

A new model of mobilty and public space in Barcelona, based on Superblocks

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Agència d'Ecologia Urbana de Barcelona



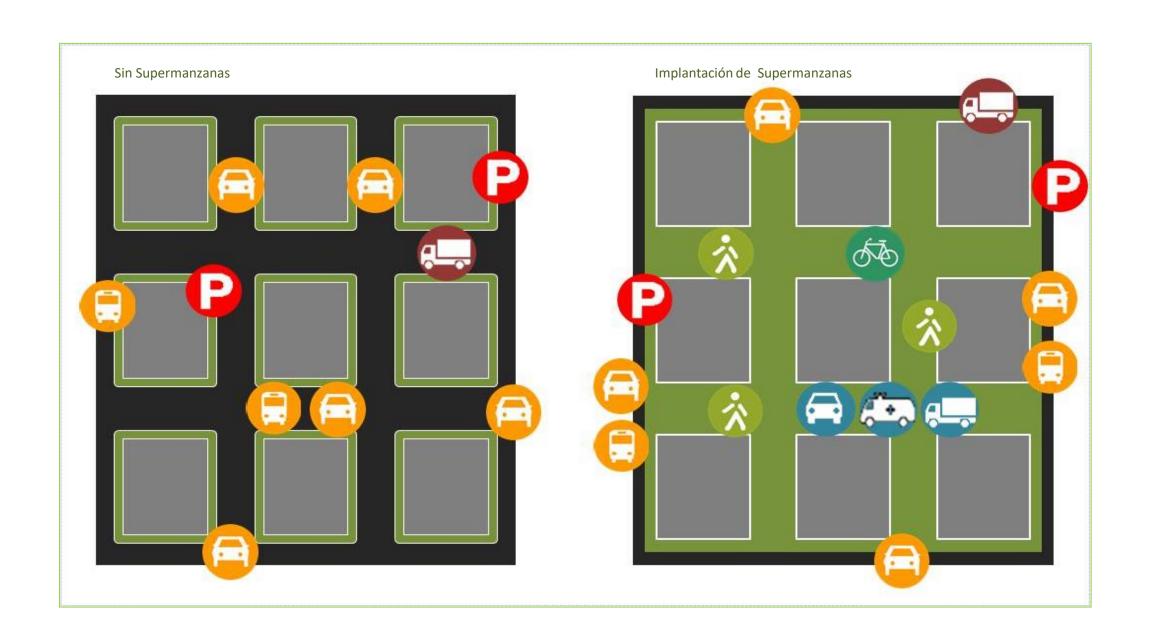
Definition of the new Superblock

The new Superblock is an urban cell that provides the basis for the new functional model of Barcelona.

- Transforms the traditional concept of streets that gave priority to cars into open spaces for multiple recreation and citizen activities.
- Reduces negative impacts on the population.
- Allows fulfillment of the UMP 2013-2018 objectives.
- Adapts itself to the characteristics of each urban fabric.
- Integrates all urban networks without compromising the functionality of the urban system.

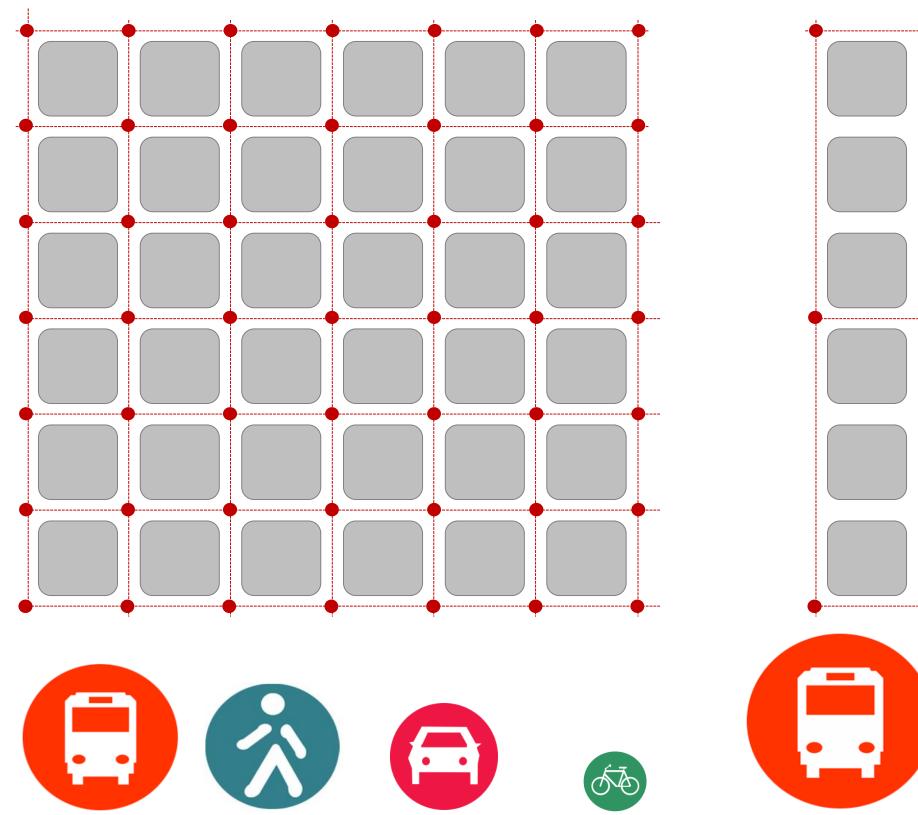
The new Superblock is defined by:

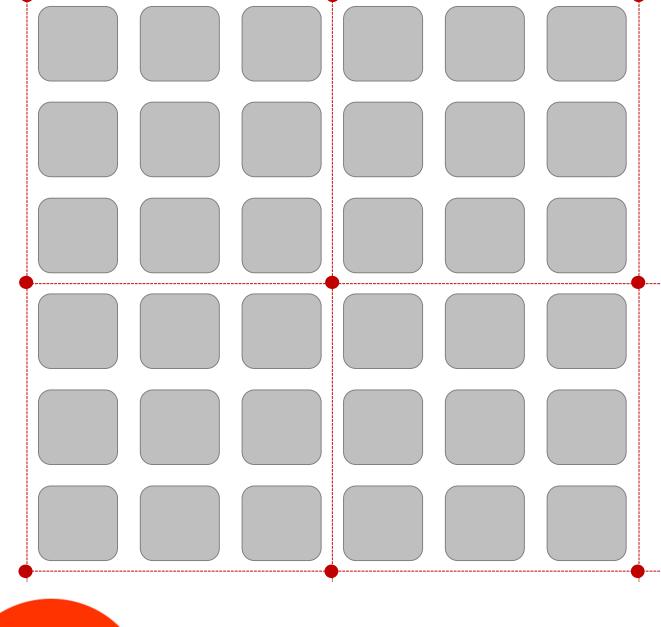
- 1. Perimeter of basic roads of 400 m x 400 m. The network of these basic roads connects different points of the city.
- 2. The network of inner roads is for local mobility. Private vehicles can circulate at limited speed (10 km/h).
- 3. It allows the population to actively use the public space of inner roads.

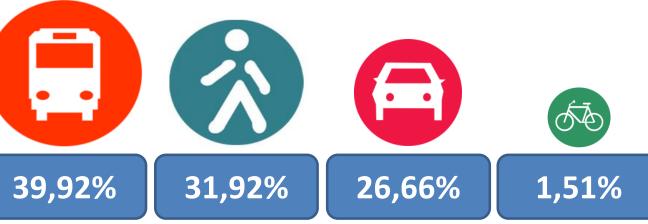


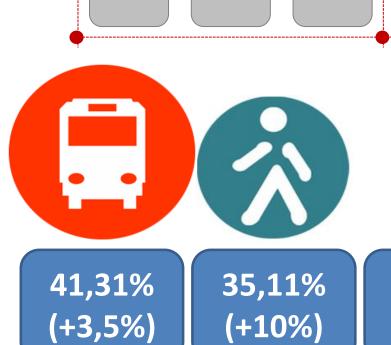
CURRENT MODEL

SUPERBLOCKS MODEL









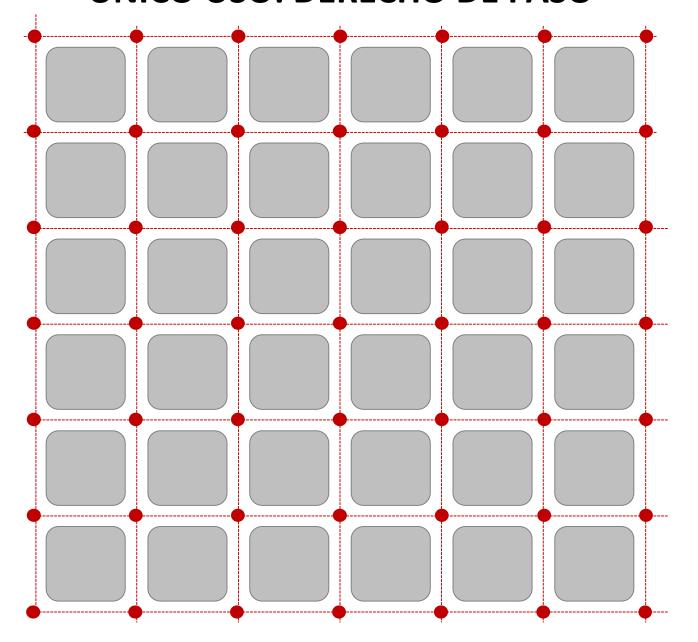




21,06% (-21%)

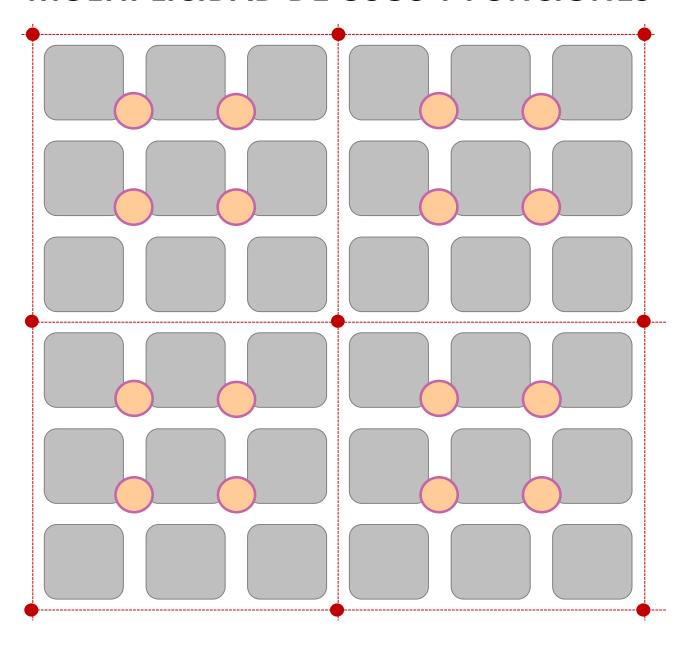
2,52% (+67%)

ÚNICO USO: DERECHO DE PASO





MULTIPLICIDAD DE USOS Y FUNCIONES



























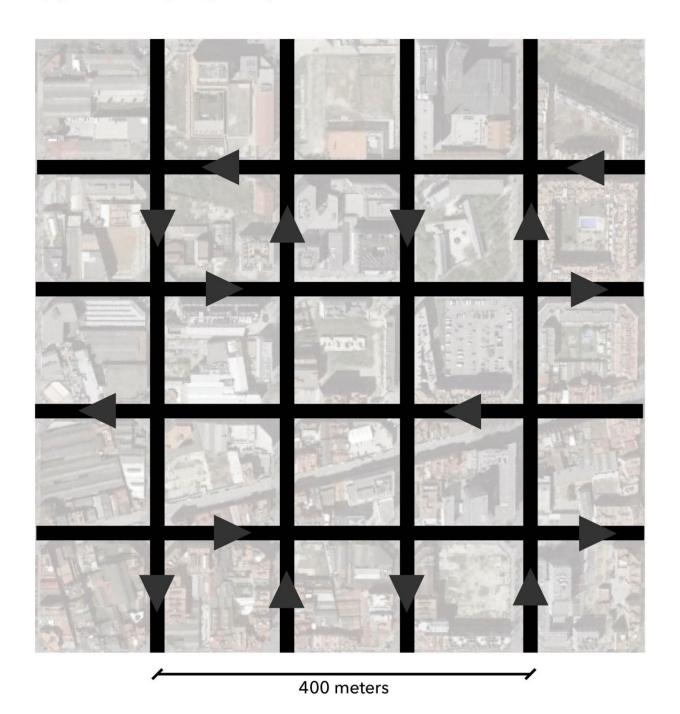






Road hierarchy in a Superblock model

CURRENT SITUATION



Basic network: **50 km/h**



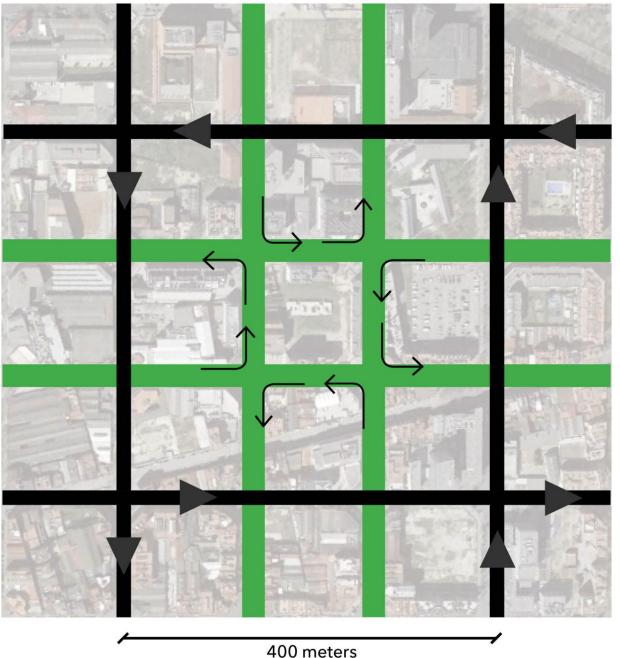






SOLE RIGHT: DISPLACEMENT. HIGHEST AIM: PEDESTRIAN.

SUPERBLOCK



Local network: 10 km/h







PASSING VEHICLES DO NOT GO THROUGH

EXERCISE OF ALL THE RIGHTS THAT THE CITY OFFERS. HIGHEST AIM: CITIZEN.

Implementation

Functional Superblocks

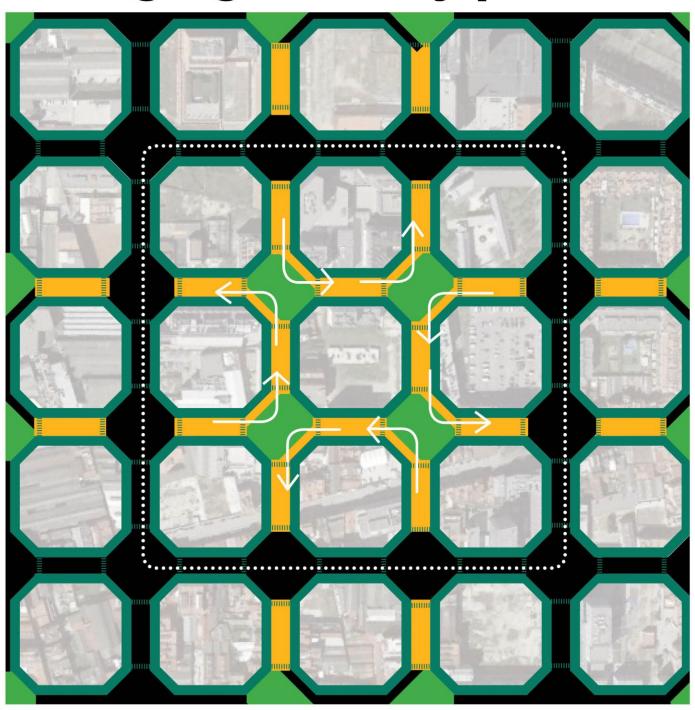
The functional Superblocks begin the process of transforming mobility and public space, integrating the entire transport network.

Functional Superblocks are defined by basic outer roads and prevents crossing through interior roads with a circulatory system of loops that force vehicles to circulate on the basic outer roads. Thus, circulation is divided into basic roads and areas of local mobility.

On the inner streets, the maximum speed is 20 km/h.

Phase 1 of implementation is done mainly through the change of traffic signs and signals.

Phase 1. Changing mobility patterns



Implementation

Urban Superblocks

The new Superblocks are transformed, expanding public spaces, where all citizen rights can be enjoyed, to almost all inner roads.

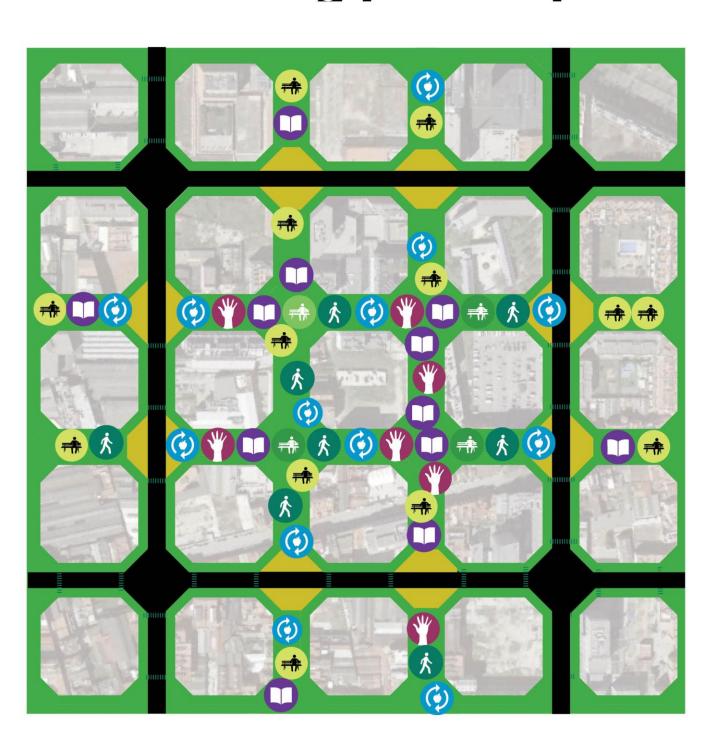
Its implementation can be carried out through pylons, a single platform and/or special signs.

The maximum speed permitted is 10 km/h.

Citizens occupy the entire space inside Superblocks. Vehicles (bicycles, scooters, cars) adapt their speed to pedestrians. On the basic outer roads pedestrians circulate on the sidewalks.

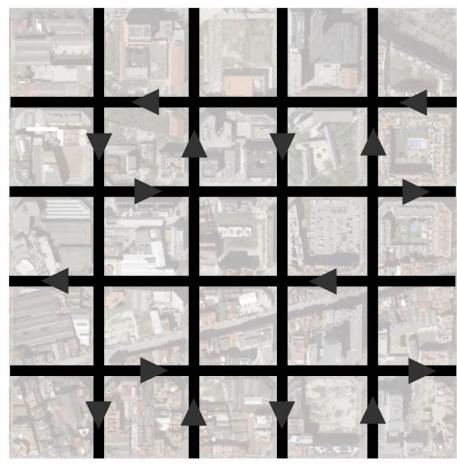
Inside the Superblock, 94% of total road space becomes public space.

Phase 2. Transforming public spaces



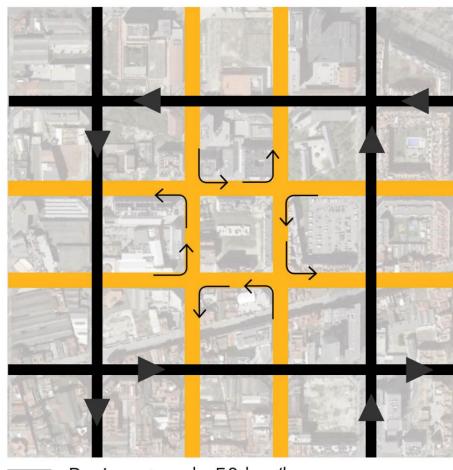
Road hierarchy **Private vehicles**

CURRENT SITUATION



Basic network: 50 km/h Traffic direction

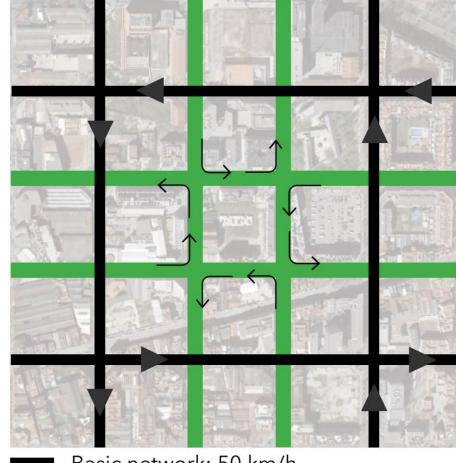
PHASE 1. FUNCTIONAL SUPERBLOCKS



Basic network: 50 km/h Local network: 20 km/h

Bicycles circulate in local network in both directions

PHASE 2. URBAN SUPERBLOCKS



Basic network: 50 km/h

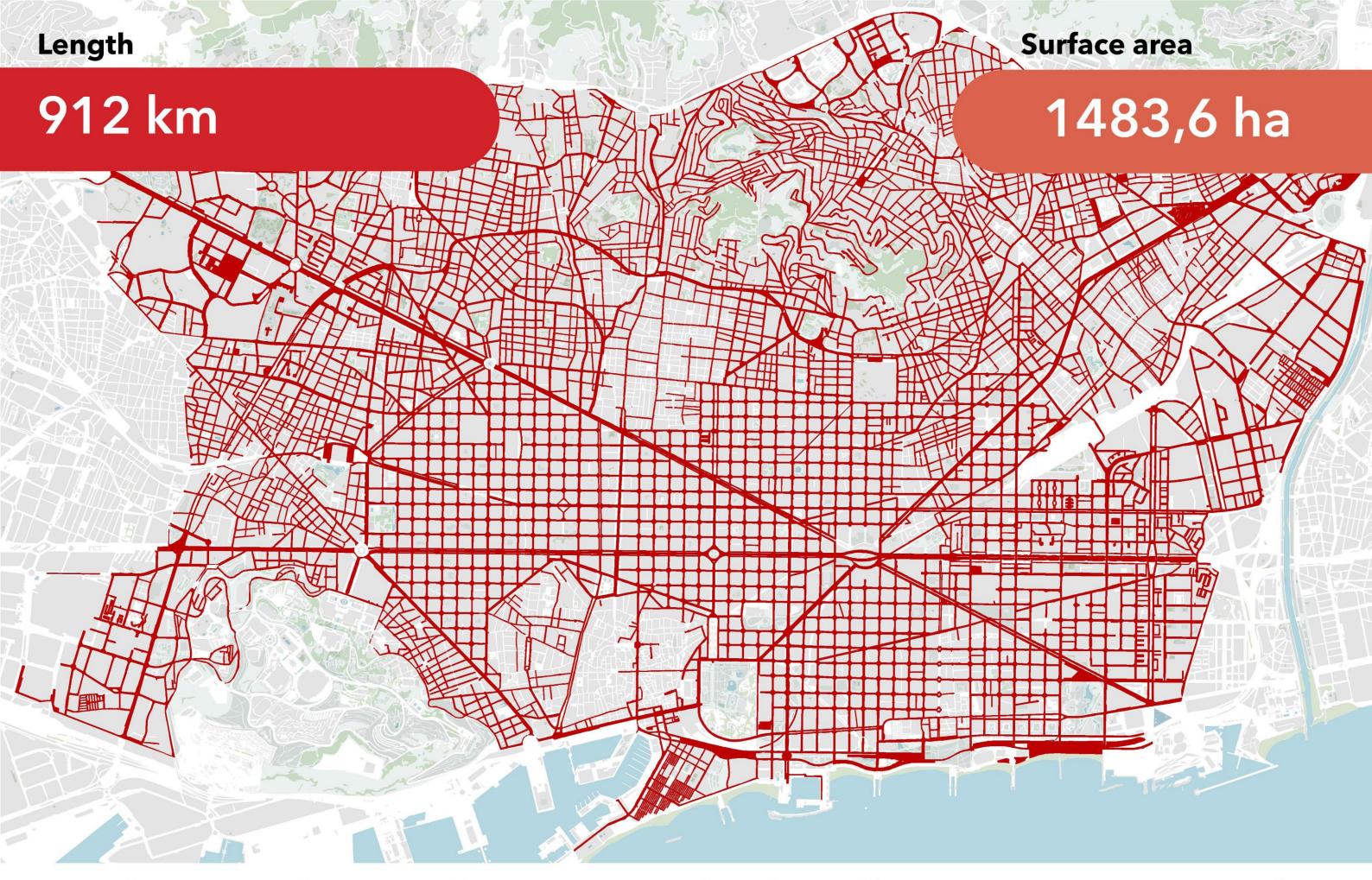
Public space: 10 km/h; bicycles circula-

te in both directions



Maximum speed

Basic network: 50 km/h Local network: 20 km/h Local network: 10 km/h



Barcelona road network (streets and sidewalks) CURRENT SITUATION

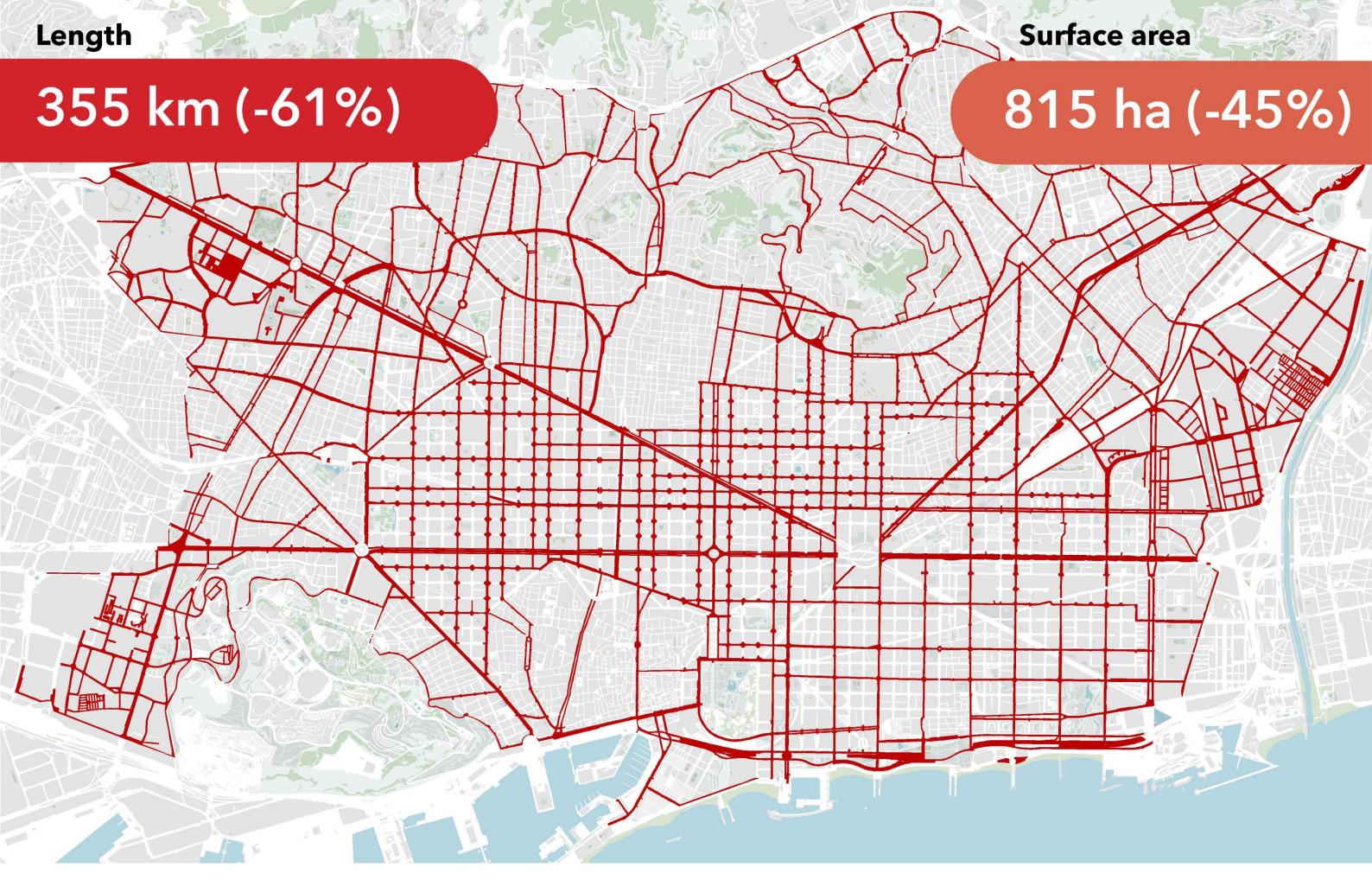












Barcelona road network (streets and sidewalks)
FUTURE SCENARIO WITH NEW SUPERBLOCKS



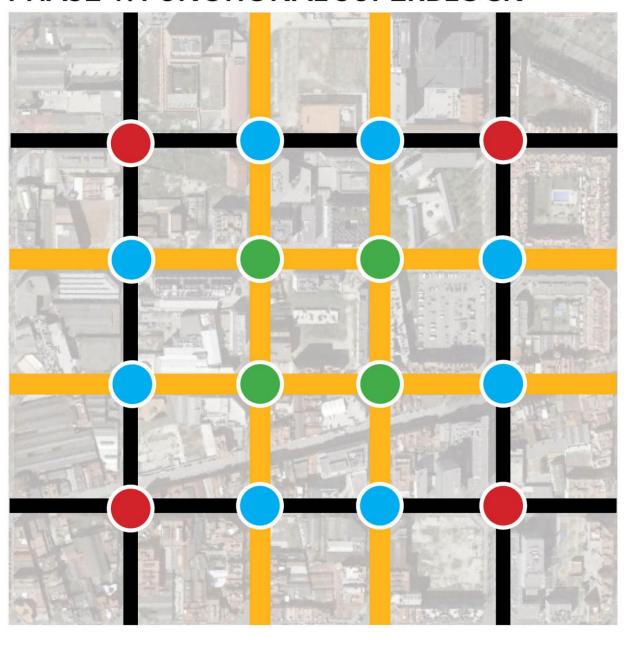




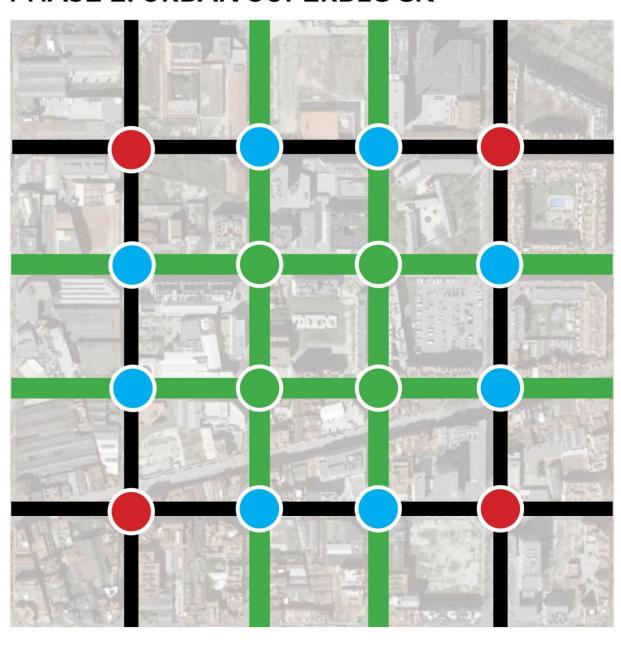


STRUCTURAL ELEMENTS OF NEW SUPERBLOCK: CREATING NODES: INTERSECTIONS WITH DIFFERENT FUNCTIONALITIES

PHASE 1. FUNCTIONAL SUPERBLOCK



PHASE 2. URBAN SUPERBLOCK



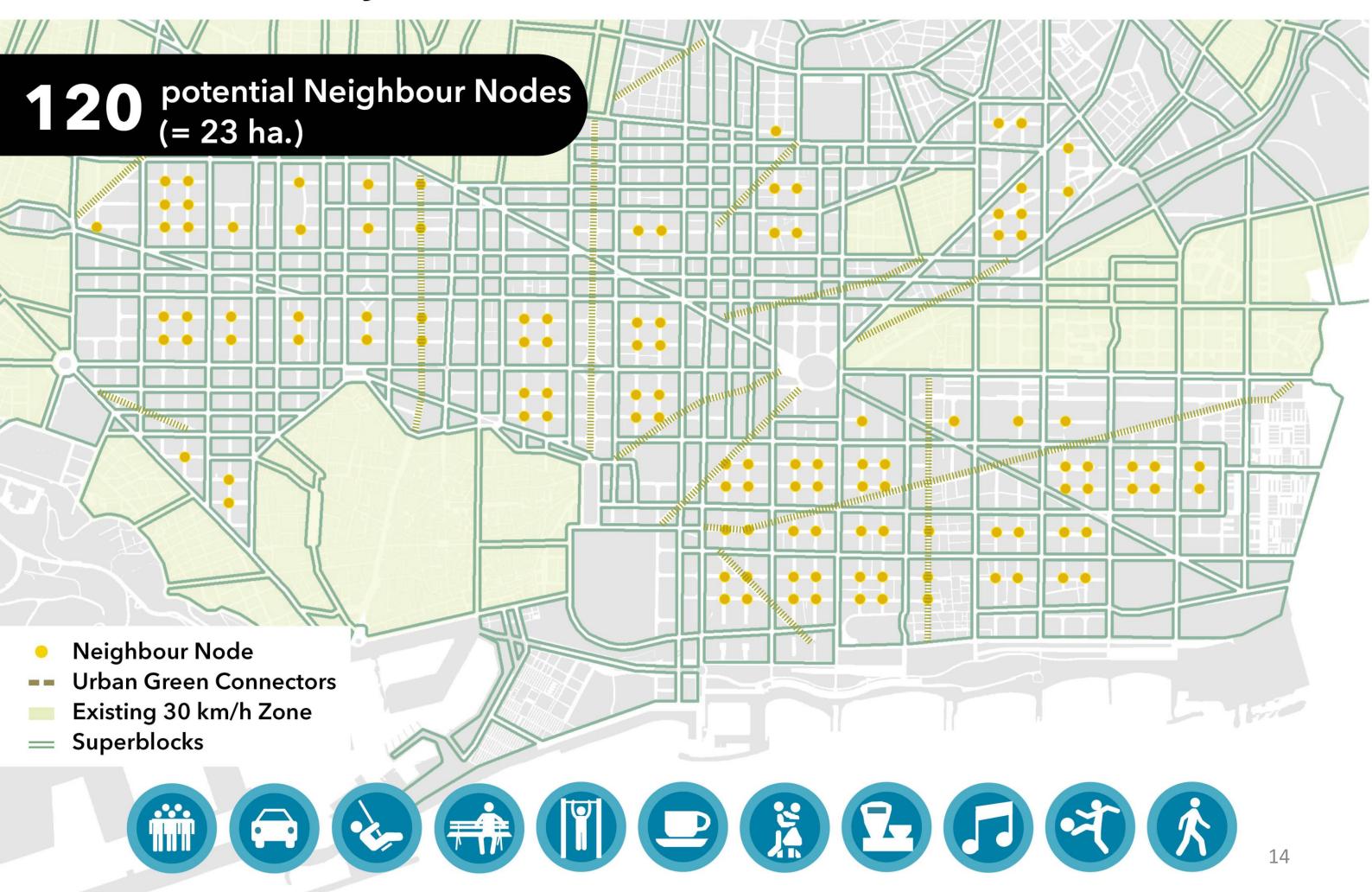
Basic network: 50 km/h
Local network: 20 km/h

INTERMODAL NODE

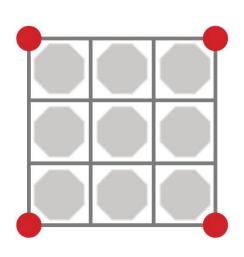
SERVICES NODE

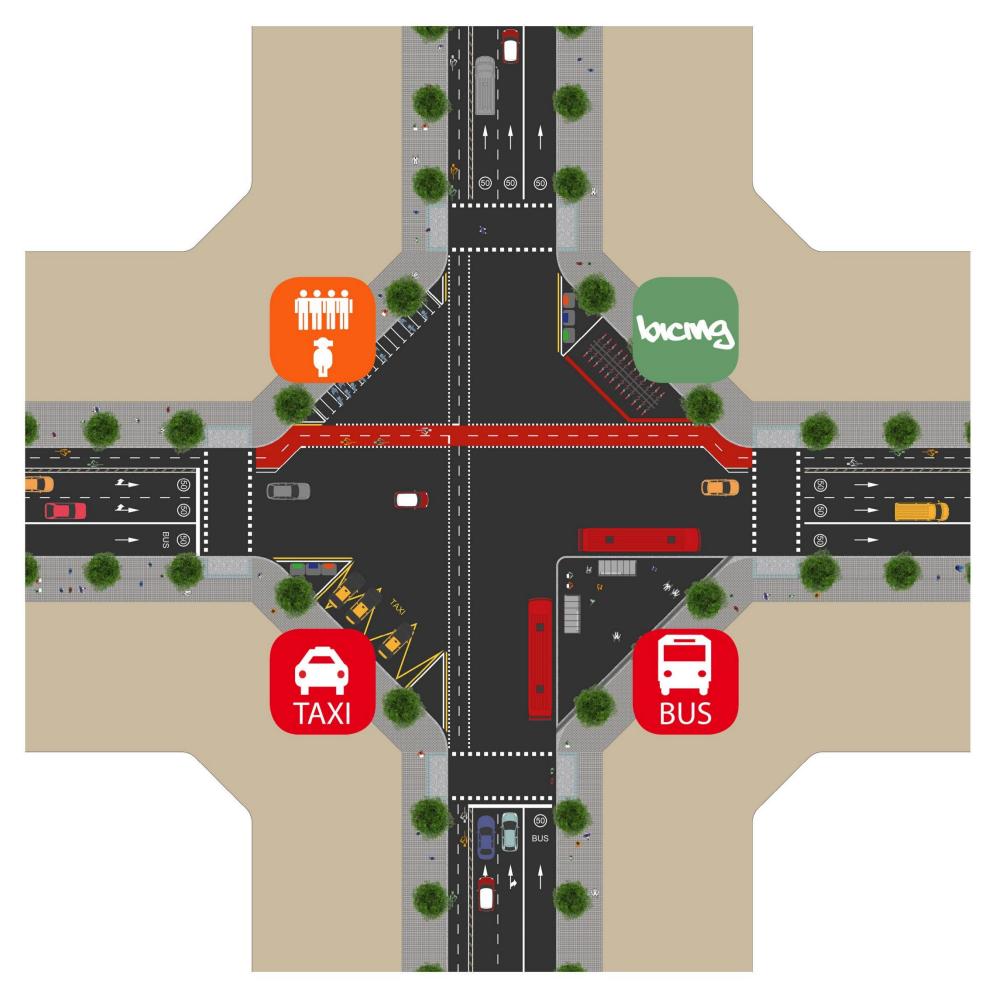
NEIGHBOUR NODE

Urban Mobility Plan of Barcelona 2013-2018



INTERMODAL NODE Intersection of Basic road - Basic road FASE 1







Public Bicycle



Moto sharing

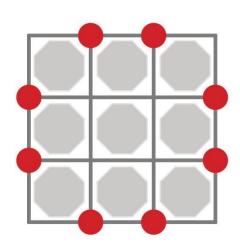


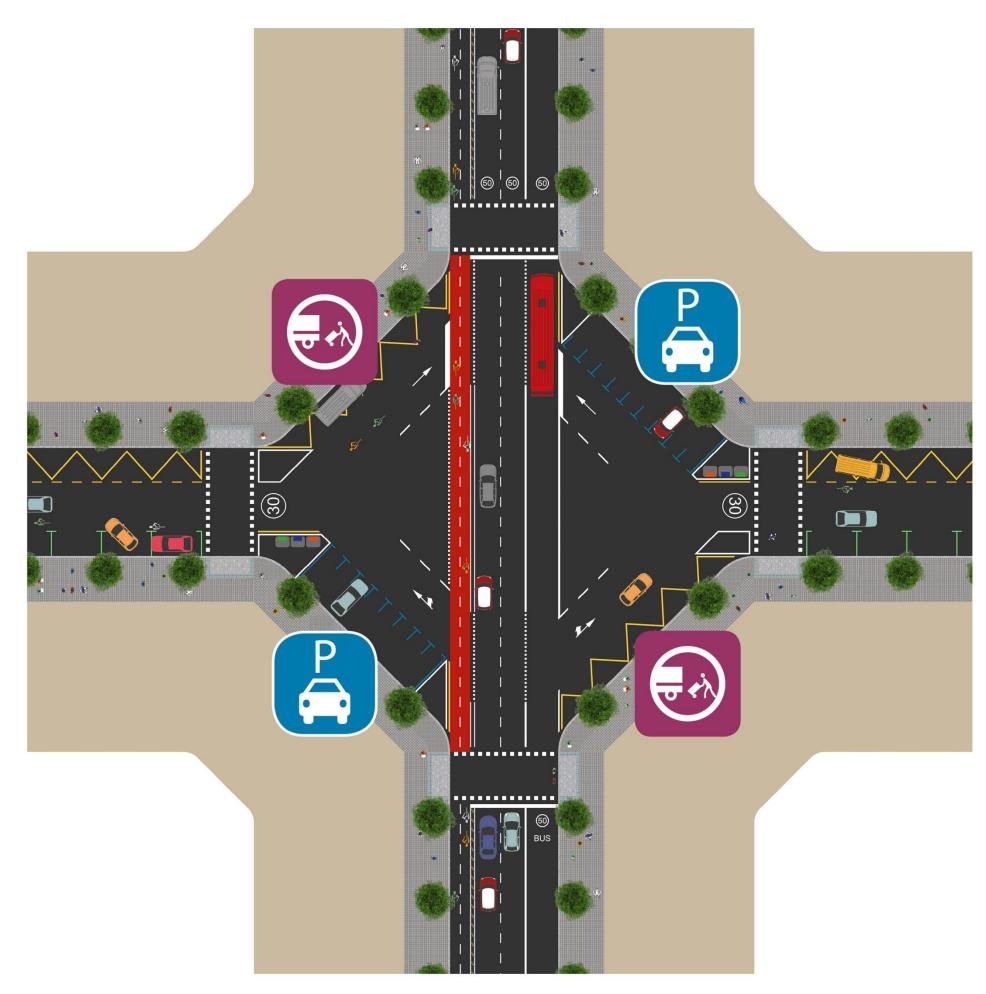
Bus stop (intermodal)



Taxi

SERVICES NODE Intersection of Basic road - Inner via of Superblock FASE 1





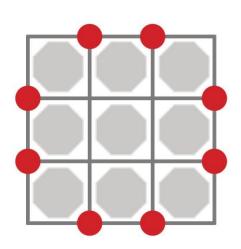


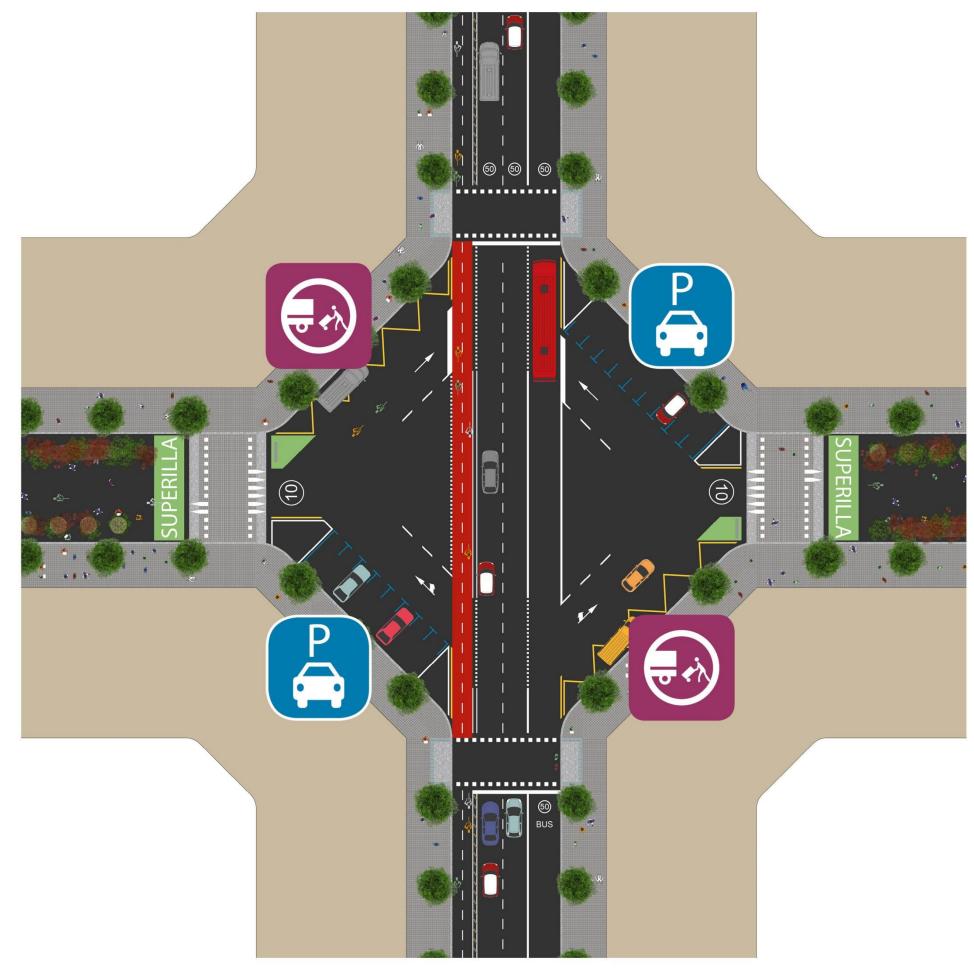
Loading and Unloading



Parking rotation

SERVICES NODE Intersection of Basic road - Inner via of Superblock FASE 2





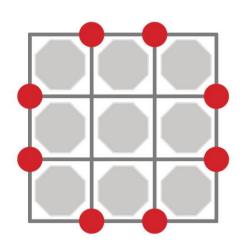


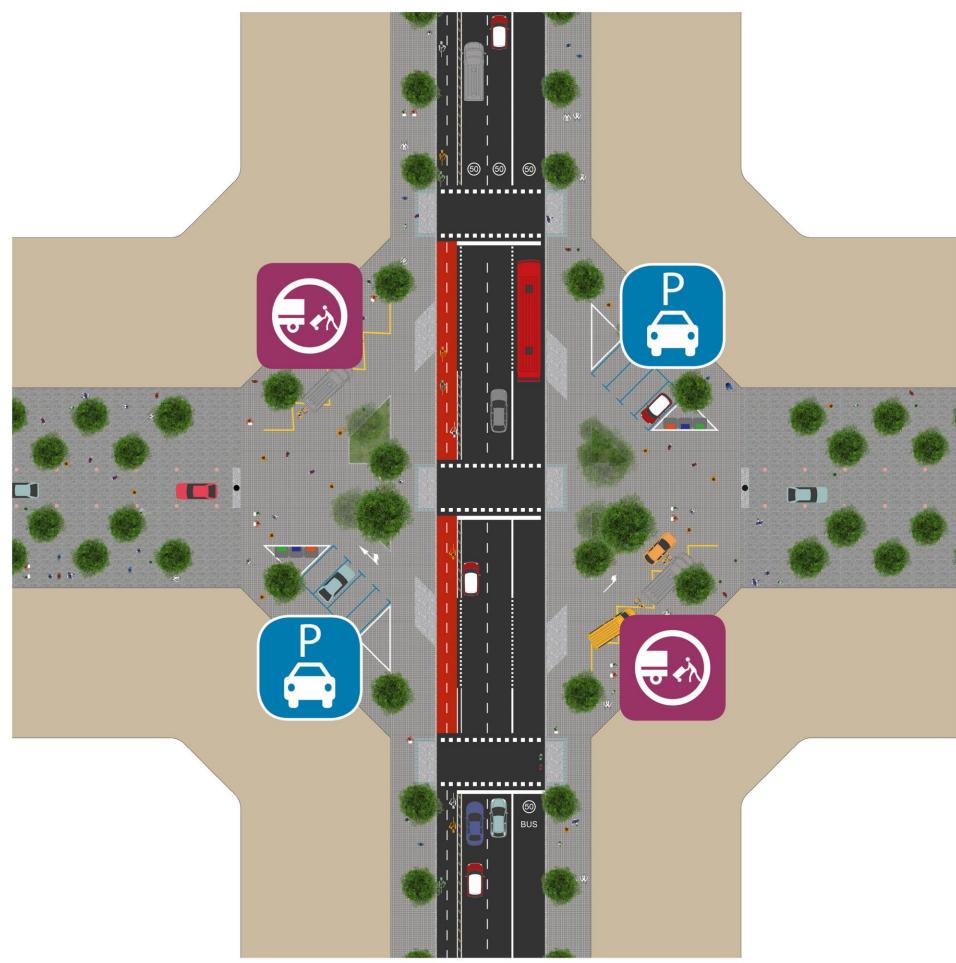
Loading and Unloading



Parking rotation

SERVICES NODE Intersection of Basic road - Inner via of Superblock FASE 2





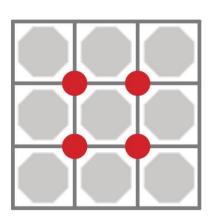


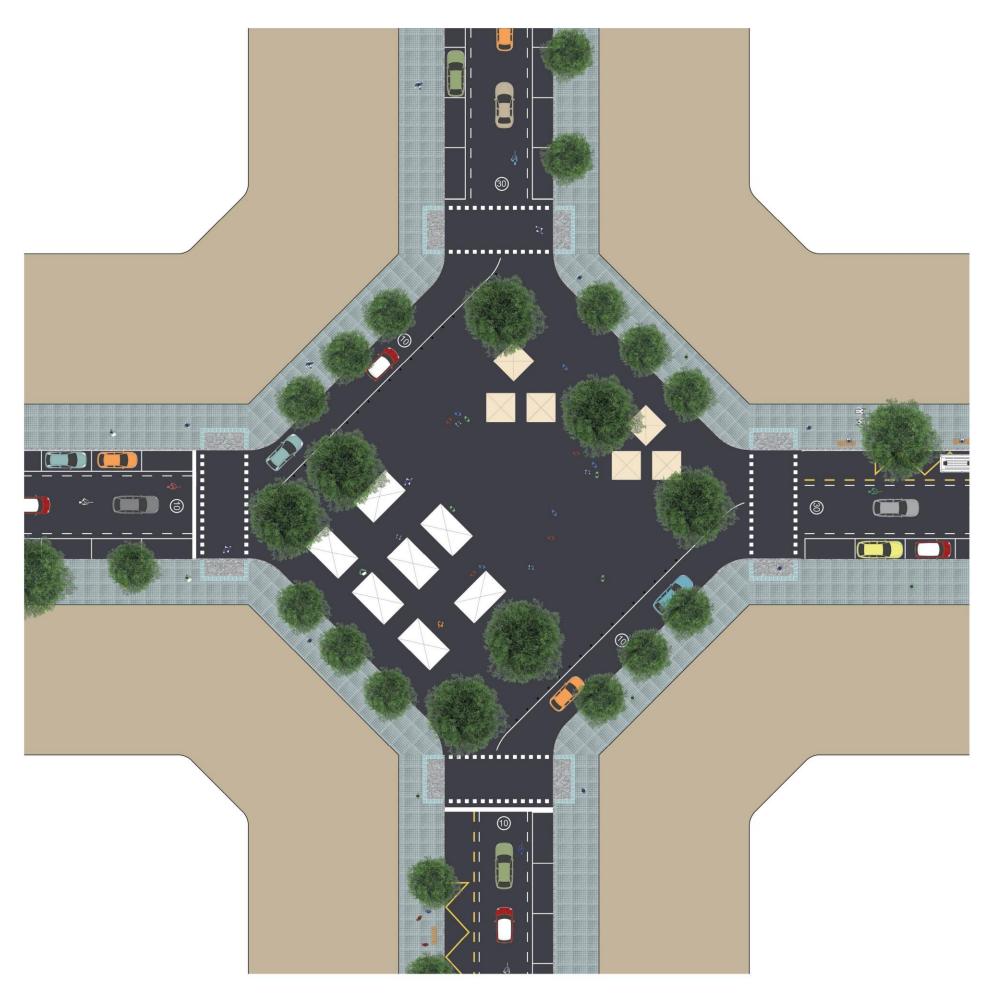
Loading and Unloading



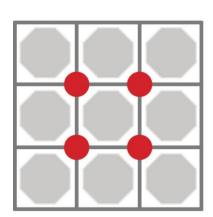
Parking rotation

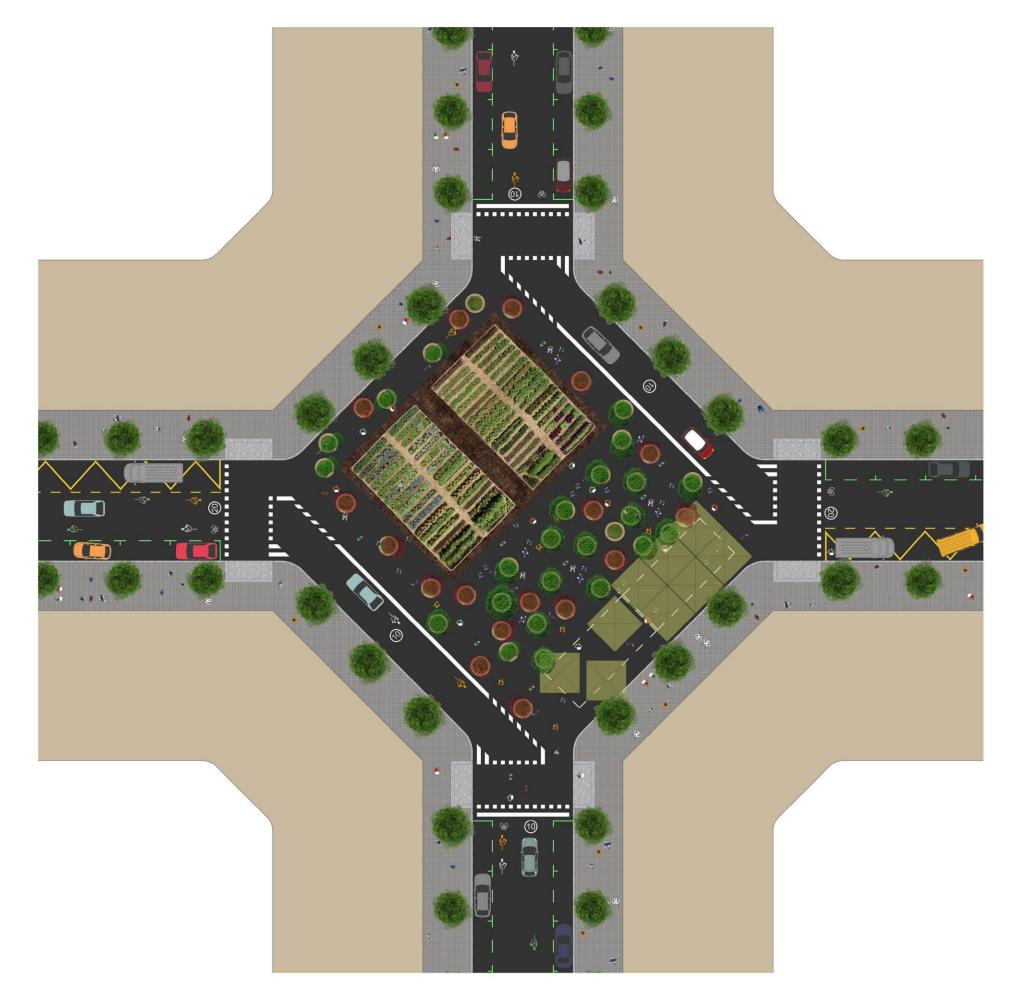
NEIGHBORS NODE Intersection of Inner via of Superblock - Inner via of Superblock FASE 1



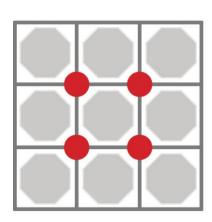


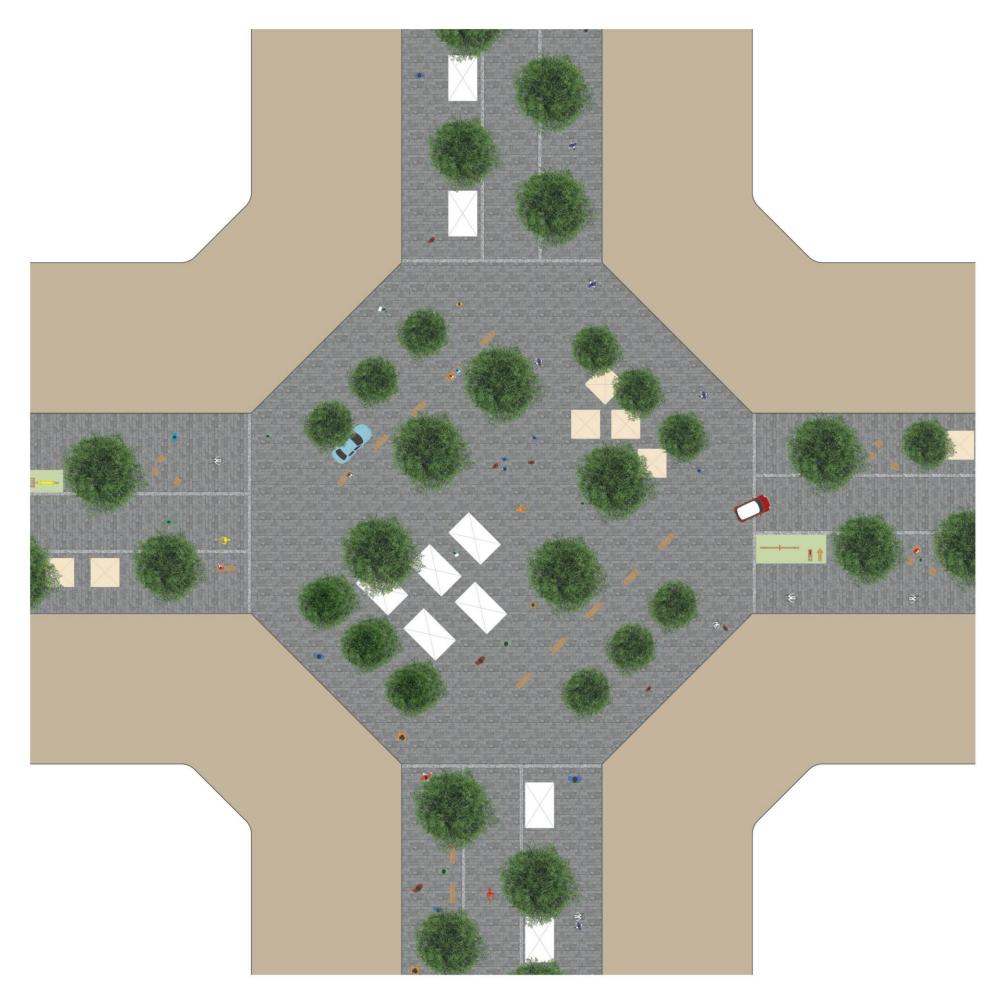
NEIGHBORS NODE Intersection of Inner Road - Inner Road PHASE 1



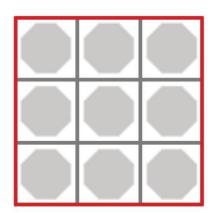


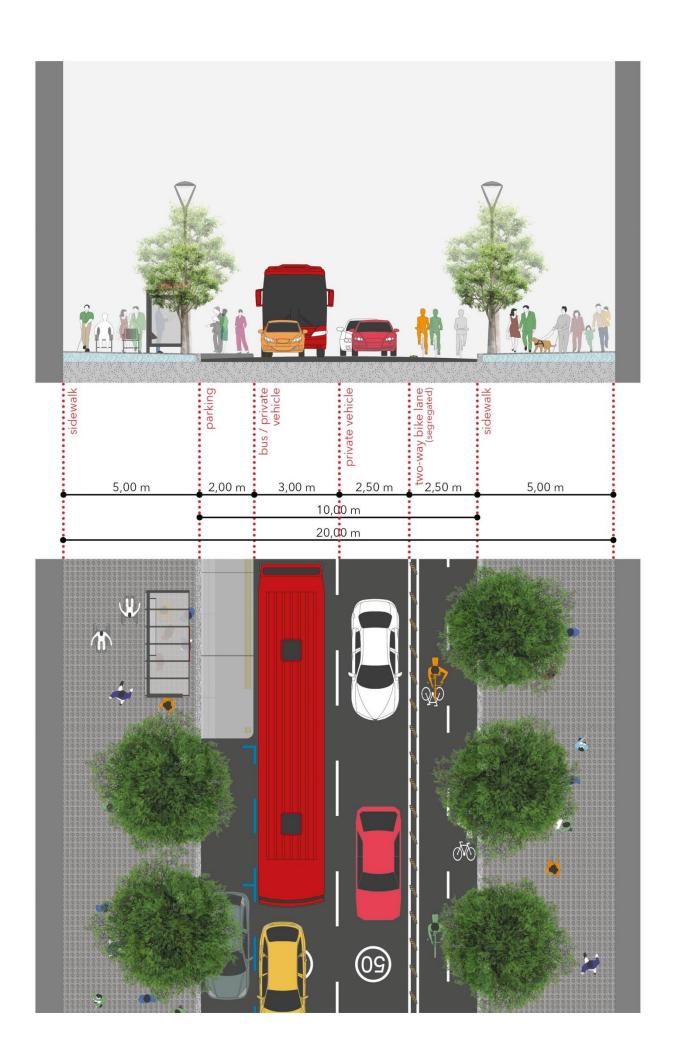
NEIGHBORS NODE Intersection of Inner Road - Inner Road PHASE 2



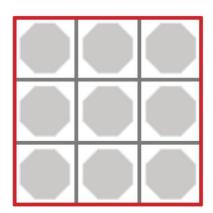


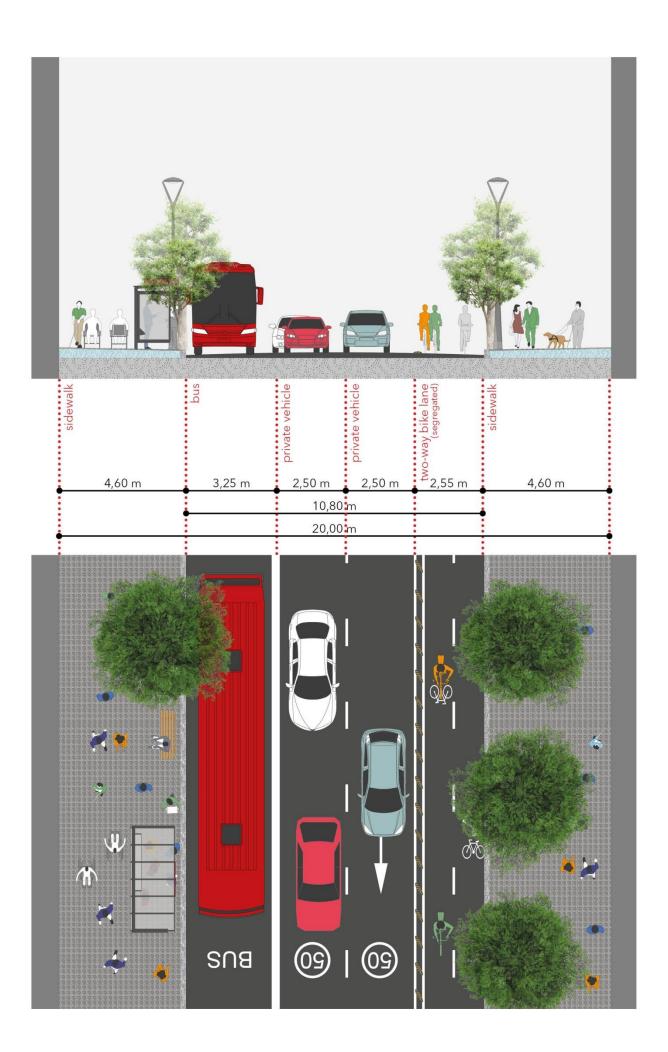
50 Km/h Basic network PHASE 1



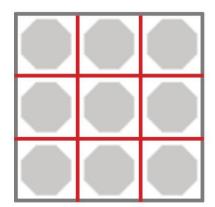


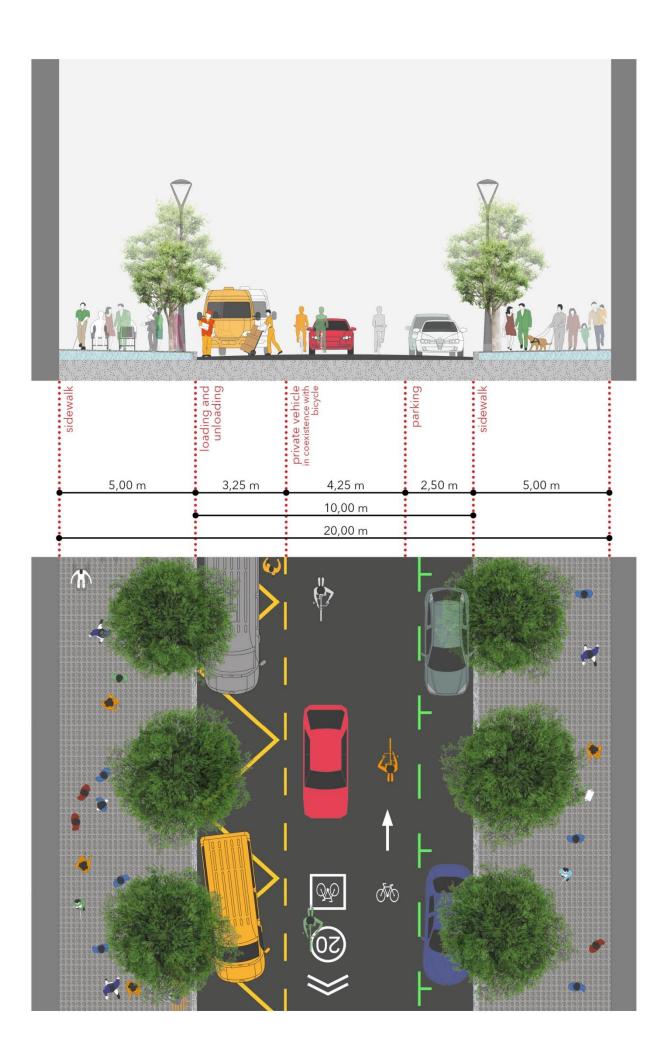
50 Km/h Basic network PHASE 1/2



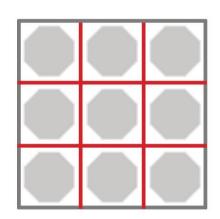


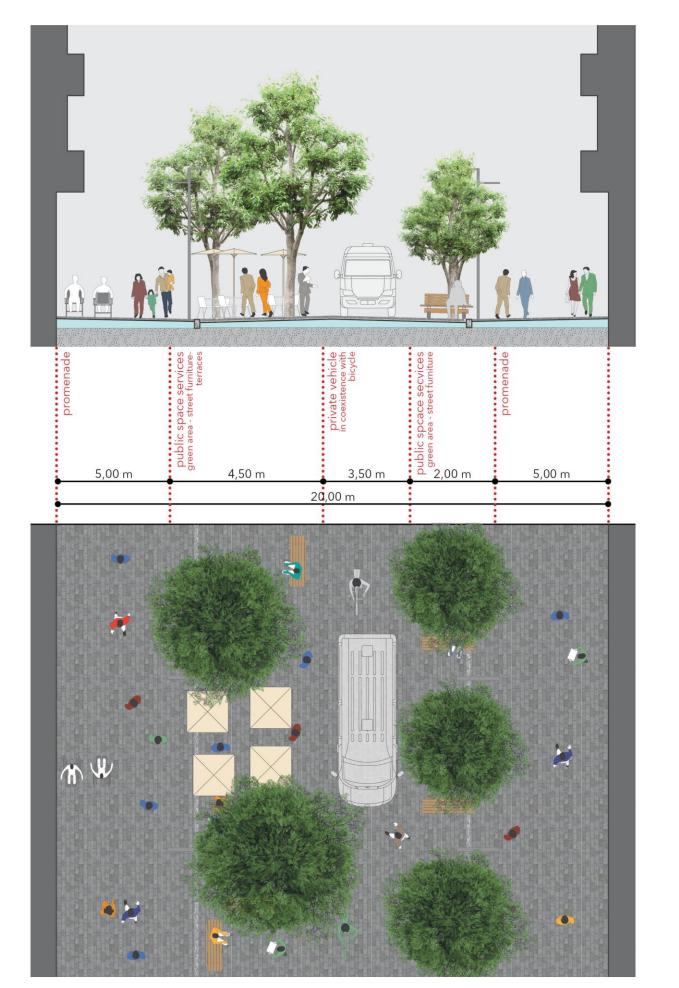
20 Km/h Inner Road PHASE 1

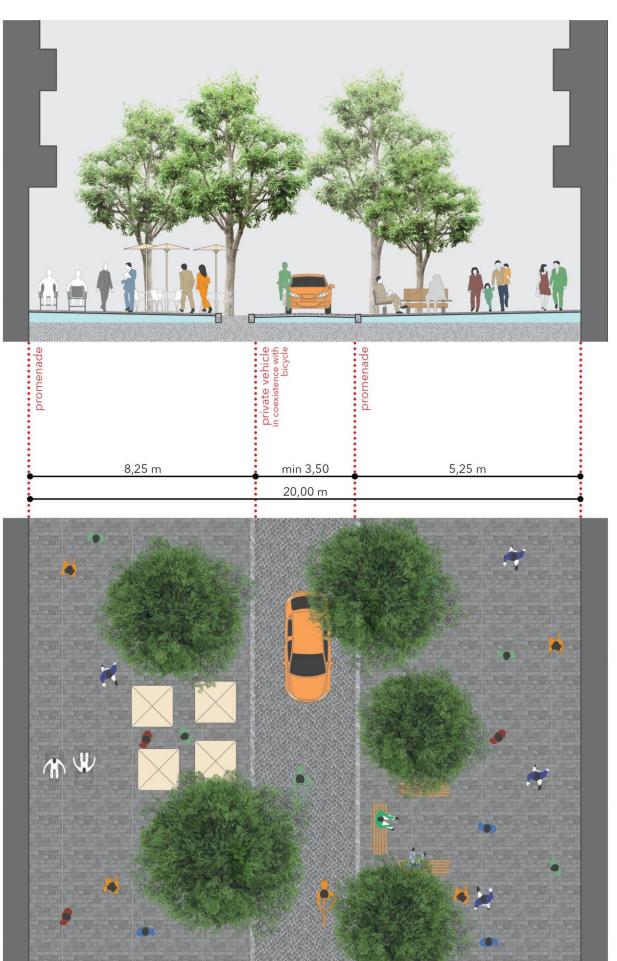




10 Km/h Inner Road PHASE 2







Information panels at Superblock entrances

Urban Superblock (10 km/h)

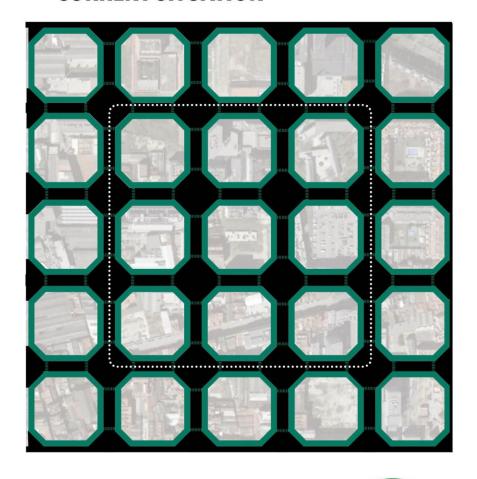
SUPERBLOCK SHARED - USE SPACE PRIORITY FOR PEDESTRIANS Bicycles adapt to pedestrian activity Ø\$€ Except neighbours, Except authorized authorized vehicles, Two-way bicycle bicycles and loading vehicles in circulation reserved spaces

Functional Superblock (20 km/h)

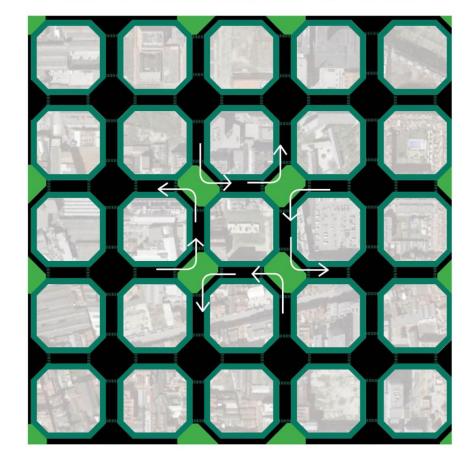


Pedestrians

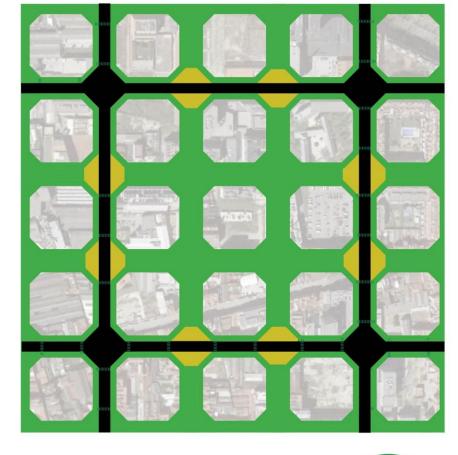
CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS



PHASE 2. URBAN SUPERBLOCKS







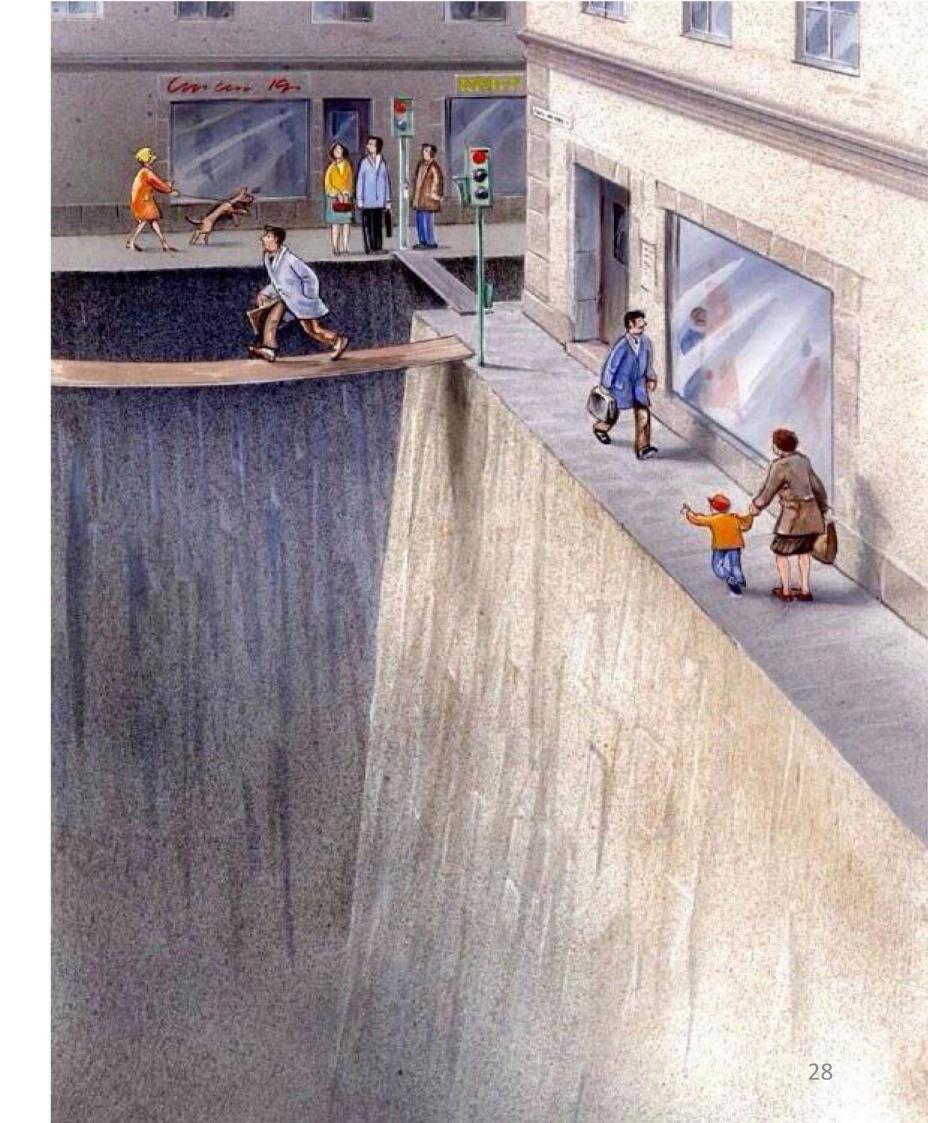




- Pedestrian space
 - Sidewalks, pedestrian priority streets, boulevards, promenades
- Accessible citizen space
- Services area

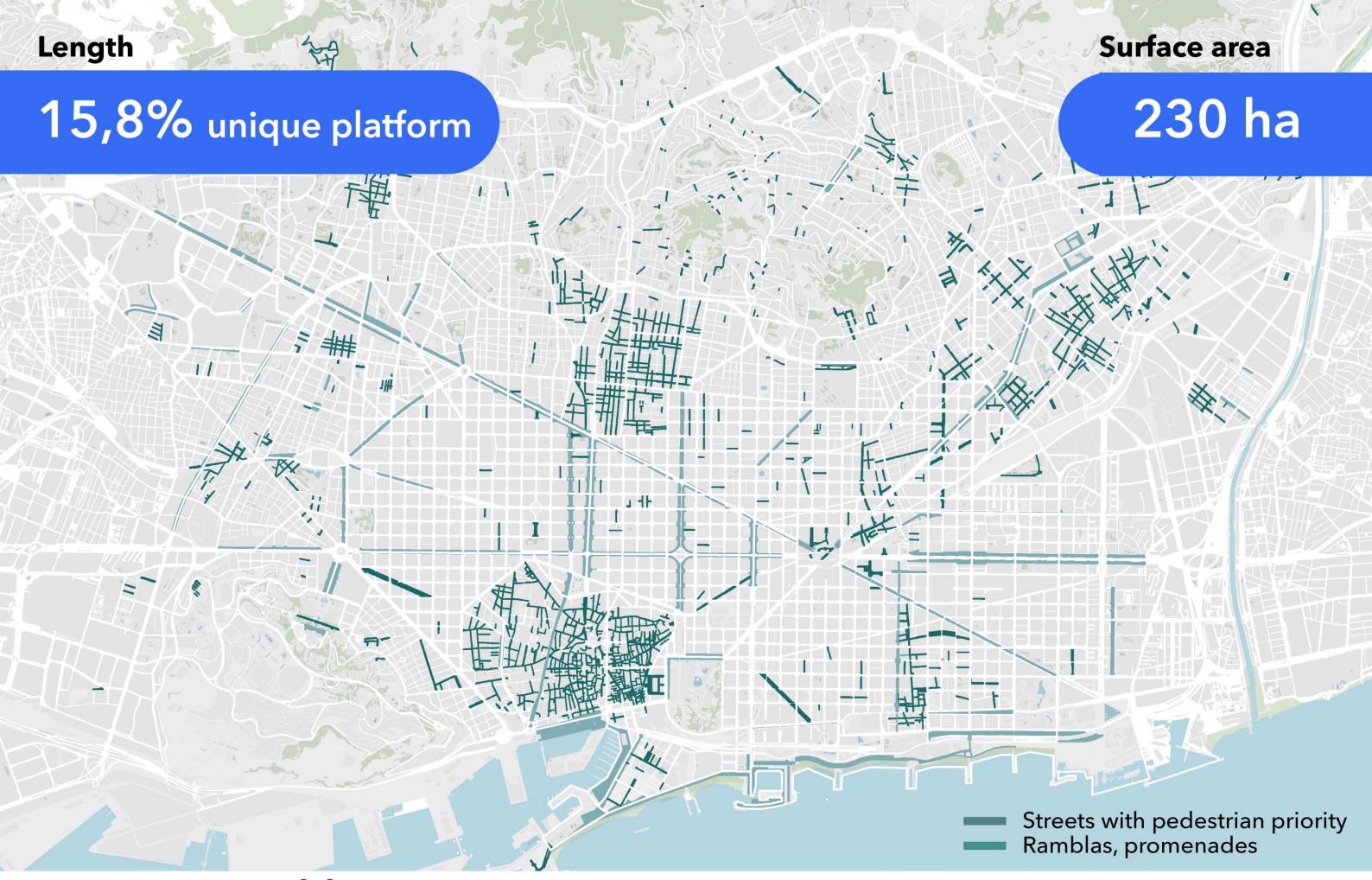
Mixed area for parking, loading and unloading and pedestrian traffic

Pedestrians. CURRENT SITUATION

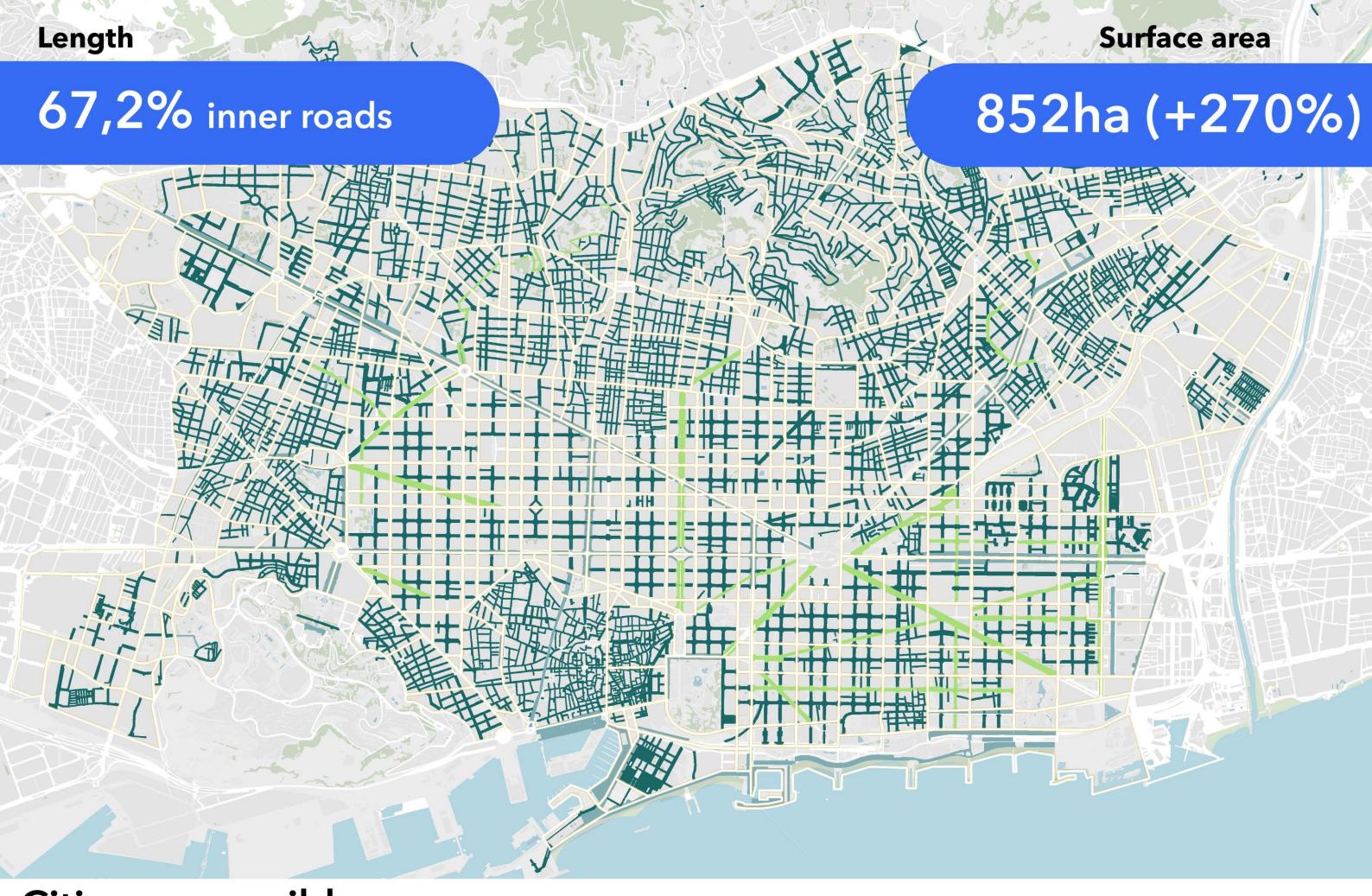


Pedestrians. SUPERBLOCK





Citizen accessible space BARCELONA CURRENT SITUATION

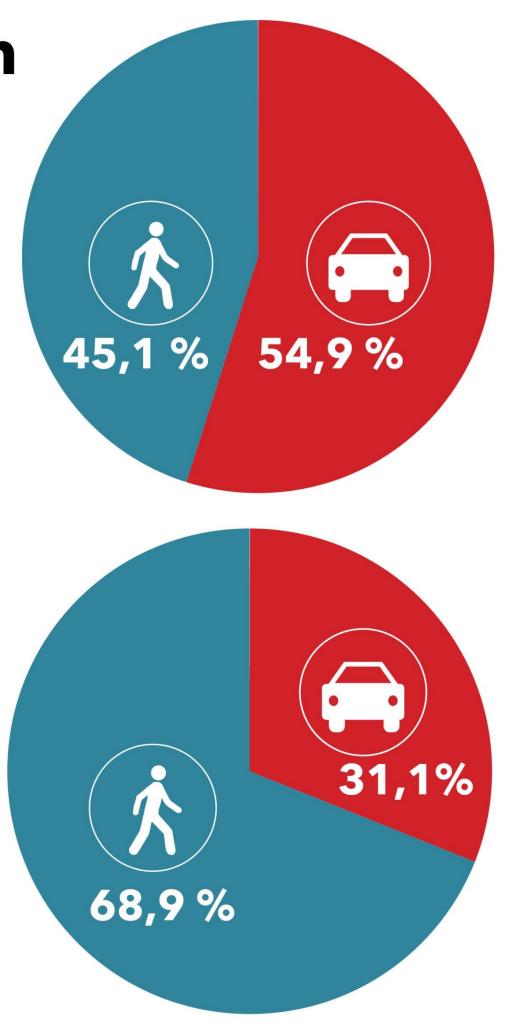


Street Space Distribution

Current situation

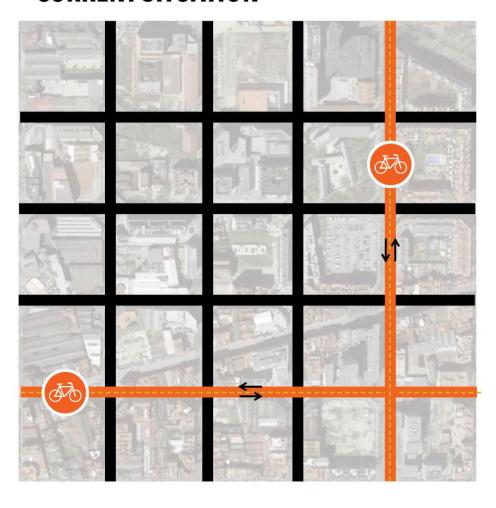
PEDESTRIAN SPACE vs
MOTORIZED SPACE

Superblock Scenario

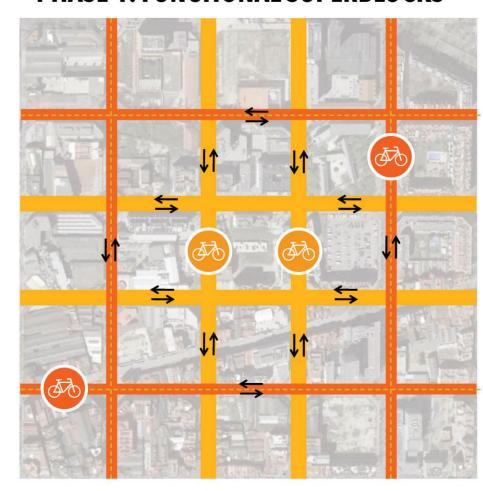


Bicycles

CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS



PHASE 2. URBAN SUPERBLOCKS

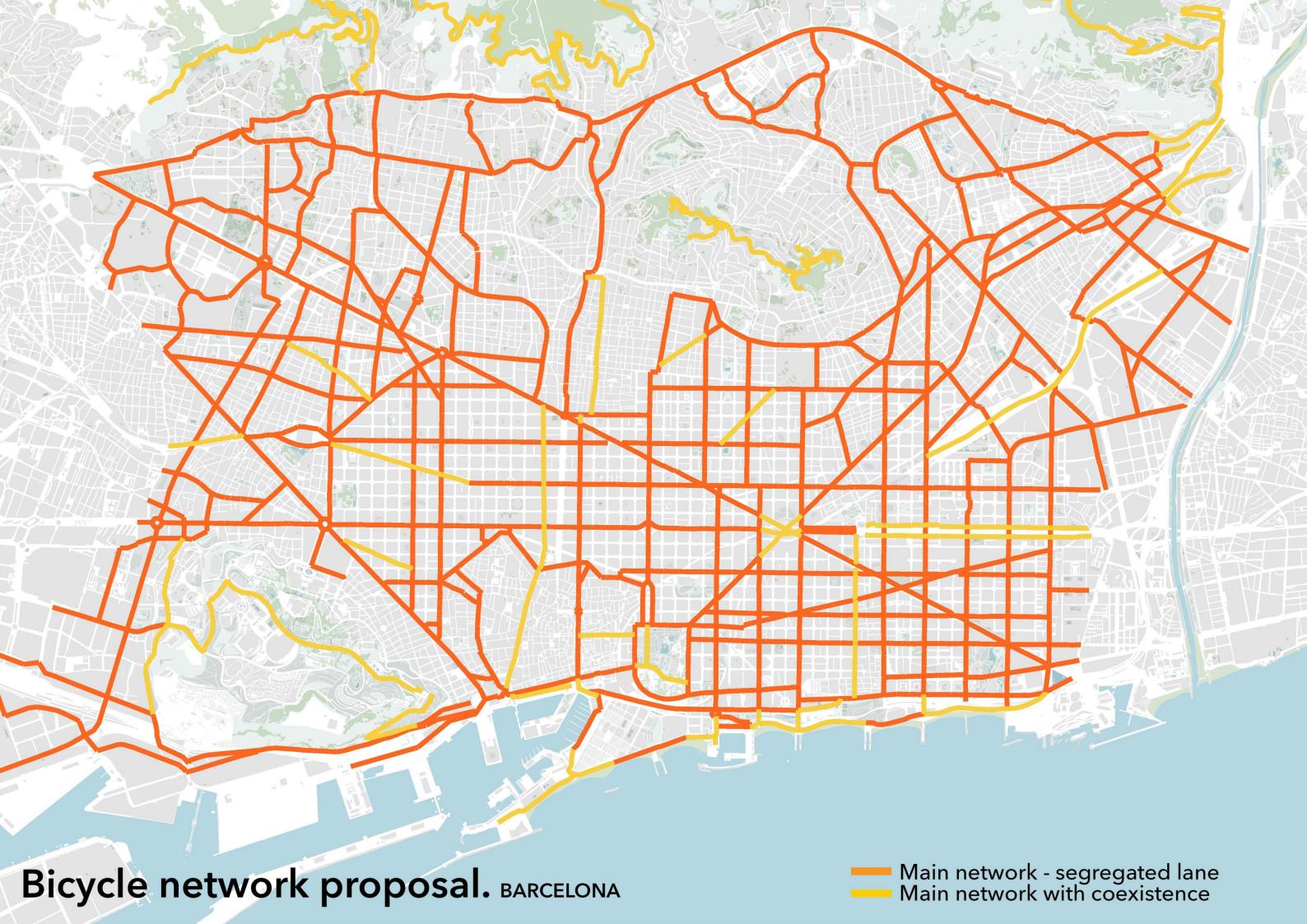




Bicycle network

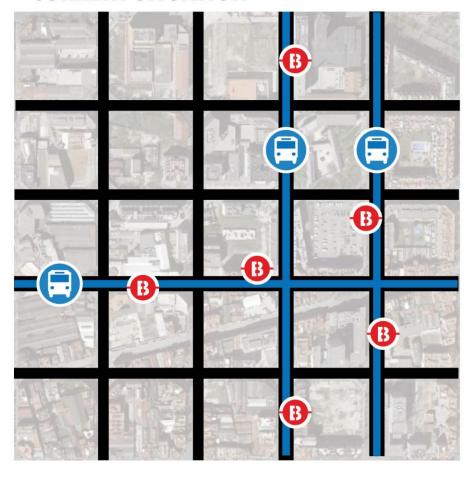
Main (bicycle lane)
Secondary (30 Km/h)

Living space cyclist/pedestrian (10 Km/h)

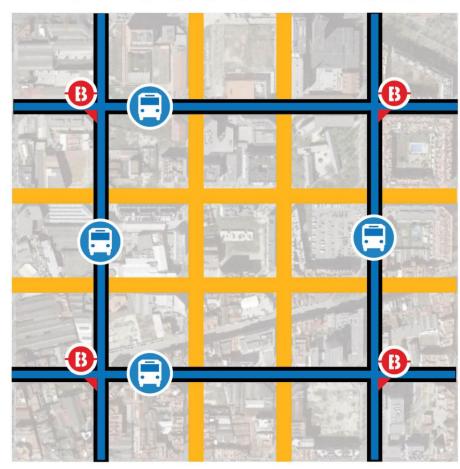


Public Transport

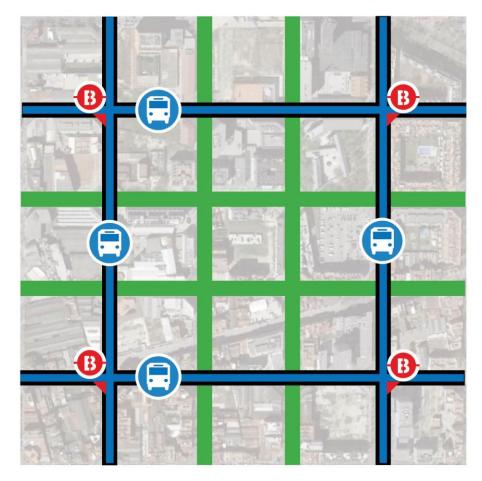
CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS



PHASE 2. URBAN SUPERBLOCKS





Maximum speed

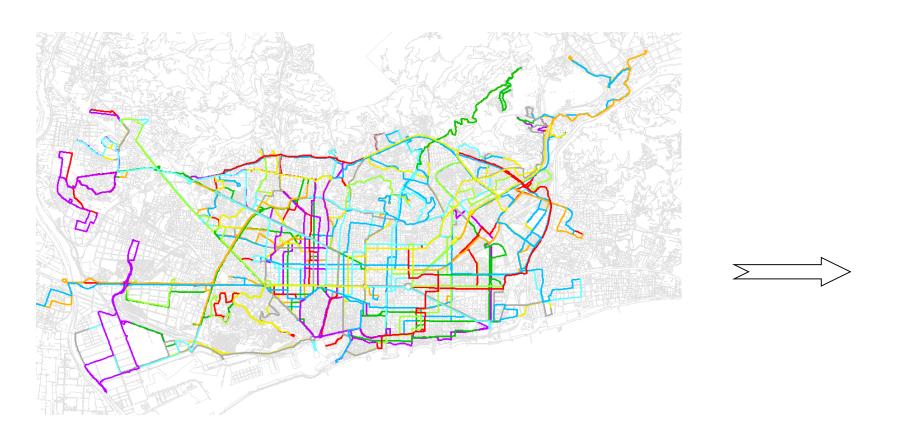
Basic network: 50 km/h Local network: 30 km/h Local network: 10 km/h

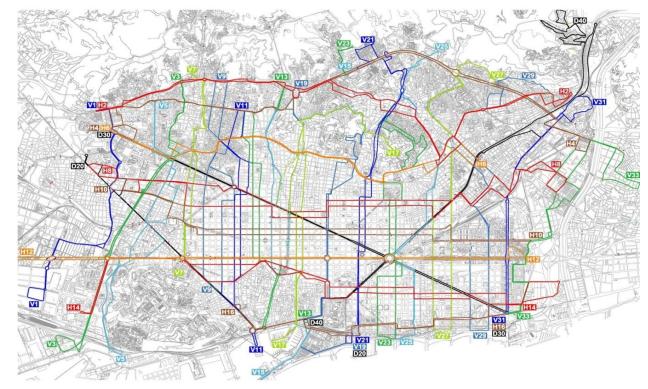


Bus network



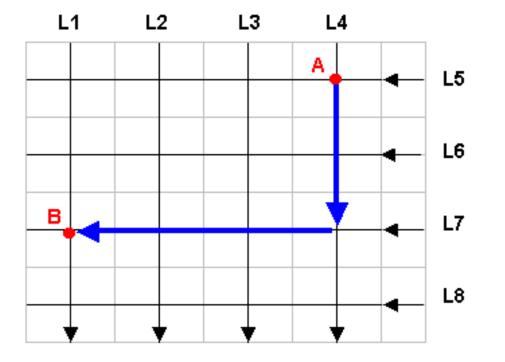
Bus stop





Transporte público en superficie actual en Barcelona. Es una suma de líneas poco eficiente. Frecuencia media de 14 minutos y velocidad comercial 11,03 Km/h.

Propuesta de red ortogonal de bus manteniendo el número de autobuses. Se simplifica considerablemente en relación a la situación actual. Permite plantear un servicio con frecuencia de paso de 5 minutos, isótropa en todo el territorio y una velocidad comercial de 13 Km/h. Esta red está en proceso de implantación, estando en servicio ya varias líneas nuevas.

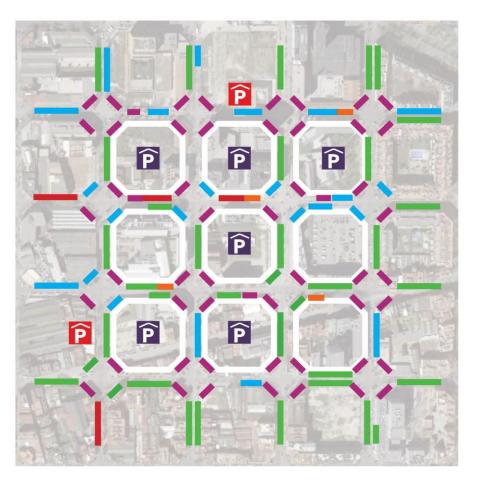


Se articula como una red de metro en superficie, legible, conexa y conectiva.

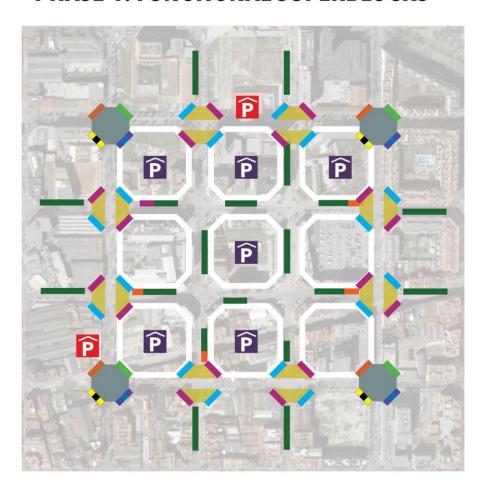


Parking

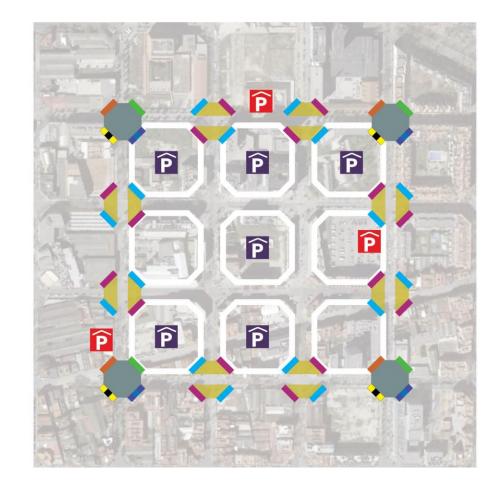
CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS



PHASE 2. URBAN SUPERBLOCKS





Types of parking

Free Blue Zone (paid) Green Zone (preferential residents) Green Zone (exclusive residents) Loading and Unloading Zone (L/U) Motorcycles

Basic / Inner Road intersection



Basic / Basic intersection

Moto-

Public sharing bicycle Bus Taxi stop (intermodal)

Parking off-road

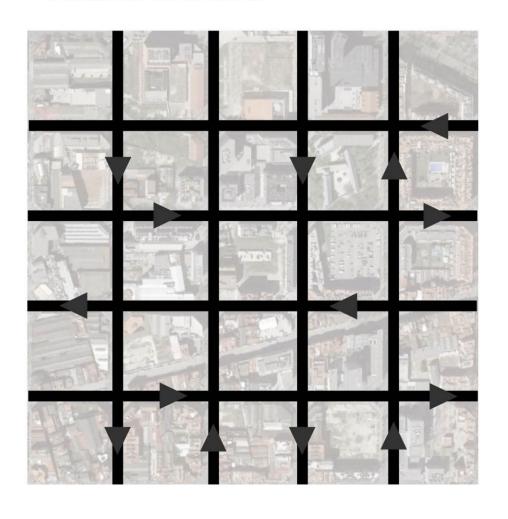




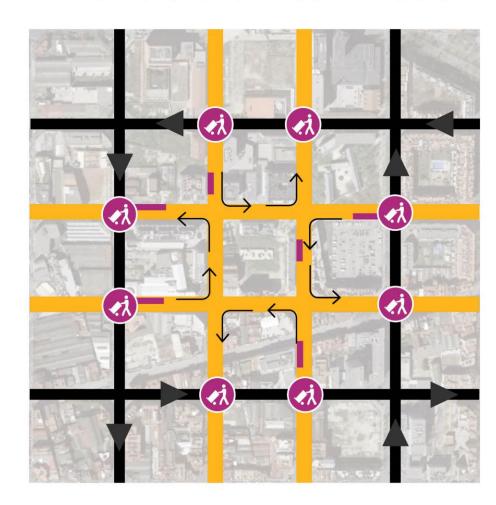
Public Access Parking

Urban distribution of goods

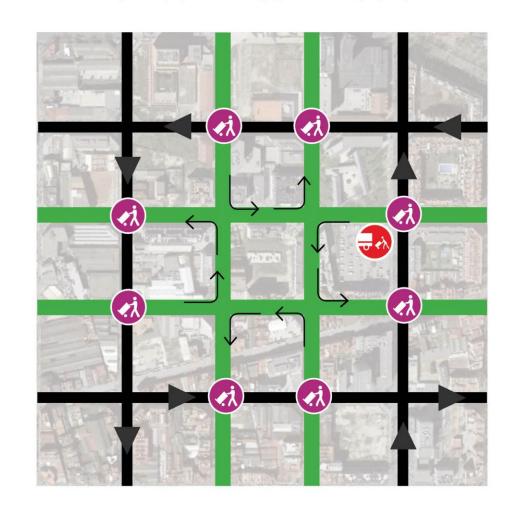
CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS



PHASE 2. URBAN SUPERBLOCKS





Maximum speed

Basic network: 50 km/h Local network: 30 km/h

Local network: 10 km/h



Intersections

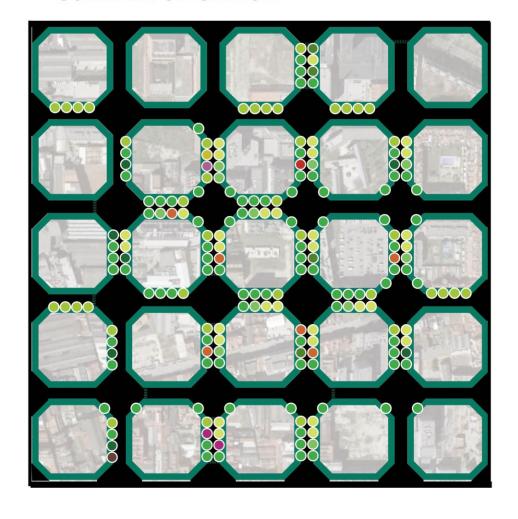
Service node (intersection Basic Road - Inner Road Loading/Unloading points



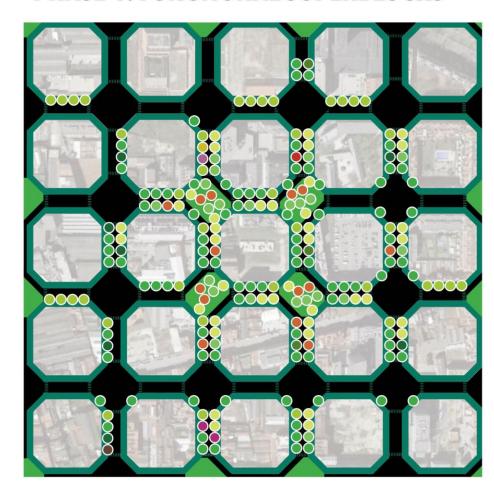
Logistics platform

Urban green space

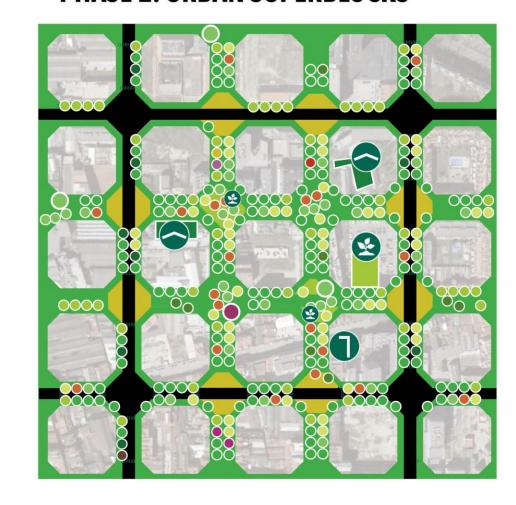
CURRENT SITUATION



PHASE 1. FUNCTIONAL SUPERBLOCKS

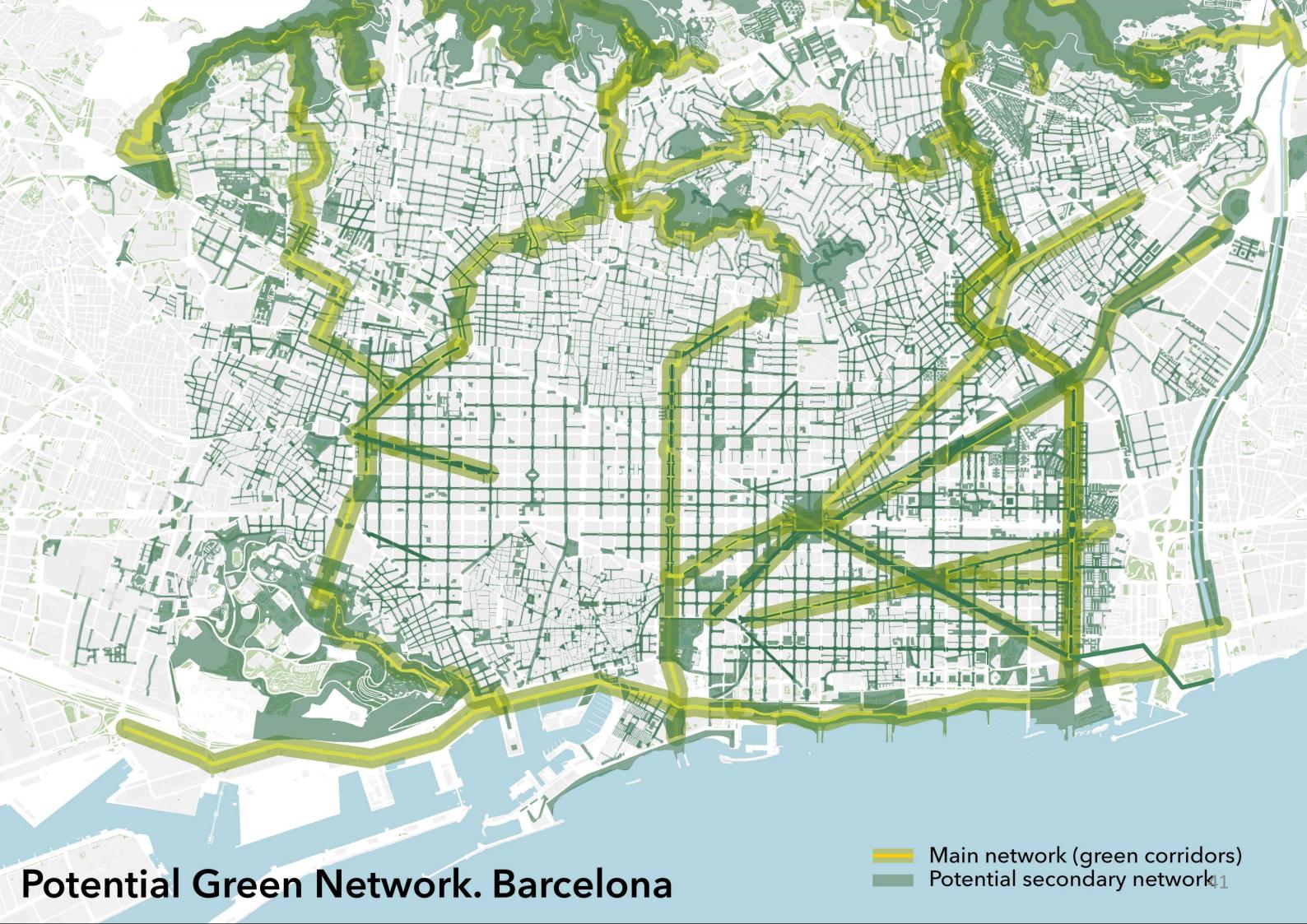


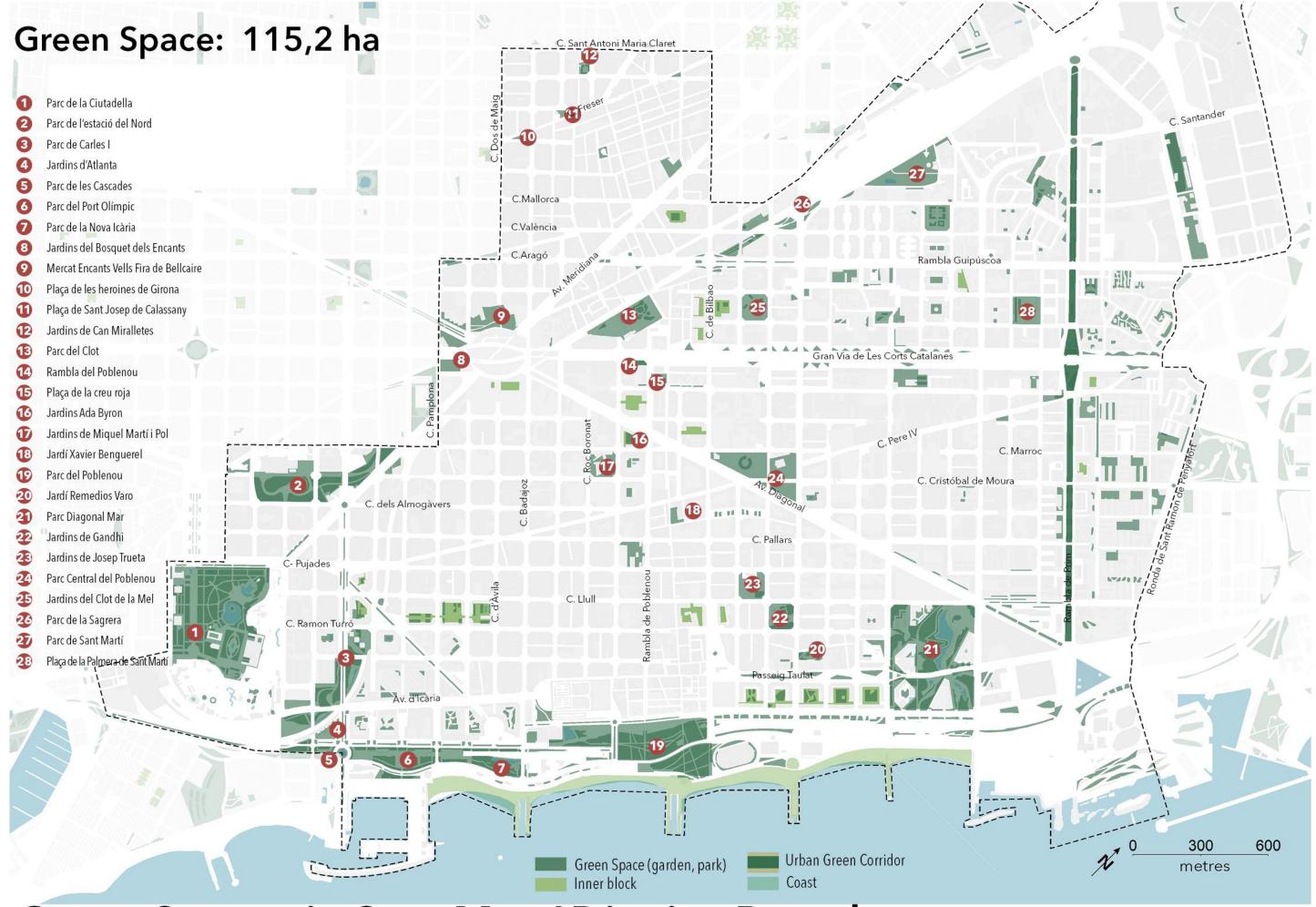
PHASE 2. URBAN SUPERBLOCKS



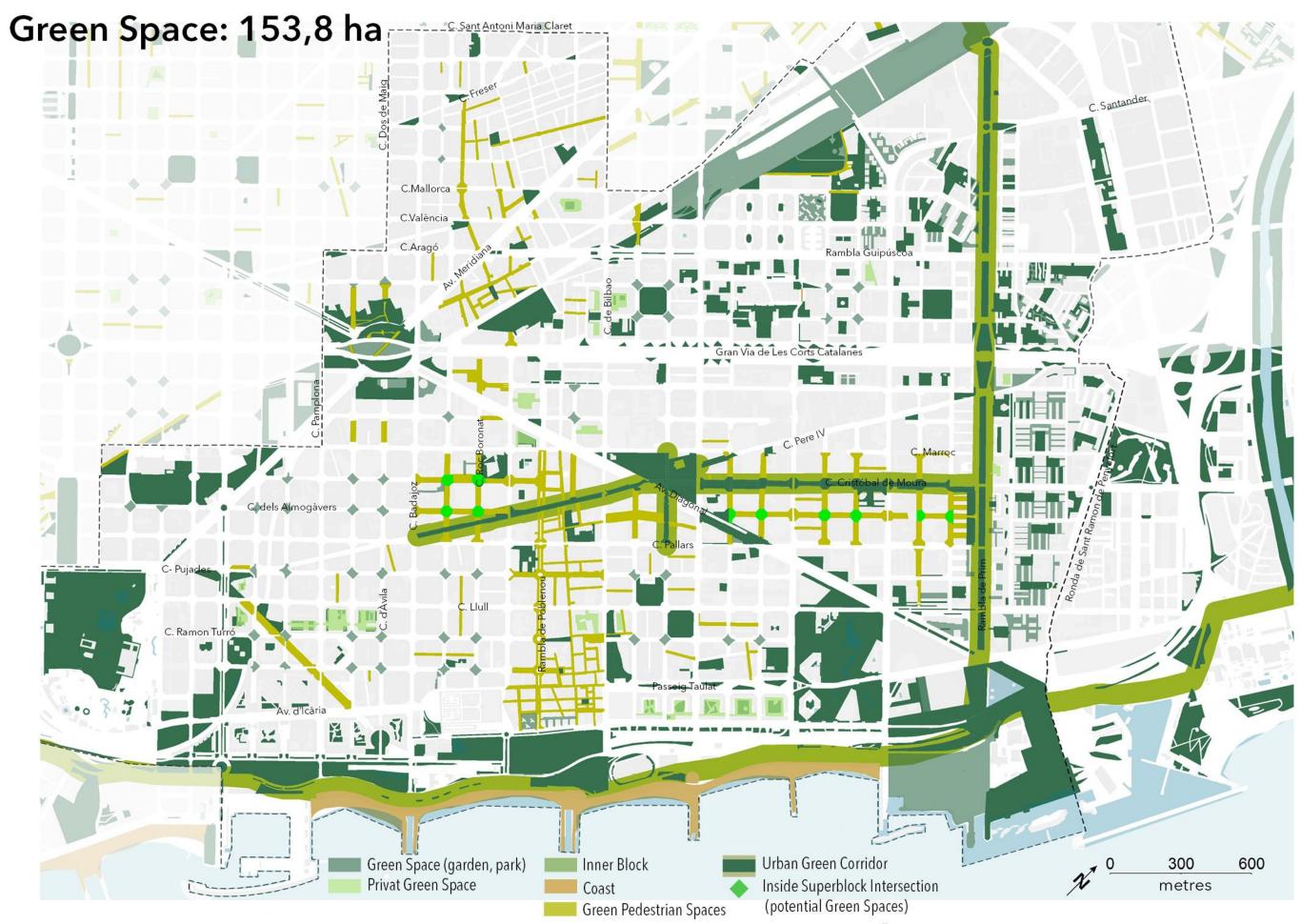


- Street trees
- Green space potential (permeable)
- Urban garden
- Green roof
- Green wall

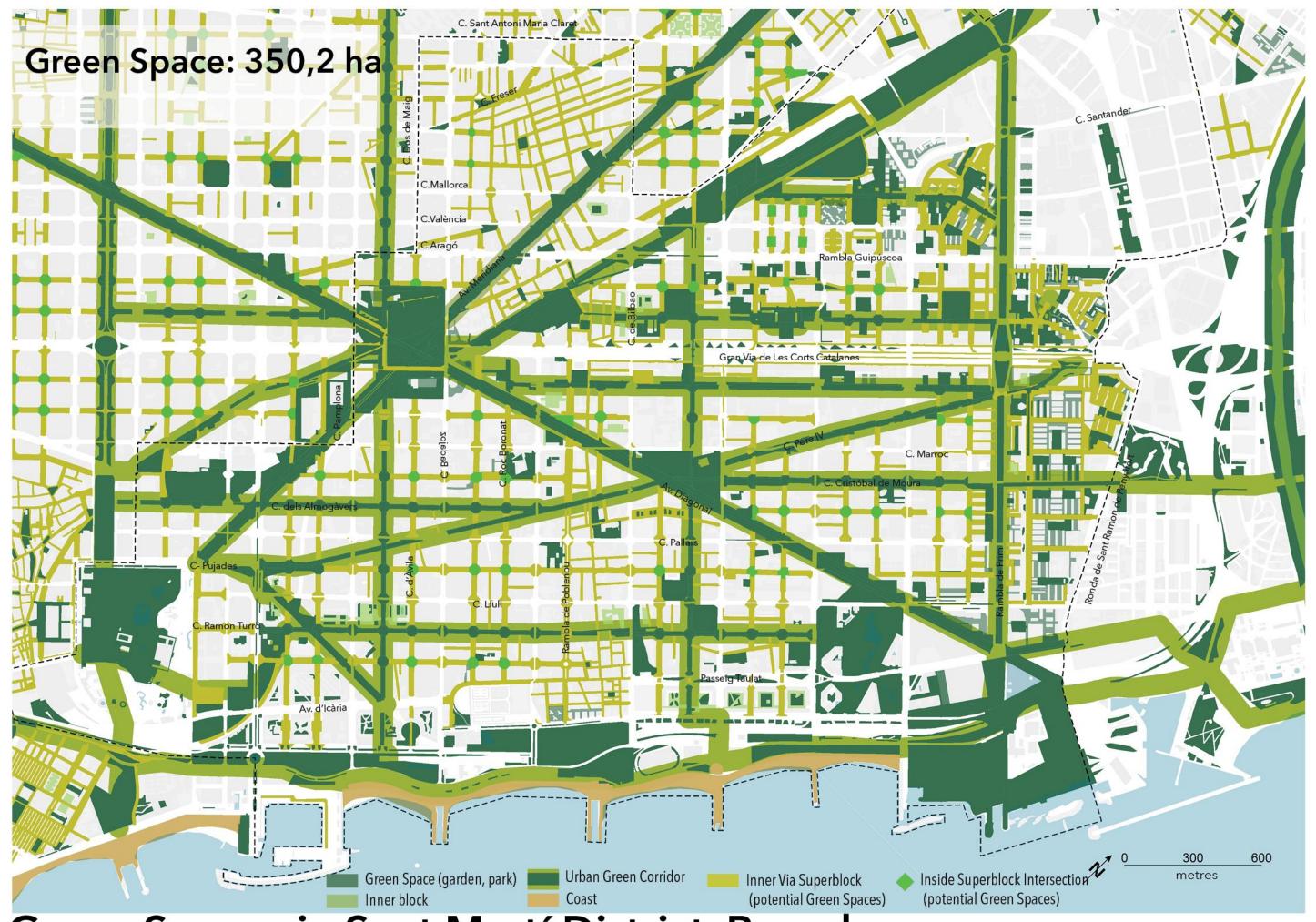




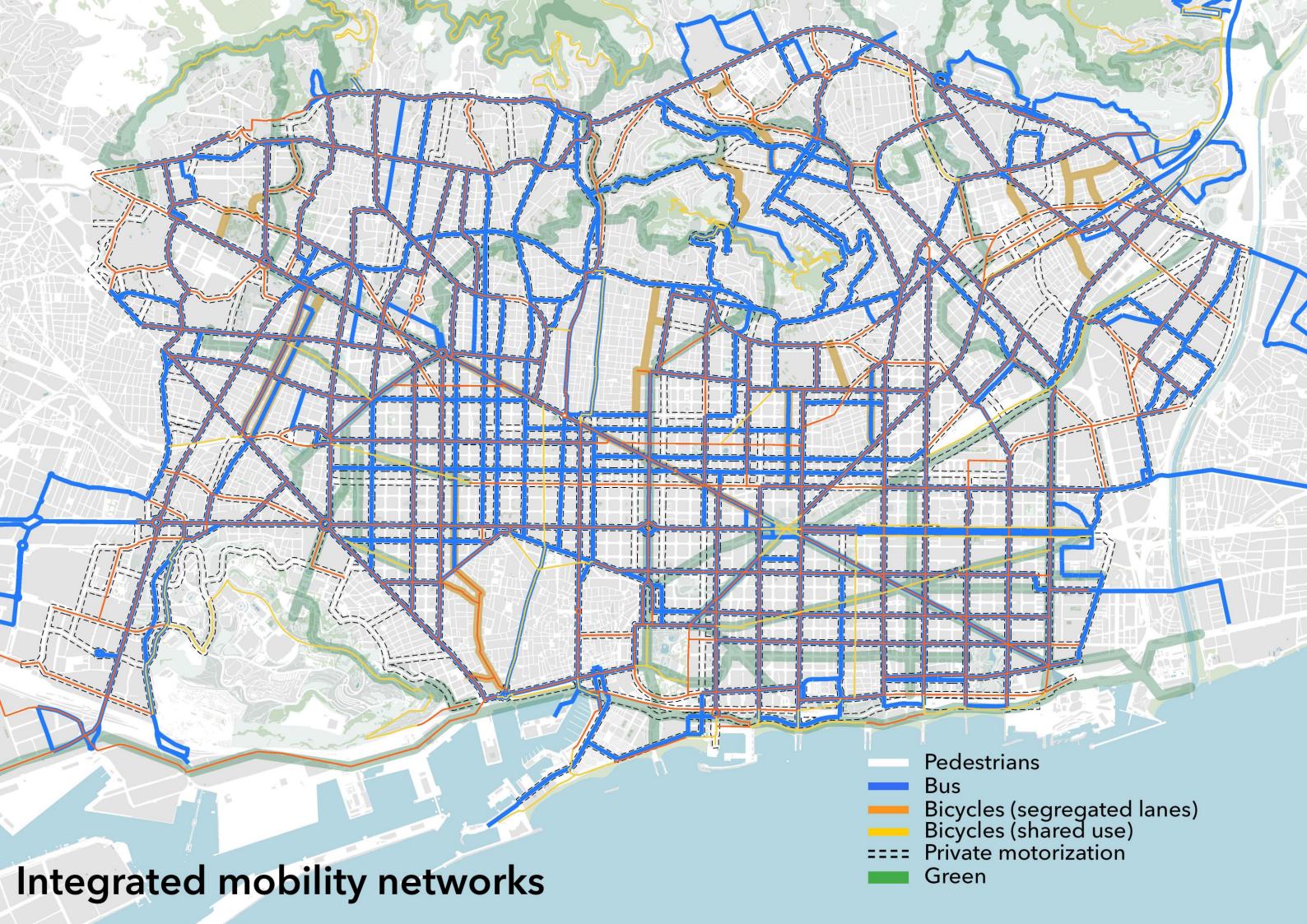
Green Spaces in Sant Martí District. Barcelona Current situation



Green Spaces in Sant Martí District. Barcelona Scenario 1 (2019)

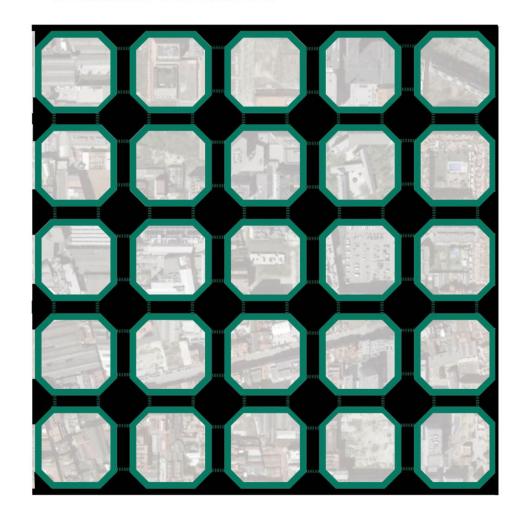


Green Spaces in Sant Martí District. Barcelona Superblocks Scenario



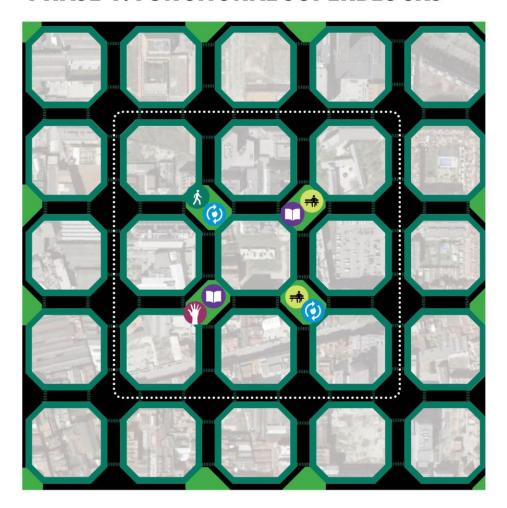
Citizens rights

CURRENT SITUATION





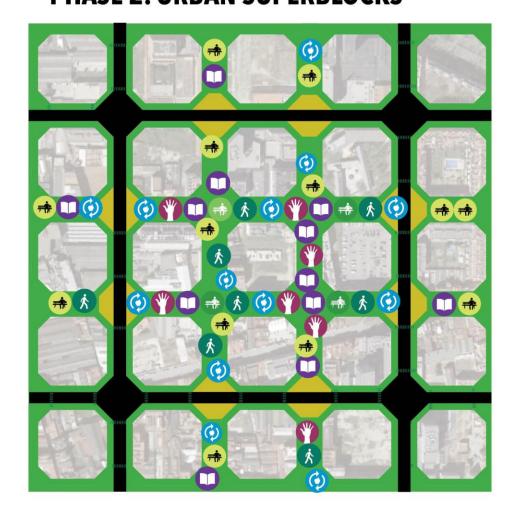
PHASE 1. FUNCTIONAL SUPERBLOCKS





- Interchange
- Expression and participation
- Culture and knowledge
- Recreation, leisure, stay
- Displacement

PHASE 2. URBAN SUPERBLOCKS

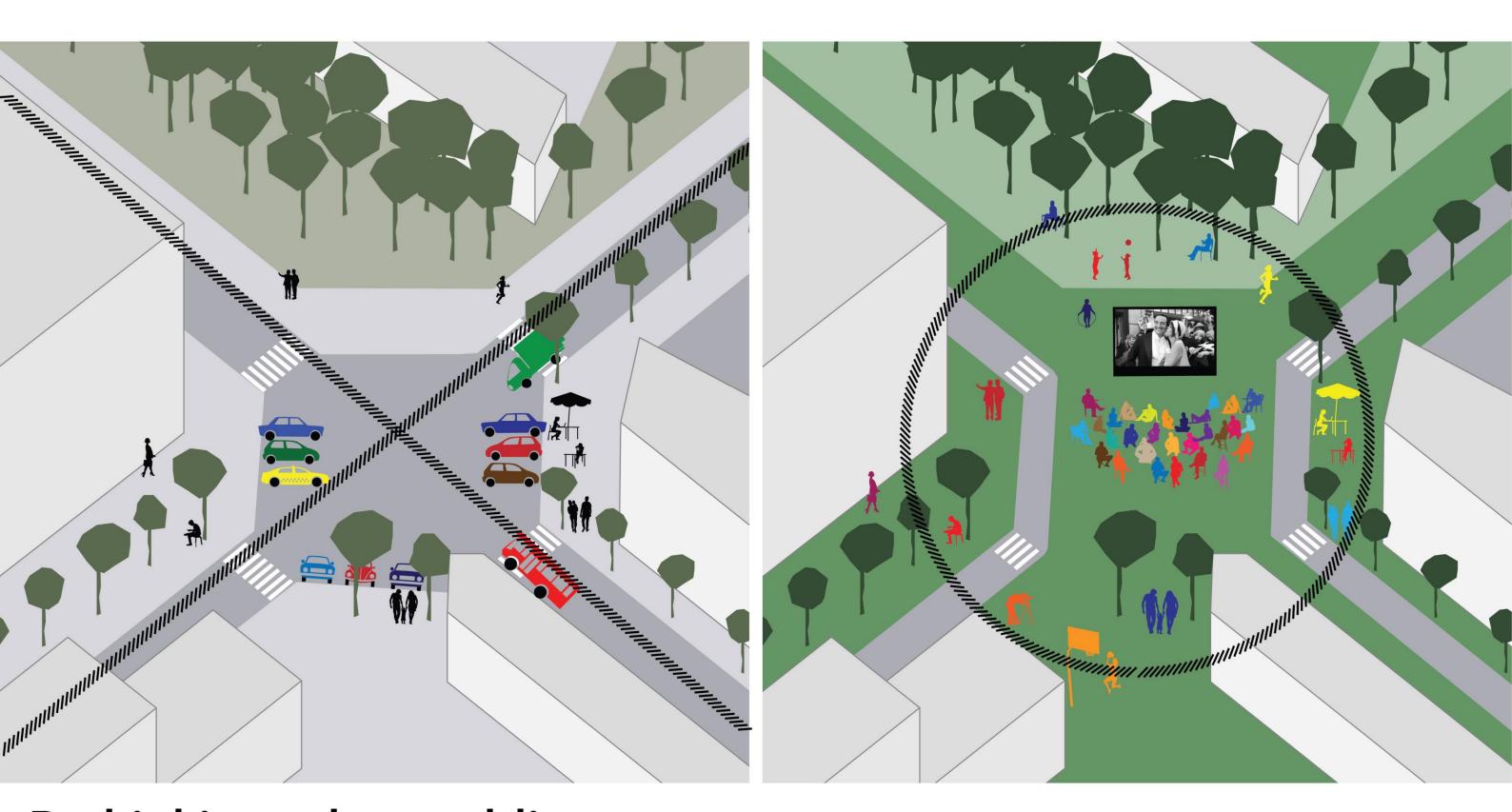




The five rights that the city offers



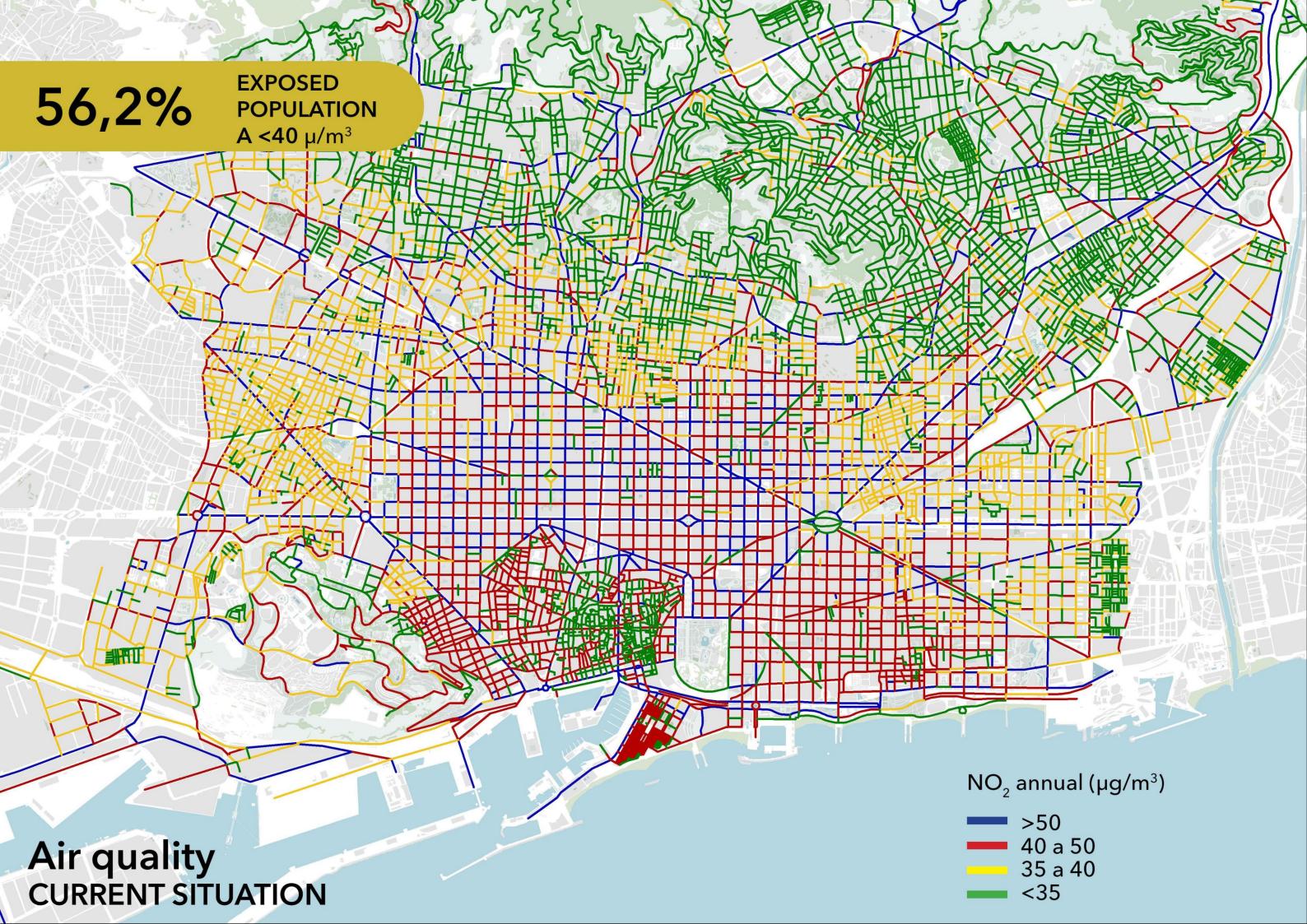
Citizen space FUTURE SCENARIO WITH NEW SUPERBLOCKS

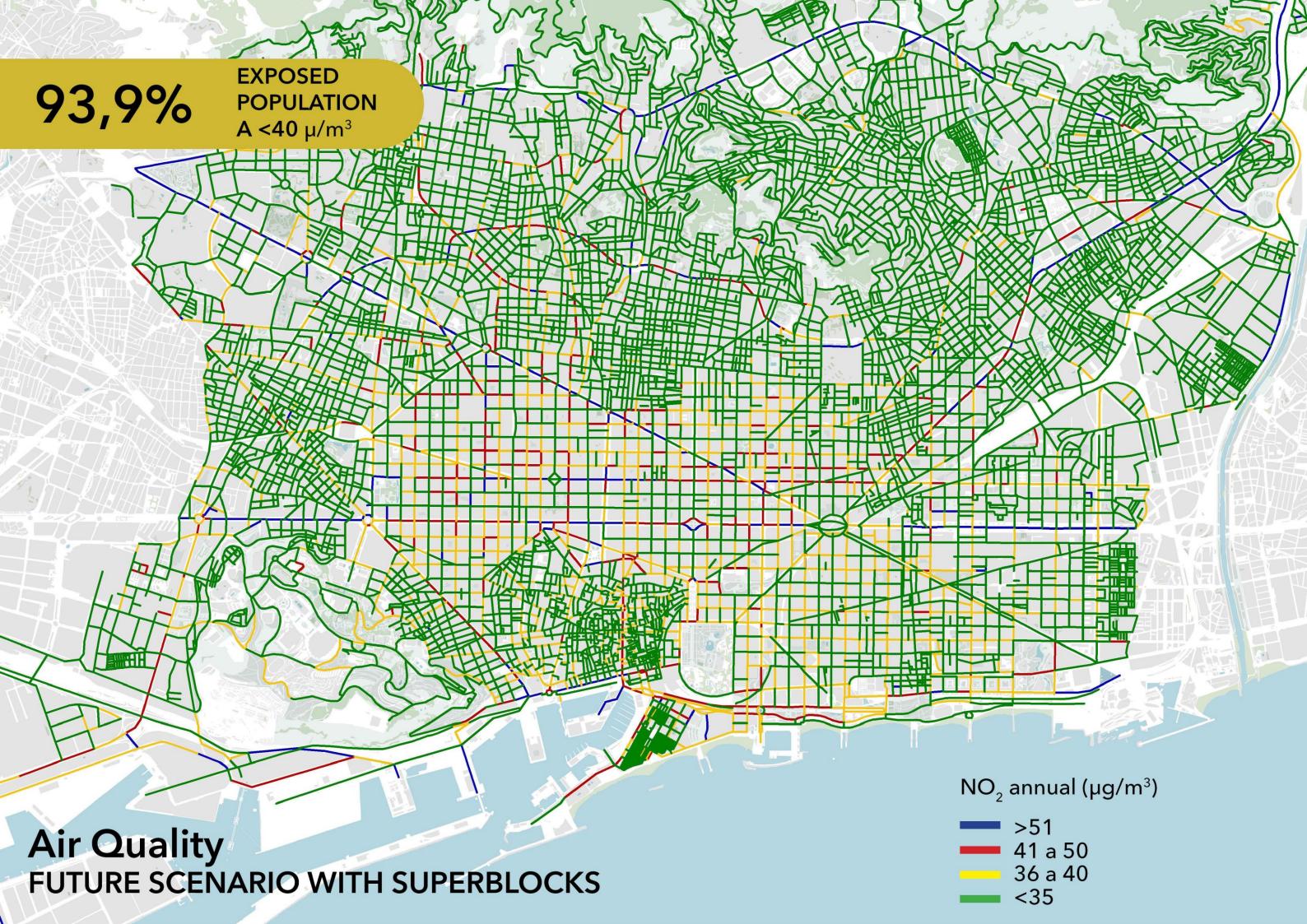


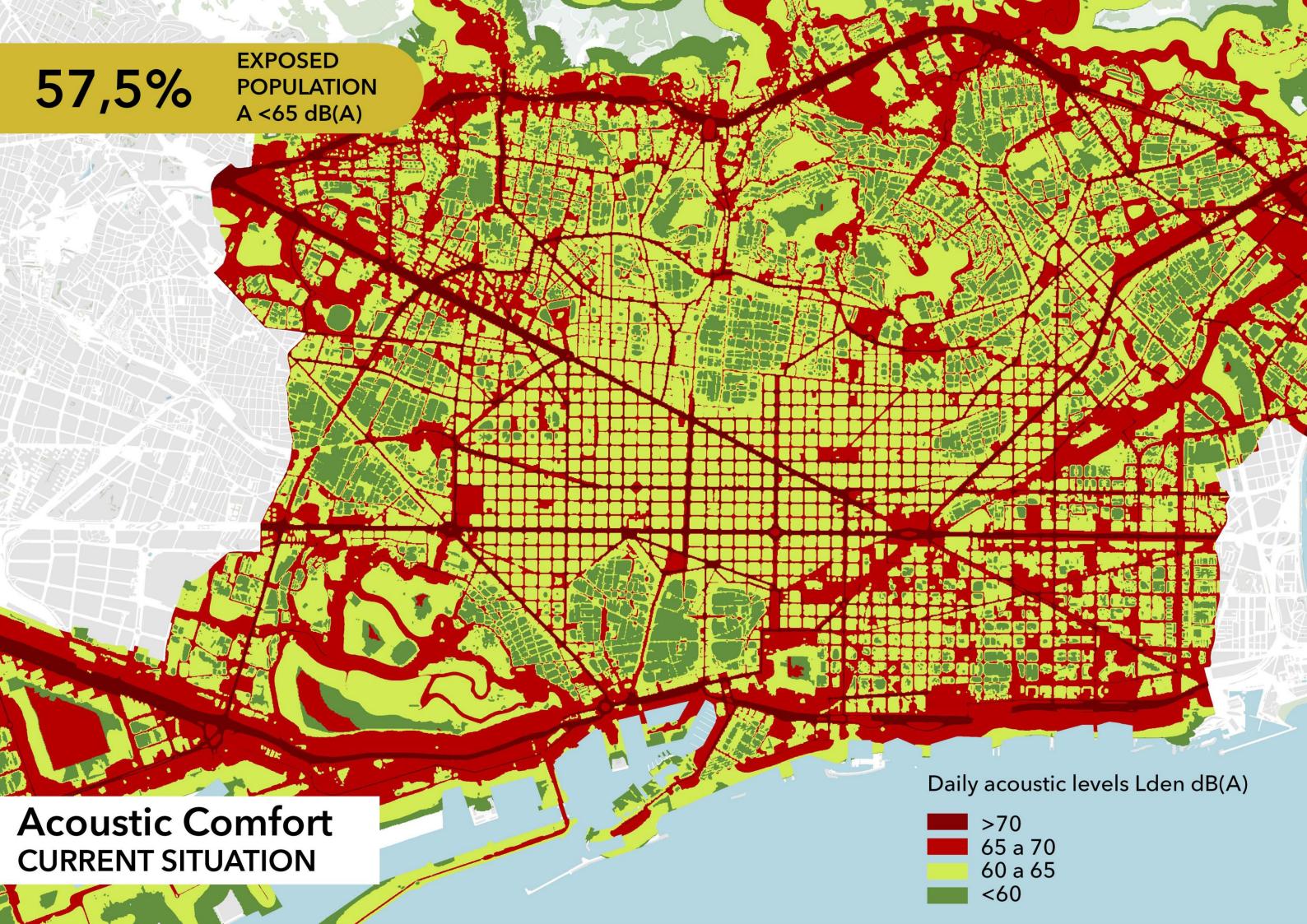
Rethinking urban public space: moving from linear and uni-purpose to dynamic spaces with diverse uses



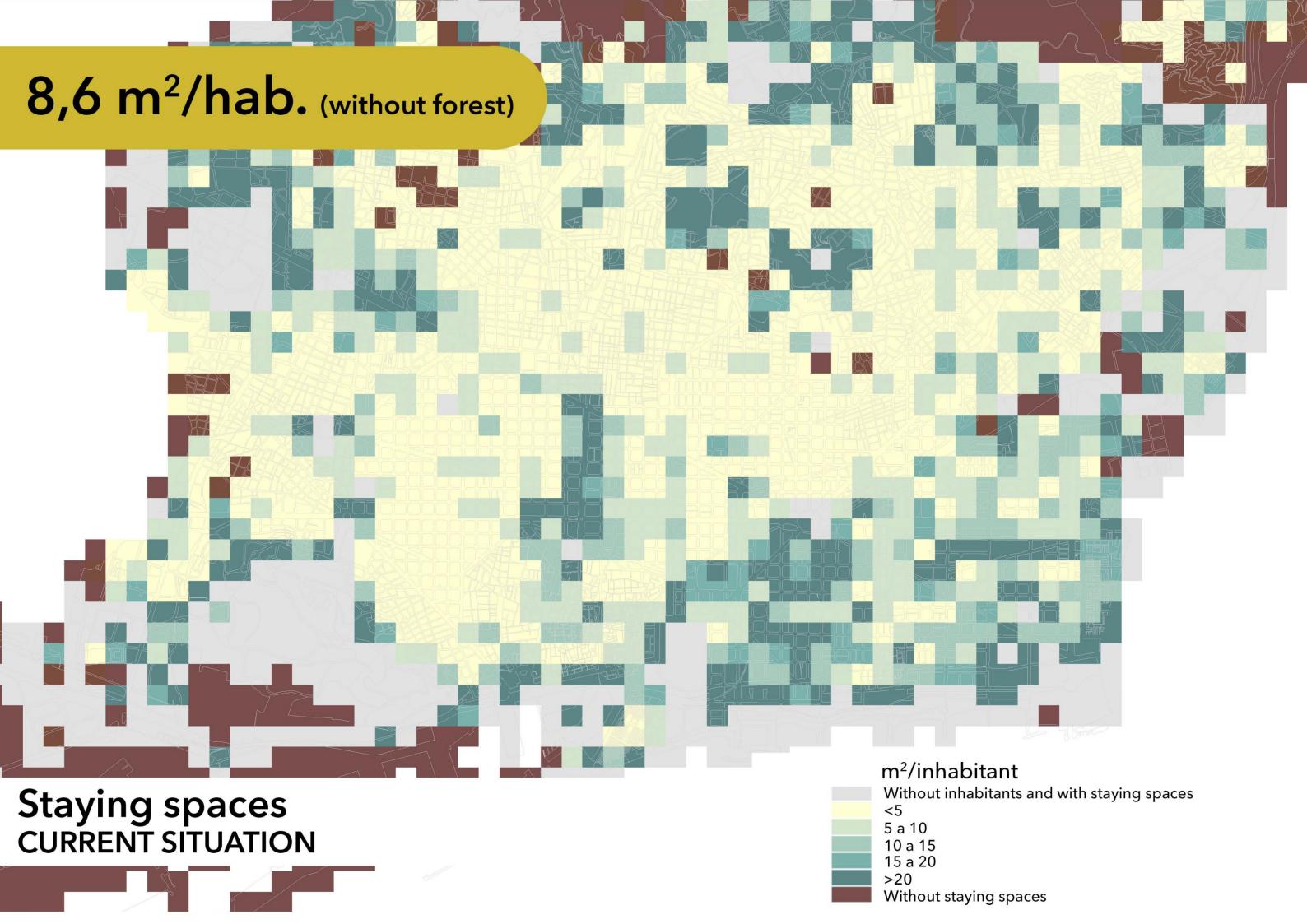
Impacts

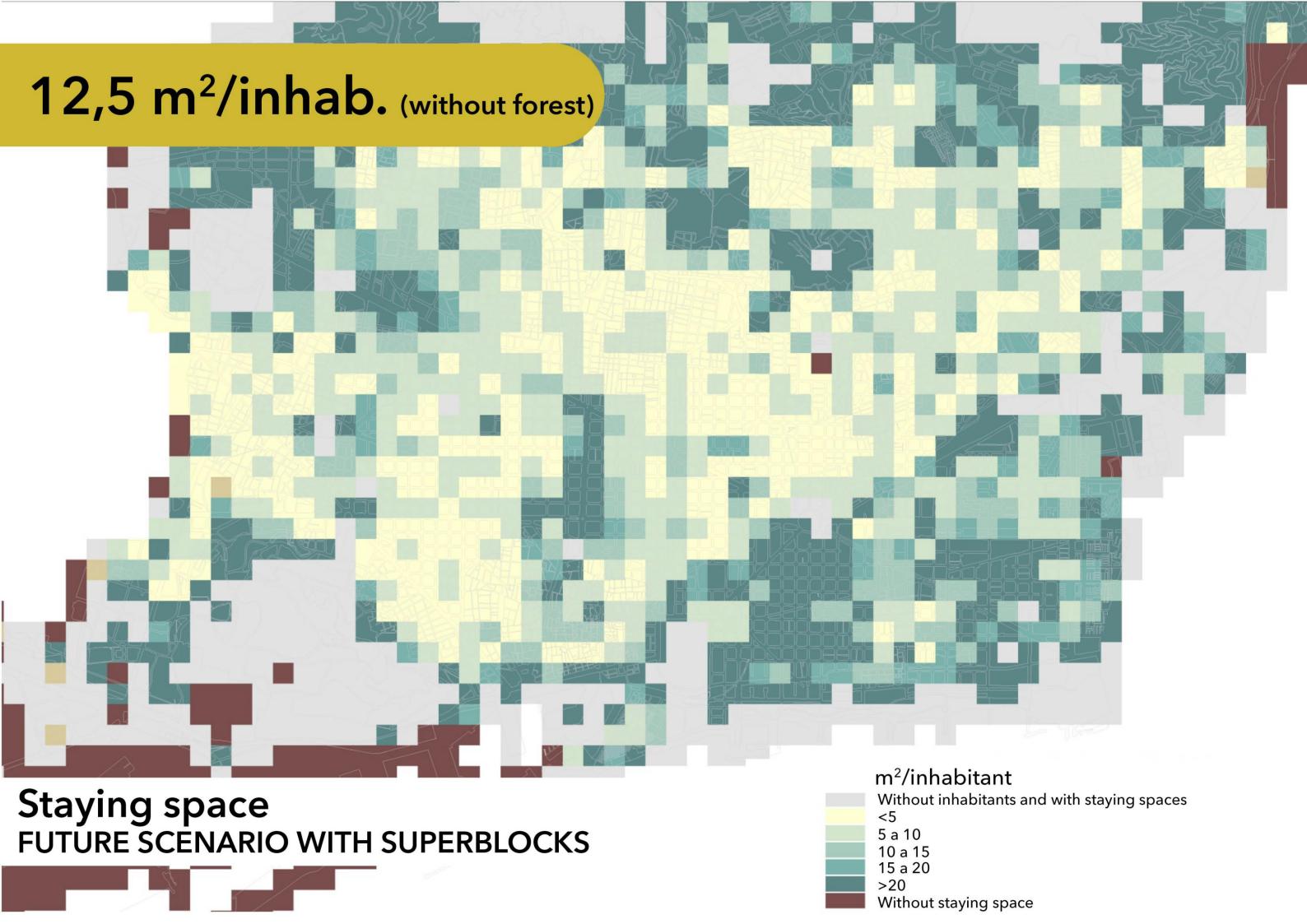


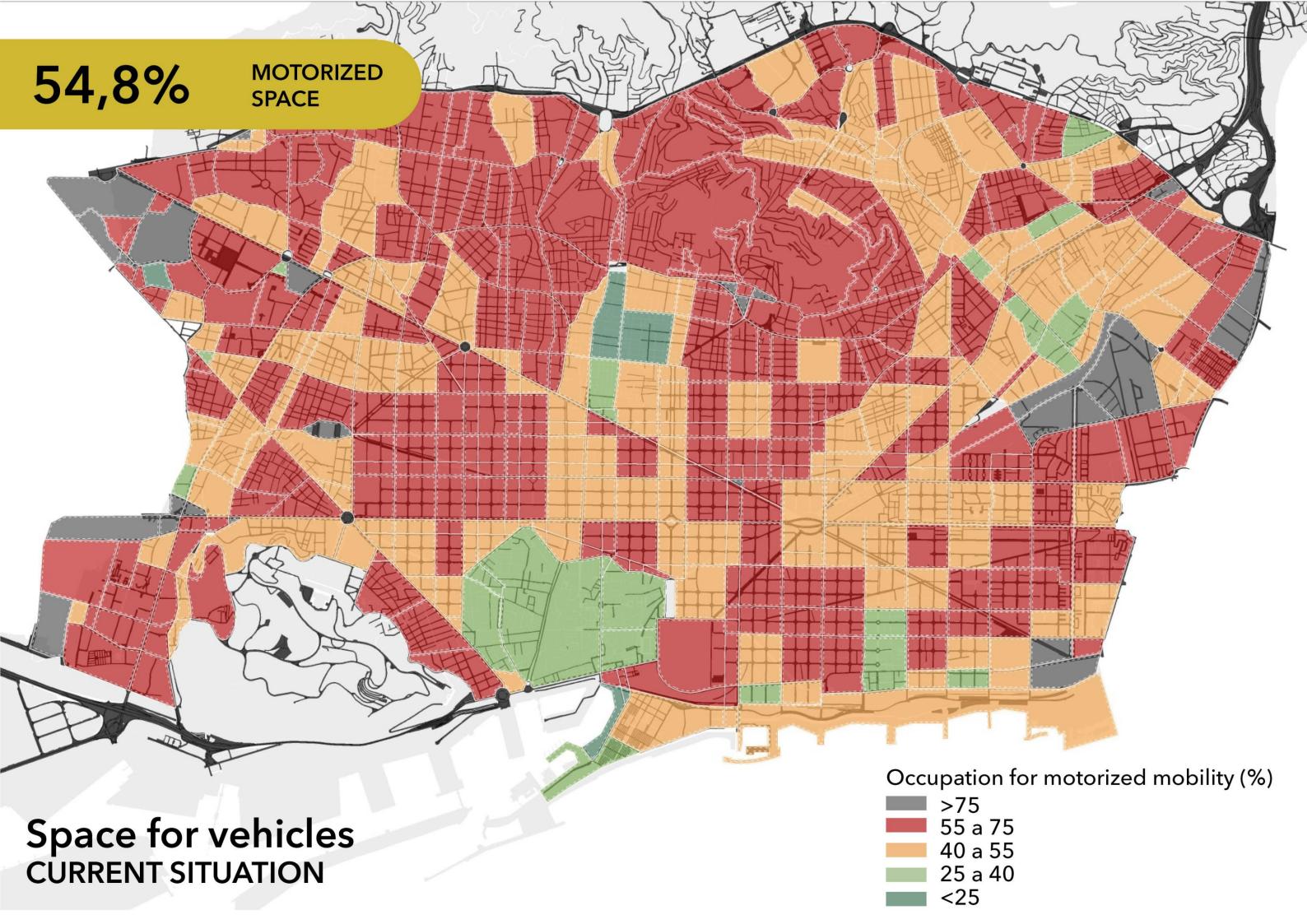


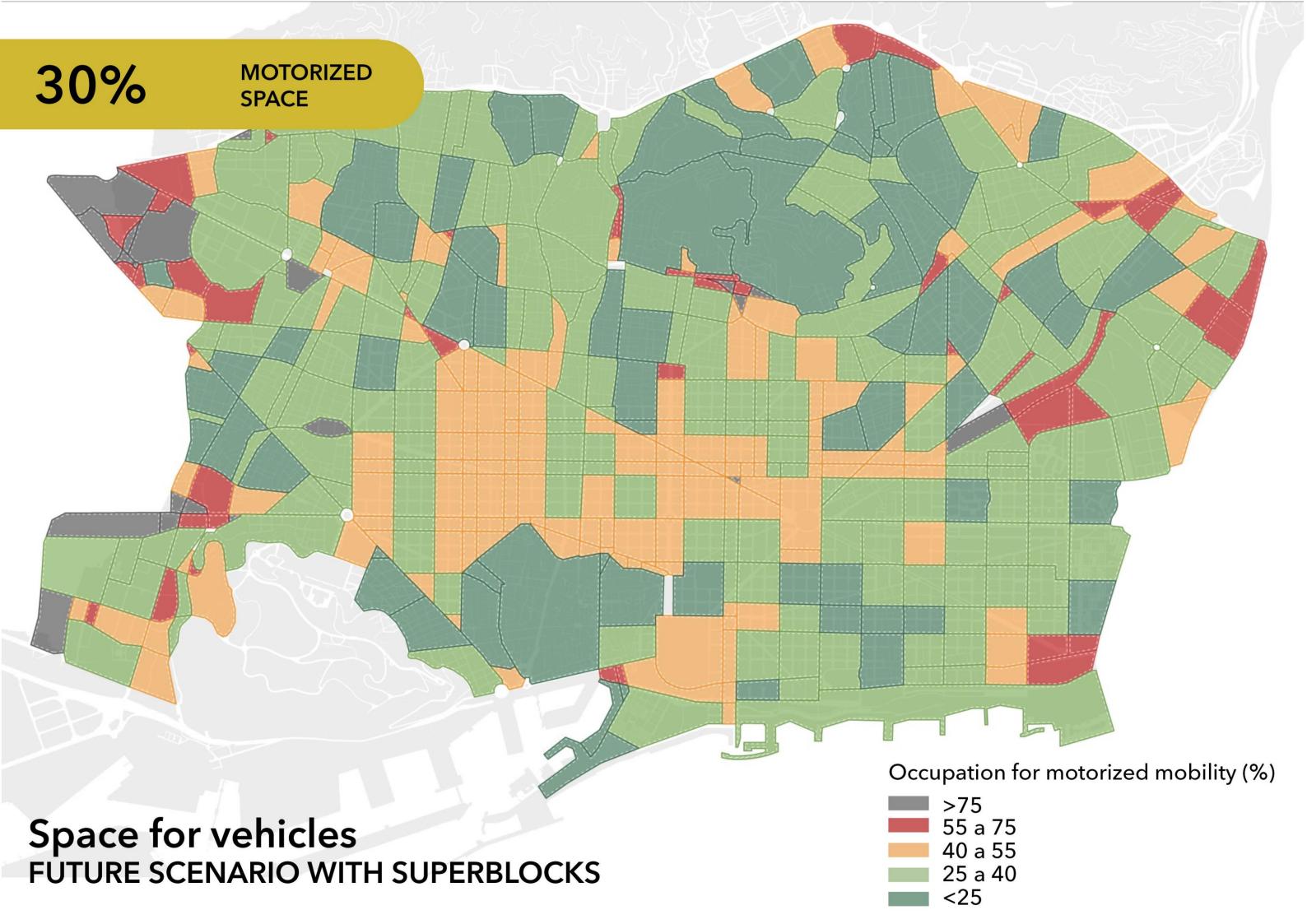










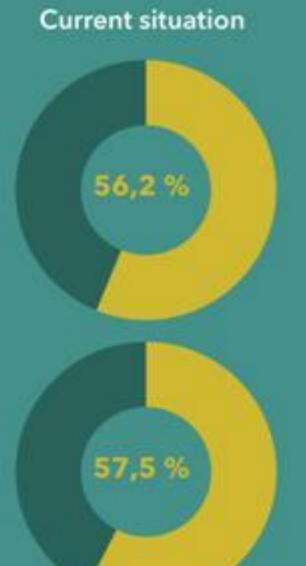


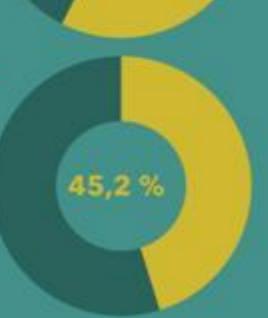
Impacts and Benefits

Air Quality
(population exposed to acceptable levels)



Pedestrian road space (vs. motorized)

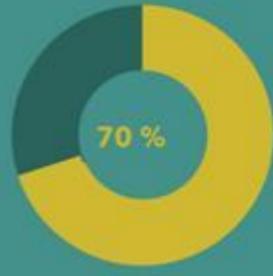




Future scenario with new Superblock









Staying space (m²/ inhabitant)

8,6 m²/inhabitant

Evaluación Global

Certificación del grado de sostenibilidad urbana

Supermanzana Piloto Barrio de La Maternitat i Sant Ramon, Districte de Les Corts.

INDICADOR	OBJETIVO MÍNIMO	OBJETIVO DESEABLE
Ámbito A1. Ocupación del suelo		
01 Densidad de viviendas	≥80 viviendas/ha;	≥100 viviendas/ha;
02 Compacidad absoluta	≥5 metros; 50% superficie supermanzana	≥5 metros; 75% superficie supermanzana
Ámbito A2. Espacio público y habitab	oilidad	
03 Compacidad corregida	10-50 metros; 50% superficie supermanzana	10-50 metros; 75% superficie supermanzana
04 Espacio de estancia por habitante	≥10m²/habitante	≥20m²/habitante
05 Calidad del aire	<40µg/m³; 75% población	<40µg/m³; 100% población
06 Confort acústico	<65 dB(A) día; 75% población	<65 dB(A) día; 100% población
07 Confort térmico	≥50% horas de confort; 50% superficie calles	≥80% horas de confort; 50% superficie calles
08 Accesibilidad del viario	Accesibilidad suficiente o superior; 50% longitud calles	Accesibilidad suficiente o superi 75% longitud calles
09 Espacio viario destinado al peatón	≥60% viario peatones; 50% longitud calles	≥60% viario peatones; 75% longitud calles
10 Proporción de la calle	h/d <2; 50% longitud calles	h/d <2; 75% longitud calles
11 Percepción visual del verde	≥10% volumen verde; 50% longitud calles	≥10% volumen verde; 75% longitud calles
12 Índice de habitabilidad en el espacio público	≥30 puntos; 50% superficie calles	≥30 puntos; 75% superficie calles
Ámbito A3. Movilidad y servicios		
13 Proximidad simultánea a redes de transporte público alternativo	Proximidad simultánea 3 redes; 75% población	Proximidad simultánea 3 rede 100% población
14 Ocupación de la movilidad motorizada	<40% (sobre total de viario de la supermanzana)	<25% (sobre total de viario de la supermanzal
15 Proximidad a aparcamiento para bicicletas	<100 metros; 75% población	<100 metros; 100% población
16 Aparcamiento para vehículos fuera de la calzada	≥80% plazas fuera de calzada (sobre total de plazas)	≥90% plazas fuera de calzada (sobre total de plazas)
17 Dotación de plazas de aparcamiento para vehículos	≥80% cobertura plazas demandadas; (sobre total de plazas fuera de calzada)	≥90% cobertura de plazas demandad (sobre total de plazas fuera de calzada)

SITUACIÓN ACTUAL

ESCENARIO FUTURO CON Supermanzanas

RESULTADOS Y PUNTUACIÓN FINAL

259 viviendas/ha	259 viviendas/ha	1
≥5 metros; 78% superficie	25 metros; 78% superficie	1
10-50 metros;	10-50 metros;	1
35,7% superficíe	77,3% superficie	1
3,5 m²/habitante	6,3 m ² /habitante	3
<40µg/m³; 85,4% población	7,1 <40µg/m³; 99,1% población	9,
<65 dB(A) día; 84,8% población	7 <65 dB(A) día; 87,6% población	7,
≥50% horas de confort; 74,5% superficie calles	9,9 ≥50% horas de confort; 77,8% superficie calles	1
Accesibilidad suficiente o superior; 94,7% longitud calles	9,4 Accesibilidad suficiente o superio 100% longitud calles	^{r;} 1
≥60% viario peatones; 21,1% longitud calles	1,1 ≥60% viario peatones; 77% longitud calles	7,
h/d <2; 100% longitud calles	h/d <2; 100% longitud calles	1
≥10% volumen verde; 87% longitud calles	9 ≥10% volumen verde; 87% longitud calles	9
≥30 puntos; 25% superficie calles	3 ≥30 puntos; 72% superficie calles	7
Proximidad simultánea 3 redes; 41% población	Proximidad simultánea 3 redes; 93% población	8,
44,6%	3,7 68,3%	7,
<100 metros; 31,7% población	<pre><100 metros; 97,2% población</pre>	9,
91% plazas fuera de calzada	97% plazas fuera de calzada	1
115% cobertura plazas demandadas	115% cobertura plazas demandadas	1

Evaluación Situación Actual

Certificación del grado de sostenibilidad urbana

Supermanzana Piloto Barrio de La Maternitat i Sant Ramon, Districte de Les Corts.

	INDICADOR	OBJETIVO MÍNIMO	OBJETIVO DESEABLE				
Eje 2 COMPLEJIDAD	Ámbito A4. Complejidad urbana						
COMPLEJIDAD	18 Índice de diversidad urbana	≥5 bits de información; 50% superficie urbana	≥5 bits de información; 75% superficie urbana				
	19 Equilibrio entre la actividad y la vivienda	≥20% (tejidos uso ppal. residen- cial)	≥25% (tejidos uso ppal. residencial)				
	20 Continuidad espacial y funcio- nal de la calle	Calles con interacción alta/muy alta; ≥25% longitud calles	Calles con interacción alta/muy alta; ≥50% longitud calles				
	21 Actividades densas en conocimiento	≥10% actividades @	≥20% actividades @				
	Ámbito A5. Espacios verdes y biodiversidad						
	22 Índice biótico del suelo	≥25%; (sobre total superficie supermanzana)	≥30%; (sobre total superficie supermanzana)				
	23 Espacio verde por habitante	≥5m² verde urbano/habitante	≥10m² verde urbano/habitante				
	24 Proximidad a espacios verdes	Acceso a 3 tipos espacios verdes; >75% población	Acceso a 3 tipos espacios verdes; 100% población				
	25 Densidad de arbolado viario	Tramos con densidad adecuada; 50% longitud calles	Tramos con densidad adecuada; 75% longitud calles				
Eje 3 METABOLISMO	Ámbito A6. Metabolismo urbano						
METABOLISMO URBANO	26 Consumo energético edificación	<95 kWh/m²/año	<65 kWh/m²/año				
	27 Consumo alumbrado público	<2,5 kWh/m²/año	<1 kWh/m²/año				
	28 Autosuficiencia energética (con energías renovables)	≥20%	100%				
	29 Emisiones de CO_2 eq.	<2,1 tCO ₂ eq./hab/año	<0,5 tCO ₂ eq./hab./año				
	30 Consumo de agua potable	<100 litros persona y día	<70 litros persona y día				
	31 Suficiencia hídrica	≥20%	≥40%				
	32 Generación de residuos	<1,53 kg/hab/día	<1,38kg/hab/día				
	33 Recogida selectiva	>50%	>65%				
	34 Proximidad a un punto limpio	Acceso a menos de 600 metros; 75% población	Acceso a menos de 600 metros; 100% población				
	35 Cierre del ciclo de materia orgánica (MO)	≥10%	≥70%				

SITUACIÓN **ACTUAL**

ESCENARIO FUTURO CON Supermanzanas

RESULTADOS Y PUNTUACIÓN FINAL

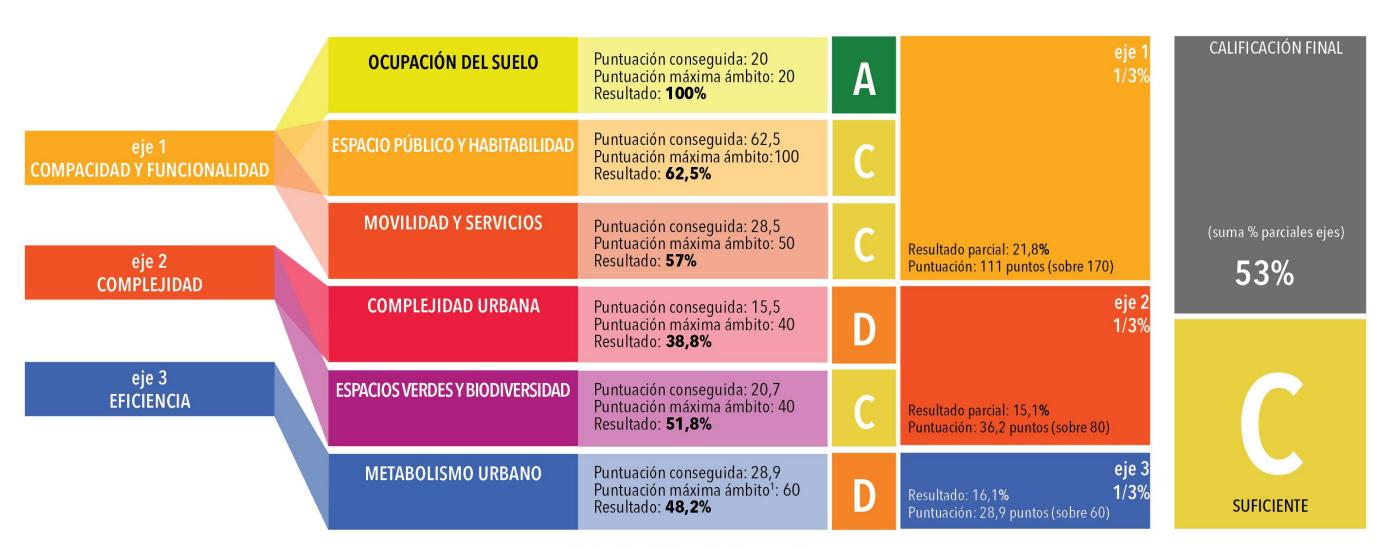
≥5 bits de información; 31,6% superficie urbana	3,2	≥5 bits de información; 64,3% superficie urbana	7
16,6%	4,2	16,6%	4
Calles con interacción alta/muy alta; 28,6% longitud calles	5,7	Calles con interacción alta/muy alta 34% longitud calles	6
4,8 % actividades @	2,4	4,8 % actividades @	2
9,2%	1,8	10%	
1,1 m² verde urbano/habitante	1	1,6m² verde urbano/habitante	
89,5% población	7,9	94,1% población	8
90,9% longitud calles	10	91,7% longitud calles	1
84,5kWh/m²/año (Consumo estimado)	6,8	54,7 kWh/m²/año (Consumo estimado)	
84,5kWh/m²/año (Consumo estimado) 2,55 kWh/m²/año (Consumo estimado)	6,8 4,9	54,7 kWh/m²/año (Consumo estimado) 1,08 kWh/m²/año (Consumo estimado)	┤ █
	1		9
2,55 kWh/m²/año (Consumo estimado) (Sin información)	1	1,08 kWh/m²/año (Consumo estimado)	9
2,55 kWh/m²/año (Consumo estimado) (Sin información)	4,9	1,08 kWh/m²/año (Consumo estimado) 23,8%	9
2,55 kWh/m²/año (Consumo estimado) (Sin información) 1,4 t CO _{2 eq.} /hab./año (emisiones estimadas)	4,9	1,08 kWh/m²/año (Consumo estimado) 23,8% 0,86 t CO _{2 eq.} /hab./año (emisiones estimadas)	9
2,55 kWh/m²/año (Consumo estimado) (Sin información) 1,4 t CO _{2 eq.} /hab./año (emisiones estimadas) (Sin información desagregada por barrio)	4,9	1,08 kWh/m²/año (Consumo estimado) 23,8% 0,86 t CO _{2 eq.} /hab./año (emisiones estimadas) (No contemplado)	9
2,55 kWh/m²/año (Consumo estimado) (Sin información) 1,4 t CO _{2 eq.} /hab./año (emisiones estimadas) (Sin información desagregada por barrio) (Sin información)	4,9	1,08 kWh/m²/año (Consumo estimado) 23,8% 0,86 t CO _{2 eq.} /hab./año (emisiones estimadas) (No contemplado) (No contemplado)	9
2,55 kWh/m²/año (Consumo estimado) (Sin información) 1,4 t CO _{2 eq.} /hab./año (emisiones estimadas) (Sin información desagregada por barrio) (Sin información) (Sin información desagregada por barrio)	4,9	1,08 kWh/m²/año (Consumo estimado) 23,8% 0,86 t CO _{2 eq.} /hab./año (emisiones estimadas) (No contemplado) (No contemplado) (Sin información desagregada por barrio)	9

Evaluación Situación Actual

Certificación del grado de sostenibilidad urbana

Supermanzana Piloto Barrio de La Maternitat i Sant Ramon, Districte de Les Corts.





¹ Sobre el total de los indicadores con información

Evaluación Escenario futuro con Supermanzanas

Certificación del grado de sostenibilidad urbana

Supermanzana Piloto Barrio de La Maternitat i Sant Ramon Districte de Les Corts.





¹ Sobre el total de los indicadores con información



https://www.vox.com/2016/8/4/12342806/barce lona-superblocks