Abstract

Title: Improvement purpose of the Vic – Ripoll railway line
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Railroad line Barcelona-Puigcerdà is one of the only two railway routes that connect Catalonia with France. The other one is the Mediterranean Line which joints Barcelona with Portbou. While the whole route of the Mediterranean Line is double tracked, the line Barcelona-Puigcerdà is a single track railroad. Therefore, both lines show substantial differences, as far as the service they offer.

Barcelona-Puigcerdà railway line connects the capital of Osona region (Vic) with the capital of Ripollès region (Ripoll). But such capitals are also connected by road C-17, which is a highway from Barcelona to Vic and a single lane road per way from Vic to Ripoll. Considering the current conditions of both links, the government decided to act on the road network and to start the widening of the current road from Vic to Ripoll.

Barcelona-Puigcerdà railroad line, and especially its section between Vic and Ripoll, shows quite difficult commercial exploitation conditions. As it is a single track railroad and the route was built adapting it to the morphological features of Ter river basin, the exploitation of the line shows train intervals and commercial speeds which do not correspond to the importance of the link and it makes difficult to extract transport quota from the road link.

In view of the current situation of railway link, this minor thesis approaches the possible improvements to be undertaken in order to put the railway in real competition with other transport means, especially with the private car.

Firstly, the study investigates the current population of the towns and cities which the link pass through, in order to know first-hand how it has lately grown and to determine population trends. With this information, it can be determined either the current demand for transport or the possible future demand scenes.

Once the population is known, the current situation of either the road or the railway link is critically analysed. The purpose of the analysis is to determine sections or aspects to be improved for security reasons as well as for other reasons such as commercial speeds, traffic fluidity, comfort, etc. After analysing the road link, the minor thesis describes the improvement works that will be undertaken in order to check if the problems detected are solved and to determine which will be the possible future scene.

And after analysing the current situation of railway link, several works are proposed to improve the conditions of this link so that they guarantee a real competition with the private car. The objective is to achieve a diminution on the use of the private car and consequently, a reduction of CO₂ emissions. The works proposed can be undertaken either separately or combined in order to provide optimal results. These works deal with several aspects such as passengers comfort or travelling time and line capacity. A viability analysis is made for each proposal considering either the cost or the profit obtained from proposal application. In this way, it can be determined which proposal or proposals combination provides optimal results.

Finally, there is a comparison of the possible future scene between the railway link, with its improvement through the proposals given, and the road link, with its widening from Vic to Ripoll finished.