



RAIL TRANSPORT:

SPANISH INFRASTRUCTURES PROGRAM AND RESEARCH AT UGR

PROF. JUAN DE OÑA (JDONA@UGR.ES)



**Forum on the Integrated Transportation  
System in the Mediterranean Area**

**RAIL TRANSPORT: SPANISH  
INFRASTRUCTURES PROGRAM  
AND RESEARCH AT UNIVERSITY OF  
GRANADA (UGR)**

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## Contents:

- **General Presentation of the Spanish Infrastructures and Transport Program (PITVI) (September 26, 2012)**
  - Previous diagnosis
  - Objectives, principles and action programs
  - Specific actions for rail transportation
- **Current research on rail transportation at University of Granada (UGR-Spain)**
  - Charging systems for the use of railway infrastructure
  - Effects on demand and accessibility of High Speed Rail (HSR)
  - Rail transit systems effects on population and land use analysis



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## Spanish Infrastructures and Transport Program (PITVI)

### Diagnosis

#### GLOBAL OVERVIEW

- Important transport infrastructures assets: Need to devote resources to conserve and maintain the infrastructure assets, with efficiency and austerity
- Inefficiencies and gaps in the system: excess of capacity in certain areas (threatening management sustainability)
- Previous infrastructures and transport programs did not prioritize complementarity between modes
- Actual economic difficulties in the financial viability of infrastructure and services management: shrinking demand, credit restrictions, tensions in markets (e.g. oil), etc..
- Modal unbalanced (predominance of the road) → economic and environmental inefficiencies



## Spanish Infrastructures and Transport Program (PITVI)

### Diagnosis

#### RAIL TRANSPORTATION

- **Freight transport:** the actual position of rail is far from the expectations and potential based on its main features → improvement opportunities
- **Passengers transport:** HSR has been a significant change (very high quality services), but economic circumstances threaten the sustainability
- However, the railway infrastructure is NOT interoperable in all its routes (different track widths, electrification, etc..)
- It is necessary to reduce the government deficit because of subsidies to services operators, both passenger and freight
- The management model is waiting for the full domestic market opening and liberalization of the medium and long distance passenger transport



## Spanish Infrastructures and Transport Program (PITVI)

Objectives, principles and action programs

### OBJECTIVES

- To improve the **EFFICIENCY** and **COMPETITIVENESS** of the global system
- To contribute to a **BALANCED ECONOMICAL DEVELOPMENT**
- To promote **SUSTAINABLE MOBILITY**
- To strengthen **TERRITORIAL COHESION** and **ACCESSIBILITY**
- To improve **INTERMODALITY**

### BASIC PRINCIPLES

- Full **LIBERALIZATION** of infrastructure and transport services management
- Enhance **PRIVATE SECTOR** participation in transport
- Adequacy of system infrastructure provision and delivery of services to the society **REAL DEMAND**



## Spanish Infrastructures and Transport Program (PITVI)

Objectives, principles and action programs

### ACTION PROGRAMS

- **Regulation, Control and Supervision (RCS) action program.** Include the development of the regulatory function that allows to develop and implement the policies established in each of the transport modes.
- **Management and Services (MS) action program.** Aims to promote an efficient use of transport, with better use of the existing network and enhancement of the intermodal chain or the modal option that provides increased performance and benefit to the system, under the principle of economic sustainability
- **Investment (I) action program.** In order to complete major structural axes, enhance intermodal connections and provide certain strategic infrastructures (border connections). An intermodal approach will be very present and prioritization and rationalization of investments.



## Spanish Infrastructures and Transport Program (PITVI)

### Specific actions for RAIL TRANSPORTATION

#### RCS action program

- Approval of a Transportation Funding Act (horizontal action)
- Regulation of land transport (amendment of the Law on Land Transport)
- Integration of FEVE in ADIF and RENFE (only one infrastructure manager in Spain)
- Improving safety and passenger protection (creation of the National Land Transport Safety Agency)
- Strengthening the presence of Spain in international transport sector organisms
- Sector regulation and effective liberalization of rail passenger transport





## Spanish Infrastructures and Transport Program (PITVI)

### Specific actions for RAIL TRANSPORTATION

#### MS action program

- Creation of the Transport Observatory (horizontal action)
- Creation of the Transport Portal: promote intermodality (horizontal action)
- Letter with the passenger rights (horizontal action): quality and rights
- Streamlining the supply of rail services and analysis of lines with deficit in order to optimize resources
- Definition of a new management model for rail freight services
- New management model for rail freight terminals and intermodal terminals (direct vs. indirect management)
- Supporting the internationalization of Spanish companies (Project Haramain: La Meca - Medina)



## Spanish Infrastructures and Transport Program (PITVI)

### Specific actions for RAIL TRANSPORTATION

#### I action program

- The main objectives are:
  - improve the conventional network (HSR vs. conventional),
  - enhance rail freight transportation (connections to ports, intermodal centers, etc),
  - complete the HS network, and
  - improve suburban rail network.
- In the case of HS network, the main objective is to generalize an effective reduction of travel times, integrating and complementing the HS network with the conventional network, in order to increase network usage and better territorial cohesion.
- **The railroad will receive 39% of total investment in transport (52.733M€) under the PITVI**



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## Current research on rail transportation at UGR-Spain

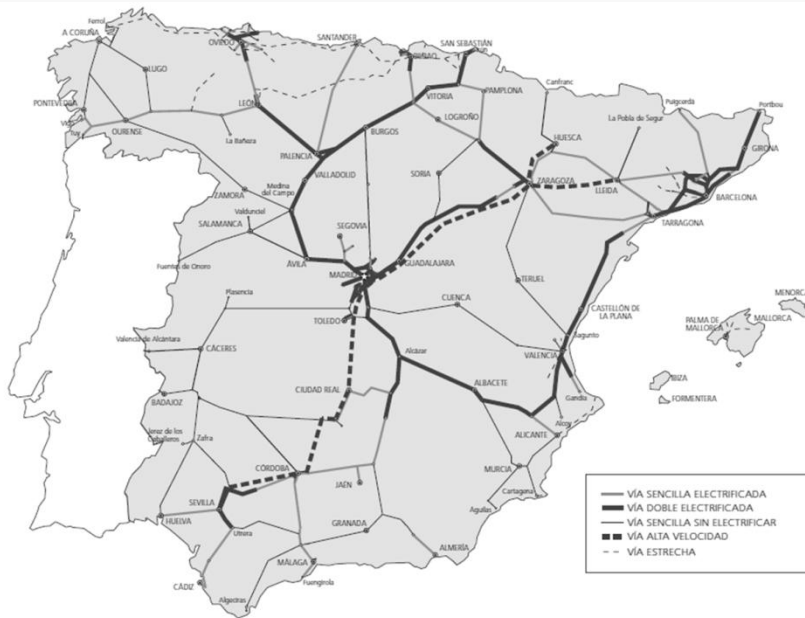
### Charging systems for the use of railway infrastructure

- OPENING OF THE EUROPEAN RAILROAD NETWORK. A LOST OPPORTUNITY FOR EUROPEAN UNIFICATION – Transportation Research Record, 2005.
- PROPOSED INFRASTRUCTURE PRICING METHODOLOGY FOR MIXED-USE RAIL NETWORKS – Transportation Research Record, 2007.
- RAIL TRACK COSTS MANAGEMENT FOR EFFICIENT RAILWAY CHARGES – Proceedings of the ICE – Transport, 2012.
- ARE RAIL CHARGES CONNECTED TO COSTS? – Journal of Transport Geography, 2012.
- AN APPROACH TO MARK-UPS THROUGH CAPACITY CHARGES – Proceedings of the ICE – Transport, 2012.

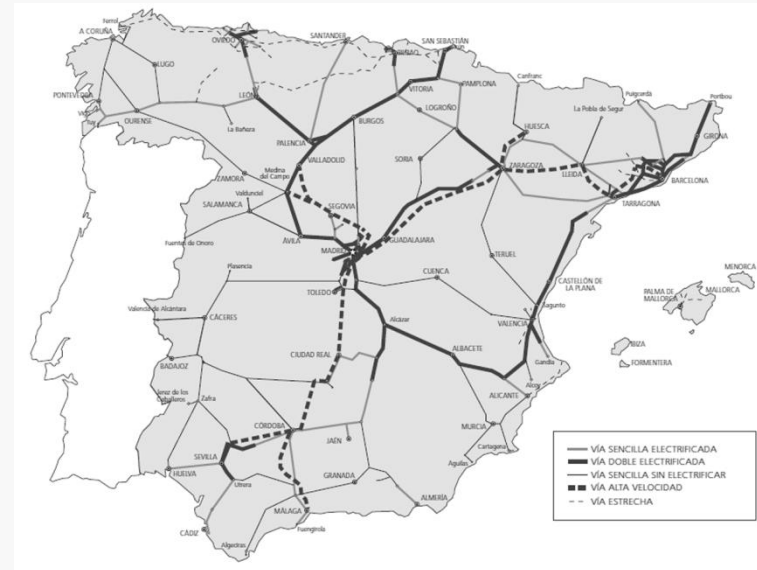


## Current research on rail transportation at UGR-Spain

### Effects on demand and accessibility of High Speed Rail



2005

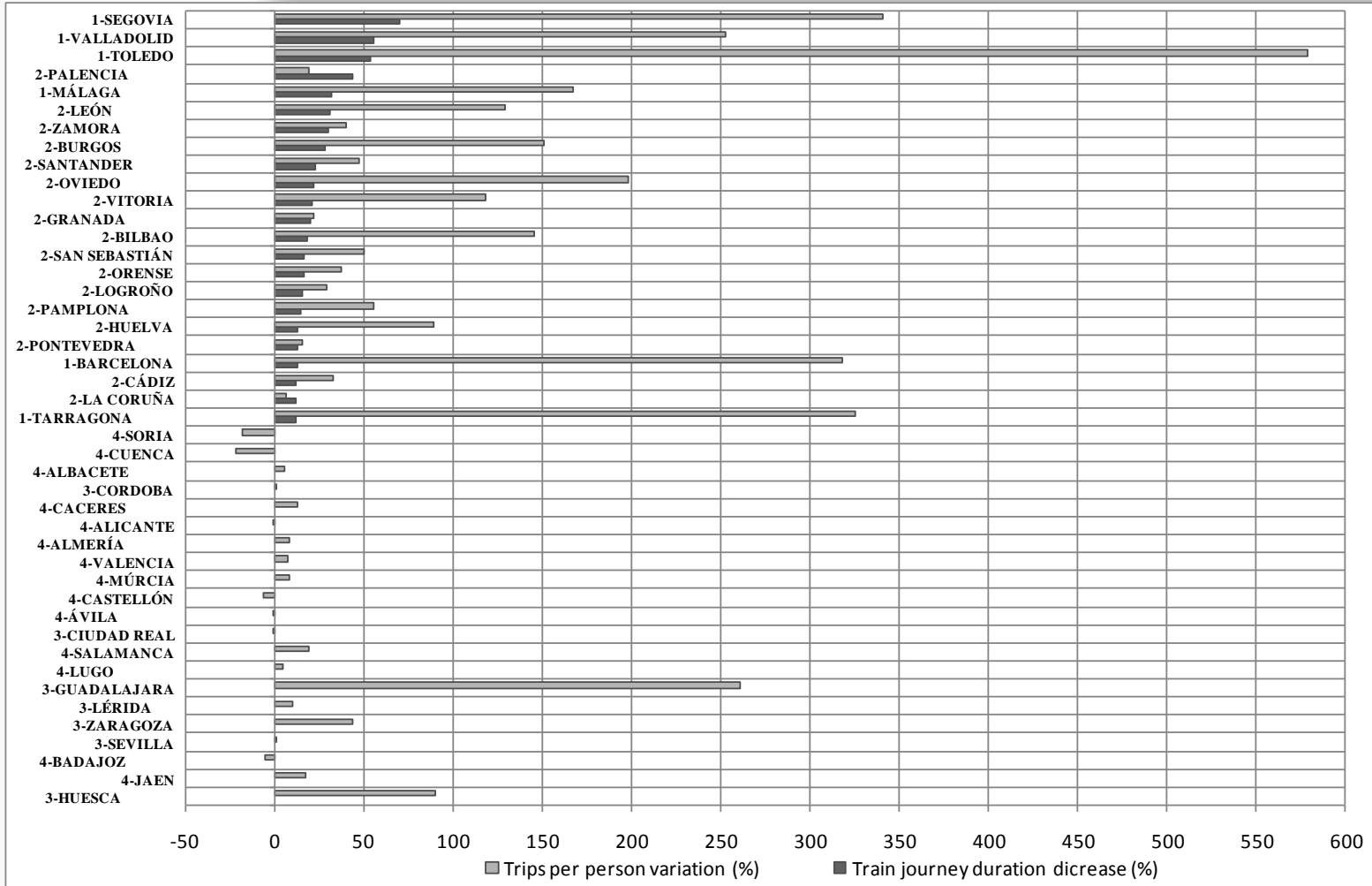


2009



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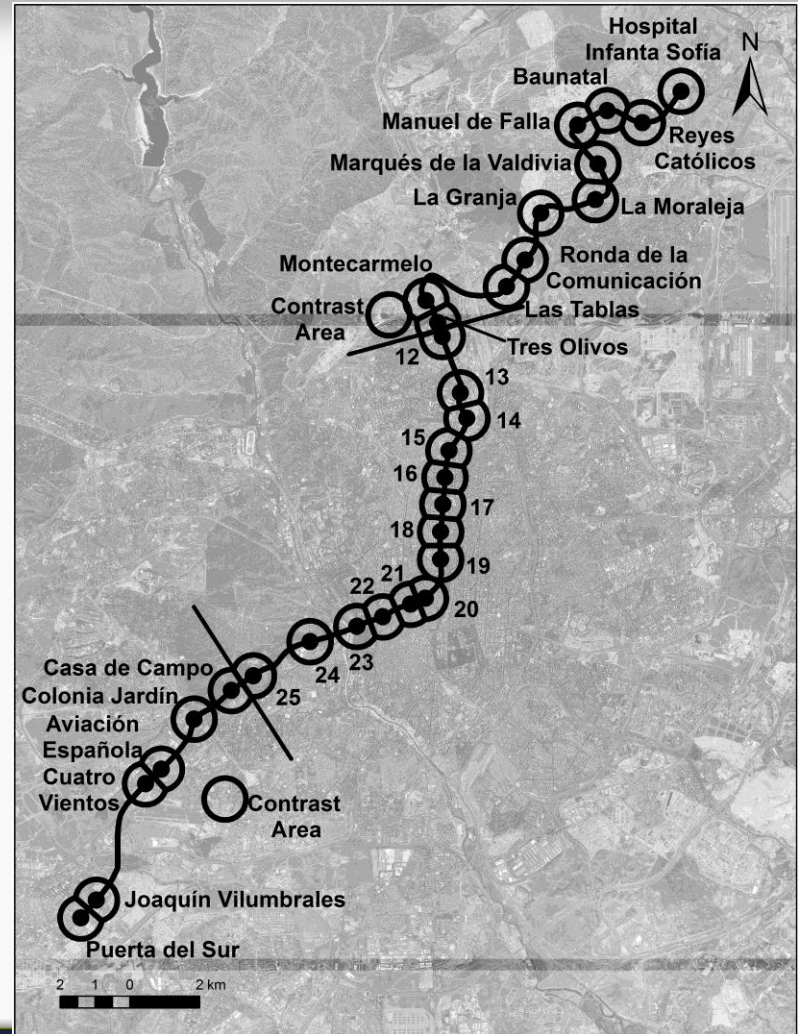
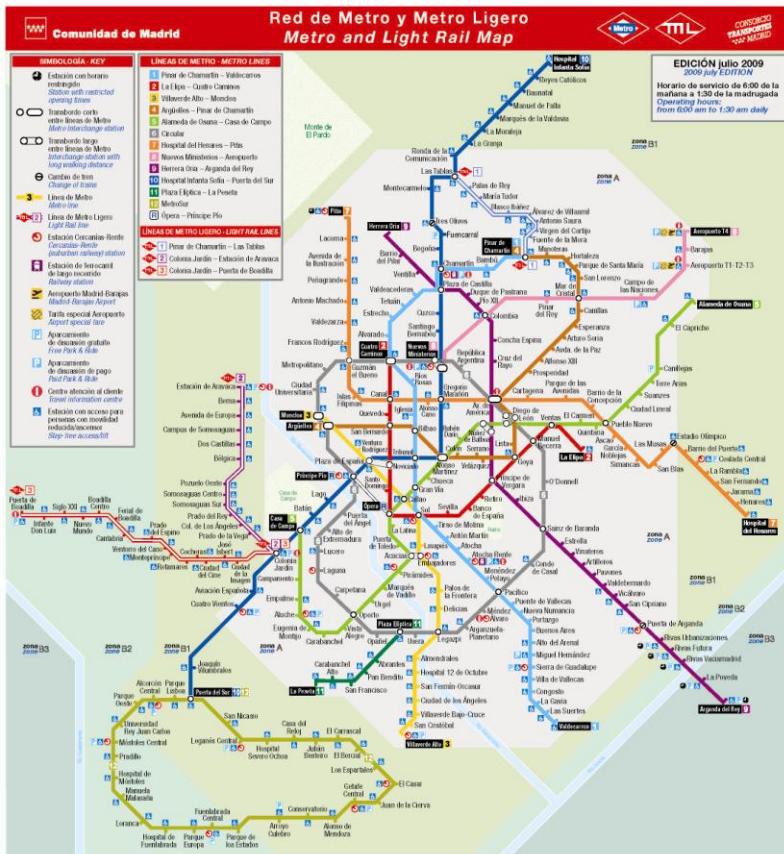
### Effects on demand and accessibility of High Speed Rail





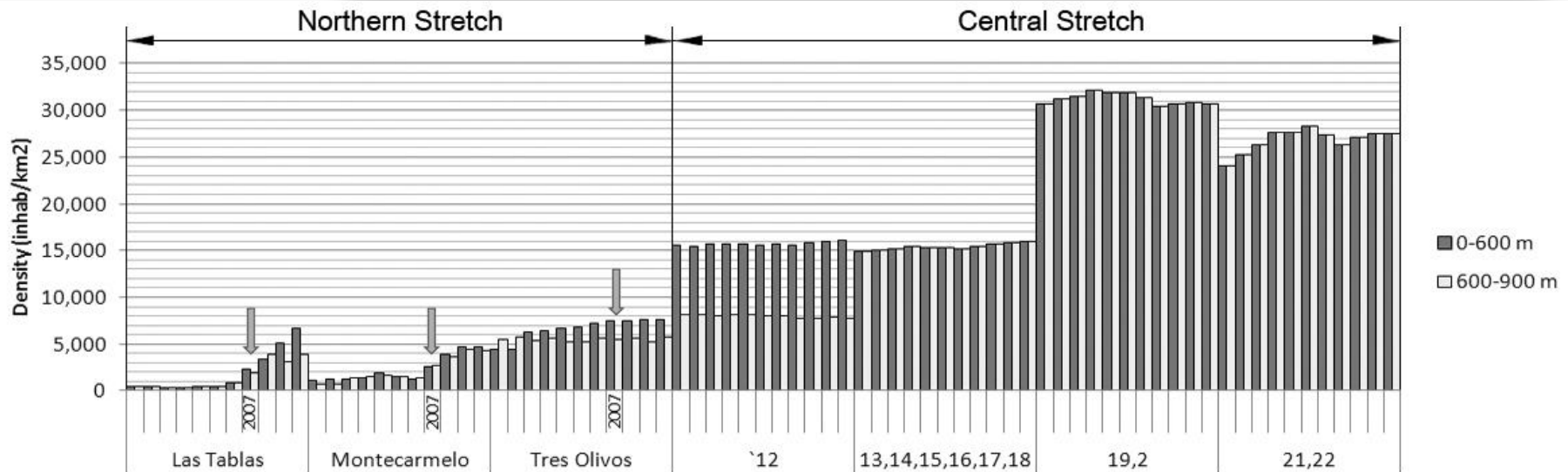
# Current research on rail transportation at UGR-Spain

## Rail transit systems effects on population and land use analysis



## Current research on rail transportation at UGR-Spain

### Rail transit systems effects on population and land use analysis



- **Impact of the 10 Metro Line extension ([Land Use Policy 2012](#)):** evolution of the population before and after the new transport mode was implemented.
- Influence of integrated land use and transport planning.
- Impact of population settlement depending on the distance to the station.
- Changes in land use.





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