Abstract

In our current society, where cities and its surrounding regions become home of two thirds of the global population, transportation is one of the key elements. Urban mobility increases and takes place in an every time bigger area around the city.

This scenery needs of collective transportation. This work focuses on its systems and networks.

The aim of this study is to search elements, solutions and alternatives that help develop the territorial and urban planning of the transport's infrastructures, principally those related to public transportation.

This research considers those cities that constructed the first railway networks for passenger daily commuting and that actually have the largest ones (London, New York, Paris, Berlin, Tokyo). It considers as well two cities used frequently as a reference for Barcelona because of its land size and population (Madrid, Milan), and, finally, other global reference cities that constitute an example for their particular mobility scheme (Singapore, Los Angeles, Mexico DF).

This document begins with a study of a city and its metropolitan areas characterizing them by surfaces and resident population.

Then follows a comparison of the public transport's networks through their existing infrastructures and the operational figures. We distinguish between those systems that use railway infrastructures from those that use road infrastructures. However we look more in depth into the railway ones.

The approach used in the comparison is the map representation of the data used in a homogenous and understandable way, with every city represented at the same scale and with the same language in order to simplify its reading and comparison. There have been used simple and easily comparable indicators.

The comparison allows to define the city's characteristics and brings to light each city's remarkable aspects though it also shows the limited utility of this indicators to explain and justify the results obtained.

The reasons of those sceneries for the different cities are diverse. The existence of larger infrastructures is a necessary condition but not sufficient to ensure an efficient public transport system. Every metropolitan region establishes a certain scenario which combines its urban structure and typology together with a determined supply of transport infrastructures.

The indicators evaluated up to this point represent a piece of the mobility problem in big cities but a deeper analysis is needed to explain the characteristics and networks' operation of railways infrastructures.

This first part with its conclusions takes us to a second part where this deeper analysis is done and it finishes with an atlas of railway infrastructures, city by city.