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# Mitigation Actions on bottlenecks for rail transport

## EXECUTIVE SUMMARY

The results derived from this activity aim to identify and mitigate the bottlenecks in the Lyon-Madrid axis to guarantee the working of the rail motorway.

A number of studies have been performed to this end, as follows:

- market study to identify the maximum volumes of the cargo that can be transported
- technical study to remove the technical rail barriers between Spain and France
- location study of the terminal in Barcelona
- financial study of future services

STUDIES CONDUCTED BY:  
**VIA (2015)**

The full documents are accessible to the project's Stakeholders Interest Group on the CLYMA website: [www.clyma.eu](http://www.clyma.eu)



DEVELOPMENT OF THE  
**CONNECTION  
LYON-MADRID**  
ON THE MEDITERRANEAN  
CORRIDOR



Co-financed by the European Union  
Trans-European Transport Network (TEN-T)

## Market study

The goal of the market study is to identify the volumes that can be transported at a competitive price via a rail motorway (RM) crossing the French-Spanish border.

The results of the study confirm the **relevance of developing a RM network in Spain for all tested lines except Madrid – Seville**, and establishing **international connections to Paris and Dortmund**, using realistic market share hypotheses and achievable objectives.

Two RM networks could therefore be linked:

- One connecting Spain with the **North of Europe through Barcelona**
- **Another network through Spain**, with potential terminals in Barcelona, Madrid, Valencia and Seville, as it is stressed in the *Logistics Plan to improve the competitiveness of industry (Nov 2013)*

These two networks would make it possible to link several terminals in Spain and Northern Europe, thus creating a European multimodal grid.

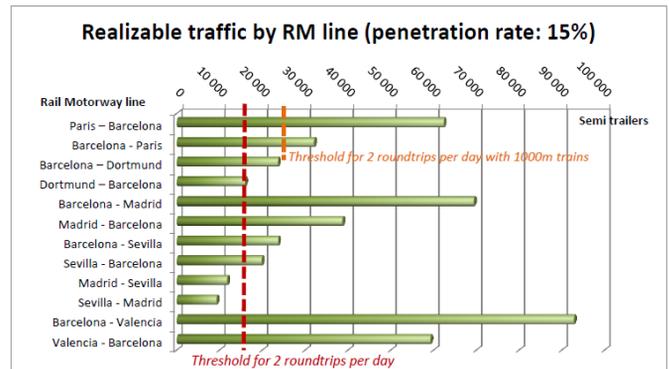
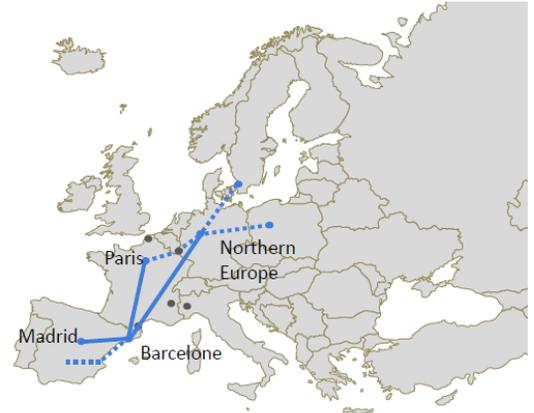


Figure 22 – realizable traffic by RM line from the study's results

### International lines from Barcelona:

- 3 round trips a day to Paris
- 2 round trips a day to Dortmund

### Iberian lines from Barcelona:

- Sufficient traffic to Valencia, Madrid and Seville

## Final Location: former river bed of the Llobregat in the Port of Barcelona



Terminal location in Barcelona

The working group identified that the most appropriate place to implement a motorway terminal in **Barcelona is the former bed of the Llobregat river**, close to the port. This location is very convenient because of its access.



## Remove technical rail barriers between France and Spain

The aim of this action is to remove technical interoperability constraints between France and Spain.

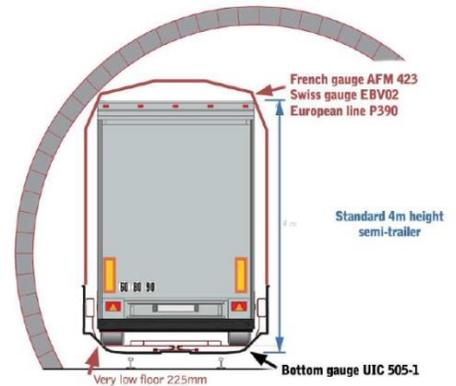
VIIA intends to operate the future services from Barcelona to France and Germany using the UIC line through the Perthus tunnel. To ensure that these services can run, it has performed a number of tests with rail motorway trains running along them.

- The first of these was performed along the cross-border stretch of the line through the Perthus tunnel, where there are 3 different safety and signal systems and 18 0/00 slopes.



In May 2013 an **844-metre long, 2,274-tonne rail motorway train passed successfully through the Perthus tunnel**. During the test, VIIA also checked the capacity of the train to start its engines on an 18 0/00 slope.

- In addition, rail motorway trains use Lorch wagons equipped with UIC gauge and it was necessary to validate the circulation of this kind of trains on the UIC line of the Spanish rail network.



In November 2015 a **train loaded with six trailers equipped with sensors ran successfully from Perpignan to Barcelona Can Tunis**. The Lorch UIC wagons are suitable for existing railway infrastructures and standard road equipment.

A working group was set up to implement these tests and carry out the technical study on infrastructures issues, slots availability, operational and financial aspects of the future services.



The future rail motorway terminal will use an intermodal technology (loading & unloading standard trailers - and craneable ones - in dedicated wagons) allowing a modal shift of trailers to ease the transition from road to rail and increasing maritime volumes.

The terminal will be managed by a private operator selected by tender. A business plan has been established by the working group based on a hypothesis of round trips from Barcelona to the Paris area and to Northern Europe at a second stage.

The **CLYMA** project consists of the implementation of the corridor approach to a section of the **Mediterranean corridor**, specifically to the Western part of the corridor and in particular to the Lyon-Madrid Axis.

The project comprises studies and actions on the organisation and optimal implementation of the **TEN-T network**, taking into account long-term perspectives, environmental aspects and associated needs, as well as studies that promote environmental sustainability, resource efficiency and low-carbon transport within an integrated transport concept. This should stimulate the deployment of the **Green Corridor concept**. The project also intends to develop a **managerial structure** for the intermodal corridor.



PROJECT OFFICE



Co-financed by the European Union  
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