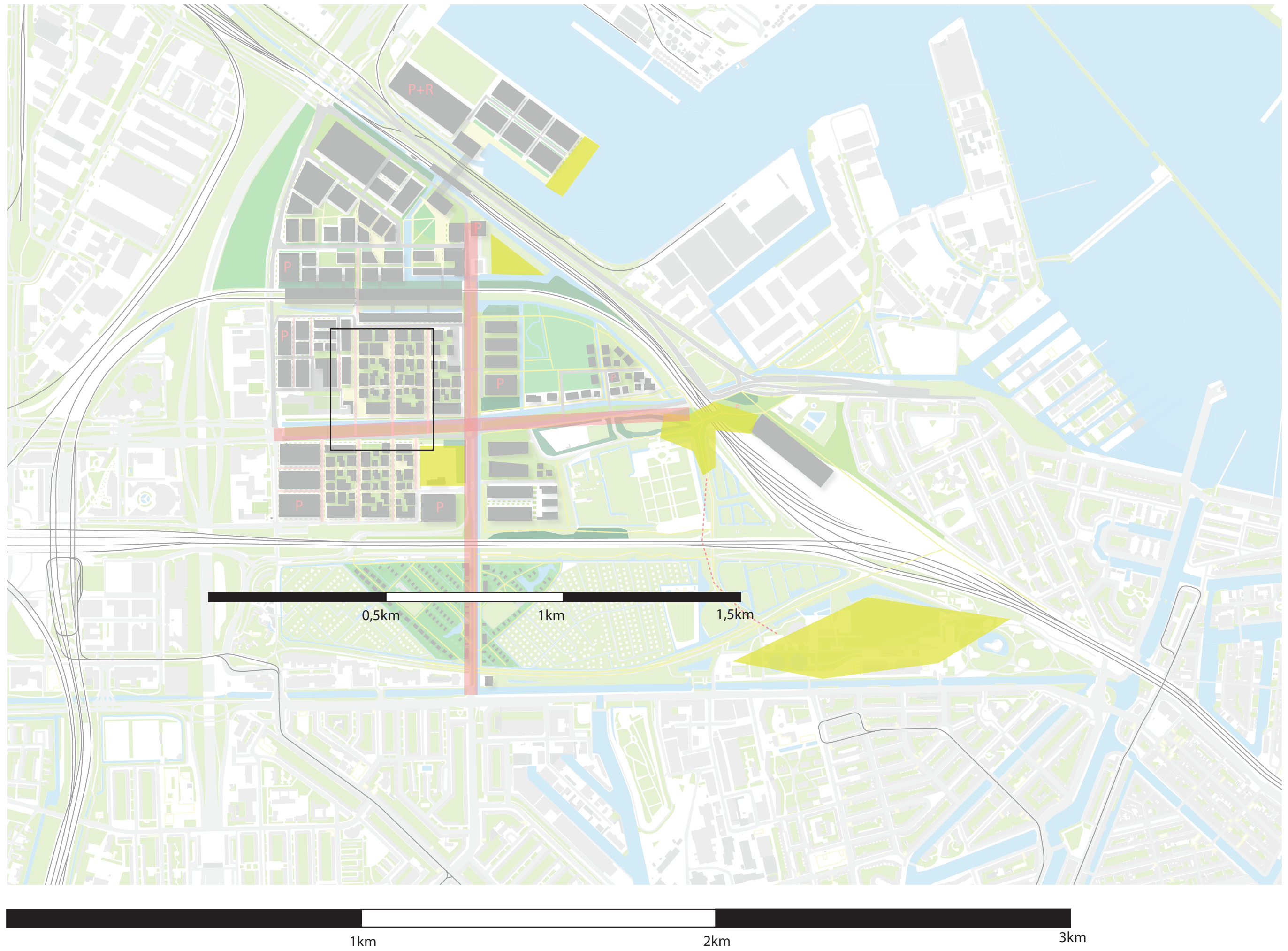
By strengthening the structure of the Westerpark into Groot Westerpark, an area with a variety of landscapes, the area can benefit not only Havenstad, but also improves the liveability of Spaarndammerbuurt and Houthavens.

The proposal



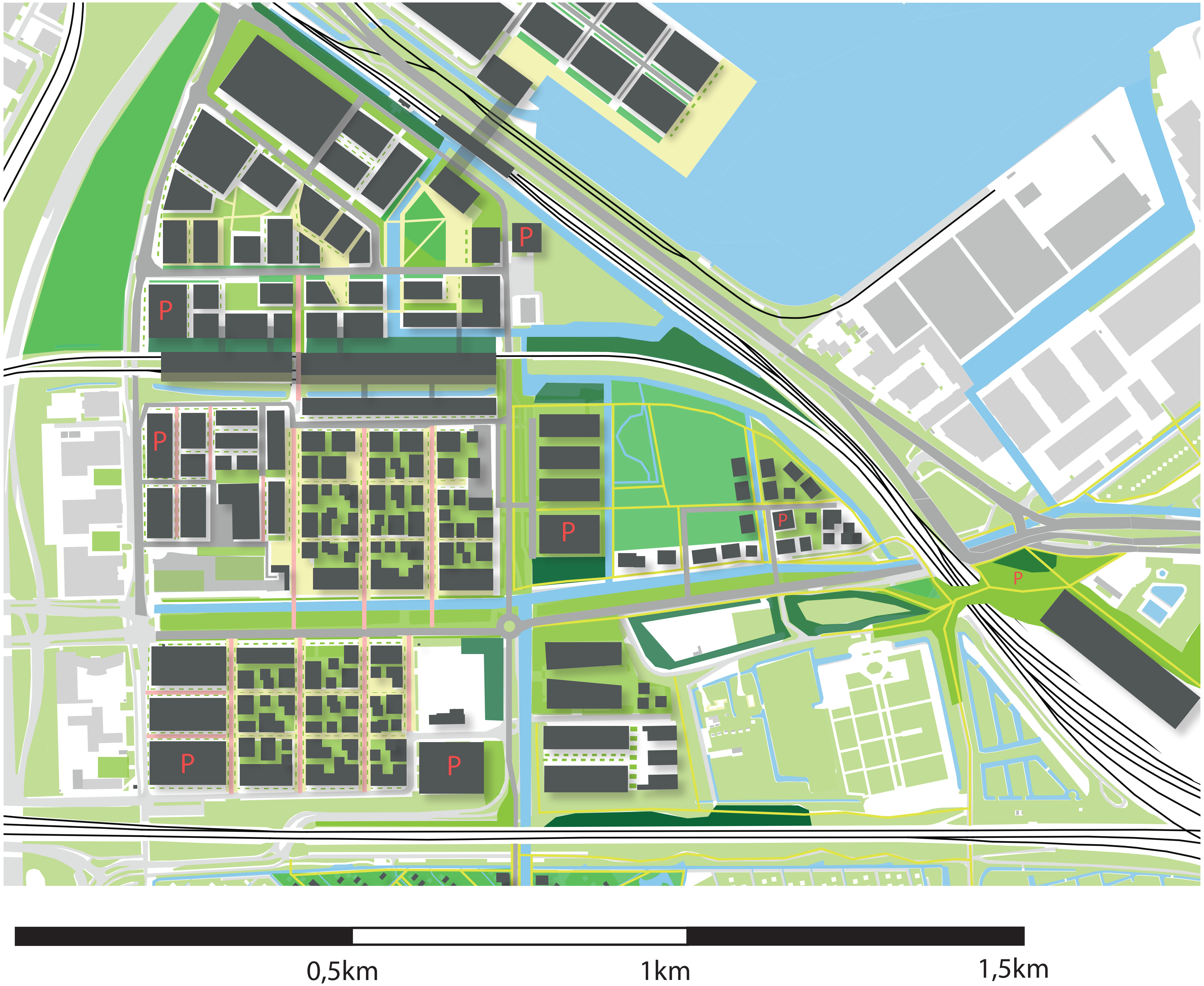


The park and public space system within the area

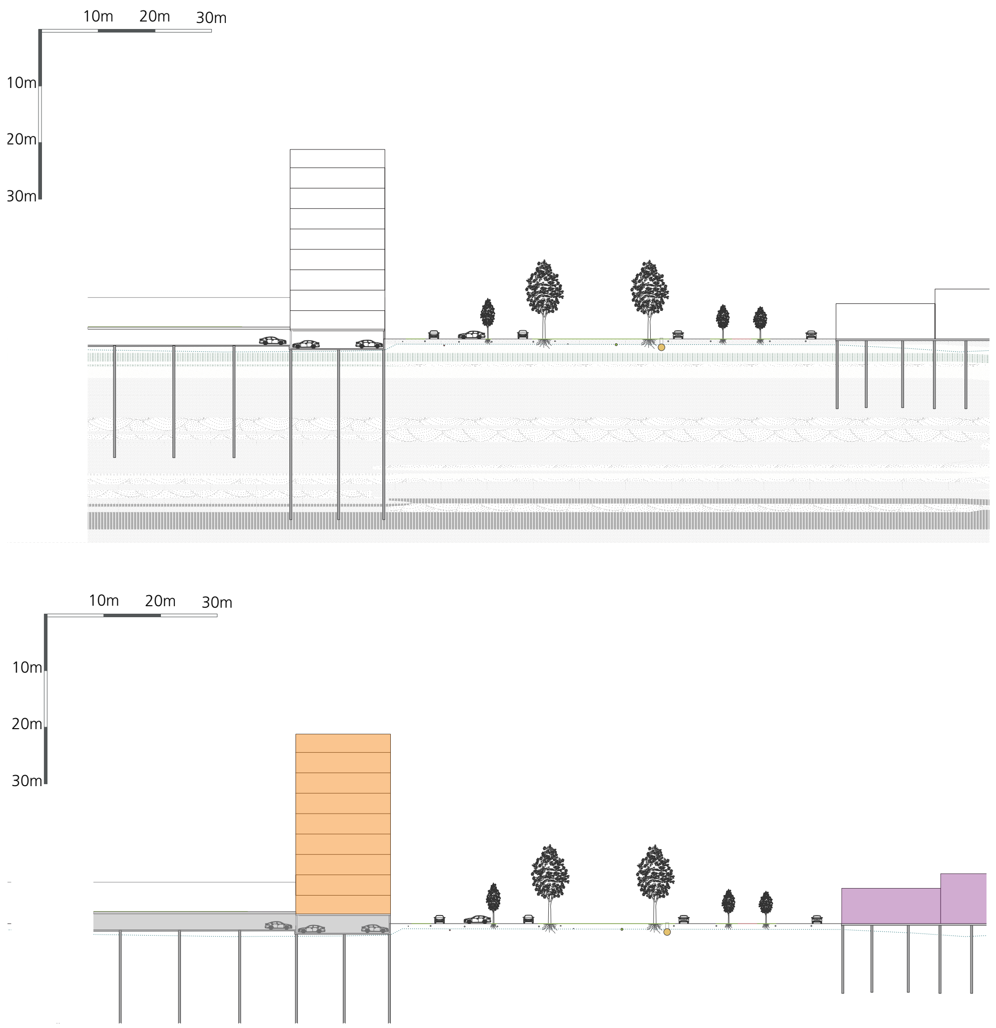


The attractions in yellow in the area.
The three existing attractions are either connected to the park or to the

The neighbourhood

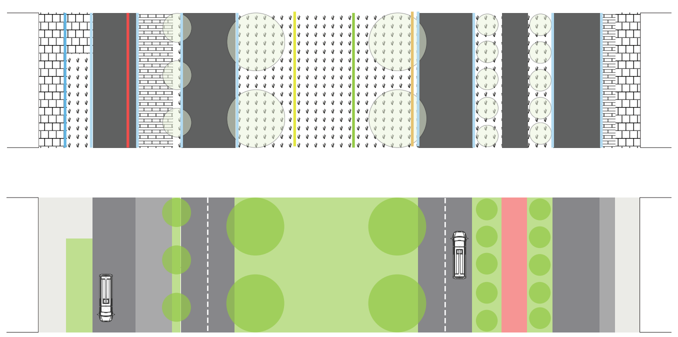


The Street

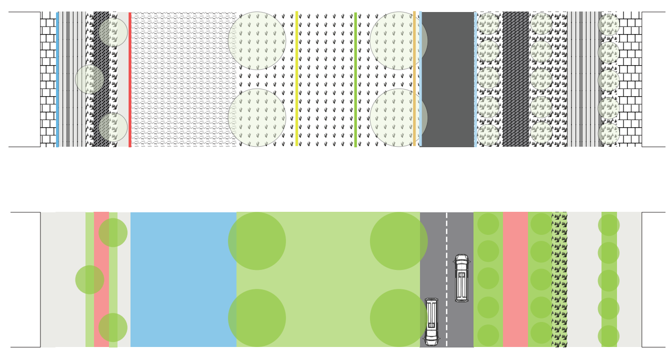


Transformatorweg profile current situation technical and functional section

Transformatorweg profile future situation technical and functional section

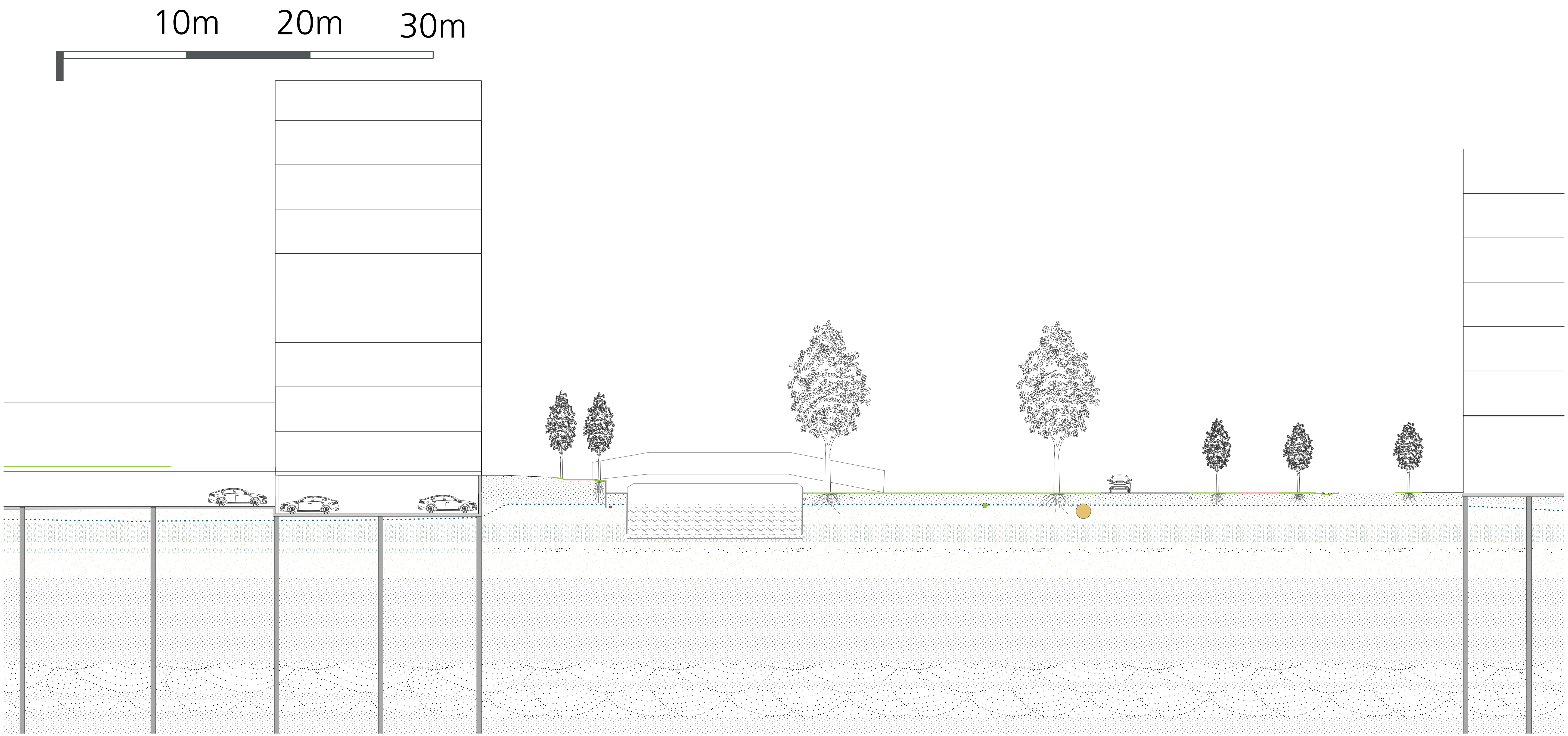


Transformatorweg slice current situation technical and functional section

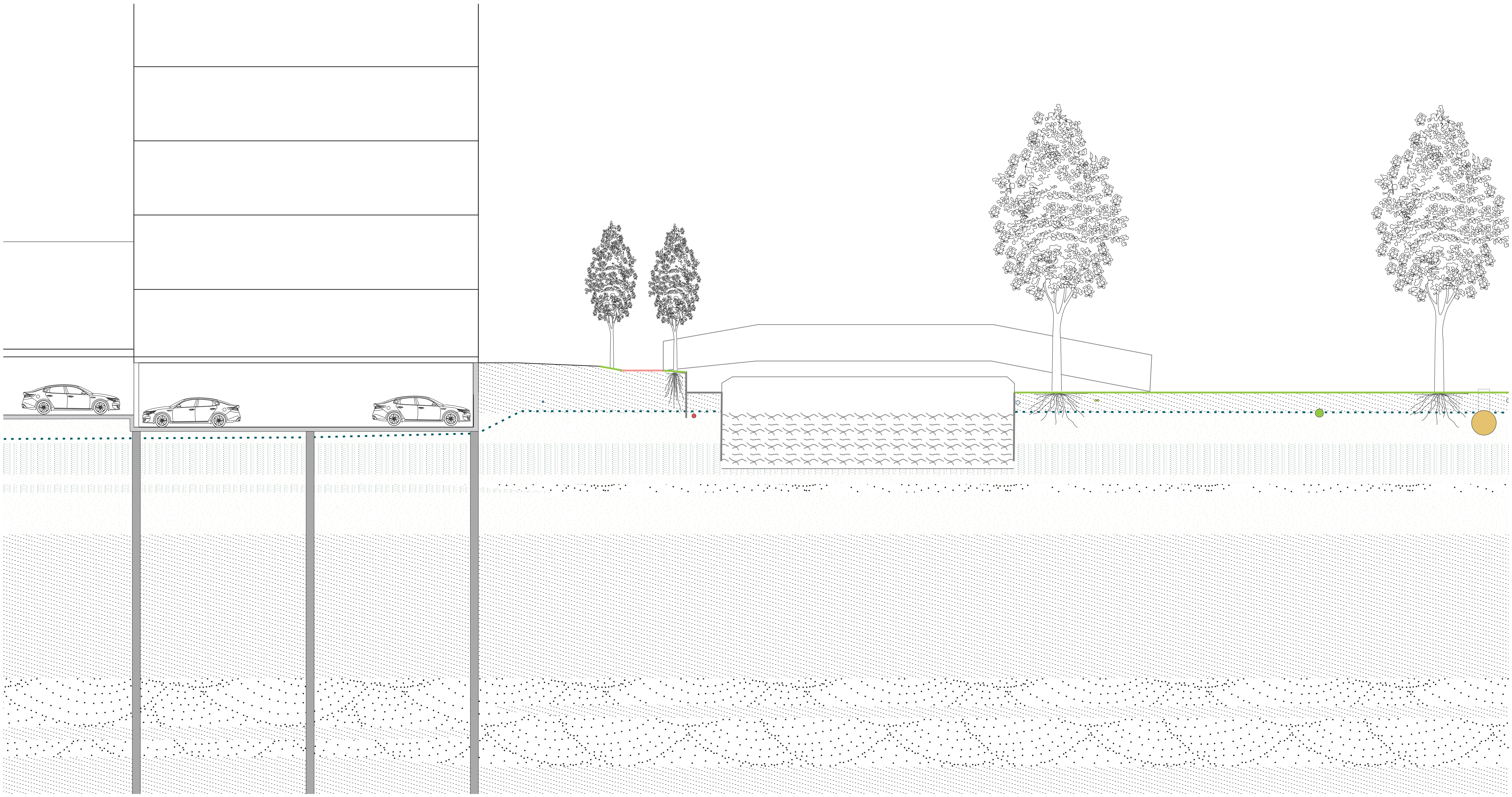


Transformatorweg slice future situation technical and functional section

Section

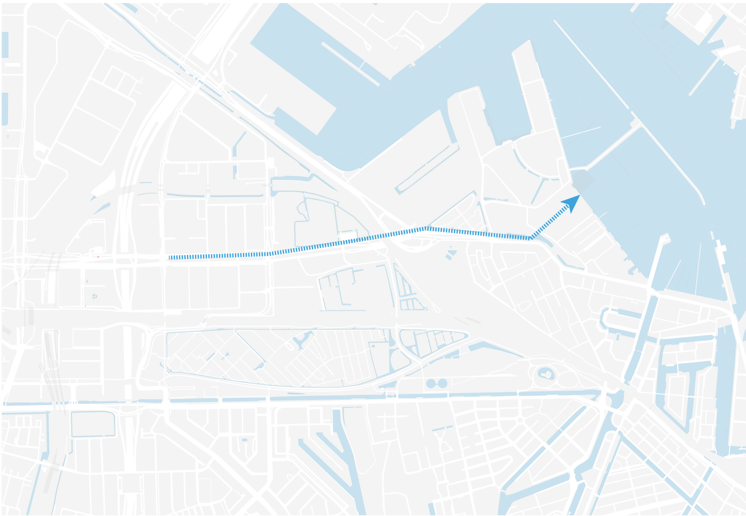


Section

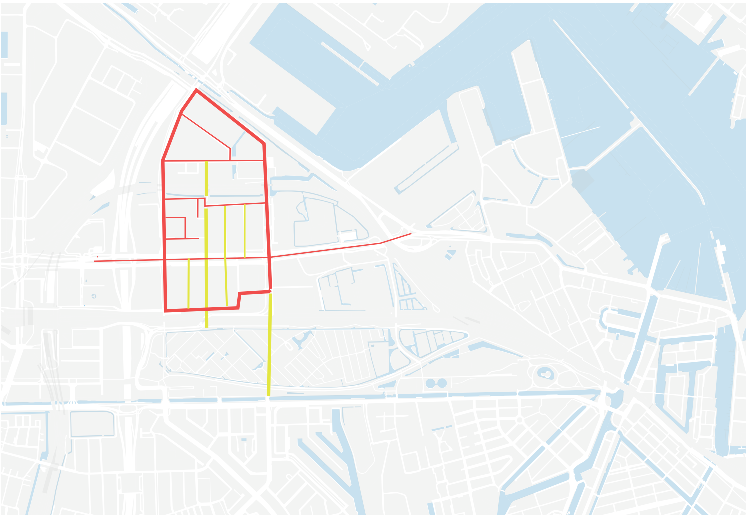


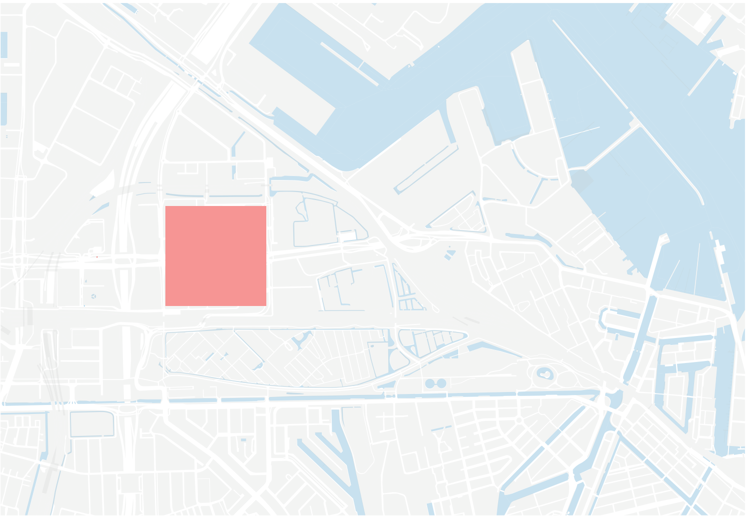
Phasing

Phase 1

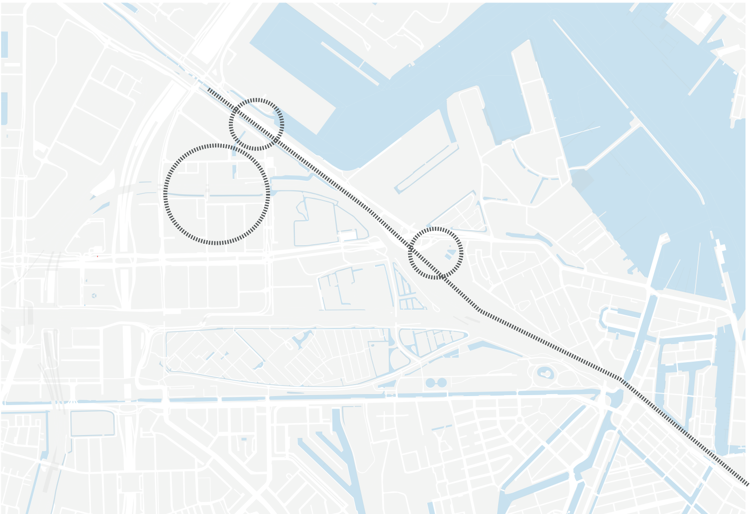


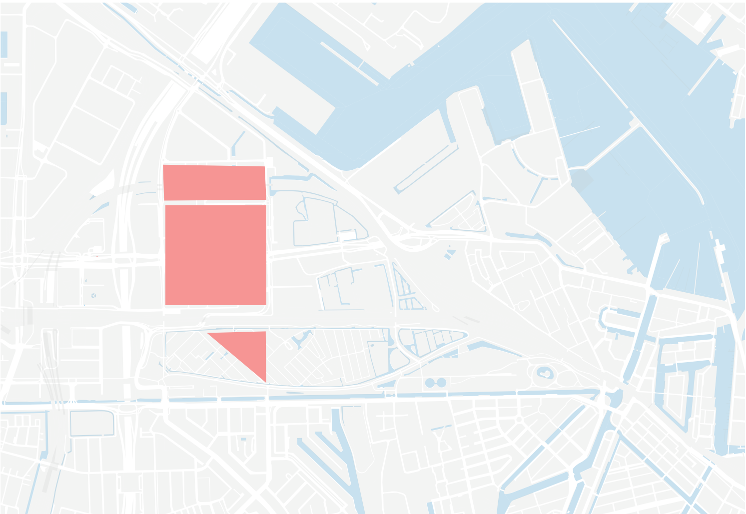
Phase 2



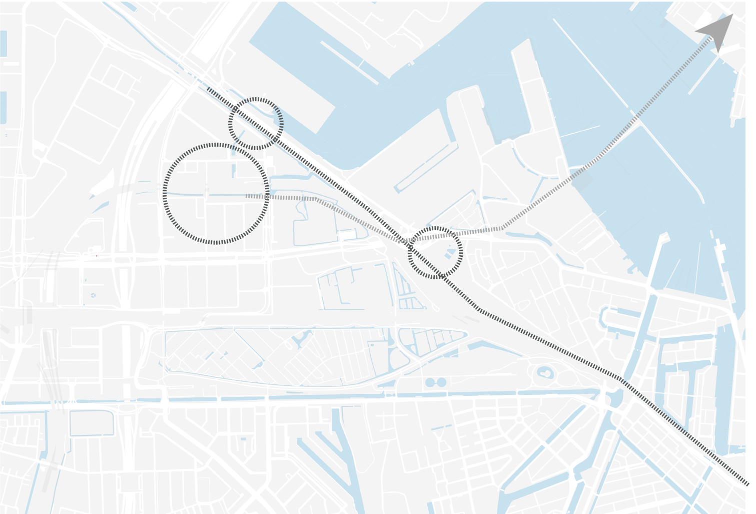


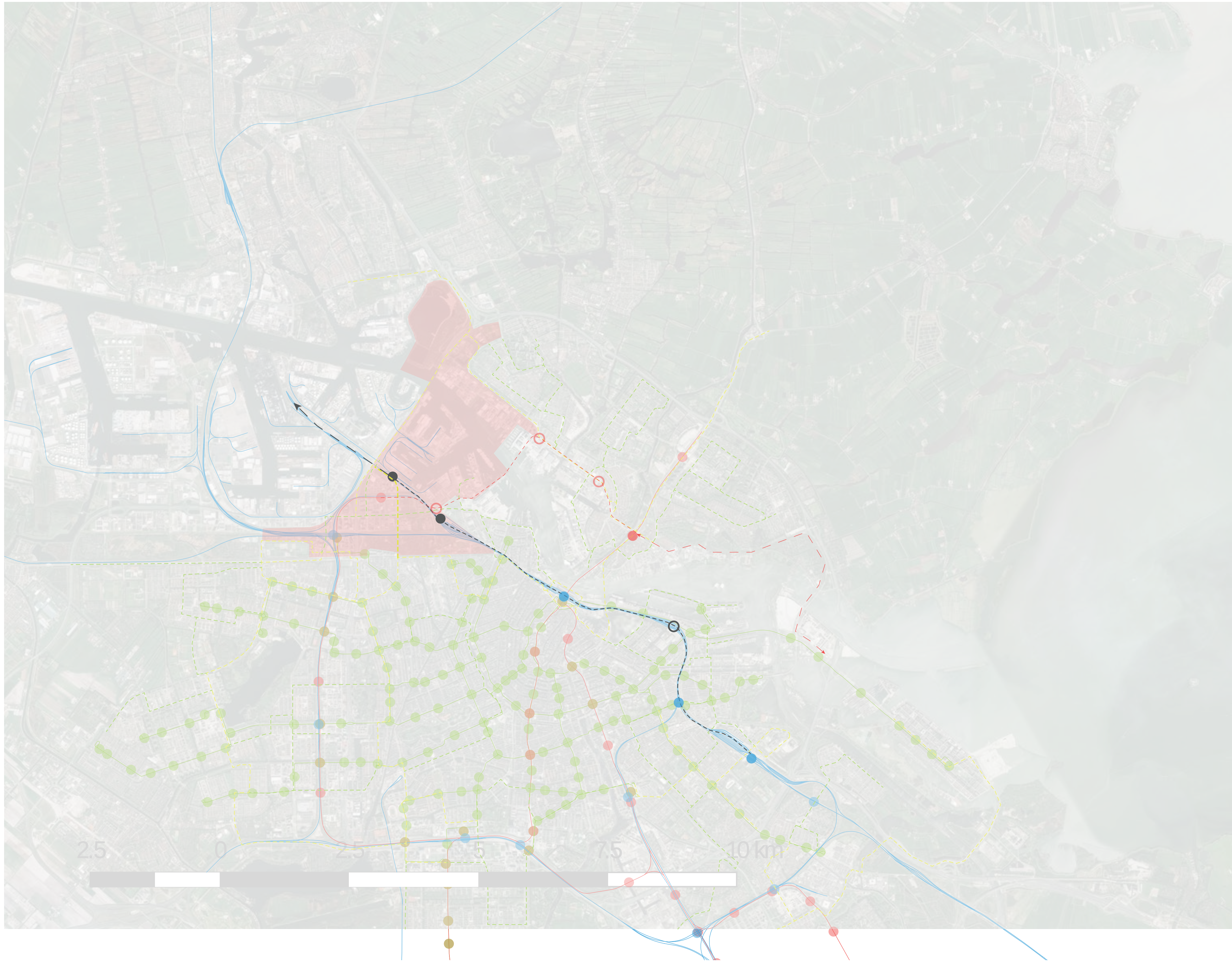
Phase 3



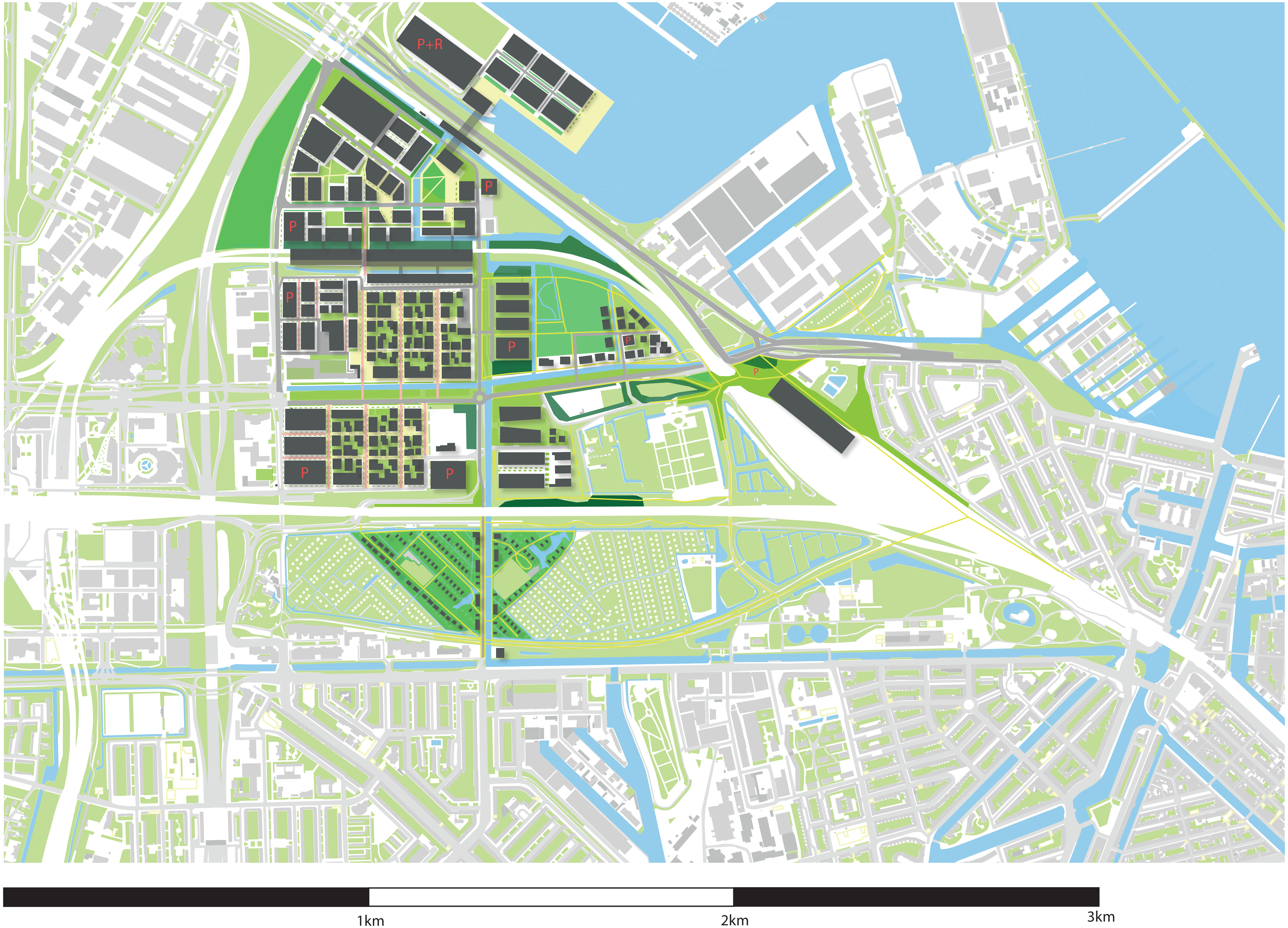


future





Conclusion



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