

Graduation presentation | 24th of June | 10.45  
Karlou Westerbeek | 4348125

# Turning a city of walls into a city for all

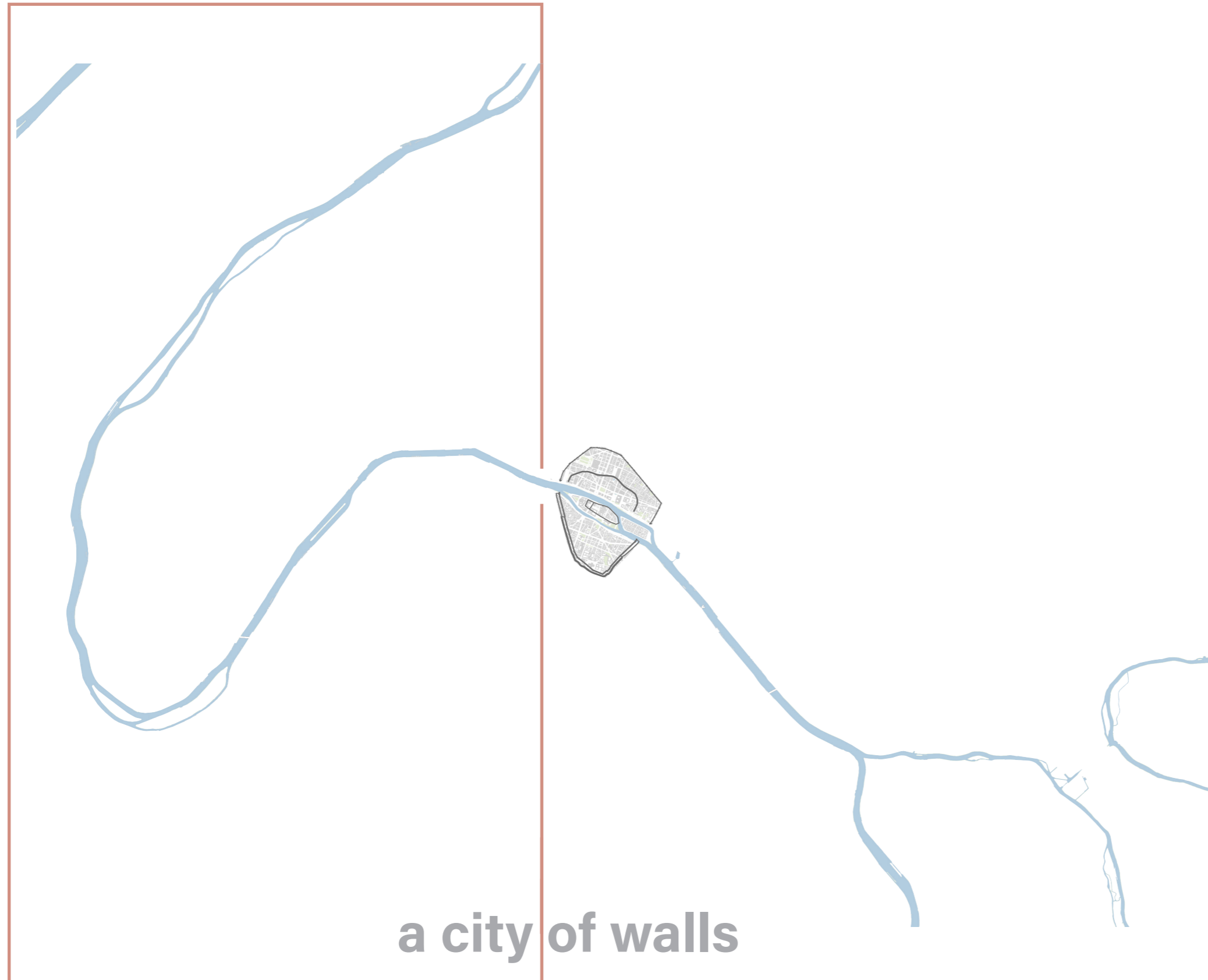
a redevelopment strategy to reunite  
the urban core with the metropolitan  
region of Grand Paris

MSc. Architecture, Urbanism and Building Sciences  
Track of Urbanism | Planning Complex Cities  
Delft University of Technology

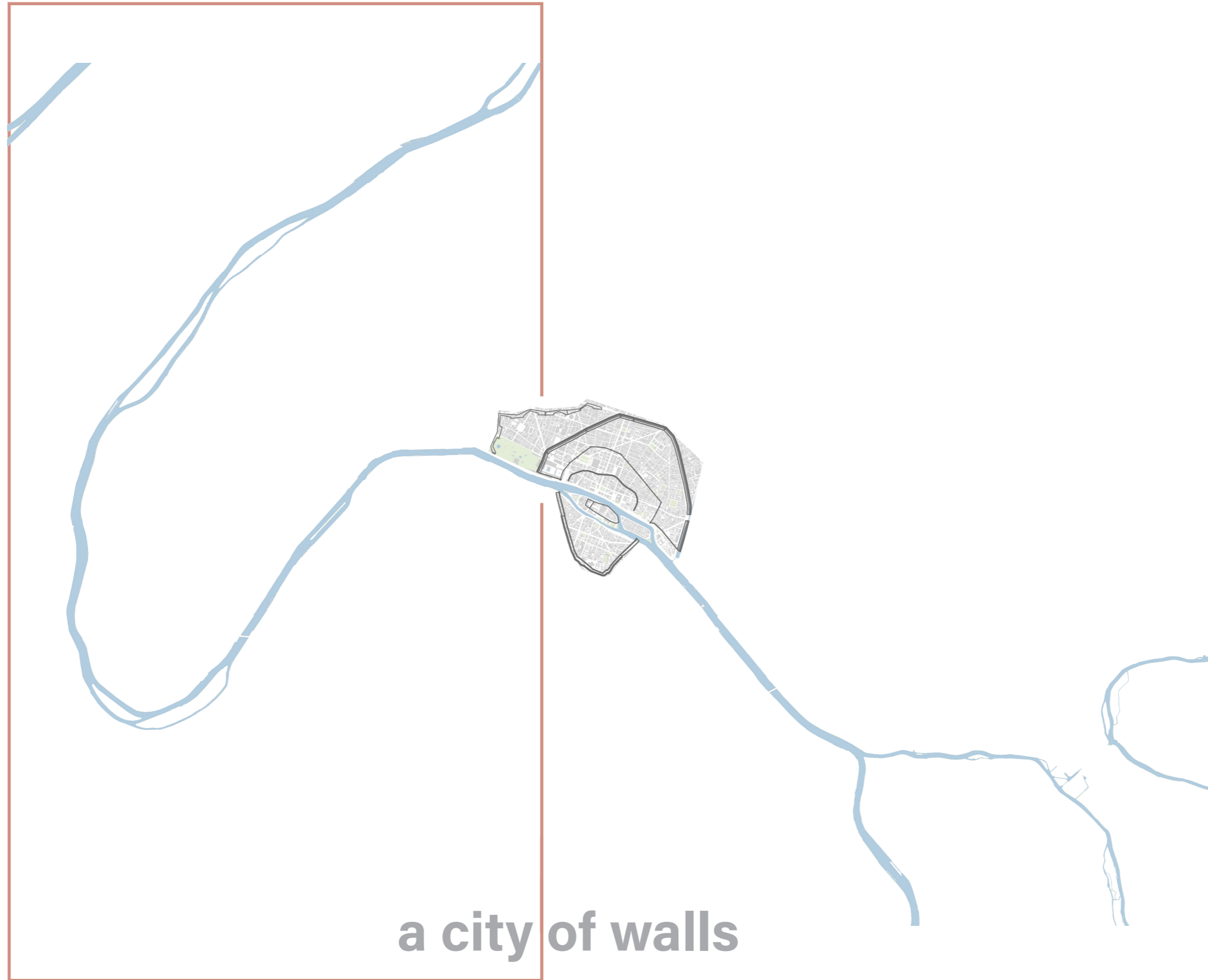
First mentor: Rodrigo Cardoso  
Second mentor: Rients Dijkstra  
Delegate Board of Examiners: Wido Quist

## context

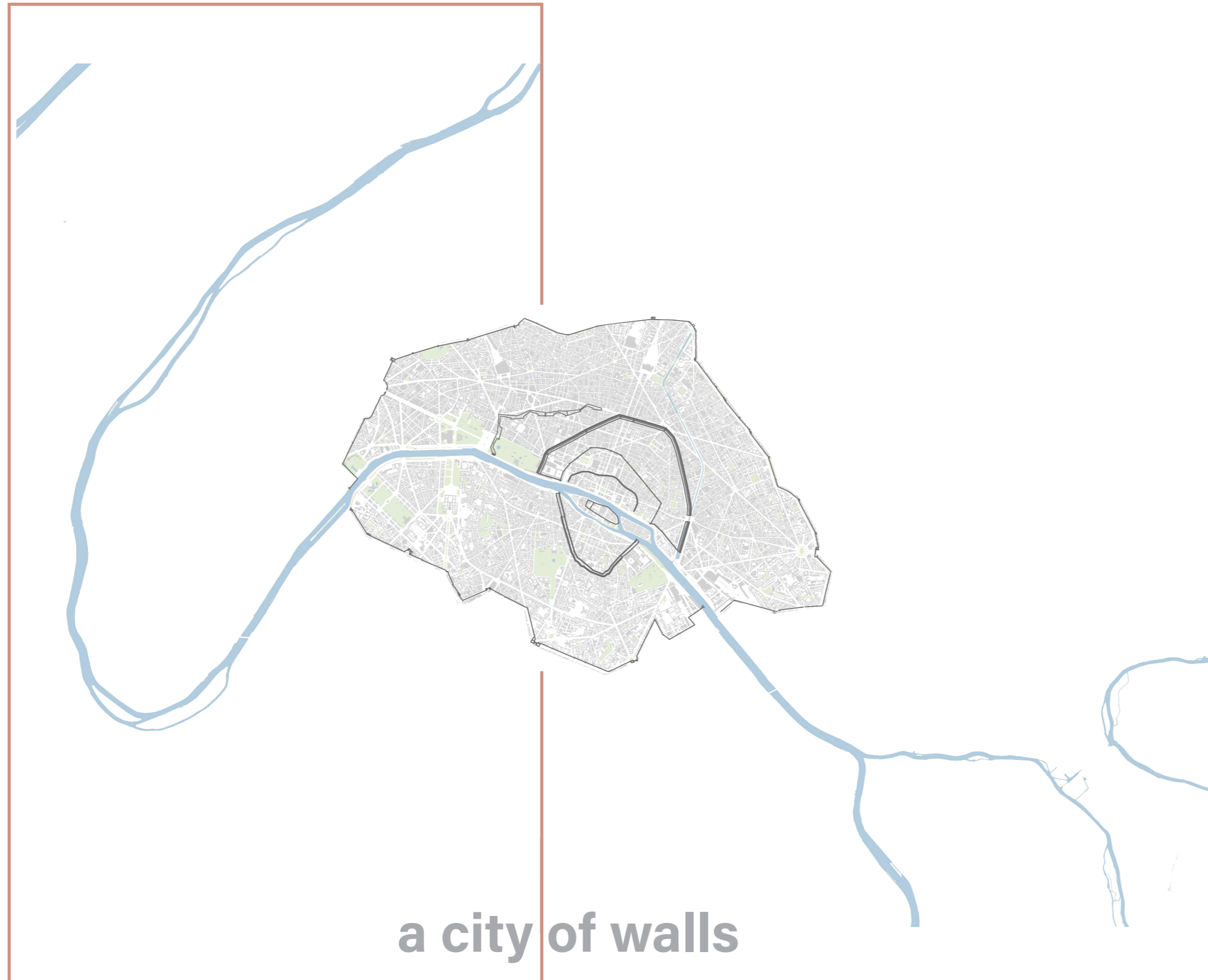




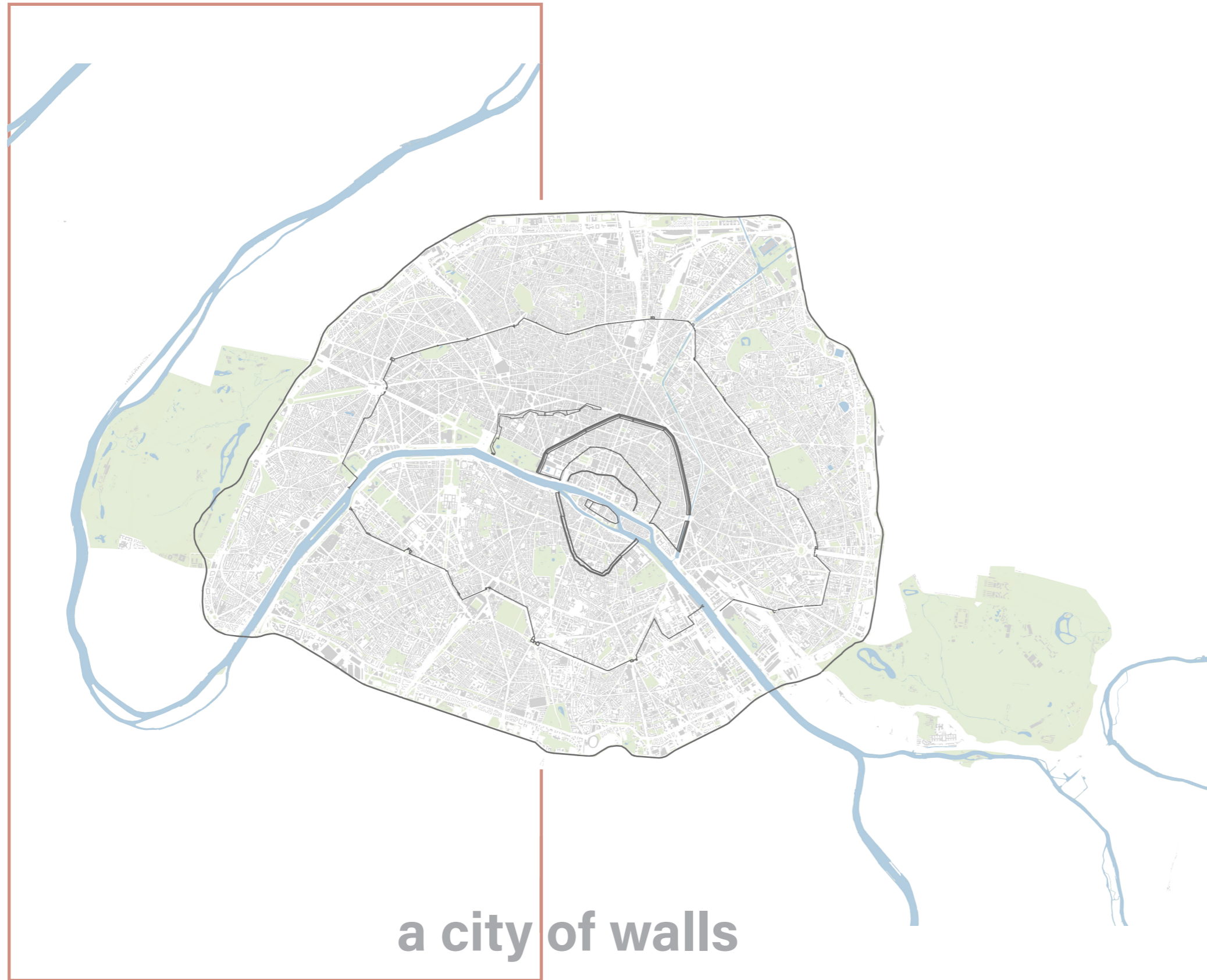
**a city of walls**



**a city of walls**



**a city of walls**



**a city of walls**

# the Boulevard Périphérique

1973



Construction du Boulevard Périphérique  
© AFP

a modern city wall

# Métropole du Grand Paris

Region: Île de France

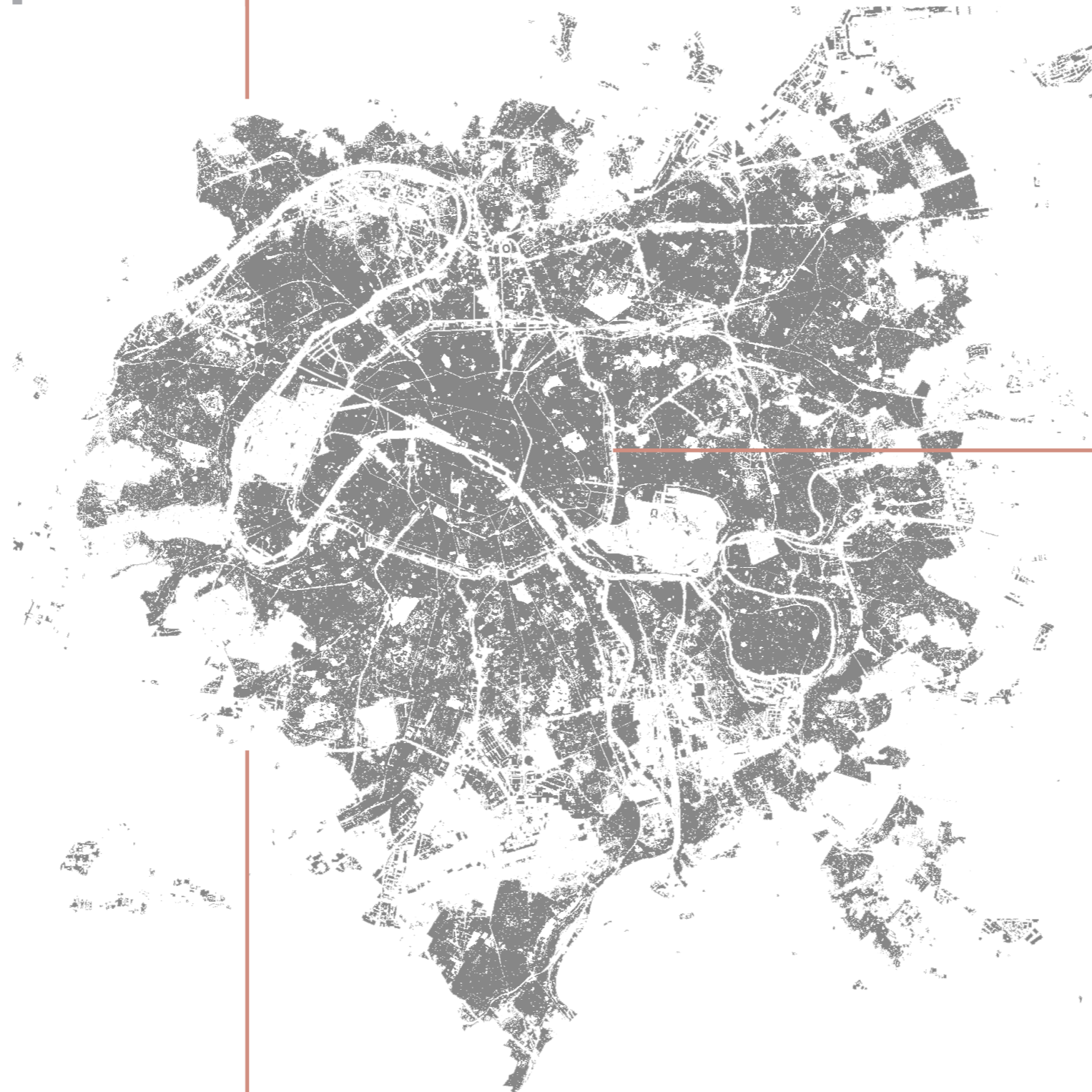
Municipalities: 131

Area: 814,2 km<sup>2</sup>

Population:  
7.057.905 inhabitants  
11.2% of France

Density:  
8668,1 inhabitants/km<sup>2</sup>

Dwellings: 3.592.115



Boulevard Périphérique

a city wall  
=  
an **exclusion** mechanism

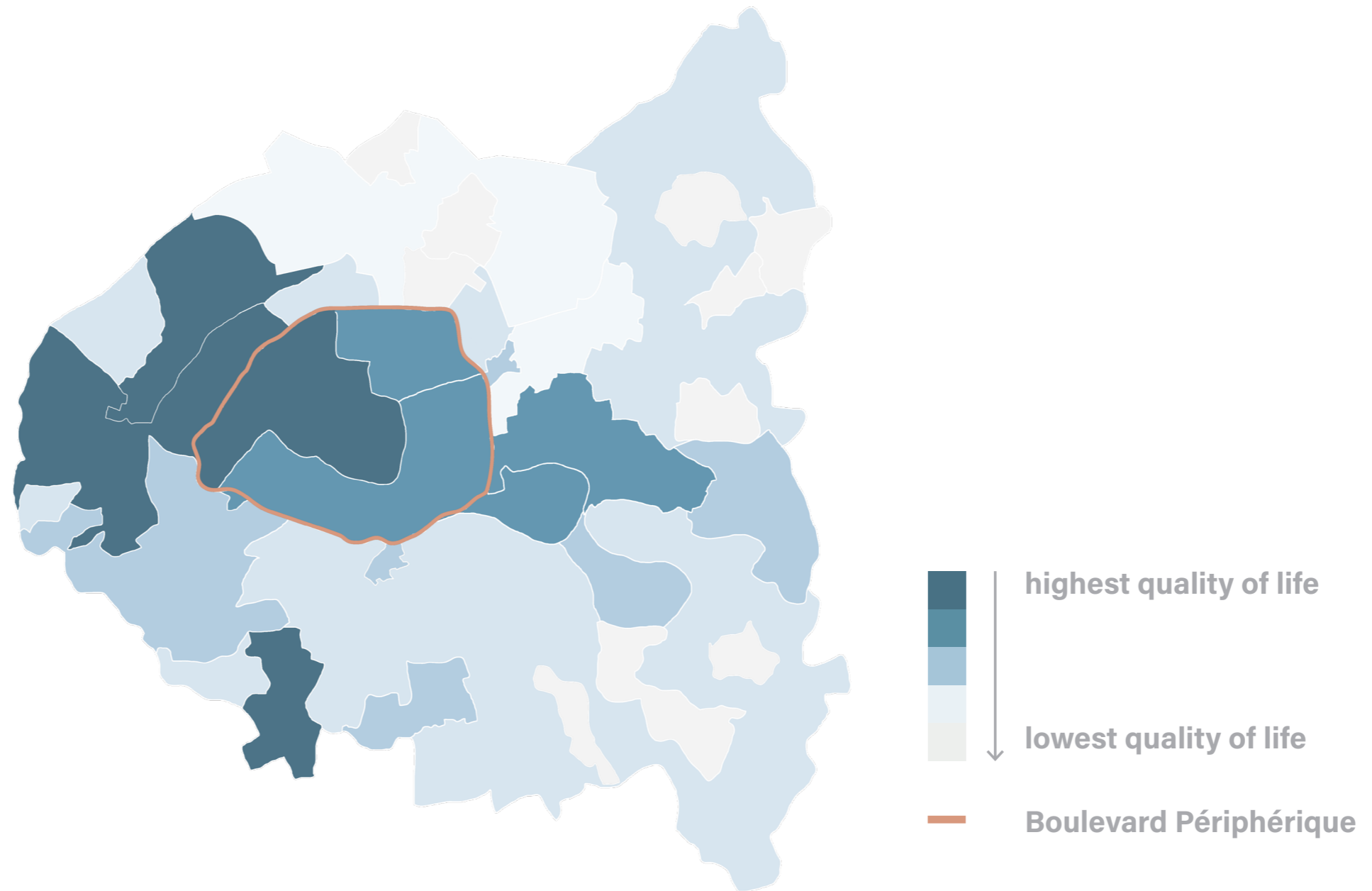
# exclusion

**= not granting access to a form of resource,  
in a spatial, organisational or psychological sense**

Musterd & Ostendorf, 2011

# imbalance city - periphery

## imbalance city - periphery



# increasing inequalities



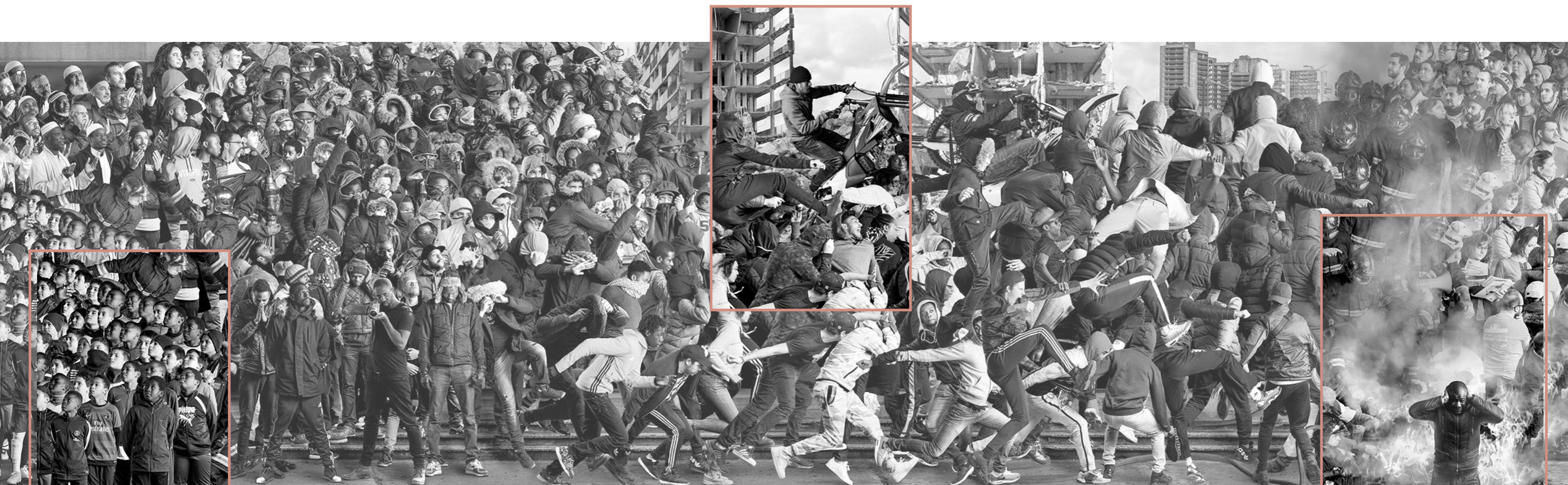
residential inequality



uneven access to resources



unequal quality of life



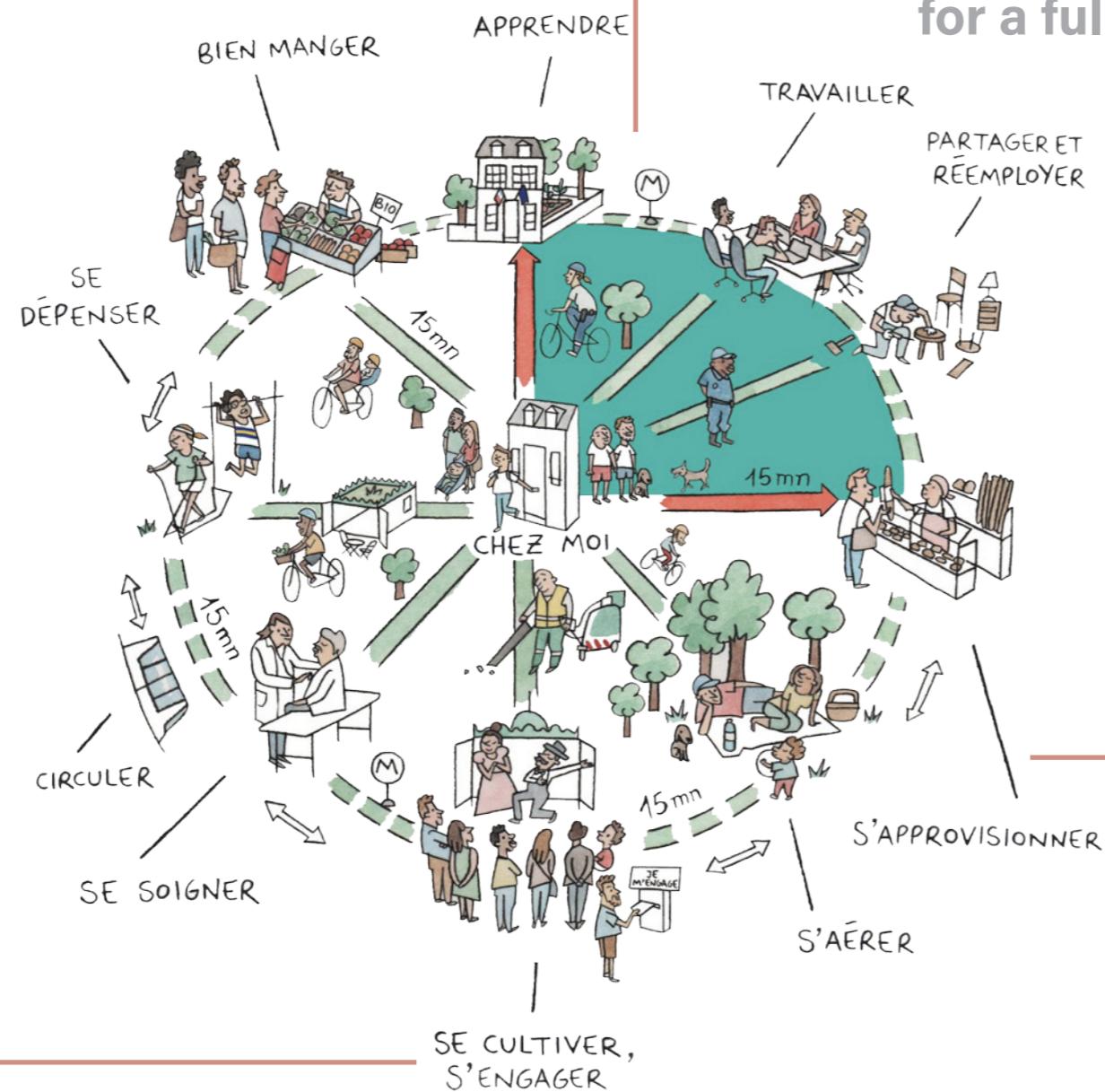
polarisation

unrest

deterioration

# le Paris du 1/4 heure

the 15-minute-city:  
“the ability to reach all amenities necessary  
for a full urban life within a 15-minute walk or  
bike ride from your home”

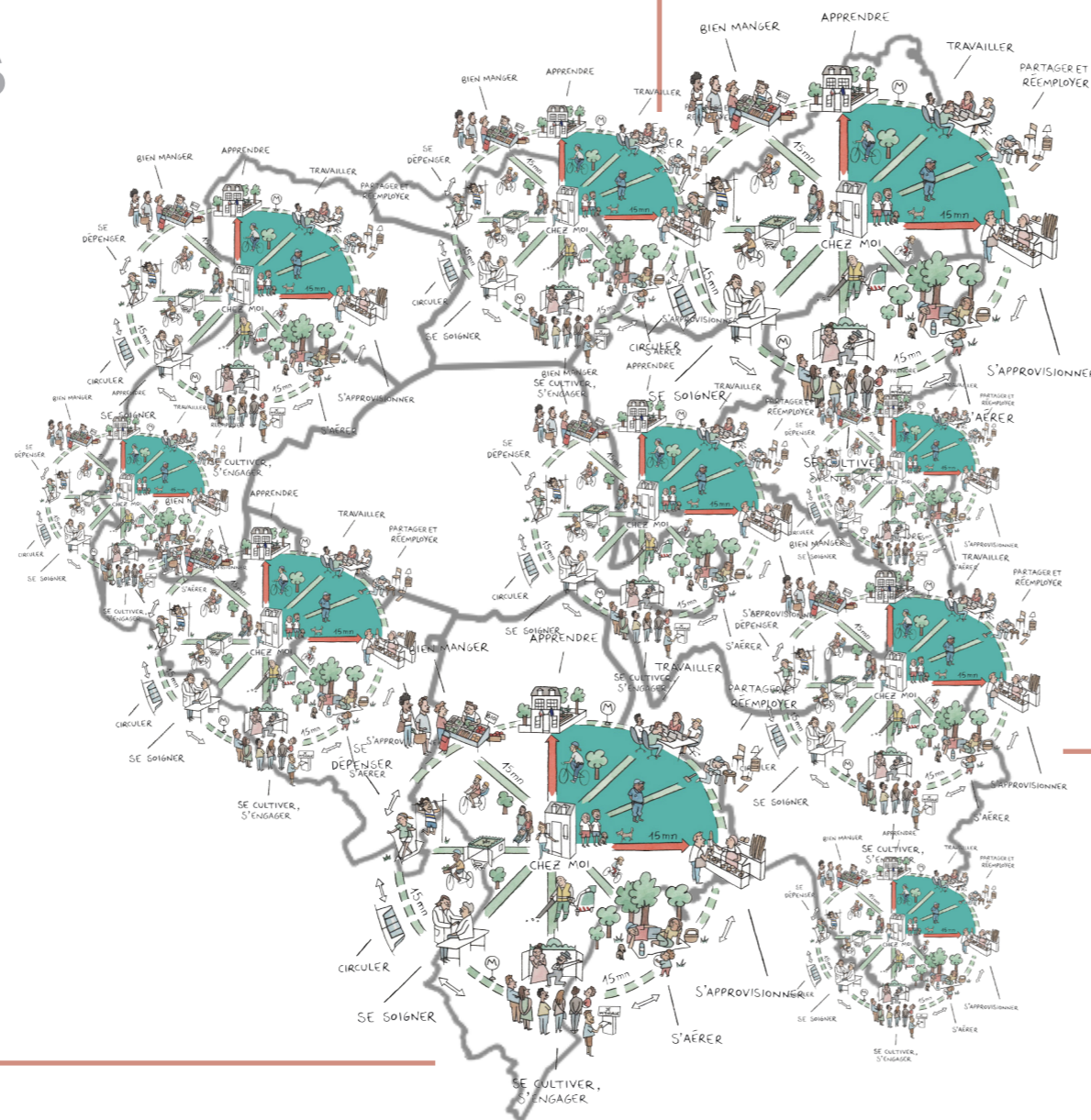


© Paris en commun, 2020

~~le Paris~~ du 1/4 heure

La Métropole  
du Grand Paris

in order to combat the  
increasing inequalities,  
why stop at the ring road?



## proposal





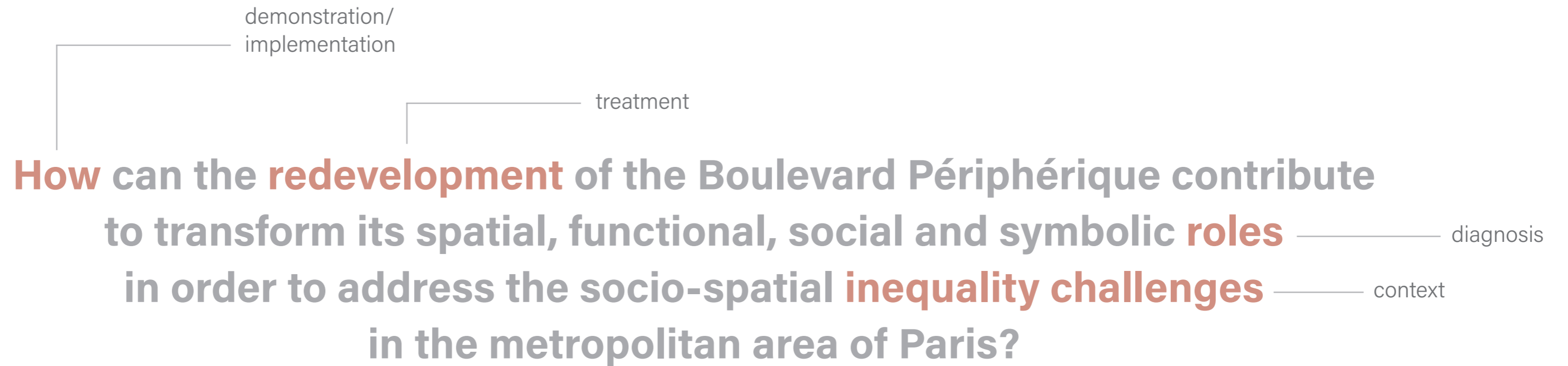
# Paris: a divided city

with a growing imbalance  
between the city and the periphery

© Ella et Pitr, 2019



a physical and symbolic manifestation of the prevalent problems

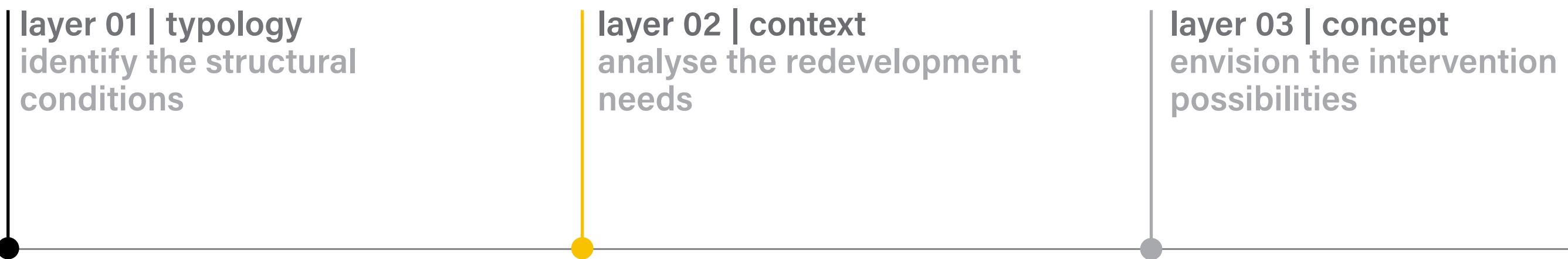


**focus**

the role of **exclusion mechanisms**  
in socio-spatial inequalities

from a technical and economic perspective  
to a more **balanced** perspective

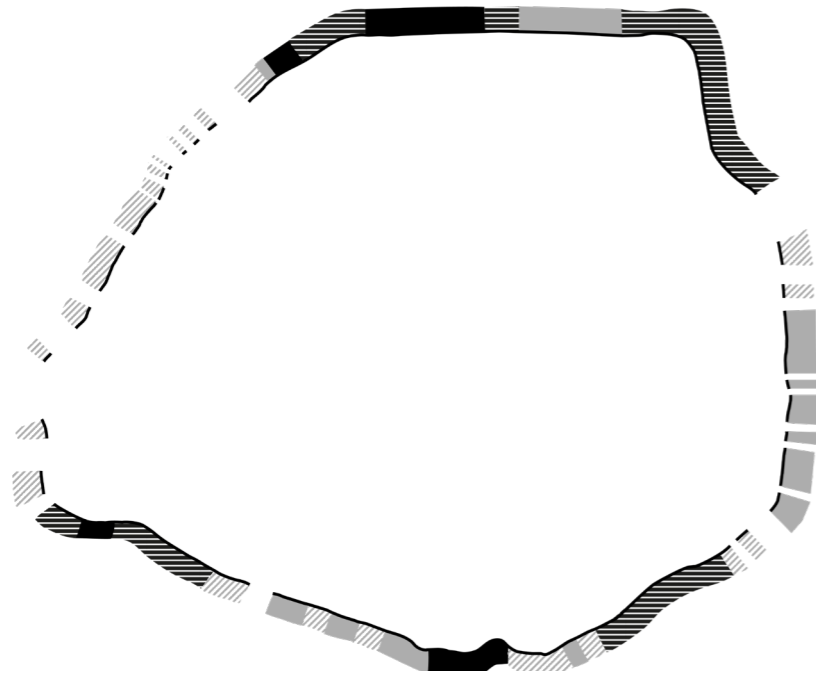
**tackling the complexity  
of the project**



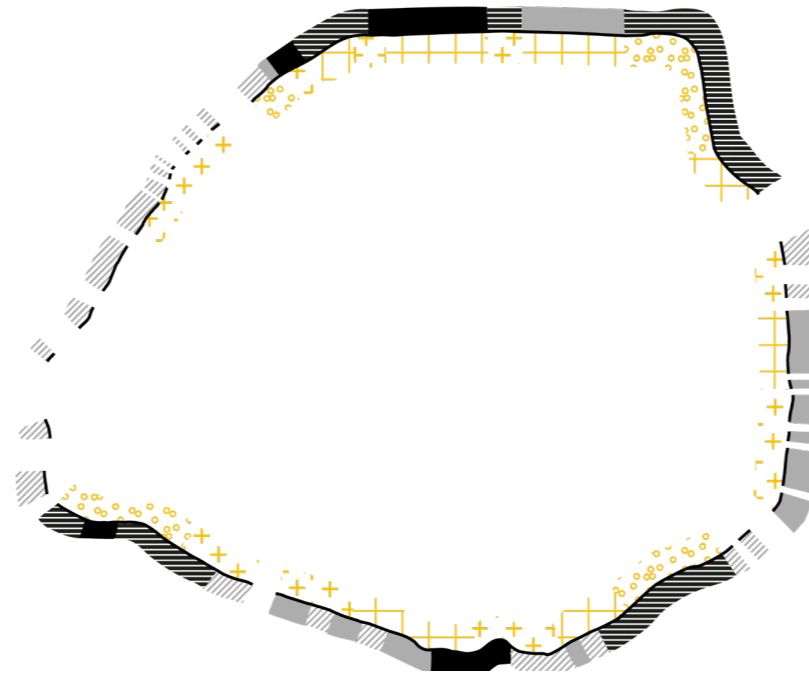
**layer 01 | typology**  
identify the structural  
conditions

**layer 02 | context**  
analyse the redevelopment  
needs

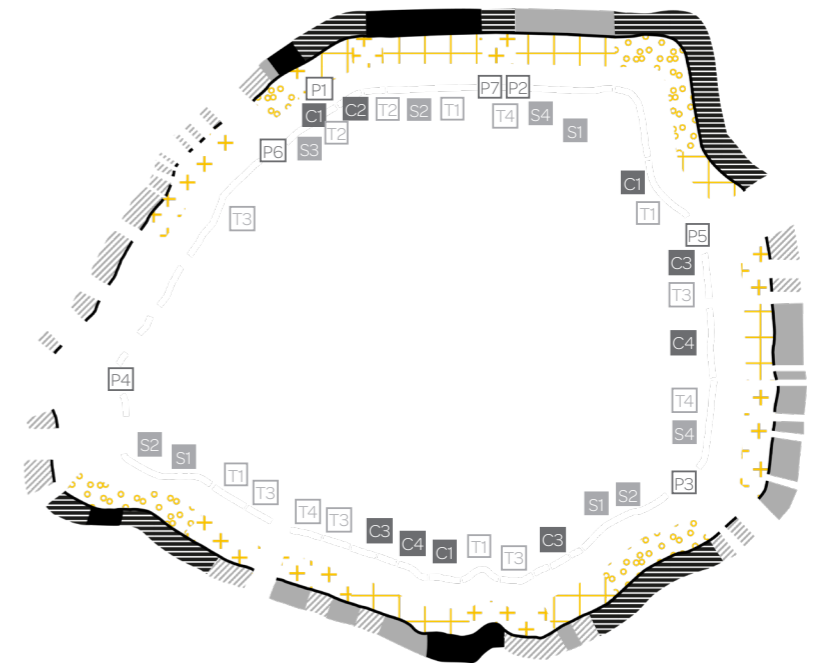
**layer 03 | concept**  
envision the intervention  
possibilities



**layer 01 | typology**  
identify the structural  
conditions



**layer 02 | context**  
analyse the redevelopment  
needs



**layer 03 | concept**  
envision the intervention  
possibilities

context



proposal



diagnosis



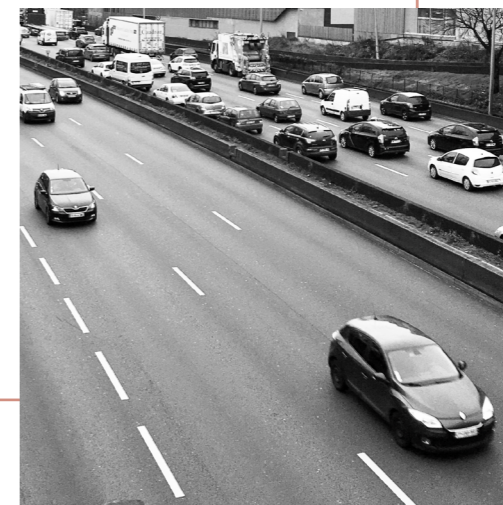
treatment



demonstration



implementation



## diagnosis



# **understanding the roles of the Boulevard Périphérique**

# spatial role

constraint to the quality of space



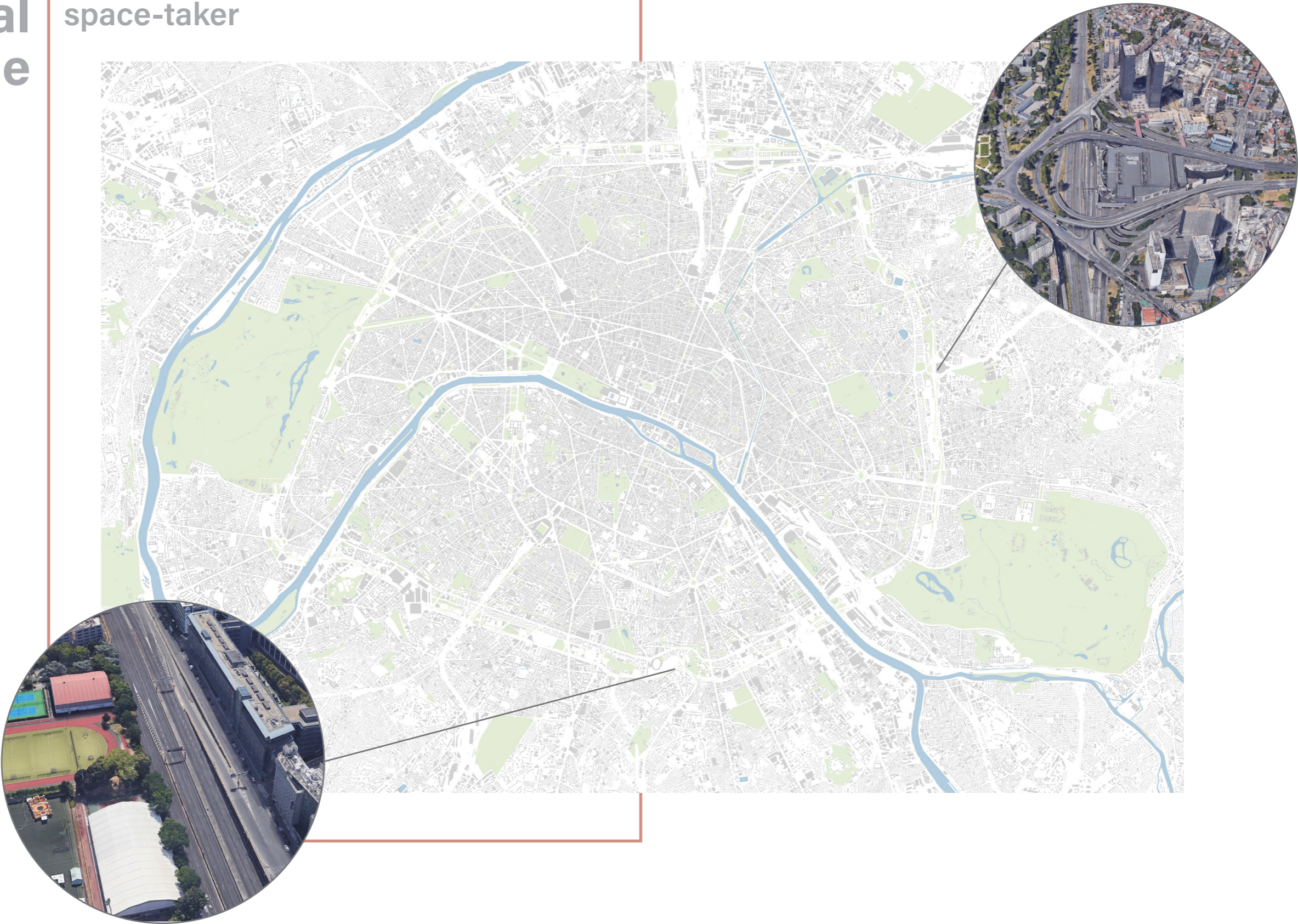
functional  
role

space-taker



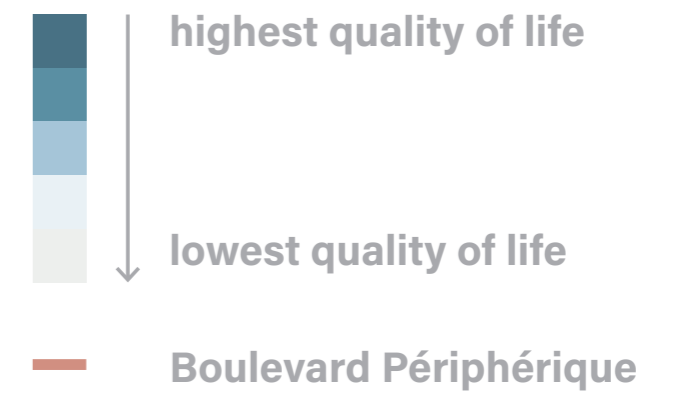
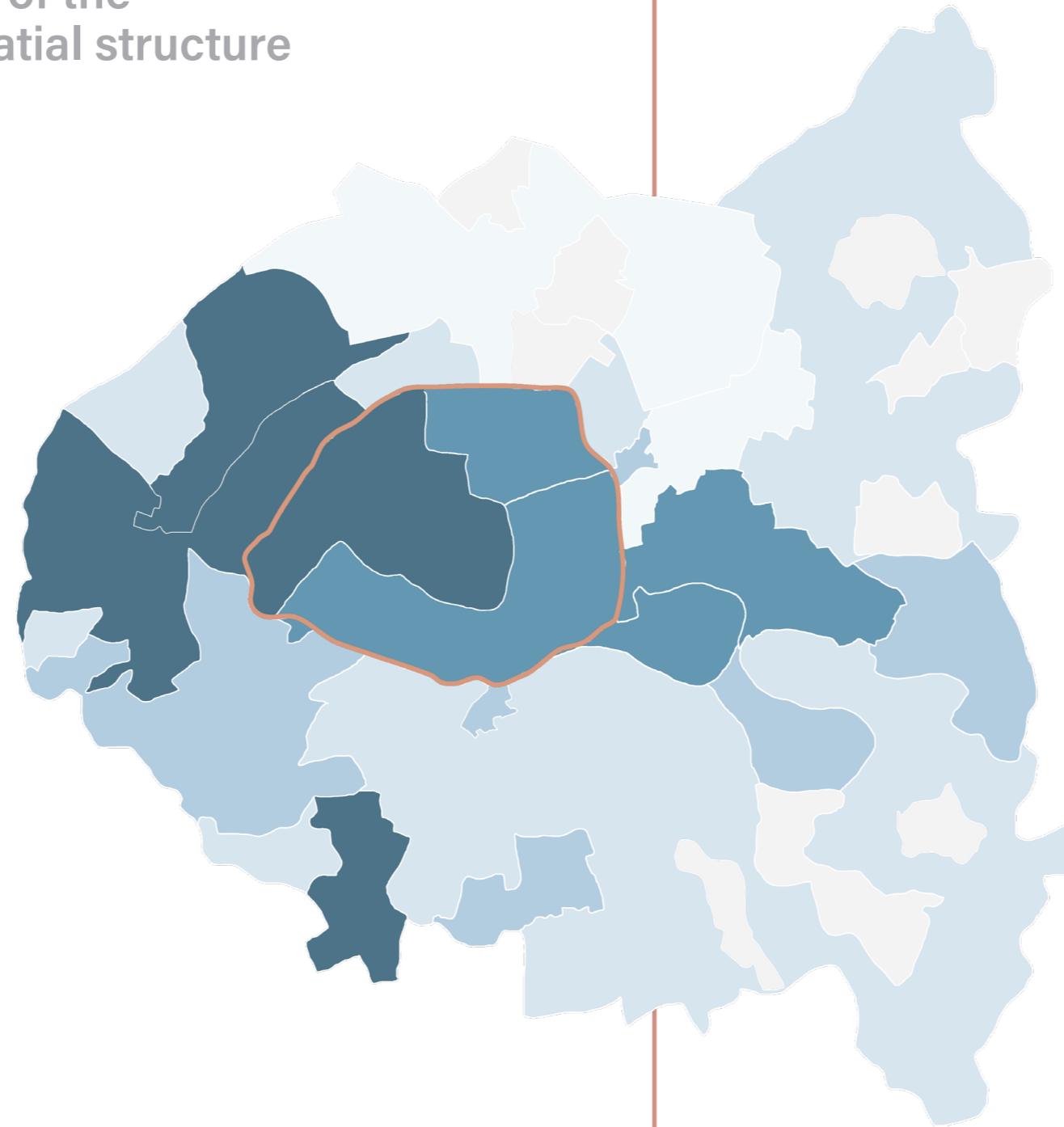
# functional role

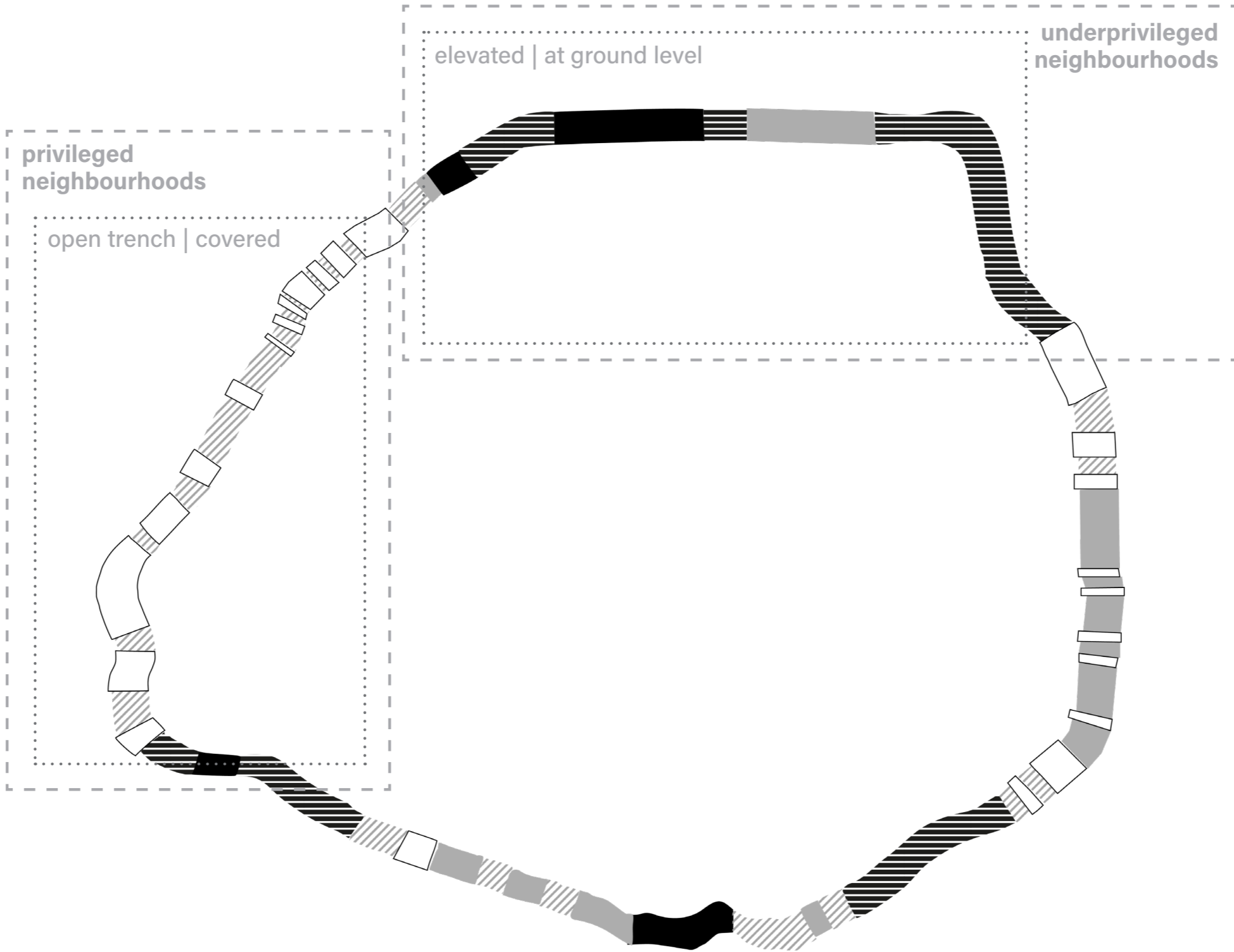
space-taker

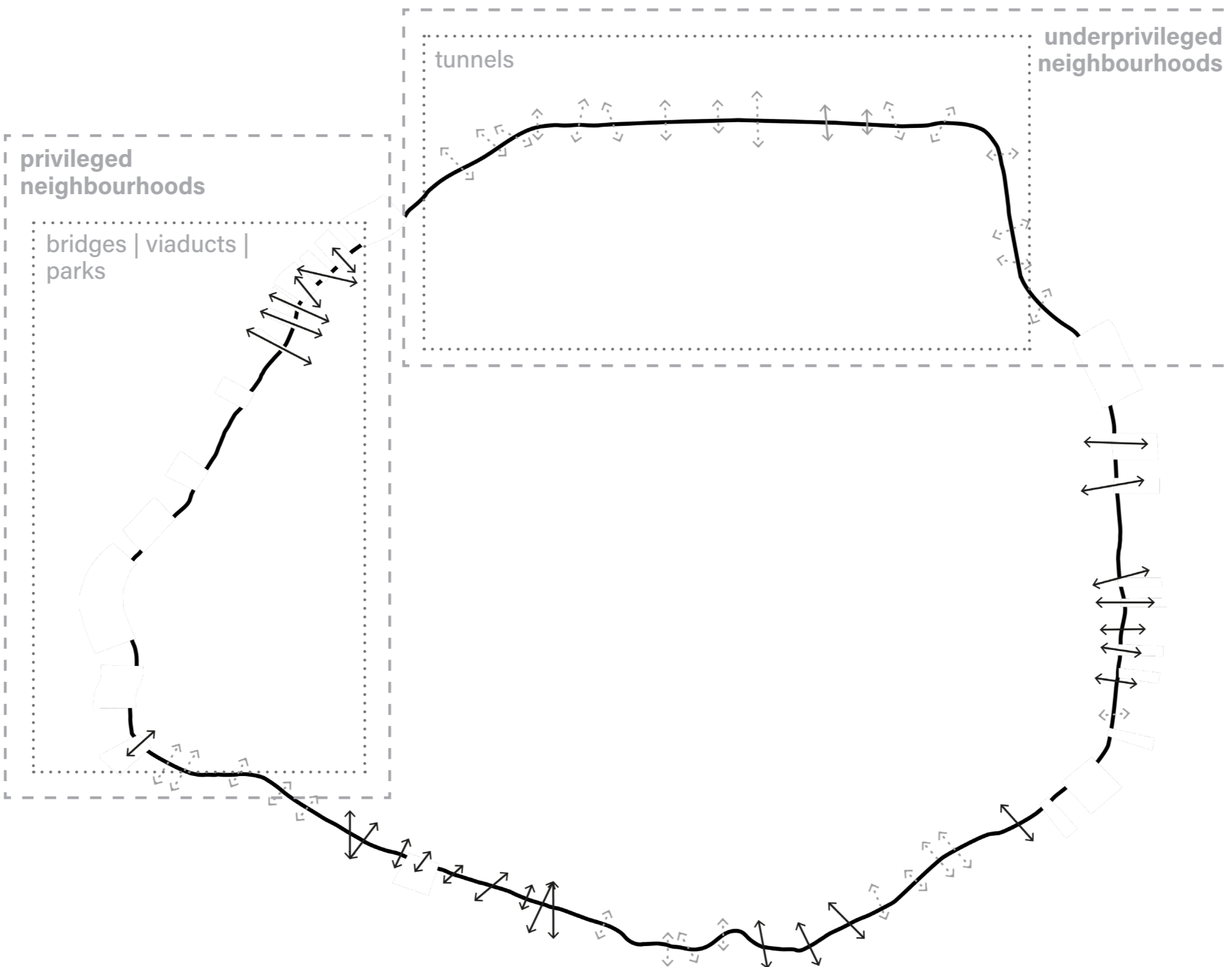


# social role

indicator of the  
socio-spatial structure







**symbolic  
role**

boundary of  
city governance

**“[...] can Paris overcome its inner boundary, and  
convince inhabitants of Paris Proper and the  
suburbs that they are all Parisiens?”**






**- Justinien Tribillon, The Guardian, 2015  
urbanist and writer**

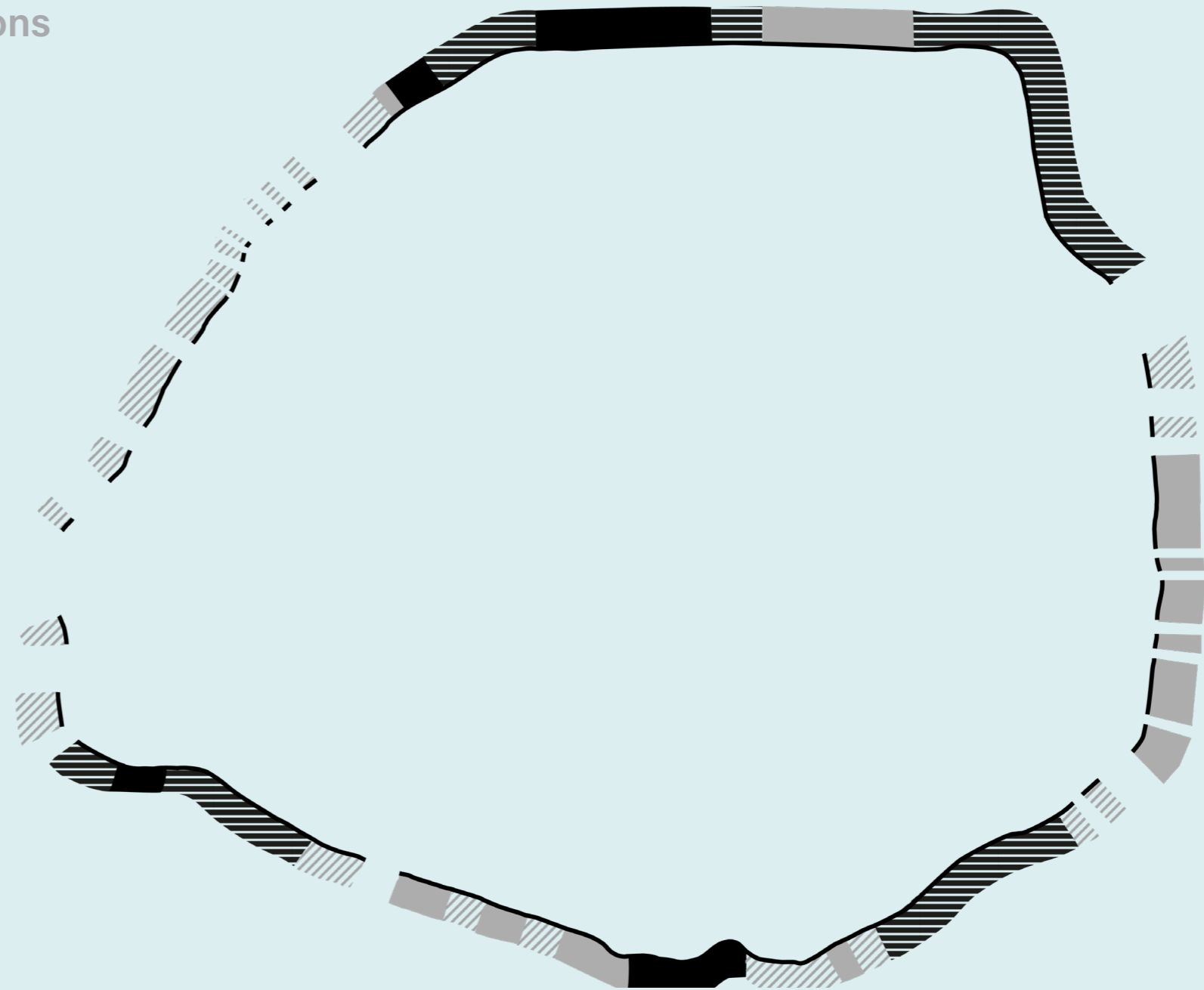
# layer 01

## typologies | structural conditions

### typology

structural conditions

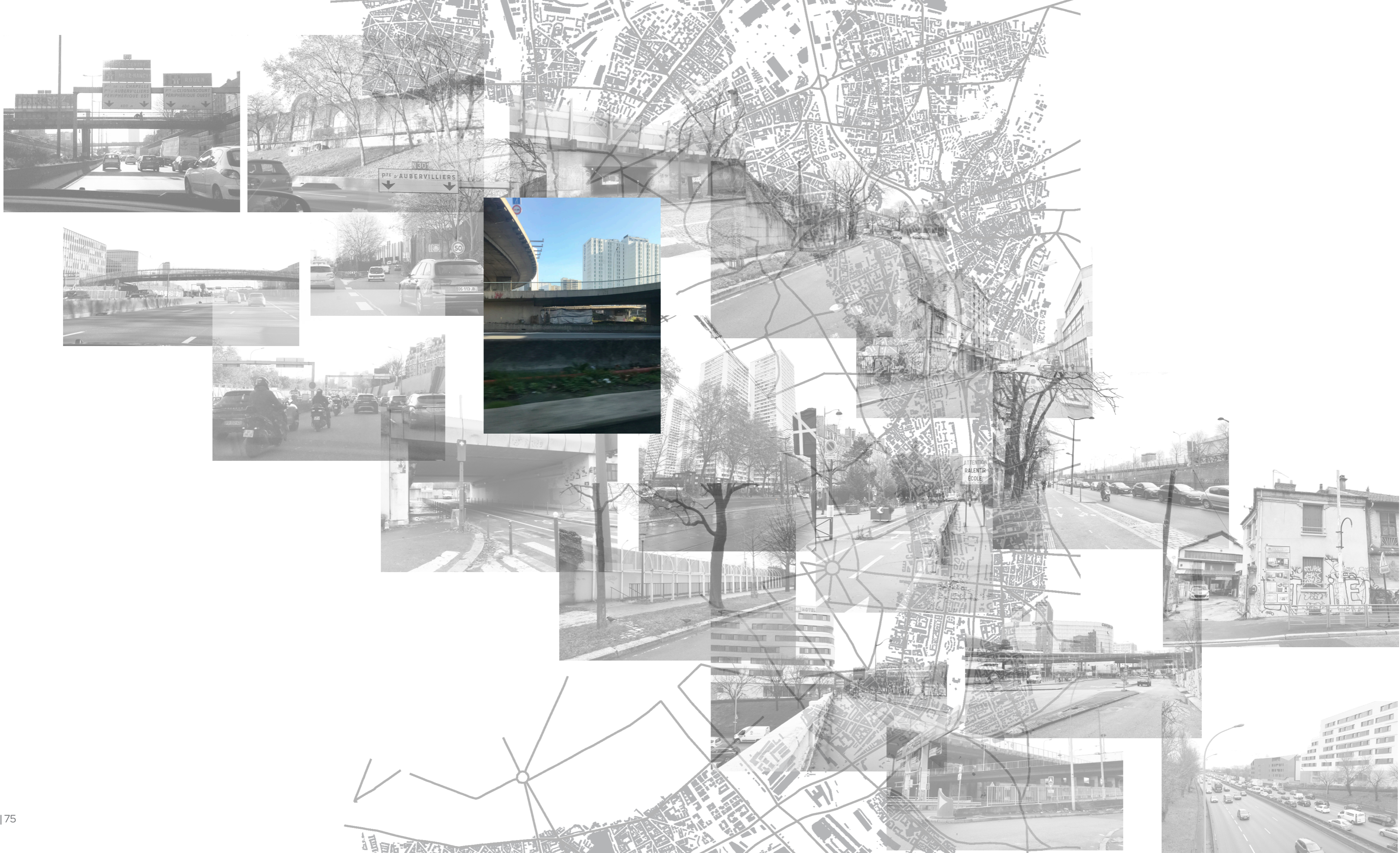
-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered



# **understanding the contextual needs**



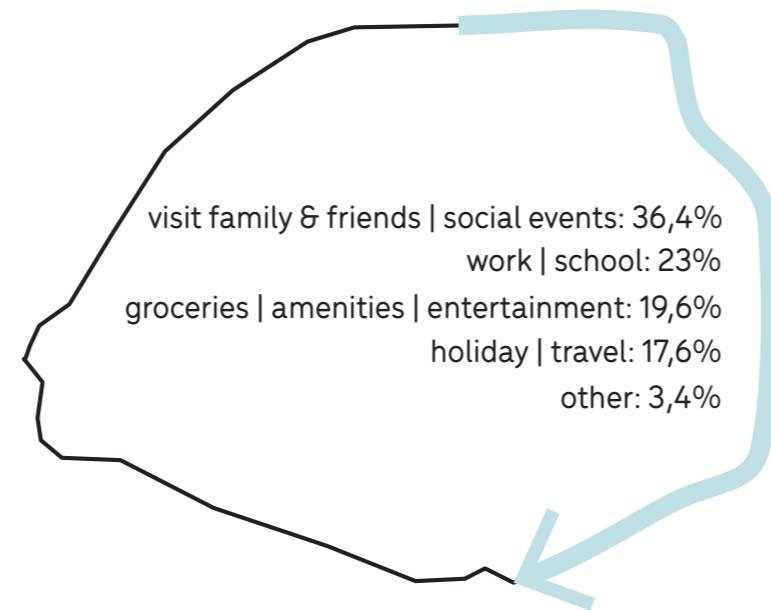




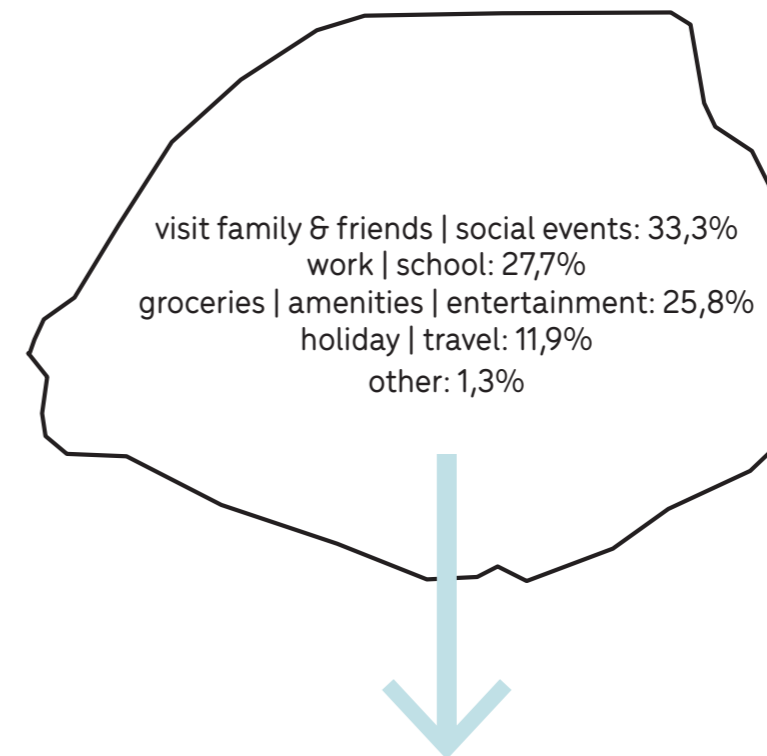




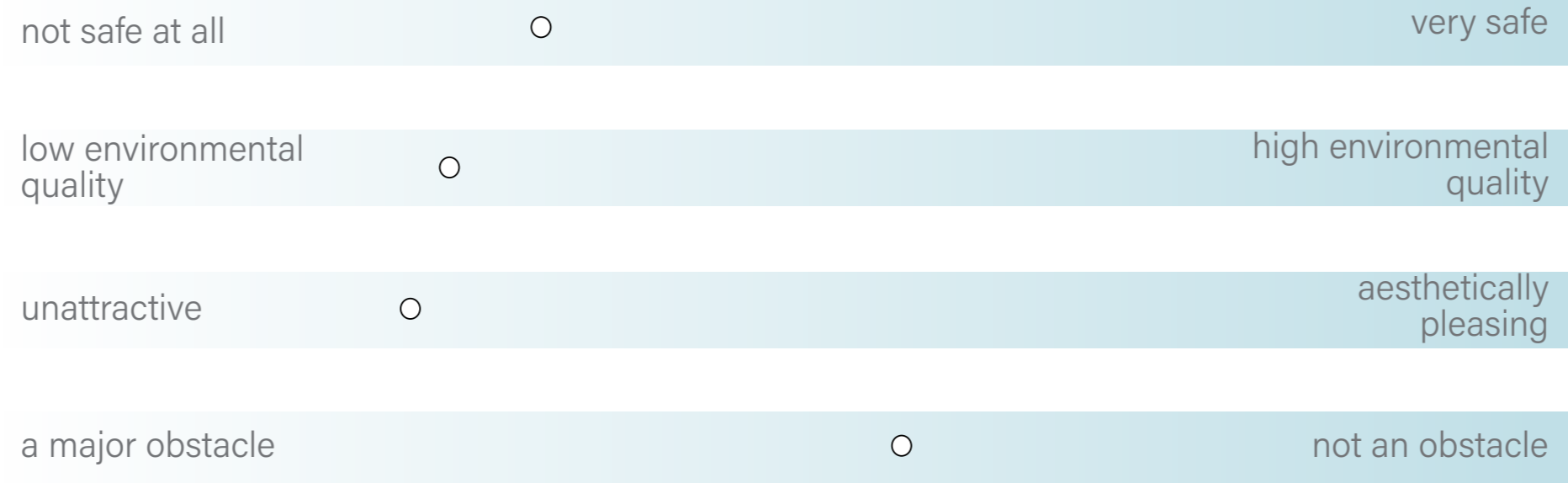
# the perception of users



self-designed survey  
January 2021  
75 respondents

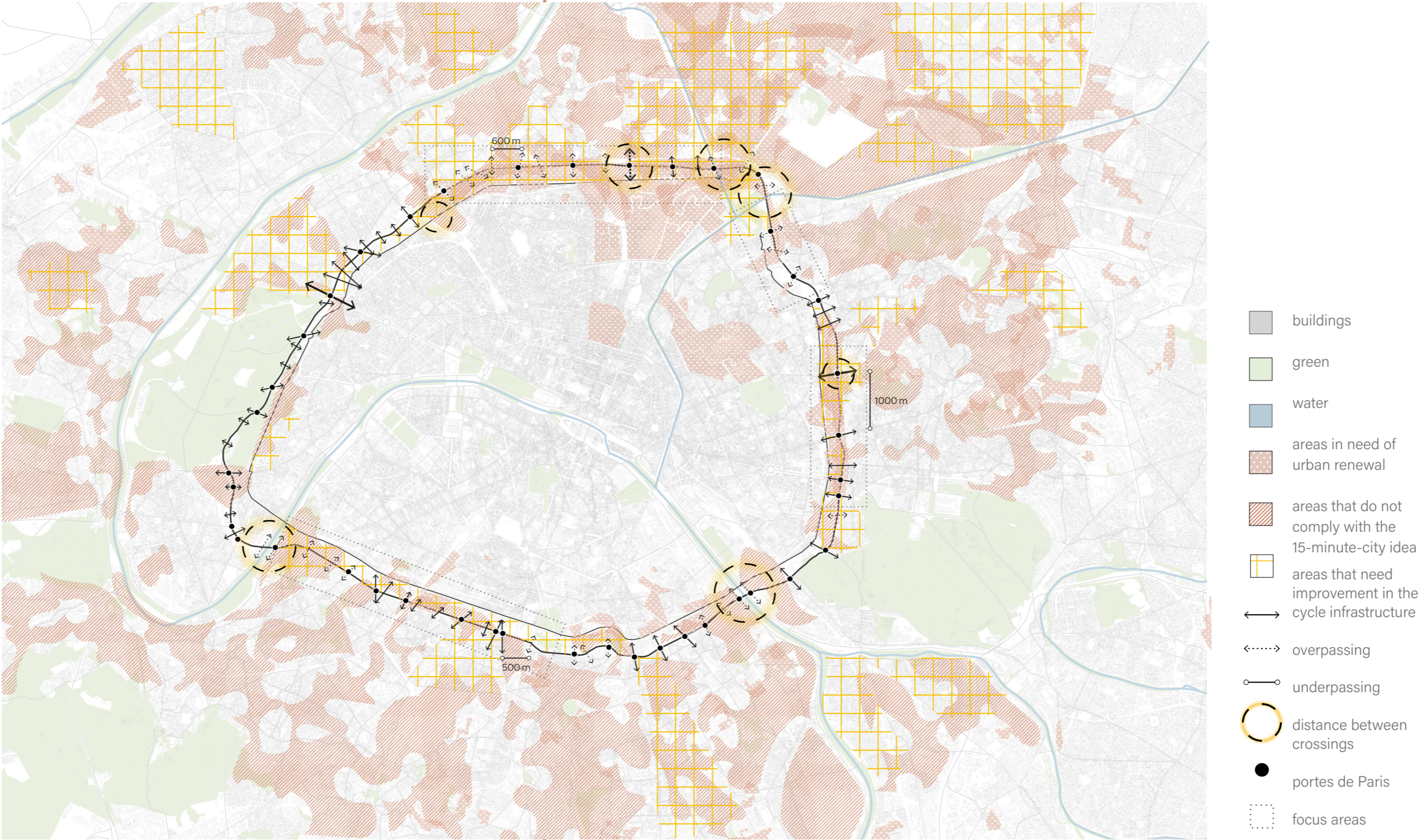


# the perception of users



self-designed survey  
January 2021  
75 respondents

# map of the problematique








# layer 02

## context | redevelopment needs



### typology

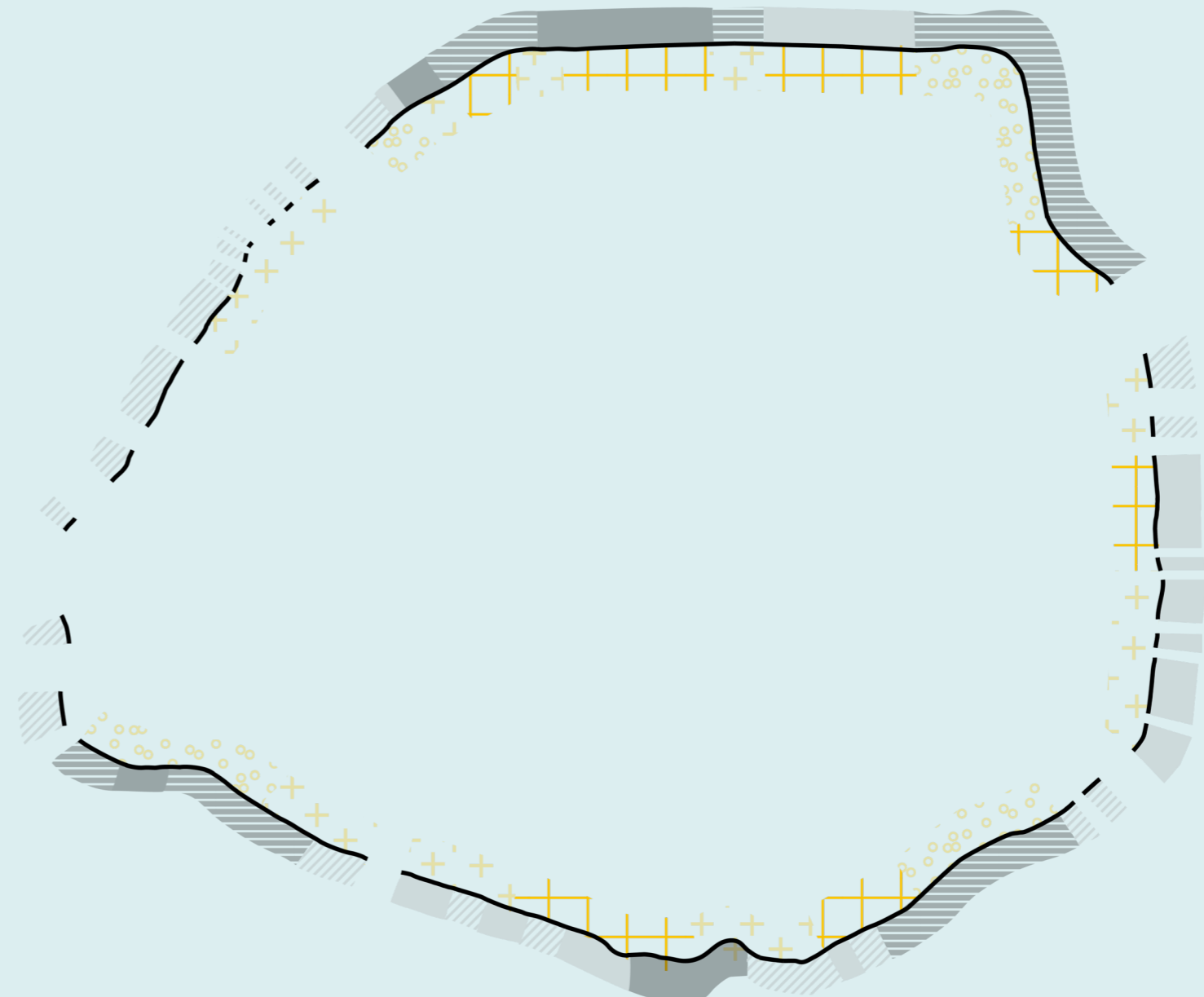
structural conditions

-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered

### context

redevelopment needs

-  change
-  improve
-  soften
-  use








# layer 02

## context | redevelopment needs

### typology

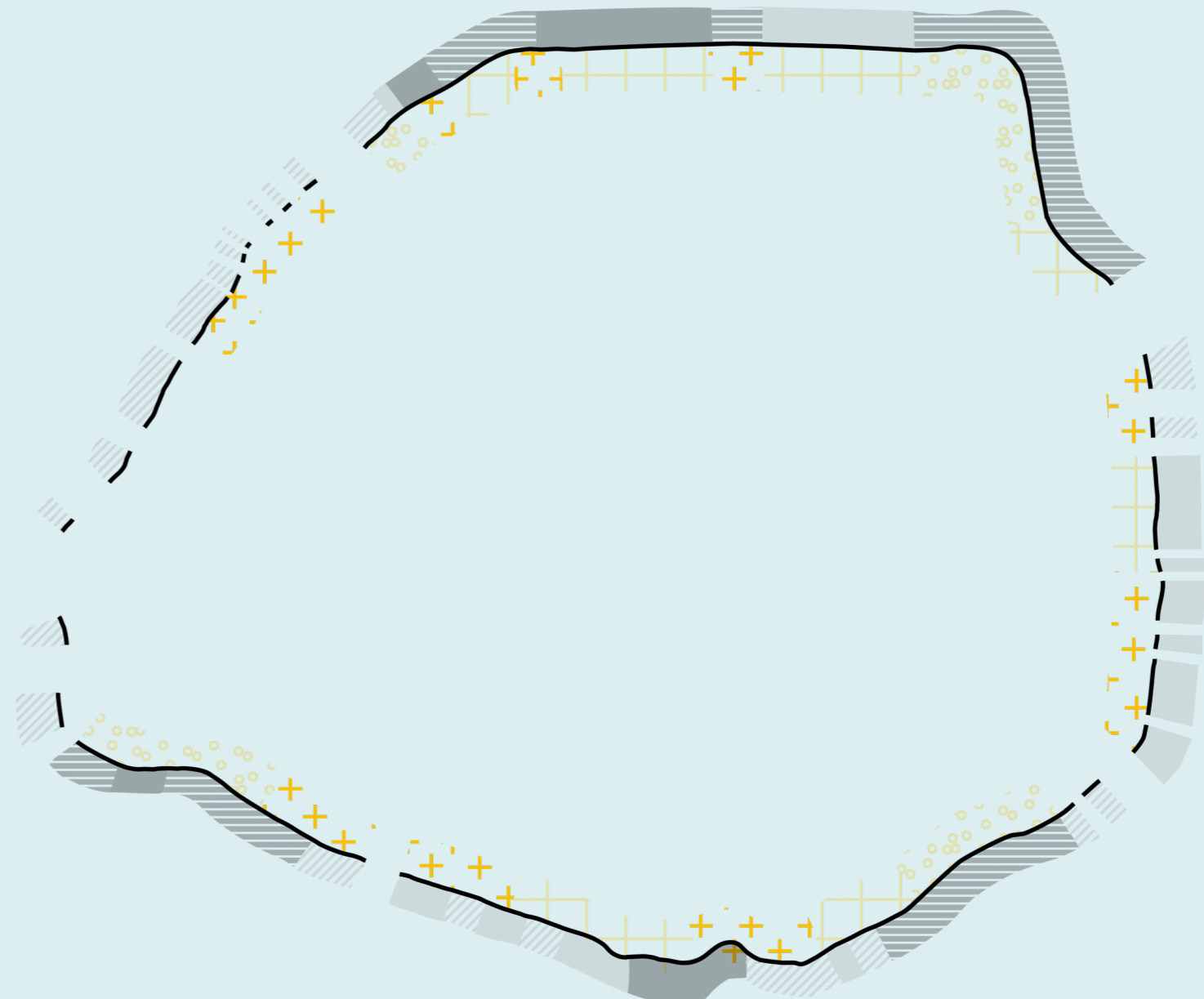
structural conditions

-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered

### context

redevelopment needs

-  change
-  improve
-  soften
-  use








# layer 02

## context | redevelopment needs



### typology

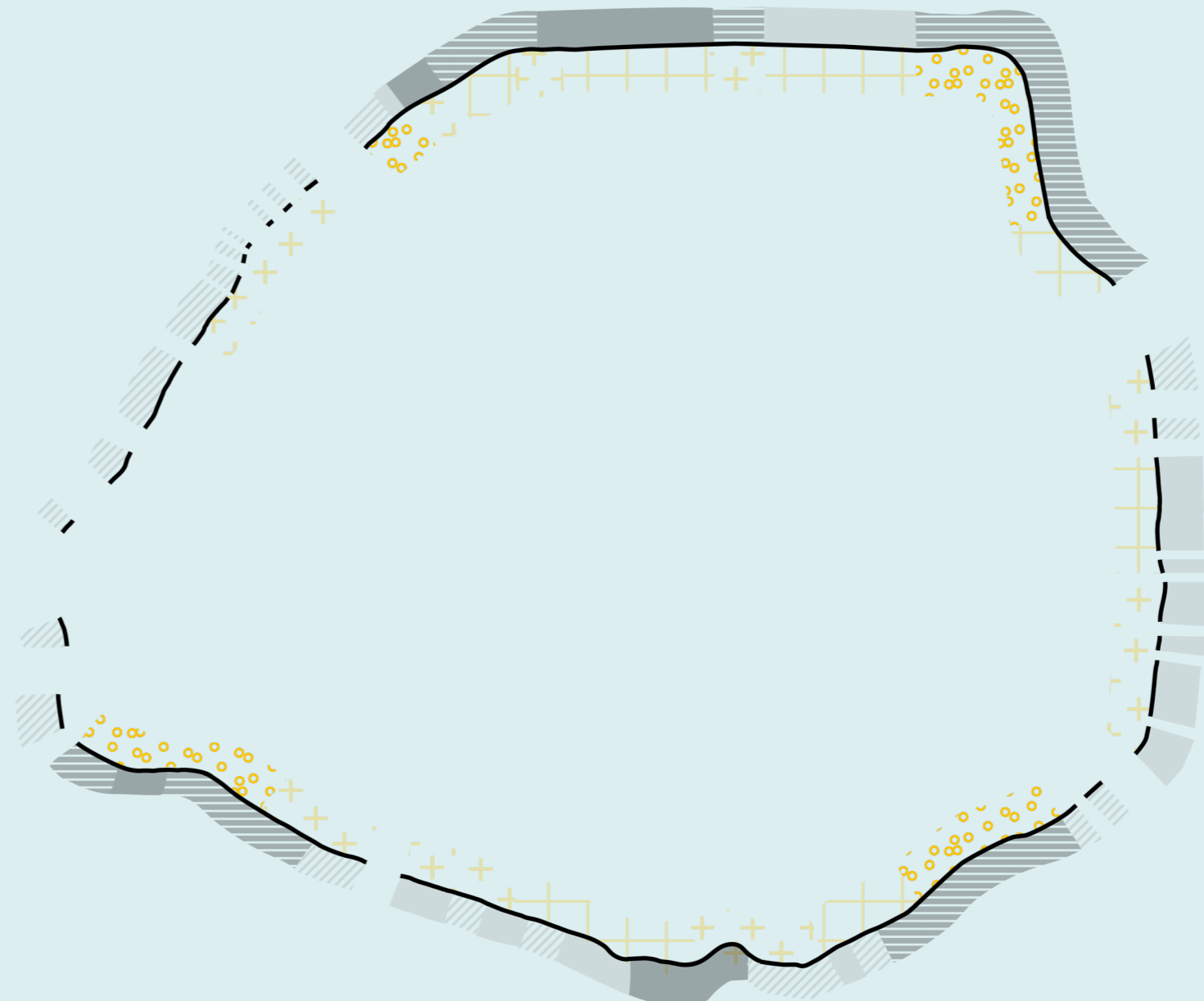
structural conditions

-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered

### context

redevelopment needs

-  change
-  improve
-  soften
-  use








# layer 02

## context | redevelopment needs


### typology

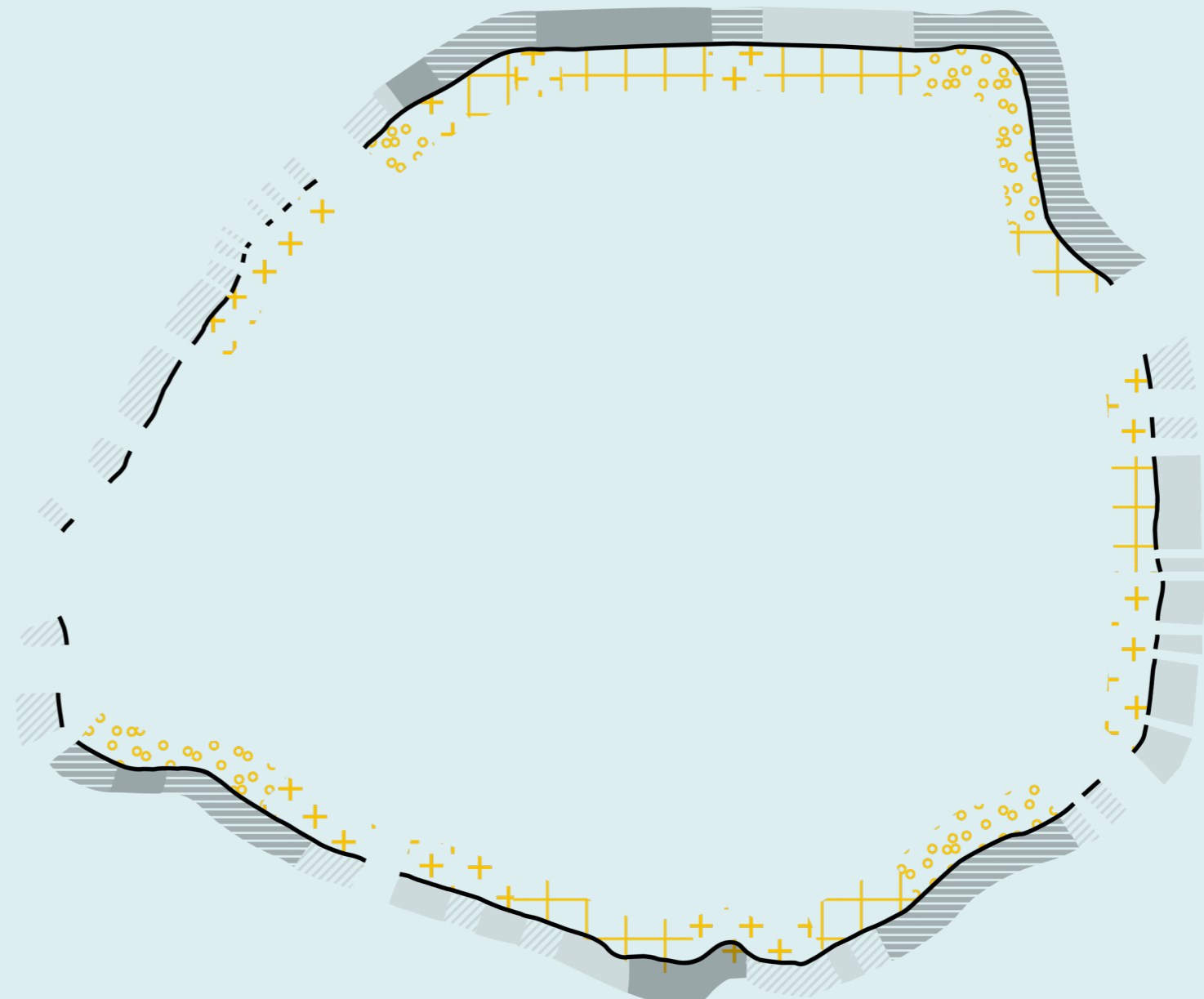
structural conditions

-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered

### context

redevelopment needs

-  change
-  improve
-  soften
-  use



## treatment



spatial principles

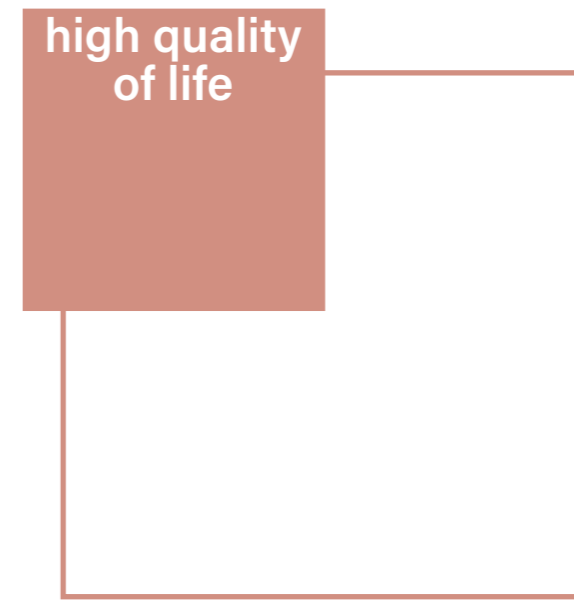
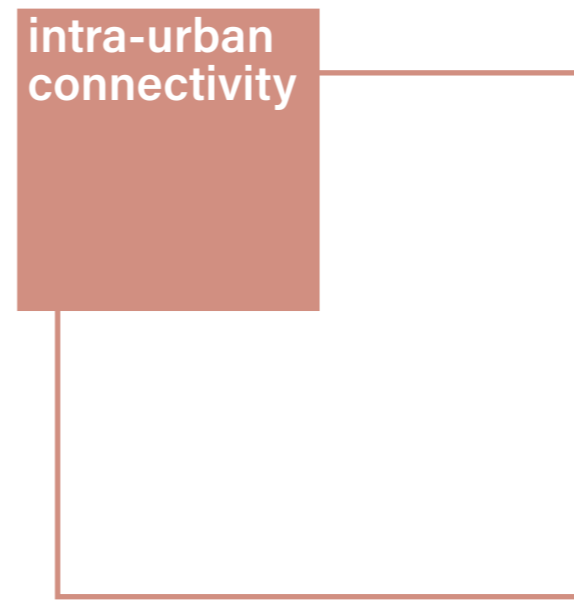
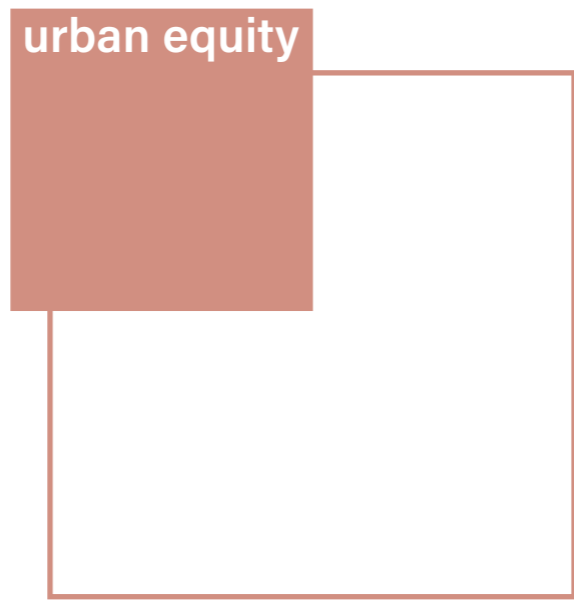
action

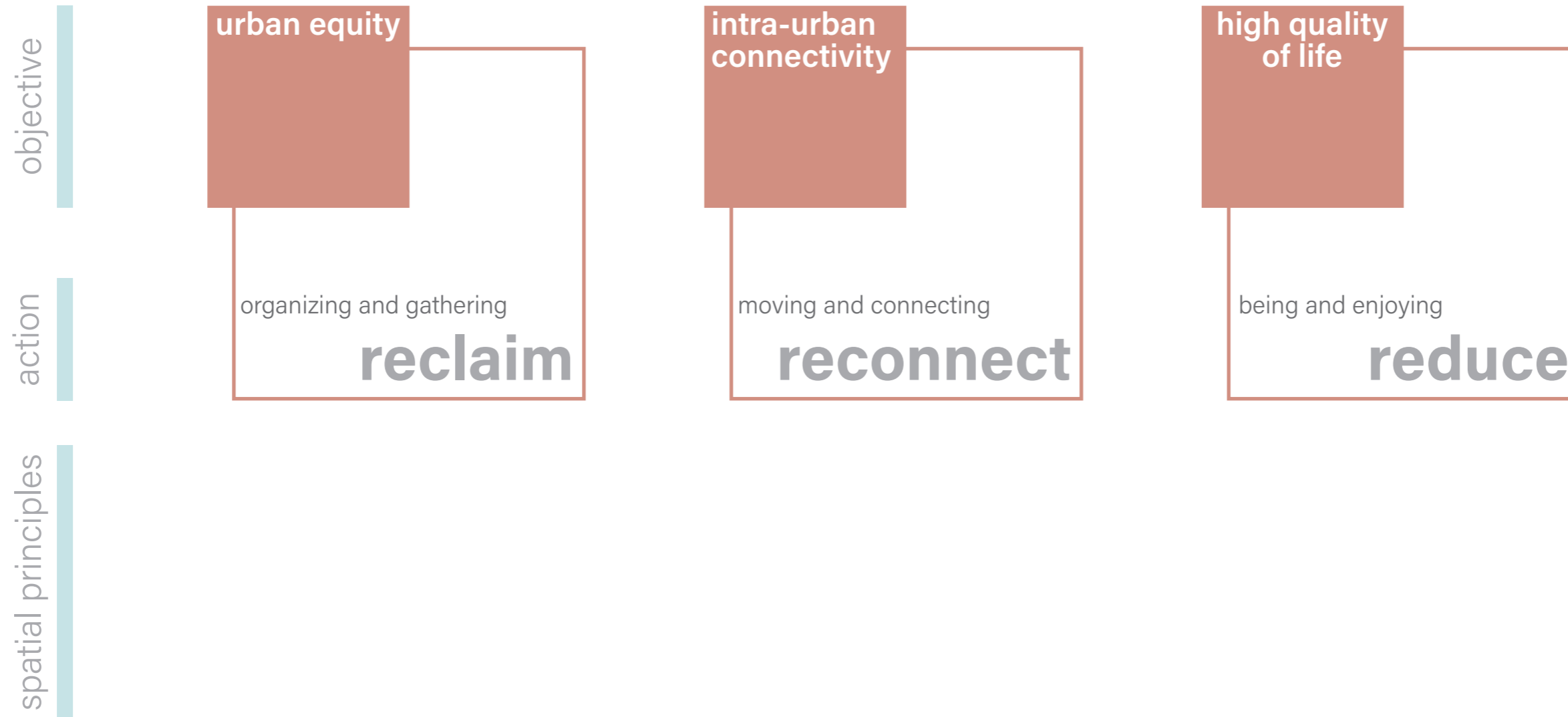
objective

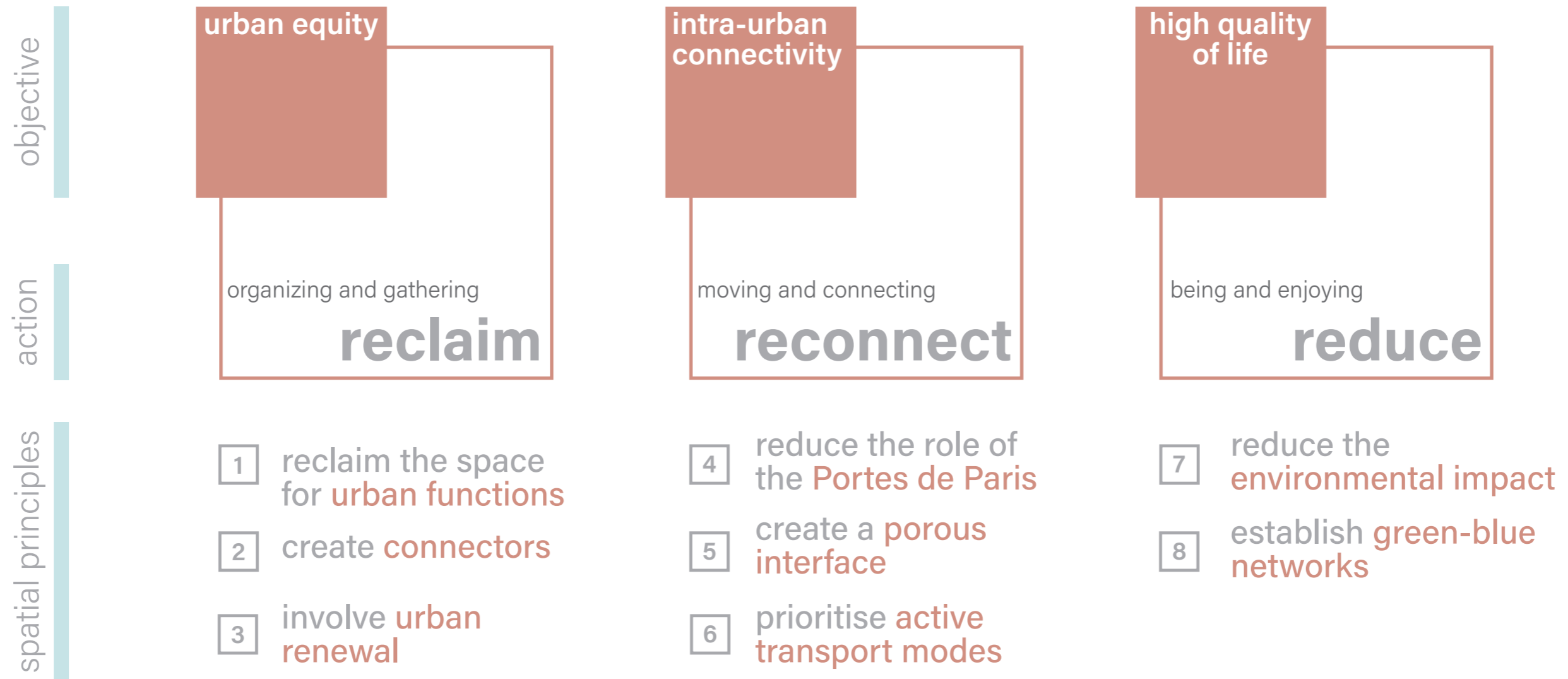
objective

action

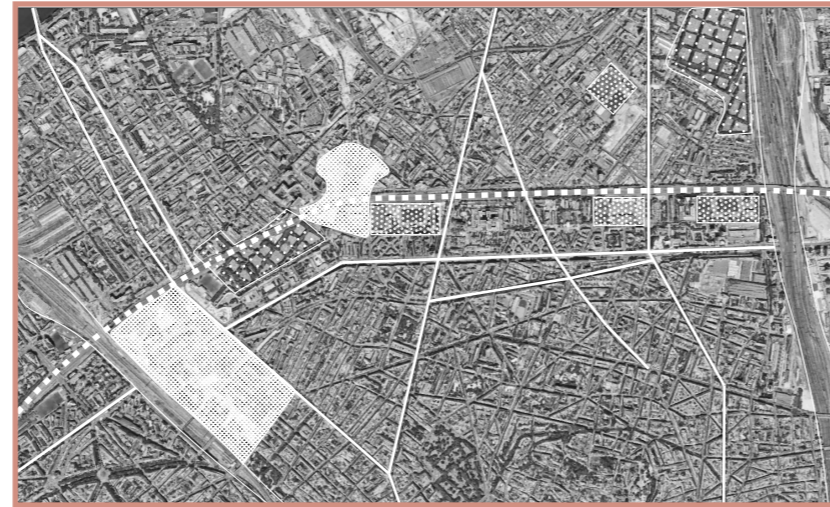
spatial principles







**translating the general principles  
into spatial concepts**

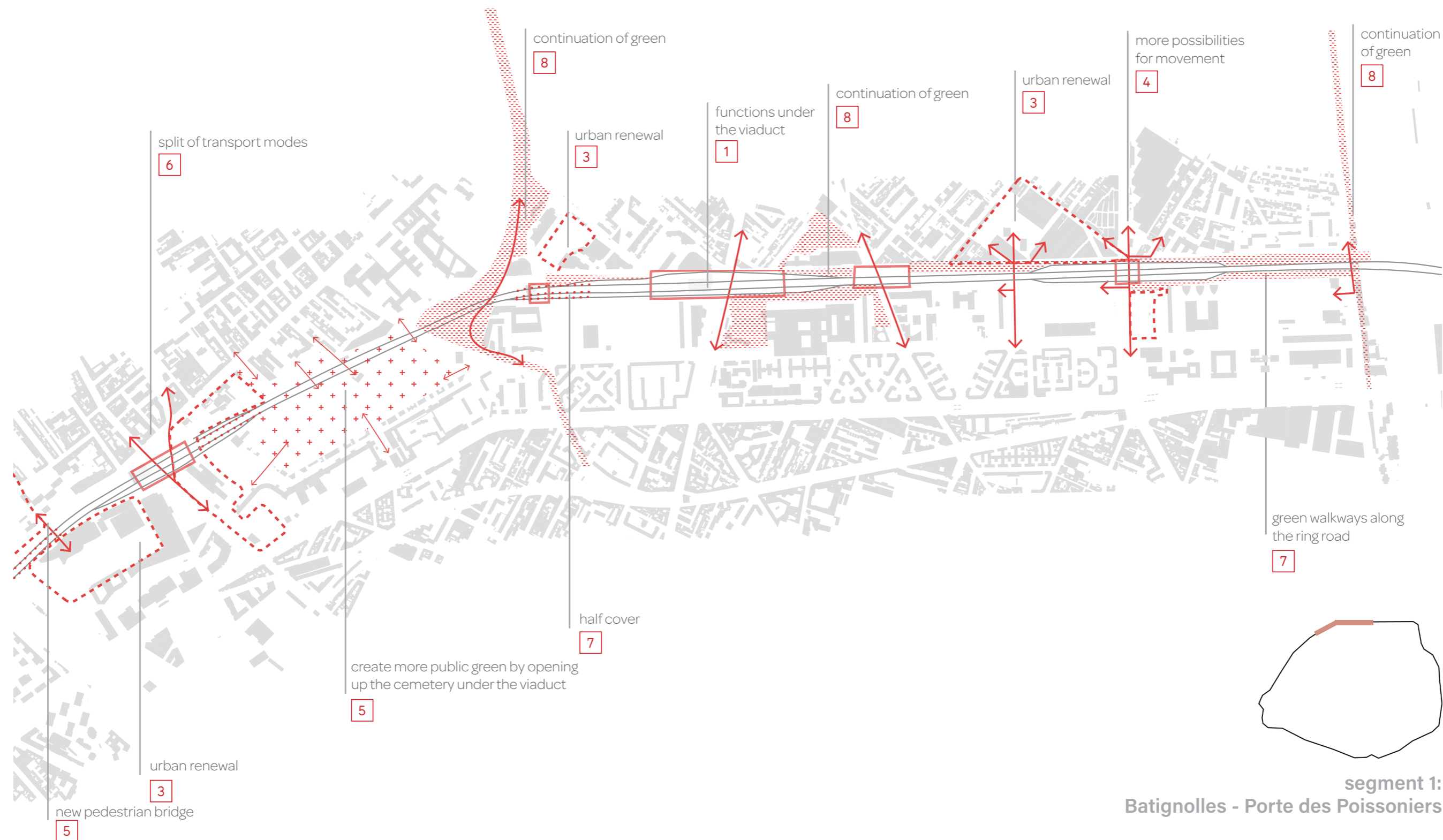


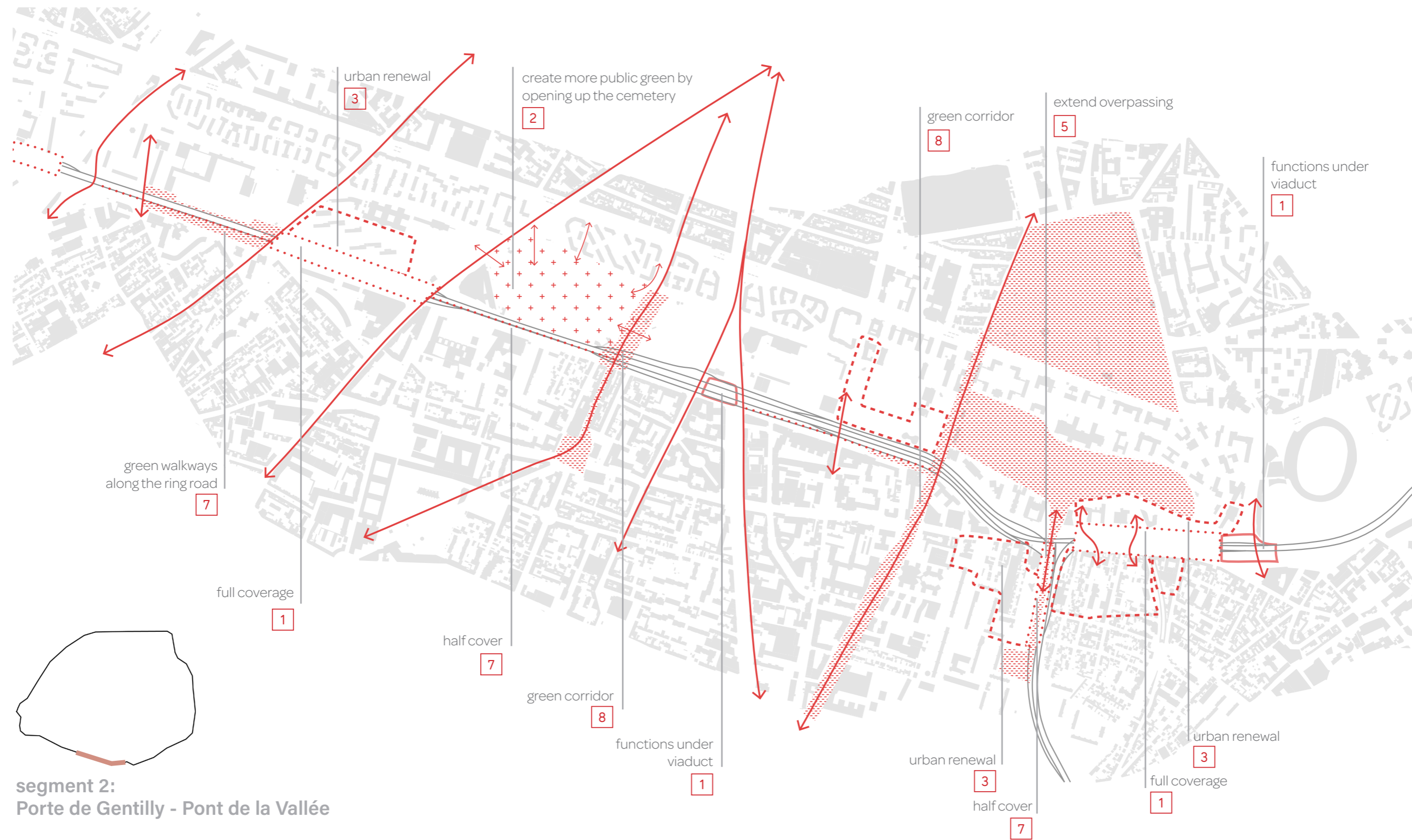
segment 1: Batignolles - Porte des Poissonniers

segment 2: Porte de Gentilly - Pont de la Vallée

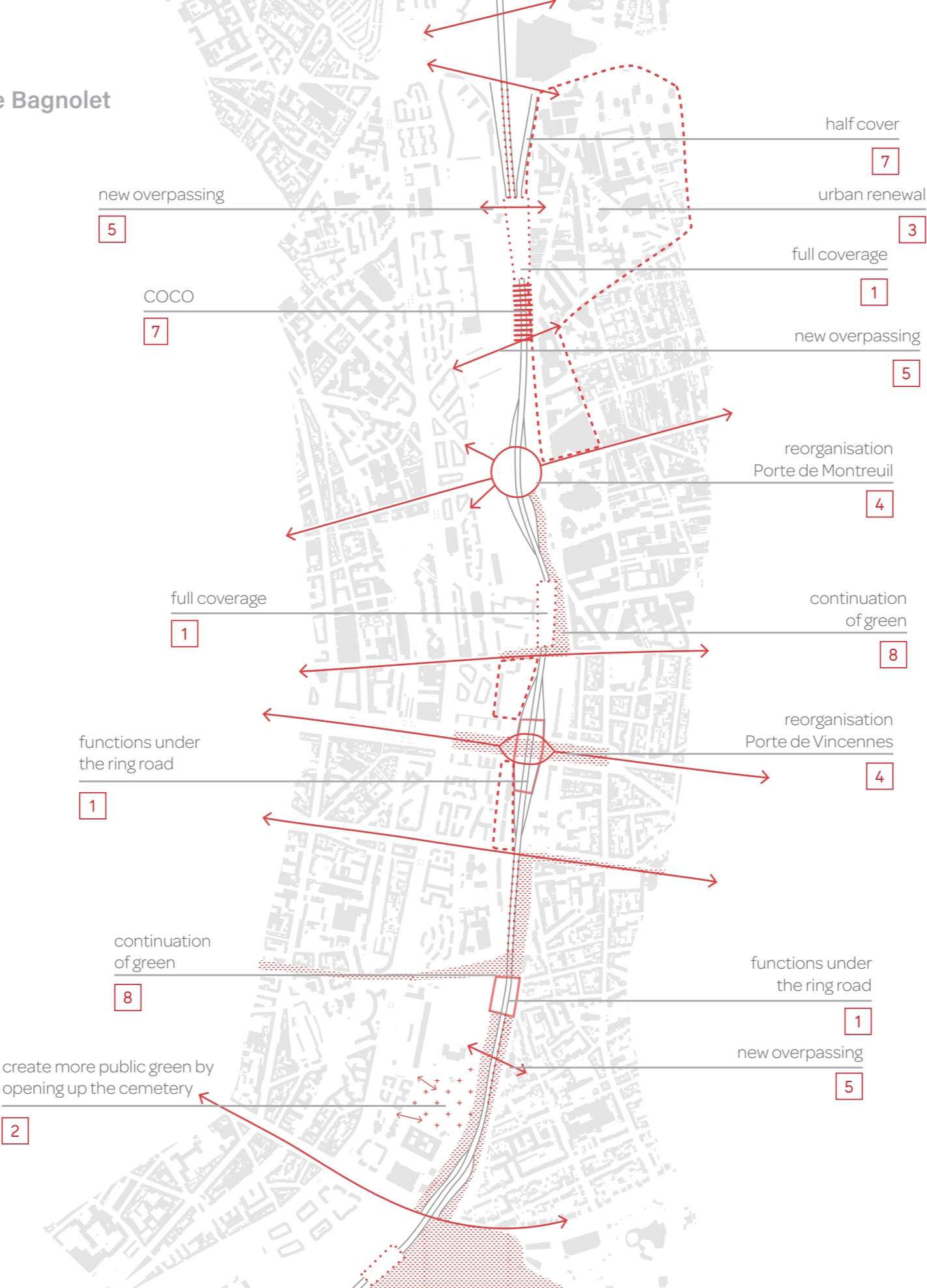
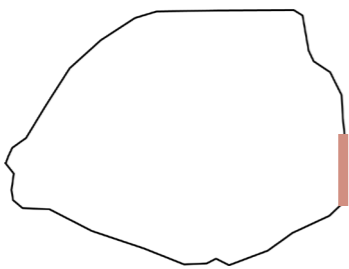


segment 3: Bois de Vincennes - Porte Bagnolet





segment 3:  
Bois de Vincennes - Porte de Bagnolet



# **expanding the spatial concepts**



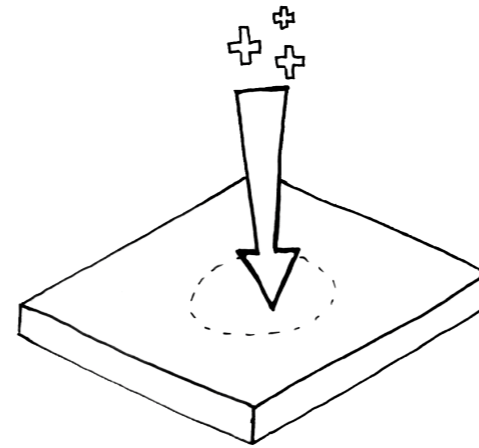
typology | structural conditions

	open viaduct	closed viaduct	open trench	on ground level
change				
improve				
soften				
use				

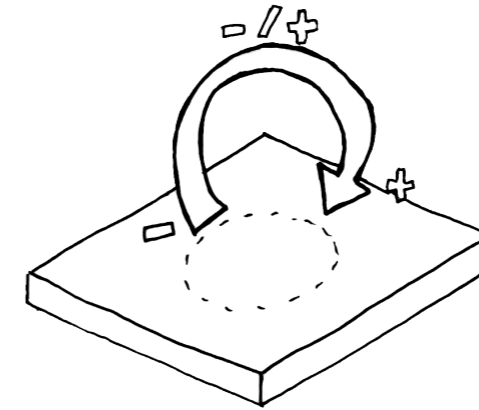
on ground level

# concepts

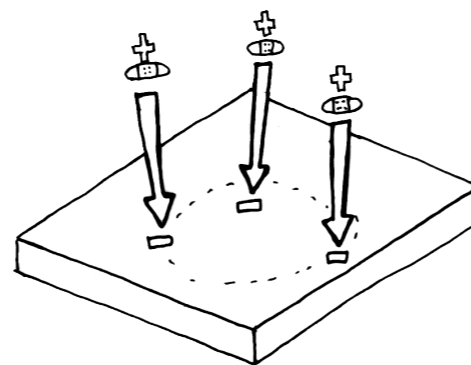
## intervention possibilities



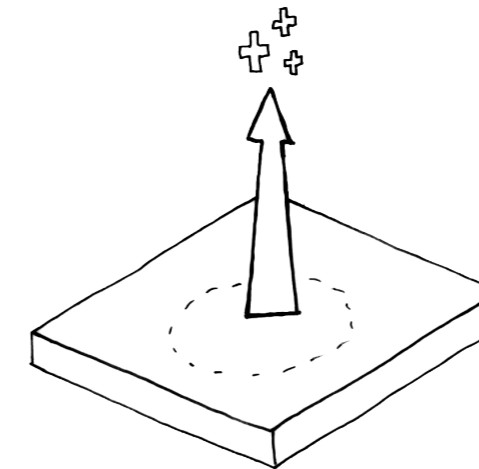
**CREATORS**  
urbanity / activity



**TRANSFORMERS**  
connectivity



**SOFTENERS**  
environmental impact

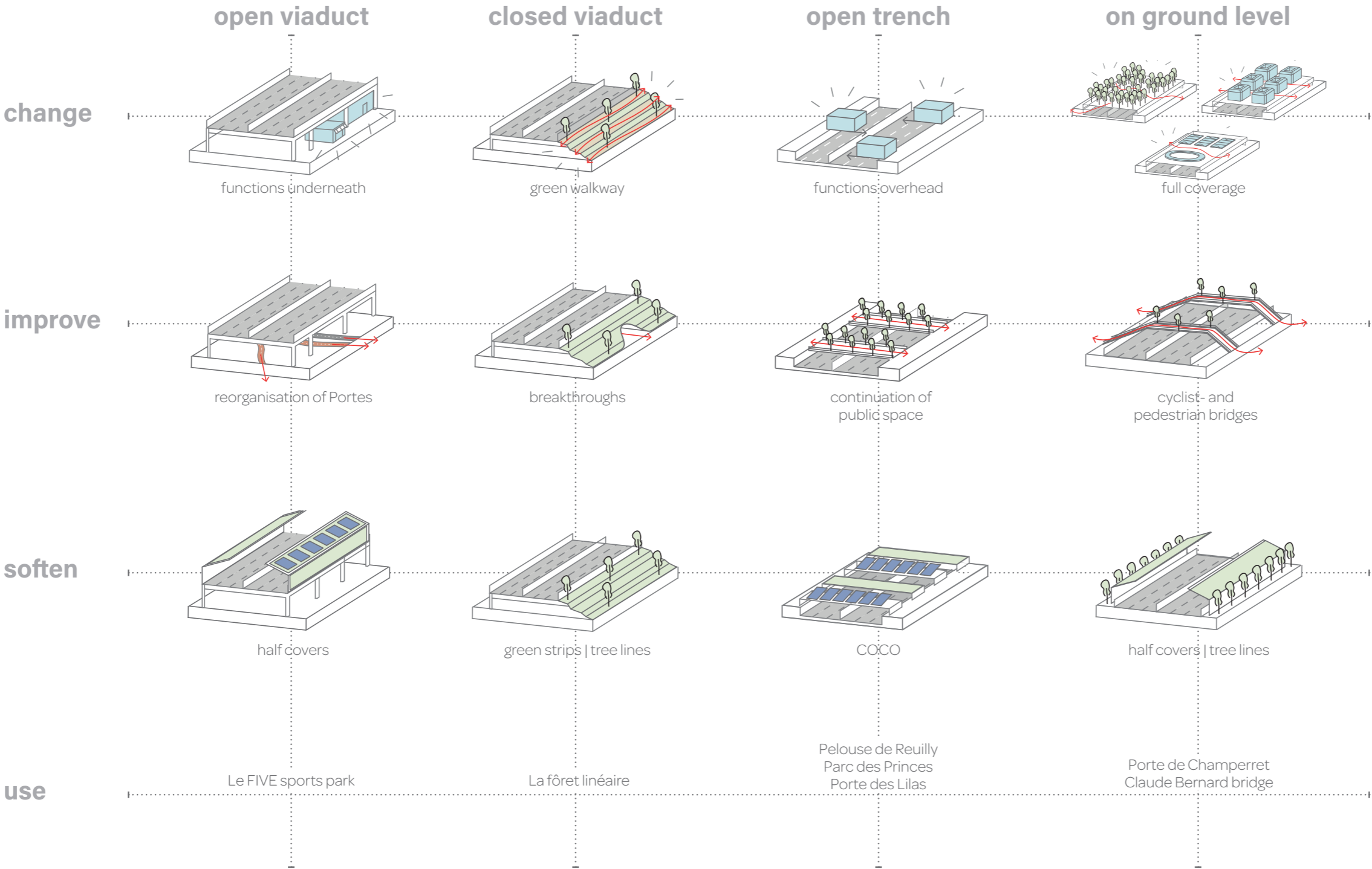


**PIONEERS**  
examples

typology | structural conditions

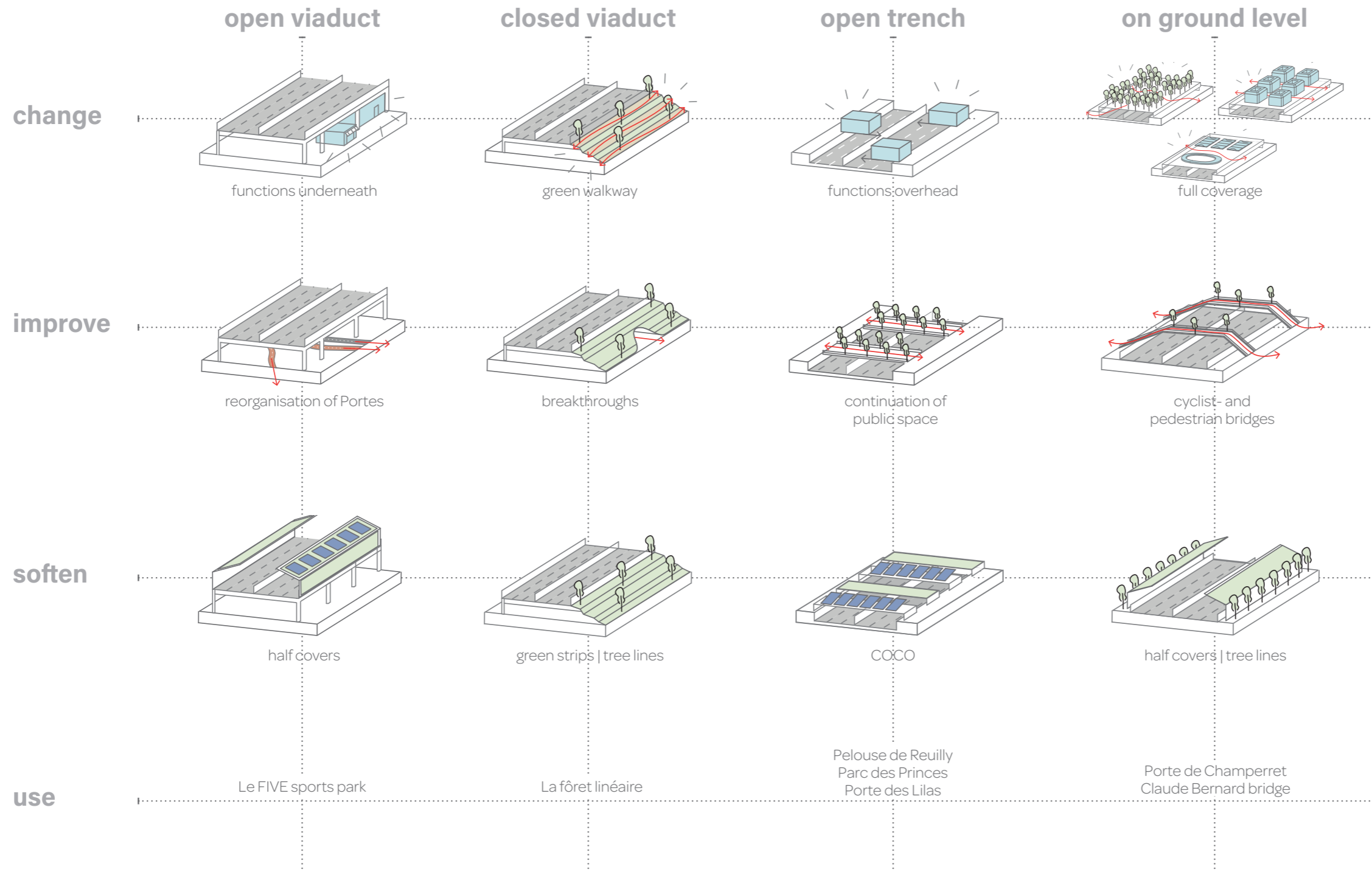
concept | intervention possibilities

context | redevelopment needs



# typology | structural conditions

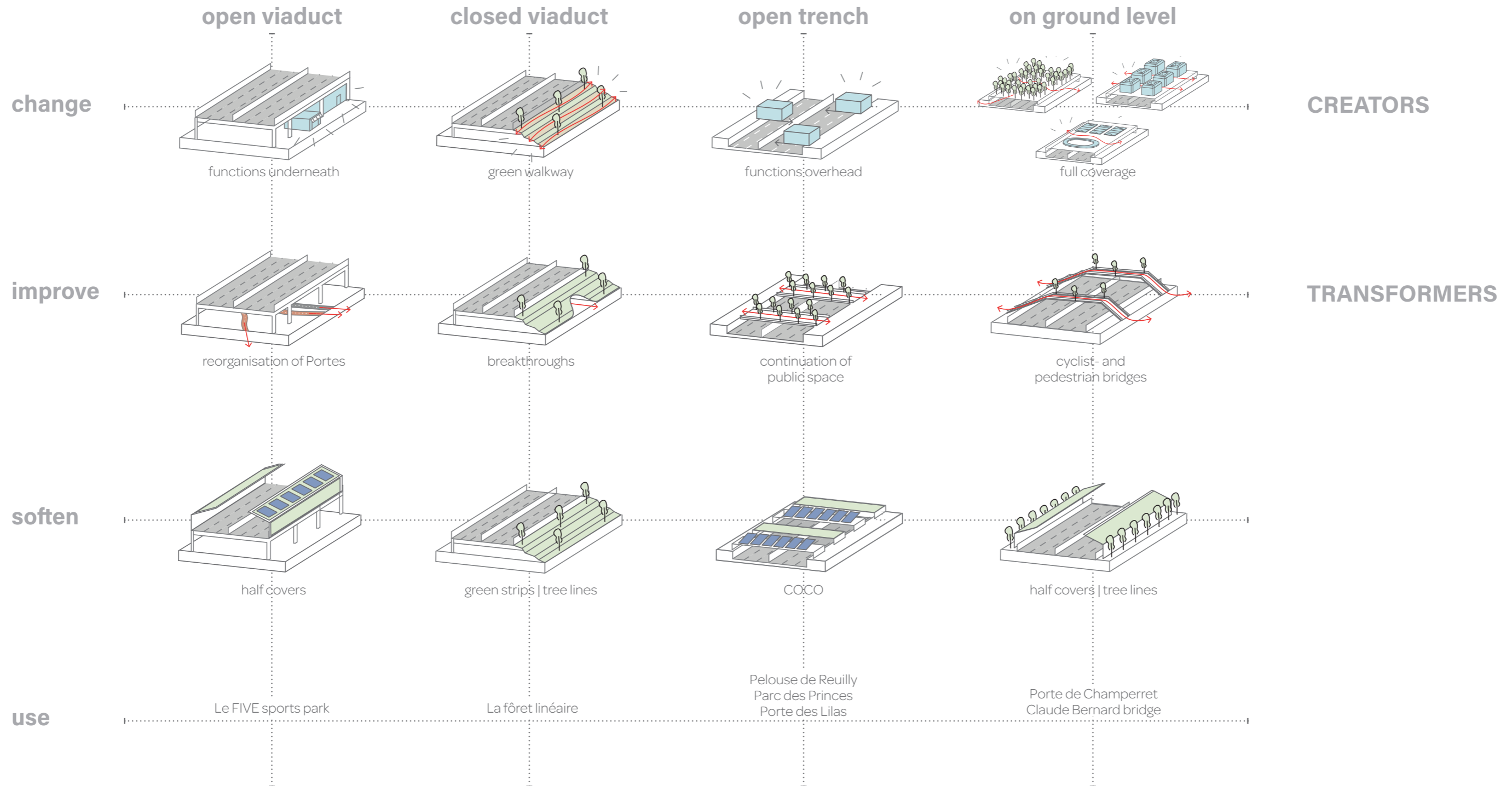
## concept | intervention possibilities



CREATORS

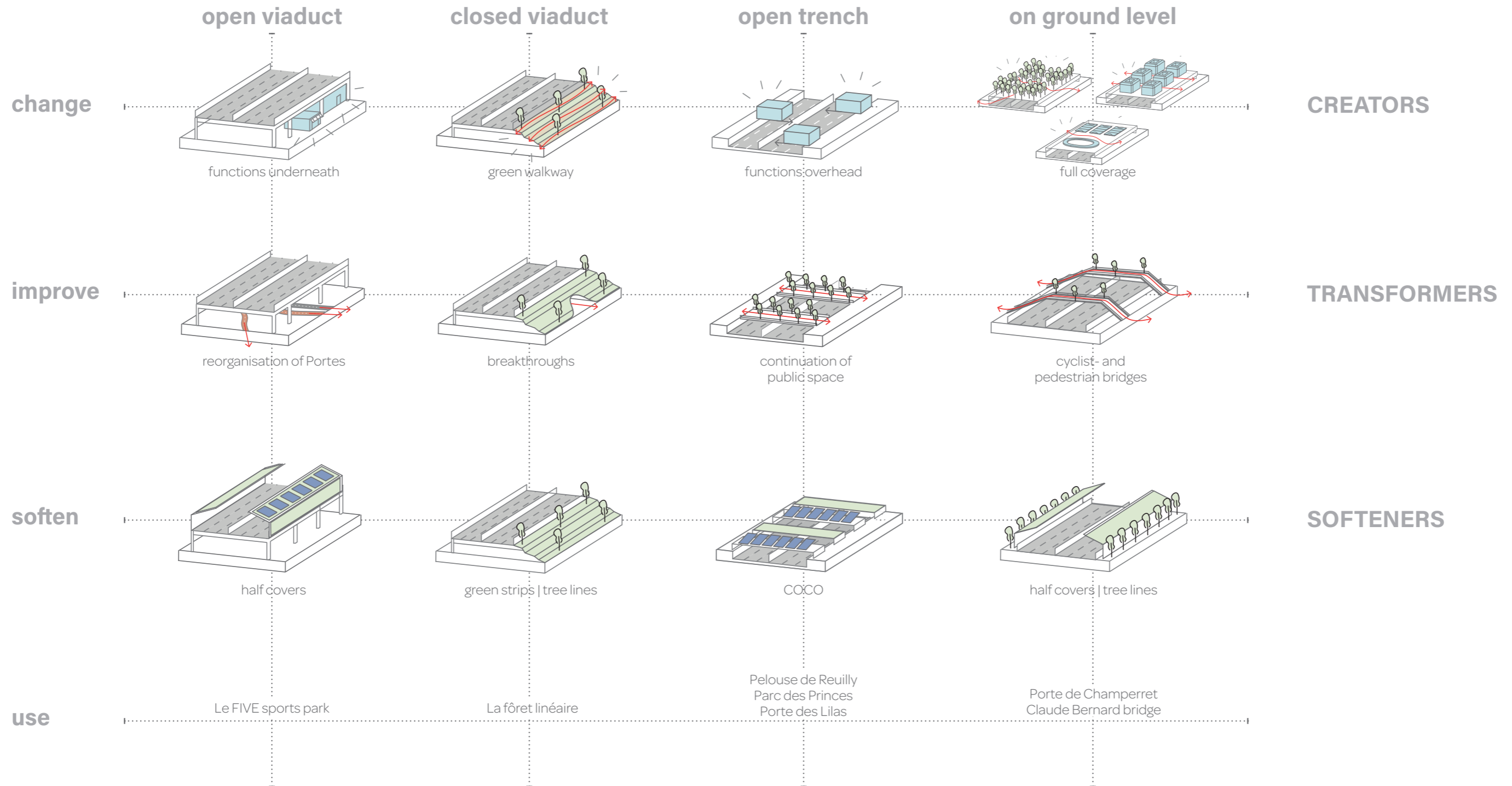
# typology | structural conditions

## concept | intervention possibilities



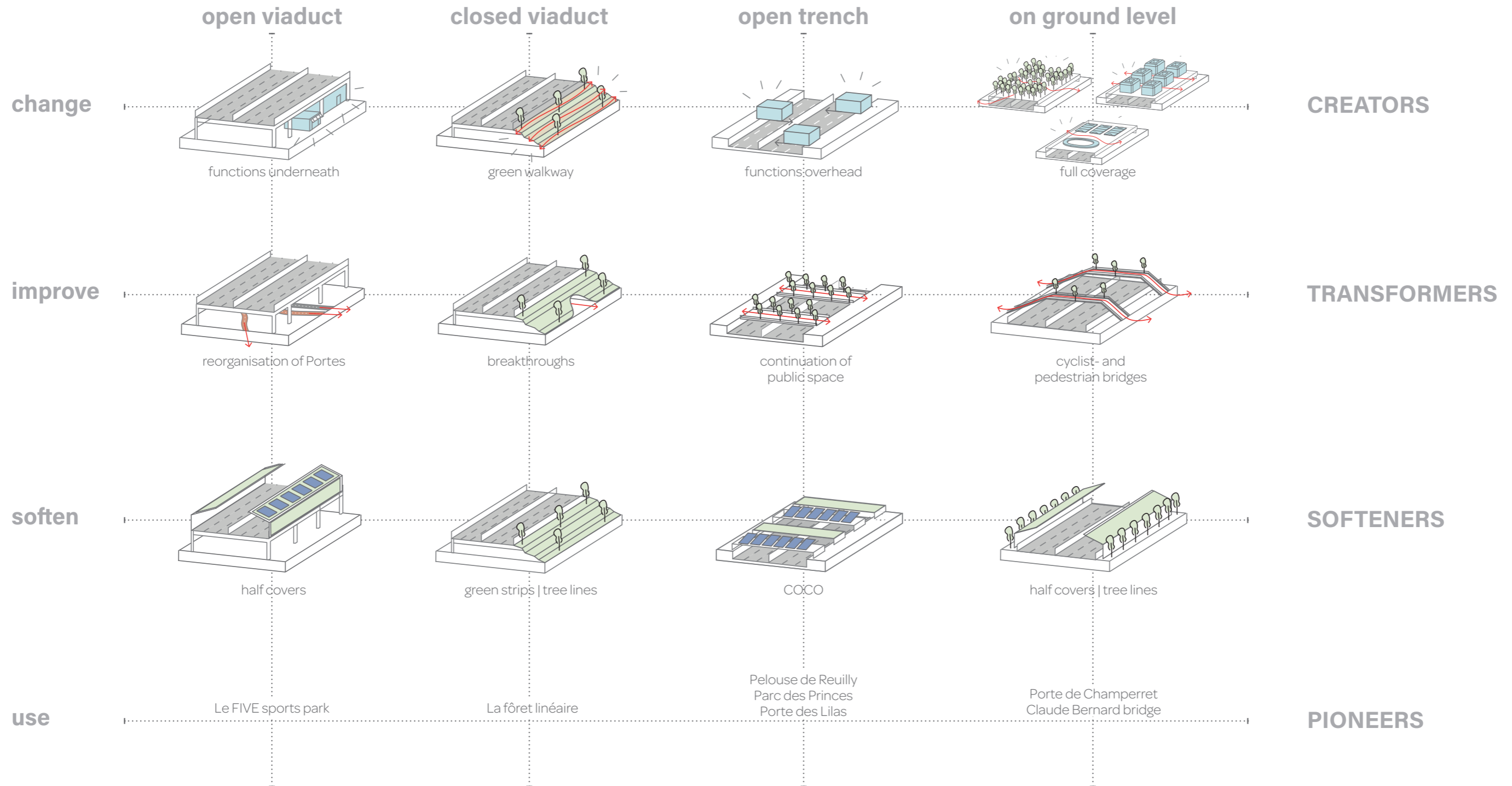
# typology | structural conditions

## concept | intervention possibilities



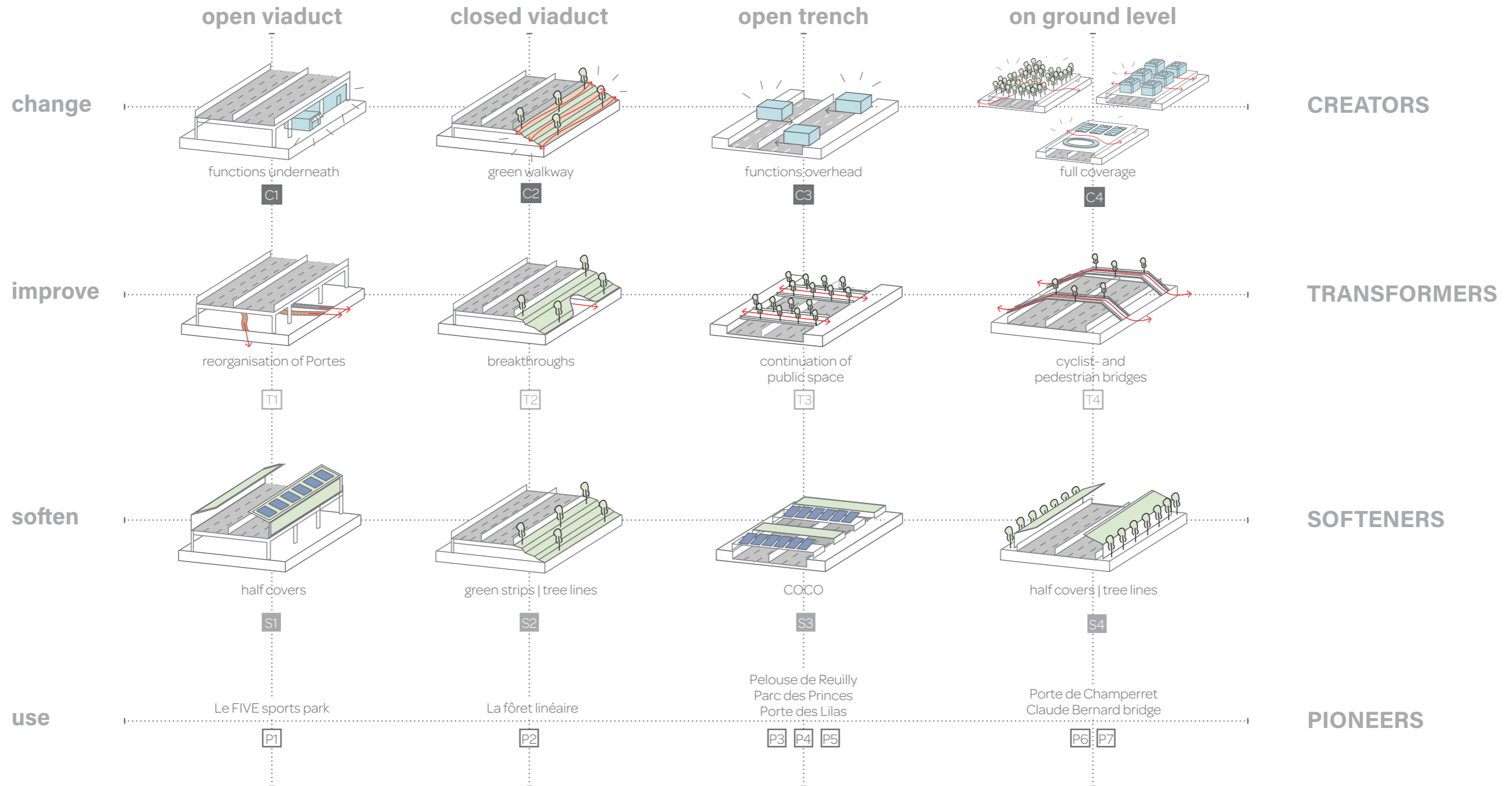
# typology | structural conditions

## concept | intervention possibilities

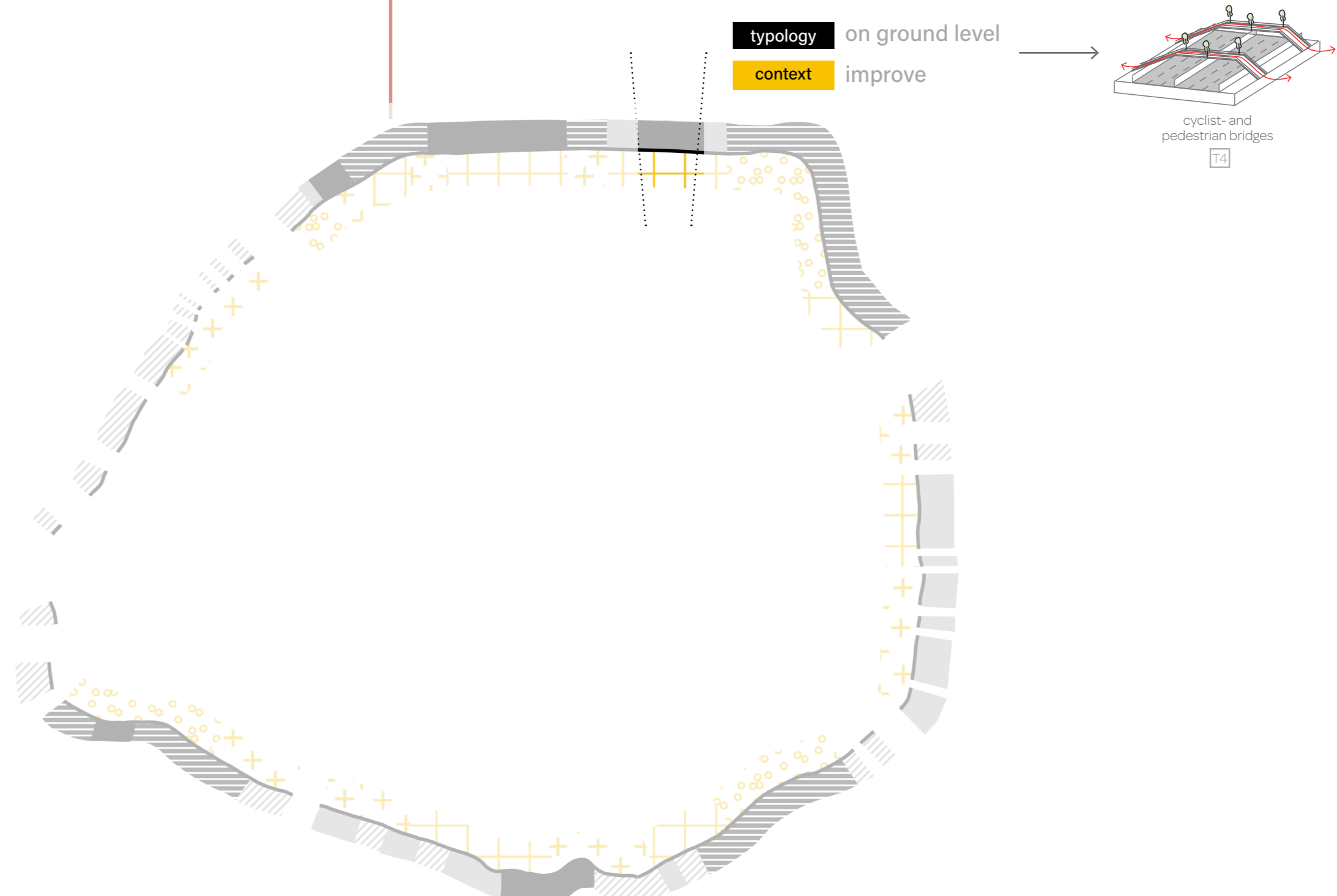


# typology | structural conditions

## concept | intervention possibilities

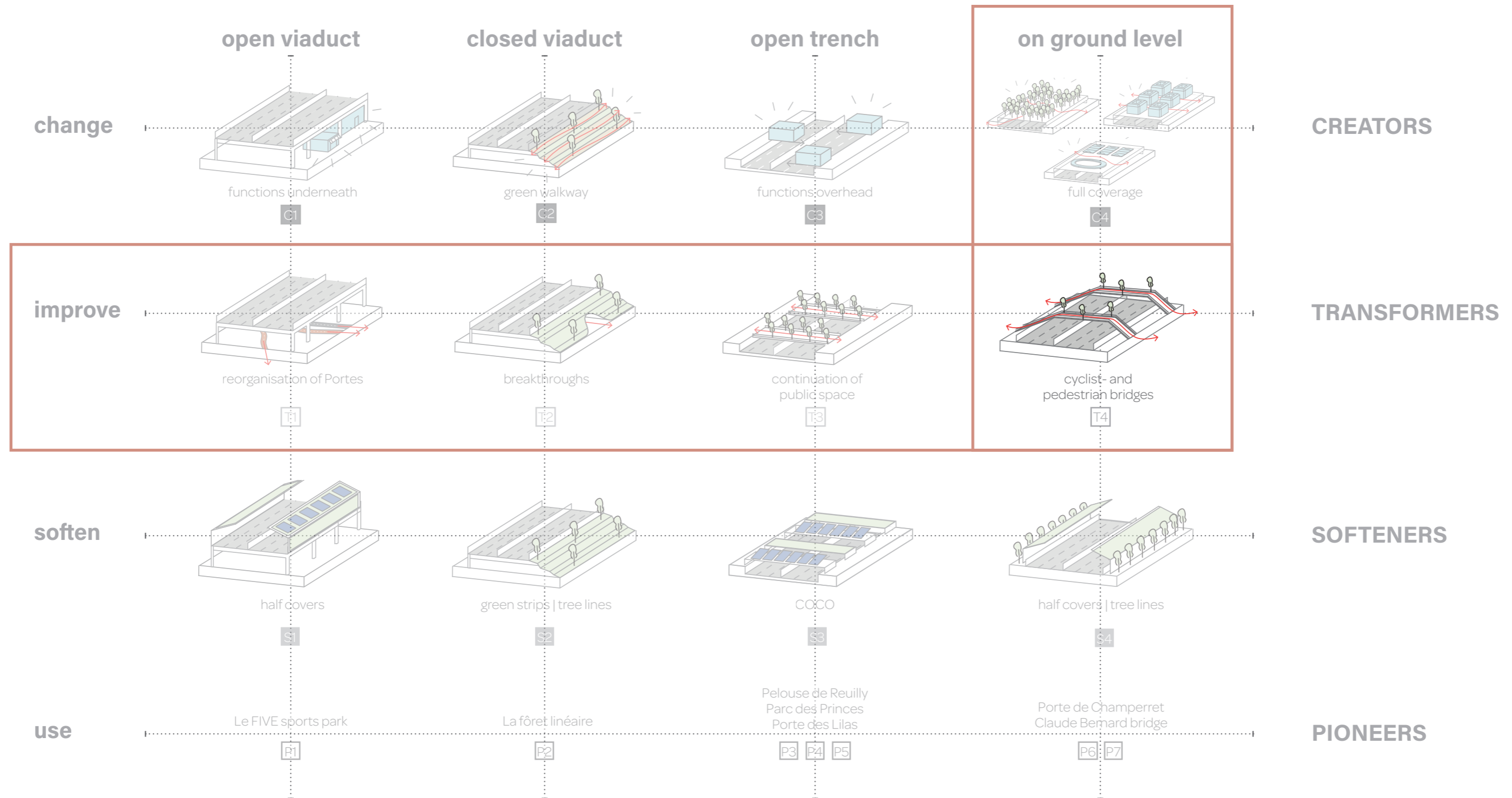


# example



# typology | structural conditions

## concept | intervention possibilities








# layer 03

## concept | intervention possibilities

### typology

structural conditions

-  elevated (closed viaduct)
-  elevated (open viaduct)
-  on ground level
-  in an open trench
-  covered





### context

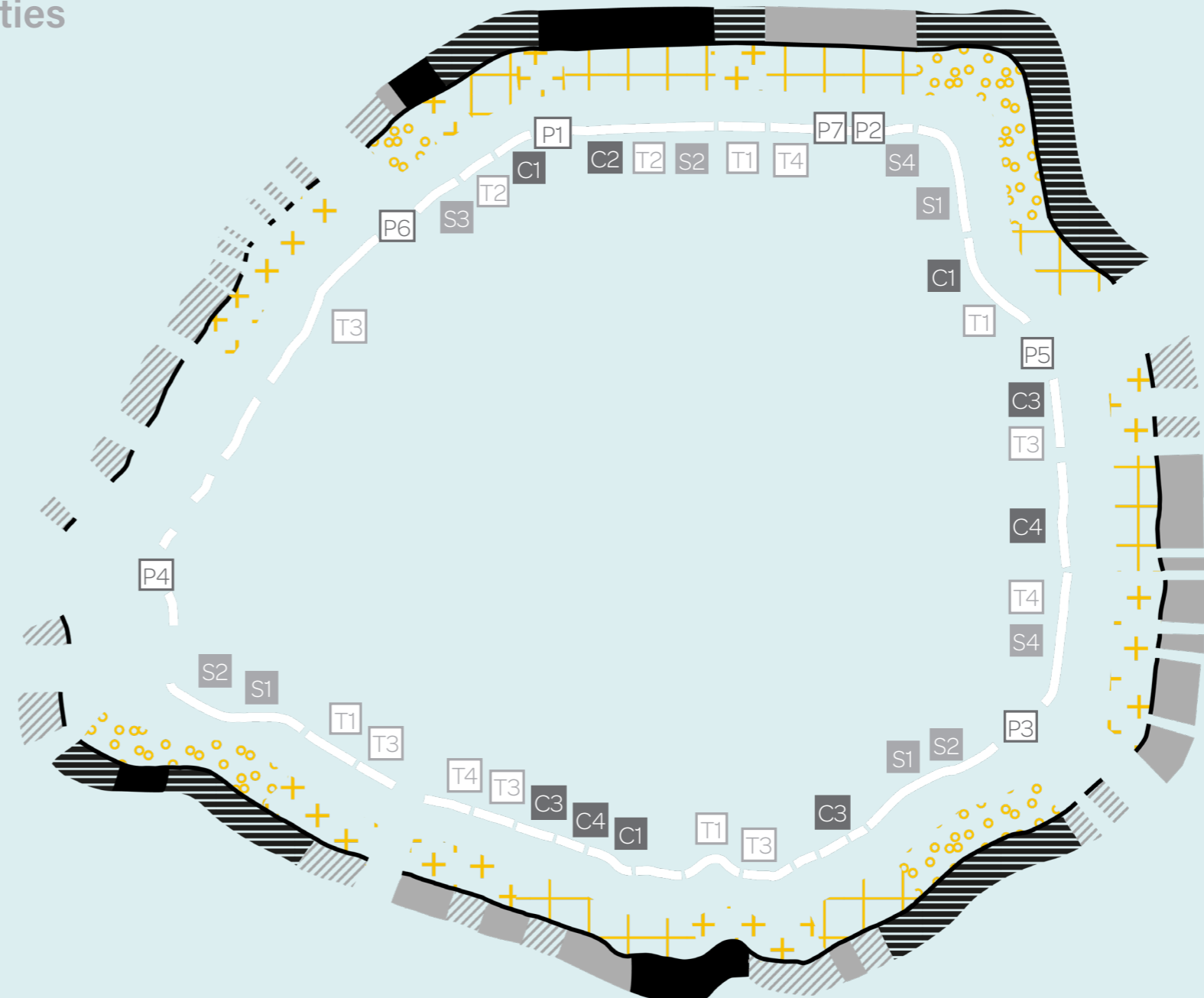
redevelopment needs

-  change
-  improve
-  soften
-  use

### concept

intervention possibilities

-  creator
-  transformer
-  softener
-  pioneer



## demonstration



# three pilot projects



Clichy

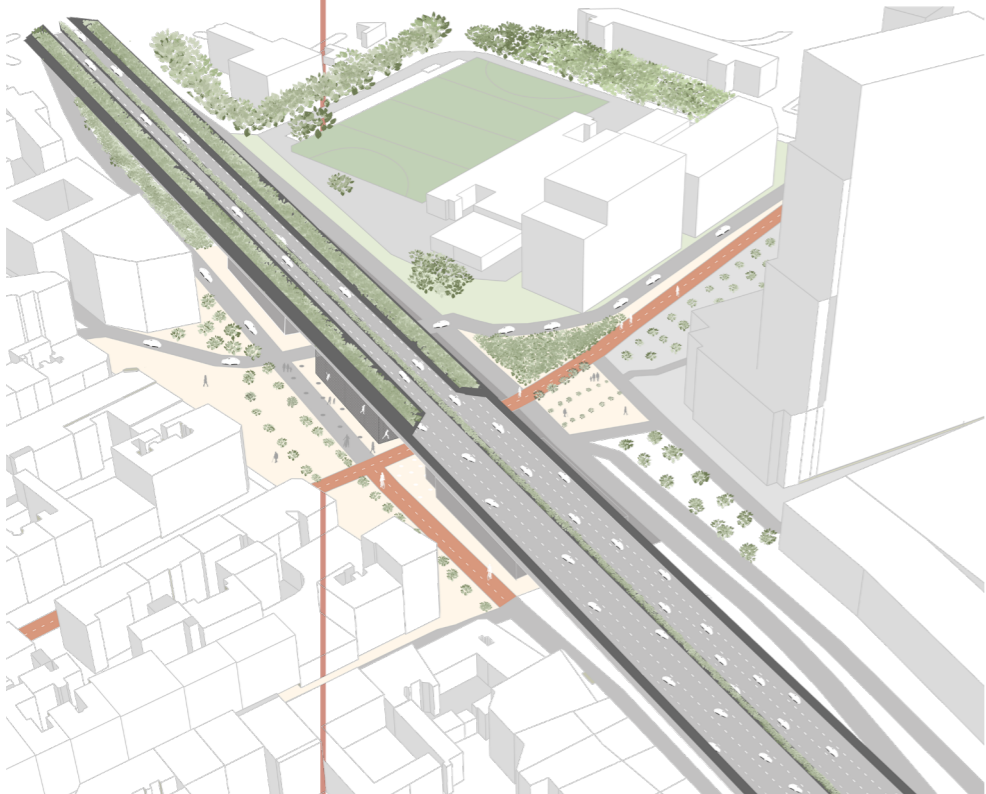


Gentilly



Vincennes

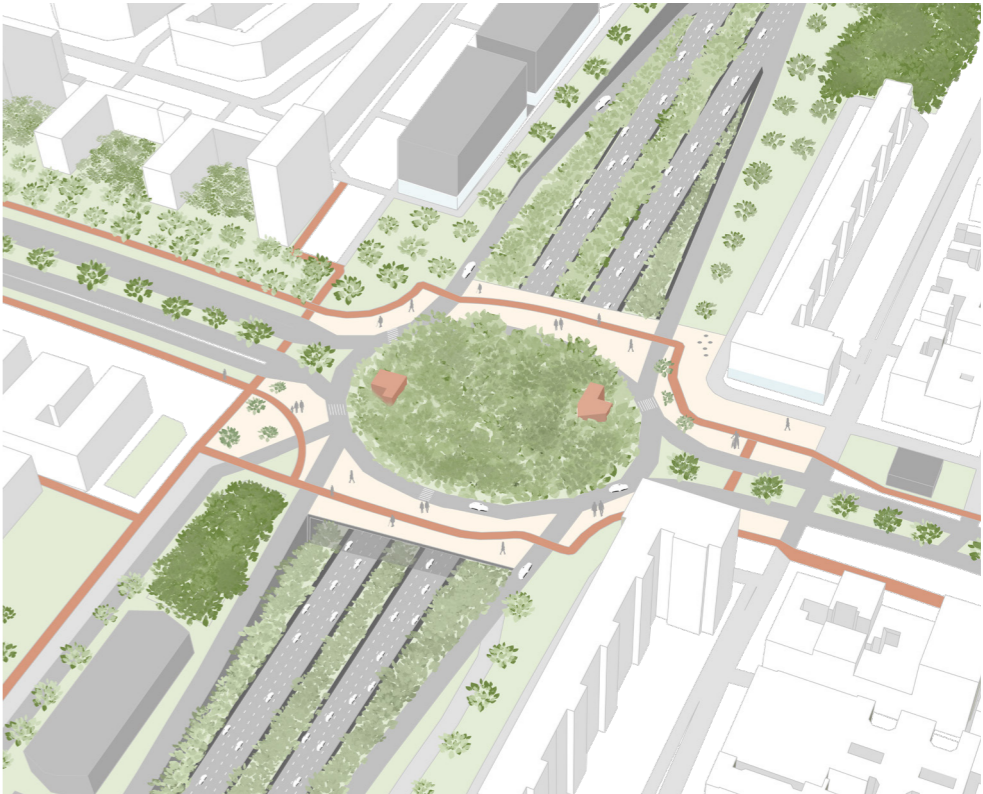
# three pilot projects



**Clichy**  
workout | meet | connect



**Gentilly**  
densify | cross | live



**Vincennes**  
naturalise | explore | move

# Porte de Clichy before

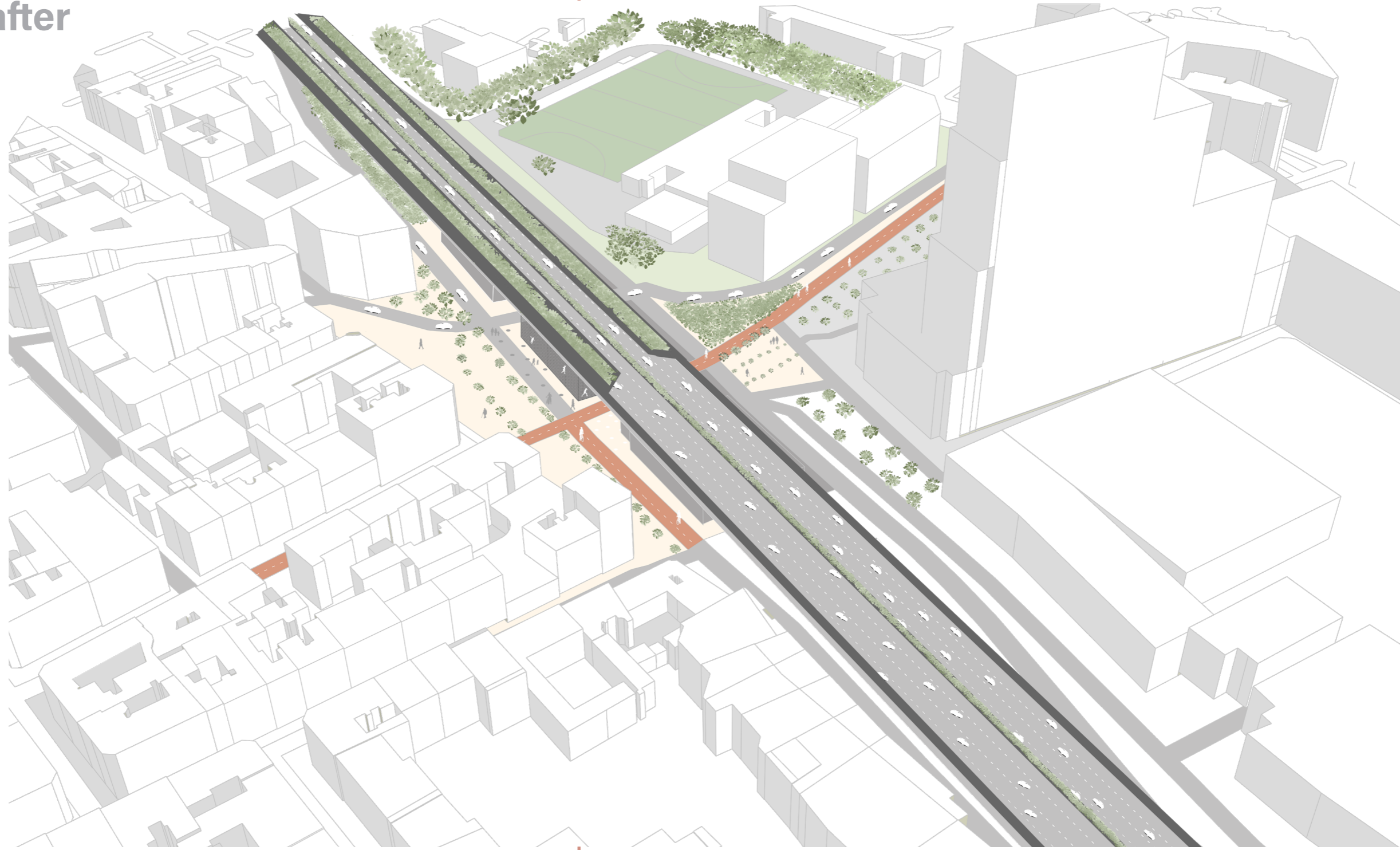


# Porte de Clichy after



# Porte de Clichy

after



# Gentilly before



# Gentilly after



# Gentilly after



# Porte de Vincennes before

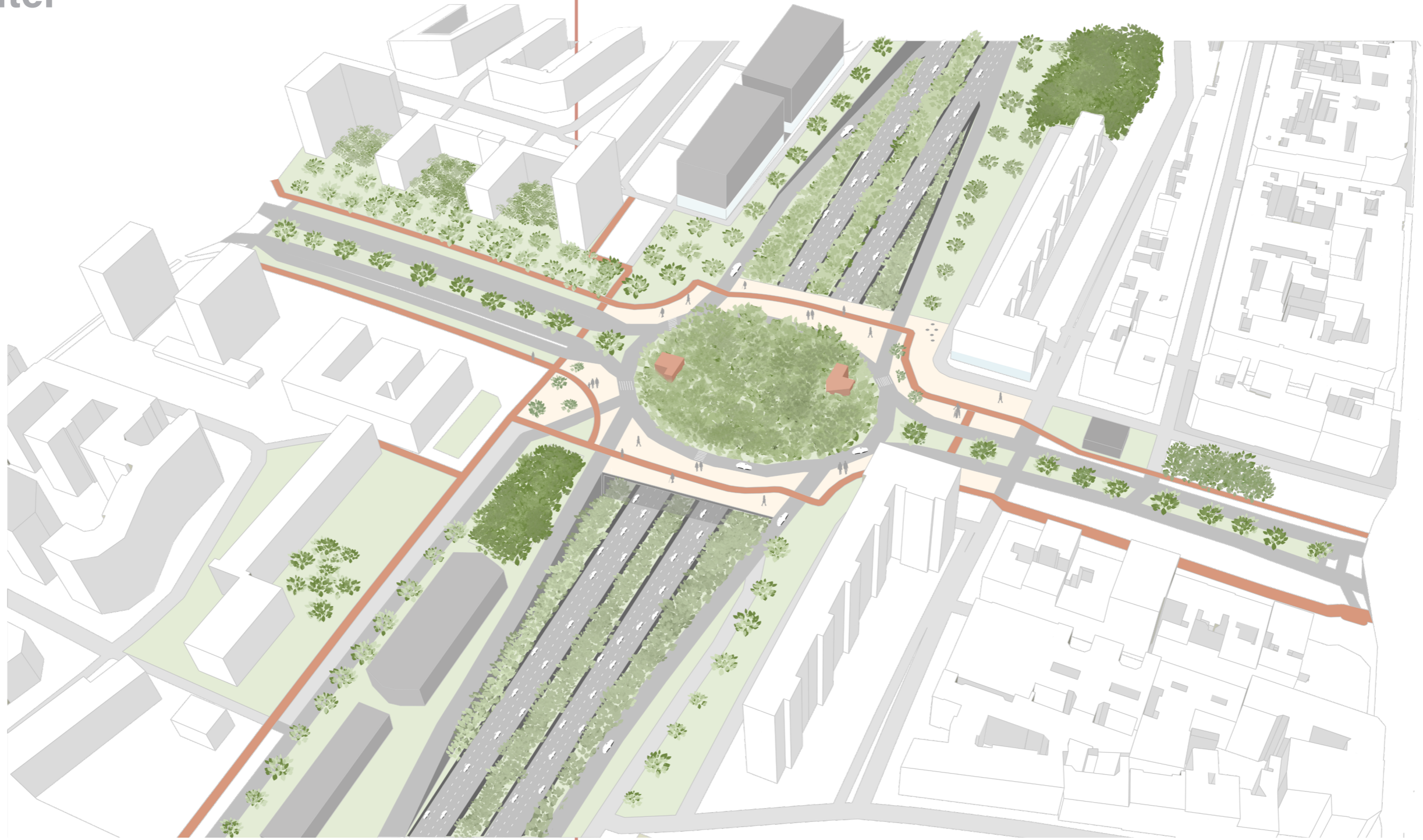


# Porte de Vincennes after



# Porte de Vincennes

after

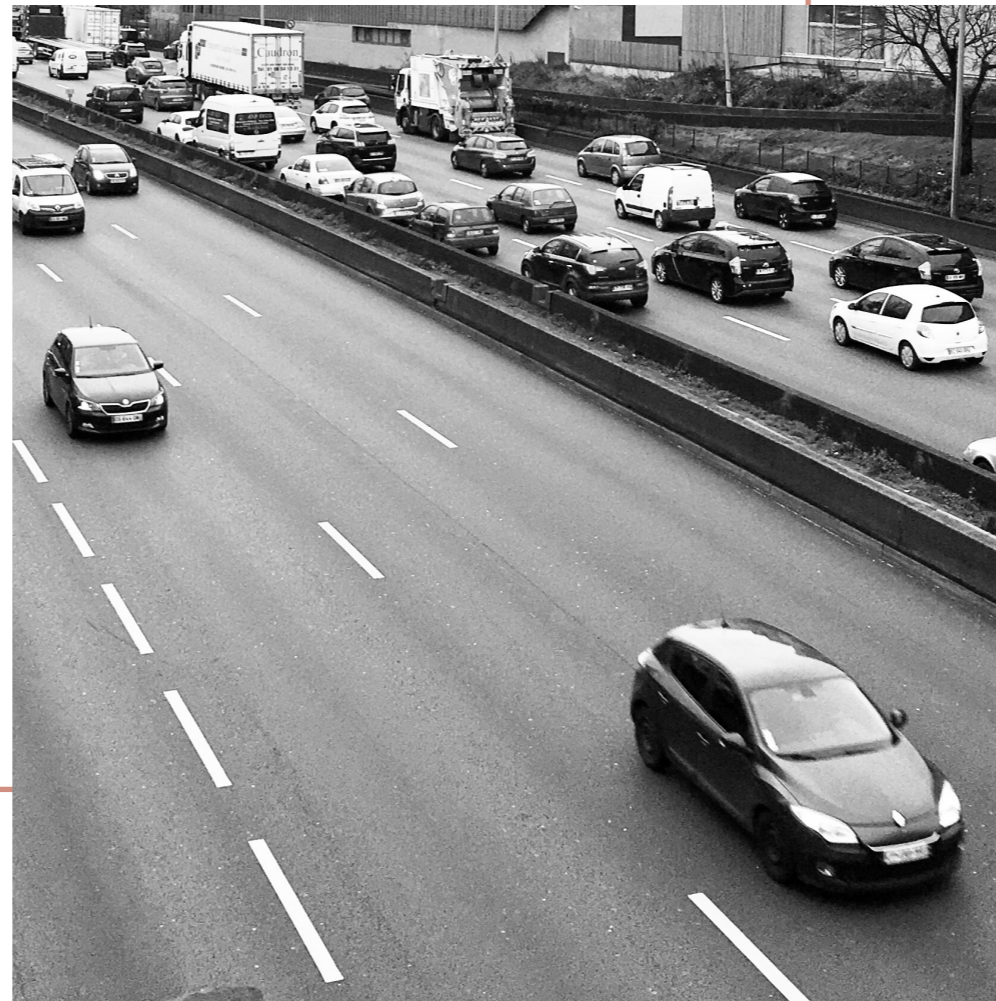






- Boulevard Périphérique
- COCO
- half covers
- new covered parts
- new functions under viaduct
- existing covered parts
- existing functions under viaduct
- development areas
- green strips | tree lines
- large intersections
- reorganisation of the Portes de Paris
- new connection
- existing connection
- connector: place of activity

## implementation



# planning principles

**special  
purpose  
entity:  
BP agency**

stakeholder  
reorganisation

# planning principles

special  
purpose  
entity:  
BP agency

stakeholder  
reorganisation



collaboration between  
local and metropolitan  
governments

# planning principles

special  
purpose  
entity:  
BP agency

stakeholder  
reorganisation



collaboration between  
local and metropolitan  
governments



pursue justice  
throughout the process  
(e.g. gentrification)

# planning principles

special  
purpose  
entity:  
BP agency

stakeholder  
reorganisation



collaboration between  
local and metropolitan  
governments



pursue justice  
throughout the process  
(e.g. gentrification)

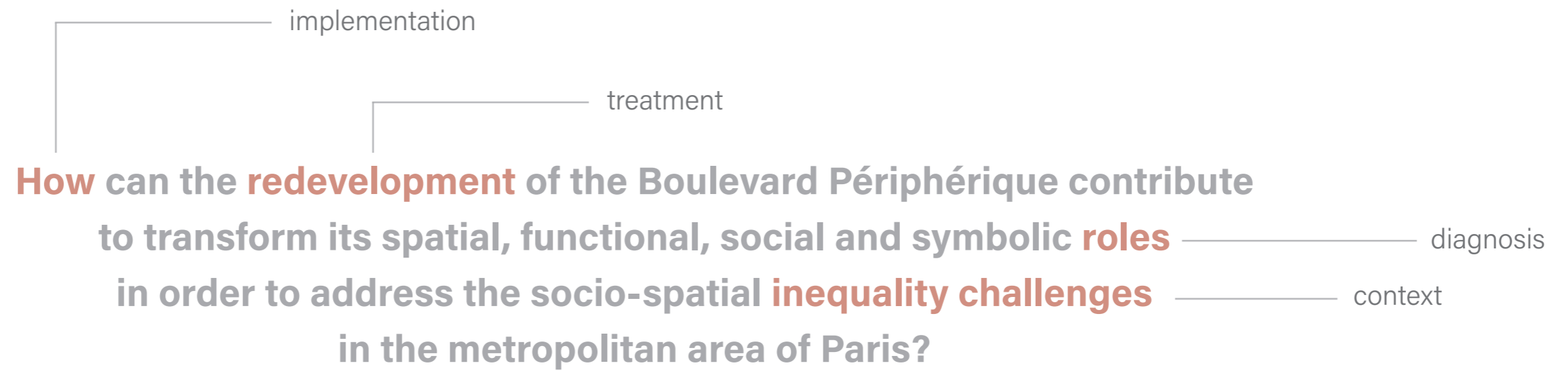


balance social, economic  
and environmental  
objectives in  
decision-making

## conclusion



**how to turn a city of walls  
into a city for all**



# transform the roles

intervene in...

spatial role

functional role



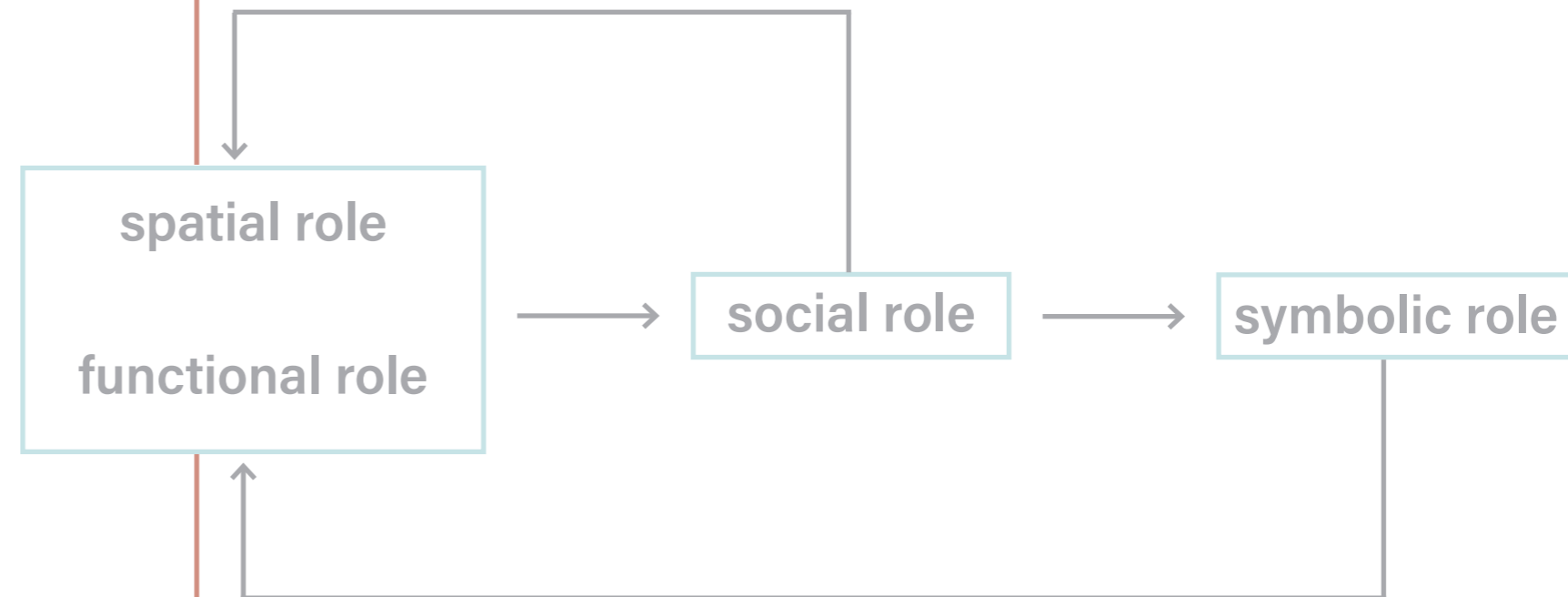
social role



symbolic role

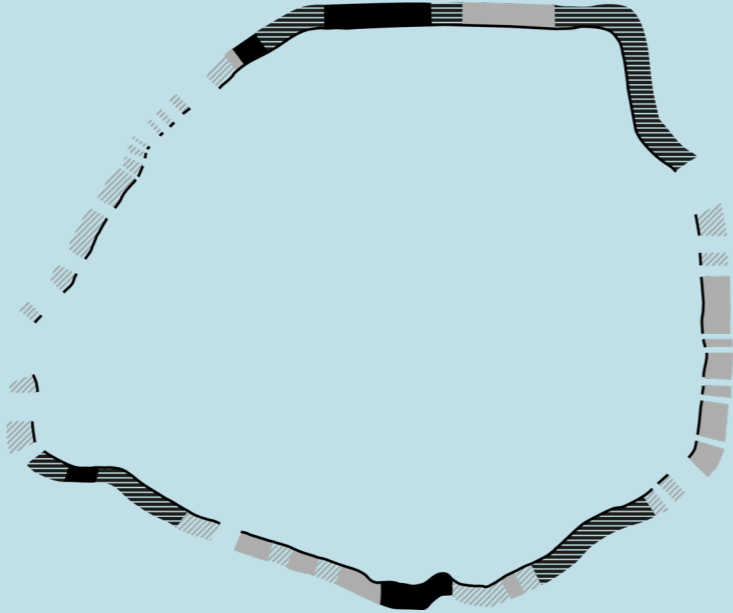
bringing change to the  
**living environment** of people  
will eventually change their  
perception and lifestyle...

# transform the roles

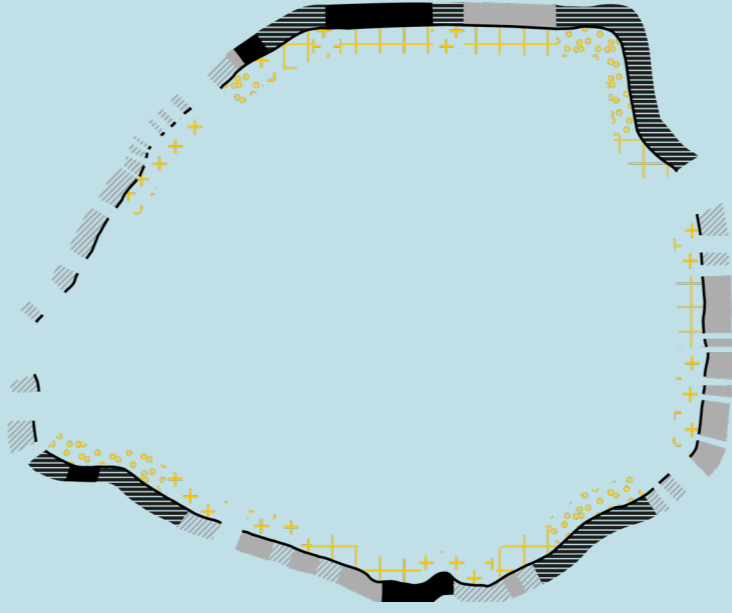


...this will in turn influence  
the valuation of space and  
**stimulate changes** in the  
spatial and functional sphere

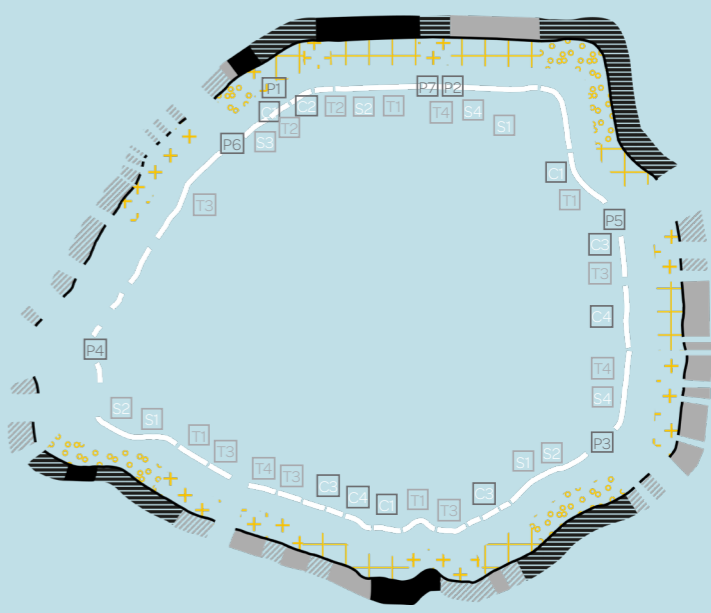
# how to approach the redevelopment



layer 01 | typology  
structural conditions



layer 02 | context  
redevelopment needs



layer 03 | concept  
intervention possibilities

# how are the inequalities addressed

residential inequality

- less real estate differences
- efficient use of land

access to resources

- equal distribution of opportunities
- more possibilities for personal movement

quality of life

- reduction of air- and noise pollution
- increased quality of the living environment

# how is sustainability ensured

social sustainability

- decrease in unrest and riots

economic sustainability

- decrease in social costs (f.e. health care)

environmental sustainability

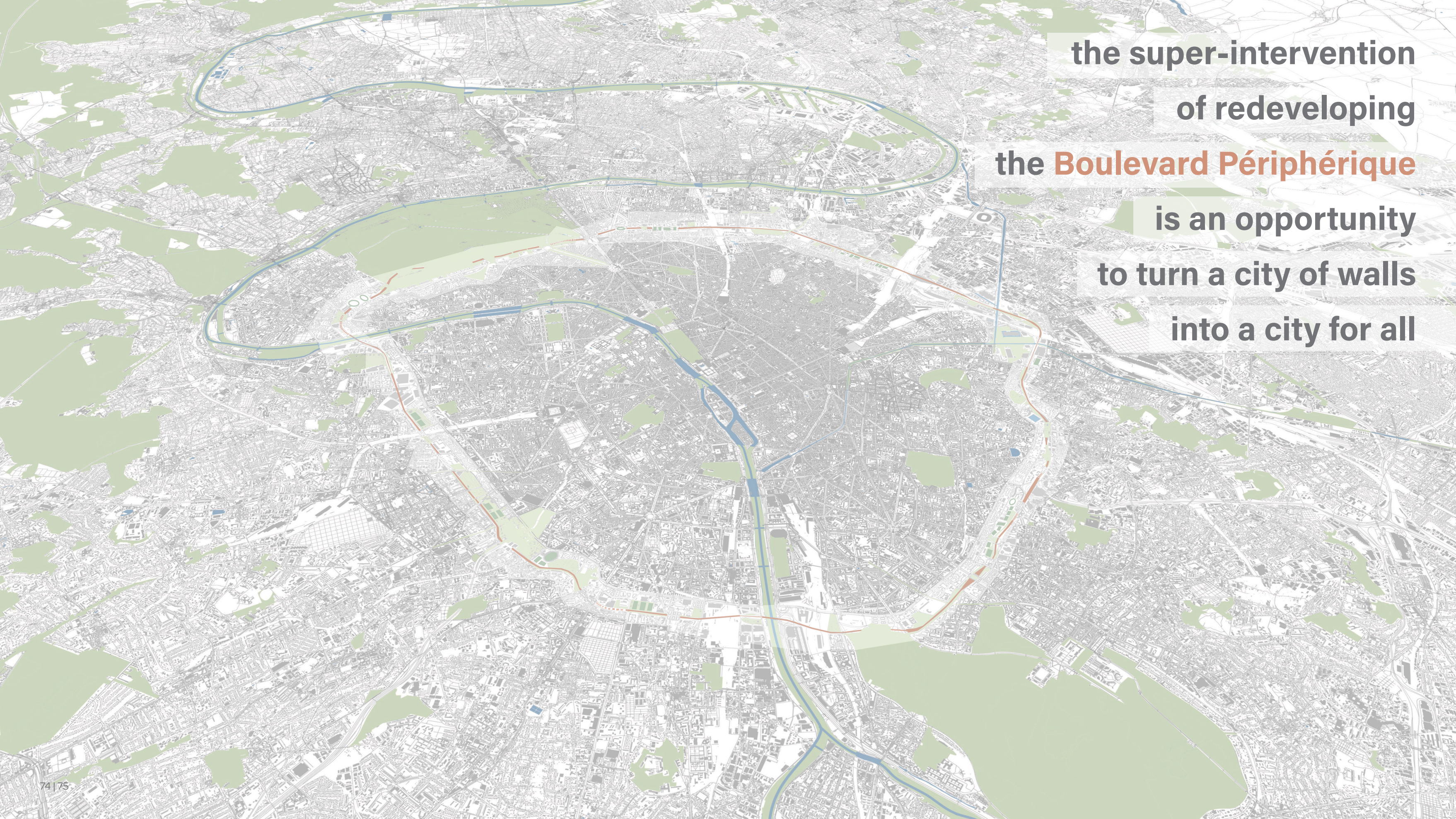
- kickstart for the mobility transition

# recommendations

effects on individual characteristics

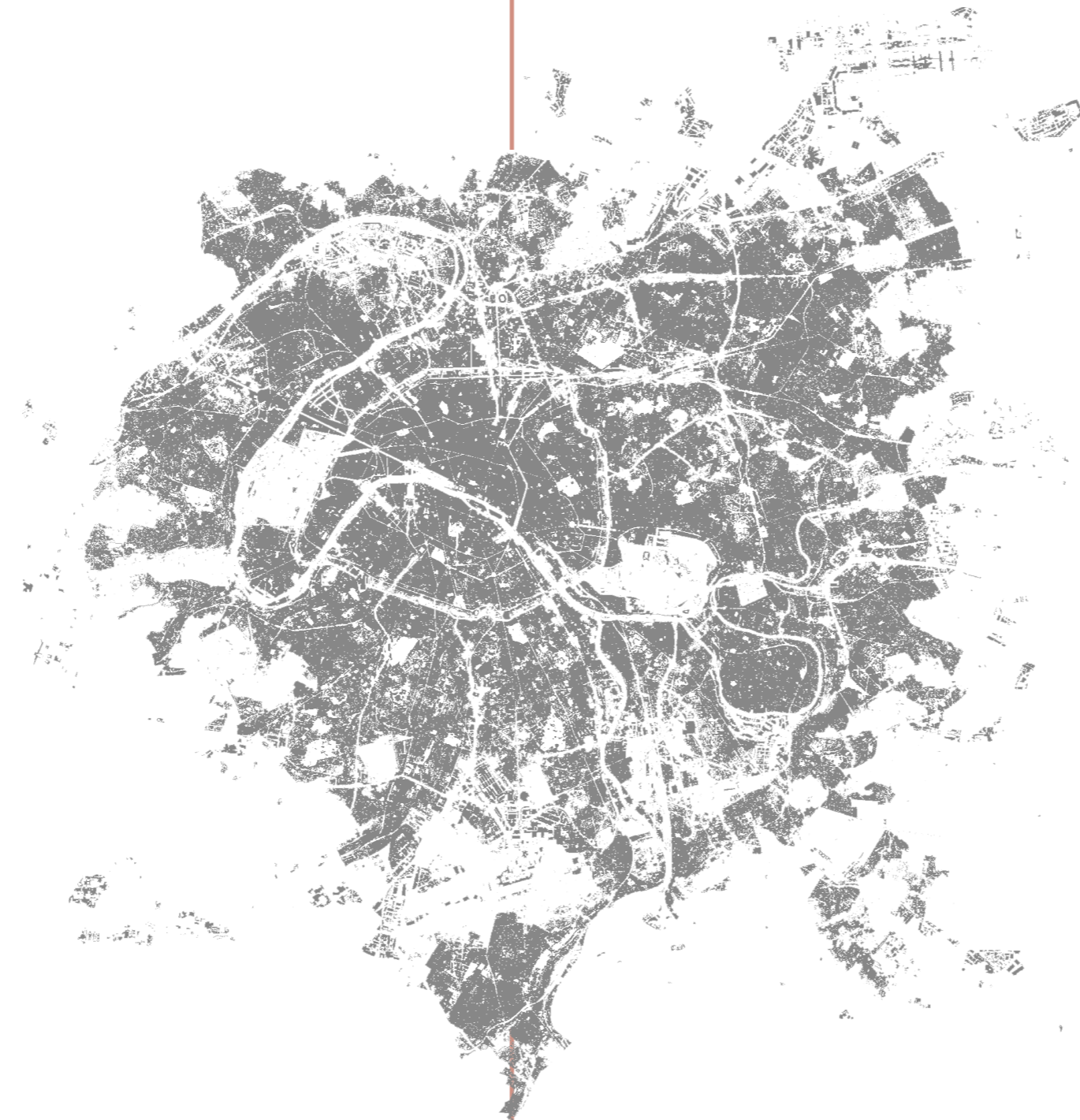
financial & planning aspects

transferability to other contexts

An aerial photograph of a city, likely Paris, showing a dense urban grid. A river, the Seine, flows through the center. A proposed Boulevard Périphérique is highlighted with a blue line, following the river's path and looping around the city center. Green areas represent parks and open spaces. The text is overlaid on the right side of the map.

the super-intervention  
of redeveloping  
the **Boulevard Périphérique**  
is an opportunity  
to turn a city of walls  
into a city for all

merci! questions?



## Turning a city of walls into a city for all

a redevelopment strategy to reunite  
the urban core with the metropolitan  
region of Grand Paris

Karlou Westerbeek | 4348125  
Graduation presentation | 24th of June 2021

Delft University of Technology | Urbanism

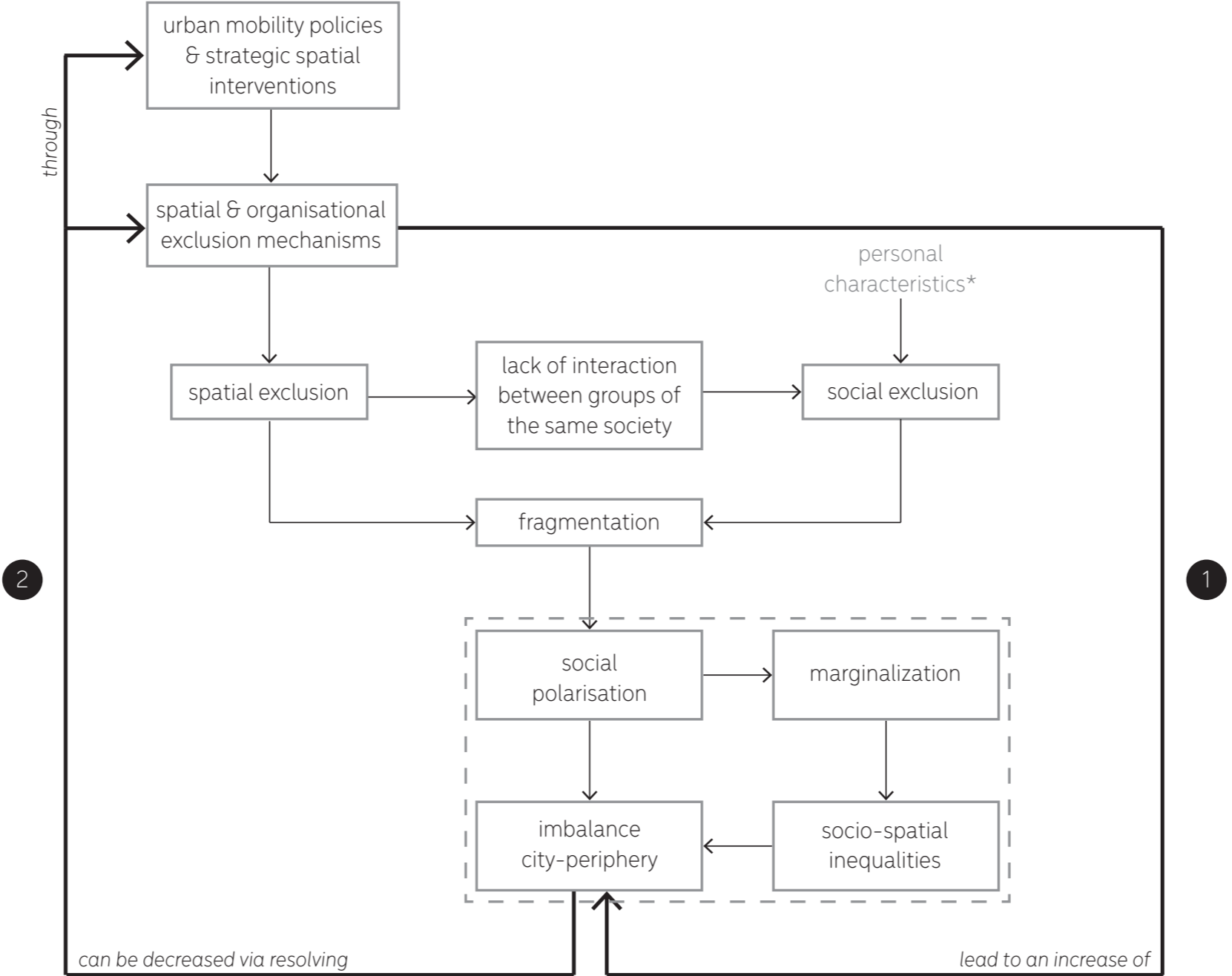
Graduation Studio | Planning Complex Cities  
First mentor | Rodrigo Cardoso  
Second mentor | Rients Dijkstra  
Delegate Board of Examiners | Wido Quist

 **TU Delft** Department  
of Urbanism  
**BK Bouwkunde**

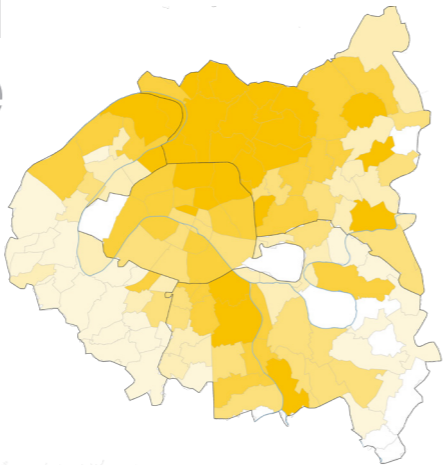
All photos and images are created by the author,  
unless stated otherwise.

**extra slides**

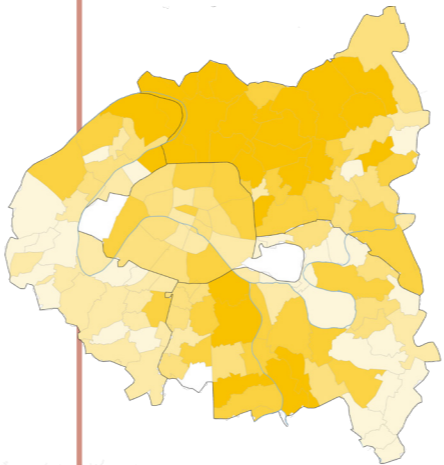
# literature review



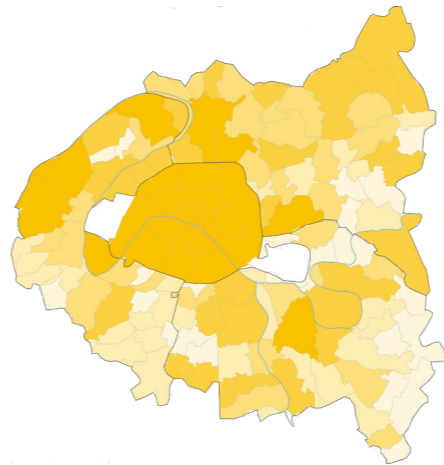
# indicators socio-spatial structure



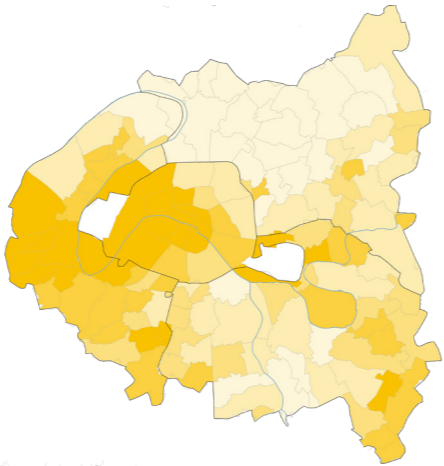
% of the inhabitants living in deteriorated or overpopulated housing



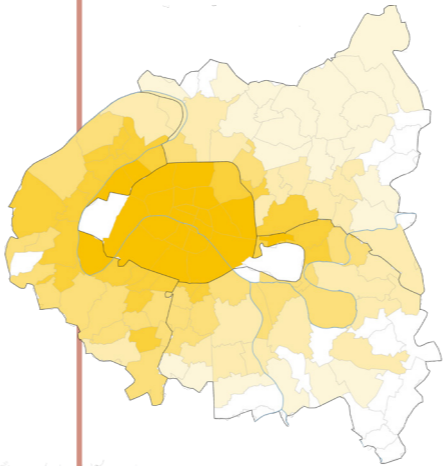
% of immigrants per area



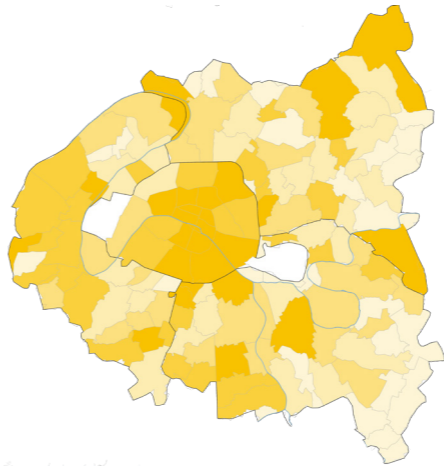
% of inhabitants that work in the same area as they live in



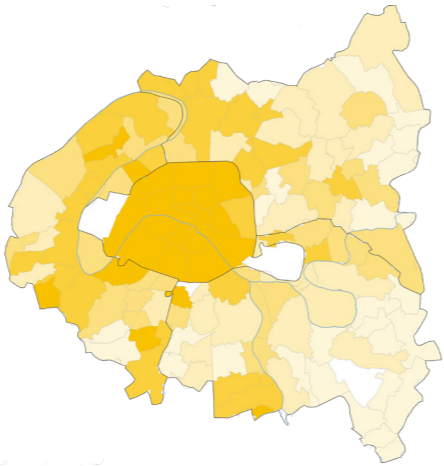
Average income



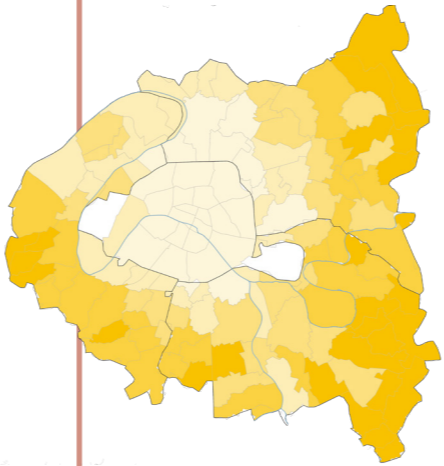
Real estate value: price per m²



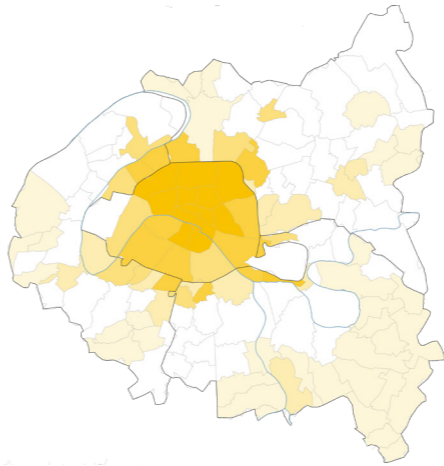
% of cultural amenities per 10.000 inhabitants



accessibility to public transport, given in %  
[max. = 100%]

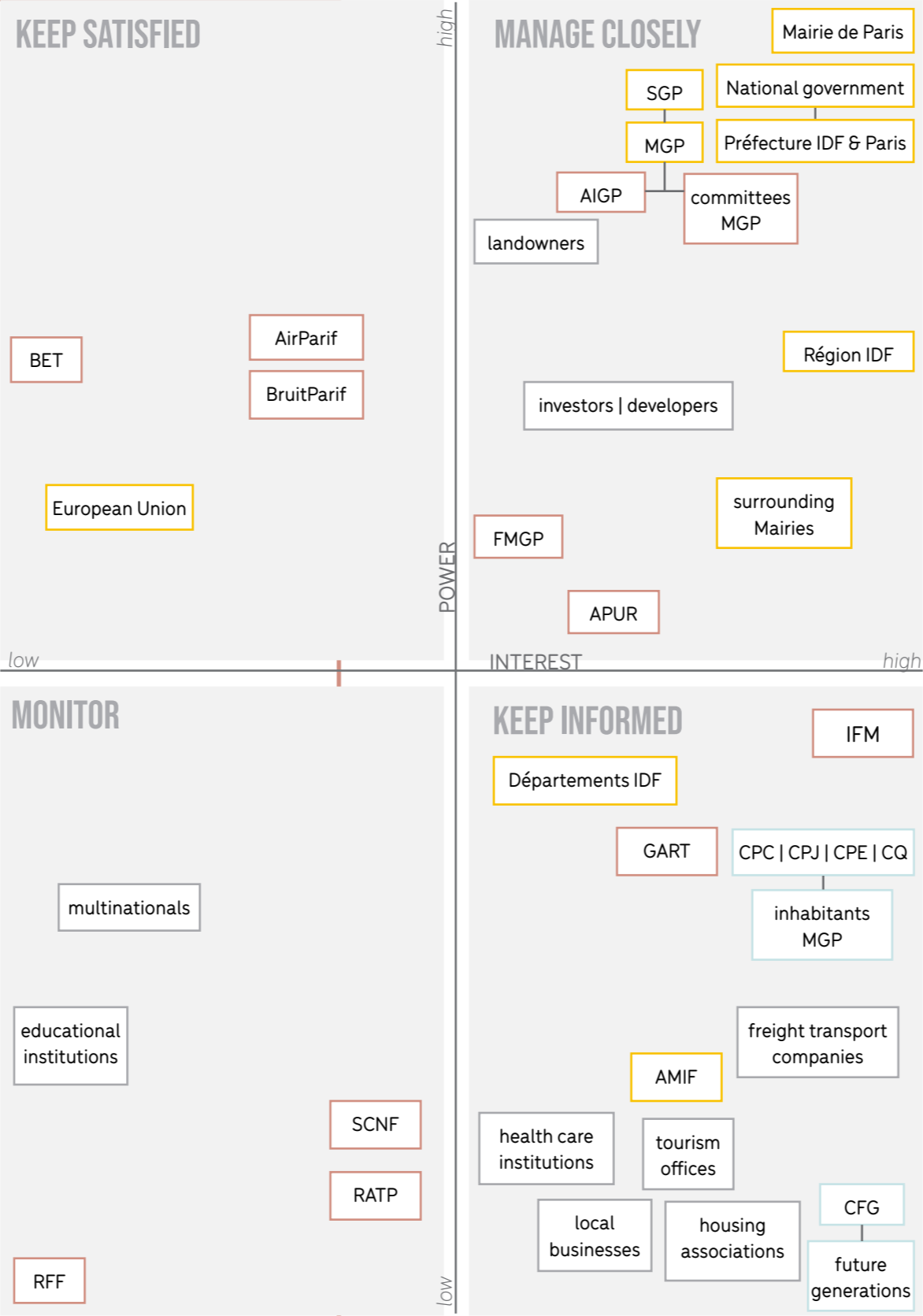


% of households with one or more cars



% of the population that is exposed to air pollution (NOx)

# Power-Interest matrix



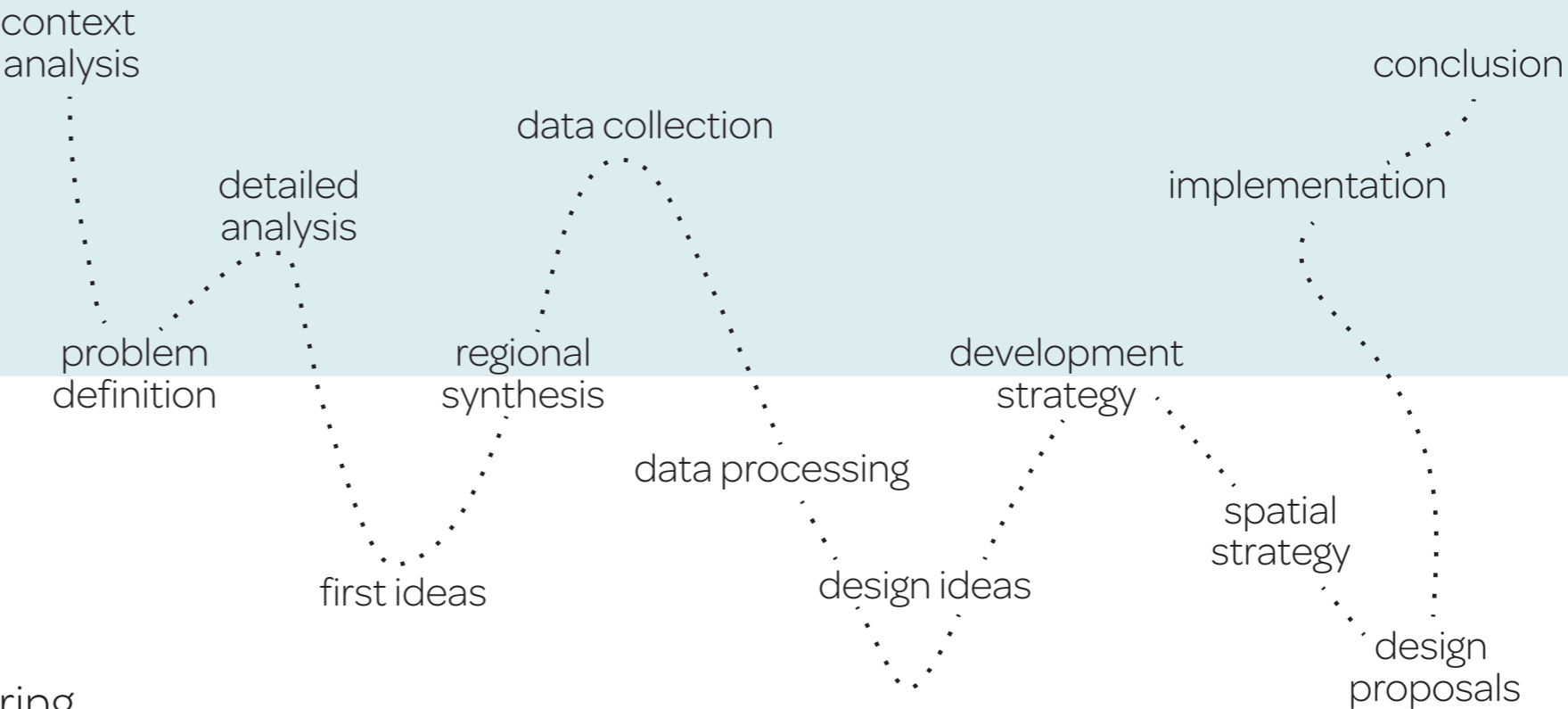
# the interplay between research and design

## knowledge generation

- | input-based
- | converging
- | deciding and eliminating

## creative experimentation

- | output-based
- | diverging
- | creating options and exploring



# financial aspects

## COSTS AND RETURNS OVERVIEW

### Intervention costs

	object	%	existing	new	surface area		surface area	surface area	cost of intervention		comments
			#	#	L [m1]	B [m1]	object [m2]	total [m2]	unit price [€]	price €M	
Overpassings (bridges and viaducts)	overpassings		39	6	80	10	800	4800	3000	14,4	
Underpassings (tunnels)	underpassings		28	10	80	10	800	8000	5000	40,0	
Functions under viaduct at Portes	locations		2	10			1000	12.000	2000	24,0	
Covered segments	coverage projects		9	8				83.781	3000	251,3	See "Coverage projects"
COCO (closed-open-closed-open)	COCO		0	5				101.778	1500	152,7	See "COCO"
Half covers (noise barrier with slanted roof)	half cover		0	7				82.000	1200	98,4	See "Half cover"
Green spaces along the structure	green space		0	7				125.720	150	18,9	See "Green spaces"
Development area along ring road	dev area			17				448.800	300	134,6	Land purchase: based upon the French Property Guide: île-de-France (including Paris) = €300,000 for an empty plot of 1000 m2
Development area along ring road	dev area			17				448.800	50	22,44	Site preparation: raising of soil; qualitative improvement of soil; removal of (unwanted) soil; removal of sprawl; removing trees; any demolition work; leveling of the ground

### Project costs

756,7  
**1324,3** increases because of process costs: 175%  
estimated costs of entire project

### Development area

Development area on BP	83.781
Development area around BP	448.800
Total development area	532.581
FSI	2,00

### Returns

object	%	total [m2]	price per m2 [€]	price €M	
dwelling (social housing)	15%	159.774	144	115,0	30% social housing in 2030
dwelling (rental)	15%	159.774	780	623,1	mid-rent segment
dwelling (owned)	10%	106.516	639	68,1	mid-priced and expensive
office	40%	426.065	540	1150,4	
leisure	5%	53.258	490	130,5	
retail	2%	21.303	650	69,2	
horeca	5%	53.258	650	173,1	
hotel	3%	31.955	480	76,7	
societal function	5%	53.258	190	50,6	

**2341,7** estimated returns of entire project (rough estimation)