

Iaac

Institute for
advanced
architecture
of Catalonia



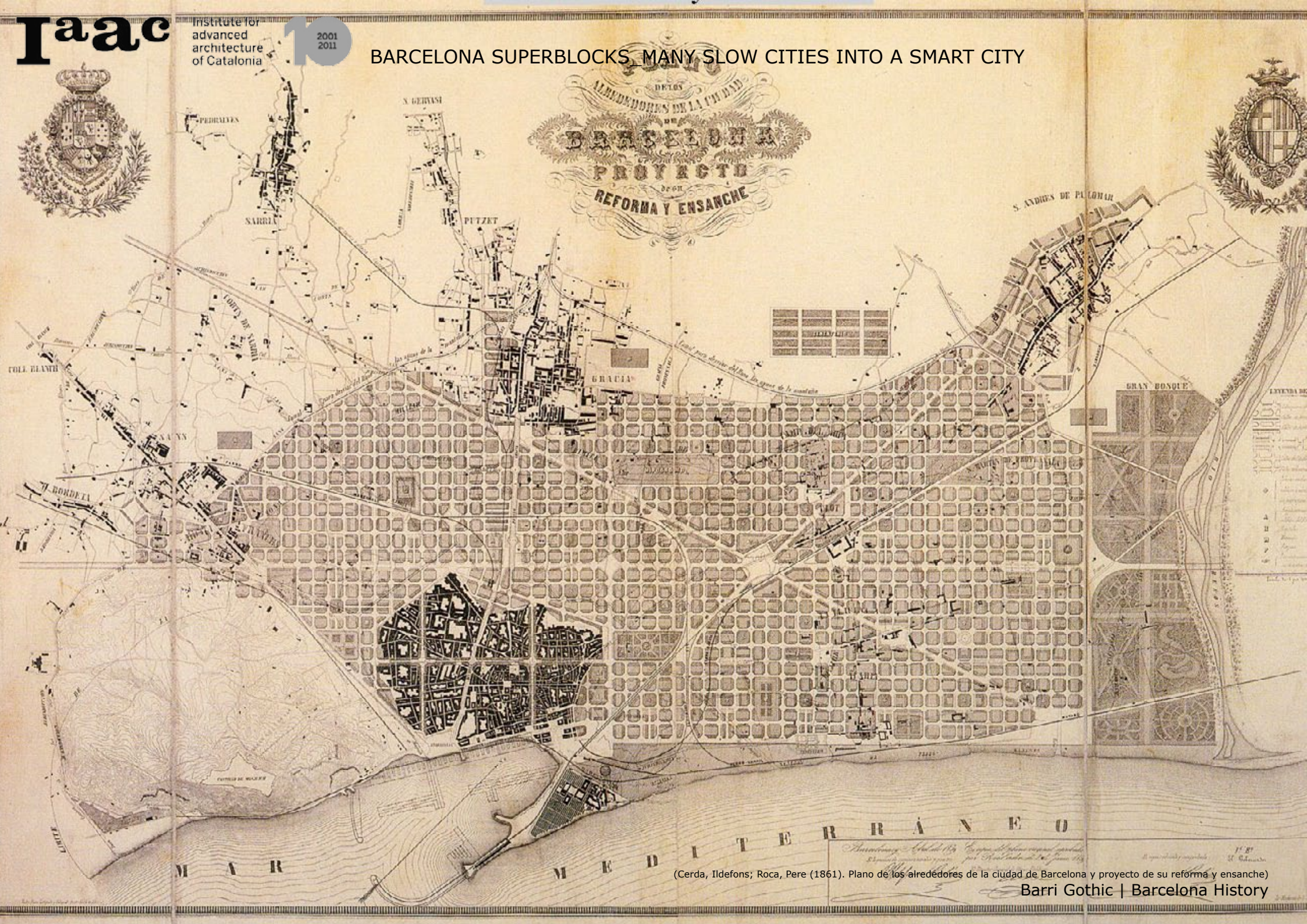
MANY SLOW CITIES
INTO
A SMART CITY

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Advisor: Salvador Rueda
Assistants: Ioanna Spanou, Tomas Vivanco

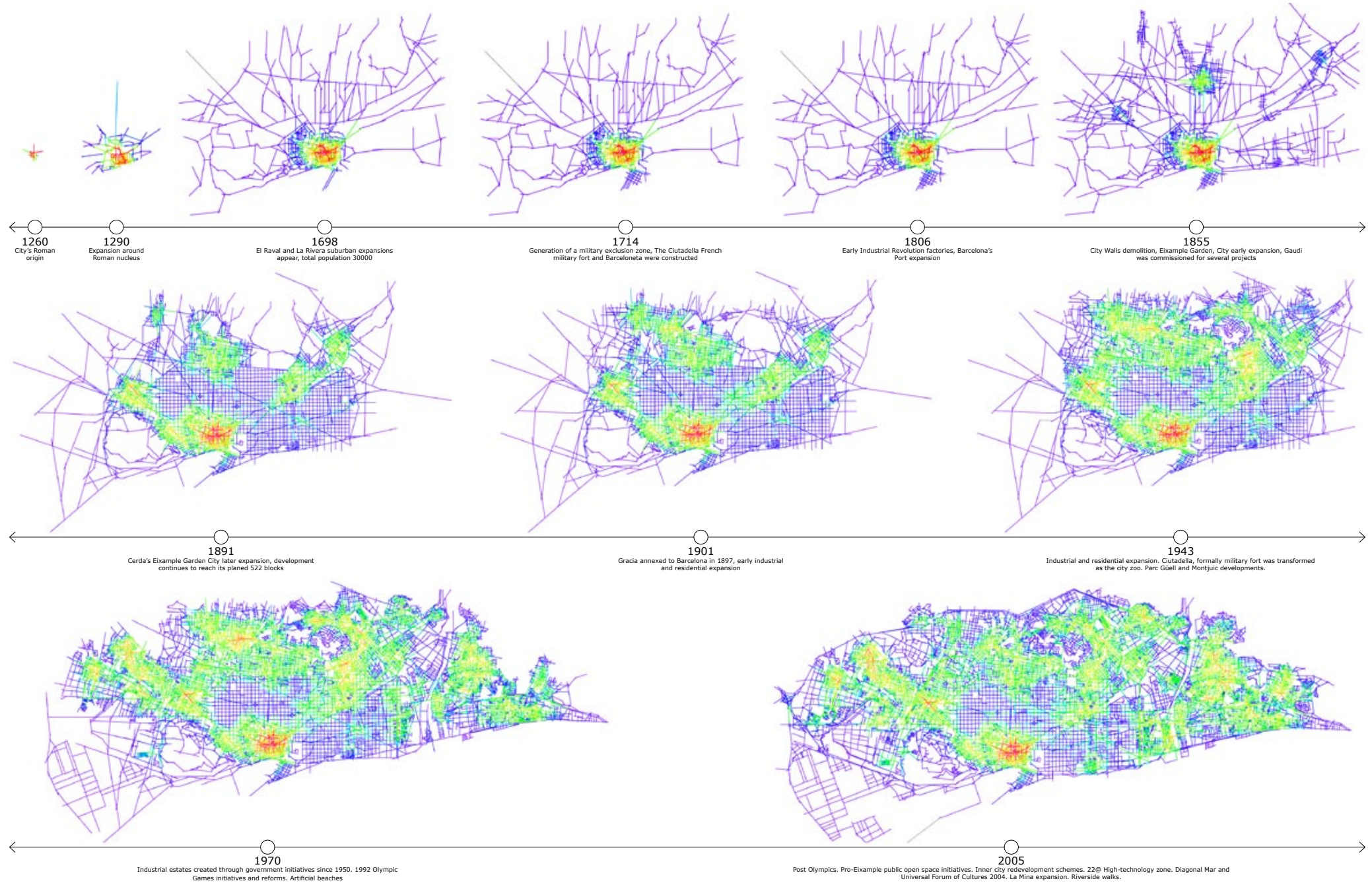
Group: Shruthi Basappa
Ahmad Bathaei
Seiichi Eduardo Suzuki
Alejandro Nuñez López

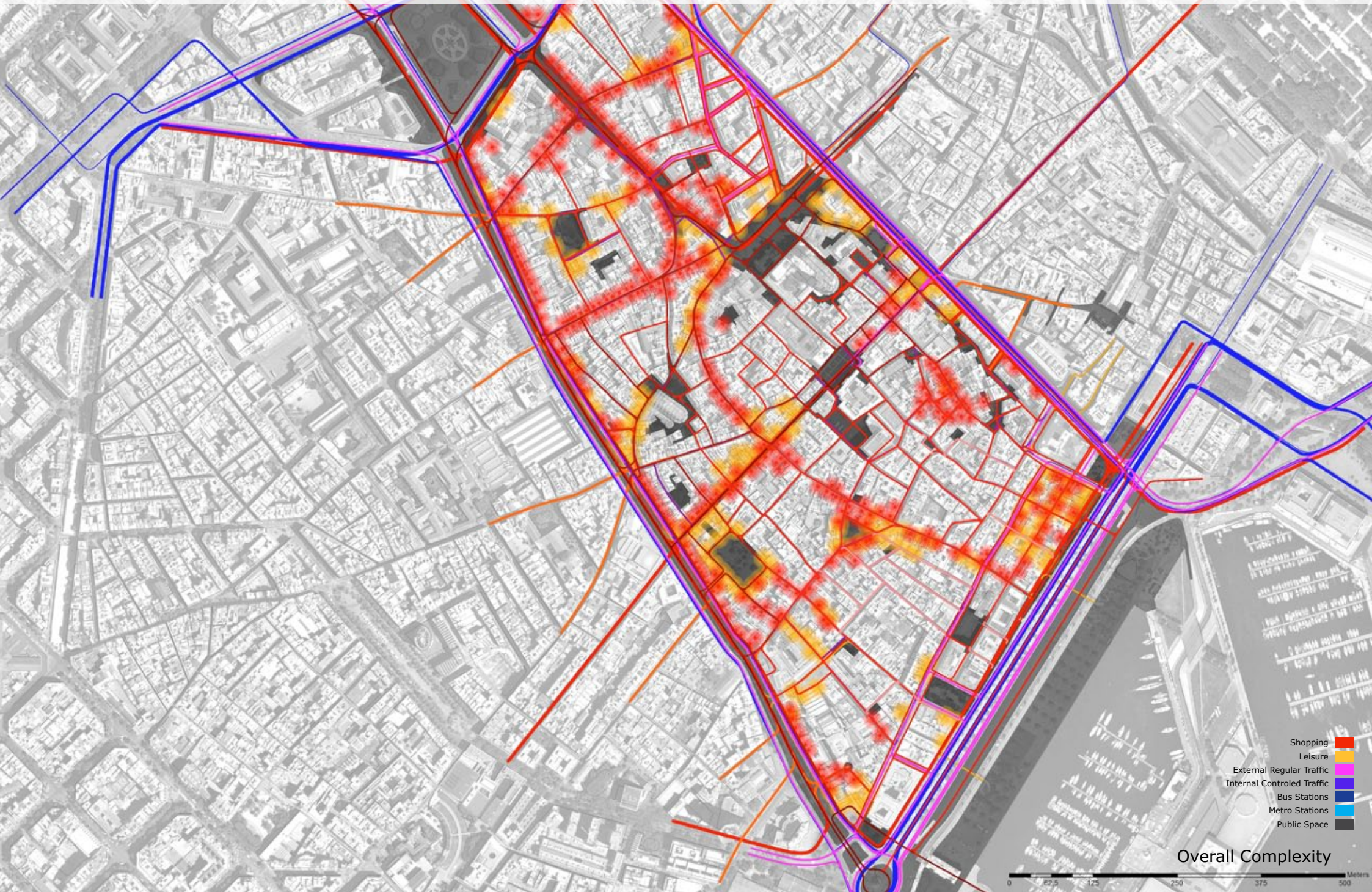
A CITY WITHIN THE CITY

Introductory Studio FINAL PRESENTATION

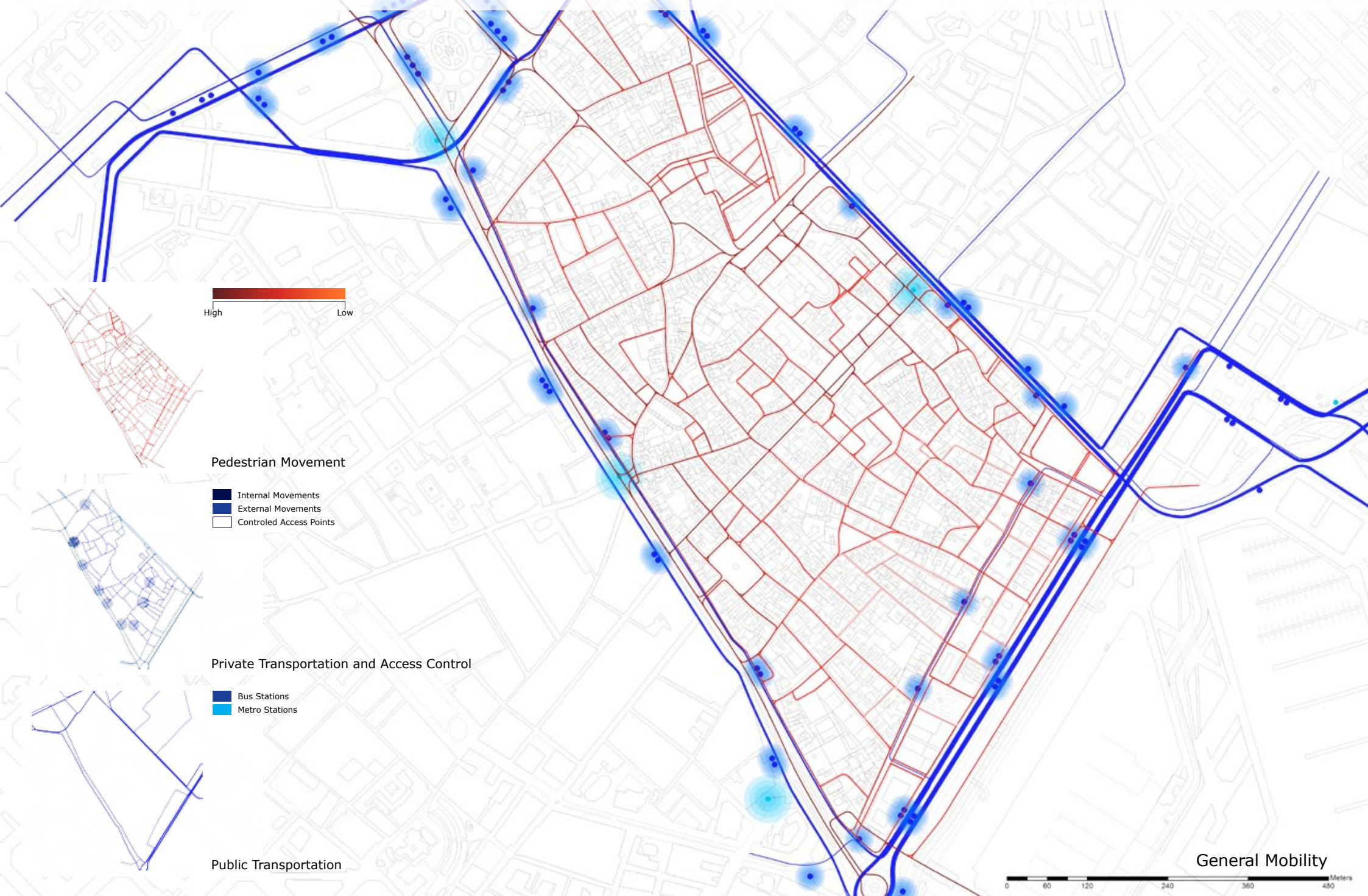


BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY

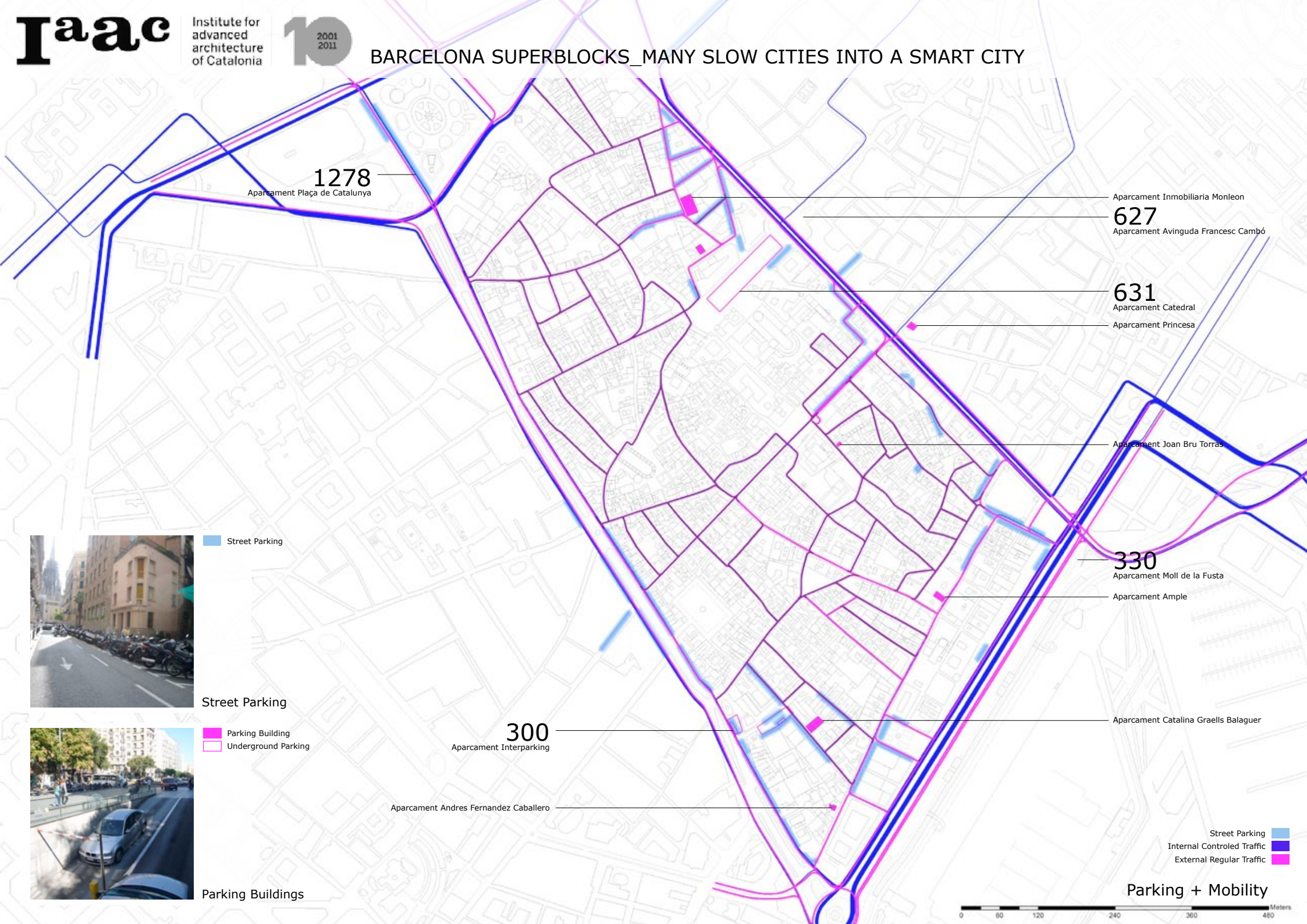




BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



Street Parking

Street Parking



Parking Buildings

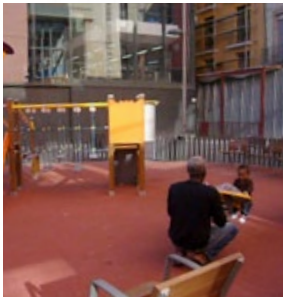
Street Parking
Internal Controlled Traffic
External Regular Traffic

Parking + Mobility

0 60 120 240 360 480 Meters



1
The Tourist



2
The People



3
The Power



The People
Plaza Real

The Tourist
Carrer de Ferran

The Power
Palacio de la Generalidad

- Shopping
- Leisure
- Education
- History
- Culture
- Public Offices

Mobility + Activities



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



1
Plaza Catalunya
Passeig de Gracia
Urquinaona
Universitat



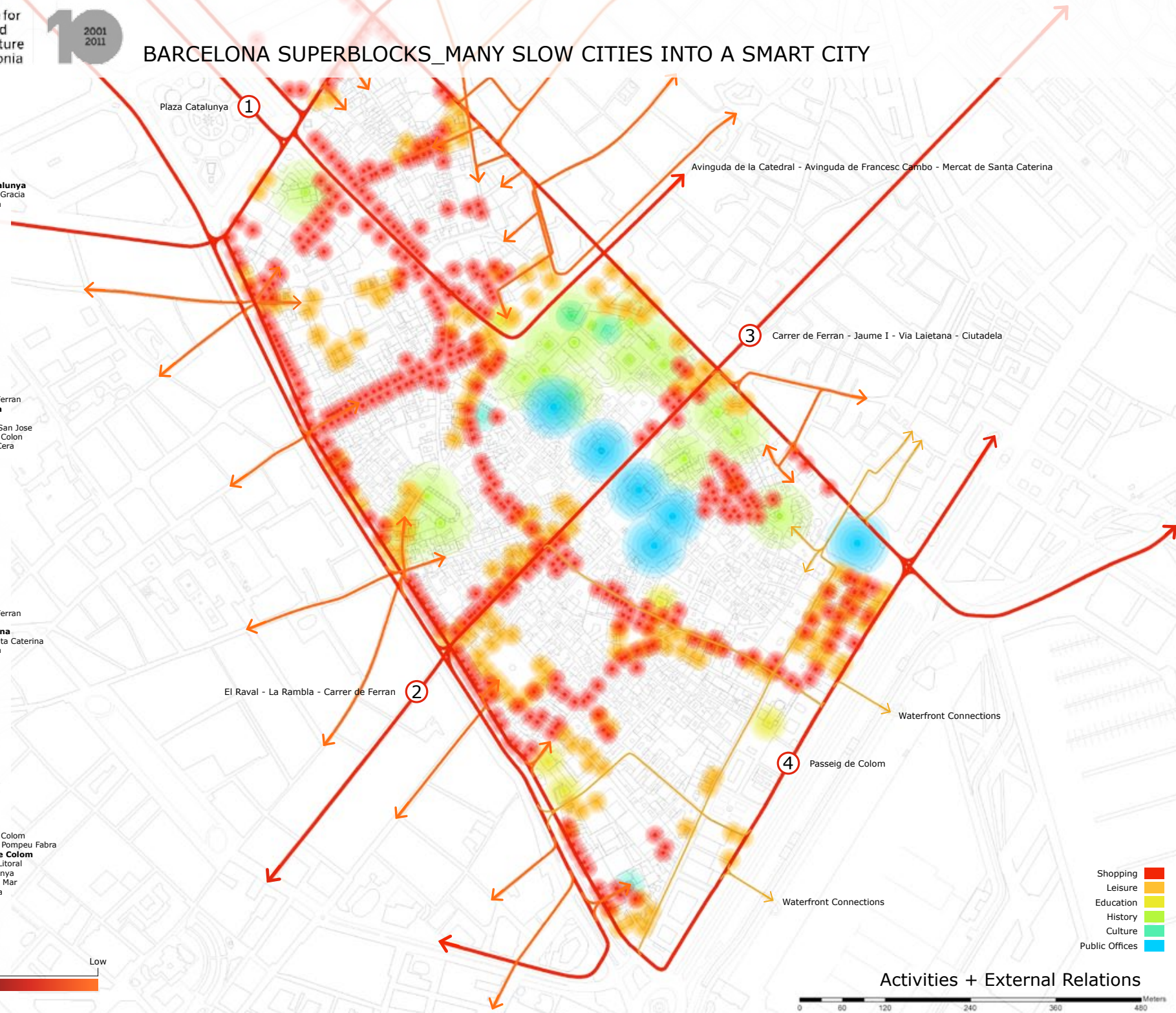
2
Carrer de Ferran
La Rambla
Liceu
Mercat de San Jose
Estatua de Colon
Museo de Cera
El Raval



3
Carrer de Ferran
Jaume I
Via Laietana
Mercat Santa Caterina
Urquinaona
Ciutadella



4
Correos
Estatua de Colom
Universitat Pompeu Fabra
Passeig de Colom
Ronda del Litoral
Mall d'Espanya
Rambla del Mar
Barceloneta



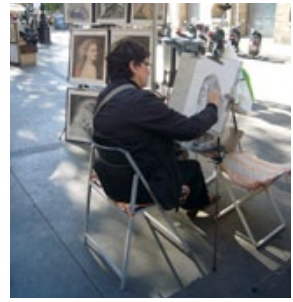
Activities + External Relations



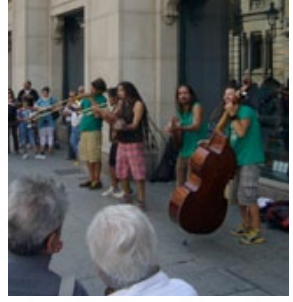
BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



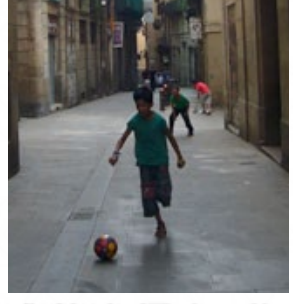
Informal Uses
Commerce



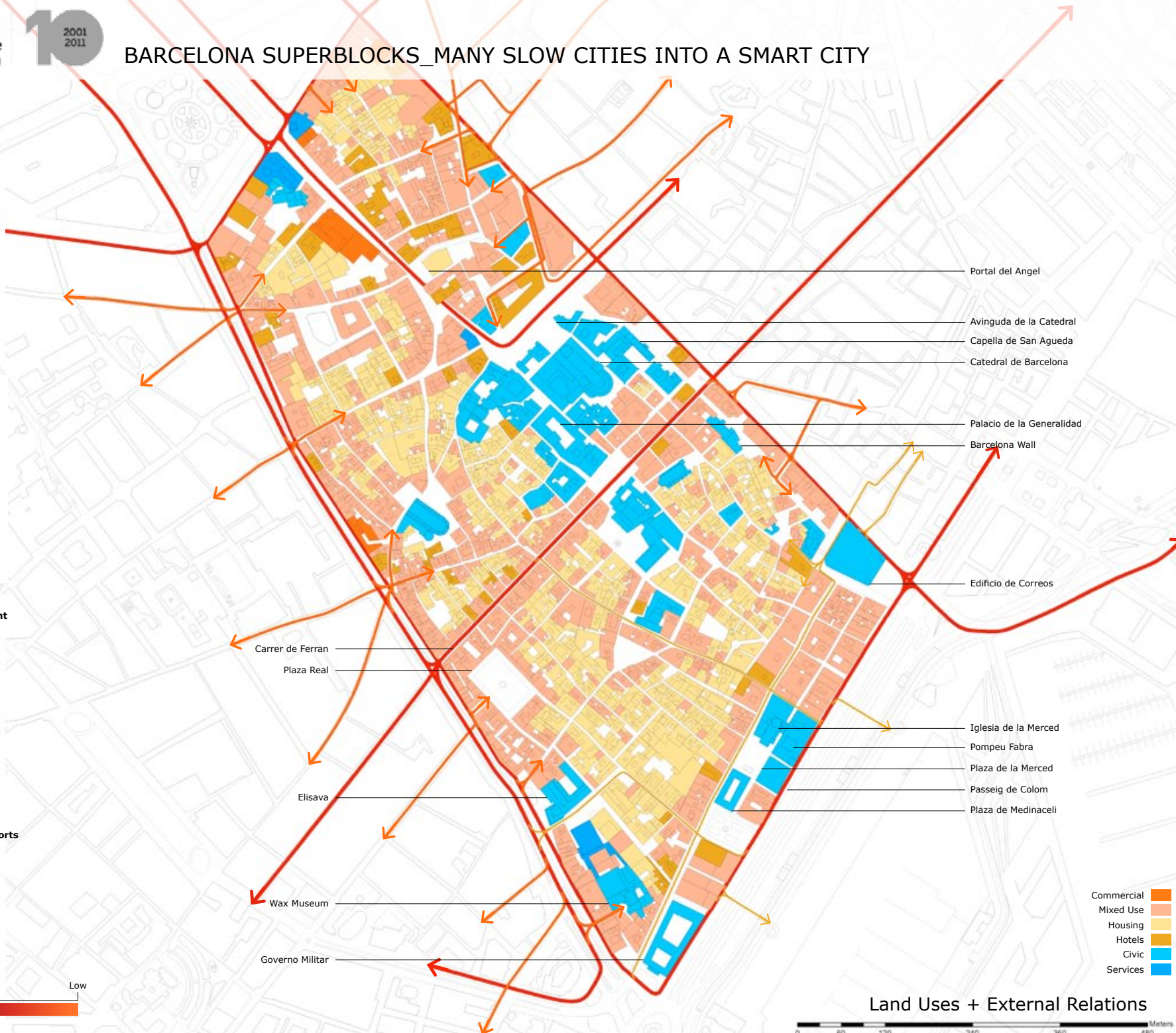
Informal Uses
Art + Crafts



Informal Uses
Entertainment



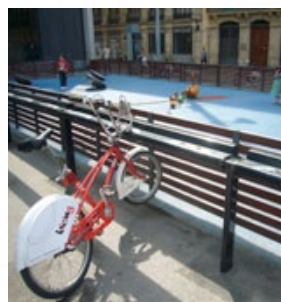
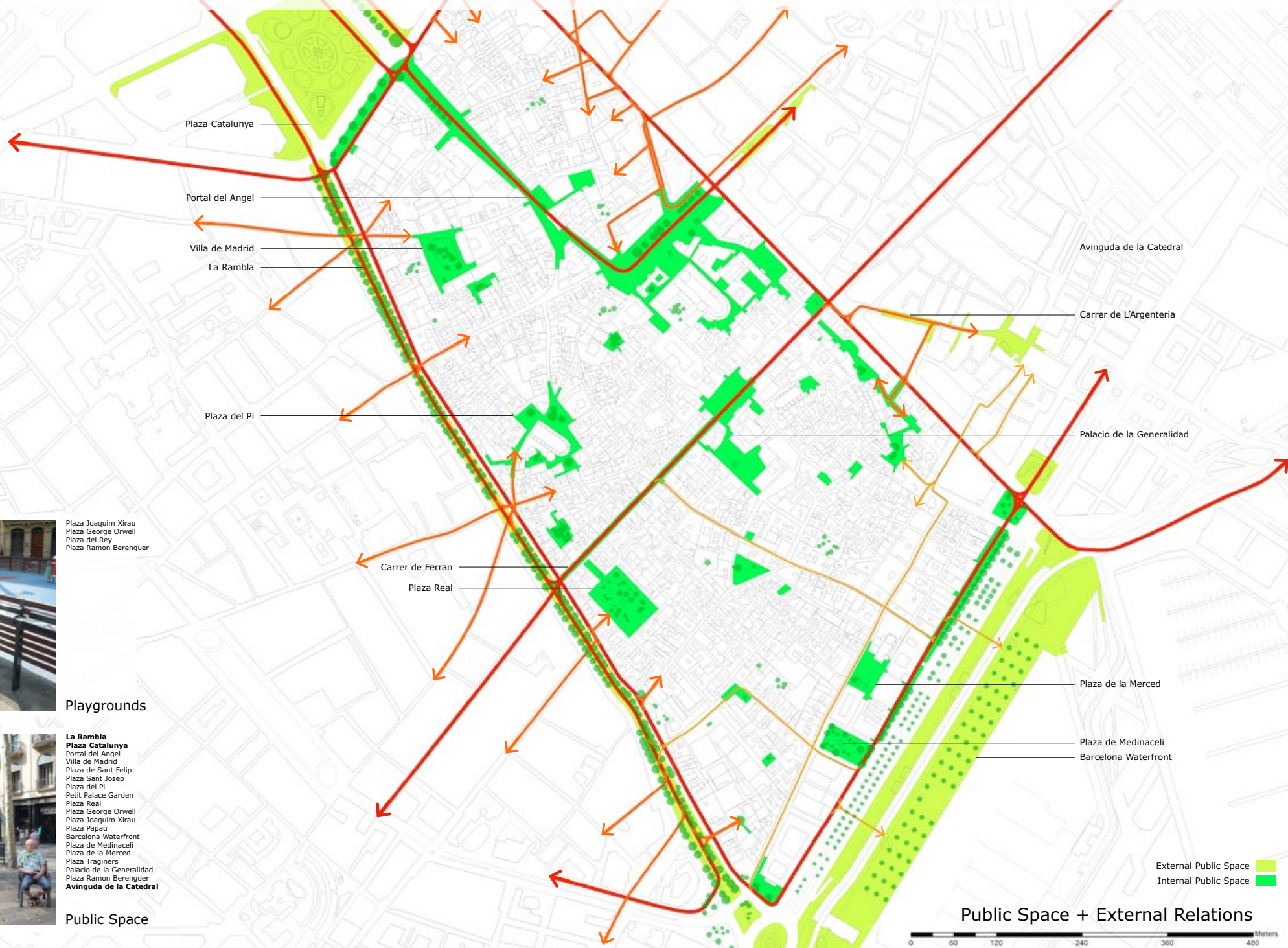
Informal Uses
Leisure + Sports



Land Uses + External Relations



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



Plaza Joaquim Xirau
Plaza George Orwell
Plaza del Rey
Plaza Ramon Berenguer

Playgrounds

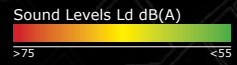


La Rambla
Plaza Catalunya
Portal del Angel
Villa de Madrid
Plaza de Sant Felip
Plaza Sant Josep
Plaza del Pi
Petit Palace Garden
Plaza Real
Plaza George Orwell
Plaza Joaquim Xirau
Plaza Papau
Barcelona Waterfront
Plaza de Medinaceli
Plaza de la Merced
Plaza Trainers
Palacio de la Generalidad
Plaza Ramon Berenguer
Avinguda de la Catedral

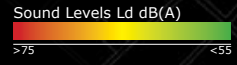
Public Space

Public Space + External Relations

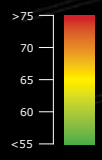
BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



Day Noise Index



Night Noise Index



Noise Map



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



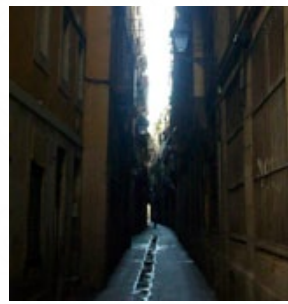
1|200m
Plaza Catalunya



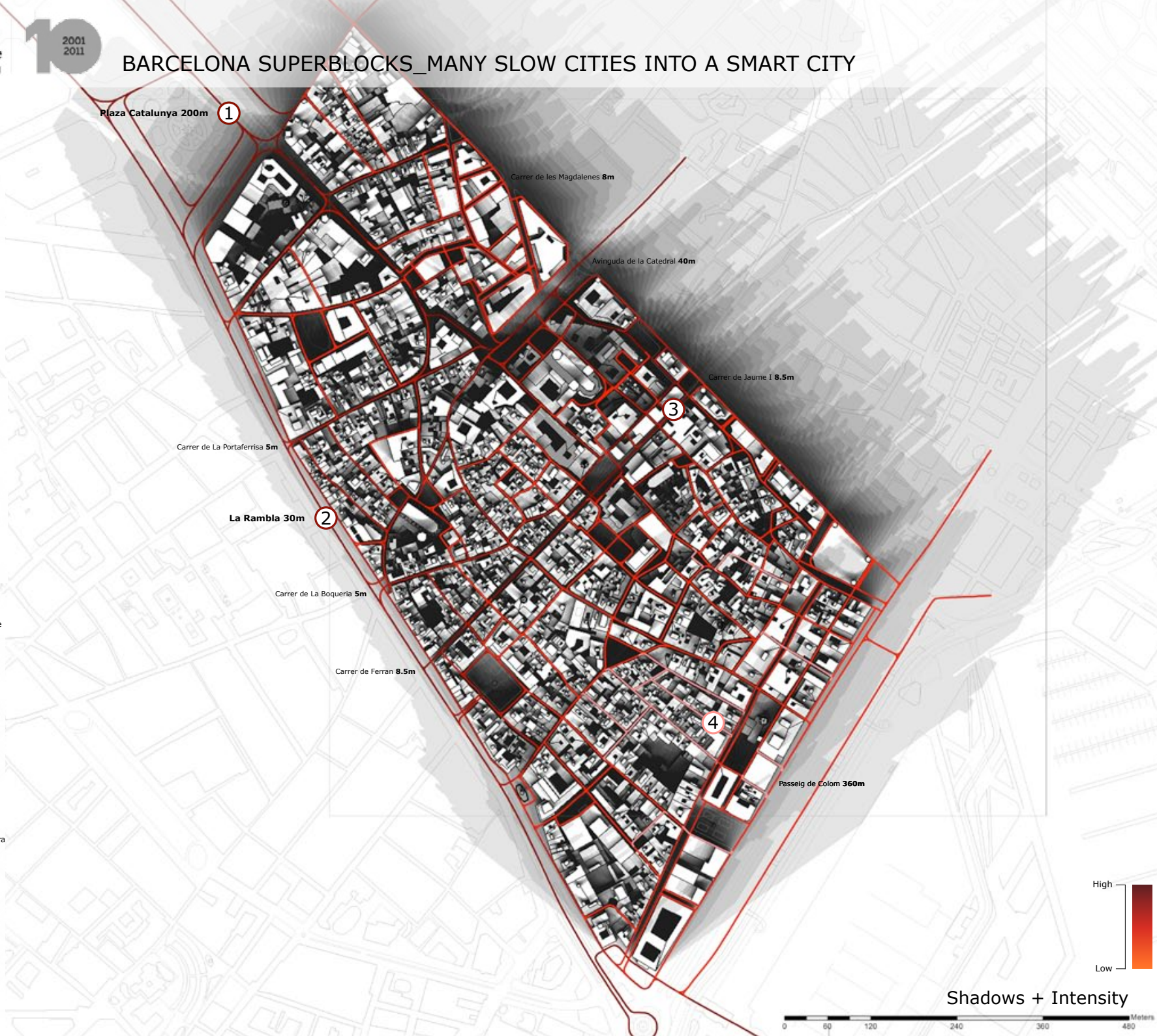
2|30m
La Rambla



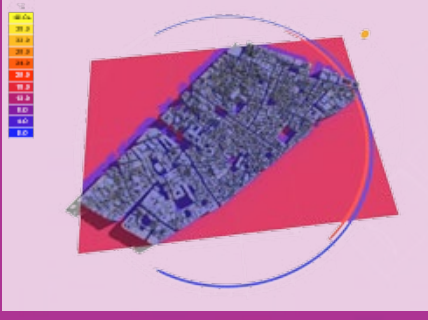
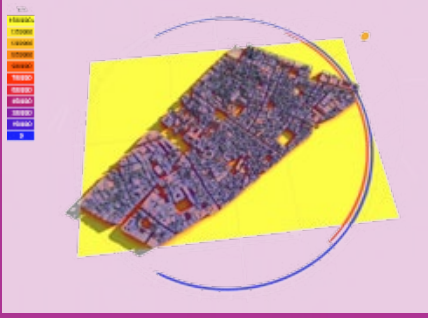
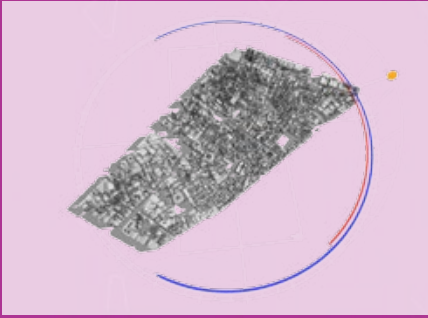
3|8.6m
Carrer del Jaume



4|2.5m
Carrer d' En Serra



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



Shadow Analysis

Shadows during the year.

Lighting Levels

Buildings in the close neighborhood streets receive very low amounts of sun light.

Comfort Levels

Comfort levels demonstrate to maintain a direct relationship with the intensity of the space use, inside and around the block.

Plaza Catalunya 12°

Carrer de les Magdalenes 4°

Avinguda de la Catedral 8°-12°

Carrer de Jaume I 4°

Carrer de La Portaferrisa 8°

La Rambla 12°

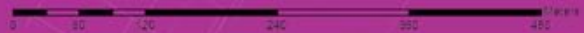
Carrer de La Boqueria 8°

Carrer de Ferran 8°

Passeig de Colom 4°



Comfort Analysis



STAKEHOLDERS

CITIZENS AND RESIDENTS ARE BOTH THE SUPERBLOCK STAKEHOLDERS

CITIZENS - TOURISTS - VISITORS - WORKING CLASS - CITY



RESIDENTS - FAMILIES - CHILDREN



EQUITY

GREENERY

OPENNESS

SECURITY

COMFORT

PRIVACY

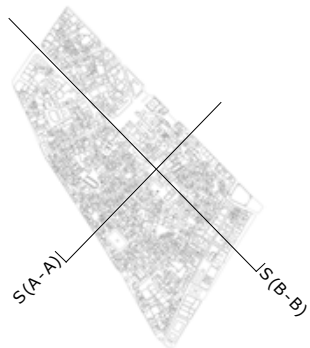
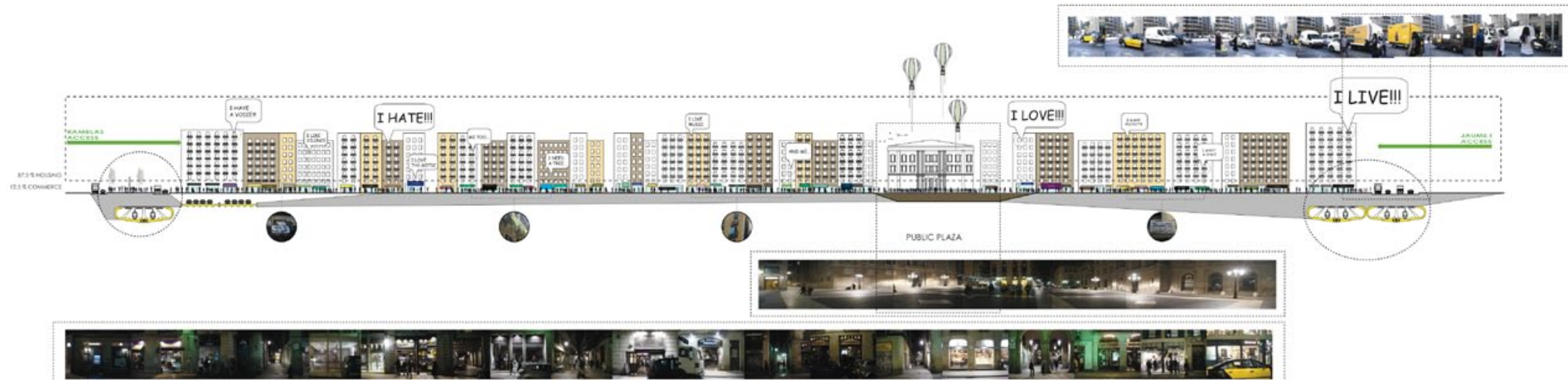
SAFETY

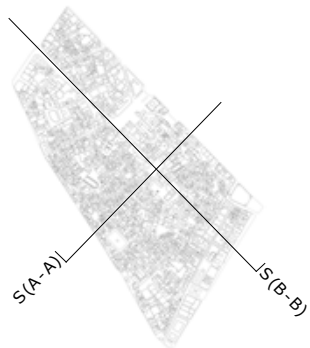
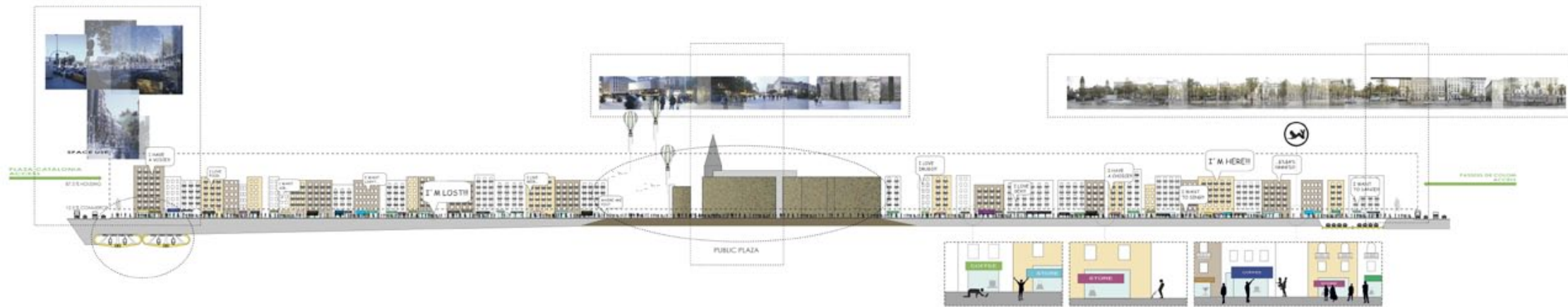
NETWORK

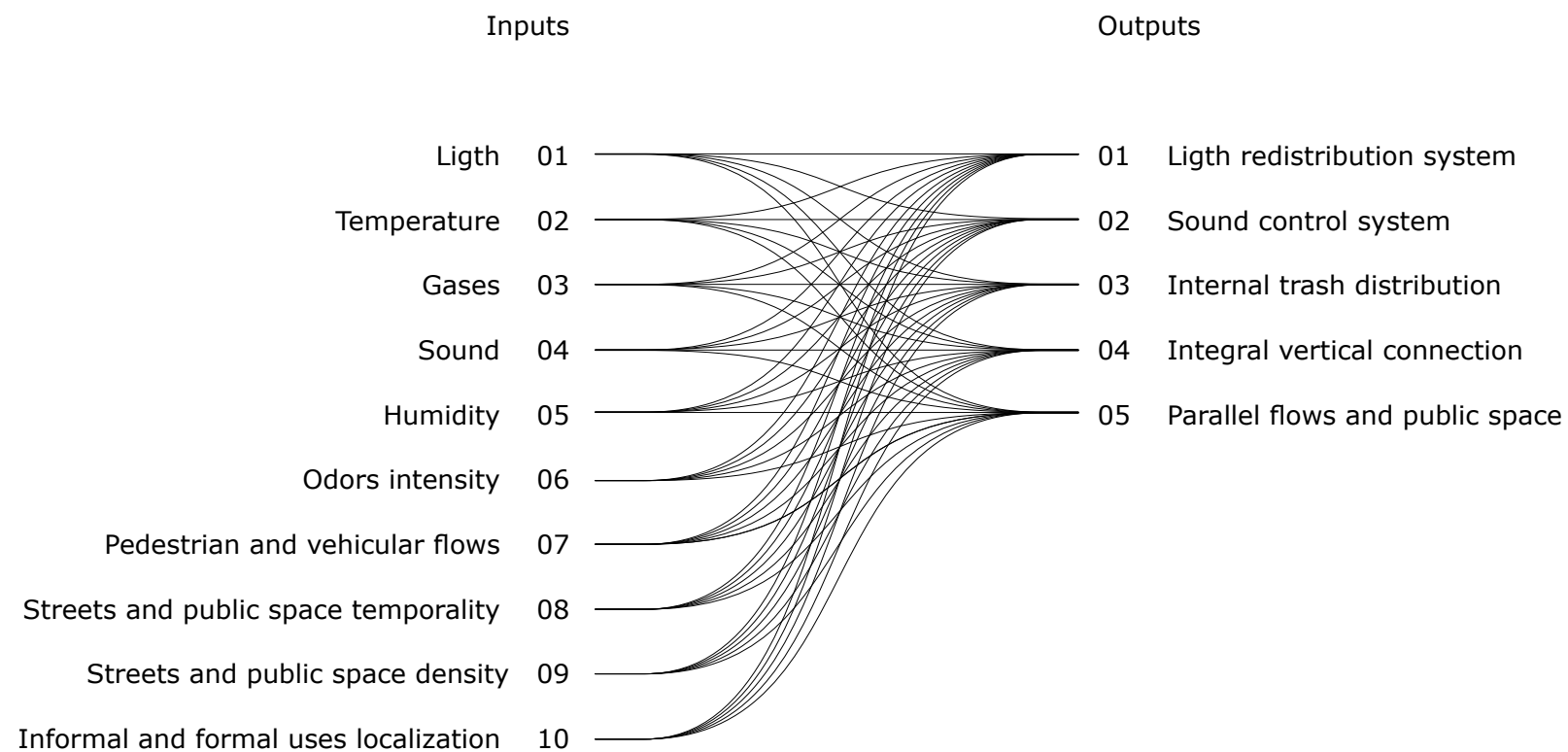
DYNAMIC

CONNECTIVITY

REINFORCEMENT

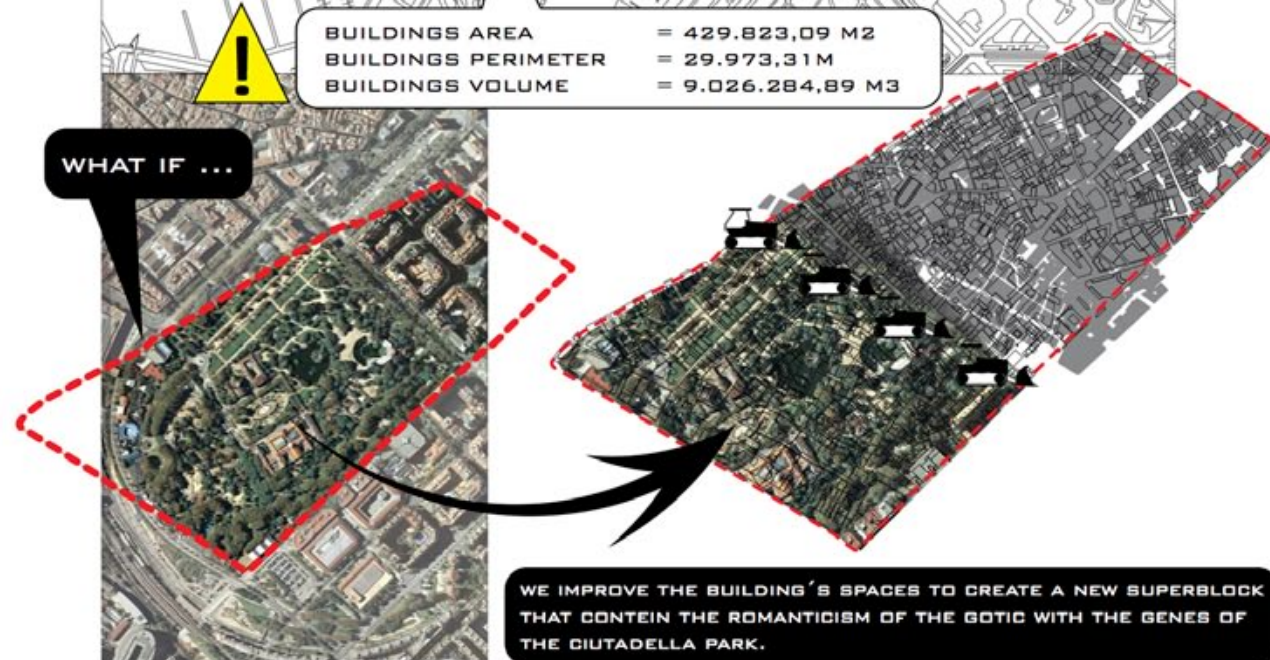
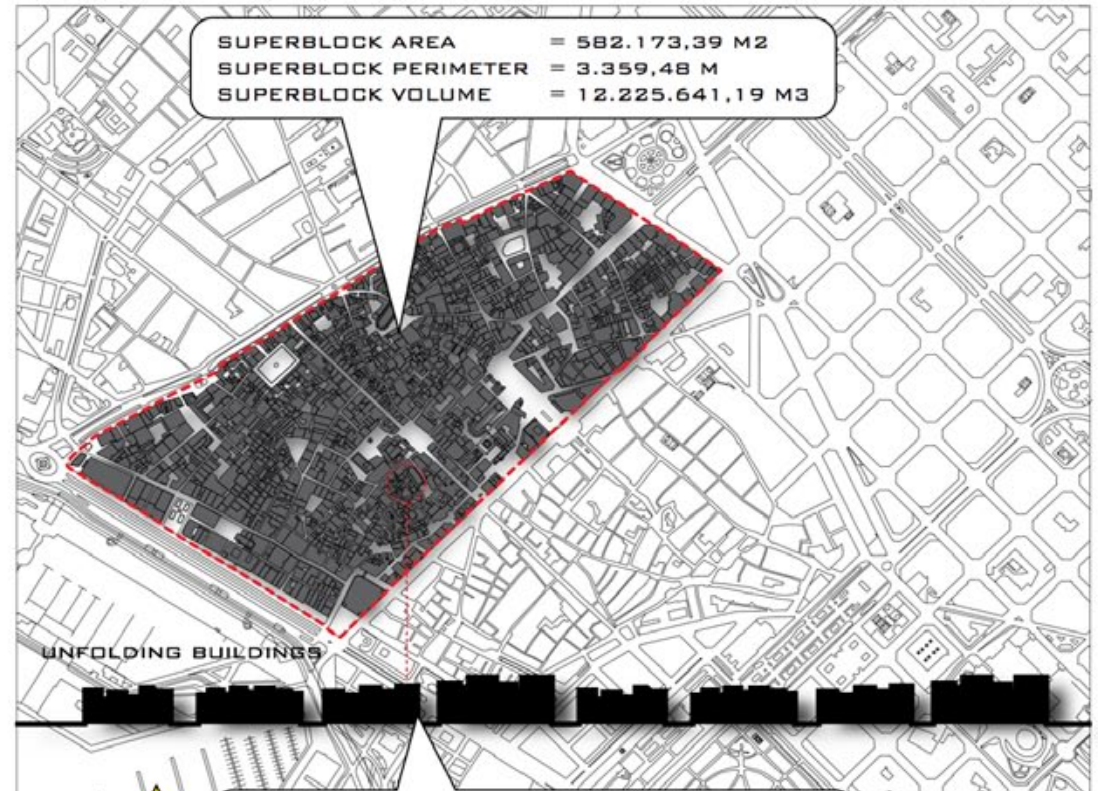




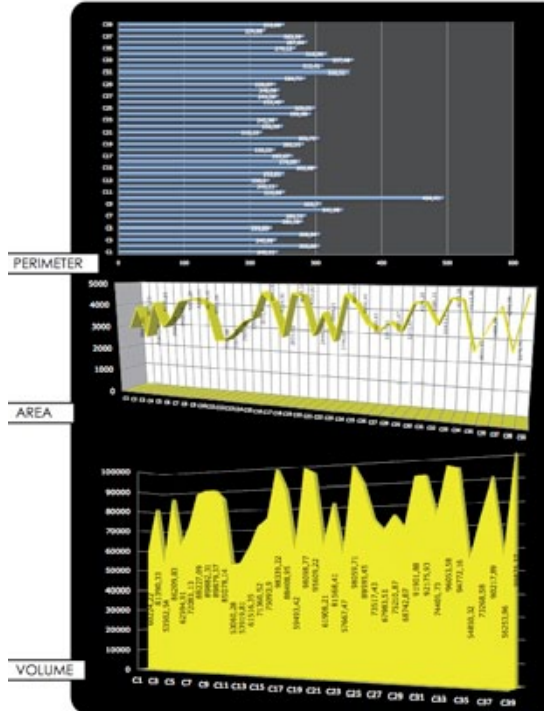
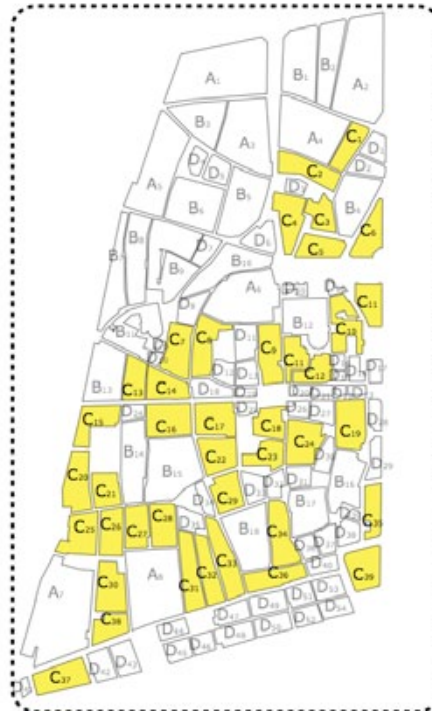
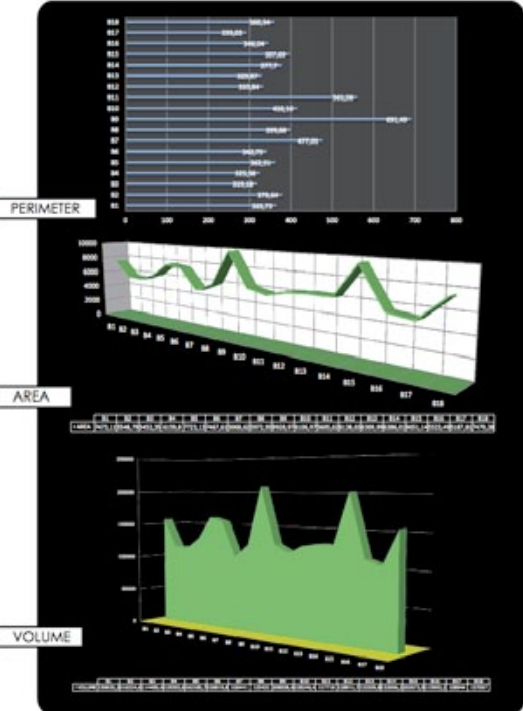
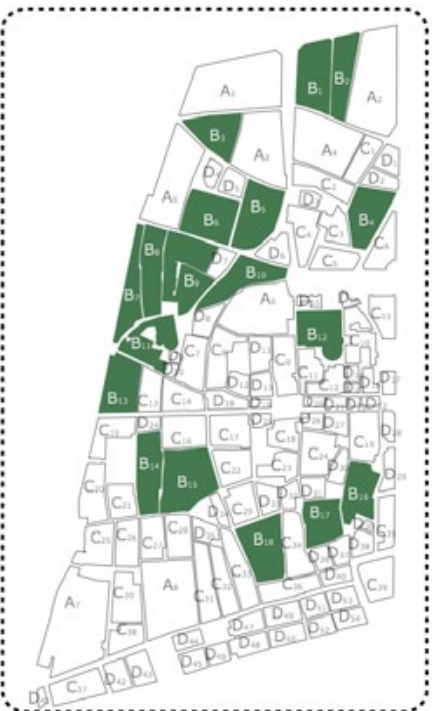
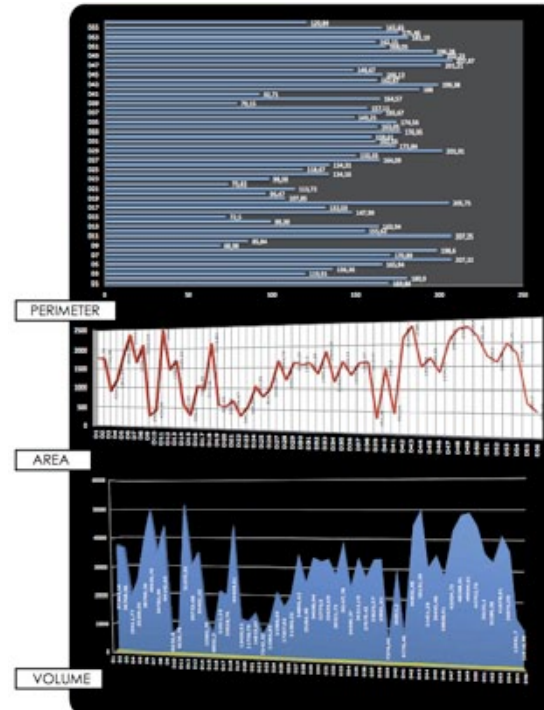
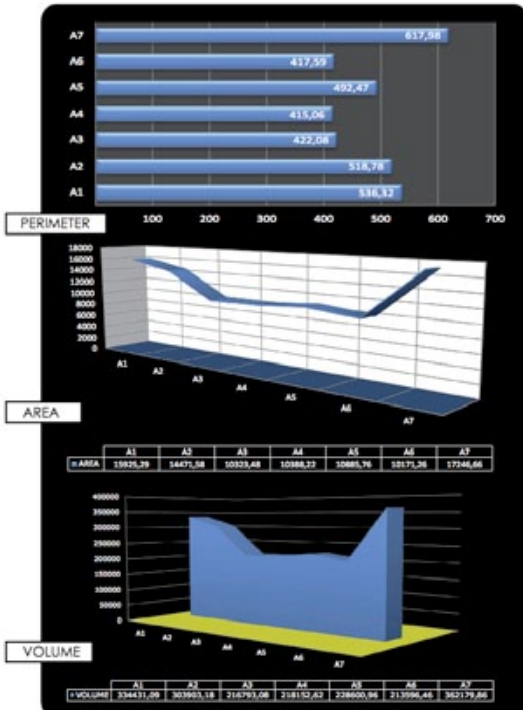
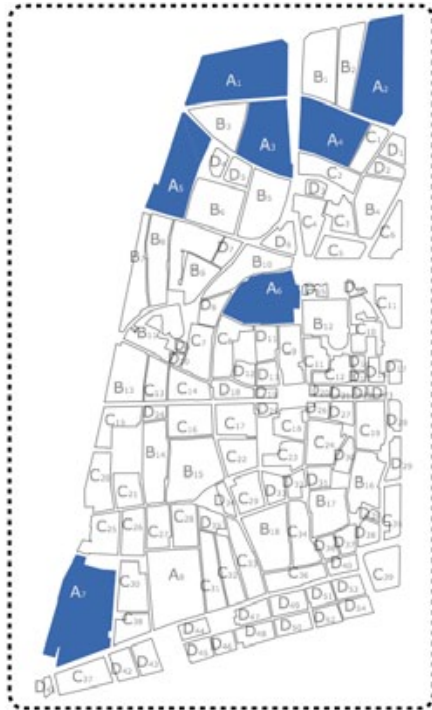


A CITY WITHIN THE CITY

SUPERBLOCK 11: HABITABILITY



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY





MASTER PLAN



SPACE FREEDOM

PRESERVATION OF HISTORICAL ELEMENTS (BUILDINGS - FACADES)

NEW INTERNAL RELATIONSHIP WITHOUT CHANGING THE GOTHIC ROMANTICISM

INTRODUCING A NEW DNA

PROMOTE THE RETURN OF PEOPLE IN NEW SPACES

NEW PERFORMANCE OF INTERNAL ORGANISM

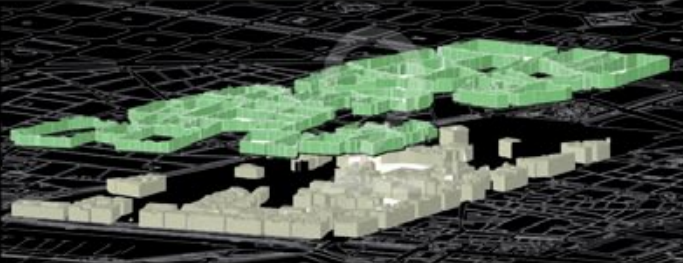
VOLEM UN BARRI Digne

BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY

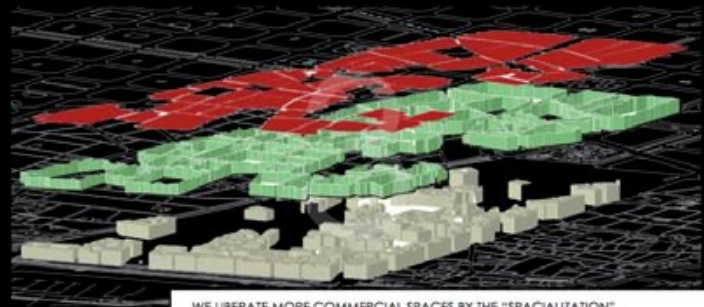
FIRST, WE IDENTIFY BUILDINGS THAT DON'T FIT IN THE PROGRAM...



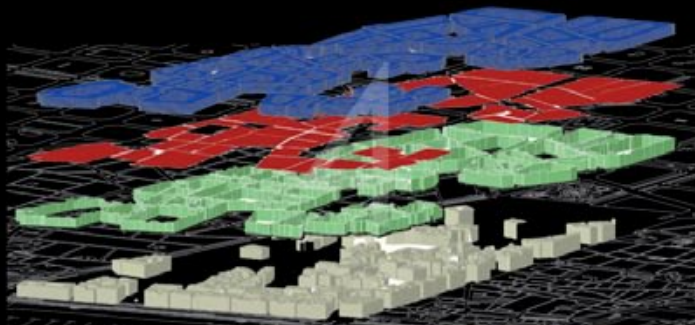
THEN WE PRESERVE GOTHIC'S ROMANTICISM IMPREGNATE IN FACADES OF BUILDINGS...



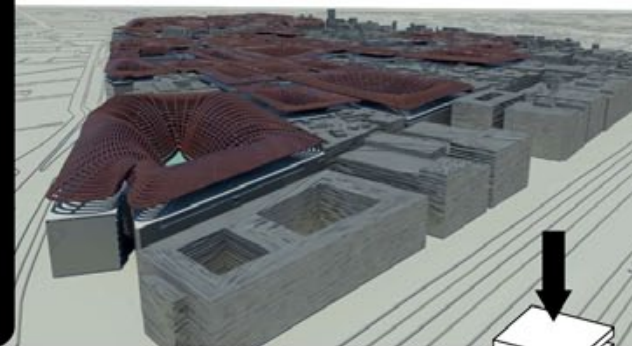
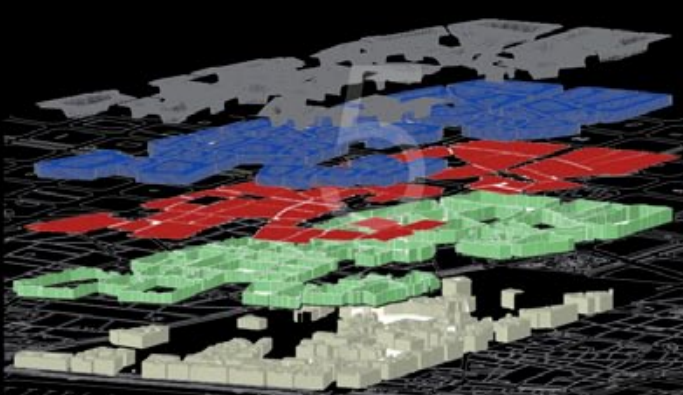
WE LIBERATE MORE COMMERCIAL SPACES BY THE "SPACIALIZATION"
(SPECIALIZATION OF THE SPACE) AT GROUND FLOOR...



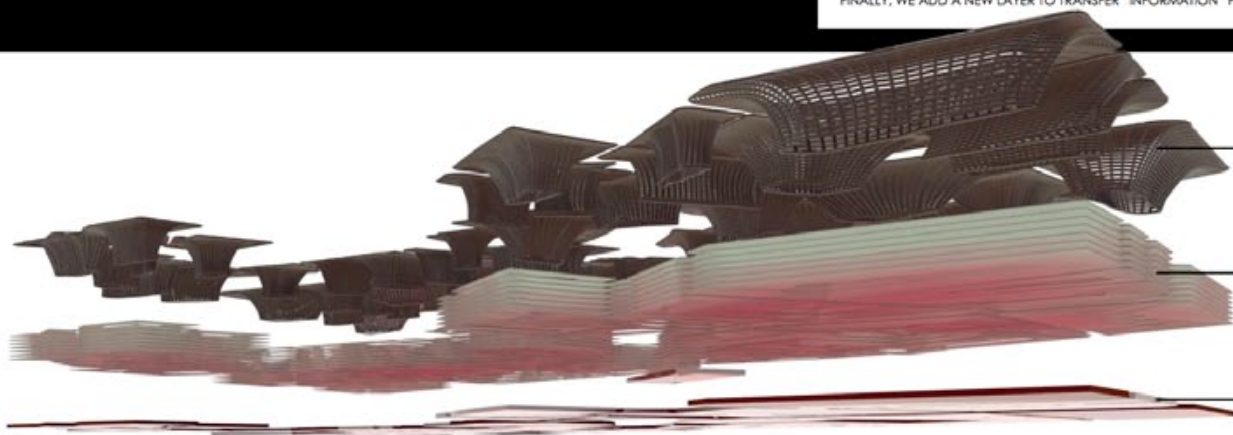
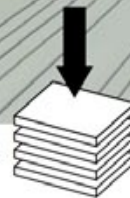
AND WE IMPROVE HOUSING SPACES TO PROMOTE MICROCLIMATES INSIDE
BUILDINGS AND TO ACHIEVE THE MINIMUM SPACE FOR DWELLING: 25M2.



FINALLY, WE ADD A NEW LAYER TO TRANSFER "INFORMATION" FROM CIUTADELLA PARK.



COMPRESSING LAYERS



5

FREE SPACE - NATURAL FEEDBACKS

4

HOUSING SPACE IMPROVED FOR A MINIMUM OF 25 M2

3

SPACE LIBERATION IN THE GROUND FLOOR TO PROMOTE COMMERCIAL ACTIVITIES

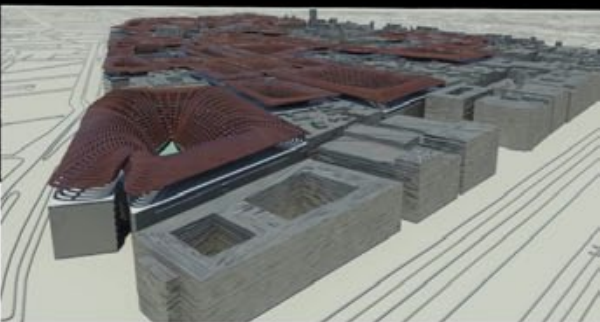
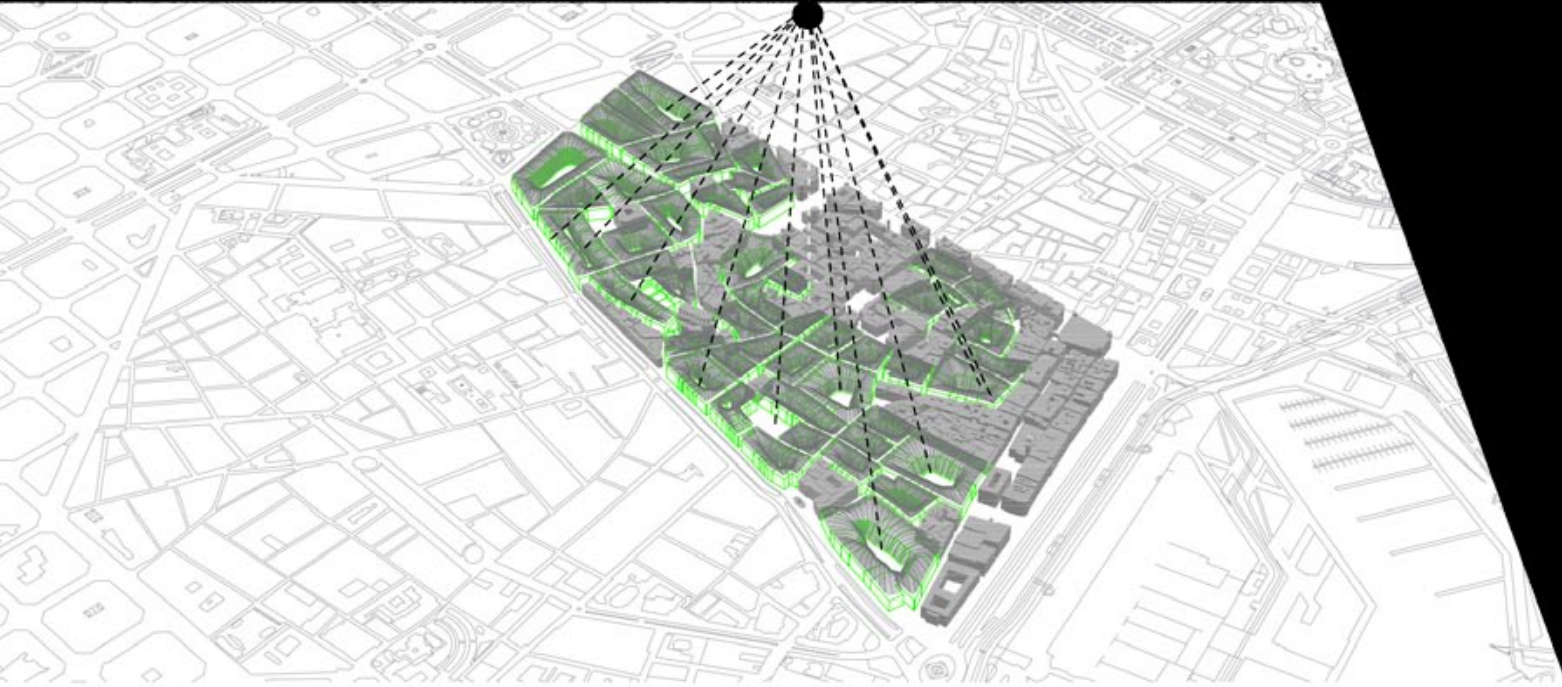
2

PRESERVE HISTORICAL SKINS

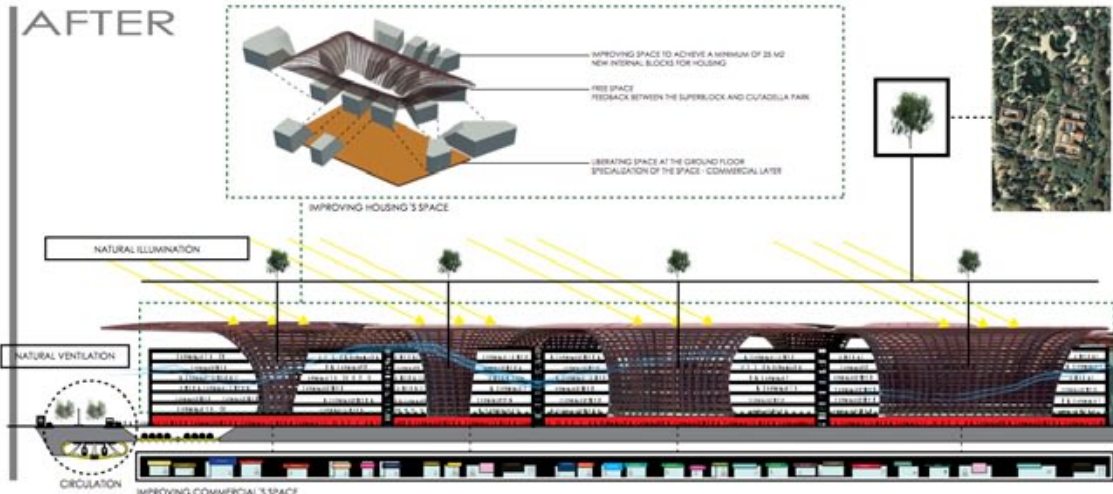
1

PRESERVE HISTORICAL BUILDINGS

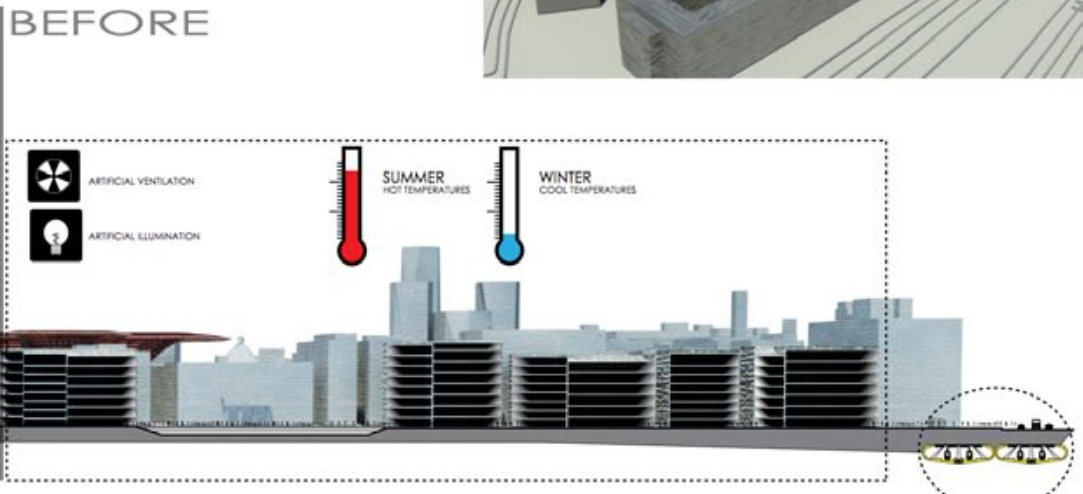
DATA EXCHANGE BETWEEN CIUTADELLA PARK
AND THE SUPERBLOCK



AFTER



BEFORE

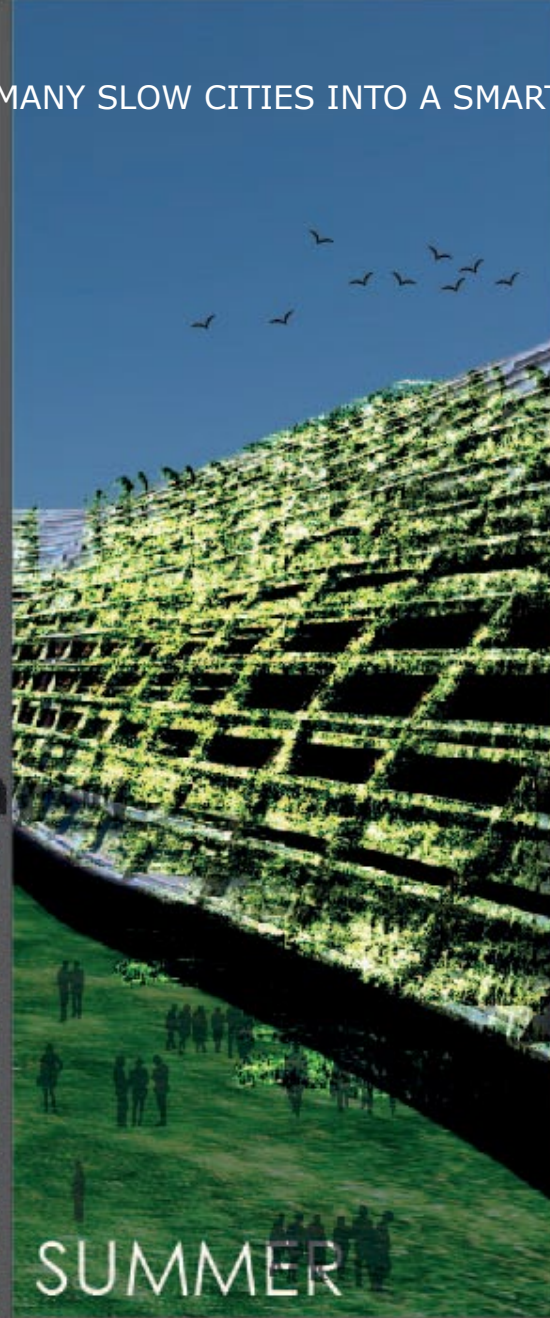




WINTER



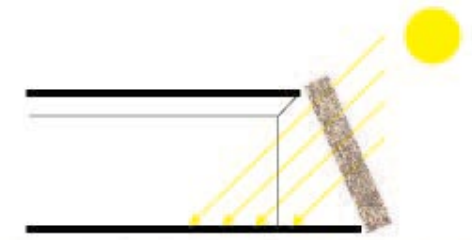
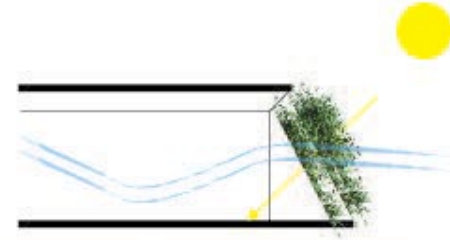
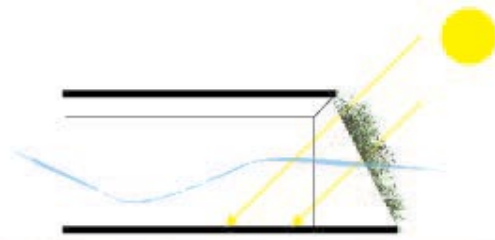
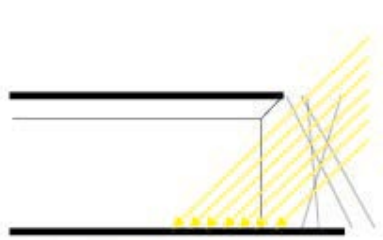
SPRING



SUMMER



AUTUMN



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



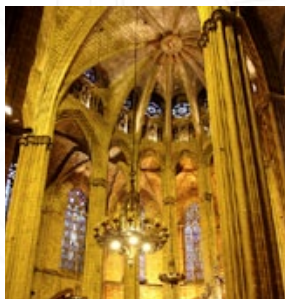
Tourist trails
Shopping

desdebellaterra.com



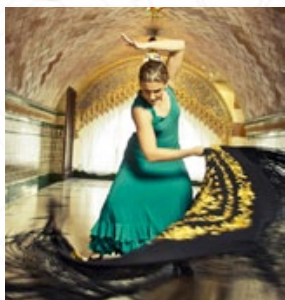
Tourist trails
Leisure

sidecarfactoryclub.com



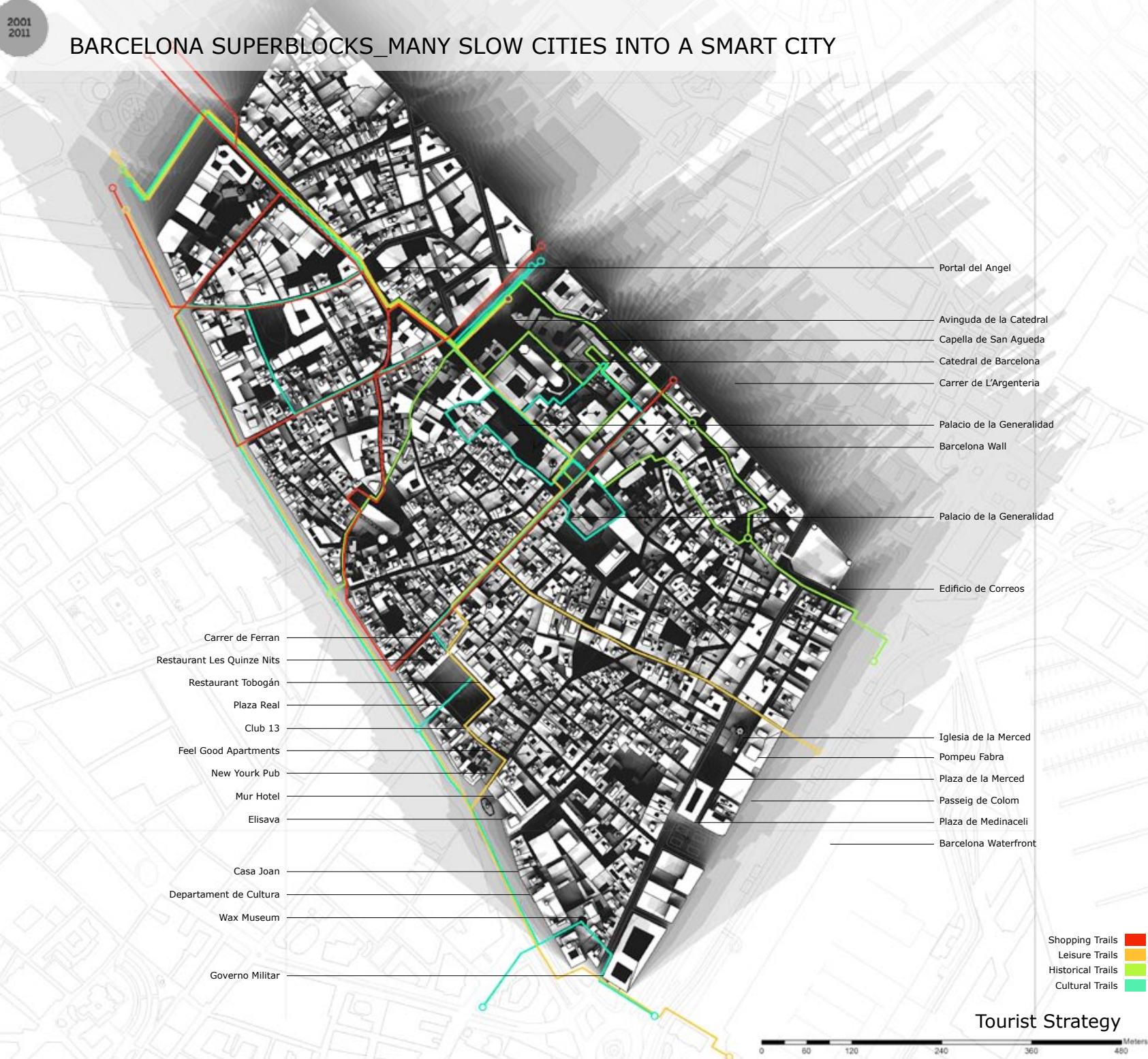
Tourist trails
History

ciutatdebarcelona.com



Tourist trails
Culture

tablaocordobes.com



Shopping Trails

Catalunya, Portal del Angel, Rambla
Catedral, Rambla, Carrer de Ferran
Catalunya, Portal del Angel, Catedral



Leisure Trails

Catalunya, Rambla, Maremagnum
Catedral, Carrer de Ferran, Maremagnum
Catalunya, Carrer de Ferran, Port



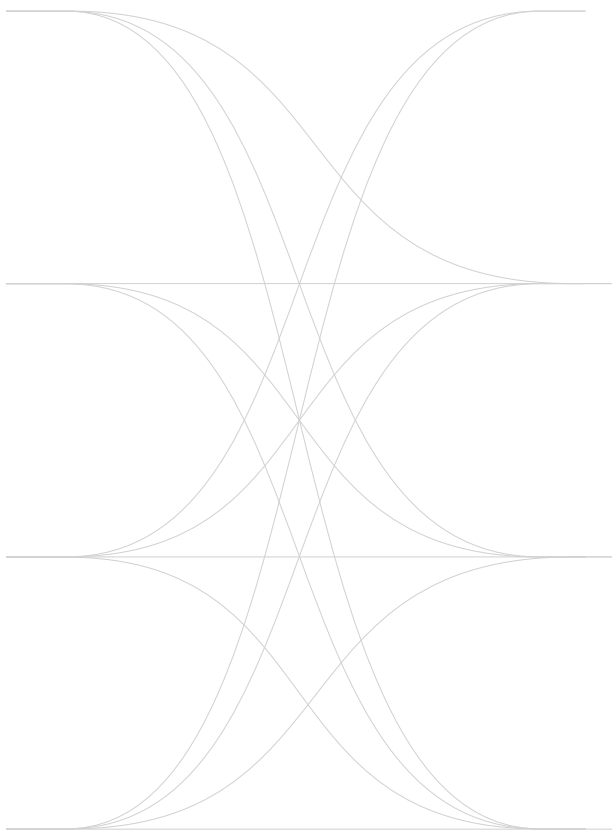
Historical Trails

Port, Carrer de Ferran, Rambla
Port, Catedral, Rambla
Port, Catedral, Catalunya



Cultural Trails

Catalunya, Rambla, Drassanes
Catalunya, Carrer de Ferran, Port
Catedral, Carrer de Ferran, Catedral



Smart Audio Guide

Noise control strategy, the information
will be provided inside the block with the
proximity of the buildings on the trail.



Referenced Devices

The smart audio devices could be comple-
mented or supported by a georeferenced
map, that could be read from a smart-
phone or similar devices.



Tourist Maps

The traditional tourist maps could comple-
ment the trails experience, and provide a
future souvenir.



Previous References

Information and publicity of the trails
online.

BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY

Scenario
Plaza George Orwell

Scenario
Plaza Real

Extend | Connect
Passeig de Colon
Urban integrated crossing path

Attractor Node
Attractor Programs
Barcelona Port

Extend | Connect
Passeig de Colon
Urban integrated crossing path

Attractor Node
Observation Towers | Attractor Programs
Barcelona Port

City Node
Vertical reference point
Estatua de Colon

Nodes | Orientation System
Observation Towers
Vertical Elements
Attractor Programs
Monuments

Tourist Strategy



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY

Spatial Dynamics
Urban Projection | Portable Urban Furniture
Plaza George Orwell

Space|Activity Interfaces
Portable Urban Scenario
Plaza Real

Spatial Dynamics
Urban Artistic Performs
La Rambla

Space|Activity Interfaces
Hidden Urban Scenario | Urban Projection
Plaza de Joaquín Xirau

Space|Activity Interface
Hidden Urban Scenario | Urban Projection
Plaza de la Merced

Dead Connection
Absence of urban relations
Barcelona Port

Dynamic Nodes
Attraction activities development
Barcelona Port

Space|Activity Interfaces
Real Time Activities Information
Portable Urban Scenarios
Hidden Urban Scenarios
Hidden Urban Furniture





Tourist Codes
Tourist trails
Color codes



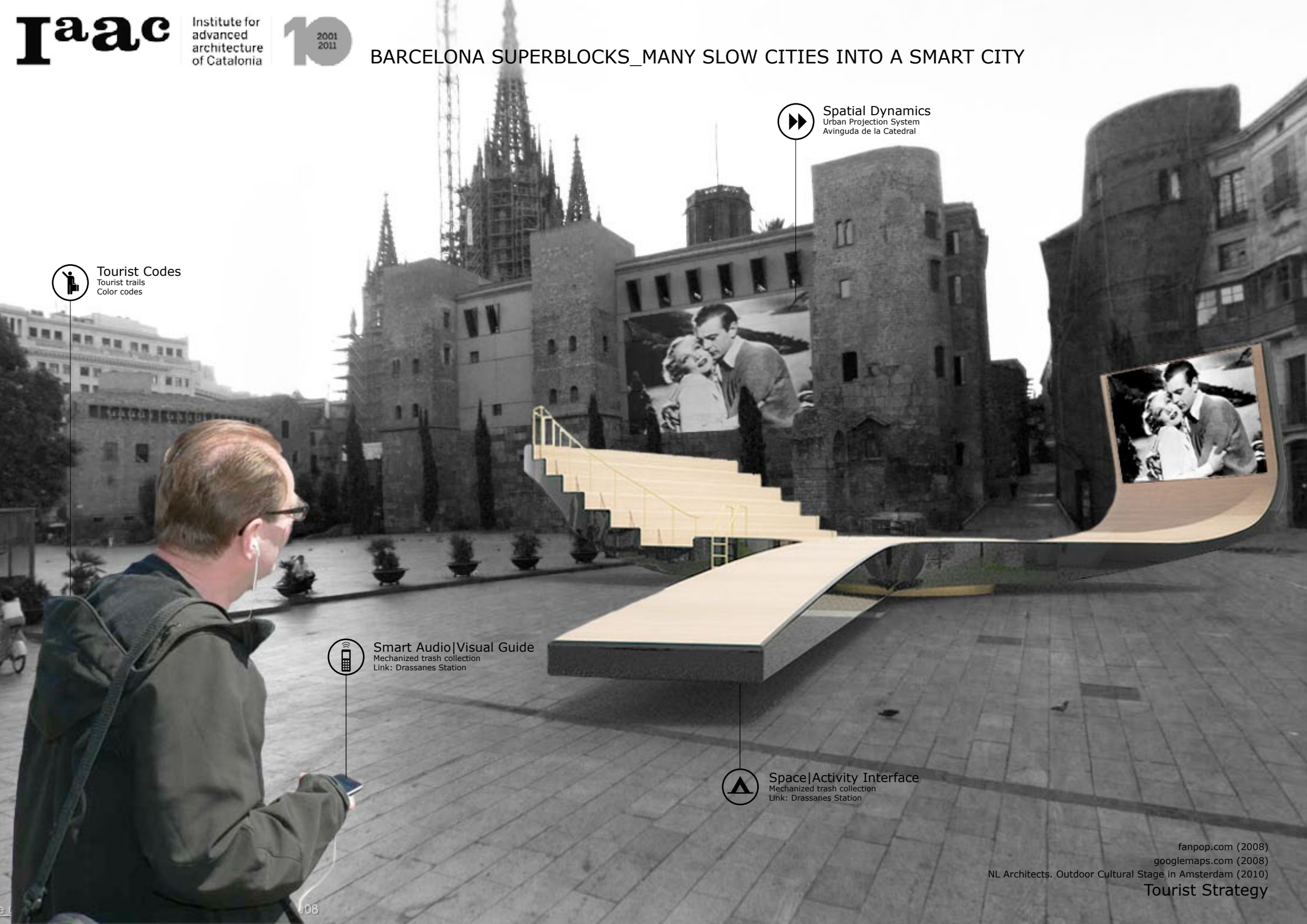
Spatial Dynamics
Urban Projection System
Avinguda de la Catedral



Smart Audio|Visual Guide
Mechanized trash collection
Link: Drassanes Station



Space|Activity Interface
Mechanized trash collection
Link: Drassanes Station



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



An inefficient system
Segregated elements
More energy expended



Individual

Collective

A more efficient system
A better general integration
Communication and coordination

Prototype network 01
Mechanized trash collection
Link: Liceu Station



1



Prototype network 03
Mechanized trash collection
Link: Jaume I Station

3

Prototype network 02
Mechanized trash collection
Link: Drassanes Station



2

Mechanized Trash Collection Prototype

parkingday.org

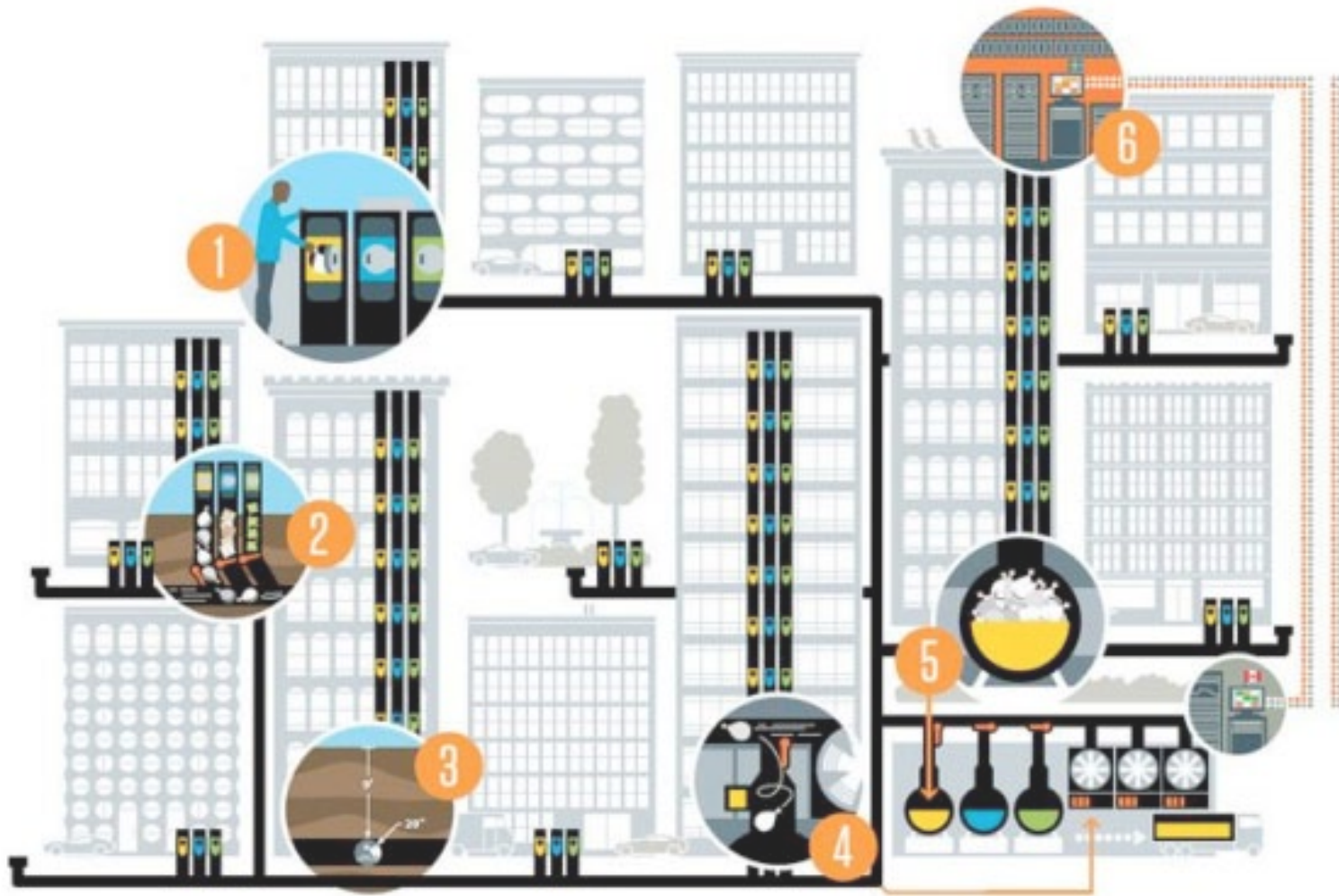
0 60 120 240 360 480 Meters



Resident
More open space
Better trash control



Tourist
Cleaner and more open streets
Less obstacles



①

Internal trash collection portholes

Instead of using trash cans, people will put garbage in intake hatches, known as portholes, 4 to 5 feet high and 18 to 24 inches wide. Separate inlets can be created for waste, recycling, and compost. Most will be on public property, but businesses and residents can opt in.

②

Trash release points

Sensors in the deposit portholes will relay load information back to system operators. When it's time to fire up the fans and flush the trash, it's done by waste type to ensure that only one kind of material is traveling through the pipes at any given time.

③

Trash transportation network

50 inch wide steel pipes anywhere from 3 to 9 feet underground.

④

Suction support

Large industrial fans will create 45-mph winds to pull refuse through the pipeline. Airspeed sensors alert operators if bulky items get stuck. Obstructions can usually be cleared simply by cranking up to gale force.

⑤

Collection facility and transportation

The trash will be carried to centralized collection facilities, that will also be connected to the metro network or subterranean parking. There, the city underground transportation system will provide a clean option to move the trash to its corresponding dumpster, composting plant or recycling center; on a schedule that does not affect the comfort of the users or the regular operation of the system.

⑥

Central command

The system will be controlled locally from an office located inside the neighborhood. Operators can speed up collection to meet extra demand during, say, a street fair or switch on generators during a power outage.

Collection facility and transportation

The trash will be carried to centralized collection facilities, that will also be connected to the metro network or subterranean parking. There, the city underground transportation system will provide a clean option to move the trash to its corresponding dumpster, composting plant or recycling center; on a schedule that does not affect the comfort of the users or the regular operation of the system.

4

3

Trash transportation network

50 inch wide steel pipes anywhere from 3 to 9 feet underground.

Transfer
Container disposal
Metro Link



Trash release points

2

1

Internal trash collection portholes

Instead of using trash cans, people will put garbage in intake hatches, known as portholes, 4 to 5 feet high and 18 to 24 inches wide. Separate inlets can be created for waste, recycling, and compost. Most will be on public property, but businesses and residents can opt in.

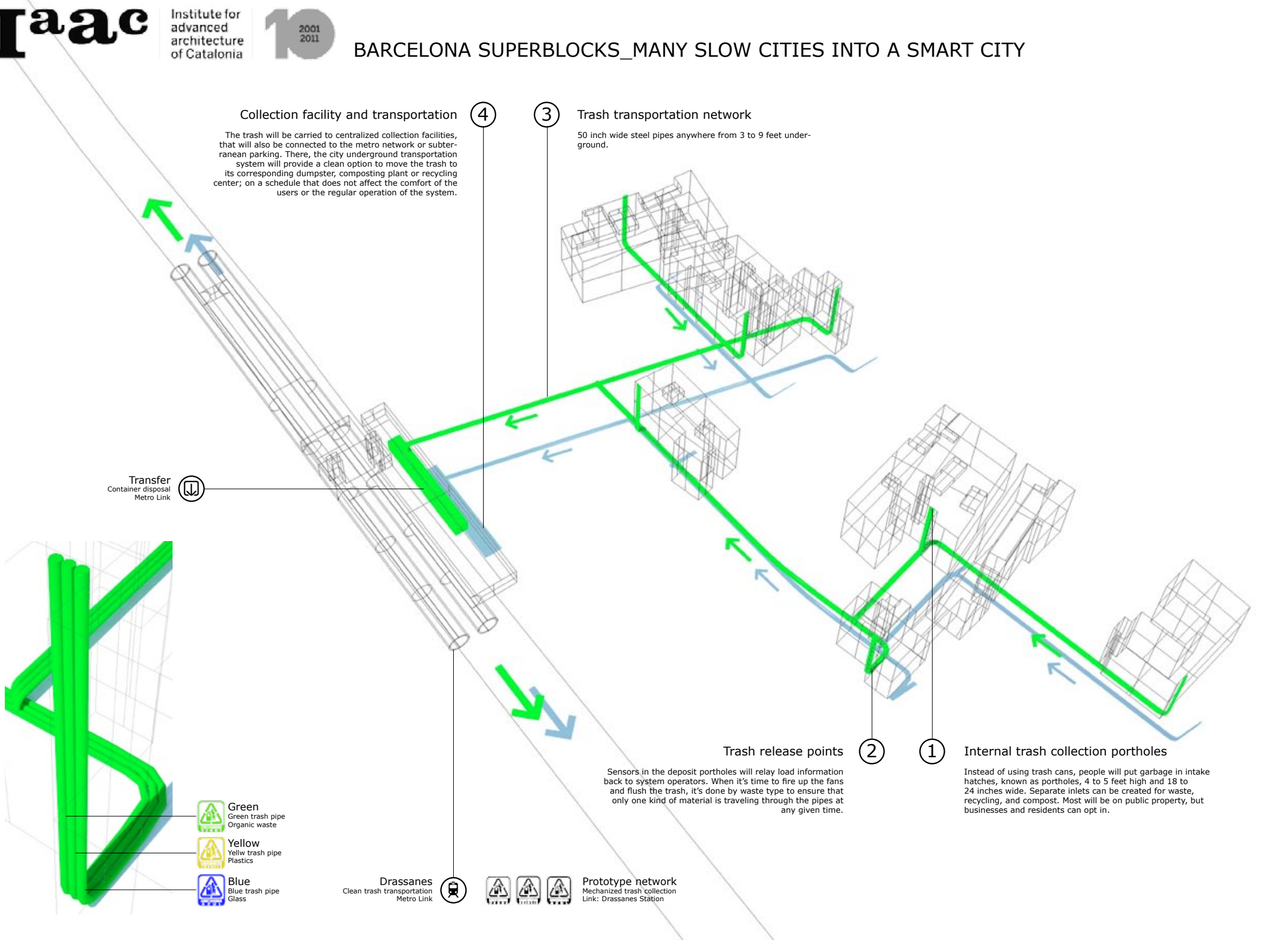
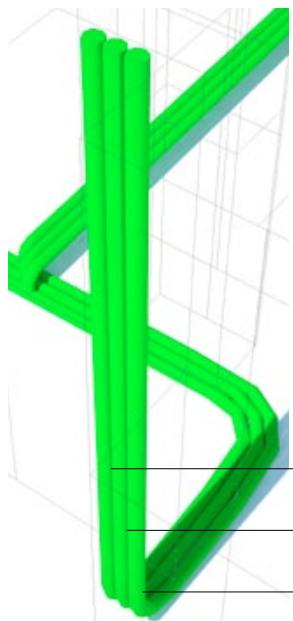
Sensors in the deposit portholes will relay load information back to system operators. When it's time to fire up the fans and flush the trash, it's done by waste type to ensure that only one kind of material is traveling through the pipes at any given time.

- Green
Green trash pipe
Organic waste
- Yellow
Yellow trash pipe
Plastics
- Blue
Blue trash pipe
Glass

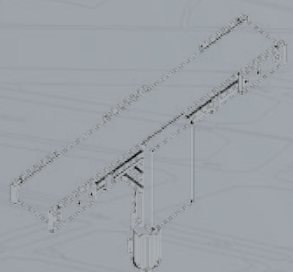
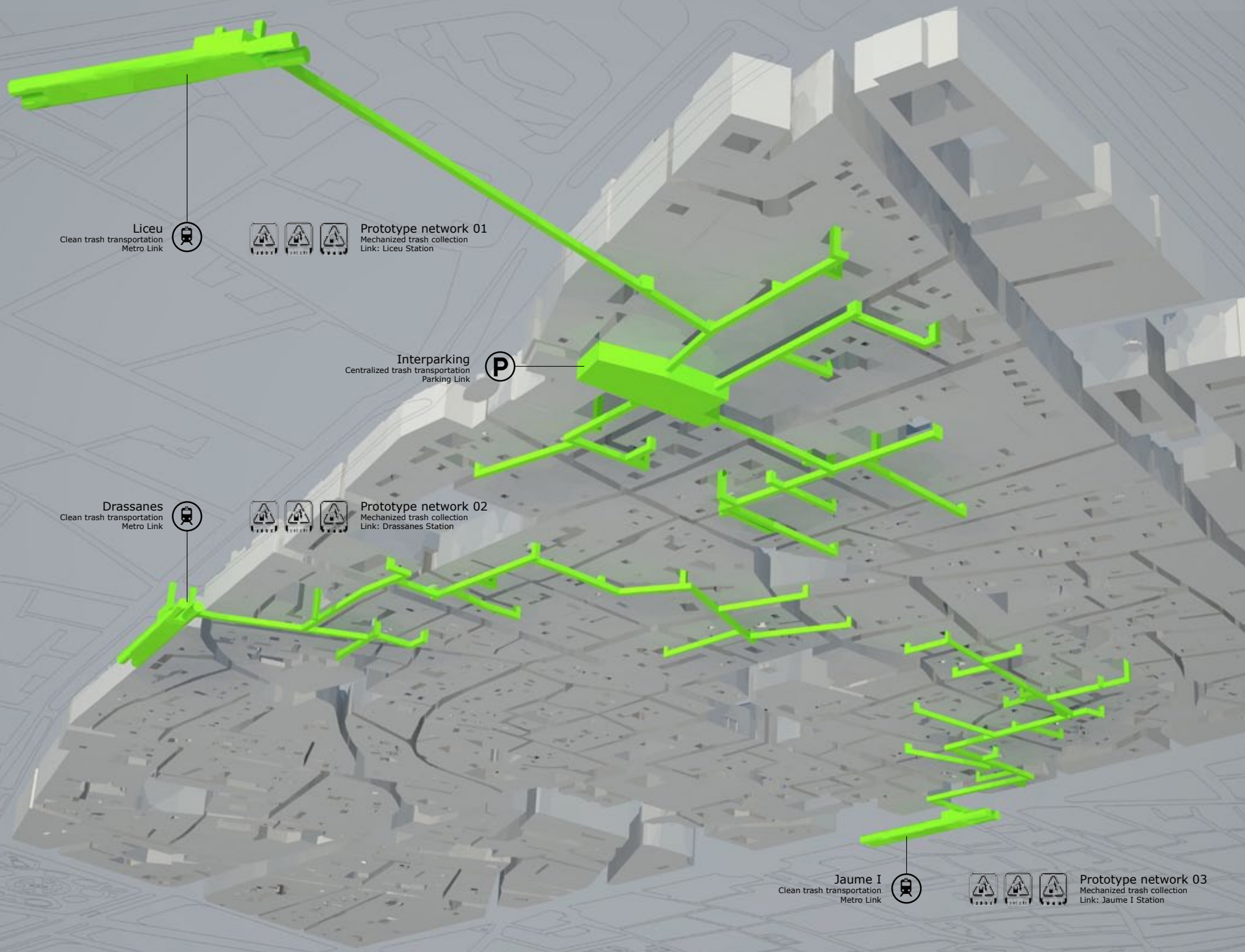
Drassanes
Clean trash transportation
Metro Link



Prototype network
Mechanized trash collection
Link: Drassanes Station



BARCELONA SUPERBLOCKS_MANY SLOW CITIES INTO A SMART CITY



Conveyor belt base - Mechanized trash

Mechanized Trash Collection Prototype