Abstract

Nowadays, the Barcelona Metropolitan Region (RMB) is in an increasing demographic and economic process. Railway has to take advantage of this fact to become a competitive transport system. In this way, the competent organizations are promoting the use of public transport with several infrastructure and mobility plans. In this context, this study is a reply to the ATM’s necessity to do a rail network inventory. The subsequent analysis will help to write the Mobility Director Plan (PDM) giving the bases to the decision-making to do the necessary actions in the rail network.

RMB railway system has given structure to the territory since the second half of the 19th century. Its development has happened with heterogeneous initiatives that have generated four different rail networks. They give complementary services: urban (metro and tram) and short and long local trains, in public transport, and freight transport. At the same time, isolated development has led to a separated management of rail networks with independent managers: ADIF/Renfe, FGC, TMB (metro) and Tramvia de Barcelona (tram).

For every rail network, it was necessary to collect information. The dates have been inputted in a Geographical Information System in order to analyse them from two points of view: passengers and freight transport. The goods transport uses a lot of passenger infrastructure generating interference (It has been studied in the analysis).

The RMB railway situation diagnosis has been done from three points of view: the lines, the interoperability, the railway stations and the cargo terminals.

Lines analysis reflects the influence of the mobility increase, which means the rail traffic growth, in the RMB appearing several bottle necks and other limitations in the network (lack of infrastructure, capacity and design problems, etc.)

Interoperability analysis proves that, while it’s a very serious inconvenient in the international transport, the use of rail passenger networks for different managers, with their own trains, limits the problem. In freight transport, trains have to share the infrastructure in some cargo terminals so the problem is more serious.

The study of passenger stations represents the access to the railway system. In this way, there are two things which can help to improve services and to increase the use of trains: PMR adaptation and the Park & Ride construction. Managers have done a big effort in PMR to adapt the rail networks (not in the case of Renfe). P&R initiatives, in the Barcelona suburban area, with scattered population and industrial activity, are a big incentive to attract potential users.

With the link between the railway stations and the lines, it’s concluded that there is a relationship between the services and the lines commercial speed. In general, it’s demonstrable that shorter the distance between stations is, lower the commercial speed is, and vice versa.

Finally, cargo terminals offer in the RMB is insufficient. This fact becomes more serious because of the infrastructural deficiencies and the existing management and interoperability problems.