



Ajuntament  
de Barcelona

# Urban Mobility Plan of Barcelona PMU 2013-2018



October 2014

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de Barcelona**

Urban Mobility Plan of Barcelona 2013-2018

## REGULATORY FRAMEWORK

**LAW OF MOBILITY OF CATALONIA 9/2003**

Model of sustainable development

**GROUND BREAKING LAW**

**National Guidelines of Mobility  
(DNM)**

Catalonia Area

**Master Plan of Mobility for the Metropolitan Region  
of Barcelona (PDMRMB)**

Metropolitan Area

**Urban Mobility Plans (PMU)**

Local Area

**Metropolitan Plan of Urban Mobility**

**(PMMU)** Metropolitan Area

Evaluation studies of generated mobility (EAMG)



## OBJECTIVES OF PMU

### SAFE MOBILITY

- Reduce the number of accidents associated with mobility.

### SUSTAINABLE MOBILITY

- Facilitate modal shift towards more sustainable modes.
- Reduce air pollution resulting from transportation.
- Reduce noise pollution resulting from transportation.
- Moderate energy consumption in transportation and reduce its contribution to climate change.
- Increase the proportion of renewables and “clean” energies consumption.

### EQUITABLE MOBILITY

### EFFICIENT MOBILITY

- Encourage alternatives uses of public road.
- Ensure accessibility to the mobility system.

- Increase the efficiency of transportation systems.
- Incorporate new technologies in mobility management.



**2012**

**2018**

<b>Safe Mobility</b>	Implementation of Road Safety Local Plan	249 serious injuries 30 dead	→	-20% serious injuries -30% dead
<b>Sustainable Mobility</b>	Compliance of UE* parameters for NO <sub>2</sub> and PM <sub>10</sub>	NO <sub>2</sub> : 4 stations don't comply (out of 7) Annual average value	→	Compliance of UE parameters in all stations
<b>Equitable Mobility</b>	New bus network reduces waiting time by half	99% population has a bus stop <250 m. Average frequency 12'	→	99% population has a bus stop <250 m. Average frequency 6'
<b>Efficient Mobility</b>	Improvement of the logistic management of mobility	Conventional urban distribution system 2013 Pilot Test Ciutat Vella	→	Micro-logistics platforms and new technologies. Efficient use of public space and environmental improvements

\* The annual average value of NO<sub>2</sub> and PM<sub>10</sub> must not exceed 40 microgr/m<sup>3</sup> in any of the measuring stations of the city. The daily limit value of PM<sub>10</sub> (50 microgr/m<sup>3</sup>) must not exceed either more than 35 times a year, or hourly limit value of NO<sub>2</sub> (200 microgr/m<sup>3</sup>) more than 18 times a year.





## MAIN LINES OF ACTION

**1** ORGANIZATION OF THE CITY'S URBAN PATTERN IN SUPERBLOCKS AND OTHER CALMING MEASURES



**2** IMPLEMENTATION OF THE NEW ORTHOGONAL BUS NETWORK



**3** TOTAL DEVELOPMENT OF CYCLING NETWORK



**4** MAINTAIN THE CURRENT LEVEL OF TRAFFIC SERVICE



**5** COMPLIANCE WITH REGULATORY PARAMETERS OF ENVIRONMENTAL QUALITY



**6** PROMOTION AND POSITIVE DISCRIMINATION MEASURES OF HIGH OCCUPANCY VEHICLES



**7** REVIEW OF THE REGULATION OF PARKING ON AND OFF ROAD

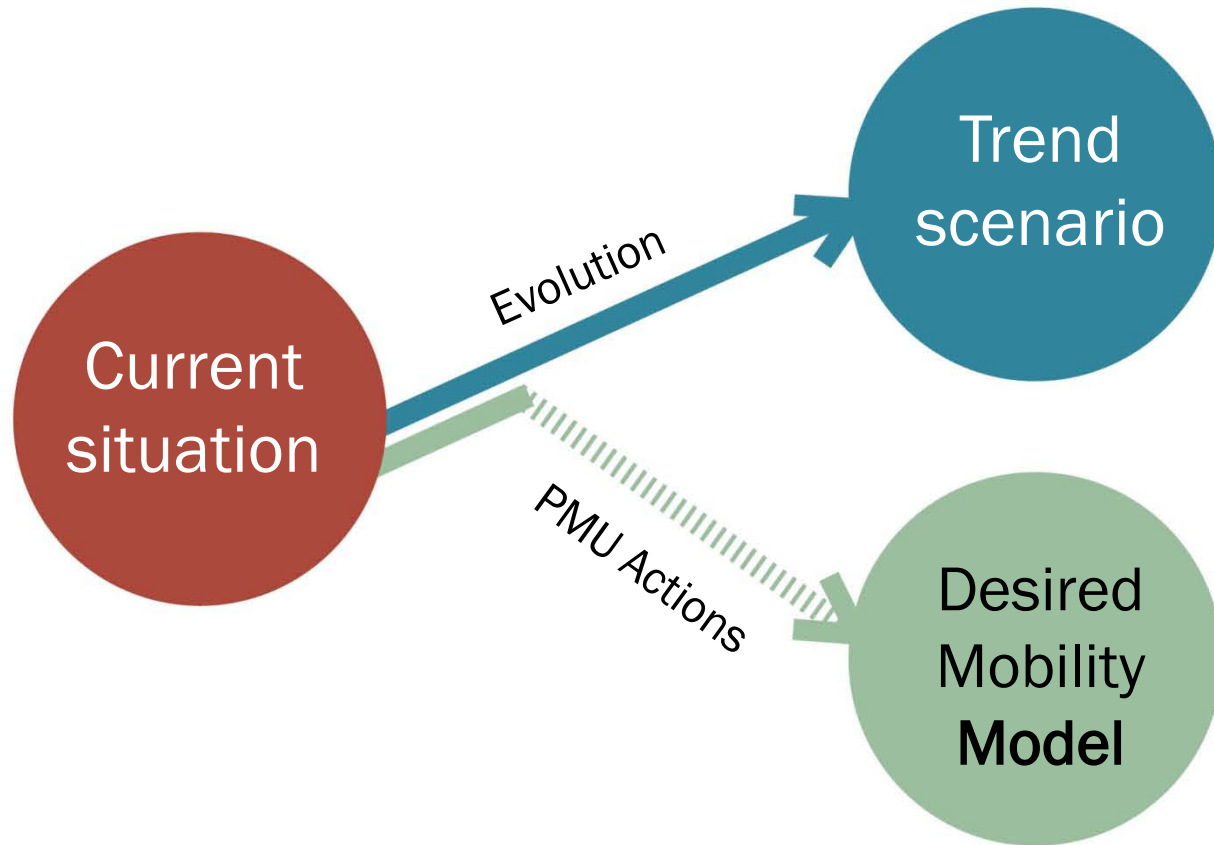


**8** IMPROVING THE EFFICIENCY OF LOADING AND UNLOADING



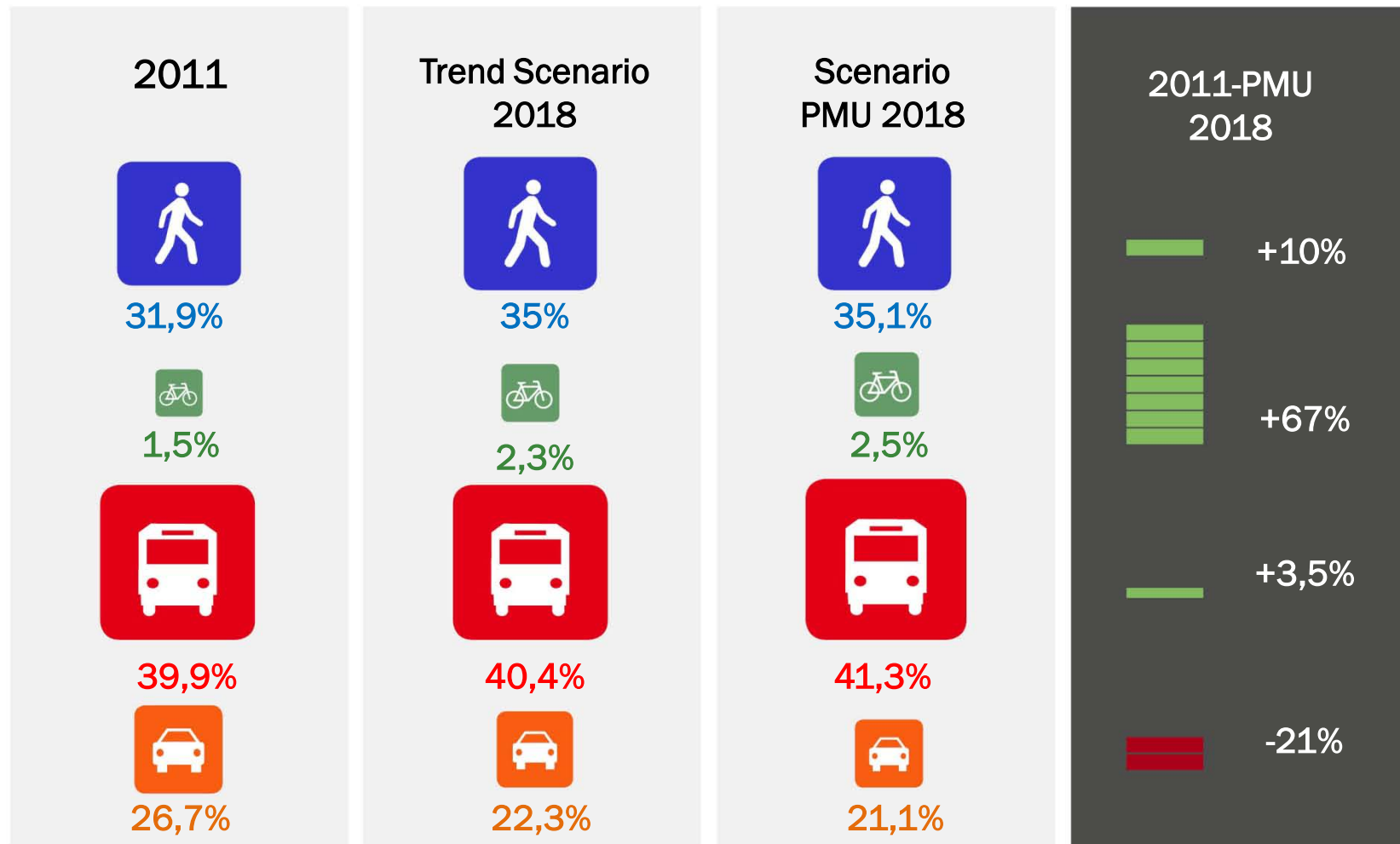


## MOBILITY MODEL SHIFT





## MODAL DISTRIBUTION





## TOTAL STAGES

SCENARIO	STARTING SCENARIO PMU	TRENDING 2007-2011→ 2018	FINAL SCENARIO PMU	INCREASE (%)	INCREASE (STAGES)	VEHICLES INCREASE
YEAR	2011	2018	2018	2011- PMU2018	2011- PMU2018	2011- PMU2018
PT	3.126.796	3.088.781	3.236.234	3,50%	109.438	
PV	2.088.348	1.703.367	1.649.795	-21,00%	-438.553	-350.842
BY FOOT	2.500.200	2.675.085	2.750.220	10,00%	250.020	
BICYCLE	118.151	173.705	197.312	67,00%	79.161	
<b>TOTAL</b>	<b>7.833.495</b>	<b>7.640.937</b>	<b>7.833.561</b>			



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## MODAL HIERARCHY



1

BY FOOT  
mobility



2

BICYCLE  
mobility



3

PUBLIC TRANSPORT  
mobility



4

Urban distribution of  
GOODS



5

PRIVATE TRANSPORT  
mobility

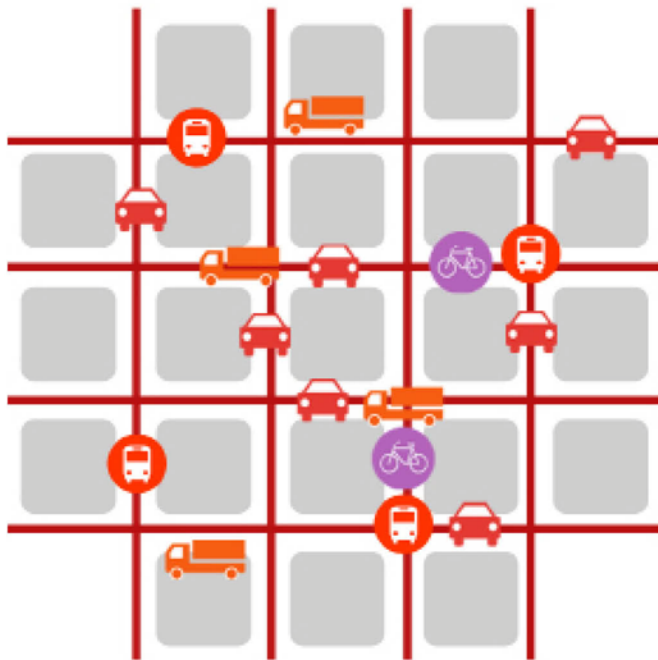


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## SUPERBLOCKS MODEL

Current Model



Superblocks Model



PUBLIC TRANSPORT NETWORK



BICYCLES MAIN NETWORK (BIKE LANE)



BICYCLES SIGNPOSTS (REVERSE DIRECTION)



FREE PASSAGE OF BICYCLES



PRIVATE VEHICLE PASSING



RESIDENTS VEHICLES



URBAN SERVICES AND EMERGENCY



DUM CARRIERS



DUM PROXIMITY AREA



ACCESS CONTROL



BASIC TRAFFIC NETWORK



SINGLE PLATFORM (PEDESTRIANS PRIORITY)

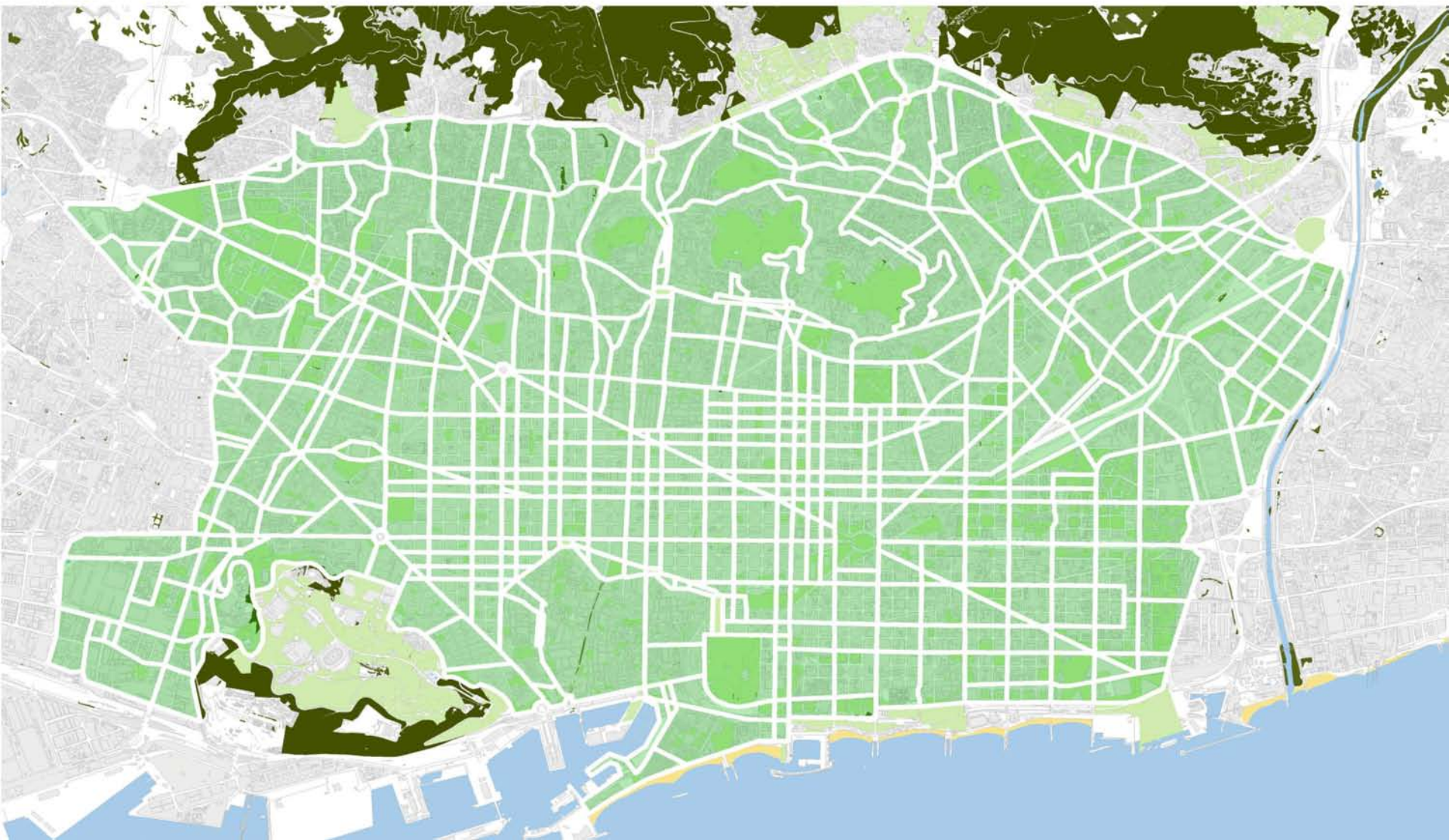




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## The superblocks in Barcelona



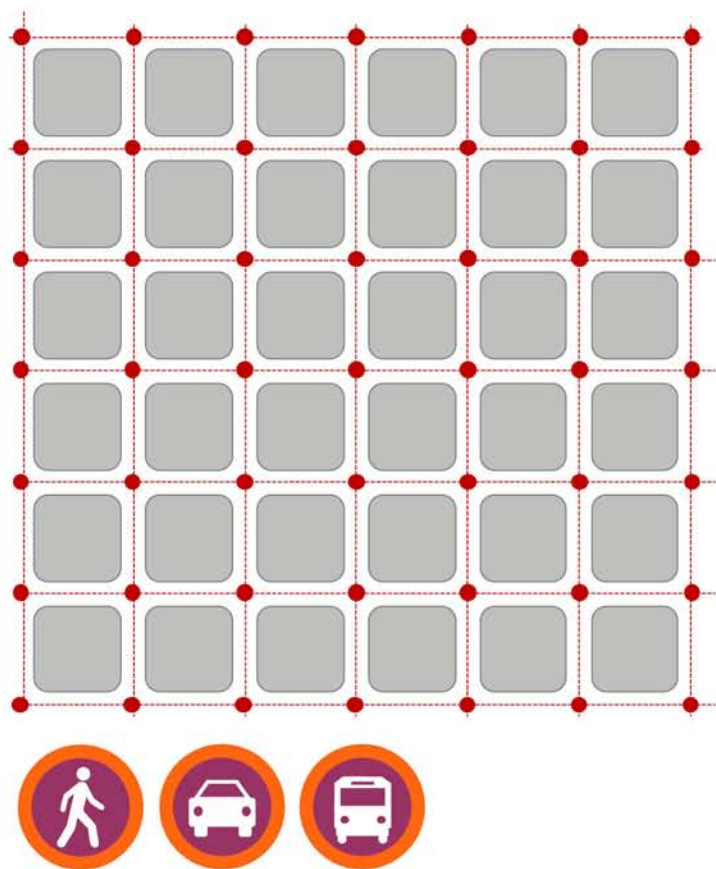


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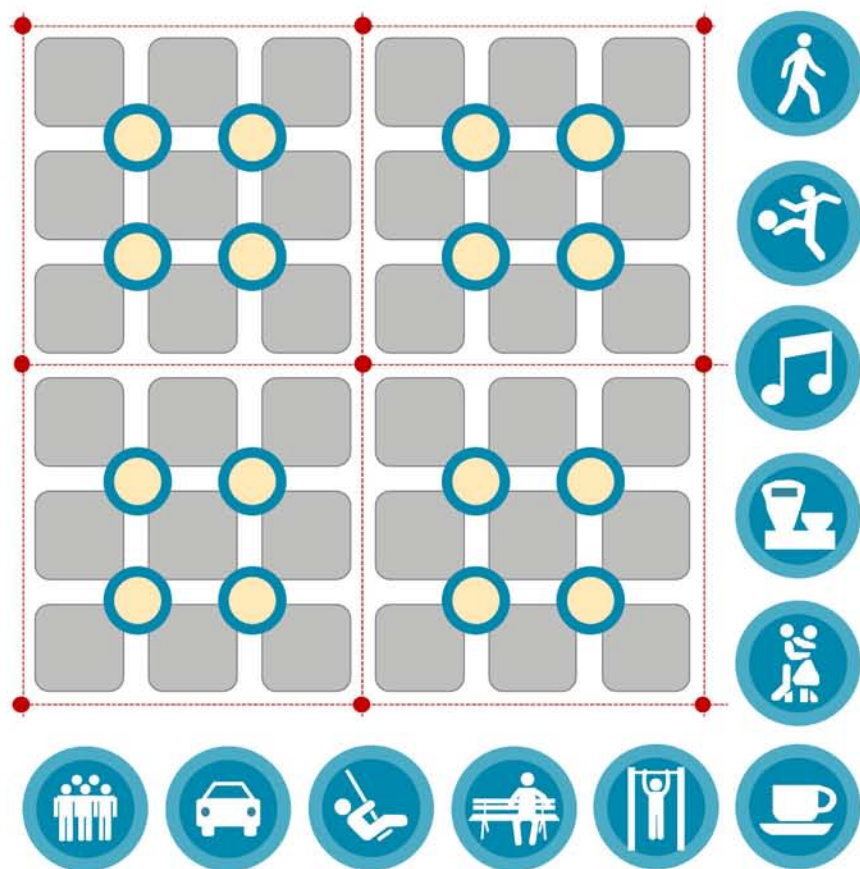
## Current Model

SINGLE USE: RIGHT OF WAY



## Superblocks Model

MULTIPLE USES AND FUNCTIONS







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## The Superblocks: Increased pacified space with pedestrian priority



Vila de Gràcia Square  
2.035m<sup>2</sup>



Eixample Intersection  
1.916m<sup>2</sup>





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## Superblocks Model

**120** = 23 ha.  
potential intersections

- Inner intersections
- Green connectors axis
- Existing Zones 30
- Superblocks



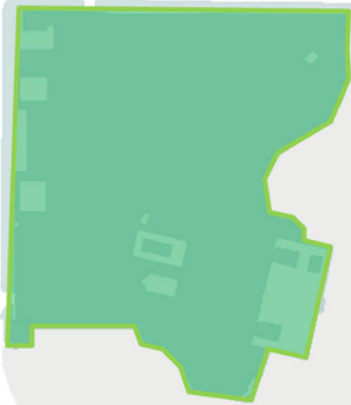


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## Superblocks Model

Ciutadella Park  
15 ha



Joan Miró Park  
6 ha



**120** = 23 ha.  
potential intersections

≈ 1,5 Ciutadella Park  
≈ 3,8 Joan Miró Park



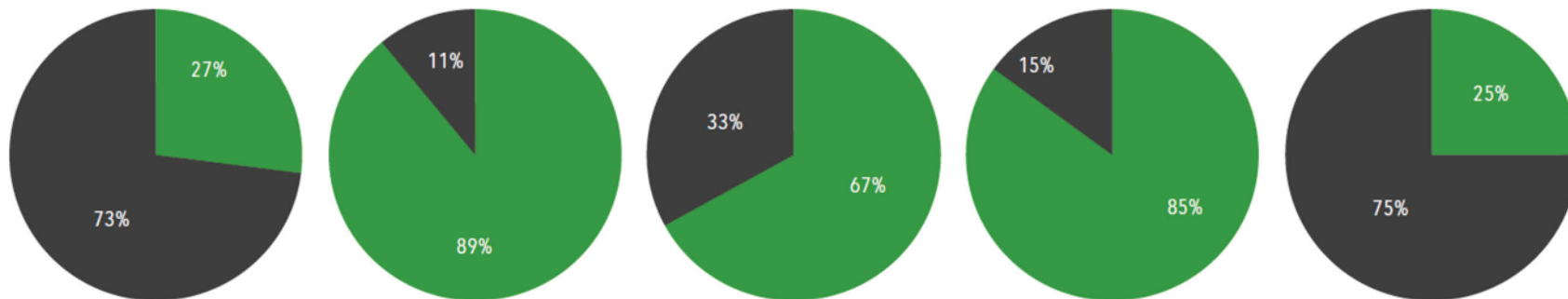


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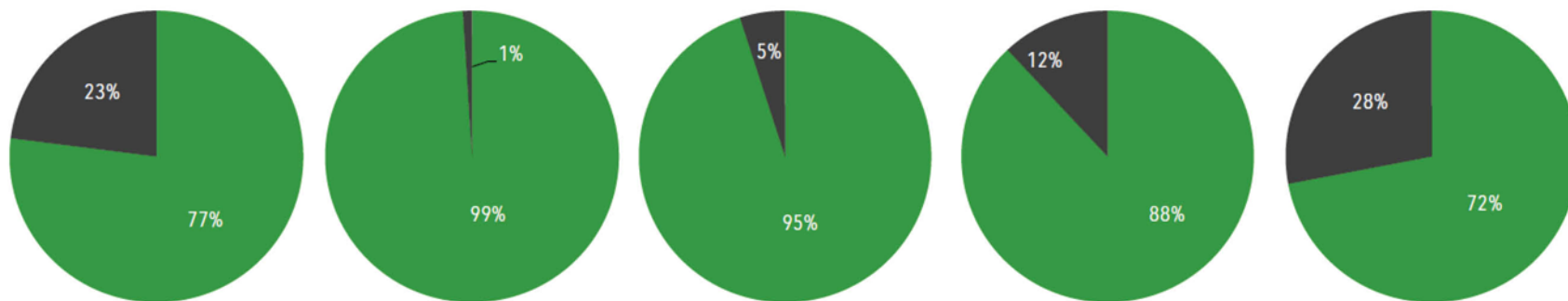
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## Urban quality LES CORTS SUPERBLOCK

### Current situation



### Superblocks model



Space for  
pedestrians  
(versus road)



Accessibility  
(sidewalks >2,5m)



Air quality  
(immission  
<40µg/m3 any)



Acoustic  
comfort  
(Ld <65dB(A))



Liveability  
index in  
public space





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**ACTIONS**

7



BY FOOT  
mobility

13



BICYCLE  
mobility

19



PUBLIC TRANSPORT  
mobility

9



Urban distribution of  
GOODS

18



PRIVATE TRANSPORT  
mobility

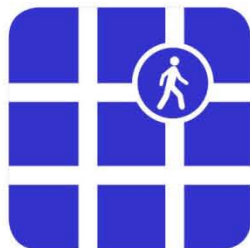
**Total:  
66 actions**



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# By foot



IMPROVE THE  
PEDESTRIAN  
NETWORK



MOBILITY TO  
SCHOOLS



PEDESTRIANS



## Improve accessibility and comfort of sidewalks and pedestrian areas



- Ensure the safety and accessibility of pedestrian areas.
- Promote walking.

## Description:

The development of the superblocks model, with the proposed pacification of the inner roads and conversion of the streets in single platform in its final phase of implementation, will correct widely the problems of accessibility and comfort of sidewalks and pedestrian areas.





## Expand the area devoted to pedestrians



- Increase public space dedicated to pedestrians.
- Improve urban quality of the city.
- Promote other citizen uses for public space.
- Promote walking.

## Description:

The implementation of the different phases of the Plan of Superblocks in the city of Barcelona will allow to reorganize the mobility networks and, in turn, increase the proportion of public space dedicated to the citizen. With the full implementation of the Plan, the pedestrian areas will go from the current 74.5 hectares to 750 hectares where pedestrians and bicycles will have priority.

The inner streets will win urban quality by incorporating improvements in accessibility, reducing noise and pollution and enhancing road safety, with the possibility of increasing urban green spaces and recreational uses and activities in the streets, etc.



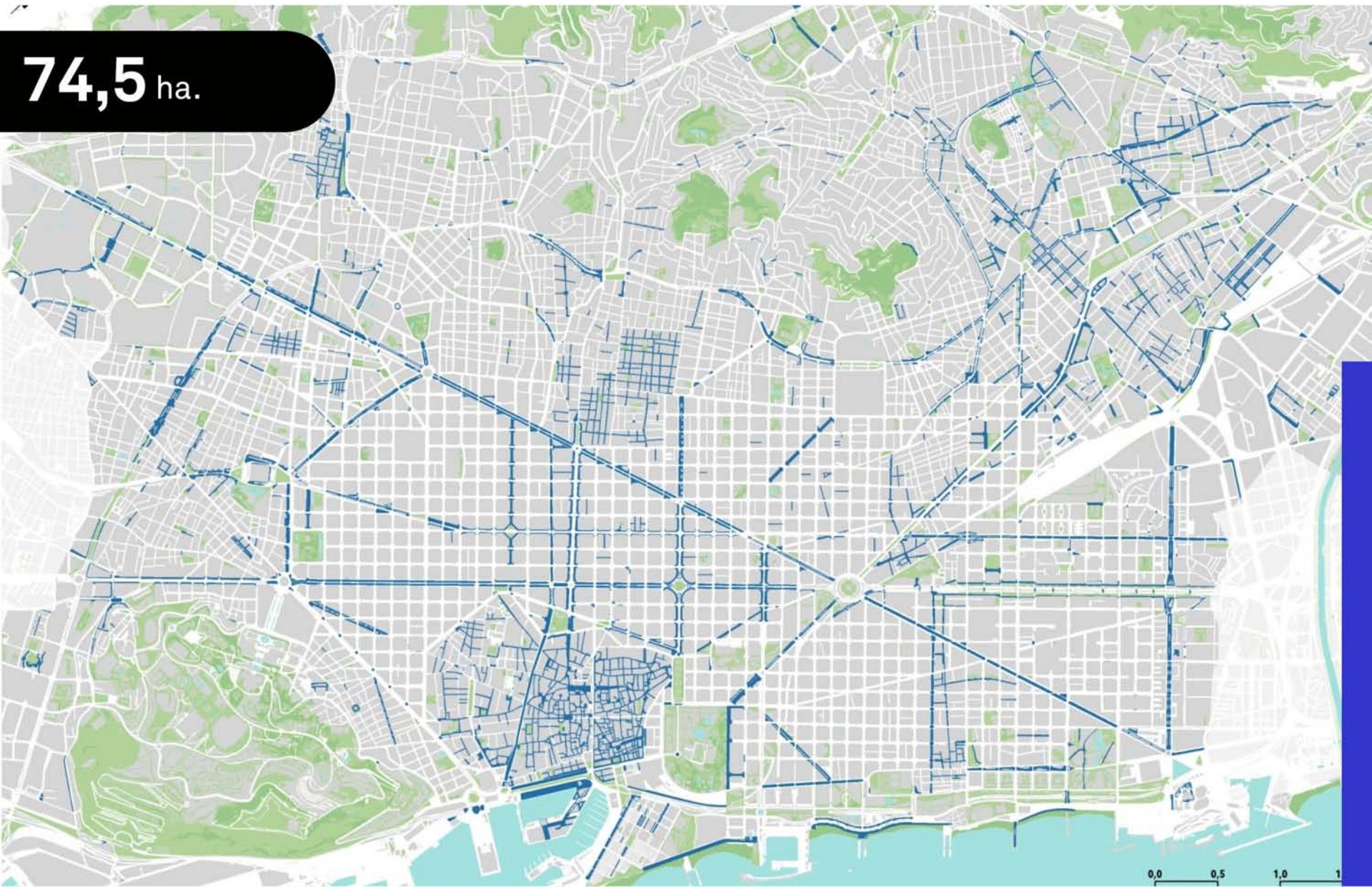


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Current pedestrian areas

**74,5** ha.





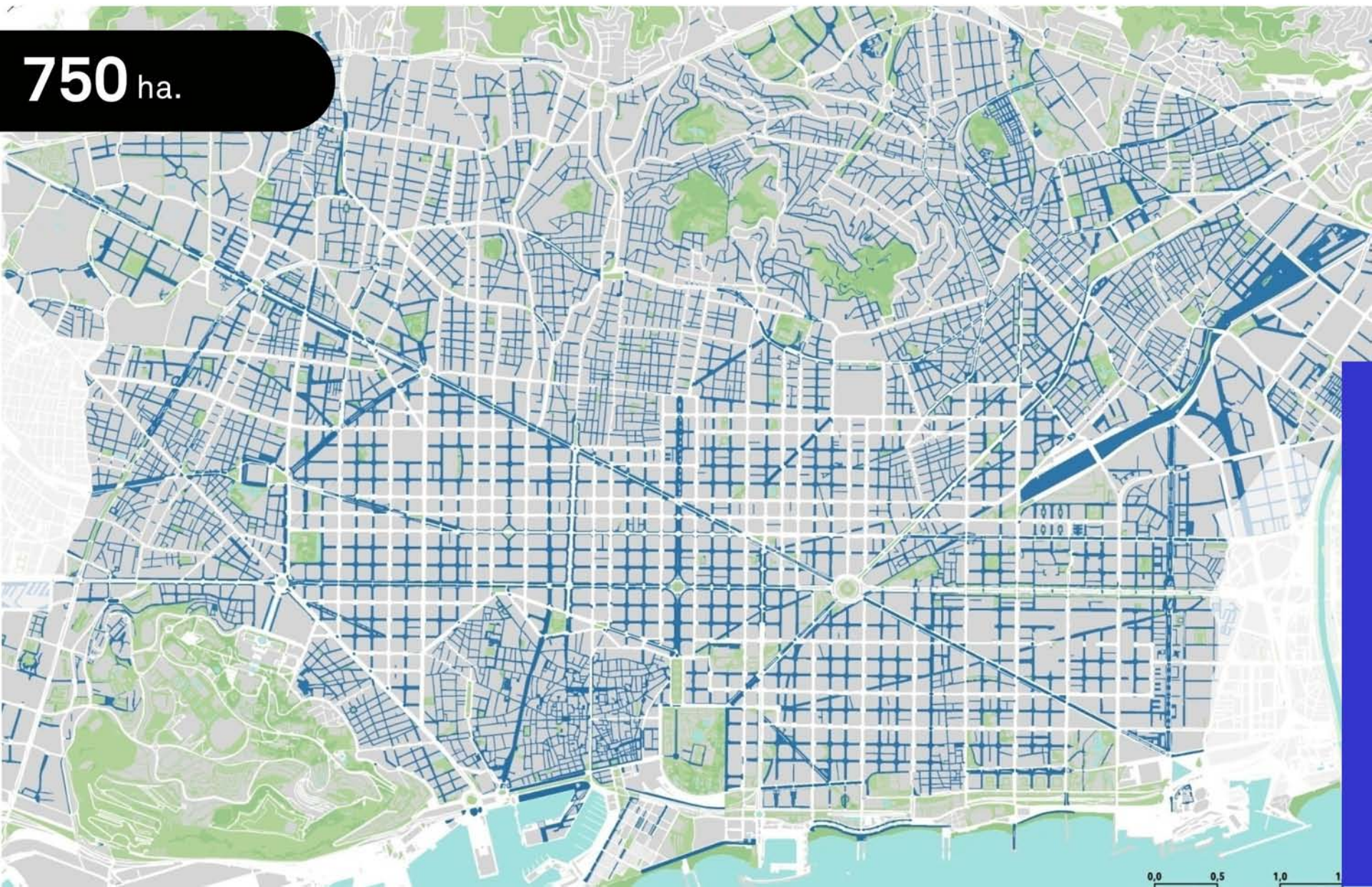


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Proposed pedestrian areas  
beyond PMU

**750** ha.







## Increase pedestrian safety



- Improve road safety for people.
- Ensure universal accessibility for the movements of pedestrians.
- Increase the number of travels by foot.
- Balance the modes of travel.

### Description:

Design public space in a way that the risk of accidents is reduced, creating pleasant, safe and suitable spaces for people who walk, especially children and elderly or with limited mobility. It proposes, among other things:

- \_ Continue implementation of the 30 zones.
- \_ Study the installation of enough crossing points, ensuring minimal waiting times and long enough so that pedestrians can cross slower (assuming a pedestrian speed of 0.8 m/s).
- \_ Locate items to aid pedestrian mobility in neighborhoods with accessibility issues: escalators, elevators, etc.



## Develop more efficient and effective pacified areas



- Improve the efficiency of travels by foot.
- Improve urban quality of the city.
- Promote other citizen uses for public space.
- Promote walking.

## Description:

Creation of pacified areas in the city.

The pacification of the inner areas of superblocks would improve the efficiency of walking, because it would allow to make more rectilinear paths and reduce the waiting time at traffic lights. The average time savings that could occur in a 3x3 structure would be up to 15%.





## Promote Camí Escolar (School roads) and the sustainable and safe mobility to schools



- Ensure that scholar travels are made with the utmost safety, accessibility and continuity.
- Promote a more sustainable and safer mobility: by foot, by bicycle and by public transport.
- Improve road discipline in school environments.
- Improve mobility of the streets around schools and contribute also to the environmental improvement of these areas.
- Promote the participation and commitment of schools, families and students for a safer and more sustainable mobility.
- Improve the district knowledge of the students, guidance capacity and detection of dangerous situations, as well as provide criteria to choose the safest routes.

### Description:

Camí Escolar is a participatory city project that promotes that students have a safe and enjoyable access to and from home to school without an adult. It is an opportunity to develop autonomy of students, civic co-responsibility and the recovery of space to live together and share an educational scenario of values.





## Empower the role of pedestrians: review regulations, ordinances and other actions



- Communicate the rights and duties of pedestrians.
- Attend the mobility of all people, residents and visitors.
- Understand the city and promote walking with safety and quality.



## Description:

Reevaluate the role of pedestrians in the regulation, management of public space and urban information, integrating the principles and commitments of the International Charter for Walking - Walk 21.

- Coexistence of pedestrians and bicycles.
- Use of public space.
- Location of terraces spaces.
- Accessibility.
- Increase and improve information in municipal websites.
- Comply with the parameters of the Accessibility Code of Catalonia.
- Communicate the improvements in urban space.
- Study the flashing green - flashing red with variable duration.



## **Enhance the role of pedestrians: outreach, communication and promotion**



- Publicize the advantages of daily walking.
- Increase the modal transfer of private vehicles of motor to walking mode.
- Disseminate good practices undertaken in the field of sustainable mobility in the city.
- Share experiences with other municipalities and regions, local and international.
- Position the city as a benchmark in sustainability issues.
- Achieve a healthy lifestyle.

### **Description:**

Adapt the city and make it more comfortable for pedestrians is important, but to spread a positive view of the advantages that walking has for the citizens is essential for the city.

The definition and implementation of the pedestrian network in the city is an important element for the promotion of walking.



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# Bicycle



BICYCLE  
NETWORK



REGULATING  
THE USE OF  
BICYCLES IN THE  
CITY



MEASURES  
TO PREVENT  
THEFT



CYCLING  
AND PUBLIC  
TRANSPORT  
INTERMODALITY



PUBLIC  
AND/OR  
SHARED  
BICYCLE



ELECTRIC  
BICYCLE



BICYCLE  
PROMOTION





## Expand and improve the network of bike lanes



- Promote the use of bicycles in the city.
- Ensure connectivity of the current network of bicycles.
- Expand the coverage of the current bicycle network and reduce the access time to destination.
- Improve bike lanes that connect Barcelona with the other metropolitan municipalities.
- Minimize conflicts with other modes, especially with pedestrians.

## Description:

Expand and improve the network of main routes for the bicycles so that it can become a continuous, safe and comfortable network.

Develop secondary network or proximity network of bicycles starting from a progressive plan of pacification of traffic linked to the inner streets of the superblocks.



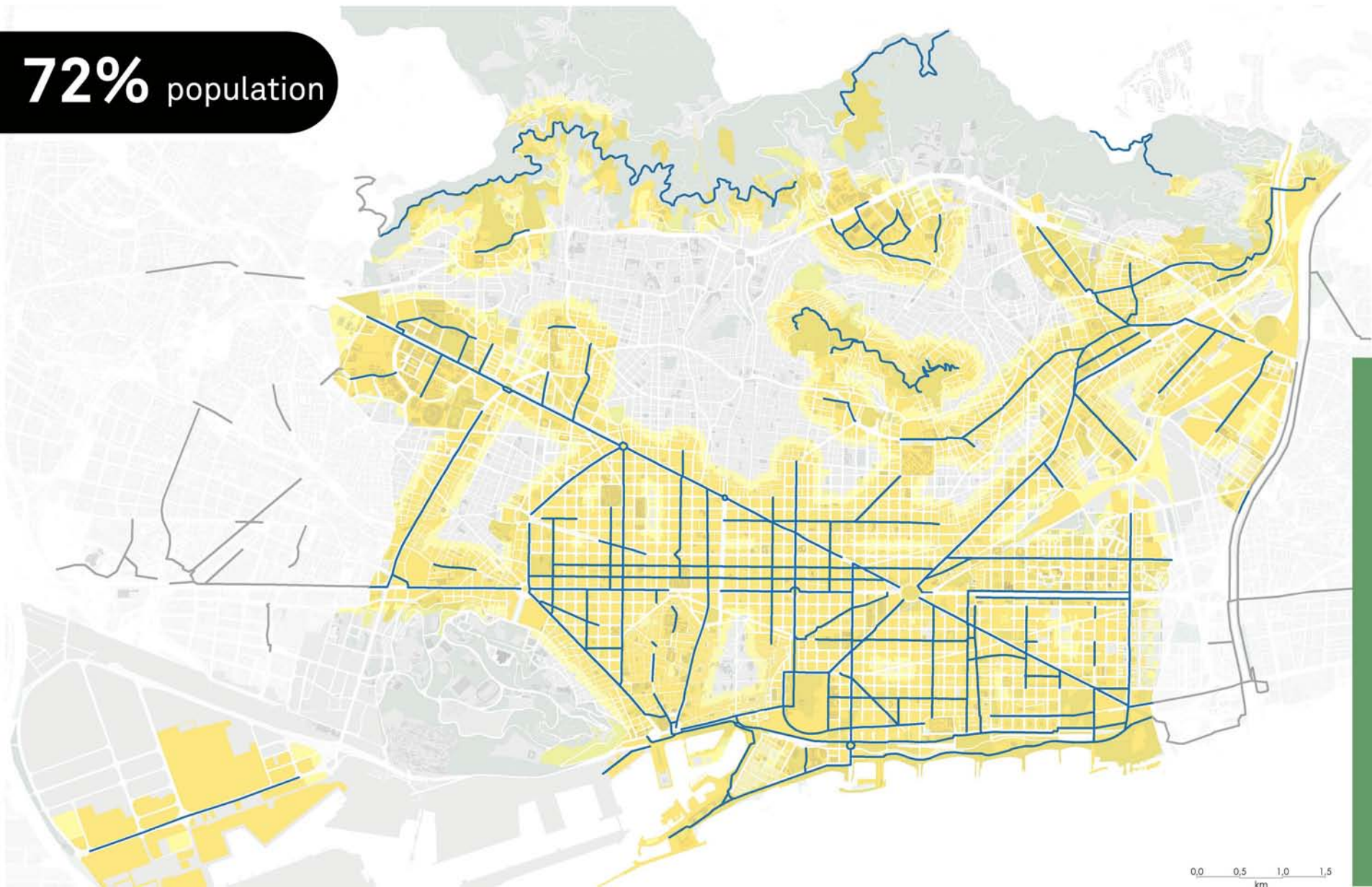


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Current situation.  
Bicycle network  
coverage to 300 m

72% population





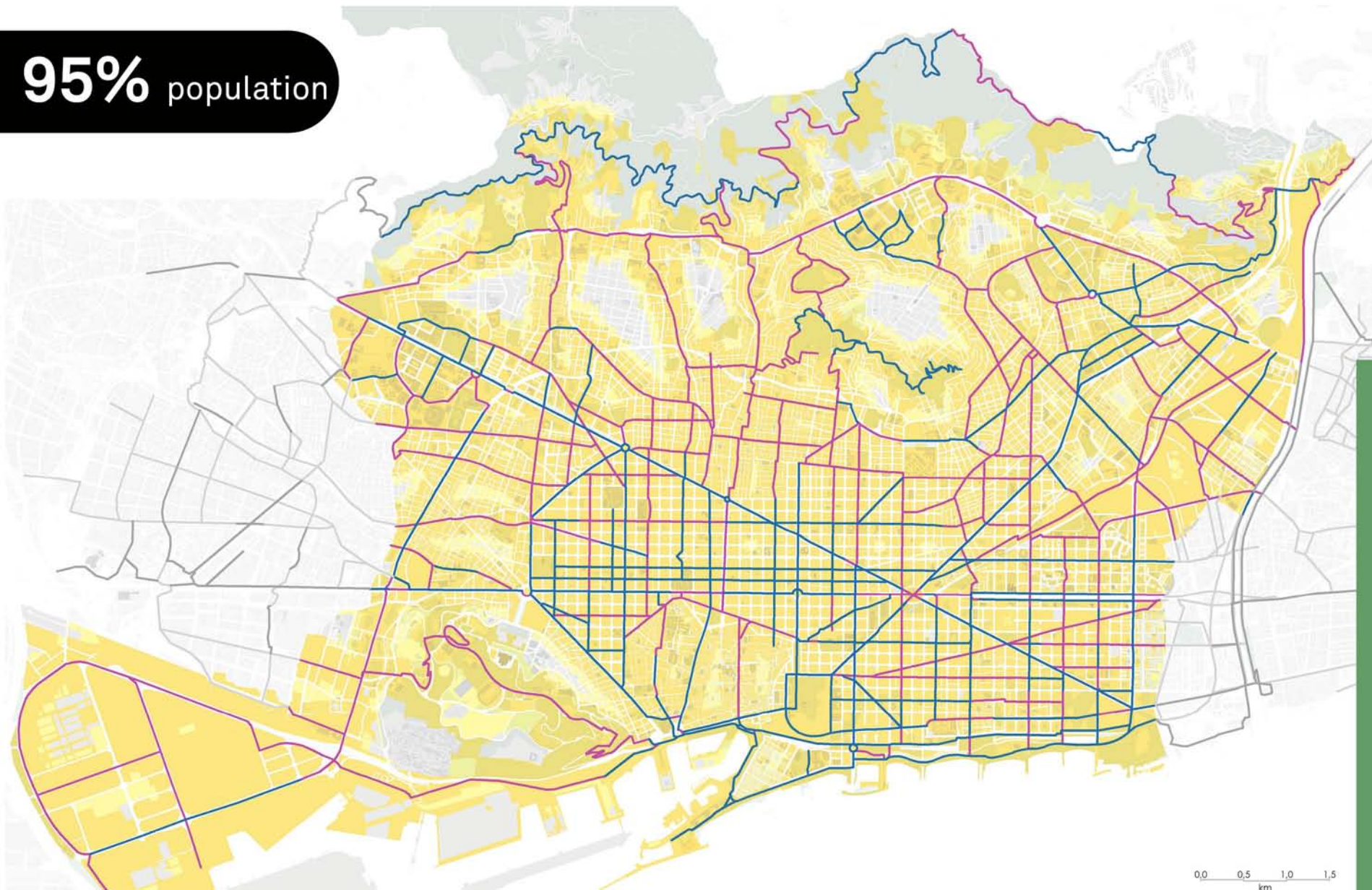


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Proposed bicycle network  
Coverage to 300 m.

**95%** population





## Increase supply of bicycle parking in public road



- Increase the current offer of parking for bicycles in the city, promoting that way its use.

## Description:

The use of bicycles as a regular transportation requires the reservation of safe spaces for their parking in some points of origin and destination of travel: urban facilities, parks, squares and gardens, modal interchanges or in the bicycle network itself.





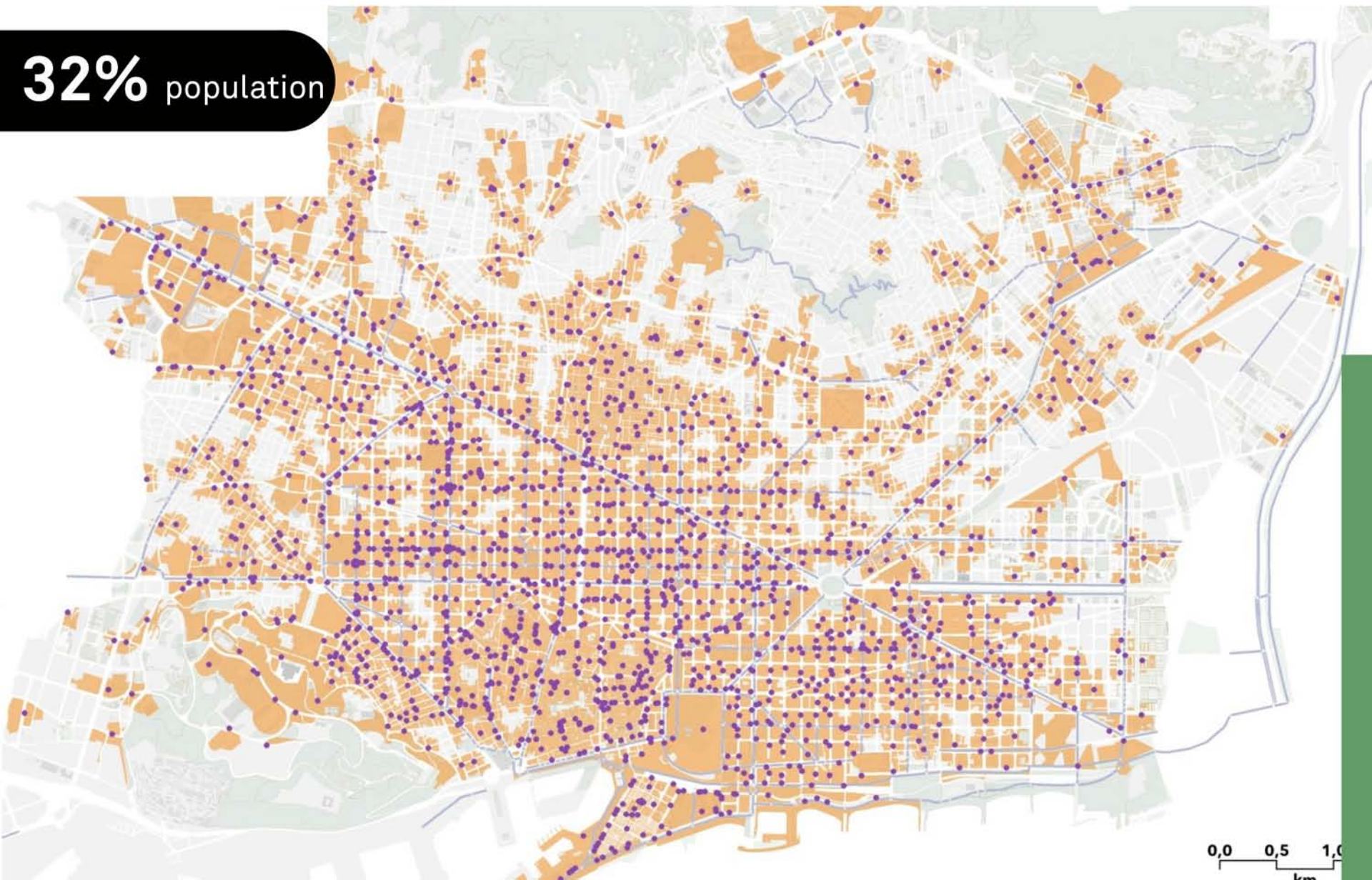


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Bicycle parking (2013)  
Coverage to 100 m.

**32%** population





## Review and improve trouble spots with more accidents



- Reduce bicycle accidents.
- Promote the use of bicycles

## Description:

Promotion of an ongoing monitoring of bicycle accidents, as well as a review of bicycles lanes, waiting points and accumulation expected in intersections that can be conflictive in order to improve the bicycle network conditions and to avoid conflicts with pedestrians and other modes of transport.







## Promote the creation of secure parking for bicycles



- Promote the creation of secure parking spaces for bicycles, promoting in that way their use.

## Description:

The parkings must ensure the security of bicycles against theft and vandalism, offer some type of climate protection and also provide some comfort for the rider. In addition, the user should assume a reasonable cost, proportionally to the cost of a bicycle.





## Reactivate the registration and marking of bicycles and other related services



- Minimize bicycle thefts.



### Description:

Reformulate and reactivate the system for Registry and Marking bicycles:

\_Modernize the current system towards electronic modality.

- Conduct periodical tasks of promotion and communication that allow citizens to know this service.

- Create the action protocols of the actors involved in the case of theft: User, Security Forces, Mobility Services, etc.

\_Study the possibility of incorporating to the registry other related services such as an insurance.





## Improve the management of bicycles in the municipal vehicle pound



- Facilitate the return of the bicycles to their owners.
- Improve management protocols in the entry of bicycles (from the moment of removal on the public road) and output.



## Description:

Publish the data of bicycles that enter in the municipal vehicle pound, so the owners can know the entry and facilitate identification for their withdrawal. Streamline management in case of registered bicycles.

Adjust rates of withdrawal of the vehicle so that they are not as seen as deterrent (in those cases where the removal from public road of the bicycle is subject to tax).

Create mechanisms for which if a bicycle is not claimed within a stipulated deadline, it doesn't become a waste (for example, through agreements with institutions for its recovery for social or reeducational purposes, etc.).



## Promote the improvement of the adequacy of public transport for bicycle access



- Facilitate intermodality between bicycle and public transport.

## Description:

To combine cycling and public transport is the more sustainable way to move to medium and long distances. It is therefore interesting to adapt public transport (especially intercity or the one that circulates in areas of steep slopes) for bicycle access or enable secure parking for bicycles at transport stations.





## Promote service points for the bicycle in public transport stations



- Facilitate intermodality between bicycle and public transport.
- Minimize bicycle thefts.

### Description:

Offer parking for bicycles with security guarantees (closed and guarded, or with some kind of electronic system alert) that are rotational and medium term, so the users of public transport can leave the bicycle parked during the hours that the service is operating.

Additionally, the benefits of the space can be extended to accessory services as basic bicycle maintenance, shop, rental or others.







## Improve the efficiency of public bicycles service of the city



In 2011, 44% of the bicycles circulating the city were public, with a daily average of about 34,000 trips on a weekday.

- Optimize the management and maintenance of the service, to improve its efficiency.

## Description:

Study mechanisms to improve the economic sustainability of the system in order to make it more efficient: measures for reducing the number of trips of replacing bicycles (eg promotion of round-trip journeys), study the viability of certain stations, etc.





## Encourage bicycle use by private groups



- Promote the use of bicycles by private groups.
- Extend the use of bicycles in the city.

## Description:

Facilitate travel by bicycle in the city for specific groups (workers, tourists, students).

Examples: launching systems of loan or rental of bicycles, creation of bicycle community parks, acquisition of fleets of bicycles to facilitate the mobility of workers.





## Adapt the existing regulations to the reality of bicycles and other widgets



- Regulate use of the public space regarding the circulation of bicycles and other personal mobility vehicles, in order to minimize conflicts with other modes of travel.

## Description

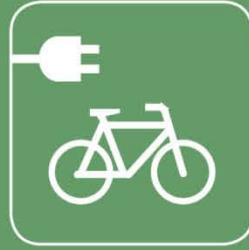
The growth of cycling mobility in recent years and the emergence of new personal mobility vehicles, justifies the need to review the current Ordinance of the movement of pedestrians and vehicles.







## Promote the use of electric bicycles



- Achieve a modal transfer from other modes of private transport to the mode cycling.
- Achieve a more sustainable mobility: reduce noise, pollution, traffic congestion, etc.

## Description:




The promotion of this vehicle will consist of preparing the city for the everyday use of electric bicycles with actions such as:




- \_ Creation of bicycle lanes on streets with slope.
- \_ Enabling secure parking (with the possibility of charging), actually in study.
- \_ Creation of a loan system with electric bicycles, compatible with the conventional system.





## Evaluation of different transport modes

VEHICLE	SLOPE ACCESSIBILITY	FINAL ENERGY (kWh/100km)	PRIMARY ENERGY (kWh/100km)	CO <sub>2</sub> EMISSIONS (g/km)	NOx city EMISSIONS (g/km)	NOISE dB(A)
BICYCLE	75-90%	0	0	0	0	0
BICYCLE 	100%	1	2	3	0	0
MOTORBIKE	100%	38	46	96	12	91
MOTORBIKE 	100%	5-11	10-22	13-29	0	0
CAR	100%	70	85	184	43	74
CAR 	100%	9-15	18-30	24-40	0	0

VEHICLE	ACCIDENTS RATE (JOURNEYS/ ACCIDENTS)	THEFT EXPOSURE (0-10)	EFFORT- PHYSICAL ACTIVITY (0-10)	THERMAL COMFORT (0-10)	ECONOMIC IMPACT (PRICE)	PUBLIC SPACE USE	ILLEGAL PARKING
BICYCLE	2	10	10	2	1	1	4
BICYCLE 	2	10	5	5	8	1	2
MOTORBIKE	8	5	0	6	20	4	8
MOTORBIKE 	8	5	0	6	30	4	8
CAR	3	1	0	10	100	8	1
CAR 	3	1	0	10	200	8	1



## Revalue the bicycle: outreach, communication and promotion



- Publicize the improvement actions of cycling infrastructure in the city.
- Help to create a cultural and media framework favorable to bicycle mobility.
- Encourage the use of bicycles among different social groups.
- Ensure active participation of citizens in the actions of promotion of bicycle.

## Description:

The perception of the bicycle as a sport and leisure element, or as an object used by a minority that interferes with other users of the public road, has to change.

At the same time, it is necessary, to make a campaign of information and awareness addressed to drivers of motor vehicles with the aim of increasing safety of cyclists, with whom they share the road.







## Public Transport

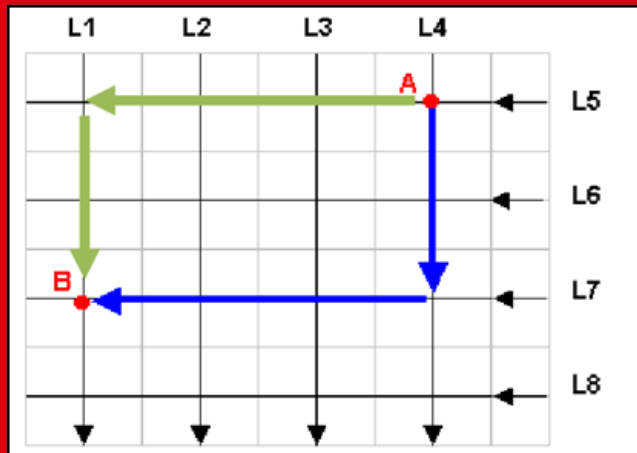




## Implement the new bus network



- Increase the number of users of public transport in general, and the surface public transport in particular.



### Description:

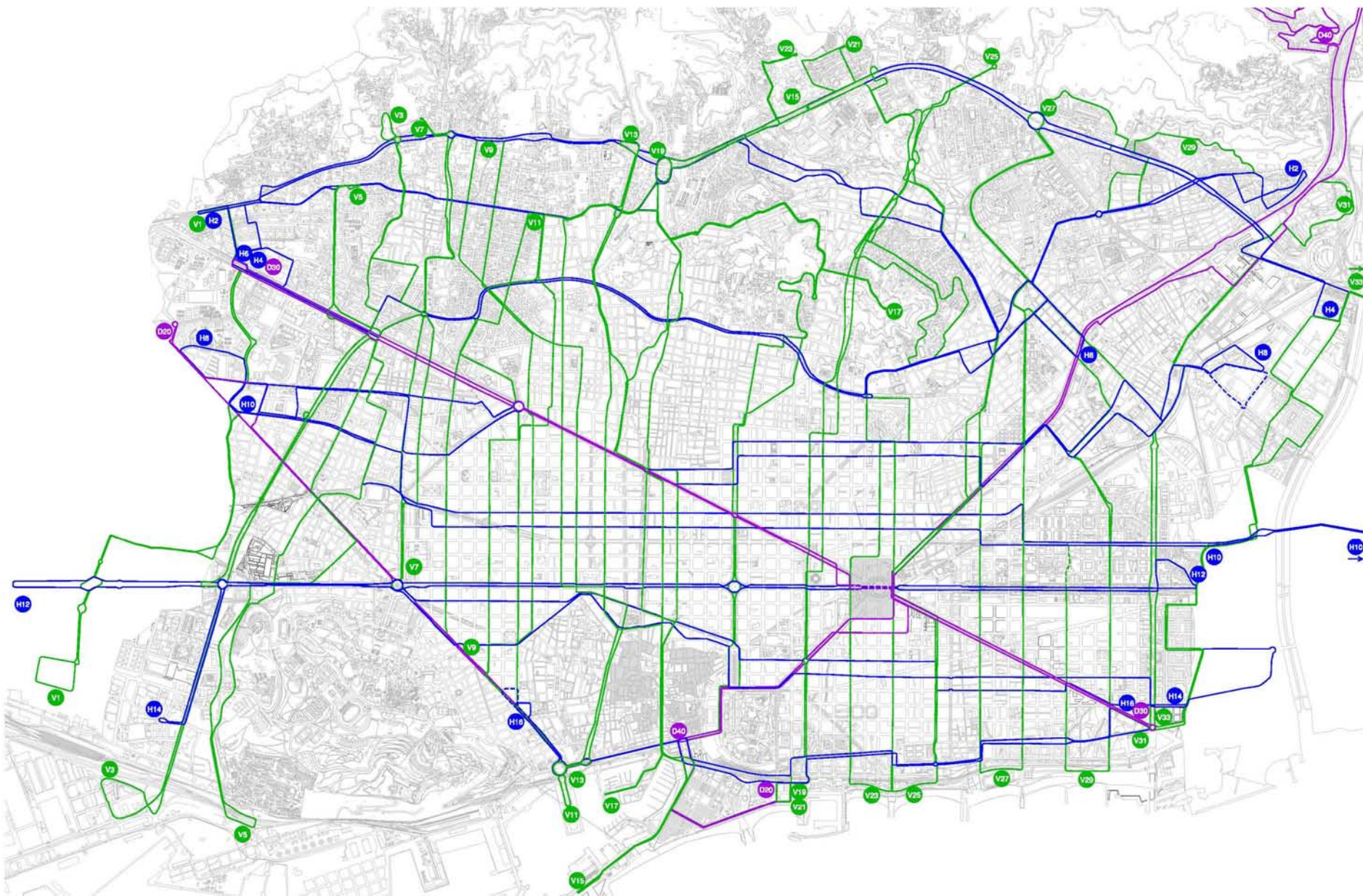
- \_ New scheme of orthogonal lines.
- \_ Network of easy reading for the citizen.
- \_ Stops every 3 blocks in favour of transfer.
- \_ Any trip is done with a transfer as maximum.
- \_ You can arrive to your destination from any stop.
- \_ Allows isotropy of the territory.
- \_ Frequency between 5 ' and 8 '.
- \_ Increases the coverage, accessibility and connectivity.
- \_ Gain commercial speed avoiding twists and with the no accumulation of lines in the same stop.
- \_ Gain additional speed with selective measures: bus lane and traffic lights prioritisation.



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## Orthogonal network bus proposal







## Improve the service of bus lines

6'

- Make a surface public transport more attractive to the user.



### Description:

\_ The implementation of measures to improve the bus service in the city will be examined, regarding both the New Bus Network as well as the current network lines that will remain (a good part of the neighbourhood buses and some conventional lines).

\_ Reduction in waiting time at the stop.

\_ The commercial speed will increase, which means that it will decrease the travel time. The new bus network has to achieve a frequency of 6 minutes.



## Improve the connection with the rest of interurban lines



- Increase the modal share quote of public transport.



## Description:

- \_ Study the interchanges between the interurban and urban bus network in order to improve the connection.
- \_ Collaboration in the ATM program of interchanges of IN11 of PDI.
- \_ Among the major interchanges, it is necessary to consider the construction of new interchange of the Diagonal Oest-Zona Universitària (L3/L9 metro, Tram, interurban bus of 40 places), Ernest Lluch (L5, Trambaix), Ribera Salines (FGC, Trambaix), as well as the terminal Sants Estació and high speed train station in La Sagrera (initiation or improvement of the bus stations that are located there).



## Promote the regulation of interurban lines at bus stations



- Arrangement of parking and improvement of mobility in the city.
- Acoustic and environmental Improvements for neighbors.
- Enhanced attention to the traveller and the operating companies.
- Increasing the intermodality of lines while the offer for travellers is improved.

## Description:

Working groups, in supra-municipal level and within the PDM, will be created to update the organisation proposal of the network of interurban transport terminals of Barcelona 2010.

The intention is to reduce gradually the origins and endings of bus lines of short, medium and long distance on public roads to incorporate them at existing bus stations and to others in the future.







## Review the routes of the interurban lines within the city



- Adjust the interurban public transport network to the new orthogonal network.
- Promote the interurban public transportation.

## Description:

Reorder the entrance of the interurban bus lines in the city, in a way that they pass by certain axles making previous stops at the major interchanges.

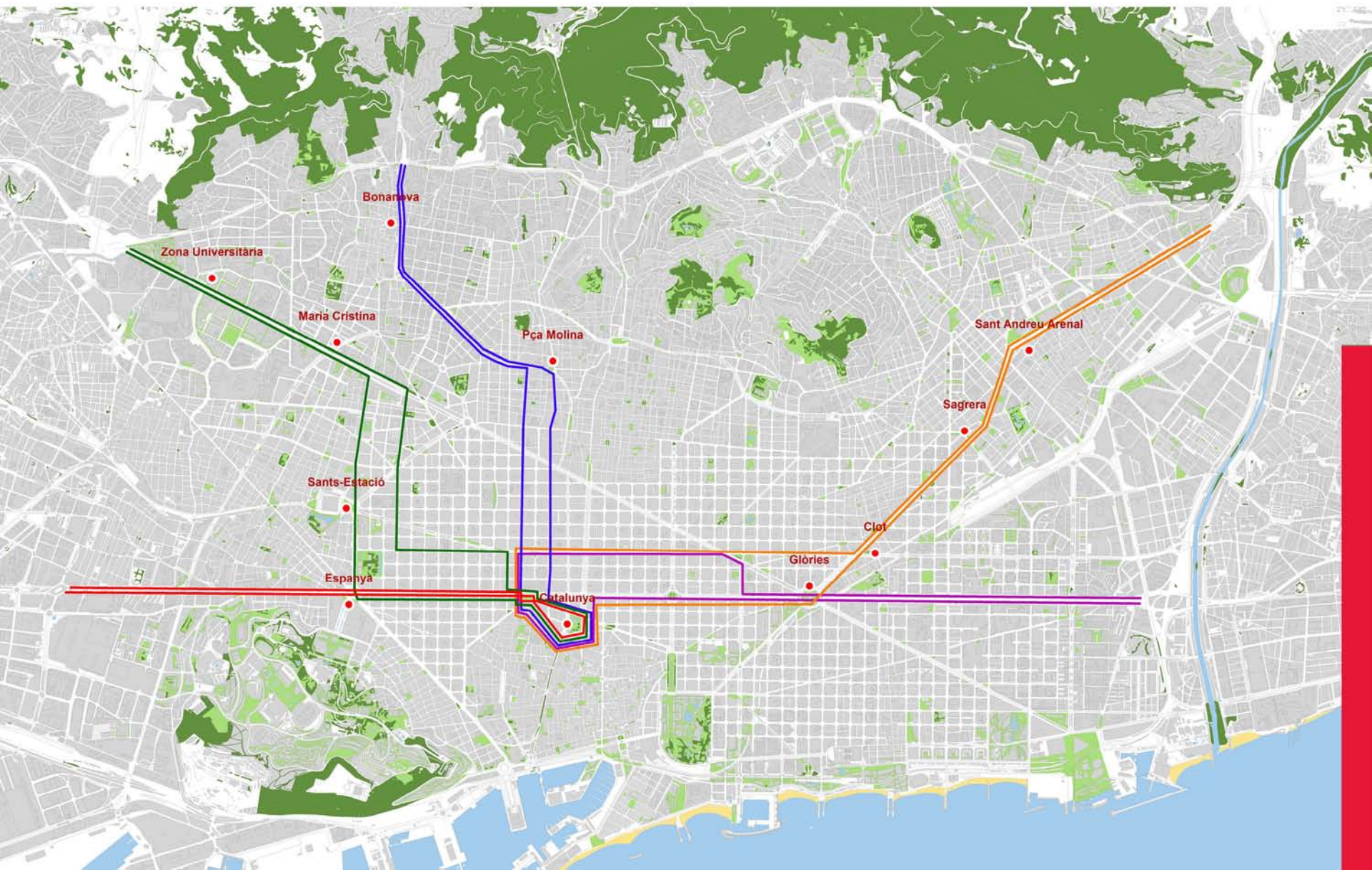
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## Interurban public transport network proposal





## Impulse the interurban infrastructures of bus transport



- Promote the interurban public transportation.
- Limit the entrance/exit of connection vehicles to the urban area of Barcelona.

### Description:

In collaboration with the ATM, the Generalitat de Catalunya and the AMB, it is necessary to adopt a series of measures to promote the transfer from private vehicle towards interurban public transport:

- \_ Extend the network of interurban bus lanes on the entrances to the cities of the RMB.
- \_ The creation of points of advancement for public transport in congested areas.
- \_ Traffic lights with priority.
- \_ Creating a hub of public transport in the UAB.
- \_ Creation of Park & Ride on bus stops.





## Promote BUS-HOV lanes in the entrance to Barcelona



- To promote the interurban public transport.
- Contain the entrance/exit of vehicles in connection to the urban area of Barcelona.

### Description:

The road transport infrastructure program (TPC) integrated into the infrastructure master plan (PDI) 2011-2020 includes a set of actions of bus lanes, bus-HOV lanes, and reserved platforms to promote the circulation of buses on interurban routes.

Despite the supramunicipal scope of these actions, the Barcelona City Council has to enhance them.





**Ajuntament  
de Barcelona**

Urban Mobility Plan of Barcelona 2013-2018

## Proposed Bus lanes, Bus-HOV and Bus Platforms

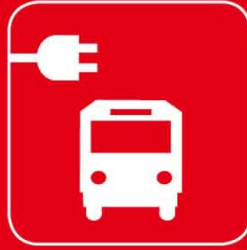


- Bus lanes
- Bus-HOV
- Truck-Bus
- Truck

Source: Barcelona Regional 2011



## Use vehicles (buses) more sustainable



- Promote the use of electric vehicles in the city.
- Reduce emissions in the city (air pollution, noise).



## Description:

TMB, along with other companies, is developing a project for the implementation of electric 100% minibuses for routes in neighborhoods with mobility difficulties, considering also the deployment of specific infrastructure for recharging between stages of the vehicles.

This project, the hybridization of some buses, and pilot tests with 12 m bus 100% electric, are some of the examples of the transformation of the fleet of buses towards e-mobility.

The commitment to a more sustainable public transport service is one of the main targets of the PMU.





## Optimize offer/demand and occupation of discretionary public transport



- Reduce the number of vehicles circulating.
- Reduce congestion, energy consumption, polluting emissions or noise.



## Description:

The discretionary transport represents 4.4% of public transport, or 1.8% with respect to all modes. They are often the same companies the ones that manage their own transportation service for workers, schools, etc. using vehicles adapted to their needs (microbus, minibus, bus).

Nearby companies with similar schedules could benefit from a joint management of the transportation service, obtaining benefits with regard to costs, and at the same time benefiting the mobility of the city by reducing circulating vehicles.

To this end, possible administrative and legal barriers must be solved.



**Study the revision of  
current legislation to  
provide space for hop-on  
and hop-off of buses in  
equipments**



- Reduce the effects on the basic road network.

**Description:**

The possibility of hop-on and hop-off of buses in equipments would reduce the effects on the road network and circulating traffic, especially when it comes to basic road network.



**Extend Bus zone network  
and incorporate new  
technologies to improve the  
management and  
information for users of the  
Bus Zone service**



- Organize and regulate parking for coaches in the city.
- Reduce the cruising traffic.
- Improve the information for users of the service.
- Organize the traffic of tourist coaches.
- Reduce polluting emissions by reducing circulating time.



## Description:

Minimize the impact of discretionary public transport on public roads. Barcelona has a plan for the management of parking lots for tourist coaches integrated within the mobility of the city.

To improve and regulate the parking of discretionary coaches in points of tourist interest, in 2005, Barcelona de Serveis Municipals (B:SM) in collaboration with the Barcelona City Council drafted the First Plan of parking and Bus Stops in Barcelona.

With regard to the management, technicians are working in order to launch a system of information on vacancies to a data center and to different devices: information panels located at stop areas, smartphones and the web portal ZonaBus.





## **Elaborate and implement the Tourist Mobility Plan**



- Improve traffic fluidity in urban areas with high concentration of tourists.
- Improve road safety in urban areas with high concentration of tourists.
- Reduce the air pollution in urban areas with high concentration of tourists.
- Reduce noise pollution in urban areas with high concentration of tourists.

## **Description:**

The visit in coach by part of the tour operators that transport one-day visitors to the city is being reconsidered, in order to make it compatible with the reality of our city, where we have to prioritize the walk and the trip by foot.

In this sense, the plan of Tourist Mobility 2013-2018 of the city of Barcelona is being elaborated.





## Decrease the km that the taxis circulate empty



- Increase the efficiency and sustainability of the taxi service.
- Reduce the consumption of energy, the contaminate emissions, noise, traffic congestion and accidents.



## Description:

The movement of empty taxis in search of passengers is a waste of energy and an increase of pollutant emissions, noise, congestion and risk of associated accident that should be avoided, or at least, reduced.

For this reason, we must encourage the use and increase the taxi stops and the taxi radio service as well as reduce taxi stop by hand. Currently, there are 207 stops in Barcelona (and 64 more in the rest of the AMB) and 23 taxi radio stations.

Likewise, the development of mobile applications for the request of taxi must foster a more efficient connection supply-demand, and a lower flow of empty taxis.



## Encourage the use of sustainable and accessible vehicles



- Reduce energy consumption, pollutant emissions and noise.
- Increase the accessibility of taxis for people with reduced mobility.

 Sostenible	 No sostenible
 <b>CONDUCCIÓ ECONÒMICA I EFICIENT</b> La pràctica d'una conducció econòmica i eficient perquè permet estalviar carburant i reduir l'emissió de gasos contaminants.	 <b>CONDUCCIÓ NO EFICIENT</b> La pràctica d'una conducció no econòmica, ineficient i temerària.
 <b>VEHICLE NOU</b> L'adquisició i el manteniment dels nous vehicles perquè incorporen tecnologies més respectuoses amb el medi ambient.	 <b>VEHICLE ANTIC</b> Perllongar la vida d'un vehicle obsolet un cop superat el període d'amortització.
 <b>ENERGIES NETES</b> Suport a les energies més netes en el sector perquè respecten l'entorn	 <b>EMISSIONS CONTAMINANTS</b> Consum de combustibles tradicionals d'efecte hivernacle.
<b>+ ESTALVI</b>	<b>+ DESPESA</b>

## Description:

Incorporate progressively vehicles that use alternative technologies/fuels (LPG, natural gas, hybrid, electric, fuel cell, etc.).

Expand the current fleet of vehicles that can provide service to the people with reduced mobility.

Promote the renewal of the stock of taxis, due to the fact that newer vehicles incorporate more sustainable technologies. Now, the average age of the taxis is 4.6 years.





## Facilitate new technologies for the management of the city stops



- Increase the use of the taxi stops.
- Reduce the cruising traffic.
- Improve the information of the service to users.
- Reduce pollutant emissions by reducing the driving time.

## Description:

In Barcelona, there are 207 taxi stops, plus 64 in the rest of the AMB. There are also stops in the 3 terminals of the airport of Barcelona, in the ferry terminal, in Sants station, in Estació del Nord and in all those related to the train service of Renfe or FGC.

We will work to achieve a system that notifies in real time the occupation of spaces at taxi stops and the presence of people waiting.



## Ensure the accessibility to public transport



- Achieve universal access to public transport.



### Description:

The Master Plan of Universal Accessibility of TMB has the purpose to guarantee the right of all citizens to access without discrimination to public transport (vehicles, infrastructure and facilities).

The plan includes 10 key projects to achieve this goal.

These key projects assumed by TMB should be moved also to the rest of the operators of public transport in the city of Barcelona (interurban bus lines, Renfe, FGC, etc.).

The accessibility in public transport must be accompanied by measures to improve accessibility to the public space.



## Promote T-Mobility: one only ticket for public transport



- Ensure that all public transport works as a single network that involves the different public institutions.
- Greater comfort for the user.
- Increase in the use of public transport.
- Get more accurate information of matrices origin – destination.



## Description:

The project of T-mobility is a project of supramunicipal scope to which the Barcelona City Council gives full support.

The new model will extend the fare model within the scope of influence of the ATM, with a single fare system and with a unified payment system, improving the planning and management of the public transport network by having much more information. The three key elements are: a new technological system, a new fare system and a new system of management.

In the long term, it is proposed to include other elements of mobility as the Bicing, the taxi, parking, the car-sharing, the motorbike-sharing, highways, etc.





Promote the integration within the T-mobility of the systems of public transport, bicycle, car-sharing and off-road parking for alternative vehicles and Park & Ride



- Ensure that all public transport works as a single network that involves the different public institutions.
- Facilitate alternative mobility to private vehicles.

### Description:

- \_ Achieve an unique public transport network at level of functionality, that integrates the different modes of public transport:
  - Public Transport
  - Bicycle sharing
  - Motorbike sharing
  - Car sharing
  - Off-road parking for alternative vehicles
- \_ Possibility of a single card (T-Mobility) that allows access to any mode of public transport.
- \_ Payment for the use of all the networks, or a combination of them.
- \_ Encourage intermodality private bicycle – public transport.
- \_ Application in urban and interurban areas.



Coordinate the administrations to make effective the transport infrastructures envisaged in the city of Barcelona or to facilitate the objectives of PMU



- Achieve the development of infrastructures planned in PDI.

## Description:

The Pla Director d'Infraestructures (PDI) 2011-2020 (Infrastructure Master Plan) includes 59 actions grouped in 5 major programs.

Many of these performances take place in the municipal area of Barcelona, but the City Council is not responsible for making effective these actions. It corresponds to higher level administrations (Government, State, etc.), through various companies (ADIF, TramBaix, TramBesòs, etc.).

Mainly, it will urge the continuation of the works of L9 and L10 and the connexion of the two current tram networks, Trambaix i TramBesòs.



**Programa Ampliació de Xarxa (AX i XT)**

<b>AX01</b>	Metro. L1 Hospital de Bellvitge - El Prat
<b>AX02</b>	Metro. L1 Fondo - Estació de Badalona
<b>AX03</b>	Metro. L2 Sant Antoni - Parc Logístic
<b>AX04</b>	Metro. L3 Zona Universitària - Sant Feliu de Llobregat
<b>AX05</b>	Metro. L3 Trinitat Nova - Trinitat Vella
<b>AX06</b>	Metro. L4 La Pau - La Sagrera
<b>AX07</b>	Metro. L9/L10 Aeroport/Zona Franca-Parc Logístic- Zona Universitària
<b>AX08</b>	Metro. L9/L10 Zona Universitària - La Sagrera
<b>AX09</b>	FGC. L8 Pl. Espanya - Gràcia
<b>AX10</b>	FGC. Terrassa Rambla - Terrassa Nacions Unides
<b>AX11</b>	FGC. Can Feu - Ca n'Oric
<b>AX12</b>	FGC. L5 Reina Elisenda - Finestrelles
<b>AX13</b>	FGC. Perllongament Vallès

<b>XT01</b>	Articulació de les xarxes tramviàries a Barcelona
<b>XT02</b>	T3. Pas per Laureà Miró
<b>XT03</b>	T3. Perllongament Sant Feliu de Llobregat - Quatre Camins
<b>XT04</b>	T4. Sant Adrià - Port de Badalona
<b>XT05</b>	Nova línia UAB Cerdanyola - Montcada

**Programa Xarxa Estatal (XE)**

<b>XE01</b>	Duplicació Arenys de Mar - Blanes (R1)
<b>XE02</b>	Nou accés Aeroport
<b>XE03</b>	Nova línia orbital
<b>XE04</b>	Duplicació Montcada - Vic (R3)
<b>XE05</b>	Túnel de Montcada
<b>XE06</b>	Nou traçat línia R2 Montcada
<b>XE07</b>	Nova línia Castelfedels - Cornellà - Zona Universitària
<b>XE08</b>	Nou traçat l'Hospitalet de Llobregat
<b>XE09</b>	Remodelació de l'estació de l'Hospitalet de Llobregat
<b>XE10</b>	Nou traçat Sant Feliu de Llobregat
<b>XE11</b>	Altres actuacions





**Programa Intercanviadors (IN)**

- IN01 Millora intercanviador Pl. Catalunya - Pg. de Gràcia
- IN02 Ernest Lluch
- IN03 Ribera - Salines
- IN04 Nova estació Rubí FGC
- IN05 Nova estació de Ca n'Amat FGC
- IN06 Aparcaments d'intercanvi a la xarxa d'FGC (no grafiat)
- IN07 Aparcament d'intercanvi a la xarxa de Rodalies (no grafiat)
- IN08 Intercanviador Torrossa
- IN09 Intercanviadors de la línia R8
- IN10 Acabament de l'intercanviador de Martorell
- IN11 Intercanviadors virtuals en superfície (no grafiat)

**Programa Transport Públic Colectiu (TPC)**

- TPC01 Intercanviador de Diagonal Ost
- TPC02 Sants. Estació bus
- TPC03 Estació de La Sagrera bus
- TPC04 Plataforma reservada a la C-245 entre Cornellà - Sant Boi - Castelldefels (no grafiat)
- TPC05 Plataforma reservada a l'Eix de Caldes (no grafiat)
- TPC06 Plataforma reservada bus, marge esquerre Besòs (no grafiat)
- TPC07 Carril Bus - VAO a la B-23 (no grafiat)
- TPC08 Centres operatius de gestió (no grafiat)
- TPC09 Altres Carril Bus (no grafiat)
- TPC10 Aparcaments de dissuasió de busos (no grafiat)

**Programa Modernització i millora (MM)**

- MM01 TMB. Actuacions en infraestructura i estacions (no grafiat)
- MM02 TMB. Actuacions en sistemes i instal·lacions (no grafiat)
- MM03 TMB. Actuacions en tallers i cobrecs (no grafiat)
- MM04 TMB. Material mòbil (no grafiat)
- MM05 FGC. Actuacions en infraestructura i estacions (no grafiat)
- MM06 FGC. Actuacions en sistemes i instal·lacions (no grafiat)
- MM07 FGC. Material mòbil (no grafiat)
- MM08 Modernització i millora de la xarxa de Rodalies (no grafiat)
- MM09 Implantació del nou sistema de validació i venda sense contacte (no grafiat)

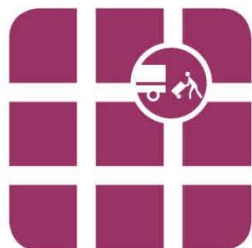




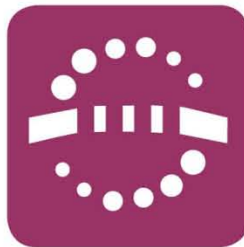
**Ajuntament  
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Urban Mobility Plan of Barcelona 2013-2018

# Urban distribution of goods



EFFICIENT  
MANAGEMENT  
OF URBAN  
DISTRIBUTION  
OF GOODS



IMPROVING THE  
INFORMATION  
AVAILABLE



NEW  
TECHNOLOGIES



## Assign operational functions to each context (UDG)



- Improve the effectiveness of the urban distribution of goods in the city.
- Reduce possible frictions with the other urban uses.

## Description:

The Urban Distribution of Goods is a necessity that requires a range of different solutions, it does not have a unique solution.

It is necessary to establish what operational function is the most suitable for each context.

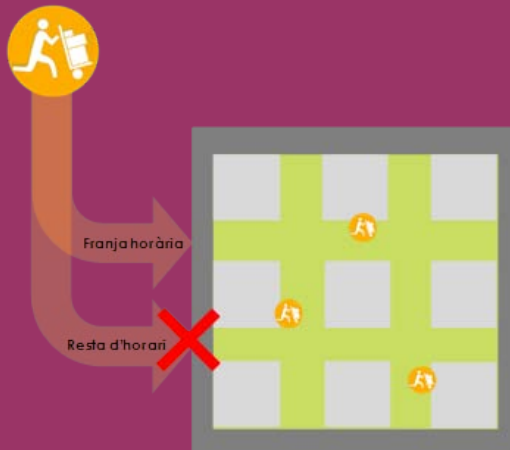




## Study the specific regulation of the UDG zone: Lane L/U, temporary windows



- Analysis and improvement of the regulation of the Urban Distribution of Goods.



## Description:

In order to improve the effectiveness and compatibilize the distribution of goods with the rest of the city uses, there are some ideas:

### Lane L/U

Lane of 3 m in width to allow the parking and the passage of a cart with goods.

### Temporary Windows

To allow UDG only in certain time slots.

Study the possibility of implementing areas of L/U with split schedule, free at noon.



## Study the implementation of Proximity Areas and Distribution Centres



- Rationalize the use of public roads and the externalities of Urban Distribution of Goods.

Possible entries  
in the UDC

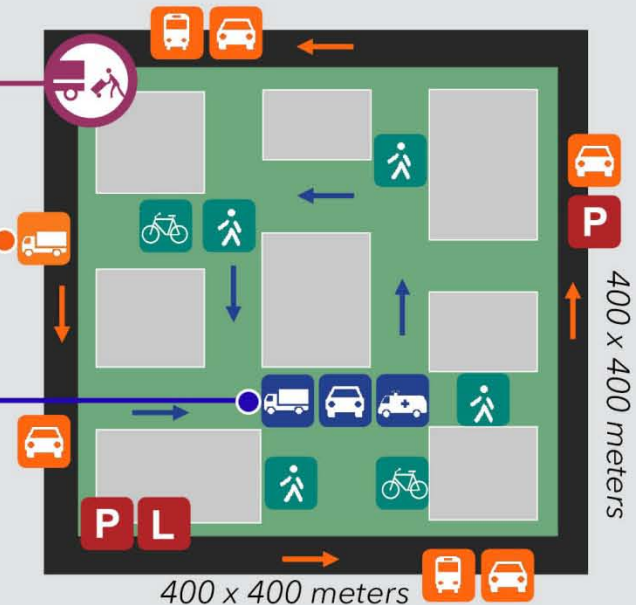
Conventional vehicles  
unloading in the UDC

Electric vehicles of  
final distribution

### Description:

According to the case, within the framework of the implementation of the superblocks in the city, other solutions can be considered for urban distribution of goods, such as:

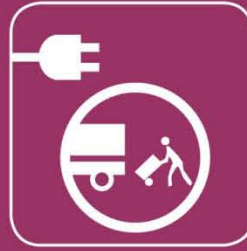
- \_ Proximity areas
- \_ Urban Distribution Centers (UDC)







## Promote the UDG delivery with low- impact means



- Reduce the impacts of the UDG (Urban Distribution of Goods): noise, pollution, congestion, etc.

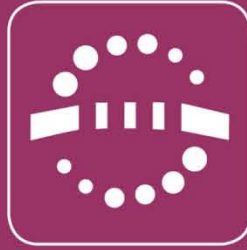
## Description:

Promotion of the UDG with low-impact means (van and cargo electric bicycles, and carts, when possible), especially in pacified areas as the interiors of superblock. The cargo electric bike can have a fundamental role.





Analyse UDG management depending on environmental parameters: Generalitat tagging . Coordination with the AMB



- Reduce the impacts of the UDG in the consumption of energy, the emission of air pollutants and greenhouse gases (GHGs), noise pollution and material consumption and waste generation.
- Progress in relation to the objectives of the "Action Plan for the improvement of the quality of the air 2015" and the "Plan of the energy and climate change in Catalonia, 2012-2020", without affecting economic activity.

### **Description:**

The Generalitat of Catalonia has developed an own eco-label (for companies and self-employed), the "Guarantee Badge of Environmental Quality". It is also responsible for the European Union eco-label.

The eco-labelling has to provide information to the operators of the UDG in regard to the acquisition, use and maintenance of vehicles with environmental criteria: low emission and energy-efficient (electric, hybrid, hydrogen, thermal). In addition, it also incorporates environmental considerations in the use and management of vehicles.



## Establish measures for the UDG of large retailers



- Compatibilize the superblock with the UDG for large retailers.



## Description:

The UDG in the large retail sector has different characteristics that make necessary to adopt some special measures for it:

- \_ Prevision of transport of whole pallets for delivering to large department stores, without having to use carts or low capability means.
- \_ Proposal, viable and realistic, for the unload in department stores during the night.
- \_ Proposal for the establishment of reasonable temporary windows, adapted to the needs of each superblock, for the free circulation of vans on the inside of these.
- \_ Proposal for the use of versatile means, such as for example multiuse lanes, in order that the goods of UDG Large Retail can opt for delivery within off-peak hours.



## Improve the information available (UDG)



- Dispose of the most reliable and up-to-date information possible.

## Description:

- Update of data from studies PROINTEC 1997 and URBIS2002.
- Assembly of databases from European softwares from the BESTUFS and SUGAR European projects.
- Collect the information necessary to disaggregate vehicles of urban distribution of goods of private vehicles in general.
- Structuring to territorial districts and neighborhoods.
- Identification and study of single platform zones.





## Improve the monitoring and control of indiscipline and security



- Reduce the indiscipline and the illegal occupation of the UDG.

The improper use of the L/U is evident in the city of Barcelona (only 36% of spaces are occupied by vehicles operating).



## Description:

\_Prepare an information document to give with the delivery of the current cardboard disk improving this way the communication to the carrier of how it works.

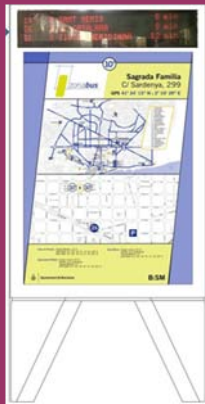
- Increase surveillance. This measure is one of the most effective policies: in a pilot test it has led to doubling the number of spaces available (from 0.6 to 1.2).
- Study how can new technologies assist in this aspect (automatic control of spaces, etc.).
- Define the type of vehicles that can use the squares of L/U.
- The elements previously mentioned (temporary windows, L/U lanes, areas of proximity, UDC 's), sized properly, should be able to reduce the indiscipline and increase security.



## Incorporate new technologies to improve the management



- Optimize the utility of the spaces of loading and unloading.



## Description:

Improve the efficiency of the areas of loading and unloading, adapting ad hoc solutions depending on the different types of use (different sectors or guilds).

This can be done through a SMART system, that allows to manage the zones through a solution (App) for Smartphones. The application has to recognize users and their sector (register) and give them different times depending on their needs type. This system is already in progress with the development of a pilot test in 2014.

Working groups will be created, in supra-municipal level and within the PDM, with competences in the urban distribution of goods.



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Urban Mobility Plan of Barcelona 2013-2018

# Private vehicle



INFORMATION



NO<sub>2</sub> PM<sub>10</sub>



TRAFFIC BASIC  
NETWORK



BUS HOV



TIC

MODAL SHIFT  
AND INCREASED  
OCCUPANCY  
RATE OF  
VEHICLES



ITV

SUSTAINABLE  
AND SAFE  
VEHICLES



MOTORBIKE



PARKING  
MANAGEMENT



DISSEMINATION  
OF SAFE AND  
SUSTAINABLE  
MOBILITY



## Define and study the efficiency of the system with changing directions



- Update Basic Network and provide consistency with Centralized Network.
- Verify that indeed this new basic network is more efficient than the previous one.
- Achieve a more efficient of motorized transport mobility on the surface.
- Achieve a pacification of traffic with a level of traffic service similar to the current one.

## Description:

The modification of the directions in some streets of the circulation basic network of Barcelona could have advantages with regard to the average speed of movement and the level of service traffic.

Some early calculations indicate that it could increase the average speed of traffic in a 22% or, in a manner corresponding, achieve that the network of circulation absorbs 28% more traffic with the same speed of movement (level of service of traffic).

The definition of the basic network and the study of its efficiency with changes in directions have to go hand in hand with the proposal of superblocks, in order to minimize the impact on the private car as a result of the implementation of these.

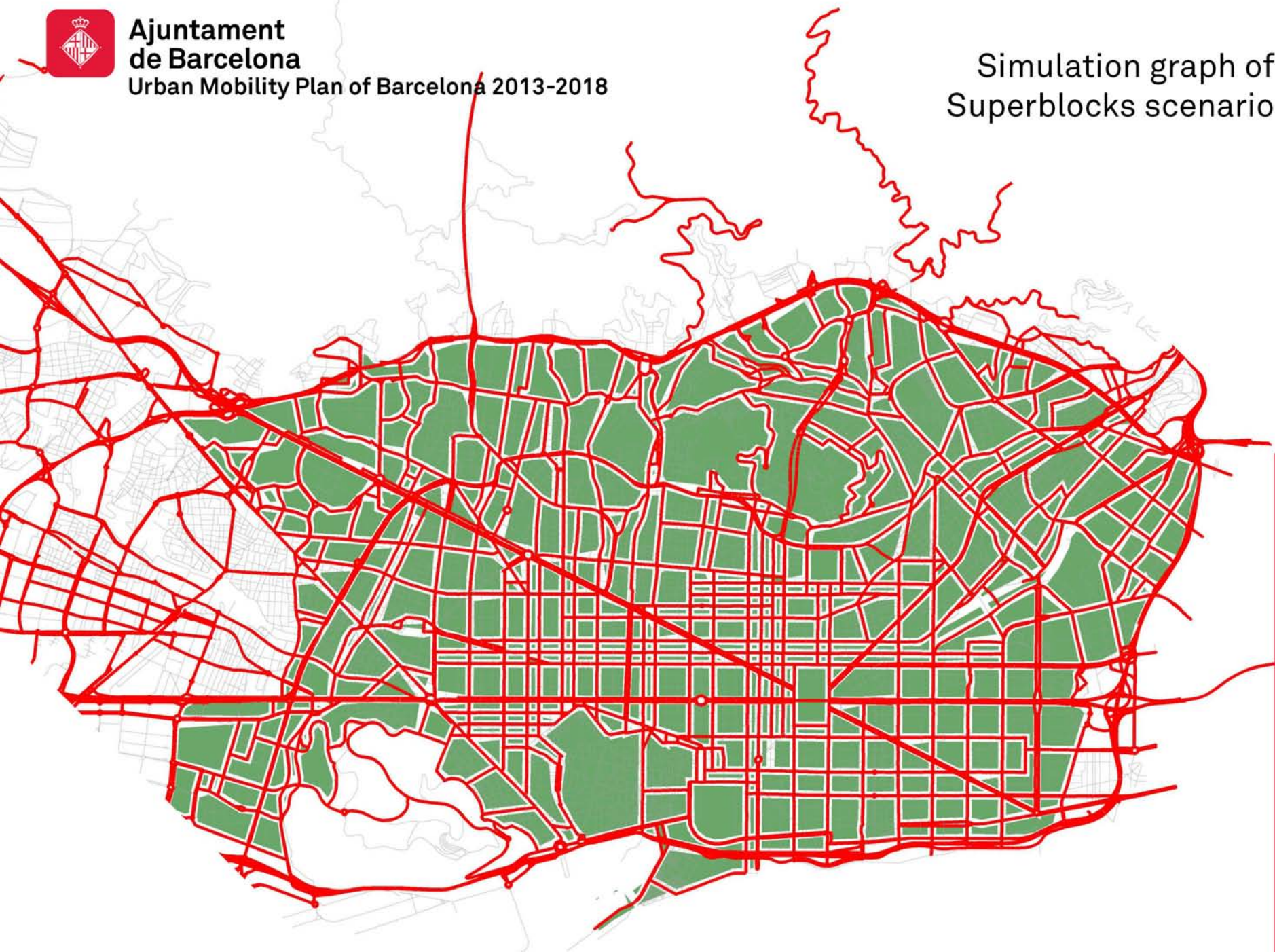




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Urban Mobility Plan of Barcelona 2013-2018

Simulation graph of  
Superblocks scenario





## Improve the informative signaling



- Increase road safety (because drivers can read information quickly and efficiently).
- Ensure an efficient use of the basic network of circulation.

### Description:

The informative signaling has to make possible the operation of the road system in an optimal way, effective and efficient, and promoting the use of the most suitable routes for traffic.

It is necessary to review that the signaling for drivers is always visible and is installed in the appropriate place, eliminating all the elements that prevent the display of signals. Control that the vegetation does not cover the visibility of signals.

At the same time it is necessary to increase the number of informative panels of state of traffic. Review the location and contents of the informative signaling.

It is necessary, too, to adopt appropriate protective measures in school environments.



## Manage traffic with environmental criteria



- Study and adapt the management of traffic depending of emissions.

### Description:

Analyze different plans of traffic management based on environmental objectives, in order to reduce global emissions associated with mobility.

It will be necessary to study different modes to see the differences between these Plans of traffic management, applying the most appropriate indicators (emissions per vehicles; emissions per person transported, etc.). This study will allow us to decide the most effective measures from the environmental point of view (and the most appropriate Plan).

In order to have real up to date information, it is necessary to have real data of characterization of vehicles fleet circulating in Barcelona.



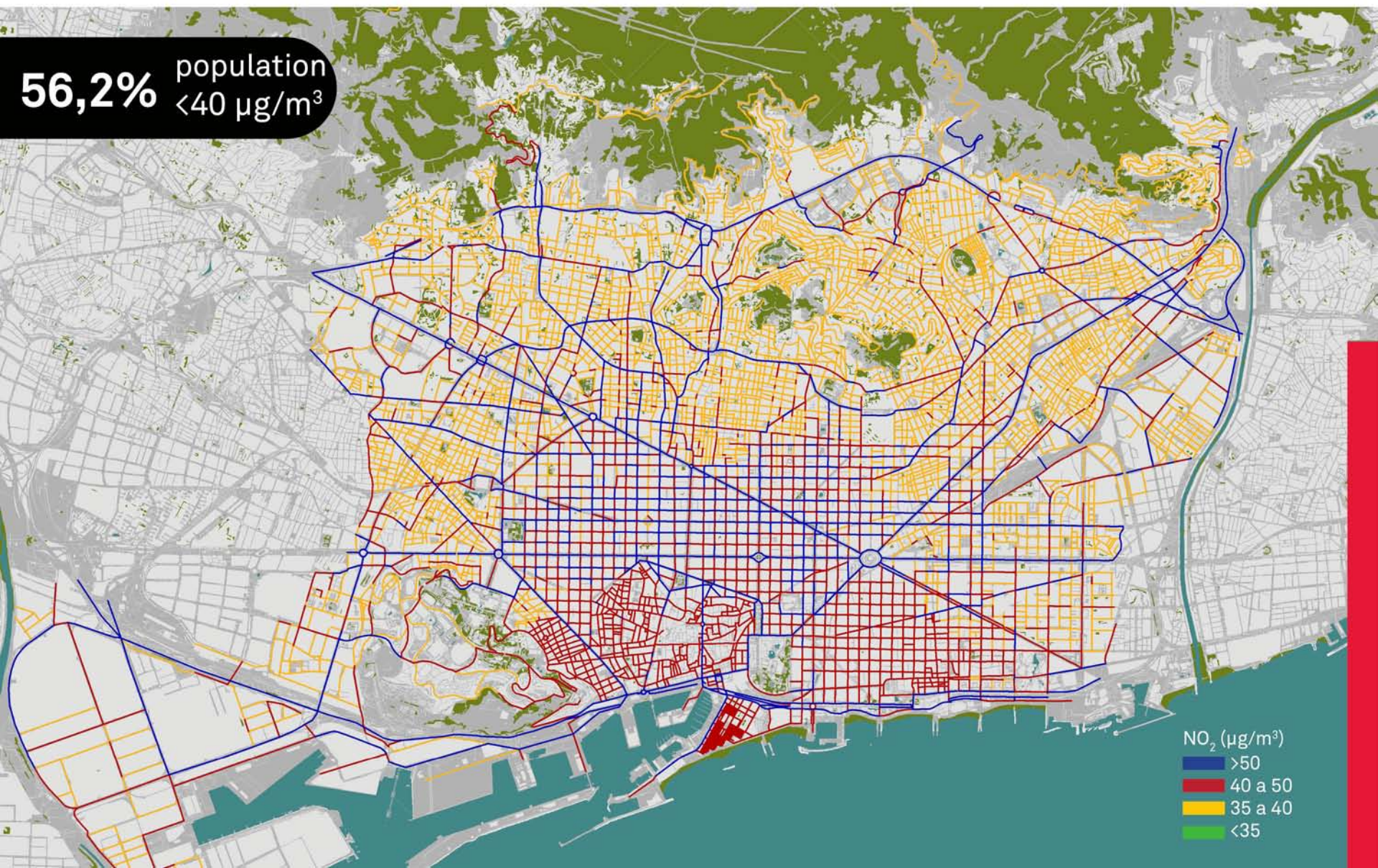


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Urban Mobility Plan of Barcelona 2013-2018

Air quality  
base year 2012

56,2% population  
<40  $\mu\text{g}/\text{m}^3$





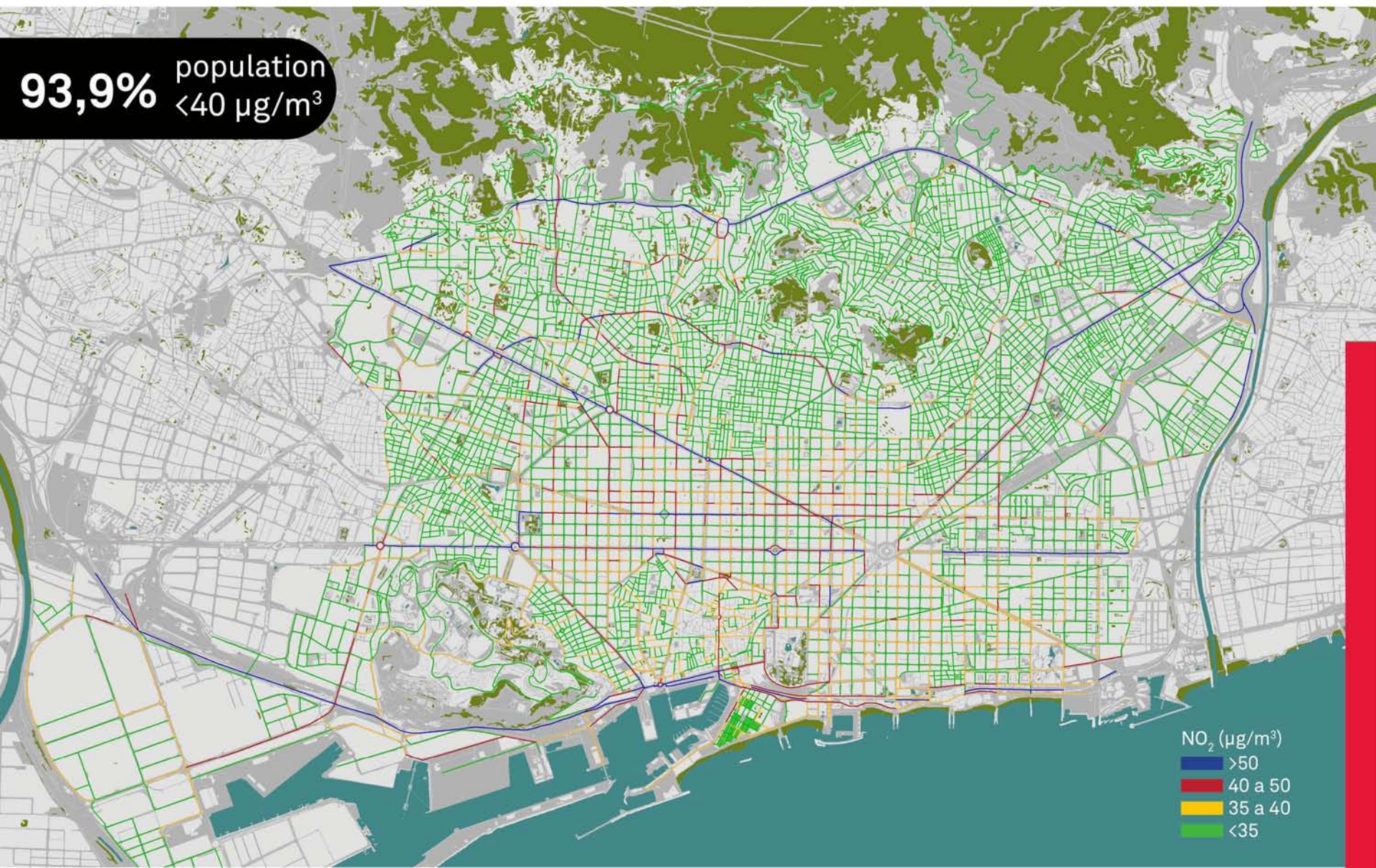


Ajuntament  
de Barcelona

Urban Mobility Plan of Barcelona 2013-2018

Air quality  
year 2018

93,9% population  
<40  $\mu\text{g}/\text{m}^3$





## Act intensively on accident black spots of traffic in the city



- Reduce accidents and improve road safety. Reduce the execution time of the proposed improvements.
- Provide information on the functioning and utilities of the software incorporating it in the internal dynamics of the city council.

## Description:

One of the clear commitments of the city in the present PMU is the improvement of road safety. In this regard arises, among others:

- \_ Intensify the actions with the available tools on the areas of concentration of accidents and risk spots of accidents.
- \_ Develop and improve the tools for the location of spots and accident concentration sections .
- \_ Study the implementation of a system for Automatic Detection of Incidents (ADI) in the Rondes.
- \_ Audit of road safety.
- \_ Audit of pedestrian crossings.
- \_ Refer accident data to Daily Average Intensities (DAIs).





## Adapt urban design to improve the security



- Reduce the traffic victims.
- Improve visibility.
- Reduce the risk situations.

## Description:

\_Study the most suitable design of urban elements (traffic lights, information panels, etc.) that allow decreasing the risk situations.

\_Locate parking for motorbikes at points where it is necessary to improve the visibility of drivers (chamfers, pedestrian crossings, etc.).

\_Write a Manual of design criteria for road safety (widths of lanes, type of furniture, settings, etc.).



**Encourage the modal  
shift from private vehicle  
towards public transport  
or shared vehicle**



- Achieve a transfer from private car towards public transport, bicycle and car-sharing.

**Description:**

Study parking as a regulatory element of mobility in private vehicle and its interaction with the different mobility modes:

- \_Parking as a traffic regulatory element in the process of implementation of superblocks.
- \_Management of parking as a deterrent in the use of private vehicle.
- \_Integration between parking and publictransport.





## Promote systems for sharing/pooling of vehicles



- Promote the use of shared vehicles.
- Rationalize the possession of own car (parking demand).
- Reduce emissions in the city (air pollution and noise).



## Description:

The Barcelona City Council, along with a private consortium, is defining the introduction of a system of shared vehicles (Sharing) with electric motorcycles (MOTIT) based on the concept of "Mobility on Demand", in which the user can perform urban routes with freedom and flexibility when it comes to take and leave the vehicle.

This system works in parallel to conventional, as is the case of car sharing AVANCAR.

With the Generalitat de Catalunya (ICAEN), the city is supporting the creation of new business models such as Mobec-Hotels and Mobec-Campus. It is necessary to continue promoting these and other measures that promote the sharing of vehicles.



**Study the possibility of  
using some specific lanes  
for high occupancy and  
sustainable vehicles**



- Increase the passenger occupancy factor of private vehicles.
- Increase the efficiency of the system.
- Promote the mobility by motorbike.

**Description:**

Currently, the passenger occupancy factor of private vehicle is low (1.25). In order to increase this number, we propose the introduction of HOV lanes inside the city, that due to limitation of space should be shared with the bus lane. The motorbike, in this case, it is considered a high occupancy vehicle according to the relation between space occupied/people transported.

At the same time, and to promote sustainable vehicles (electric, hybrid, etc.), the use of these lanes by some of these vehicles could be allowed, as long as they do not interfere on the safety and/or the operation of public transport.



**Improve real-time  
information and promote  
alternative transport modes  
by applying new  
technologies**



- Provide information in real time for a more sustainable mobility.

### **Description:**

The city of Barcelona promotes the Smart Mobility Plan (PSM), which incorporates intelligent mobility solutions that allow to optimize the services for the mobility of the city, maximizing its efficiency and sustainability, and helping to meet the strategic objectives of the PMU.

One of the projects of the PSM that should improve the real-time information is the Superhub.





Promote safer, cleaner and more sustainable vehicles. Encourage electric vehicles and the use of other fuels such as LPG, CNG, biogas, H<sub>2</sub>, etc.



- Facilitate the increase of displacements in electric vehicles and the use of other fuels such as LPG, CNG, biogas or H<sub>2</sub>, in the city.
- Promote the use of electric vehicles and with alternative fuels among the citizens.
- Reduce emissions in the city (air pollution and noise).

### Description:

The use of alternative fuels (CNG, LPG, electric mobility, biogas, hydrogen, etc.) can contribute to the reduction of CO<sub>2</sub> emissions, reduce energy dependence and improve efficiency.

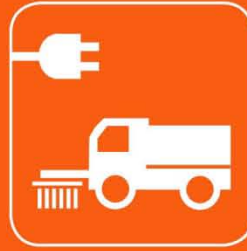
The participation of the city in projects for the promotion of electric vehicles, such as the LIVE Barcelona Project – Logistics for the Implementation of the Electric Vehicle make the city a strategic test bench for the promotion of this leap in urban mobility that the use of electric vehicles will lead.







## Study incentives to encourage the use of sustainable vehicles within the municipal area



- Promote the use of sustainable vehicles in the city.
- Reduce emissions in the city (air pollution and noise).

## Description:

The transformation of the public municipal fleet, through bids, has permitted to the city of Barcelona to have a large part of its fleet with clean vehicles. For example at the end of the year 2011, it had more than 280 electric vehicles and plug-in hybrids.

The transformation of the fleet of vehicles of municipal services towards more sustainable modes is one step further in the promotion of this new model of mobility.





## Increase the control of noise and pollutant emissions



- To keep the car in good condition leads to greater safety (safe mobility). A part of the ITV control refers to measures of active and passive safety of vehicles (brakes, lights, etc.).
- In the same way, there is a part in the ITV of environmental quality with the checking of emissions (sustainable mobility).

## Description:

\_ Make campaigns of compliance of ITV's revision by the Guardia Urbana, in the same way as they make alcohol campaigns.

\_ Crossing of the license plates of vehicles registered in the municipality with the registration numbers of vehicles which are abreast of the periodic ITV, to locate the ones that not accomplish control regulations of ITV.



## Review and improve the management of the surface parking



- Eliminate the negative effects of the free parking.
- Promote the underground parking and eliminate the negative effects of surface parking. Security criteria: parking manoeuvres generate situations of risk and, in addition, the via loses efficiency and fluidity.

## Description:

Adapt the tools of management and regulation of parking to the new citizens requirements.

Working groups, in supra-municipal level and within the PDM, will be created for the management of parking at Metropolitan scale.



## Review the plan of underground municipal parkings



- Reduce deficits and their affectation in the public space.

## Description:

Study the need to build parkings based on the deficits of infrastructural parking of some Census sections and the superblocks.







Study the possible review of urbanistic policies and adapt the parking ratio of buildings to the reality of the territory



- Promote more the modal shift towards public transport.
- Limit the congestion.
- Reduce construction costs.
- Reduce the rate of motorization (cars per 1000 inhabitants).

### **Description:**

Study the elimination or reduction of the minimum number of spaces to build in new buildings (residential, offices). In this way it tends to reduce the presence of cars in the city and helps (makes cheaper) the cost of buildings, very convenient in the current economic framework.

Rethink also the minimum and maximum for other uses, for example shopping centres.



## Disseminate sustainable and safe mobility



- Increase the level of awareness and knowledge of the general public about the improvement of road safety and the reduction of accidents.

### Description:

Perform continuous communication and awareness campaigns, as well as press conferences, about information and prevention of risk behaviours in the field of road safety.

These actions include, among others:

- \_ Campaigns in press, radio, internet and TV.
- \_ Promote workshops by manufacturers of security equipment.
- \_ Programs of reeducation and recovery of points for drivers offenders.
- \_ Courses of risk-free driving in companies with motorized workers, included in the formation for Labor Risk Prevention. Also in schools.



## Study the regulation of surface parking of motorcycles



- Mitigate the problem of the parking of motorcycles, especially in highly demand areas.

### Description:

It is necessary to introduce gradually the regulation of parking of motorbikes, starting with certain areas (the most congested) where the same motorists perceive the existence of a problem, and pedestrians too.

It is necessary to do so in a sequenced form and with gradual actions:

- \_ Paint and mark the existing legal spots on the streets.
- \_ Enforce the rule (GUB, surveillance B: SM). Inform about the deficit.
- \_ Analyzed the previous points, where deficit is detected, provide regulated supply of parkings located around the most demanded areas.



## Review and redesign ZAM zones



- Reduce accidents of motorbikes and pedestrians.
- Improve the capacity of the road, because vehicles with more acceleration go out first.
- Encourage modal transfer from car toward motorbike, with the benefits that this entails (less pollution, lower energy consumption, less traffic congestion, lower parking space occupancy, lower cost for the user, etc.).

## Description:

Study the effectiveness of Advanced Areas for Motorbikes (ZAM).

If they prove to be effective, continue with its implementation.

