

LECTURES

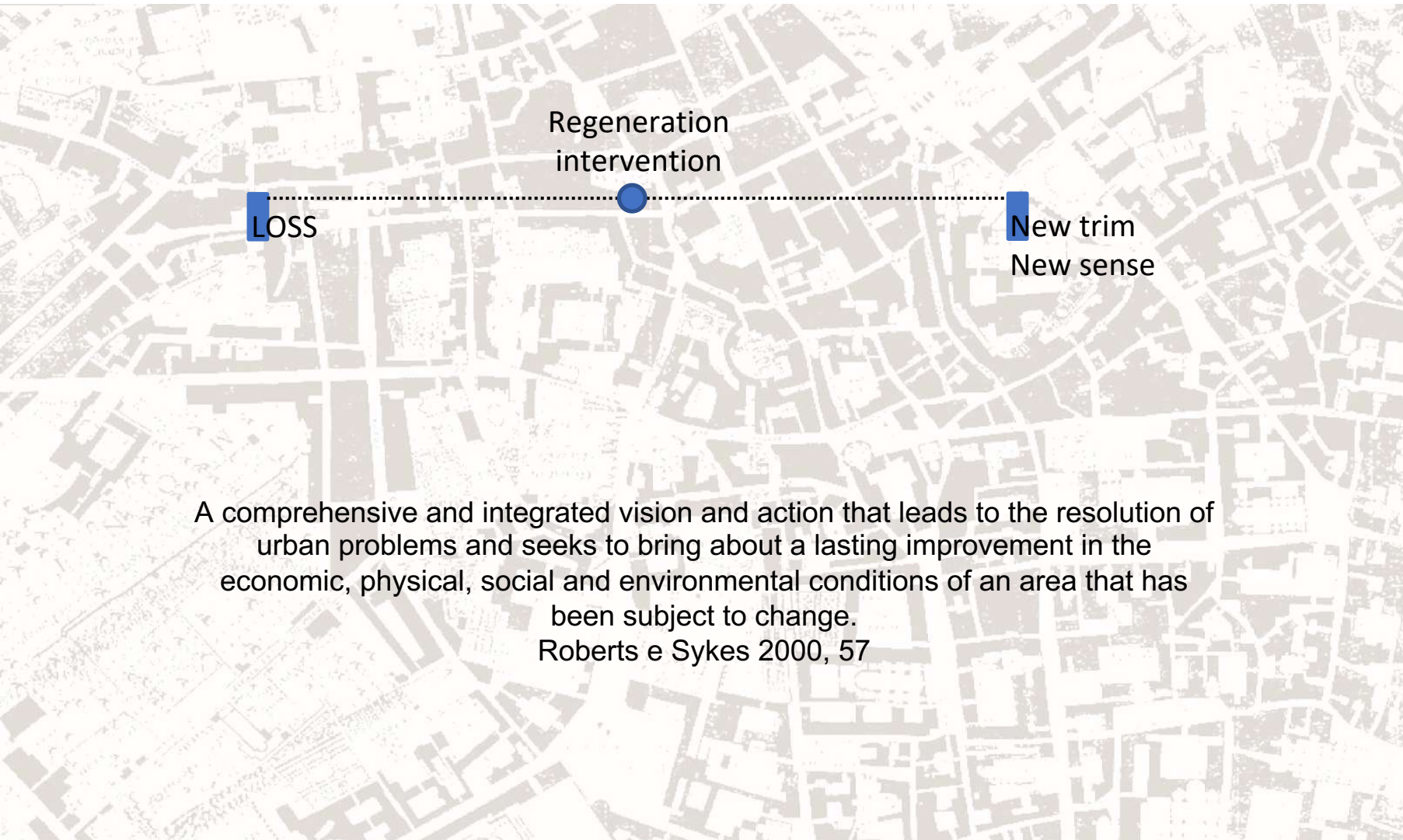
May 08th and May 15th 2023, online

The multiple aspects of urban regeneration in the time of climate change

Urban regeneration at the neighborhood scale: comparing European experiences

Alessia Guaiani, Simone Porfiri, Ludovica Simionato

UNICAM_Università degli studi di Camerino



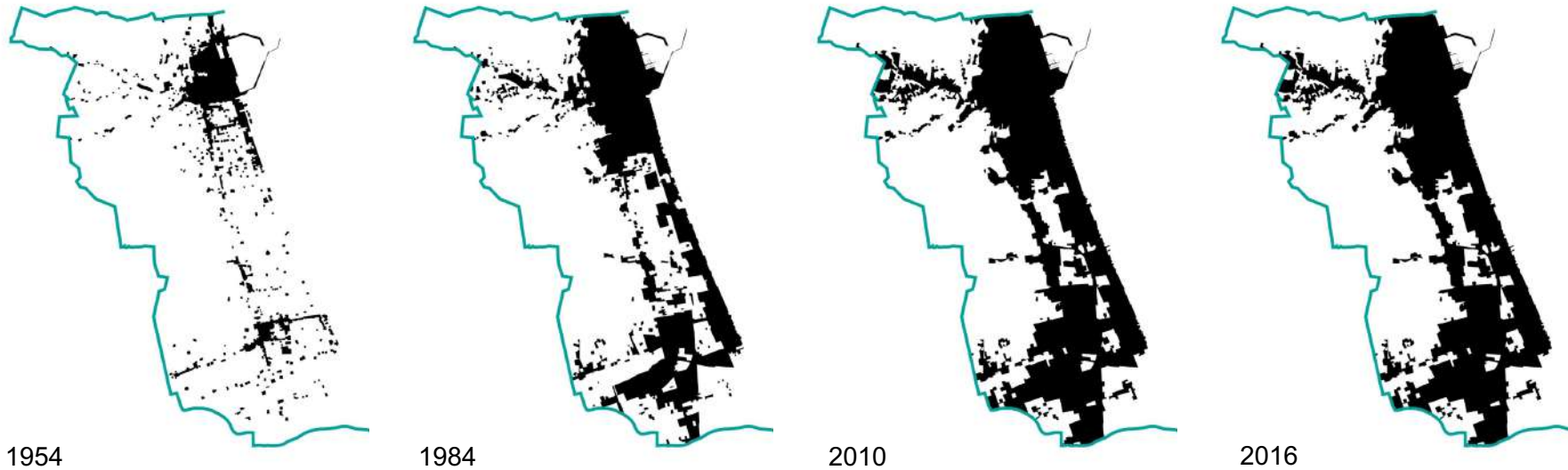
Regeneration as part of a life process

In biology, the reproduction, in an animal or even plant organism, of parts, organs, tissues, either as a result of accidental or experimental loss or trauma, or as a regular renewal that takes place during the normal life cycle of the organism



Source: Treccani, 2023

The soil consumption



Municipality of San Benedetto Del Tronto (AP)

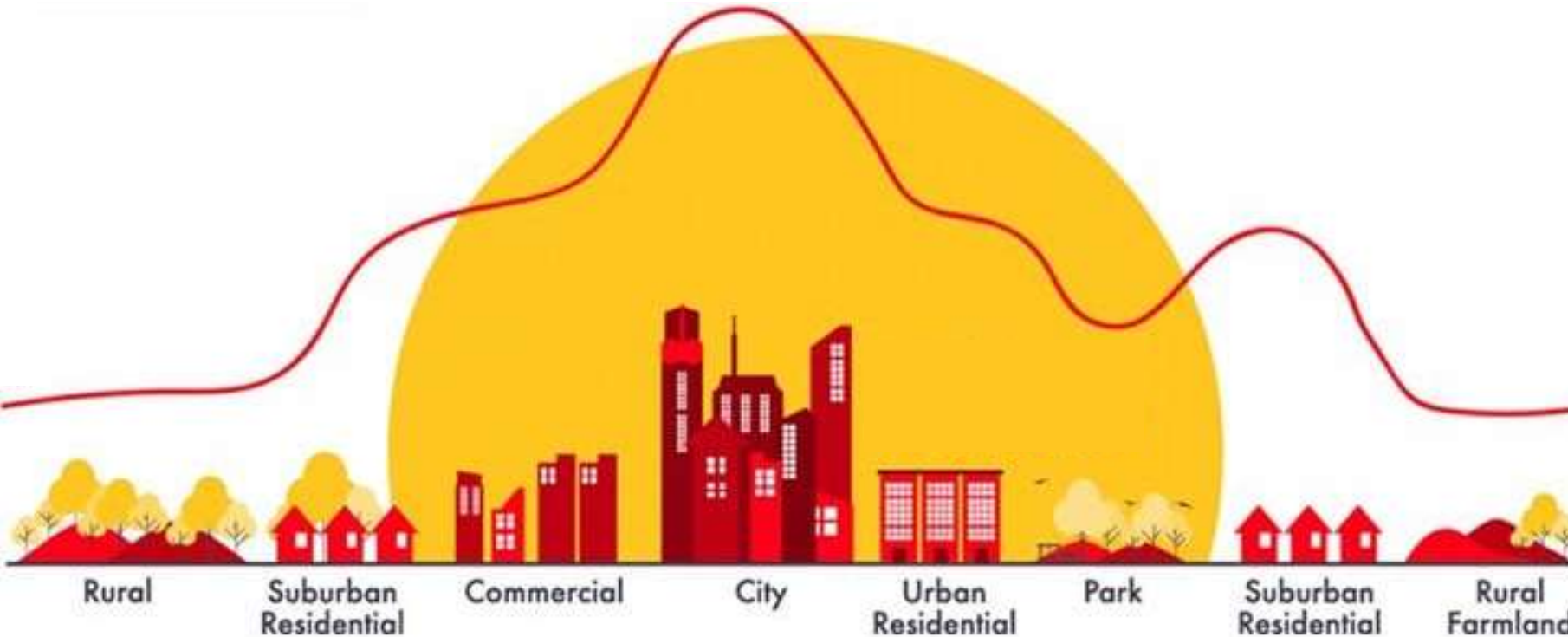
Why is urban planning concerned with regeneration?

In Italy, artificial land cover has now reached over 21,000 km², or 7.11% of the national territory (it was 7.02% in 2015, 6.76% in 2006), compared to the EU average of 4.2%.

Why continue to expand our cities?

Source: ISPRA, 2018

Climate Change



Why is urban planning concerned with regeneration?

The IPCC identifies four key risk categories for Europe. The level of each risk increases as the level of global warming increases

- Risks of Heatwaves on Populations and Ecosystems
- Risks to agricultural production.
- Risks of water scarcity.
- Risks from increased frequency and intensity of floods

Source: IPCC 2023

Advent of a crisis



Instalación Activación Vertical / Taller Architects + Colab-19 + SCA

Why is urban planning concerned with regeneration?

Cities are not built over time in a linear manner but are transformed as they go. Crisis cause this change to take place concretely

Richard Sennett

Post covid recovery and resilience plan

Costo totale dell'investimento

€ 3,3 mld



Riduzione del divario di cittadinanza

Source: www.italiadomani.gov.it



Rethinking infrastructure spaces, the sustainable urban mobility way _ Alessia Guaiani

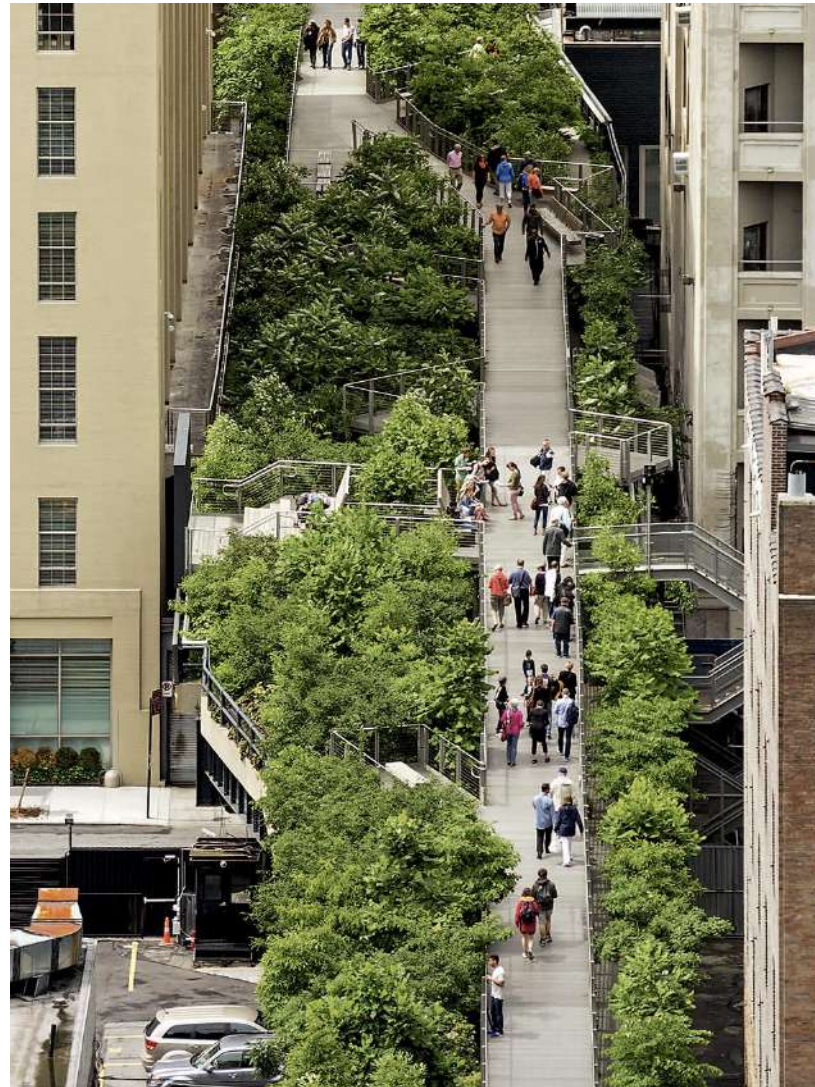
Shapes and urban figures of the contemporary adaptive public space_ Simone Porfiri

Resilient communities, (re)making cities with and for citizens _ Ludovica Simionato

Rethinking infrastructure spaces, the sustainable urban mobility way

Alessia Guaiani





«The mobility system, including networks, carriers and interchange nodes, is for a city what the circulatory system represents for a human. On the efficiency, fluidity and capillarity of this system depends the well-being and sustainable development of the city»

Italian ministry of infrastructure and sustainable mobility,
Report: VERSO UN NUOVO MODELLO DI MOBILITÀ LOCALE
SOSTENIBILE, May 2022, p. 5.

Project: Diller and Scofidio + Renfro, High Line, New York, 2003.
Source: <https://dsrny.com/project/the-high-line>



LINEAR WATER INFRASTRUCTURE
TURIA RIVER GARDENS, 1987,
VALENCIA (SPAIN)
by RICARD BOFILL



PUNCTUAL WATER INFRASTRUCTURE
NORDHAVN PORT DISTRICT REGENERATION, 2008,
COPENHAGEN (DENMARK)
by COBE



PROJECT
TURIA RIVER GARDENS

YEAR
1987

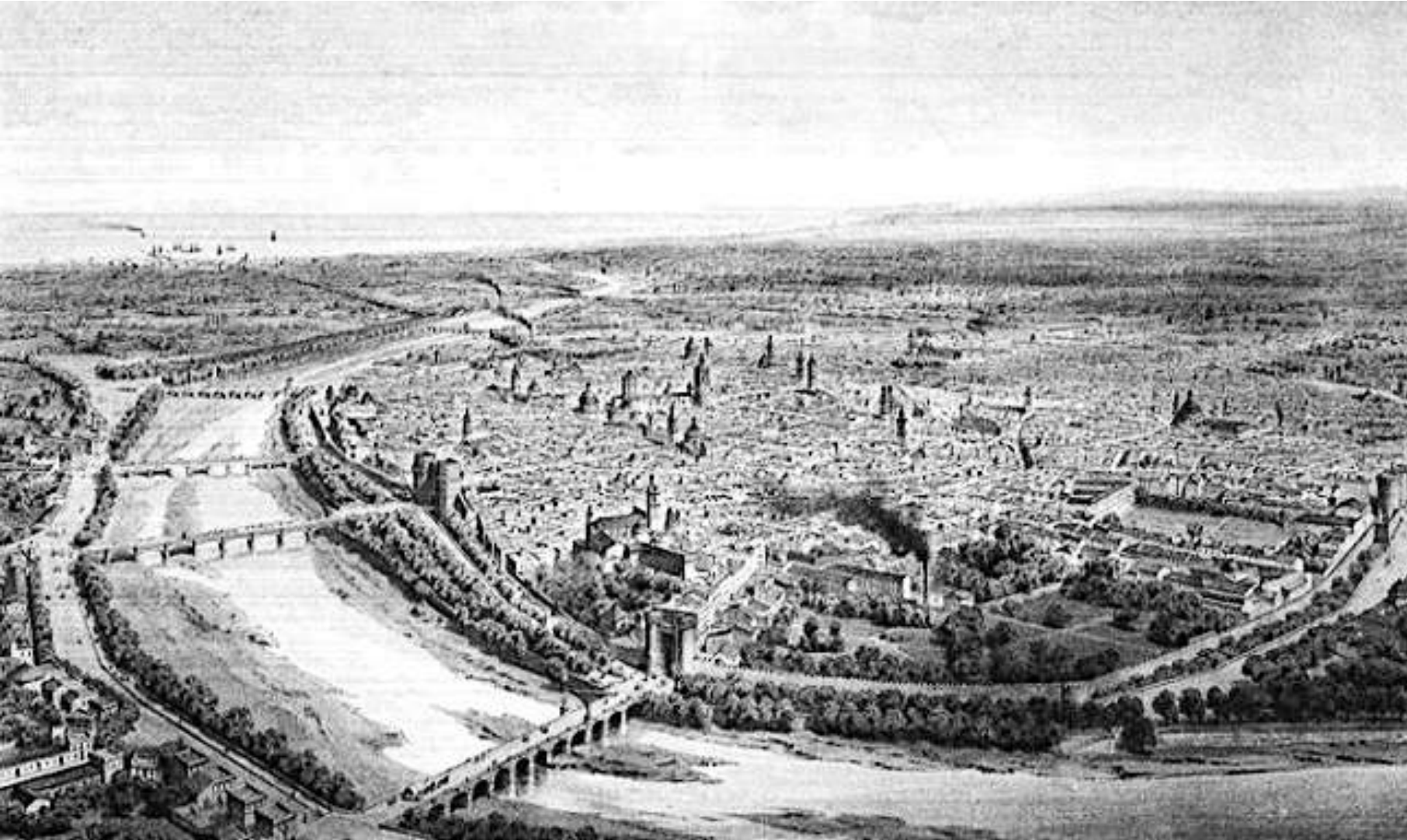
LOCATION
VALENCIA, SPAIN

TOTAL AREA
150.000 m²

Project of **RICARD BOFILL**

Source: Google maps





Valencia is a city of Roman foundation that has a genetic relationship with the Turia River.

Valencia, XIX century etching





In 1957 Valencia is subjected to a devastating flood that forever changed the city's relationship with the Turia River.

1957 Flood in Valencia: Photograph extracted from PereDrak's Valencia Slideshow.
Source: metropolismag.com





The deviation of the course of the Turia River was done to remove the danger over the city from the seasonal flooding of the river as it passes through Valencia

Source: metropolismag.com





“The bed of Turia is ours and we want green!”

Source: metropolismag.com





Ricard Bofill draws a master plan for the park, providing a structure for the riverbed divided into 18 zones. These gardens adopt the organic and random form of the riverbed and provide a unity to the entire project through their geometric composition, generating an overall and unified pattern, but not completely uniform.

Source: <https://ricardobofill.com>





Turia river bench before and after the creation of the green river





PROJECT
CITY OF ARTS AND SCIENCES

YEAR
1996 - 2005

LOCATION
VALENCIA, SPAIN

Project of **SANTIAGO CALATRAVA**



THE PARK PRODUCE BENEFITS FOR:

- An annual profit of 7.5 million euros
- They hold back about 400 million liters of water annually
- Increases the incoming property value by 5 million euros a year
- An energy savings of about 9 MWh/year in refrigeration
- an economic saving of about 450,000 euros in the prevention of diseases resulting from pollution and poor air quality.
- They reduce 7,000 tons of CO2 each year

Source: <https://www.greenurbandata.com/2017/09/19/el-tesoro-verde-de-valencia/>





PROJECT
**NORDHAVN PORT DISTRICT
REGENERATION**

YEAR
2009 – ONGOING

LOCATION
COPENAGHEN, DENMARK

TOTAL AREA
3.600.000 mq

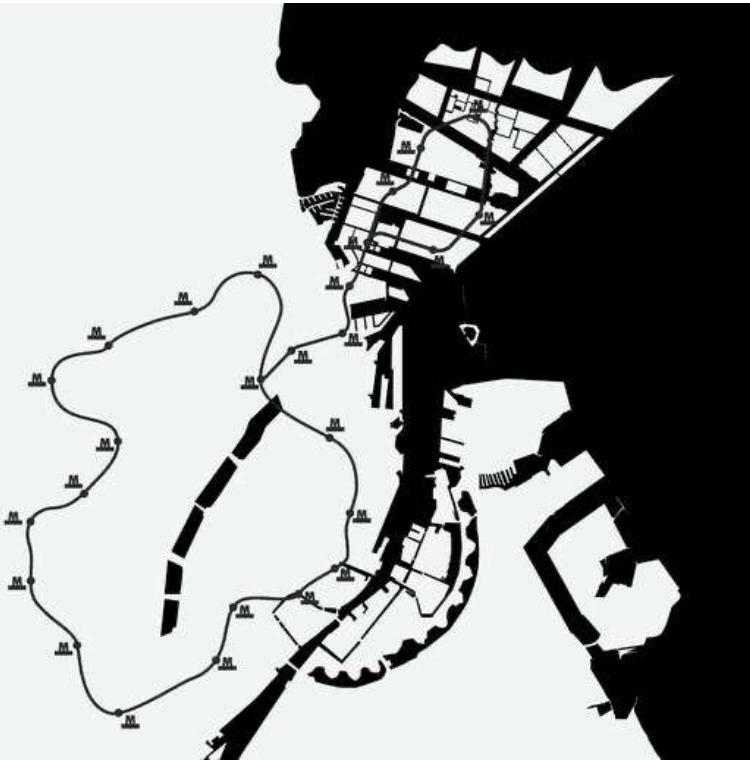
Project of **COBE**

Source: Google maps





The Port in 1904 and now
Source: <https://cobe.dk/place/nordhavn>



An extra loop on the Metro city ring will connect Nordhavn with the city centre.
Connected to the public transportation loop is a corridor for bikes, which connects Nordhavn to the larger biking network of the city.
Source: <https://cobe.dk/place/nordhavn>

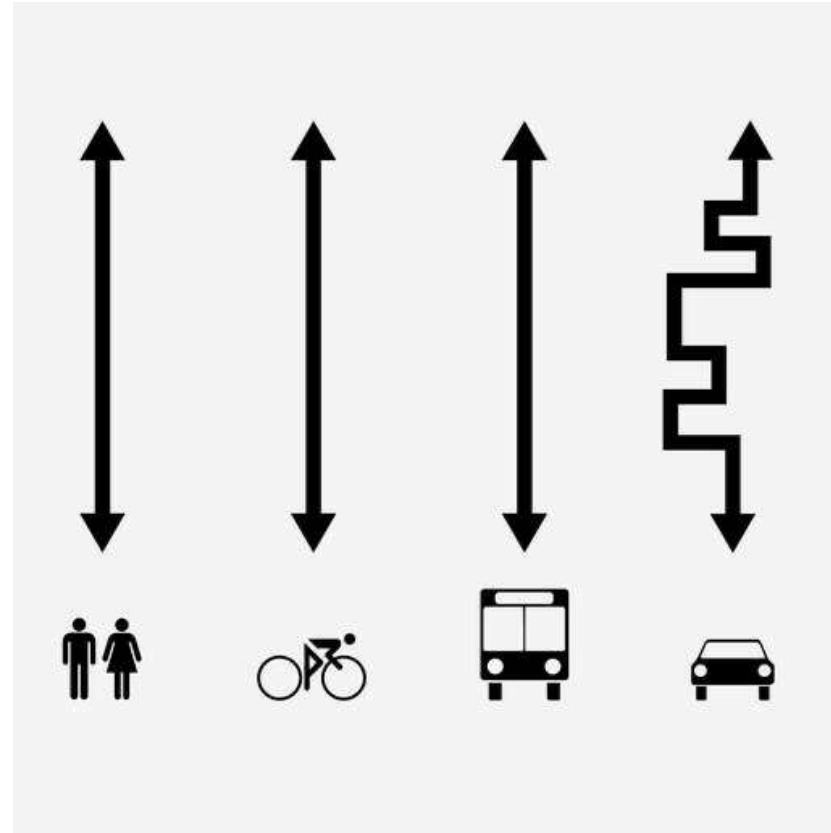
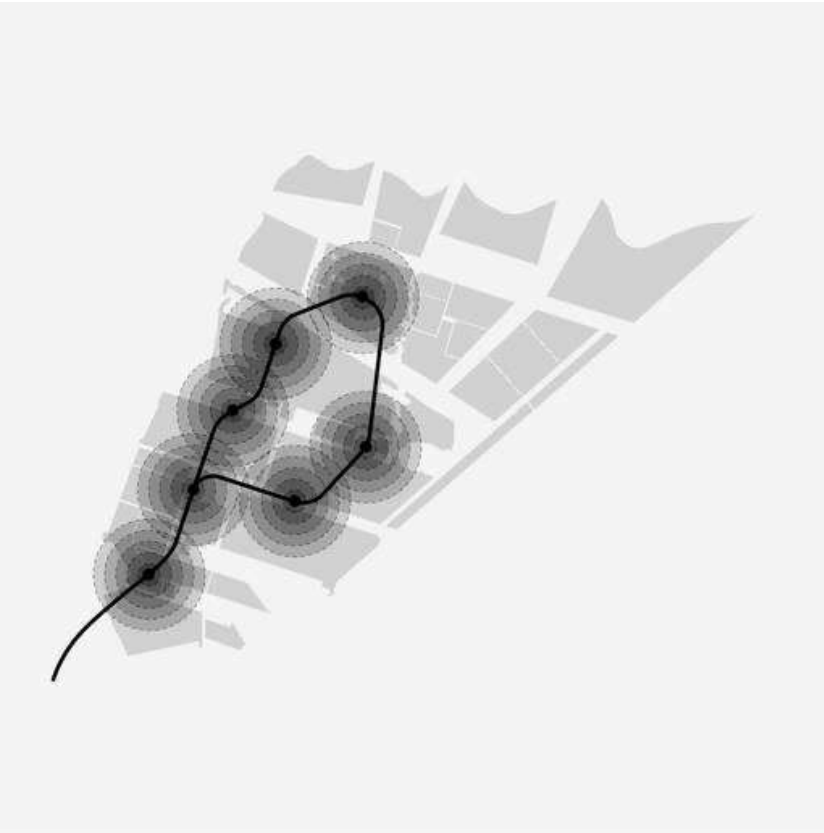


Nordhavn is designed as a "5-minute neighborhood," a neighborhood where it takes no more than a five-minute walk to reach a public transportation stop. The project involves the division of the district into eleven island-neighborhoods, connected by the construction of navigable and swimmable canals, true arterial roads on the water.



Nordhavn as it looked before the extension began in 2008.
Nordhavn as it will look when fully expanded
Source: <https://cobe.dk/place/nordhavn>





Nordhavn is a city of soft mobility, where it is easier to walk, bike or use public transport than it is to drive. The Green Loop is an expressway for bikes, connecting the individual neighborhoods with each other and with the rest of Copenhagen.

Mobility concept
Source: <https://cobe.dk/place/nordhavn>

PROJECT
**ORIENTKAJ AND NORDHAVN
STATIONS**

YEAR
2020

Project of **COBE**





The starting point of the entire regeneration is a rethinking of mobility, metro stations take a central role at the programmatic and architectural level.

The comprehensive Copenhagen metro network is the coming years expanding with a stronger north-south connection from Nordhavn to Ny Ellebjerg.
Source: <https://cobe.dk/place/orientkaj-and-nordhavn-metro-stations>



«One person's trash is another person's treasure» COBE

Sustainability is also an important aspect of architectural design in this project. Reusing the strong concrete structures not only attempts to maintain the identity of the site but at the same time minimizes the CO2 footprint, coming both from transportation but especially due to the production of the concrete itself. For the implementation of this project, 2,740 m³ of concrete was reused, the equivalent of 380 tons of embedded CO2. In addition, waste materials such as concrete from the construction of the new openings was reused to create seating and street furniture in the landscape surrounding the building.



Shapes and urban figures of the contemporary adaptive public space

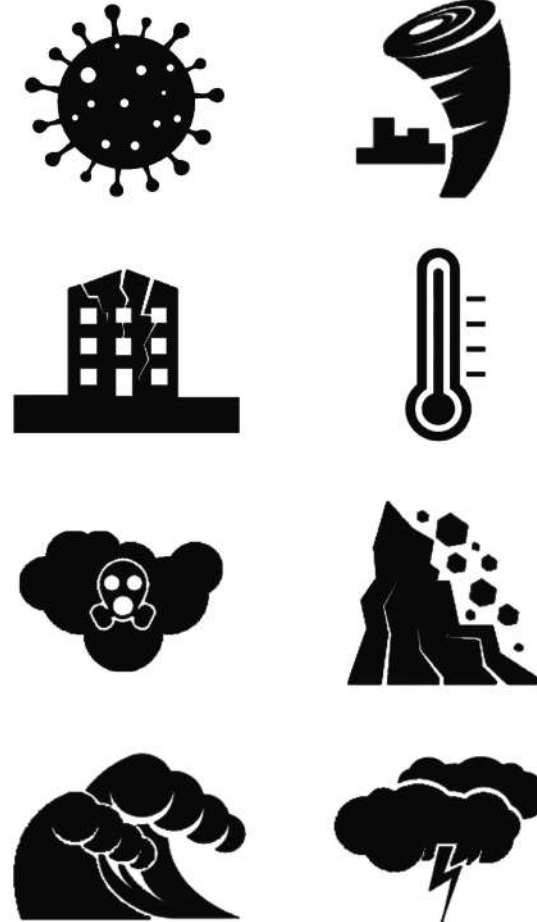
Simone Porfiri



WHY THE OPEN SPACE?

The open space in contemporary city can be declined according to three definitions:

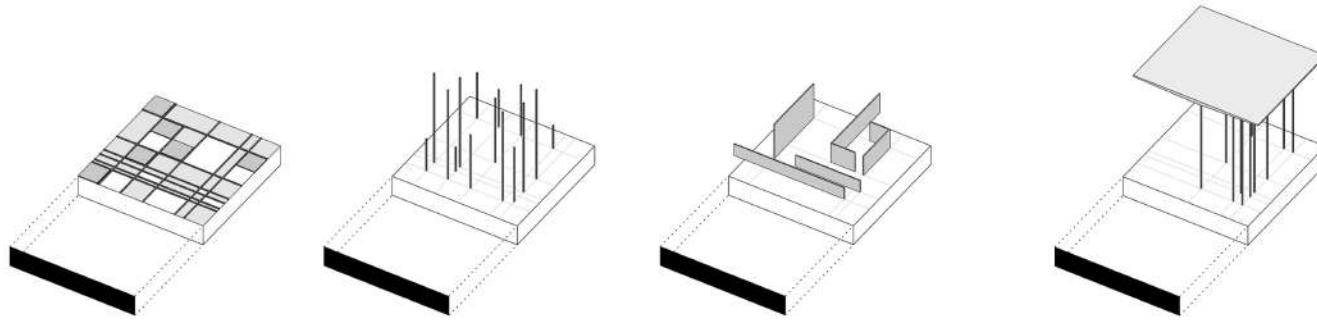
- As **connective infrastructure**
 - As **social infrastructure**
 - As **ecological infrastructure**



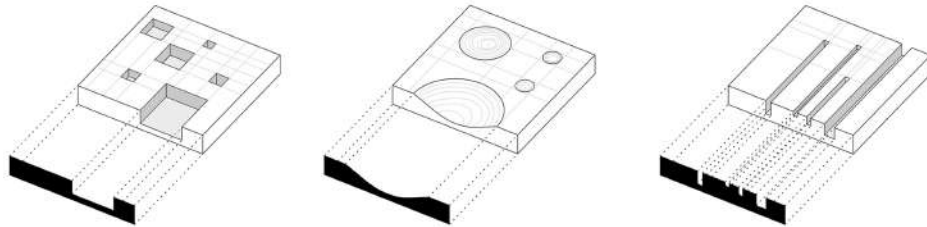
THE GROUND DESIGN



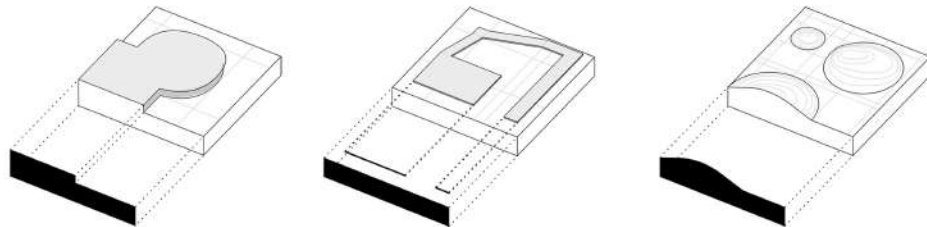
SUPERFICIAL SHAPES



CONCAVE SHAPES



CONVEX SHAPES



THE SHAPES OF THE GROUND

From a two-dimensional surface, the ground therefore acquires its own three-dimensional nature and autonomy like architecture; in a modeling of the zero-degree plane, as P.Viganò defines it, generated by a variation in height (-1 and + 1) as well as a differentiation of material texture (0)

THE ADAPTIVE SHAPES OF THE GROUND

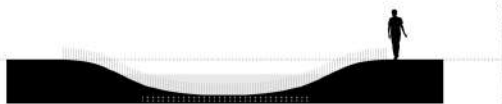
FLOODABLE BASINS



DRAINING TRENCHES



WET PONDS



WATER MIRRORS



WATER SQUARES



PERMEABLE PAVING



RAIN GARDENS



COOL MATERIALS



THE ADAPTIVE SHAPES OF THE GROUND

FLOODABLE SWALES



TREES



SUSPENDED PATHS



URBAN SHADING



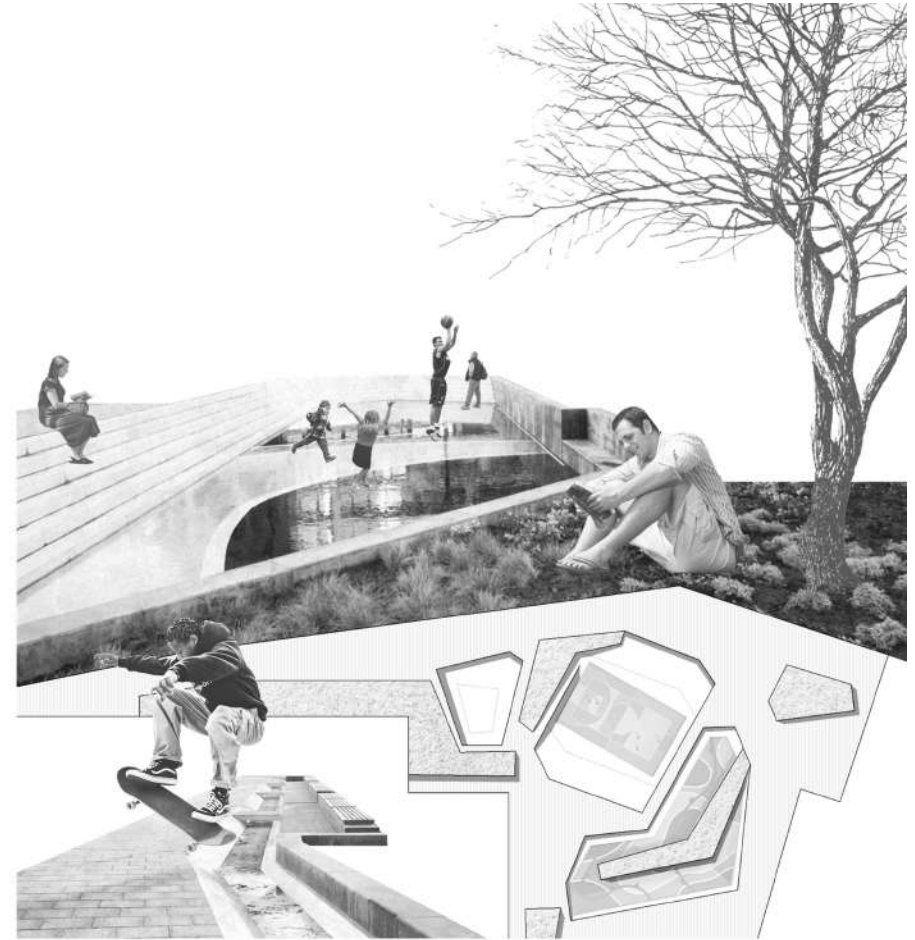
DIKES



BUFFER SPACES



FROM TECHNOLOGICAL DEVICE TO ADAPTIVE PUBLIC SPACE



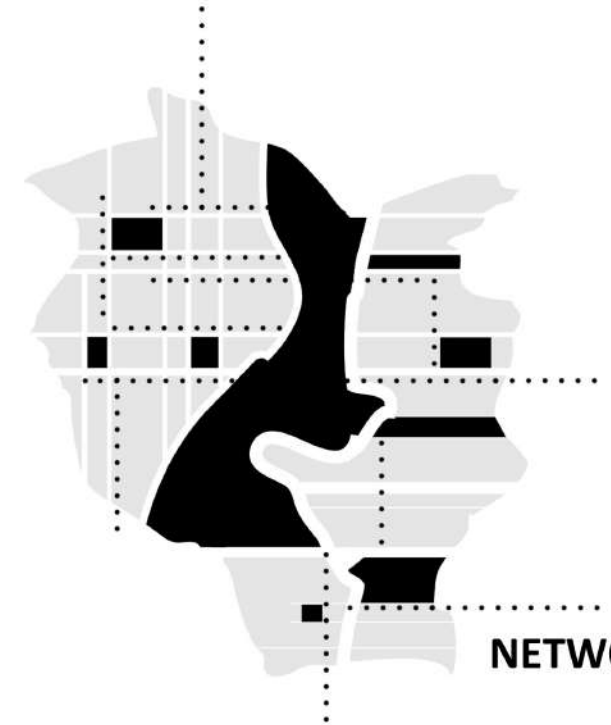
URBAN FIGURES



FRAME



INTERFACE



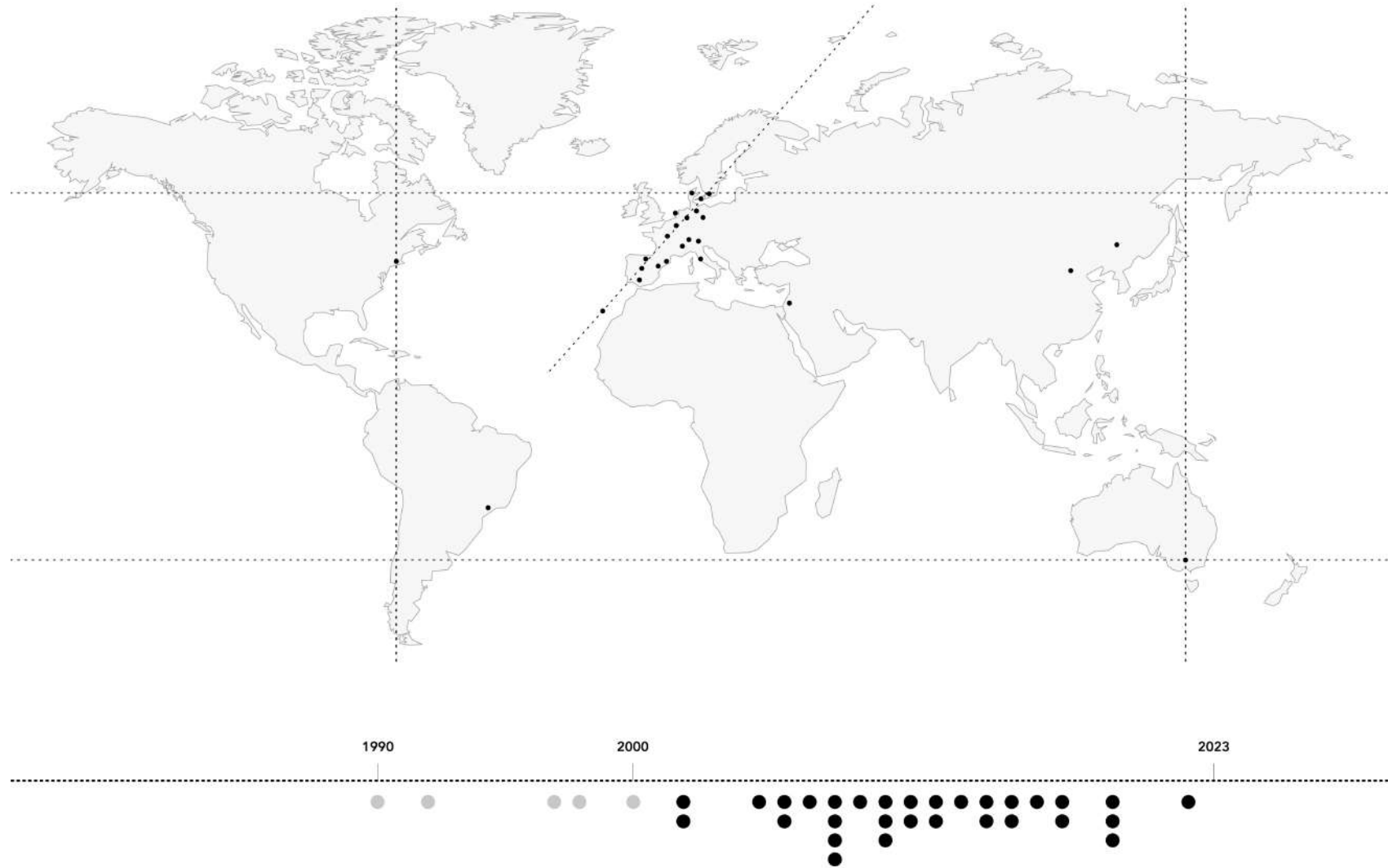
NETWORK

SMALL SCALE



BIG SCALE





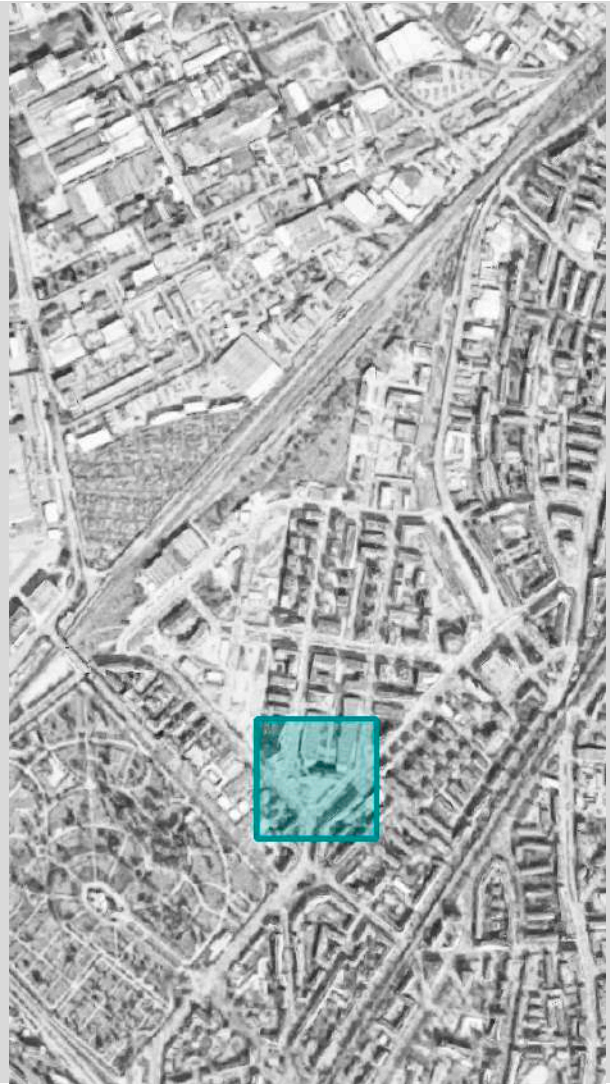
ZOLLHALLEN PLAZA

Place: Freiburg, Germany

Year: 2011

Designers: Ramboll Studio Dreiseitl

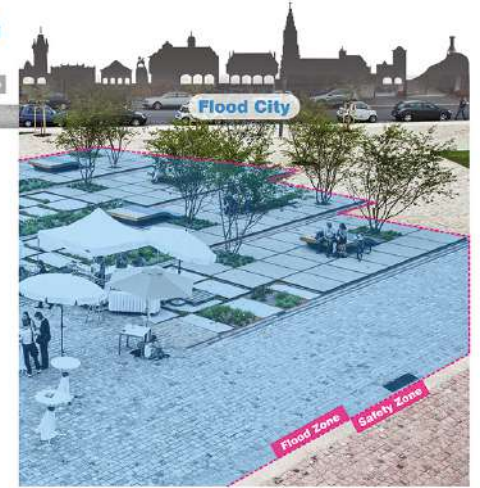
The plaza is a fine example of water sensitive urban design, as it is disconnected from the sewer system. Indented plaza areas create a surface flood zone. No rain water is fed to the sewer system, instead the groundwater table is recharged. The design plays with the historic past of the site which was a railyard.





Cloudburst Plaza
100 Year Flood

Disconnect from Sewage



Cloudburst Plaza
Regular Rain

Disconnect from Sewage



DIKE IN DUNE

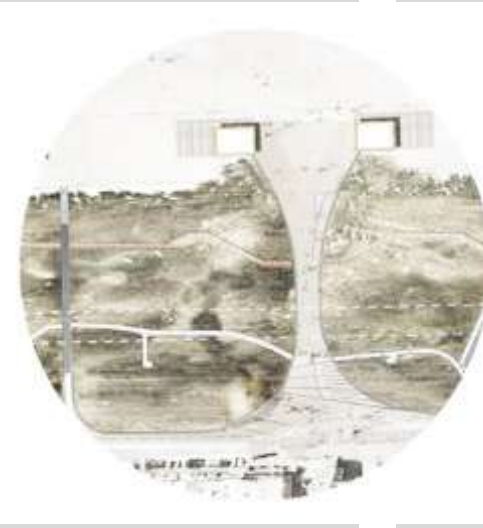
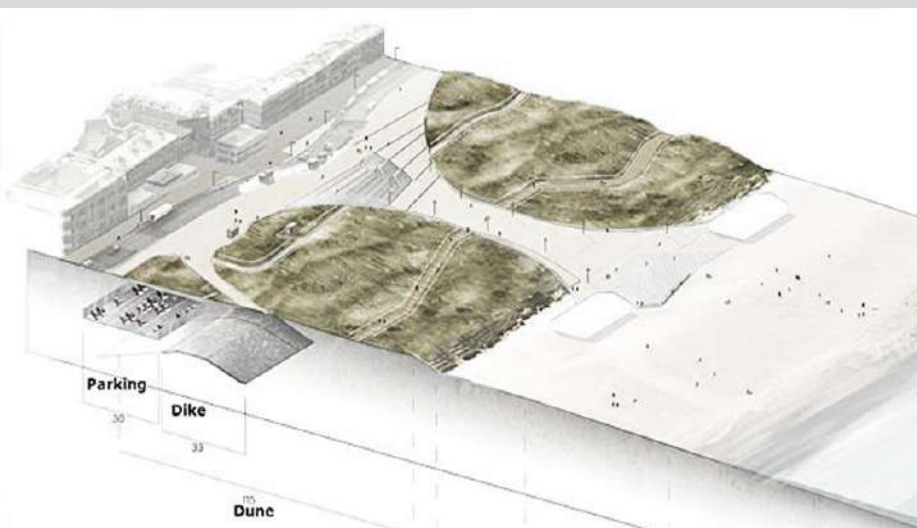
Place: Katwijk, Netherlands

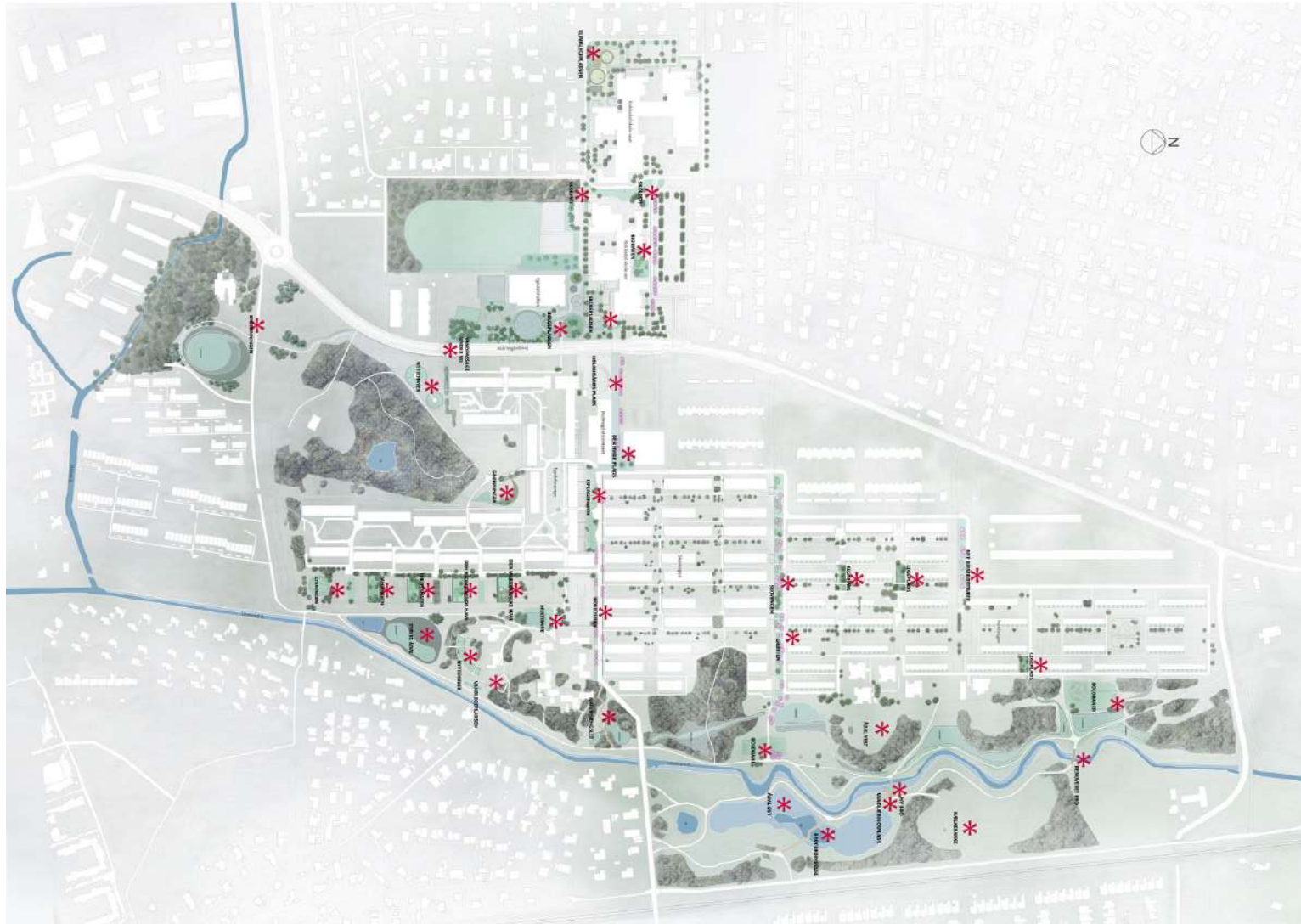
Year: 2015

Designers: OKRA

In an interactive planning process OKRA defined the most important values of Katwijk; namely the relationship between the village and the beach. The chosen dyke-in-dune coastal defences, is built with minimal disruption between town and beach. With this construction the City could also realise an underground parking garage behind the dyke.







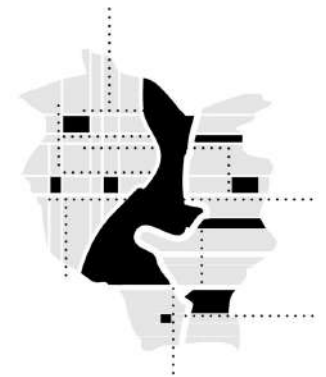
KOKKEDAL CLIMATE ADAPTION

Place: Copenhagen, Germany

Year: 2017

Designers: Schonherr

The Kokkedal project contains an extensive catalogue of solutions for climate adaption and water methods. Whereas rainwater was hidden underground, the rainwater management is now made visible in a way, offering new recreational urban possibilities. The rainwater follow its course from the smaller basins to Usserød River





TOWARDS A NEW LAND ART



Sx: Kokkedal Climate Adaption,
Copenhagen, Schonherr, 2017
Dx: Mill Creek canyon earthworks, Kent
(USA), H.Bayer, 1982



TOWARDS A NEW LAND ART



Sx: Protection structures against snow avalanches in Siglufjordur, Landslag, 1998-1999
Dx: Homage to El Lissitzki, Lelystad, 1985-1986

TOWARDS A NEW LAND ART



Sx: Royal Park Wetland, Melbourne,
Rush Wright Associates 2006
Dx: Broken Circle, Emmen, Robert
Smithson, 1971



Resilient communities, (re)making cities with and for citizens

Ludovica Simionato





Material



Immaterial



Participation

The regeneration project, as it is understood within the European announcements and in the subsequent enactments of the regional laws, is implemented through processes of participation by several actors but above all by the inhabitants.

Network

Between citizens and public institutions.
Between projects and citizens.

Temporal continuity

Regeneration projects, in addition to following the specific processes for which they were born, must continue to take care of the territory of their city or neighborhood even after the project time has passed.

Source: ISPRA, 2018



Tactical urbanism

Designed so that it can be added to or revised internally over the course of time as living needs change

+

Civic pageants

Tools used by P. Geddes.
Urban spectacles increasingly associated with places undergoing transformation.

-To integrate the offer of possibilities within the neighbourhood

-To shine a light on the condition of places that have lost their original function or that could take on a possible and necessary one

Source: Arquitectura Expandida, 2018





Bottom-up

Arquitectura expandida Paris, 2018

COMMUNauté is a research-action-exhibition project on common spaces, their actors and their forms of organisation, in the degraded cité Chêne Pointu (1965) in the commune of Clichy-sous-bois, in the metropolitan agglomeration of Paris.

“we cannot talk about the commons without talking about its actors”

Project of: Arquitectura Expandida for Conseil “Citoyen”

Source: www.arquitecturaexpandida.org





Arquitectura expandida Paris, 2018

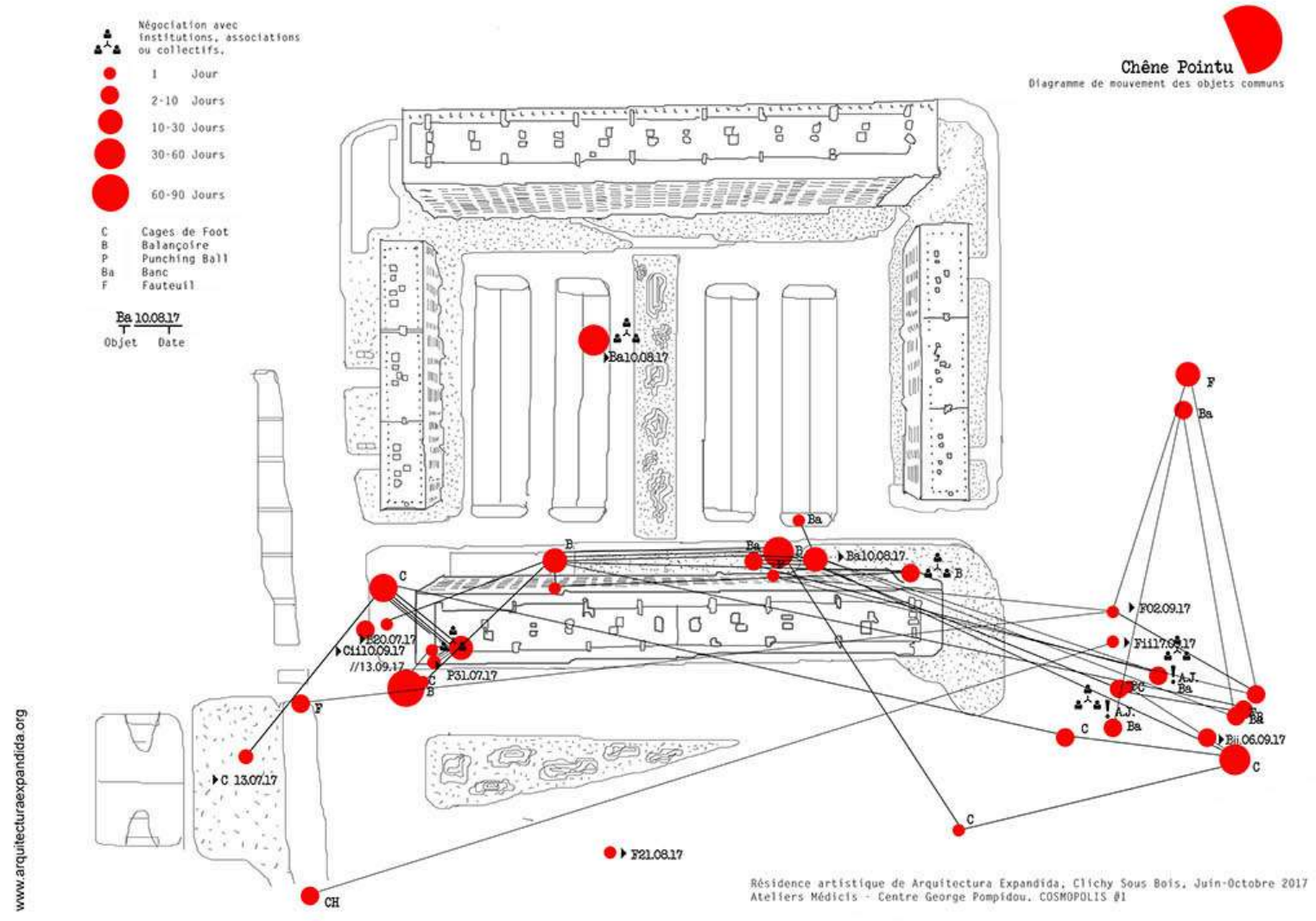
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Source: www.architecturaexpandida.org

Arquitectura expandida Paris, 2018

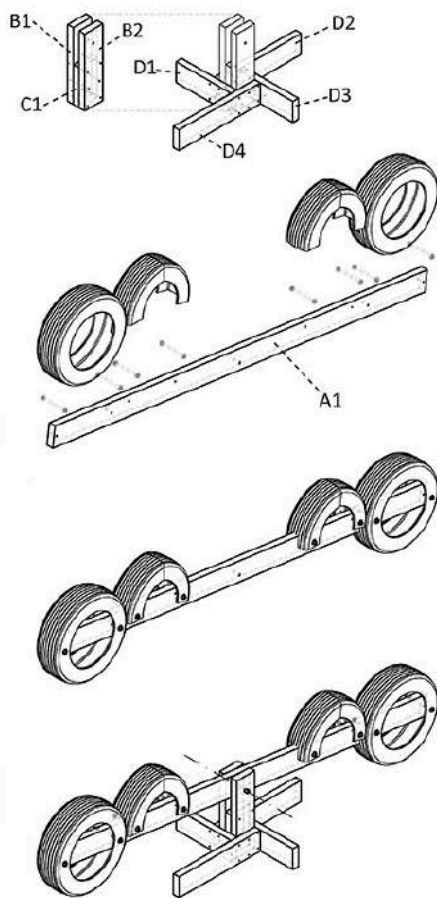
Devices

Easy to assemble and imagined with citizens for adaptable uses and spaces. All are removable and self-built.

Urban facades

Signs on the ground

Function



Source: www.arquitecturaexpandida.org



Arquitectura expandida Paris, 2018

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Urban facades

They intervene on the ground floors, easy to paint by the residents themselves, working on the ground connection and integration of the urban dispositive

Signs on the ground Function

Source: www.arquitecturaexpandida.org





Arquitectura expandida Paris, 2018

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Urban facades

They intervene on the ground floors, easy to paint by the residents themselves, working on the ground connection and integration of the urban dispositive

Signs on the ground

Signs on the ground work on the re-appropriation of public space

Function

Each material used aims at the direct intervention of residents who can change uses, move dispositions and dispose of free areas where they can organise community events.



Bottom-up promoted from Up

Piazze aperte, Milan 2018

The colour that invades the city harks back to a 'tactical' and 'light' vision of town planning, pending a real overall 'strategy'. The example of Milan

Project of: Milan Municipality, Bloomberg Associates, NACTO e GDCI

Source: www.comune.milano.it





Piazze aperte, Milan 2018

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Strade aperte, Milan 2018

Signs on the ground
To pedestrianise parts of the street and
highlight crossings

Devices
Urban voids
Function

Source: www.comune.milano.it





Strade aperte, Milan 2018

Signs on the ground

To pedestrianise parts of the street and highlight crossings

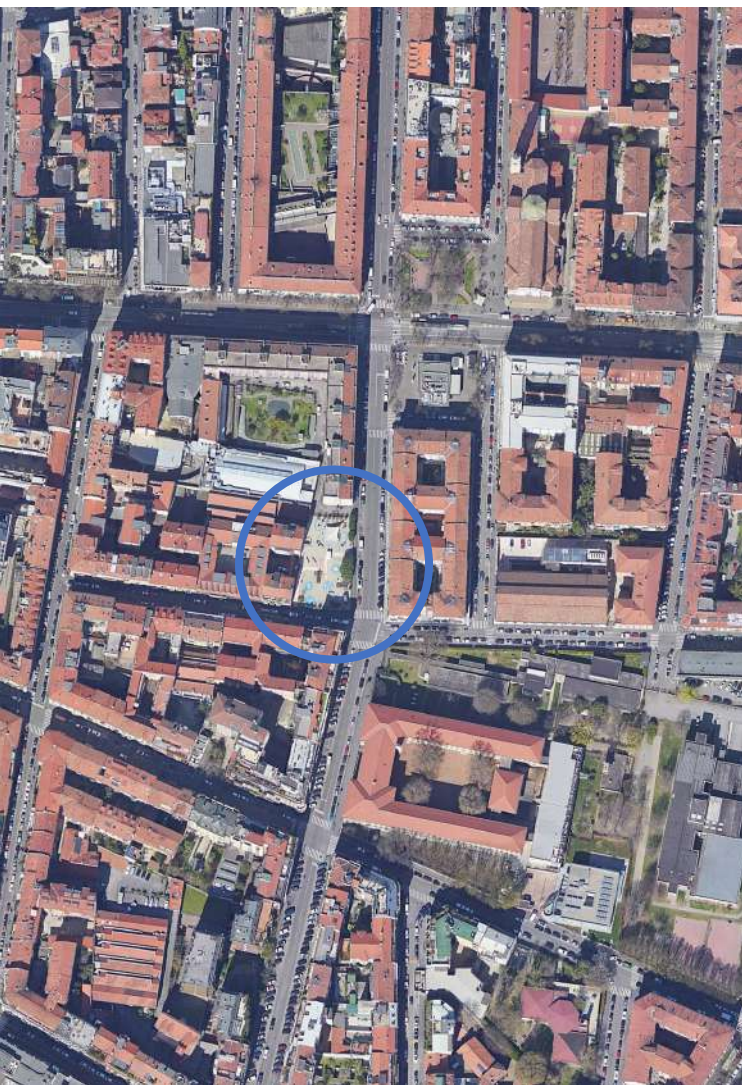
Devices

To promote play, to divide streets and to encourage the use of open space

Urban voids

Function

Source: www.comune.milano.it



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To pedestrianise parts of the street and highlight crossings

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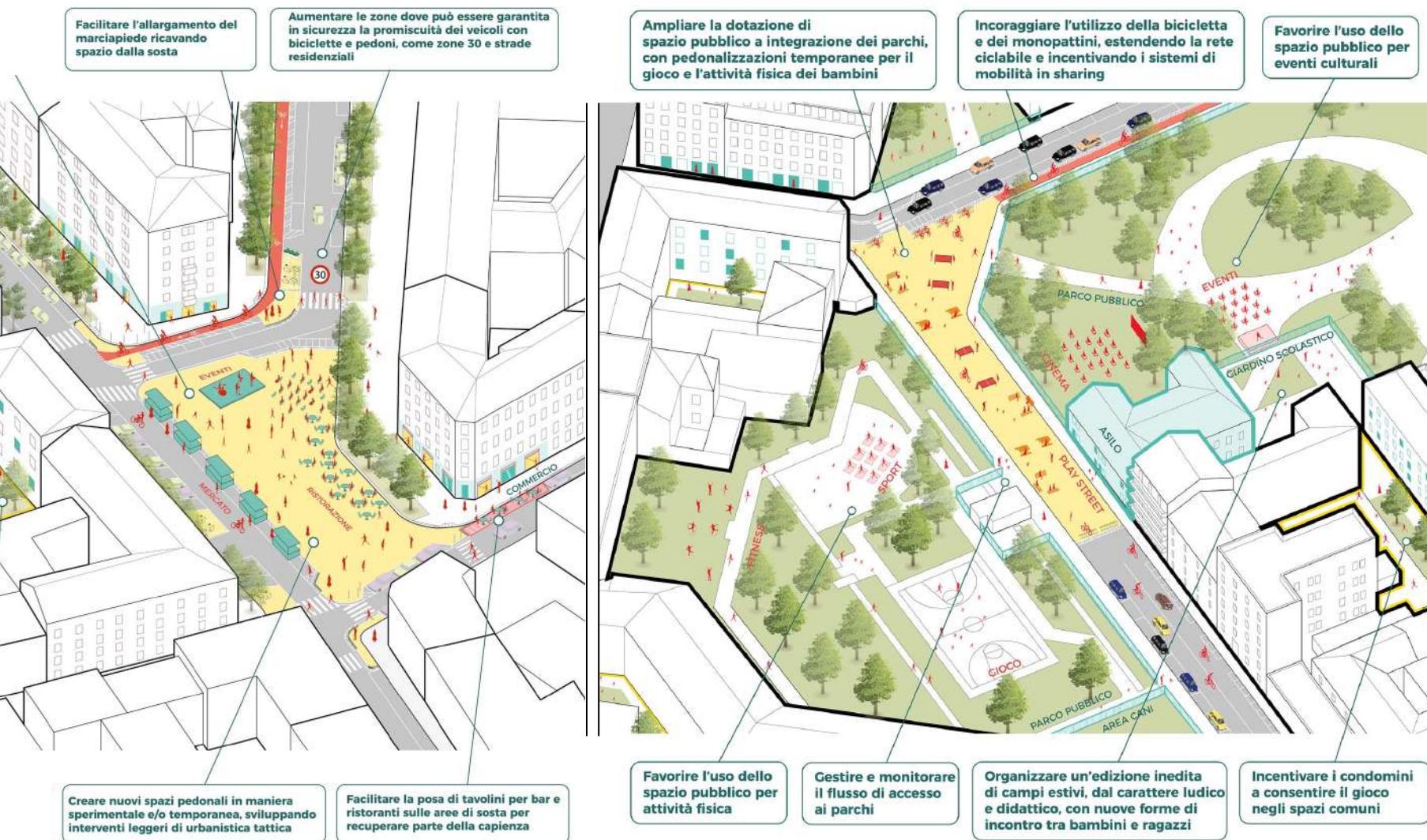
Urban voids

To recover open spaces and residual spaces between high-density buildings

Function

Source: www.comune.milano.it





Strade aperte, Milan 2018

Signs on the ground

To pedestrianise parts of the street and highlight crossings

Devices

To promote play, to divide streets and to encourage the use of open space

Urban voids

To recover open spaces and residual spaces between high-density buildings

Function

Linking functions and giving spaces to neighbourhood activities to create ownership

Source: www.comune.milano.it



**Strade aperte,
Milan 2018**

*Signs on the ground
Devices
Urban voids
Function*



Long-term project:
Once the experimentation period with tactical urbanism is over and the functions that have taken root the most have been defined, the municipality intervenes with a more structured and definitive project

Source: www.comune.milano.it



Conclusions

In response to the growing necessity for more livable, safe, accessible and resilient environments, there are many strategies to approach the Urban Project.

In this perspective, embracing the challenges of the various transitions in progress, emphasis have to be placed on the complexities of "doing urban regeneration," addressing the aforementioned topics in order to have a more efficient and complete project.

Thank you very much!



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