

STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

- National and international intermodal corridors: their definition, the priorities of intervention and the main actions to improve infrastructures.
- The intermodal network nodes: their hierarchical organisation and multimode and logistic functions.
- Port intermodality: rail access, terminals and logistic activities zones.
- Rail node intermodality: functionality, road and rail access and logistic integration.
- Airport intermodality: air cargo centres and cargo facilities, and integration into the logistic environment.
- Route nodes: functions and centres.
- Non-infrastructure actions: for rail competitiveness and backup to get cargo off the roads, training, new technologies and promotion of short sea shipping traffic.
- Territorial intermodality coordination plans: intermodal plans at a regional or local level.

The map in Figure 31 shows a prospective scheme for this structure of trunks and nodes, based fundamentally on the present situation and action under way. It thus has no prescriptive force: any necessary decisions will in any case be taken as part of the Intermodal Goods Transport Plan.

That Intermodal Plan will on the other hand deal with these matters in terms of the territorial coordination of intermodality, and so include the following:

- Coordination of transport infrastructure policy and services.
- European and supranational coordination.
- Coordinated territorial policies and action (the state, the autonomous communities and local authorities).
- Programs of coordinated action at logistic nodes and in goods transport.
- Coordinated public and private action.
- Regulatory action and that in the institutional framework.

6.7.3. The structure of an intermodal network in Spain: corridors and nodes

The intermodal network is structured on international and national nodes, most of which offer all forms of transport, connected by both rail trunks and high-capacity roads. In rail terms, these nodes have adequate facilities, and the network joining these points must have a capacity for goods trains at least 600 m long, as is habitual in the rest of Europe.

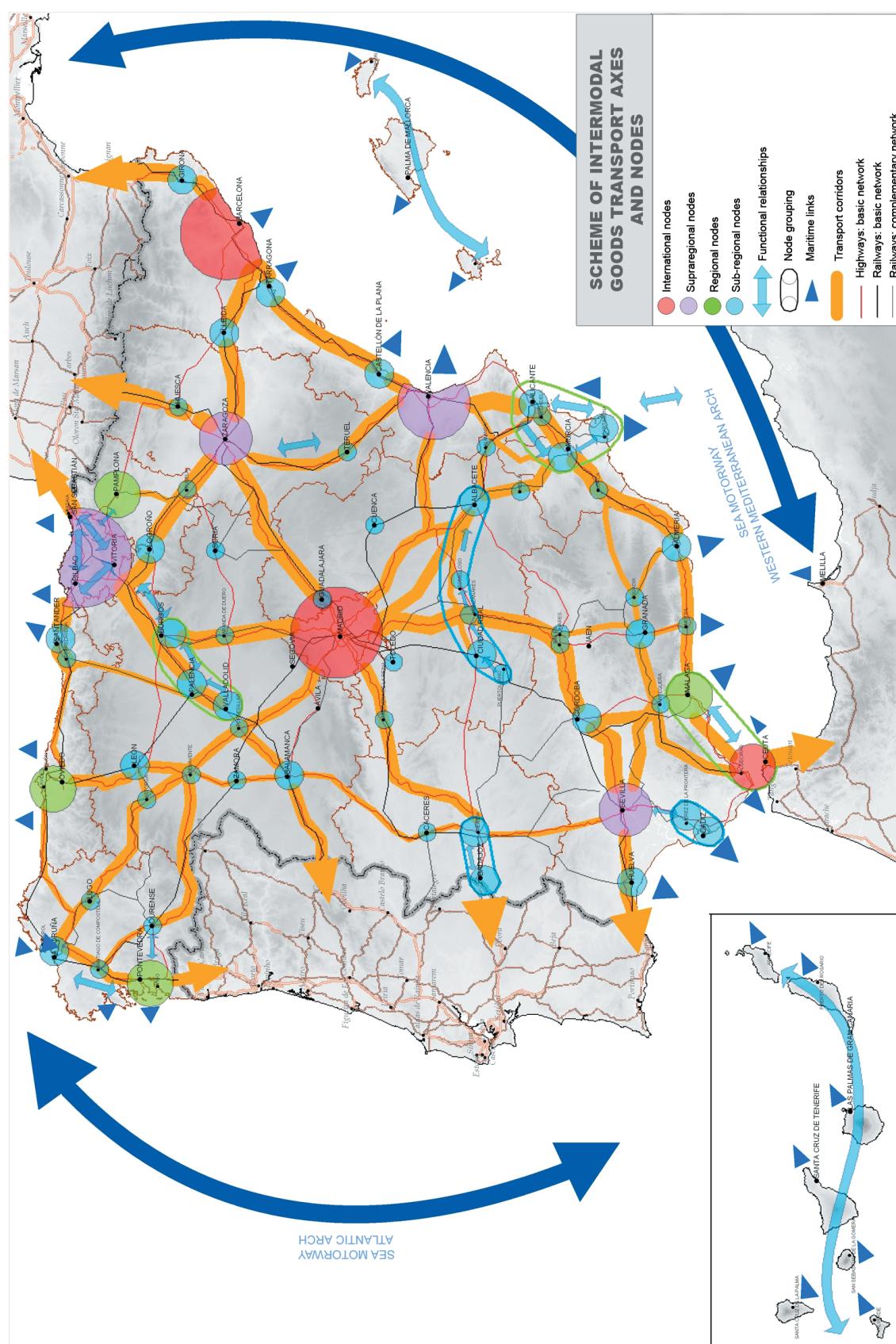
6.7.4. National and international intermodal corridors: the main actions

The main national combined traffic corridors are on the Mediterranean Axis, the Central Corridor (Asturias-Madrid, Basque Country-Madrid and from here to Andalusia) and the Ebro Axis. Traffic levels are also significant in the Madrid-Levante Corridor.

The importance must be highlighted of the traffic at the border crossings at Irún and Portbou, and in Badajoz, at somewhat lower traffic levels.

STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

FIGURE 31. Intermodal goods transport axes and nodes



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

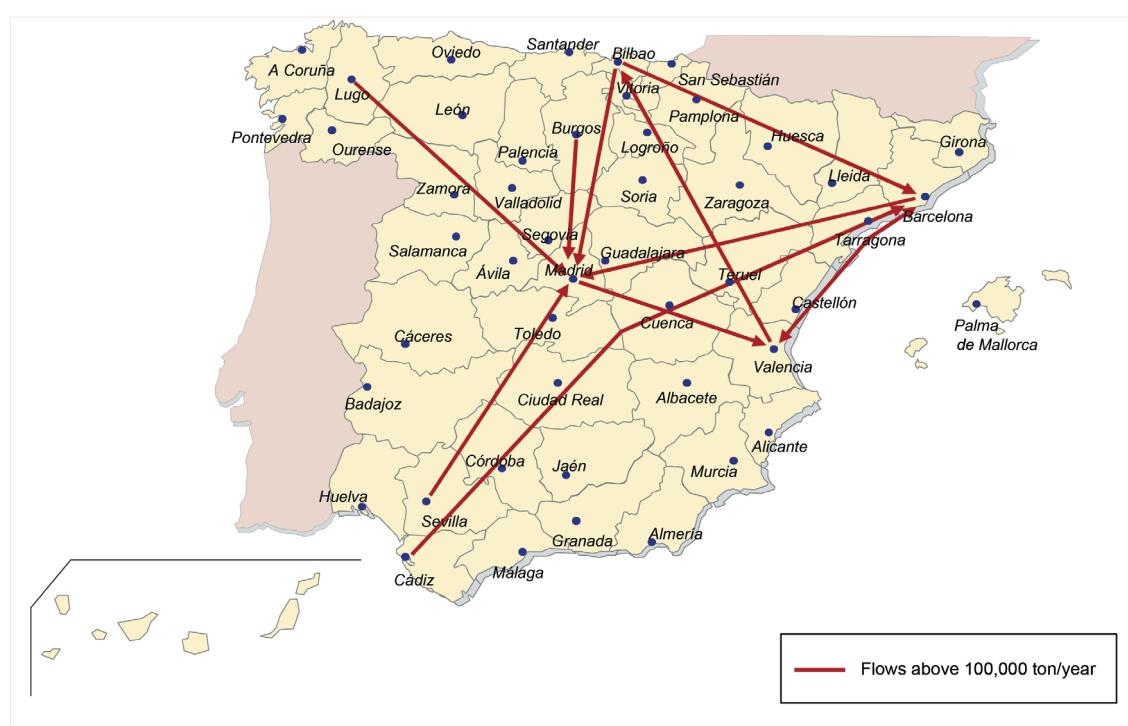
Other corridors of great importance because of their goods traffic by rail are the connections with Galicia and the Galicia coastal axis, the Madrid-Badajoz-Portugal axis, the access to Cantabria, and the Andalusian corridors to Cádiz, Huelva, Algeciras and Málaga.

The priority actions in these corridors are the creation or consolidation of logistic platforms linked to existing and planned combined-transport rail terminals in the main intermodal transport corridors.

The system's insertion into the international corridors requires completion of the main international connections (Portbou, Irún and Badajoz), so that interoperability with the French and Portuguese systems is essential, and including a shift to UIC gauge at the first two and, at the third, in coordination with Portugal.

It will be a priority to invest in the creation of logistic interchange facilities using both gauges, located between the conventional network and the new one, and the boosting of the central Pyrenees link, guaranteeing the corridor's continuity with the rest of the Community rail system.

FIGURE 32. Main combined transport flows (national, 2002)

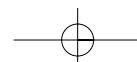


6.7.5. Intermodal network nodes

Nodes are critical points for the functioning of the transport system, whose efficiency depends on the role they play.

This is particularly decisive in the case of the goods transport system and logistics. The nodes are influenced by the various aspects of the system's three key factors: capacity, time/deadlines and quality.

The goods transport nodes are points of fracture for cargo or for traction, where a substantial part of the chains' total costs are concentrated, and decisive in the system's



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

“overall logistics bill”. These fracturing processes represent quantitative leaps in cost and time in the goods flowchart.

Intermodality is decisive in the structuring of the nodes:

- Sea-land intermodality: the correct organisation of road and rail accesses to ports, integration of terminals, and the promotion of Port Logistic Activities Zones.
- Air-land intermodality: promotion of Air Cargo Centres and Airport Logistic Centres.
- Rail-road intermodality: the creation of the right network of rail nodes, and road access to stations, and the concentration of logistics platforms integrated into rail terminals.

Node potential should not in any way be limited to the processes for intermodality or change of mode, but must extend to multimodality in its entirety, that is, the availability of a range of modes and options for the channelling of goods by the end loaders (logistic operators or industrial enterprises) in a given field, so that multiple options are available depending on the type of cargo and the logistic urgency. This multimodality is a decisive factor for the range and level of quality of a given logistic node, conditioning as it does a substantial part of the logistic, entrepreneurial and productive functions located at and associated with that node.

The transport nodes are also configured as areas of potential economic development linked to the introduction of infrastructures and activities of an economic nature, and their impact in job-creation, investment, increased productivity or the diversification of the economic fabric.

The future logistic and goods transport system is structured around a hierarchical network of multimode nodes (at the international, national or supra-regional and regional levels). These form a principal part of the system of cities, they are completely integrated into the territory, and they constitute centres of logistic articulation with their hinterlands.

120

To deal with the territory as a whole, this network is complemented with a series of nodes which will need strengthening and consolidation, right now of more reduced scope, such as those located on the transverse Castilla La Mancha axis or the Extremadura axis, and others of a local nature in the main goods transport corridors, whose operability will thus be enhanced.

This system supports not just the structure of the traditional corridors (radiating from the centre, the Mediterranean trunk, the Ebro corridor), but also some alternative transversal routes, and particularly the Valencia-Zaragoza-central trans-Pyrenees corridor, and the transverse Castilla La Mancha axis.

Cross-border logistic links will also be enhanced, not just the trans-Pyrenees route (the Atlantic, Mediterranean and Central corridors) but also the connection with Portugal (the Atlantic axis, the Valladolid-Portugal corridor (the N-620 highway), the axis with Lisbon and Sines, the Sevilla-Huelva-Algarve axis).

6.7.6. Port intermodality

Structuring of the port logistic nodes must take two aspects into account: on the one hand, the importance of the port node (internationally, supra-regionally or regionally)



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

and, on the other hand, its logistic potential, linked to existing or planned Port Logistic Activities Zones.

Most ports share the problems of land access, because of surrounding urban growth. There are in fact currently problems in rail connections to the majority of ports. Rail accesses are subject to particularly intense pressure which has to be dealt with as part of urban planning so as to make transport requirements compatible with the current situation, and to prevent problems from becoming more acute in the future.

These matters are considered in greater detail in Section 6.5 on sea transport and ports.

The Logistic Activities Zones (ZALs) are an element of great importance in the intermodal transport chain, and are configured as territorial nodes which generate economic activity linked both to transport and logistics and to productive activities. Only the ZAL at the port of Barcelona is currently in operation, but there are plans for such zones at most Spanish ports, at various stages of development and which must be fomented.

6.7.7. Rail node intermodality

Because of the significant growth in combined transport in recent years, this has been converted from an aspect of residual capacity to situations of saturation at some existing terminals, particularly in the areas of Catalonia and Madrid.

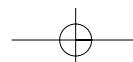
This situation had already arisen elsewhere in Europe, and the spectacular growth in traffic foreseen by the rail operators (trebling the physical units transported in the period 1990-2005) will not be able to be dealt with overall, partly because the necessary infrastructures are not available.

In the sense, the concept of the "terminal" has evolved, and it is now widely accepted that, without adequate terminals, growth in combined transport will not be possible, the terminal being a key facility where the transport is organised, and which has extended its function to the current conception, where it is a centre for mode interchange and logistics involving multiple activities, whose synergies enhance its capacity to generate transport, and able to carry on logistic activities of great added value.

In parallel there is at this time a liberalisation process under way in Europe which, as it moves forward, makes evident the need for clear structures to manage Combined Transport terminals, which guarantee that all operators are treated equally, and for transparency of rates and the conditions in which they are applied, along with the provision of consistent, certified services in all terminals.

The proposal on logistic rail nodes developed in the future Intermodal Plan can be structured by organising existing terminals into a hierarchy in three large groups, complemented by new areas with development potential. Those highest in the hierarchy would be terminals like Madrid, Barcelona (both with saturation problems), Bilbao, Valencia-Silla, Irún or Portbou.

The future of the border rail installations at Irún-Hendaya and Portbou-Cerbère requires specific analysis of the future scenarios in the context of the introduction of the UIC gauge into the Spanish network, and its connection with the French system. The design of future border facilities must be coordinated with the French authorities.



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

6.7.8. Airport intermodality

The objective is to structure the airport logistic nodes around the Air Cargo Centres, integrating them into the intermodal system, to secure more competitive air cargo services.

The Intermodal Plan's proposal for Logistic Airport nodes can be structured into three large groups:

- Air Cargo Centres (mainland or regional nodes): logistic parks specialising in air cargo.
- Airport Activities Parks: installations for air cargo and other logistic and service activities.
- Air Cargo Terminals at airports with less traffic.

The Plan must take account of airports which might draw cargo away from the large Air Cargo Centres.

6.7.9. Highway nodes

The Mediterranean Axis, the central Axis, the Ebro Axis, and those from Madrid-Barcelona-French border and Madrid-Levante are the trunk routes with the most intense traffic in goods transport by road, followed by the corridors to Galicia and the connections with Portugal (see Figure 24).

The road logistic nodes can be structured into two large groups: intermodal logistic nodes and road transport centres, in operation and those planned or possible.

Intermodal logistic nodes are those where two or more modes of transport converge, and their organisation must make the most of their multimode conditions to develop logistic infrastructures as backup to economic activity. The following can be identified as international or supra-regional intermodal nodes: the Area of Madrid, the Area of Barcelona/Catalonia, the Area of the Basque Country, and Valencia, Zaragoza, Algeciras and Seville.

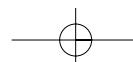
The aim of the road transport centres is to provide service not just to through traffic but also to transport and logistics companies. They are located on the main corridors for the road transport of goods and, as a priority, at nodes where several of these corridors converge.

6.7.10. Non-infrastructure actions

This section includes the policies and services related to intermodal transport and the progressive incorporation of environmental criteria and principles of sustainable development into logistics activity.

For transport-related policies and services, the following can be mentioned in the short term:

- Domestic rail competition: the success of the development of intermodality demands an ambitious program of support to new intermodal transport operators.



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

- Actions to foment the shift of cargo to rail, aimed at achieving a new modal equilibrium of greater economic and environmental efficiency. These actions must be aimed particularly at enhancing the conditions for change in road operators according to the possibilities for cooperation with the rail operator, and the availability of and access to rail infrastructures permitted under the new rail legislation.
- These actions will also include support to existing goods operators, including the rail operators, to make them genuine Europe-wide logistic operators, promoting policies for alliances, the sector's technological development and the interoperability of goods traffic in areas such as traction and the regulation of services, personnel authorisations, operational regulations and training.
- Technological programs for collaboration between operators and as backing for training in new intermodal transport techniques.
- Collaboration with regional and local public institutions to reinforce and promote intermodal logistic infrastructures.
- Flexible processing/operation at ports for short sea shipping traffic.

And, medium- and long-term:

- Support for new rail operators.
- To intensify policies backing understanding and collaboration among rail, road and short sea shipping transport operators, focused basically in the areas for the commercialisation of services.
- Support for the generalised introduction in the sector of new techniques, technologies and thinking.
- The integration of environmental variables from the very outset of planning must cover not just the activities of the Administration but also those of the operators themselves, with the inclusion here of environmental targets. It will be essential to this process to fix design and operational criteria which as far as possible minimise the negative impact on the surroundings, and foment the launch of practices in areas like urban and inverse logistics.

123

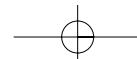
6.8. INTERMODAL PASSENGER TRANSPORT

6.8.1. Priorities

The backup to passenger mobility is formed by the system made up of networks, nodes and services. The interchanges are the system's universal joints, enabling interchange between its services or different modes of transport.

The development of intermodality in passenger transport is structured through an Intermodal Passenger Plan to be drawn up within a year following the approval of the PEIT, and which will define the strategy for attaining the objectives set out below.

During the first phase (2005-2008) the objective is focused on establishing the bases for the intermodal passenger system, through timetable coordination and the physical integration of the transport modes. The improvements foreseen in the rail system will also make it possible to consolidate this coordination so that it does not become an element of divergence in the system.



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

Service coordination and, in particular, the fomenting of services for passenger transport by road feeding into the system's nodal points (airports, railway stations ...) may require a specific revision of the existing legislative framework, and the creation of appropriate mechanisms to facilitate its introduction and guarantee its quality and coordination with other existing connections.

Intermodal passenger transport priorities. 2005-2008

- Review of the framework of concessions for road transport of passengers, introducing systems to stimulate competition and quality: evaluation and monitoring of service quality, promoting the reduction of concession terms to 6-10 years as a reference, although it may be necessary to fix longer terms in some conditions of low demand, or others.
- To locate Long-Distance, Regional and Commuter rail services in the same station.
- To stimulate construction of intermodal intercity rail/bus stations, mainly in medium-sized cities, and enhanced pedestrian connection between railway and bus stations where they are located close together.
- To promote "shuttle" bus services between population centres of a certain size and airports and stations with High-Performance services.
- To enhance the connection of rail (regional or long-distance) and rural transport services. – Coordination of Long-Distance and Regional rail service timetables to enhance the distribution function of these services, mainly in areas where those regional rail services are widely used.

From 2009, the priorities are addressed to integrating the airport system into the intermodal network, and to implement multi-mode ticketing and charging systems.

124

6.8.2. The structure of the Intermodal Passenger Transport Plan

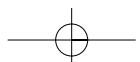
The Intermodal Passenger Transport Plan is designed to progressively create a strategic network of passenger transport services based on the infrastructures developed under the various mode plans, the interchange nodes, regulations to stimulate service coordination and integration, and a series of incentives and initiatives to promote intermodality.

The map in Figure 33 sets out a forecast for this system of trunks and nodes, based fundamentally on the present situation and actions in progress. It thus has no prescriptive force: any necessary decisions will in any case be taken as part of the Intermodal Passenger Transport Plan.

In the first place, this intermodal Plan must set objectives in terms of the service levels which must be met. As basic reference parameters, these service levels can take the minimum number of daily services, the maximum number of changes required, and the maximum waiting time at each interchange. These parameters will have different values depending on the importance of the links, or the presence of single-mode alternatives.

The Intermodal Passenger Transport Plan is structured into the following sections:

- Backup tools to the Plan.
- Objectives: Service levels.
- The interchange network.
- The regulatory measures and those to promote intermodality.



STRATEGIC INFRASTRUCTURES AND TRANSPORT PLAN PEIT

6.8.2.1. The reference framework and the tools

During the first period (2005-2008) the various tools needed to apply and monitor the intermodality strategy will be fine-tuned: an inventory will be prepared of existing interchanges, as the basis for the definition of the whole network and as master plan for mode interchange points, and the network of interchanges will be classified and defined according to their efficacy.

During this period, a national transport model must be developed which contains the existing nodes and networks and their relation with the territory, along with demand flows, as the basis for an overall diagnosis of the transport system from the standpoint of the interchanges, their situation, needs and priorities.

6.8.2.2. Objectives: intermodal service levels

Definition of general objectives for the transport system explicitly involving intermodality, and their consistency with the objectives of the modal networks, will translate into a minimum set of parameters which guarantee that aim.

These objectives will take account of the three basics aspects of essential mobility (connectivity, accessibility and appropriateness) and, for the different types of relation, will establish a table of reference of daily services, the maximum number of changes and the time taken to do that as a fraction of total travel time.

To correctly define these objectives in useful terms, and based on the existing situation, a twin progression will be put in place, gradually increasing the number of interchanges dealt with, and the connections which are situated at a better service level.

This definition of objectives cannot and must not be seen as differing from the specific objectives of each modal network. Thus their operators will identify real or desirable interchange points, will evaluate the networks' operation, and will formulate sector proposals which are consistent with them.

The twin progression in terms of cover and quality of essential supply will be set out in the Interchange Program, according to its priorities.

125

6.8.2.3. The Interchange Network

The priorities in the development of the Interchange Network will be matched and refined so that the territorial benefits are generated in a balanced and equitable way. On the other hand, Autonomous Administrations are authorised to provide some of these nodes, e.g. inter-city bus stations. Hence the significance of their consideration in the appropriate processes of participation and coordination assumed by the Ministry of Public Works and Transport.

The network will be formed on the basis of the definition of the types of interchange, and their levels, but action at all levels has to be balanced so that localities or areas of limited demographic density are incorporated into the intermodal system from the outset.

The modal operators and the associated supervising authorities must set out the specific proposals for their incorporation into the Interchange Program consistently with the development of their specific networks, and for their inclusion in each statement of investment.

Therefore, for each interchange project, the agent or operator responsible will be defined, and the modes involved will be urge to agree on their schemes for the infrastructure and services.