

**Algeciras – Perpignan Trans-national
Railway Axis Dedicated Primarily to
Freight Traffic**

Madrid, February 2005

Algeciras – Perpignan railway axis dedicated primarily to freight. Morocco, Spain and France link.

This project encompasses a number of basic actions in order to put into operation a central Algeciras – Perpignan railway axis dedicated preferably to the carriage of goods, in order to capture road freight traffic between Morocco, Spain and France.

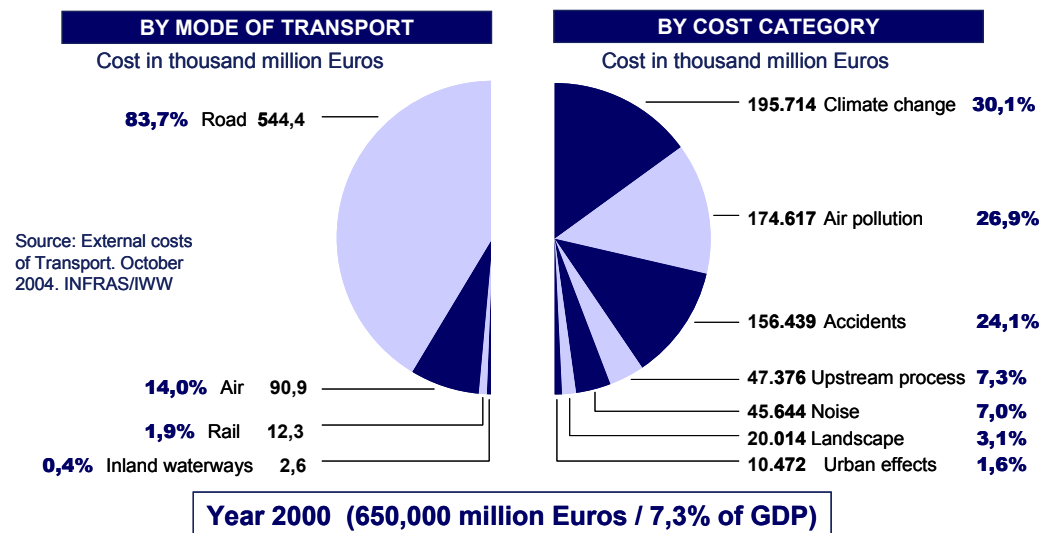
The economic feasibility of this project is supported on three fundamental pillars:

- The project seeks **to make use of the existing conventional railway line as far as possible**, enabling its preferred use for freight following the start-up of the last sections pending completion of the High-Speed line.
- The **trans-national nature of the project**, on connecting Morocco with Spain and France, is of significant political interest for Spain and for the European Union, as its objective is to strengthen trade with North Africa, and most specifically with Morocco. Moreover, it can be subsidised with European funds (up to 30%).

In addition to the foregoing, this project is in line with the ERRAC (*European Rail Research Advisory Council*) “*Strategic Rail Research Agenda 2020*” created by the European Commission and which recommends the establishment of a 15,000 km-long railway network, dedicated preferably to the carriage of goods.

- Likewise, it is particularly important to consider **the potential savings in external costs** that would be achieved by the shift from road to railway. The analysis of external transport costs made by the *INFRAS* and *IWW* institutes calculates the impact of the external transport costs at 7.3% of the GDP of the EU-17 without including congestion, with more than 80% of such costs being produced by road transport.

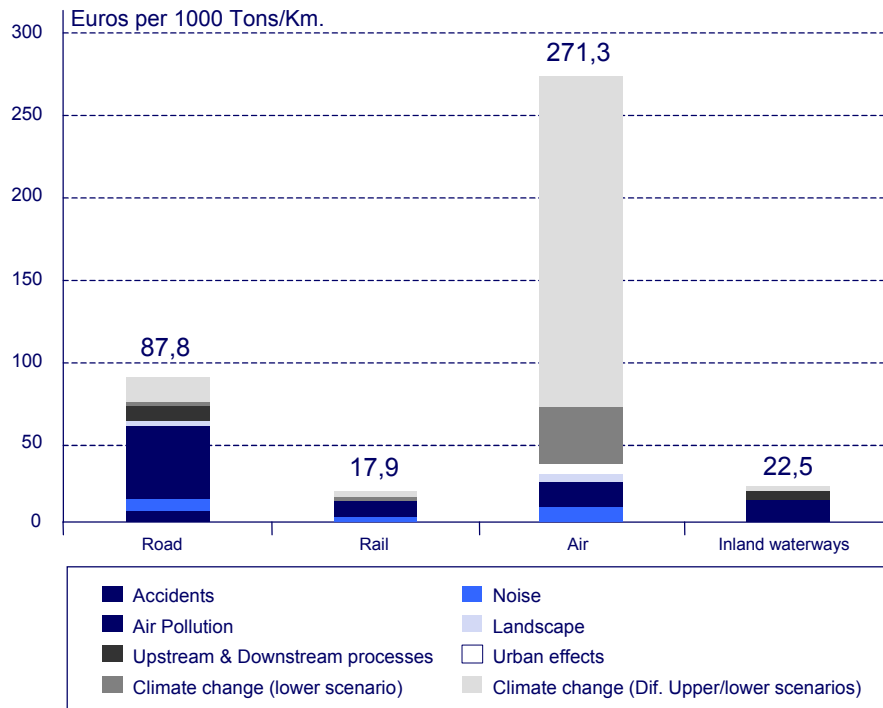
External costs of transport UE-17* (without congestion)



* UE-15 plus Switzerland and Norway

In addition to the foregoing information, we should take into account that in the carriage of goods, road transport involves external costs that are 4.5 times greater than those of the railway: 88 € per 1000 T-km for road transport in comparison to 18 in the case of the railway:

Average freight external costs of transport in 2000 (without congestion)



According to the values estimated, there is a possibility of shifting a total of 4,670 million TM-Km per year from the road to the railway (see the following section), **so the savings in external costs would amount up to 275 million euros per year.**

Traffic volumes capable of being shifted from the road to the railway.

There are three kinds of road freight traffic capable of being shifted, in part, to the railway:

- The traffic of lorries that cross the Strait and have their final destination in Spain and North of the Pyrenees, as well as their return.
- The traffic of lorries originating in Spain with an international destination (except Portugal), and their return trips.
- The traffic between Spanish Autonomous Communities (ACs) over a distance of more than 500 Km and which could take advantage of the new railway axis.

In the traffic data set out below, it has been estimated that only vehicles of more than 18 tonnes would be able to “migrate” to the railway, which would mean 100% of the vehicles that cross the Strait, 82% of the international traffic of the ACs and 49% of the inter-regional traffic between ACs.

1. Traffic originating from Africa and returning to origin.

Each year, 60,000 lorries cross the Strait heading for a destination beyond the Pyrenees, while an equal number travel the same route back. A significant part of this traffic involves the transport of fruit and vegetables from North Africa.

For the Algeciras – Perpignan axis feasibility plan, it has been estimated that 35% of the traffic on that route would use the railway. The total number of tonne–kilometres that is expected to be carried would be on the order of 810 million.

2. Road traffic originating in Spain with an international destination (except Portugal) and returning to origin.

A portion of the international road traffic of a number of ACs will use the railway axis due to the long distances to be travelled. The ACs whose traffic has been considered likely to use the axis are: Andalusia, Castile La Mancha, Extremadura and Madrid.

For the Algeciras – Perpignan axis feasibility plan, it has been estimated that between 25% and 35% of that traffic (depending on the distance) would shift to the railway. The total number of tonne–kilometres that would be carried is expected to be on the order of 2,145 million.

3. Traffic between Autonomous Communities (ACs).

It has been estimated that a portion of the traffic between ACs at a distance of more than 500 Km will also use the railway axis in part, due to the lengthy distances involved. The traffic between ACs that is likely to use the axis includes: Andalusia – Catalonia, Andalusia – Aragon, Extremadura – Catalonia, Madrid – Catalonia and Castile La Mancha – Catalonia.

For the Algeciras – Perpignan axis feasibility plan, it has been estimated that between 20% and 30% of that traffic (depending on the distance) would shift to the railway. The total number of tonne–kilometres that is expected to be carried would be on the order of 1,710 million.

Actions to be undertaken on the Axis.

The most relevant actions to be carried out on the Algeciras – Perpignan axis must be aimed at achieving and ensuring the highest output possible in the operation of the future freight line.

- Algeciras – Bobadilla alternative route. The existing lay-out of the line between Algeciras – Bobadilla has upgrades of 20 thousandths (on exceptional occasions as much as 26 thousandths) and curves with a radius of 300 m, preventing an appropriate exploitation of that section as a future rail freight axis. In order to overcome this difficulty, we need to examine the improvements necessary or lay a new section for the stretch between Algeciras – Bobadilla, for which purpose it will be necessary to also examine the possibility of using some sections of existing abandoned railway tracks used as nature or cycling trails (Jédula – Almargen).

The investment estimated for this section should not exceed 150 million euros.

- Bobadilla – Cordoba: the conventional track can be used, as it will be considerably relieved from traffic once the High Speed branch line to Malaga has been completed. A by-pass around Cordoba is foreseen in order to avoid congestion by traffic.

The estimated investment for this section is calculated at:

- 5 million euros for the lengthening of 5 sidings/stations to accommodate 750-metre trains (total distance of 100 Km, possibility of manoeuvres every 20 Km).
 - 20 million euros in order to make a 20-Km-long by-pass around Cordoba (1 million euros per Km for a single unelectrified freight track).
- Cordoba – Madrid: the conventional track can be used, as it currently has significant capacity available since the entry into operation of the High Speed train (AVE) in 1992.

If some passenger traffic is maintained in this conventional line, it might be necessary to build some siding lines to allow 750m freight trains to facilitate both traffics management. No investment has been considered to be assumed by the freight traffic as this would a requirement of passengers, and if this is the case, it should be financed by them.

- By-pass around Madrid. The current times for passing through Madrid, due to the priority of commuter trains, also requires making a new by-pass or railway loop that would significantly reduce the present crossing-through times.

The estimated investment for this section is calculated at 70 million euros in order to make a 70-Km-long by-pass around Madrid (1 million euros per Km for a single unelectrified freight track).

- Madrid – Saragossa – Barcelona: the plan is to use the conventional line, which should have sufficient capacity once the new high-speed line is in operation (last part from Tarragona to Barcelona will be opened in 2007). It may be necessary to make a small by-pass in Saragossa.

The estimated investment for this section is calculated at:

- 30 million euros for the lengthening of 30 sidings/stations to accommodate 750-metre trains (total distance of around 600 Km, possibility of manoeuvres every 20 Km).
 - Same comment with respect to the possible need of longer sidings as in the Cordoba – Madrid stretch.
- By-pass around Barcelona. The same situation occurs in Barcelona as in Madrid, making it necessary to solve the current problems existing in rail traffic in order to pass through the city.

The estimated investment for this section is calculated at 40 million euros in order to make a 40-Km-long by-pass around Barcelona (1 million euros per Km for a single unelectrified freight track).

- Barcelona – Port Bou / Cerbere: once the high-speed rail link with France is finalised, the conventional line will be relieved of long-distance passenger traffic. Nevertheless, it will continue to be a congested section, given the large volume of commuter traffic, for which reason, several sections of parallel track over a number of kilometres is planned, in order to enable the passing of trains. The objective is to significantly increase the capacity of the track.

The estimated investment for this section is calculated at:

- 25 million euros for the construction of 5 stretches of 5 Km each to enable the passing of trains in the most highly congested section: Barcelona – Gerona (at 1 million euros per Km for a single unelectrified freight track, 1 stretch every 20 Km approximately).
 - 10 million euros for the lengthening of 10 additional sidings/stations to accommodate 750-metre trains.
- Port Bou / Cerbere – Perpignan: contacts must be established with the French authorities in the Languedoc Roussillon region in order to determine the actions necessary with respect to the lay-out of the line. This is essential not only in order to complete the estimates of the investment necessary, but also in order to examine the possibility of incorporating part of the traffic sent by sea from North Africa to French ports into the axis.

The **total investment** for the line amounts to **approximately 340 million euros** broken down as follows:

- 150 million euros for the Algeciras – Bobadilla alternative route.
- 150 million euros for the city by-passes.
- 40 million euros for passing stretches and the lengthening of sidings/stations to accommodate 750m-long trains.

Parallel to the foregoing, in order to expand the possible scope of action as much as possible, we feel that it is important to study the construction of intermodal transport stations at certain points on the railway axis, such as Linares, Cordoba, Seville, Madrid, Saragossa and Barcelona, with the objective of incorporating into the railway axis the road freight traffic originating within a radius of action of 150 -200 km from each intermodal transport station. The way to finance these intermodal platforms could vary considerably, ranging from full financing by private initiative to funding by local or Autonomous Community government authorities or local councils, as has occurred in the case of a number of logistics platforms.

It is important to state that the biggest shift to rail will be done by the road companies that are already handling these volumes of traffic. They would be willing to put their swap-bodies on the train rather than sending their drivers all the way by road.

