

# Bringing together the Mediterranean identity and sustainable mobility



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## Platform for sustainable urban models

The main aim of CAT-MED is the development of sustainable urban models which are based on the classical Mediterranean city; compact, complex and where the proximity of public services is determined by people's ability to access them on foot. The project is developing a system of common indicators and has carried out a pilot experience which involved the planning and design of the Green Apple. The project represents a symbol of territorial, social and technological cohesion, promoting participation and public debate through the launch of a platform for Mediterranean cities.

## SUSTAINABLE URBAN MODELS



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## CAT-MED Platform for Sustainable Urban Models - Partners -



### Founding Members

- España**
  - 1 Málaga
  - 2 Sevilla
  - 3 Valencia
  - 4 Barcelona
  - 5 Agencia de Ecología Urbana (Barcelona)
- France**
  - 6 Communauté du Pays d'Aix
  - 7 Marseille
  - 8 Institut de la Méditerranée (Marseille)
- Italy**
  - 9 Torino
  - 10 Genova
  - 11 Roma
- Ελλάδα Greece**
  - 12 Περιφέρεια Αττικής (Athens)
  - 13 Περιφέρεια Θεσσαλονίκης (Thessaloniki)

### Members

- Portugal**
  - 13 Vila Nova de Gaia
- España**
  - 14 Zaragoza
  - 15 Alicante
  - 16 Generalitat de Catalunya
  - 17 Saint Cugat
- Morocco**
  - 18 تطوان Tetouan
  - 19 طنجة Tangier
- France**
  - 20 Toulouse
  - 21 Nice
- Italy**
  - 22 Palermo
  - 23 Ferrara
  - 24 Benevento
- Ελλάδα Greece**
  - 25 Περιφέρεια Ανατολικής Μακεδονίας και Θράκης (Region of East Macedonia and Thrace)



www.cat-med.eu

The main aim of the CAT-MED Platform is the development of sustainable urban models which are based on the classical Mediterranean city



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The classic Mediterranean city, compact, complexity and proximity

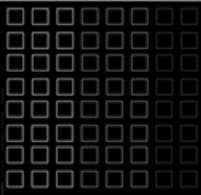


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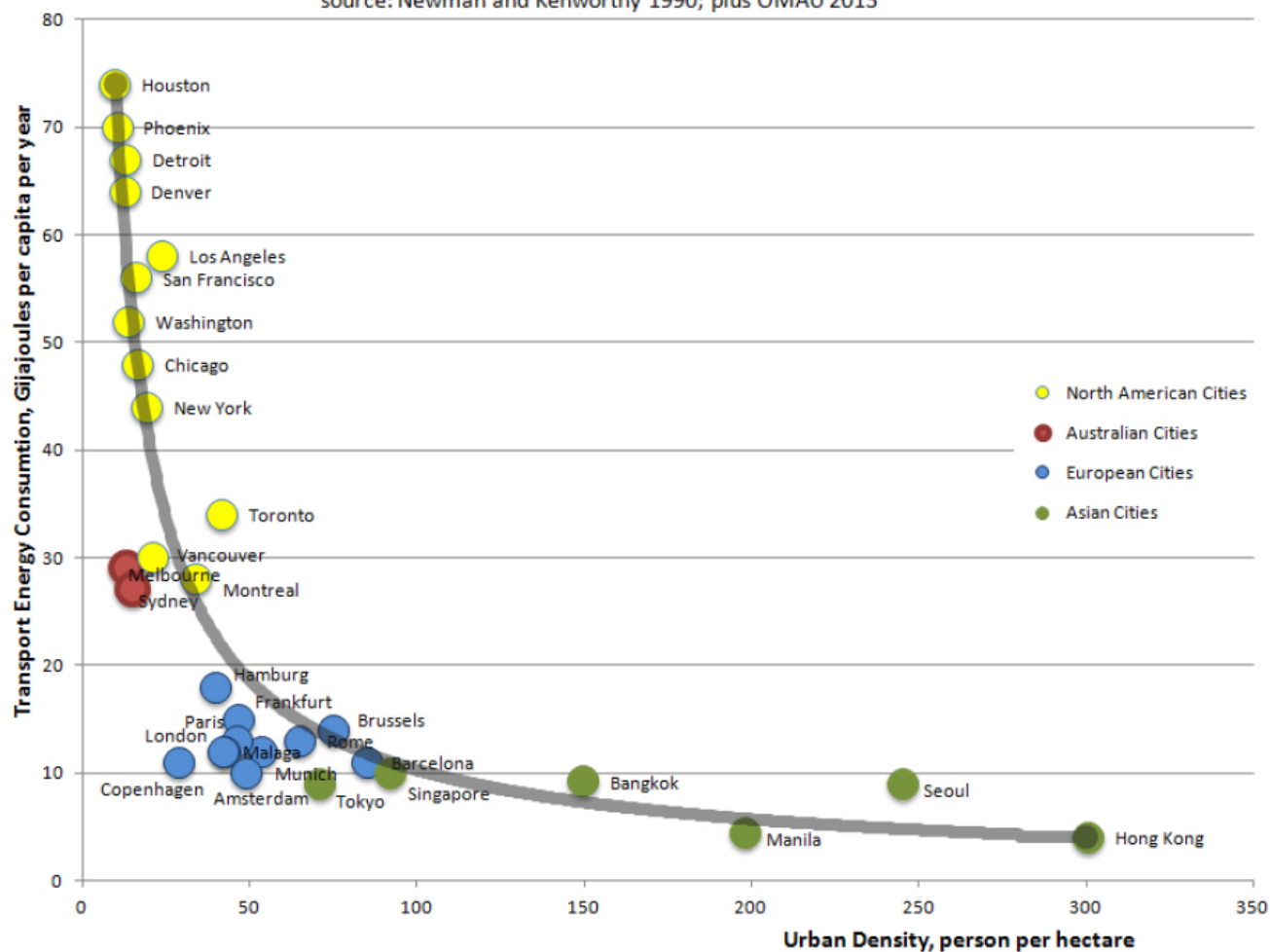


Urban Sprawl: the dispersed city



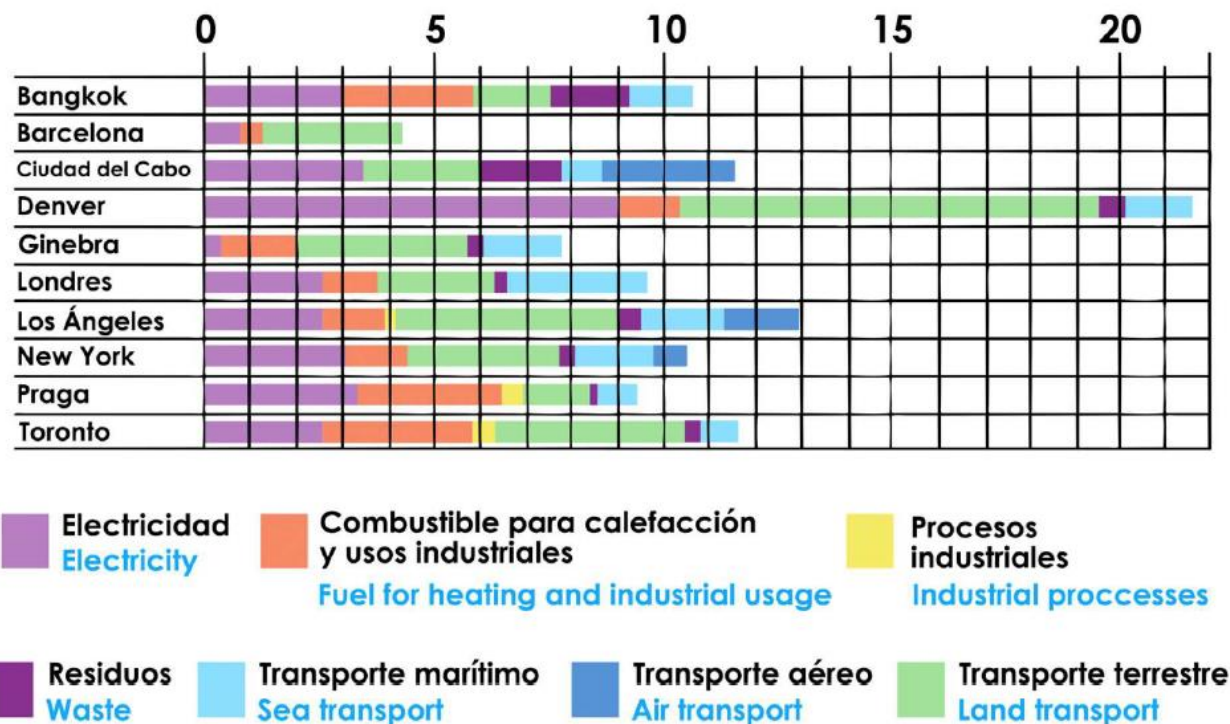
## Urban Density-Transport Energy Consumption

source: Newman and Kenworthy 1990; plus OMAU 2013



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# **EMISIONES** En toneladas equivalentes de CO<sub>2</sub> por habitante **EMISSIONS** In tonnes equivalent to CO<sub>2</sub> per inhabitant



Direct relationship between urban density and CO2 emissions



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## Malaga Agenda 21 (1995 – 2005 – 2015 – 2025 ...):

Territory and City Configuration, Natural Resources Management,  
Social Cohesion & Economic Development, Participation and Governance



II Plan Estratégico de Málaga

### Malaga Strategic Plan (1994, 2004, 2014)

Urban revitalization,  
Culture, Coast,  
Knowledge



### Malaga Action Plan For Sustainable Energy (2011 – 2020)

EU 20-20-20 strategy  
accomplishment  
(cross-cutting)



### Malaga Sustainable Urban Mobility Plan

Reduction of traffic  
congestion and  
CO2 emissions  
originated from  
traffic



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Territory and City  
Configuration



II Plan Estratégico de Málaga

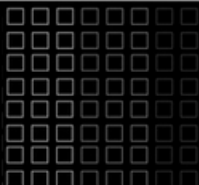
Urban revitalization

## OBJECTIVES

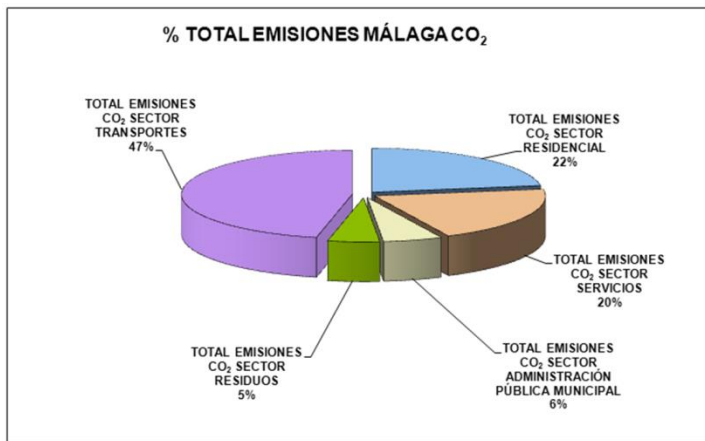
### (URBAN PLANNING):

- To reduce the ecological footprint of the city
- To overcome and correct the urban sprawl, by increasing the city density and complexity
- Avoid new soil consumption
- Regenerate the consolidated city surface

Problem	Indicators	current	optimum
Urban sprawl / motorized mobility dependency	Population density (hab/Ha)	80	120
	City compactness (Houses/Ha)	39	45
	City complexity (diversity ratio)	3,3	4
	Proximity to basic services (>500m)	83	100
Accesible Housing	% of social housing	5,1	30



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**47% of the  
POLLUTING  
EMISSIONS**

**TRANSPORT**



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## ➤ **NEED**

- **Health.**
- **Environment.**
- **Decrease in energy consumption.**
- **Commitments: Covenant of Mayors.**
- **European, National and Regional Regulations and Plans:**

**Urban Mobility Package (2014/C 271/04)**

**SUMPs.**

**Urban logistics.**

**Urban access regulations.**

**Intelligent Transport System solutions in urban areas**

**Urban road safety.**

**Climate change, air quality and noise pollution.**



**Covenant of Mayors  
for Climate & Energy**



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# PUBLIC TRANSPORT



# BICYCLE



# PEDESTRIAN



# INTERMODALITY



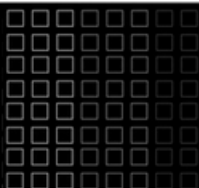
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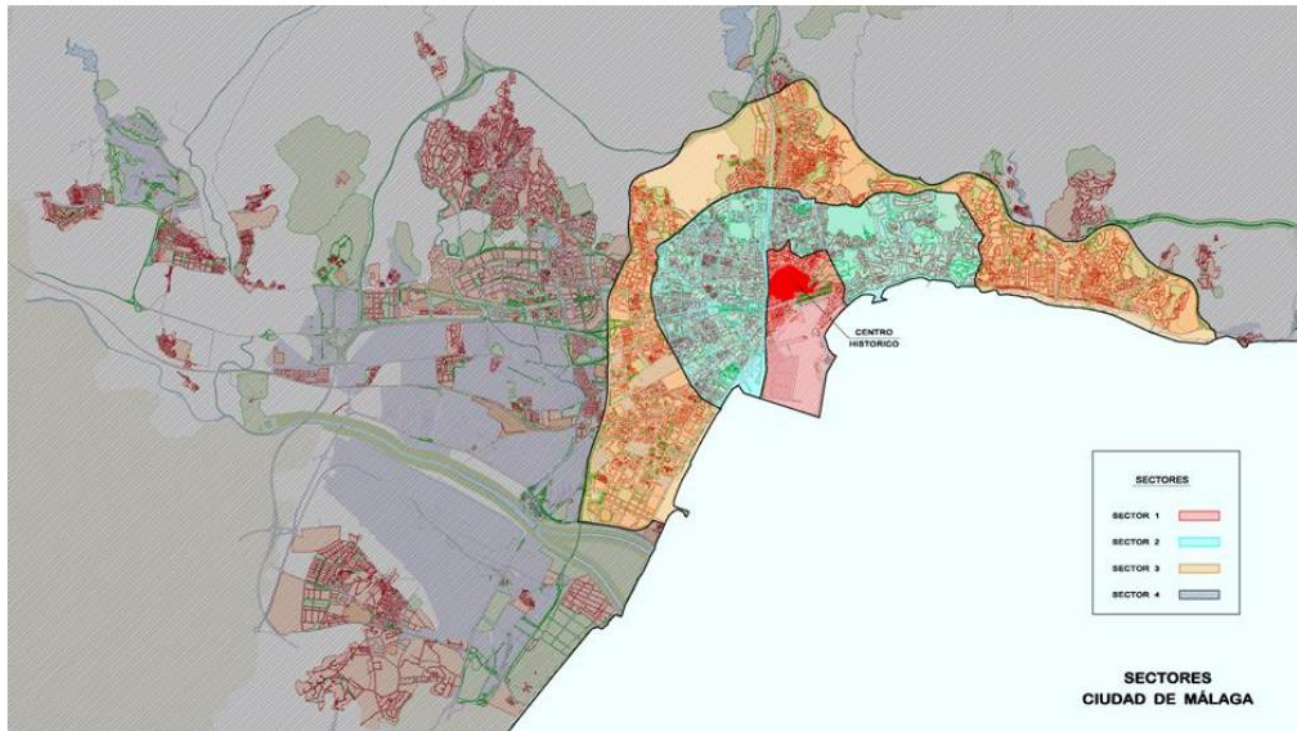
# INTERMODALITY

## Intermodality

- **Background:** According to its Sustainable Mobility Plan (SUMP), Málaga plans to implement intermodal transport hubs, as well as park and ride facilities to enable the transfer from the private car to public transport, such as bus, subway, and public bikes.
- **Challenge:** As it is planned to implement the first park and ride locations in the city, any suggestions on the management, suitable locations, as well as other effective measures implemented in other cities, are welcome.



The objective is to organize private motorized vehicles access to the city, by establishing circular sector shaped areas which will delimit the degree of permeability. The use of private vehicles will be minimized in the areas closest to the city centre.



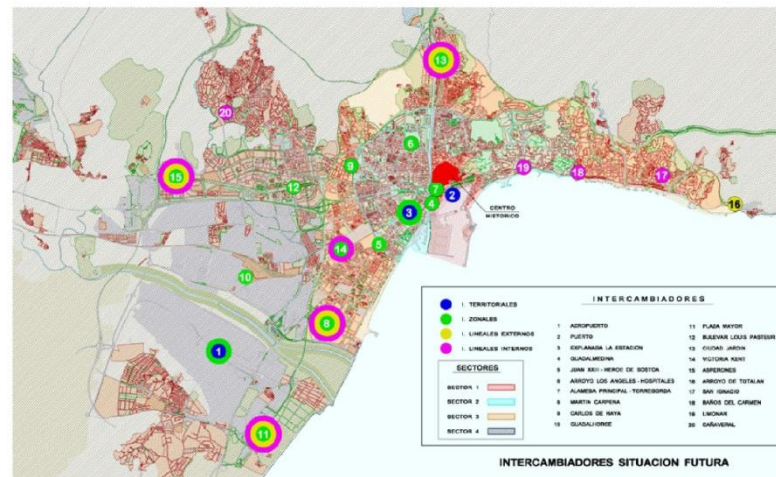
This measure will be based on the installation of intermodal transport hubs, which will facilitate the transfer from one transport mode to another. It will be complemented by a public transport system that allows citizens reaching their destinations in a comfortable and efficient way.





These intermodal hubs are key elements for the user to not perceive a lack of continuity in a multistage journey, which could dissuade them from using sustainable transport. Given their relevant role, strategic locations have been selected for the installation of the hubs needed to efficiently organize the mobility in Malaga. Different types of intermodal hubs have been defined on the basis of their objectives and rank:

- Territorial hubs (blue): They allow the external collective transport and the associated internal transport. They coincide with the major infrastructures where mass access to the city happens: train and bus stations, the maritime station and the airport.
- Zonal hubs (green): They allow collective short-distance trips (bus, underground, suburban train), meeting the local mobility demand.
- Linear hubs (yellow – outer, magenta – inner): Park&Ride facilities to allow intermodality between motorized private vehicles and sustainable transport modes.

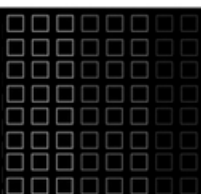




# CYCLING MOBILITY

## Bicycle mobility

- **Background:** The execution of the bike lane along the east coast is scheduled soon. Its construction faces many problems to solve, such as constructive solutions to broaden the promenade, solutions for the removal of parking places for residents, standard criteria on roads with narrow section. Through the CIVITAS initiative, the City of Málaga has implemented the public bike scheme with 23 stations. It is expected to be improved and expanded to up to 123 stations. The mobility department of the City Council has defined possible locations to be included in the action plans of the SUMP.
- **Challenge:** The activities proposed in this field should be discussed for each location, as well as the standardisation of criteria for their implementation, and possible solutions for areas with steep slopes, which impede the extension of the bike public system.



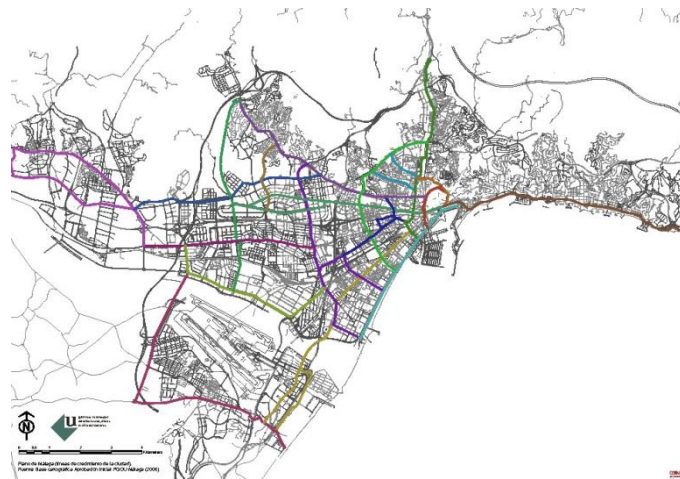
## Current situation

Málaga is a potentially favourable city for cycling, since a significant part of it has a flat or slightly hilly topography and the weather is excellent, with a very low rate of raining days.

In that sense, it is necessary to encourage the integration of the bicycle in our city transport system as yet another means of transport and a real alternative to private motorized traffic to be considered, occupying its own space in the main urban road network. At present, bike trips account for 1.7% of the total modal split.

The city has currently a bike-sharing system with 400 bicycles located at 23 stations (600 bike stands). The stations have been installed near public transport stops in order to encourage intermodality between the most sustainable transport modes.

In order to guarantee accessibility to the bicycle in the whole urban area, it is necessary to increase the number of public bike stations, installing them in the surroundings of cycling itineraries and collective public transport stops. Furthermore, the actions needed for the improvement and optimization of the system must be undertaken.







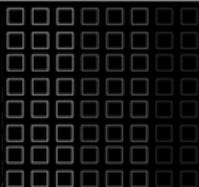
# PEDESTRIANS

## Current situation

From the analysis of pedestrian mobility in general and its weight in the total number of trips in Malaga it can be inferred the great importance of this transport mode, which represents 48.2% of the total modal split.

The pedestrianized area has multiplied by five in the last 20 years.

Pedestrianized streets have moved from occupying 2.35 hectares in 1994 to being 10.07 hectares in 2016.

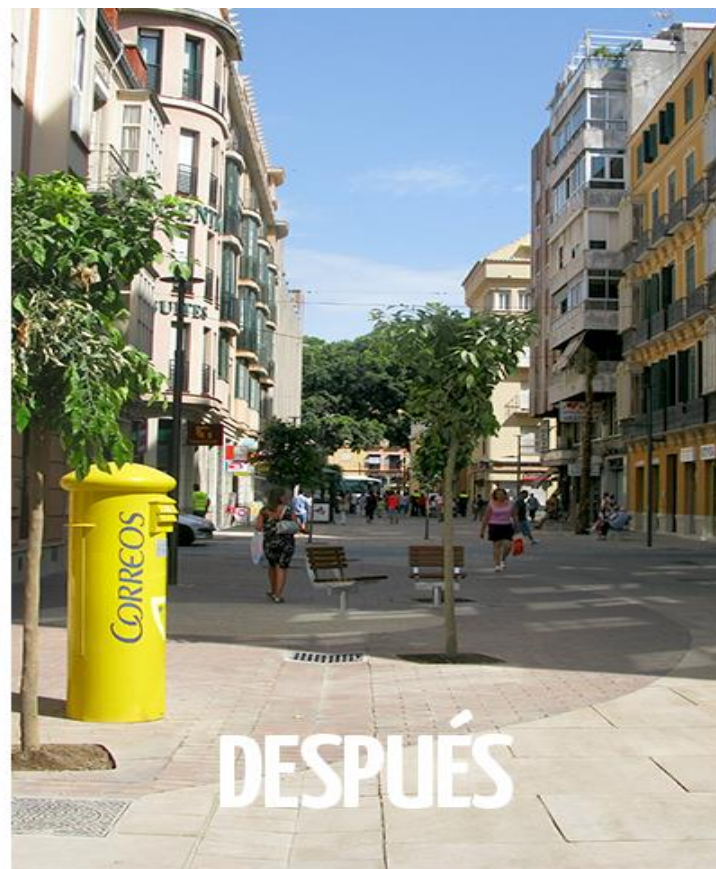
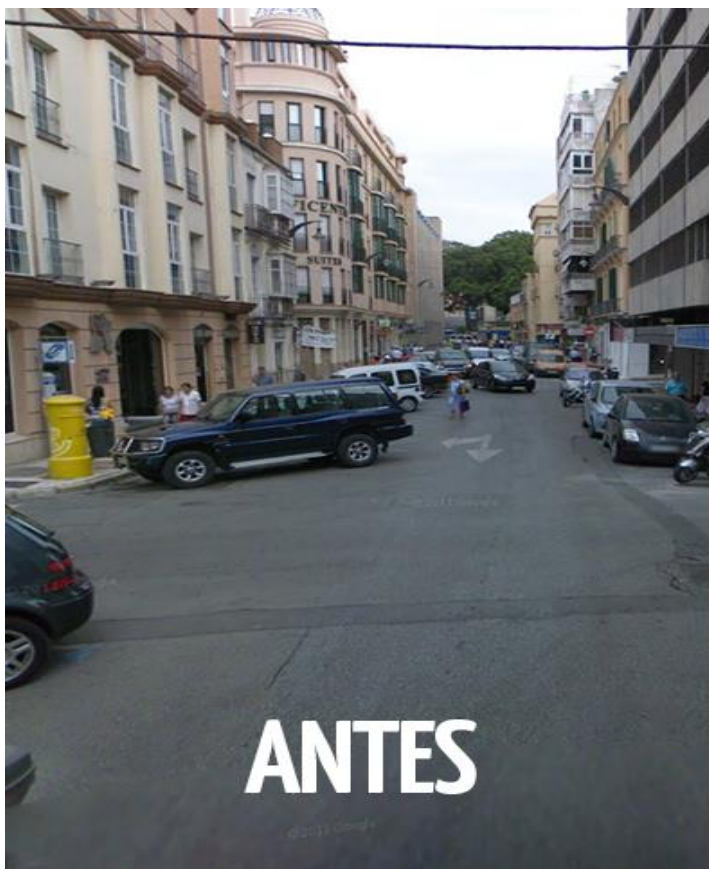




Recovery of the Larios street

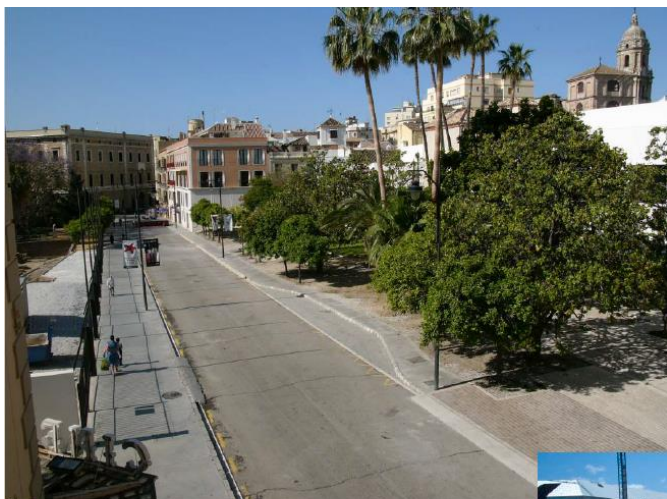


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Recovery of Alcazabilla Street,  
in front the Roman theater and  
the Arabian Alcazaba





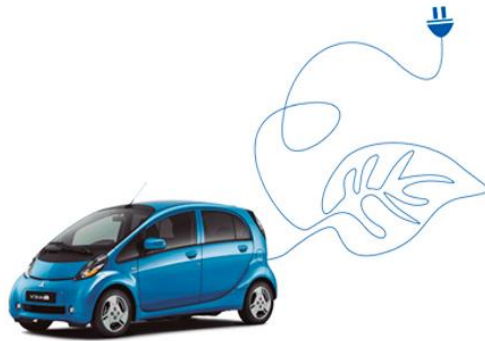
Recovery of Constitution square



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# PRIVATE VEHICLE

## ELECTRO MOBILITY



**ZERO EMISSIONS**

**HIGHER EFFICIENCY.**

**ECONOMIC SAVES.**

**ELECTRIC GRID OPTIMIZATION.**

**ADVANCED SERVICES.**

**NEW BUSSINES MODELS.**



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## ➤ BENEFITS FOR VEs

- Access to restricted areas of the historical city centre.
- Bonus rates for EV parking:
  - 45 minutes in the underground municipal parkings.
  - Surface parking (SARE).
- Reserve public parking spaces.
- 75% annual tax bonus (I VTM).



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**Implementation of  
a real model**

**Standardization and  
measures to favor it  
implementation**

**Inclusion in the  
public transport**



**Inclusion in the  
Last Mile Logistic**

**Integrated urban  
transport systems**



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## ➤ **CONCLUSIONS**

- **Use of the quick charge.**
- **Accuracy and improvement of the business models and advanced services: car sharing, insurances, etc...**
- **User confidence.**
- **Battery range and charge infrastructure: intercity itinerary.**
- **Ease of installation of domestic charging points.**
- **Vehicle prices (without grants).**
- **Technologic alignment of the EV with the ICTs in the smart cities.**
- **Breach of the energetic market: oil crisis...**

