



# Metropolitan Mobility OBSERVATORY (MMO)

Summary Report  
Data **2013**



## The Metropolitan Mobility Observatory (MMO)

The objective of the present document is to summarize the information contained in the 2013 MMO Report, developed by TRANSyT-UPM analyzing the data provided by its members and collaborators.

The MMO is an analysis and observation initiative made up of the Public Transport Authorities (PTAs) of the main Spanish metropolitan areas, the Ministry of Agriculture, Food and Environment, the Ministry of Public Works and Transport, the Institute of Energy Diversification and Savings and the Directorate General of Traffic. It collaborates very closely as well with RENFE, the Association of Collective Urban Transport (ATUC), the Spanish Federation of Municipalities and Provinces (FEMP) and the CCOO Trade Union Federation.

Its main goal is to reflect the contribution of public transport to the improvement of the quality of life and sustainable development in the Spanish cities. This contribution is reflected in the analysis of the general mobility tendencies of the main metropolitan areas, which is done through the study of a set of key transport indicators including public transport supply and demand, financing and investments, quality of service and road safety.

For the 2013 MMO Report, 17 PTAs\* (out of 23 included in the MMO) provided information, which represents approximately the 50% of the nation's population. The rest of the information was provided by usual collaborators of the MMO, like RENFE, the Ministry of Agriculture, Food and Environment, the Directorate General of Traffic and the National Statistics Institute.

## Main Figures

The following figures summarise some important information about the urban and metropolitan mobility in 2013 in the 17 participating metropolitan areas:

- The annual public transport demand for the 17 areas considered in the report is **22.650 billion passenger-km** (41% for bus and 59% for rail modes).
- The **number of journeys per inhabitant per year** differs according to the size of the metropolitan area. The average is 111 journeys per inhabitant per year in large areas, and 44 journeys in mid-sized and small areas, lower than last year (129 and 52, respectively).
- A total of **2.910 billion public transport journeys** were made, 1.464 billion by bus and 1.447 billion by rail modes. In spite of the similarity of both figures, it is remarkable the great difference between the lengths of the network that support these journeys: 87.617 km for bus lines and 2.598 km of rail network.
- **Investment** in public transport in 2013 reached **349.3 million euros**, an increase of 266% over 2012. It is significant the amount of these investments dedicated to rail modes, 69%.
- The public transport supply is **1.157 billion vehicle-km**: 562 million for bus services and 595 million for rail modes.
- The **average coverage ratio is 54%**. While metropolitan area transport systems which include rail modes have an average coverage ratio of 48%, those which consist exclusively of buses present an average of 57% coverage.

\*Madrid, Barcelona, Seville, Asturias, Malaga, Mallorca, Saragossa, Cadiz Bay, Gipuzkoa, Camp de Tarragona, Granada, Pamplona, Corunna, Lleida, León and Girona.

*This summary illustrates key findings on the diversity of public transport systems and public transport policies in the largest Spanish metropolitan areas.*

*For more on previous editions, see the publications section of [www.observatoriomovilidad.es](http://www.observatoriomovilidad.es).*

## General characteristics of the metropolitan areas on January 1<sup>st</sup>, 2013

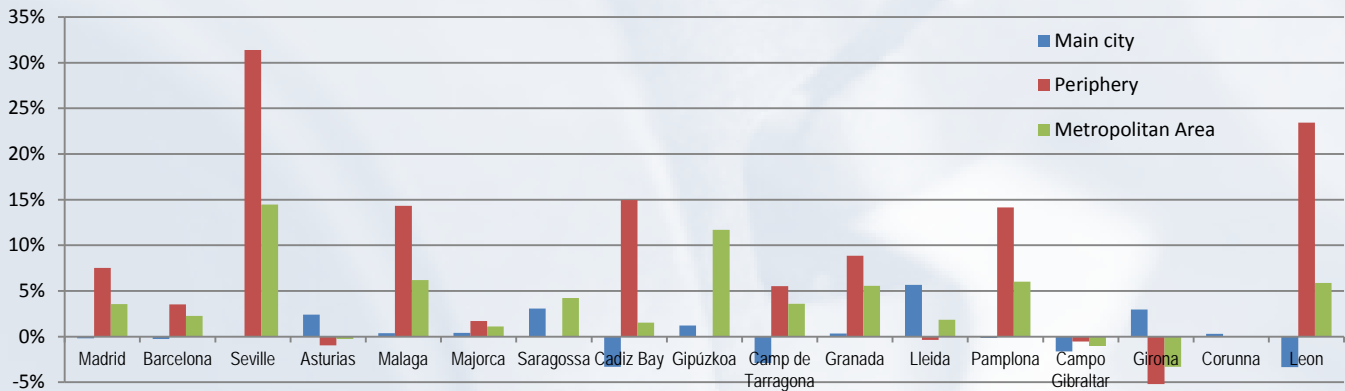
	Metropolitan area (PTA Action Sphere)					Main city			Main city/ Metropolitan area population ratio
	Area (km <sup>2</sup> )	Population (inhab)	Density (inhab/km <sup>2</sup> )	Number of municipalities	Built-up area (km <sup>2</sup> )	Area (km <sup>2</sup> )	Population (inhab)	Density (inhab/km <sup>2</sup> )	
Madrid	8.030	6.495.551	809	179	1.043	605	3.207.247	5.301	49%
Barcelona	3.239	5.041.200	1.556	164	601	102	1.611.800	15.880	32%
Sevilla	4.221	1.480.593	351	45	252	141	700.169	4.955	47%
Asturias <sup>1</sup>	10.604	1.077.360	102	78	n.d.	187	225.973	1.211	21%
Málaga <sup>2</sup>	1.432	1.033.030	722	15	75	395	568.479	1.440	55%
Mallorca	3.623	864.763	239	53	212	214	398.162	1.864	46%
Zaragoza	2.920	783.106	268	30	2863	938	682.004	727	87%
Gipuzkoa	1.981	712.907	359	88	n.d.	267	186.340	698	26%
Bahía de Cádiz <sup>3</sup>	3.072	783.847	255	10	n.d.	14	122.990	8.661	16%
Camp de Tarragona <sup>4</sup>	2.999	621.300	207	132	167	65	133.545	2.048	21%
Granada	861	528.225	614	32	n.d.	88	237.818	2.702	45%
Lleida	5.586	367.110	66	149	182	212	139.176	656	38%
Pamplona	92	338.027	3.688	18	47	25	197.955	7.850	58%
Campo de Gibraltar <sup>5</sup>	1.520	261.078	172	7	432	86	114.317	1.329	44%
Girona	1.122	258.132	230	44	80	39	97.292	2.488	38%
A Coruña	-	-	-	-	36	39	245.923	6.306	-
León	913	210.016	230	16	n.d.	39	130.601	3.346	62%

- 1: The main city is Oviedo, as it is the capital of the region of Asturias  
2: Built-up area only takes into account the main city  
3: The main city is Cadiz, as it is the capital of the province  
4: The main city is Tarragona, as it is the capital of the province  
5: There is no main city. The bay area could be considered the origin and destination of journeys  
Source: compiled by authors based on data provided by the PTAs

## Evolution of population and other socioeconomic indicators

As it can be appreciated in the following figure, the population in the periphery has generally increased between 2008 and 2013, as well as the population in the metropolitan area, which has also been increased but in a lower rate than the other one. However, we can find a different situation in the population in main cities, as its general population growth consists of a 0.3%, really low if it is compared to the general population growth of the periphery, which is a 8.4%. This is due to the negative growth found in cities like Cadiz, Tarragona or Leon.

Variation of population in metropolitan areas between 2008 and 2013



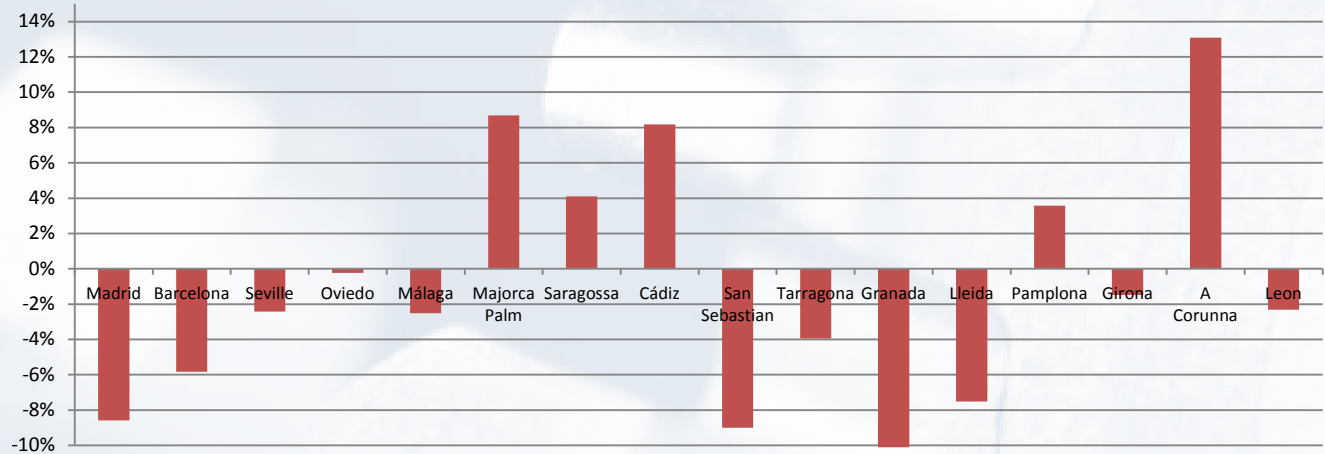
\*Seville, Malaga, Cadiz Bay and Granada have incorporated other municipalities into their jurisdiction over the years, which has caused major population variations.  
\*\*Lleida and Campo de Gibraltar, variation between 2009 and 2013.  
\*\*\*The loss of population in Tarragona is due to segregation of Canonja township in 2010.  
Source: compiled by authors based on data provided by the PTAs.

The economic crisis in recent years has influenced very strongly the **growing unemployment rate** in almost all metropolitan areas since 2008. In 2013 the average unemployment rate in the areas considered is about 22.8 %, lower than 2012 and the national average (25%) .



The effects and consequences of this economic crisis could be seen in the slight decline of the motorisation rate since 2008. This decline can be explained as it is related to the car use, which has been lower than previous years. Furthermore, inside the cities, the number of cars per 1,000 inhabitants is 4.6% lower than in the metropolitan areas, while the number of motorcycles is 6.4% higher.

Variation of the motorisation rate in cities (2008-2013)



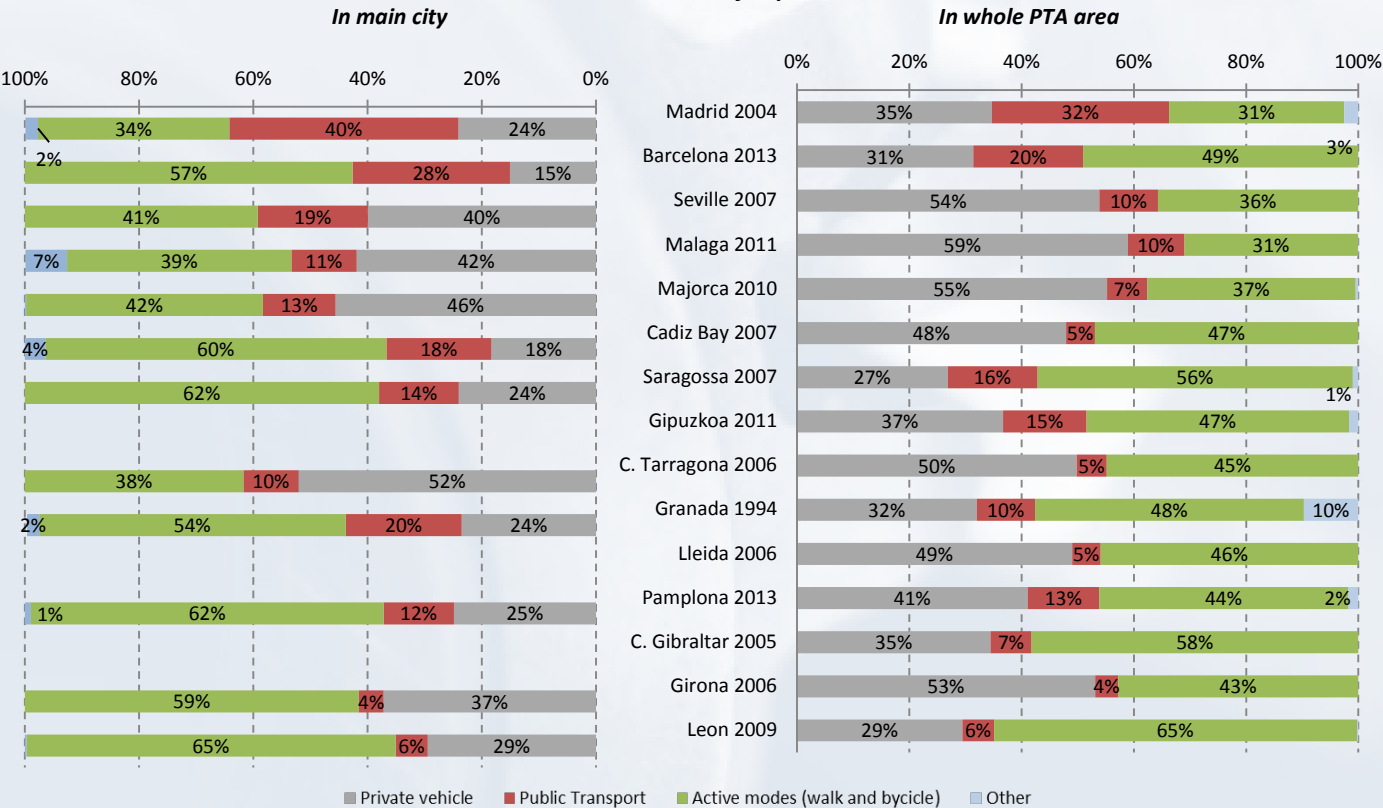
Modal Split

In trips for all motives, the average modal share for **public transport** in the metropolitan areas is more than 11%; however, in Madrid, it reaches a 31.6% while in Girona it is 4.1%.

On average, active modes (walking and cycling) account for 45.5% of the trips and private cars and motorcycles for 42.3%. It is remarkable the case of the two main big

cities, since Barcelona has a rate of 57.4% in active modes and Madrid accounts for a 40.1% of public transport trips. Those two cities show two different characteristics, while in the first one exists a deep-rooted habit of walking/biking, in the second one it is highlighted the high use of the public transport system.

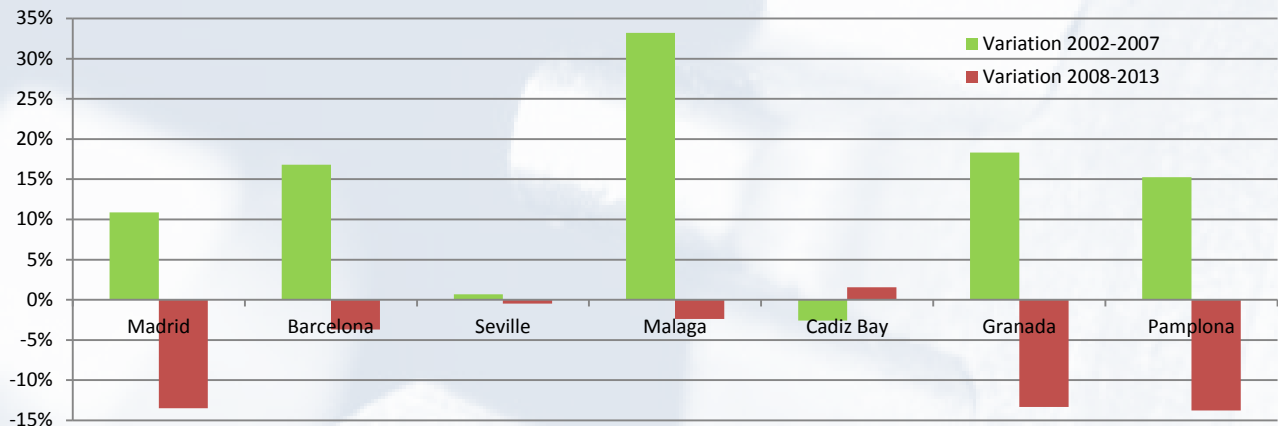
Modal share of trips



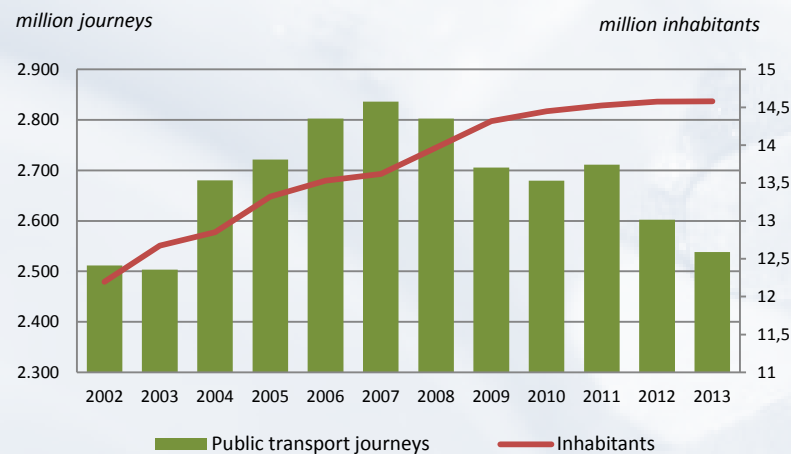
# Demand for Public Transport

If we consider the variation of the public transport demand between 2002 and 2013, two phases can be distinguished. First, the variation between 2002 and 2007 shows a general growth of a 12.7% in public transport demand, specially in rail modes journeys (22.6%) against the bus journeys (3.3%). And, second, the variation between 2008 and 2013 shows an **overall decrease of 6.5% in public transport demand**, according to the economic crisis.

Variation of public transport journeys between 2002 and 2013



Evolution of public transport journeys as compared to population



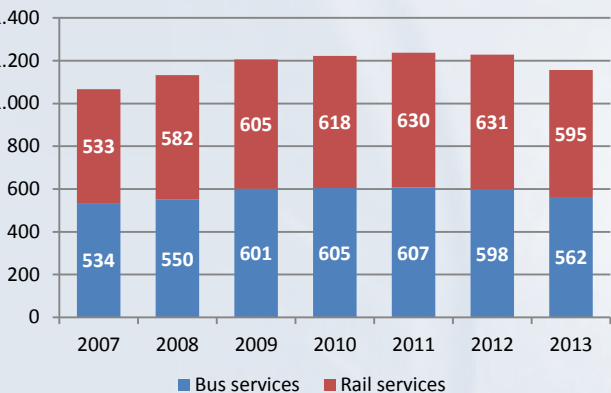
Since 2007 it could be appreciated the **clear decrease in public transport trips, getting even stronger since 2011**. Especially in bus services.

In spite of the decline in demand, the **supply of PT has remained steady until 2012**, when bus services started to decrease, as demand of bus services was especially low.

# Public Transport Supply

The supply of bus and rail services (in terms of vehicles-km) has increased over the years in most metropolitan areas until 2011 (buses) or 2012 (rail services). The decrease continued in 2013 to levels of 2008.

Public Transport supply (vehicles-km)

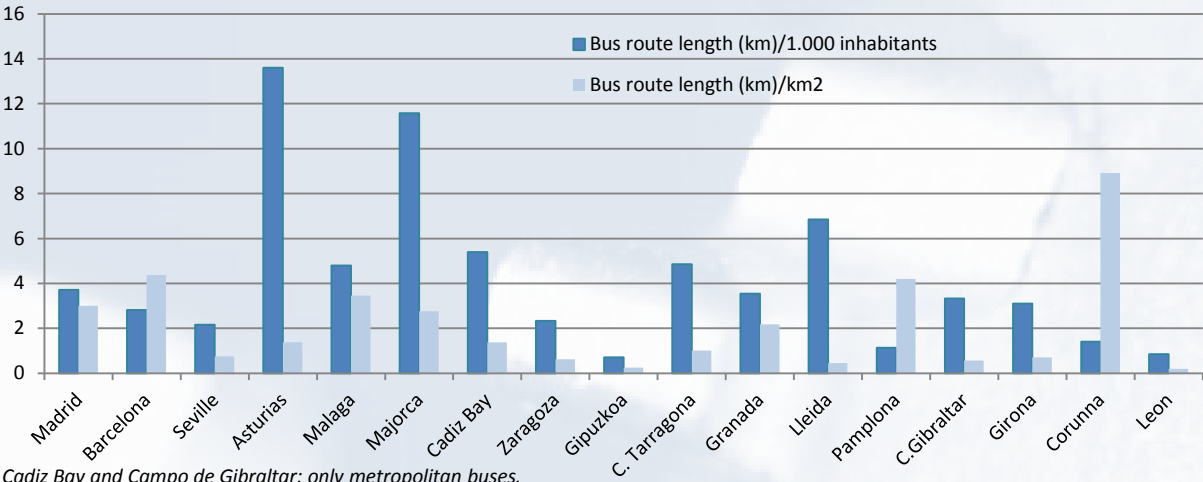


Concerning the **bus networks density**, it is between 2 and 5 km per 1,000 inhabitants in most of the Spanish metropolitan areas, being Asturias and Majorca above this value, with more than 10 km per 1,000 inhabitants, due to their special support to this mode of public transport. Relating route density with surface area, Corunna, Barcelona and Pamplona reach the highest figures, with 9 km/km<sup>2</sup>, 4.5 km/ km<sup>2</sup> and 4.1 km/ km<sup>2</sup>, respectively.

Since rail transports cover long distances as they are more efficient, the **rail network density** is higher for larger population's areas. The average in Spain is 160 km length per million inhabitants and 104 km per 1,000 km<sup>2</sup>, an average which is exceed in the case of Asturias due to the great length of FEVE commuter lines with a density of 355 km per million inhabitants, or in Lleida, with 245 km per 1,000 km<sup>2</sup>.

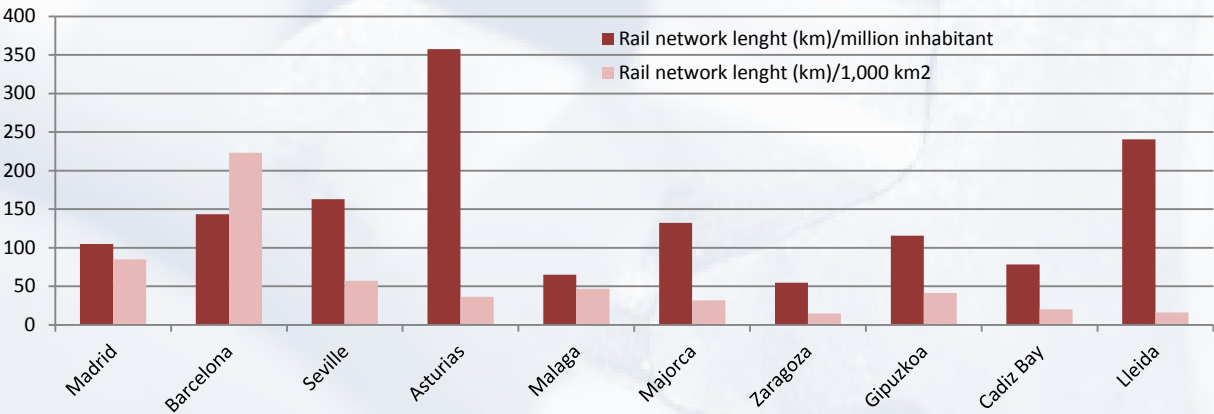


**Bus network density (2013)**



Cadiz Bay and Campo de Gibraltar: only metropolitan buses.  
Source: compiled by authors based on data provided by the PTAs.

**Rail network density (2013)**

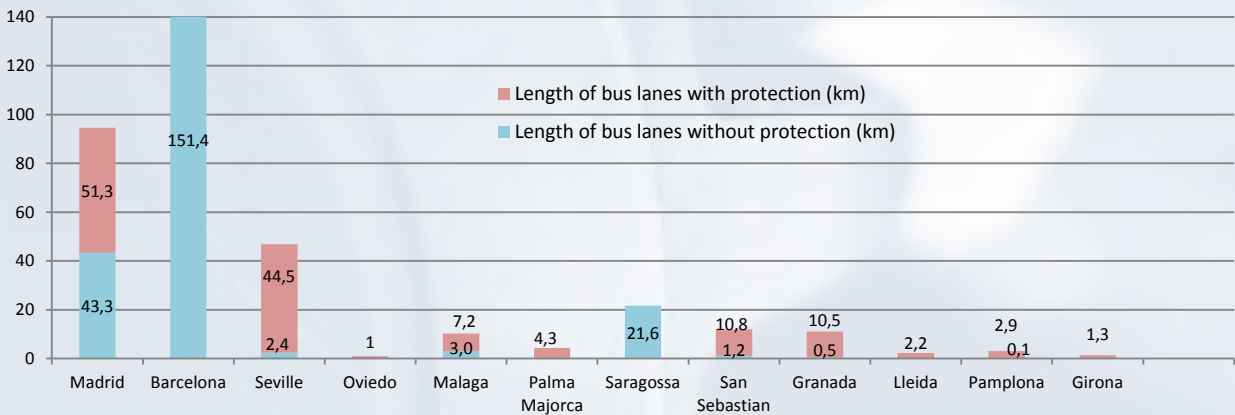


Gipuzkoa: the rail network managed by the regional government is not considered  
Source: compiled by authors based on data provided by the PTAs and the RENFE Directorate General of Passengers.

**Bus Lanes**

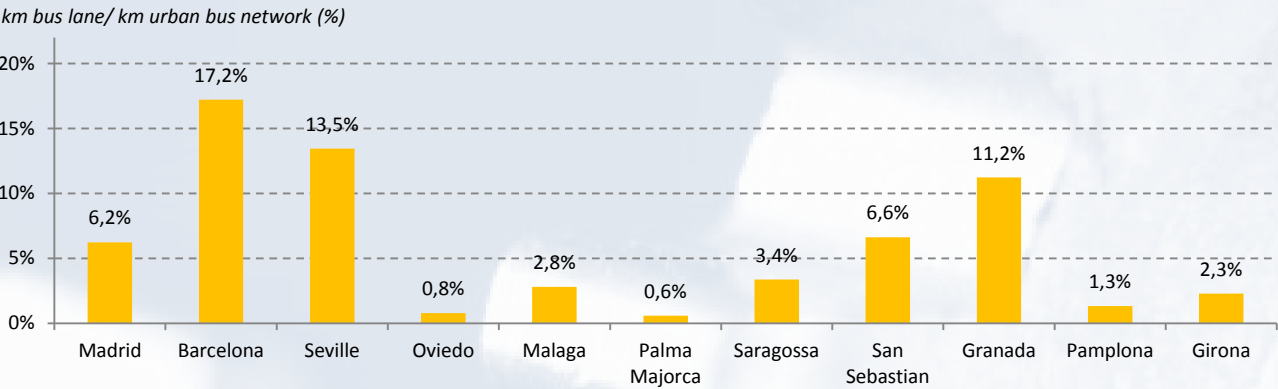
Buses operate most of the time in mixed traffic, so in order to be competitive with respect to cars, to improve their service and in matter of effectiveness, it is necessary to reserve space in the streets for its exclusive use, especially if they have a physical protection. In 2013, Barcelona presents the highest length of bus lane in its road network (151.4 km), although Seville is the city showing the highest ratio of bus lanes with protection respect to its total bus network (94.8%). They are followed by Granada, with a 11.2% of bus lanes on its road network.

**Length of bus lanes in main city (2013)**



Source: compiled by authors based on data provided by the PTAs.

Percentage of bus network with bus lanes in main city (2013)



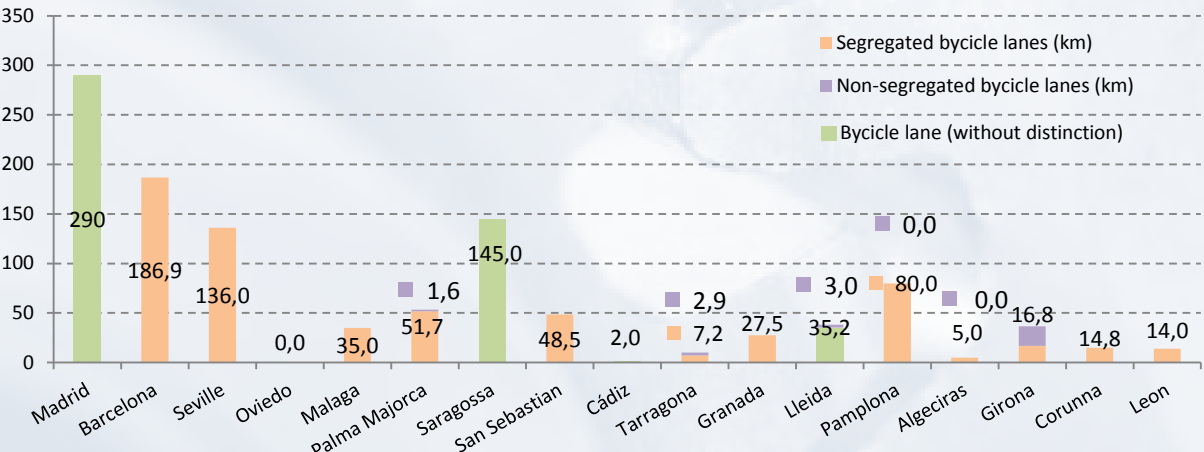
Source: compiled by authors based on data provided by the PTAs.

Bicycle Lanes

In order to promote an eco-friendly alternative way of transport it is important to improve the facilities of the bicycle in the cities, creating bicycle lanes on roads where traffic and speed of the vehicles are exceeding the limits. Therefore in the streets it is possible to find segregated and non-segregated bicycles lanes as well as mixed traffic streets, where cycling is allowed but it is not as safe as in the previous ones.

As seen in the following figure, bicycle lanes of all types have been increased among the years in Spain, especially due to the development of different public sharing systems, as it is the case of the city of Madrid.

Length of the bicycle lanes in the main city (2013)



Source: compiled by authors based on data provided by the PTAs.



Bicycle lane non-segregated in Madrid



Bicycle lane and public bike service in A Corunna

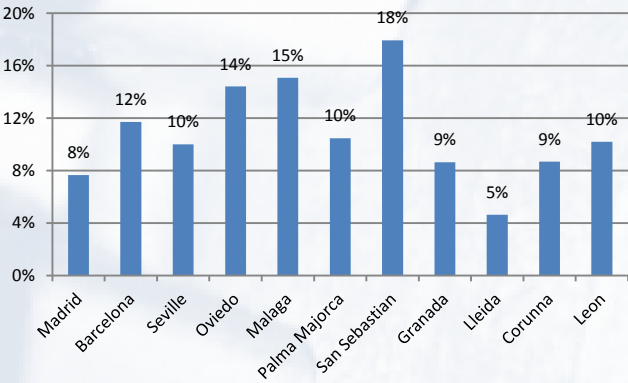
• **Quality of the PT Services**

In recent years, users increasingly demand a high quality public transport system. Thus, the quality of the service must be revised and improved frequently, involving some factors such as:

- **Frequency** at peak times: 3-5 minutes for metro services, 9-15 minutes for urban buses, 15-20 minutes for metropolitan buses and 5-7 minutes for suburban railways in Madrid and Barcelona.
- **Night services:** Generally it is easy to find night bus services during the week in the larger cities and at weekends in the rest of the cities.
- **Accessibility for disabled:** it is very developed in urban buses and trams services, where 100% of the fleet have facilities for this sector of the population.

- **Accessibility to public transport:** Over 90% of the population of the main cities live within 300 meters from a public transport stop, being Corunna the best example of this progress, with 100% of accessibility.

*% bus stops provided with real-time information screens (urban buses in main city)*



**Economic and fare-based aspects**

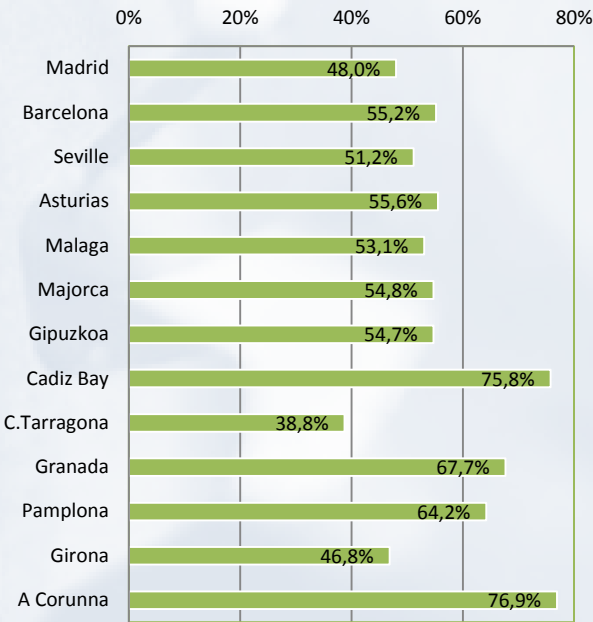
• **Ticket and fare types**

Fare types are different among some of the metropolitan areas due to the different systems employed: concentric ring fare systems, as Madrid or Seville, or fare zones dividing the region, as Barcelona or Malaga. Concerning ticket supply, the single ticket is the only one common for all the Spanish cities, as for the rest there can be found a huge range of different tickets, each one with its specific fare. One of them is the monthly pass, which is mainly used in Madrid by a 67% of the users, while in other cities it is being used a new smart card that allows the user to buy single trips with some discount, being the favourite type of ticket in Pamplona and Granada, used by a 83% and 60% of the users, respectively.

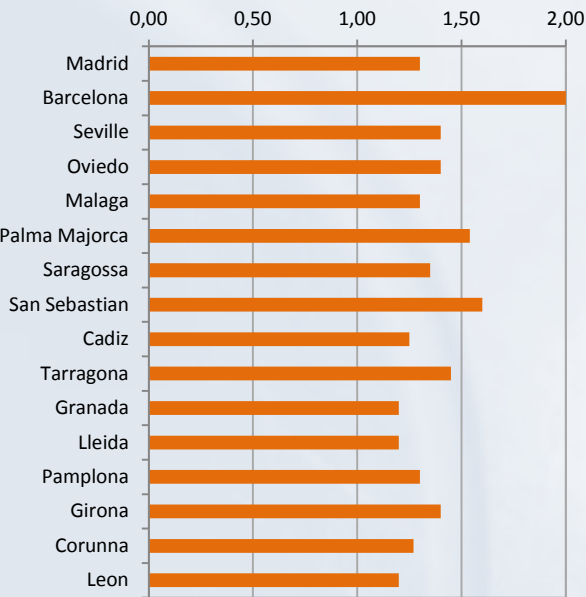
• **Coverage ratio**

The percentage of operating costs covered by fare revenue (coverage ratio) reached on average a 54% in 2013. In general, the greater metropolitan area, the lower coverage ratio (53%), while in small areas the coverage ratio grows until the 55%. The outstanding cases are in the one hand, Corunna and Cadiz Bay, with ratios of 77% and 76%, respectively, and in the other hand, C. Tarragona with a ratio of 39%. Finally, it is remarkable that Spanish results are better than European results, where the coverage ratio is on average 48.2% according to the EMTA Barometer, lower than Spanish one.

*Coverage ratio for public transport systems in metropolitan areas (2013)*

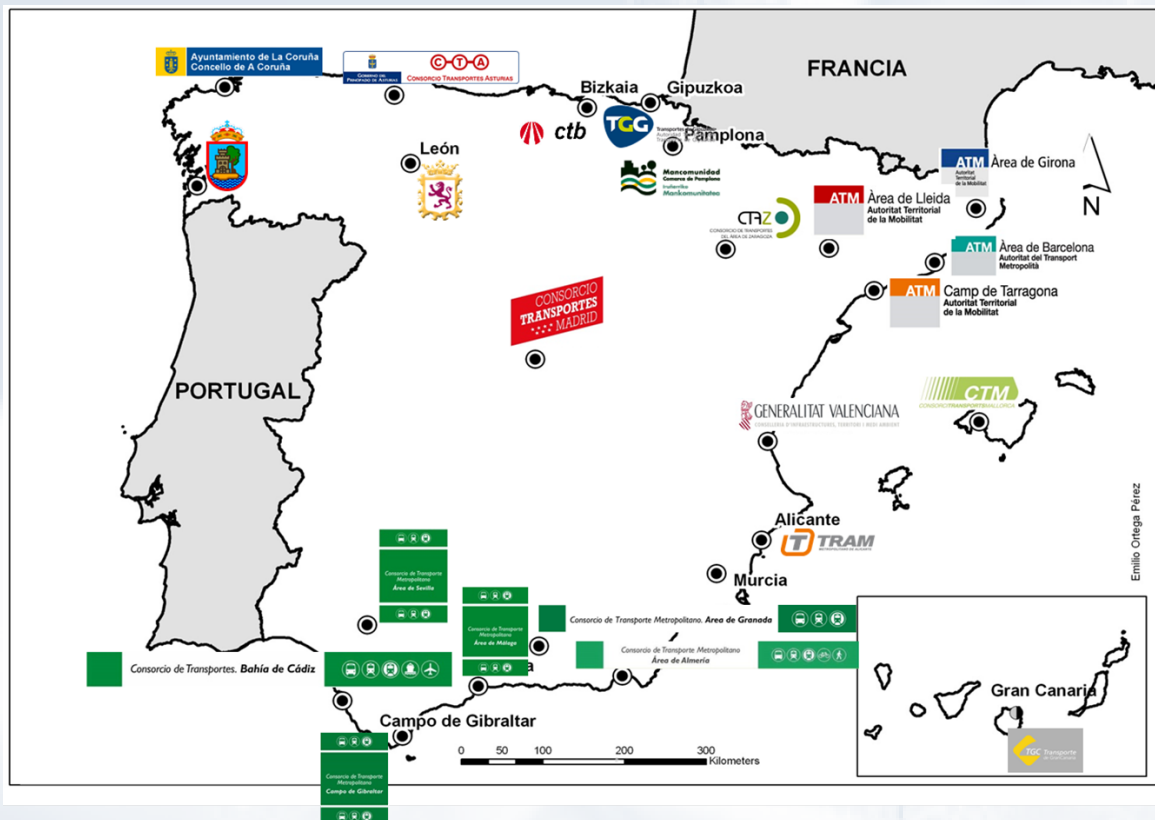


*Single ticket price for the main city (Euro, 2013)*



Not included data from Renfe. Cadiz Bay only metropolitan bus.  
Source: data provided by the PTAs.

Source: data provided by the PTAs.



## MEMBERS AS OF 1 JANUARY 2015

### PUBLIC TRANSPORT AUTHORITY

Consorcio Regional de Transportes de Madrid  
 Autoritat del Transport Metropolità de Barcelona  
 Conselleria de Infraestructuras, Territorio y Medio Ambiente - S.G. de Planificación, Logística y Seguridad  
 Consorcio de Transporte Metropolitano Área de Sevilla  
 Consorcio de Transportes de Bizkaia  
 Consorcio de Transportes de Asturias  
 Consorcio de Transporte Metropolitano Área de Málaga  
 Consorci de Transports de Mallorca  
 Autoridad Única del Transporte de Gran Canaria  
 Consorcio de Transportes del Área de Zaragoza  
 Autoridad Territorial del Transporte de Gipuzkoa  
 Consorcio de Transportes de Bahía de Cádiz  
 Autoritat Territorial de la Mobilitat Camp de Tarragona  
 Consorcio de Transporte Metropolitano Área de Granada  
 Consorcio de Transporte Metropolitano Área de Almería  
 Transporte Público del Área Metropolitana de Alicante  
 Mancomunidad de la Comarca de Pamplona  
 Municipio de Vigo  
 Consorcio de Transporte Metropolitano Campo de Gibraltar  
 Consorcio de Transporte Público del Área de Girona  
 Municipio de A Coruña  
 Autoritat Territorial de la Mobilitat Área de Lleida  
 Municipio de León

### REGION

Community of Madrid  
 Barcelona Metropolitan Region  
 Metropolitan Area of Valencia  
 Metropolitan Area of Seville  
 Province of Bizkaia  
 Asturias Region  
 Malaga Metropolitan Area  
 Mallorca  
 Gran Canaria  
 Metropolitan Area of Zaragoza  
 Province of Gipuzkoa  
 Cadiz Bay  
 Camp de Tarragona  
 Granada Metropolitan Area  
 Almeria Metropolitan Area  
 Alicante Metropolitan Area  
 Pamplona Region  
 Municipality of Vigo  
 Gibraltar Camp  
 Girona Metropolitan Area  
 Municipality of Corunna  
 Municipality of Lleida  
 Municipality of Leon

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