

Thursday, 16 April 2015

> 14.00 AVE: Rail Stations and Urban Expectations in Several Spanish Cities, Juan Luis de las Rivas Sanz

# CODE-ATHENS

Rail&City

International Symposium on  
Railway & City Development



16<sup>th</sup> -17<sup>th</sup>  
APRIL  
2015  
ATHENS

## AVE: RAIL STATIONS AND URBAN EXPECTATIONS IN SEVERAL SPANISH CITIES

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## Four issues, **four ideas**

### 1. Singularities of Spanish AVE network.

**Two rail systems; territorial low density; identification between infrastructure and development.**

### 2. Big projects in the biggest cities (Barcelona, Madrid).

**The undergrounding, urban project versus rail strategy: Are the rail spaces brownfields?**

### 3. Valladolid; Burgos; Vitoria... AVE in medium-sized cities

**Can the railway change the city?**

### 4. Three final reflections

**Rail Stations as urban poles; rail connectivity and medium cities; cities that learn from other cities.**

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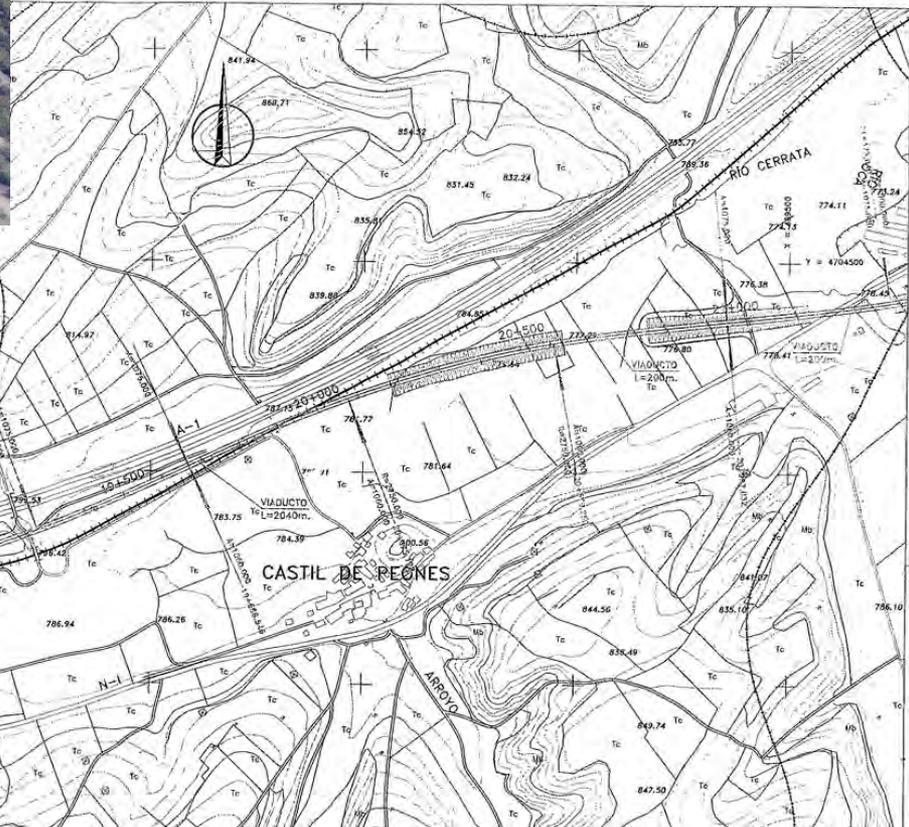




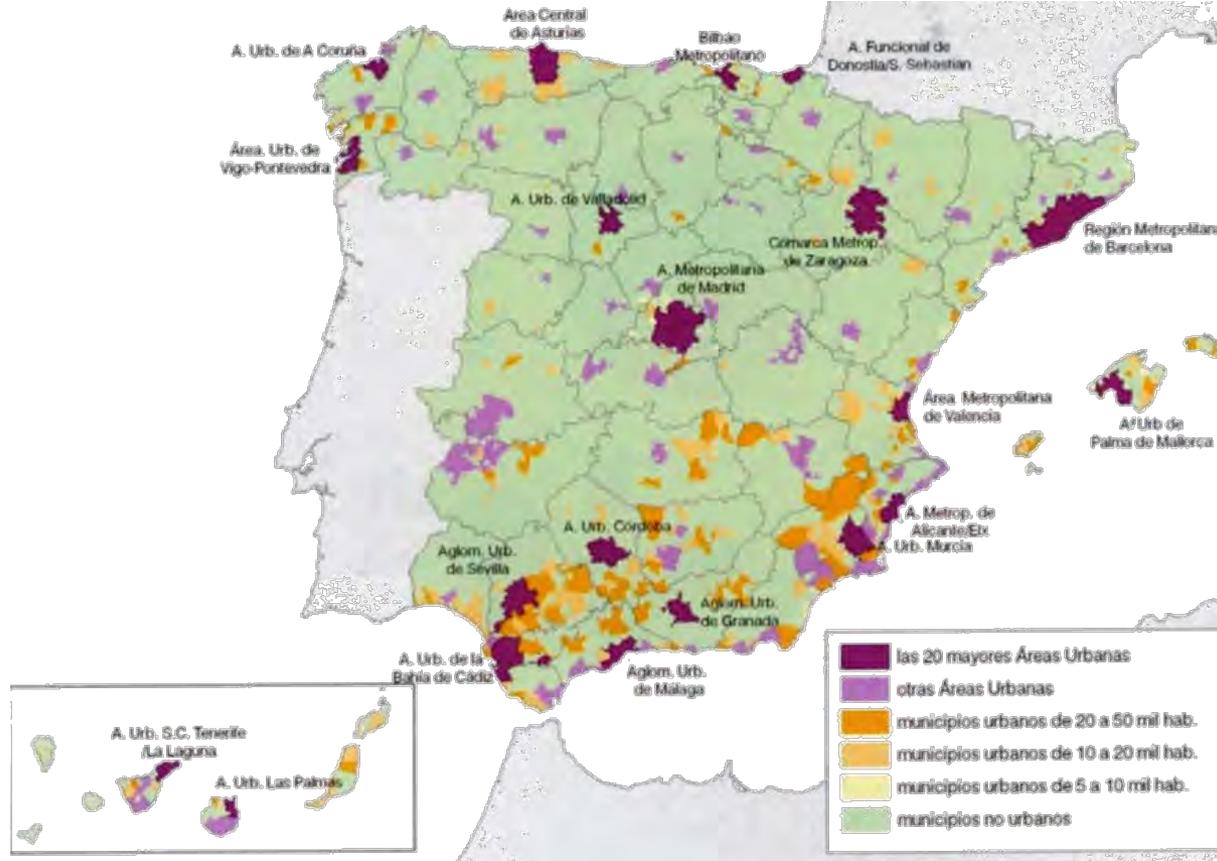
Spanish rail system: two rail gauges, two rail networks.  
Figure: Rail gauge exchangers as solution for rail connectivity (Source, Adif 2013)



New and old railways.  
Bridges over Voltoya river (Segovia)



Sharing an unique corridor: AVE layout between Burgos and Vitoria; four parallel ways: the road and the highway, the conventional rail and the new rail (AVE)



## The Spanish territory: low density, scattered population...

Area, 504.645 km<sup>2</sup>

Population, 46.464.053 inhabitants (2014)

Density, 92 inhab./ km<sup>2</sup> (2014)

AVe network, 2.500 km (2014)

System of Cities: only 6 cities with more than 500.000 inhabitants (2 of them with more than 1million, Madrid and Barcelona), 23 urban areas with more than 300.000 inhabitants

Image: Spanish urban areas, (source: Ministry of Fomento 2012)



Scenario: all main Spanish cities will be connected by Ave. The new railway is a desired key of development, however it is more a will than real... if we introduce costs and...

Figure: AVE, existing network and expectation in 2105



## Length of High Speed Rail networks...

Tabla 2.1 Longitud de la red de alta velocidad en operación (Septiembre, 2014).

| <b>País</b>   | <b>Longitud de la red (Km)</b> | <b>Longitud por millón de población (Km/millones de habitantes)</b> |
|---------------|--------------------------------|---|
| España        | 2500                           | 54  |
| Francia       | 2036                           | 31  |
| Bélgica       | 209                            | 19  |
| Japón         | 2087                           | 16  |
| Italia        | 923                            | 15  |
| Taiwán        | 345                            | 15  |
| Alemania      | 1013                           | 13  |
| Austria       | 48                             | 11  |
| Corea del Sur | 550                            | 11  |
| China         | 11067                          | 8   |
| Turquía       | 632                            | 8   |
| Holanda       | 120                            | 7   |
| Suiza         | 35                             | 4   |
| Reino Unido   | 113                            | 2   |

Fuente: Longitud de las redes, International Union of Railways (UIC), Septiembre 2014. Población, Eurostat.

Source: “La experiencia internacional en alta velocidad ferroviaria”, Daniel Albalade & Germà Bel (Documento de Trabajo, Fedea, Marzo 2015)



People who are being moved by High Speed Rail networks...

Tabla 2.3. Pasajeros totales y pasajeros por km de red ferroviaria de alta velocidad.

| Country | Pasajeros (Millones)             | Pasajeros/km de red              |
|---------|----------------------------------|----------------------------------|
| Japón   | 330 (2012)                       | 158.121                          |
| Corea   | 54.5 (2012)                      | 132.281                          |
| Taiwán  | 36.6 (2007-2013)                 | 106.086                          |
| Francia | 125 (2012)                       | 61.394                           |
| China   | 420 (2012)                       | 37.950                           |
| Italia  | 25 (2011)                        | 27.085                           |
| Turquía | 4.5 (2013)<br>20 (estimado 2014) | 10.135<br>29.069 (estimado 2014) |
| España  | 25,3 (2013) <sup>1</sup>         | 10.120                           |

Nota: En España la cifra total de pasajeros para 2014 podría haberse situado en 29 millones, lo que supondría poco más de 11.000 pasajeros por km de red.

Source: “La experiencia internacional en alta velocidad ferroviaria”, Daniel Albalade & Germà Bel (Documento de Trabajo, Fedea, Marzo 2015)



## 2 Big projects in the biggest cities (Madrid, Barcelona)

The undergrounding as urban strategy: Are the rail spaces brownfields?

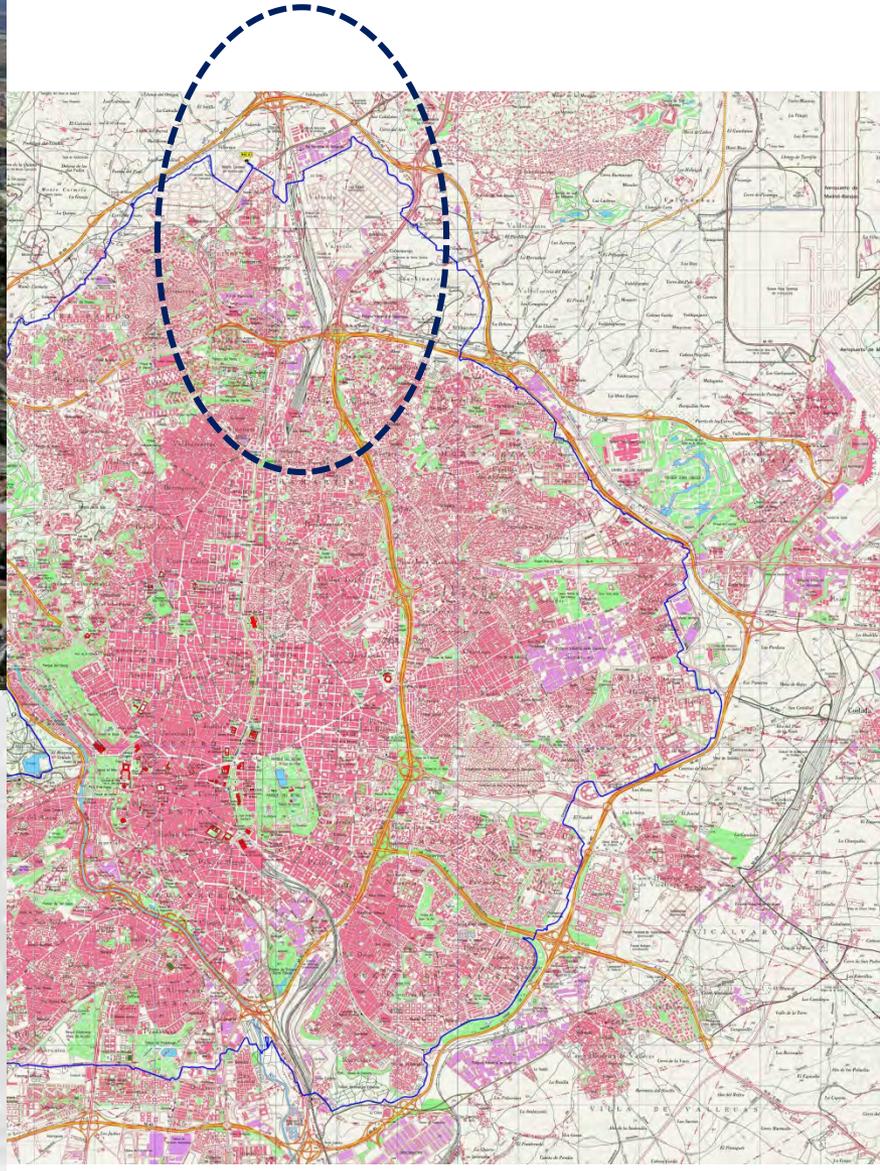
Image: the North railway exit of Madrid (Las Tablas-Valverde district)



**Madrid.** Castellana North District (last version, approval in 2014)  
One of the 'biggest urban projects' in Europe... begins 22 years ago

**The park over the railways** and the new business area

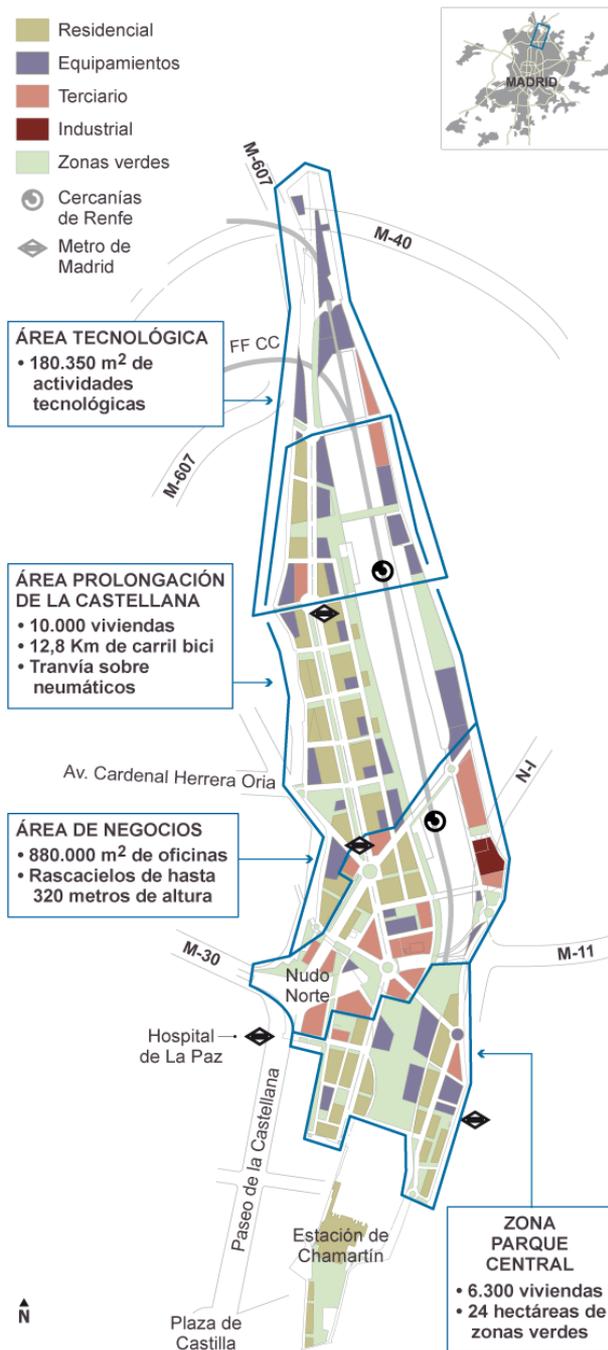
Source: [www.districtocastellananorte.com](http://www.districtocastellananorte.com), Project coordination: ARUP



### El Paseo de la Castellana se prolongará 3,7 kilómetros







Castellana North District (2014)

**The logic of Real State market (a)**

- Area: 3,18 millions m2
- Initial investments 1.600 millions Euro (350 by the municipality like landowner): 451 millions, urbanization cost; 252 millions, undergrounding railways; 151 millions, new Metro line; 210 millions, highway new nodes...
- Total investment estimation 6.000 million Euro
- Rail lands owner (public): ADIF, in 20 years will received 1.250 millions euros

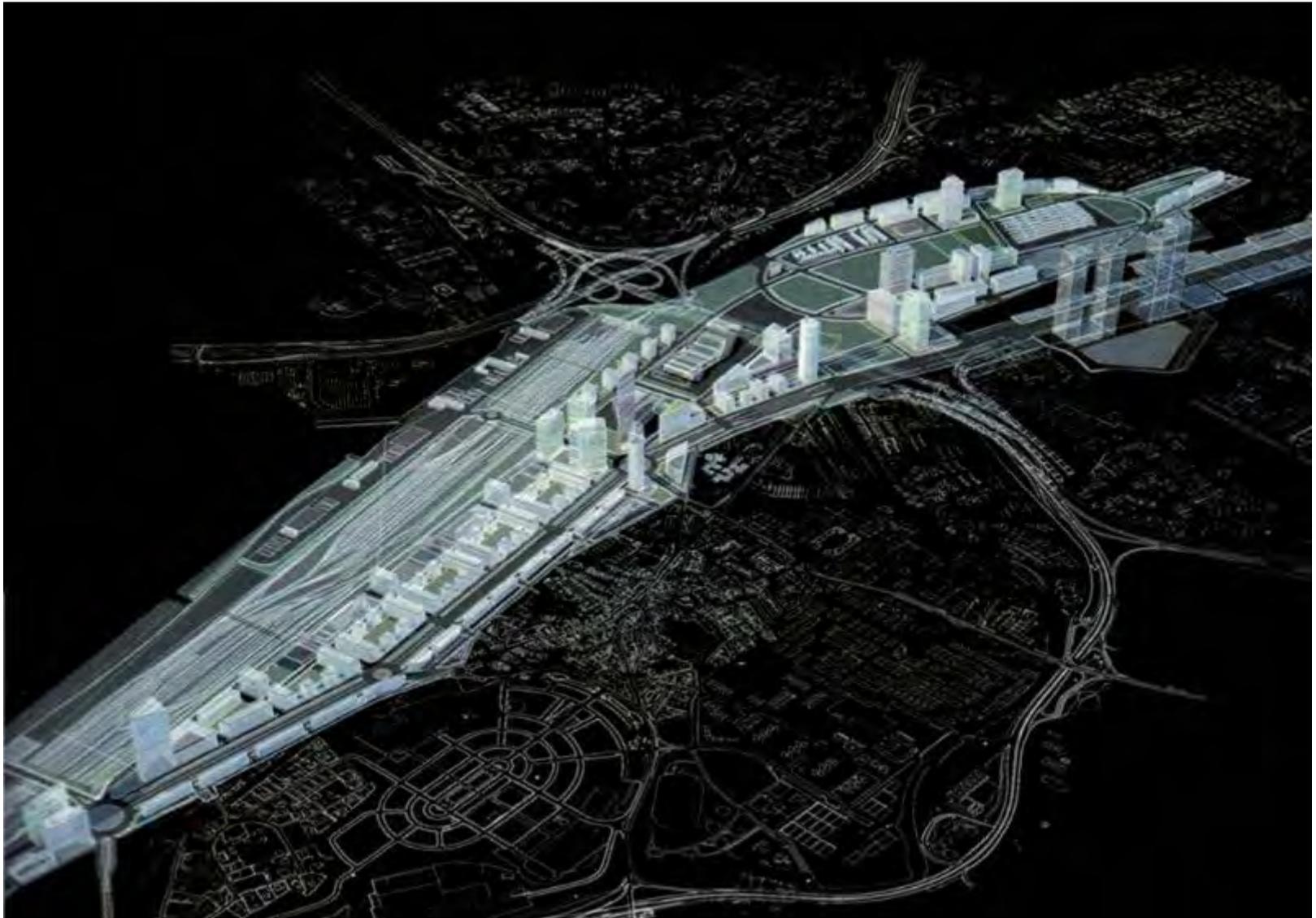
**The 'creation' of 121.000 employments... ?**



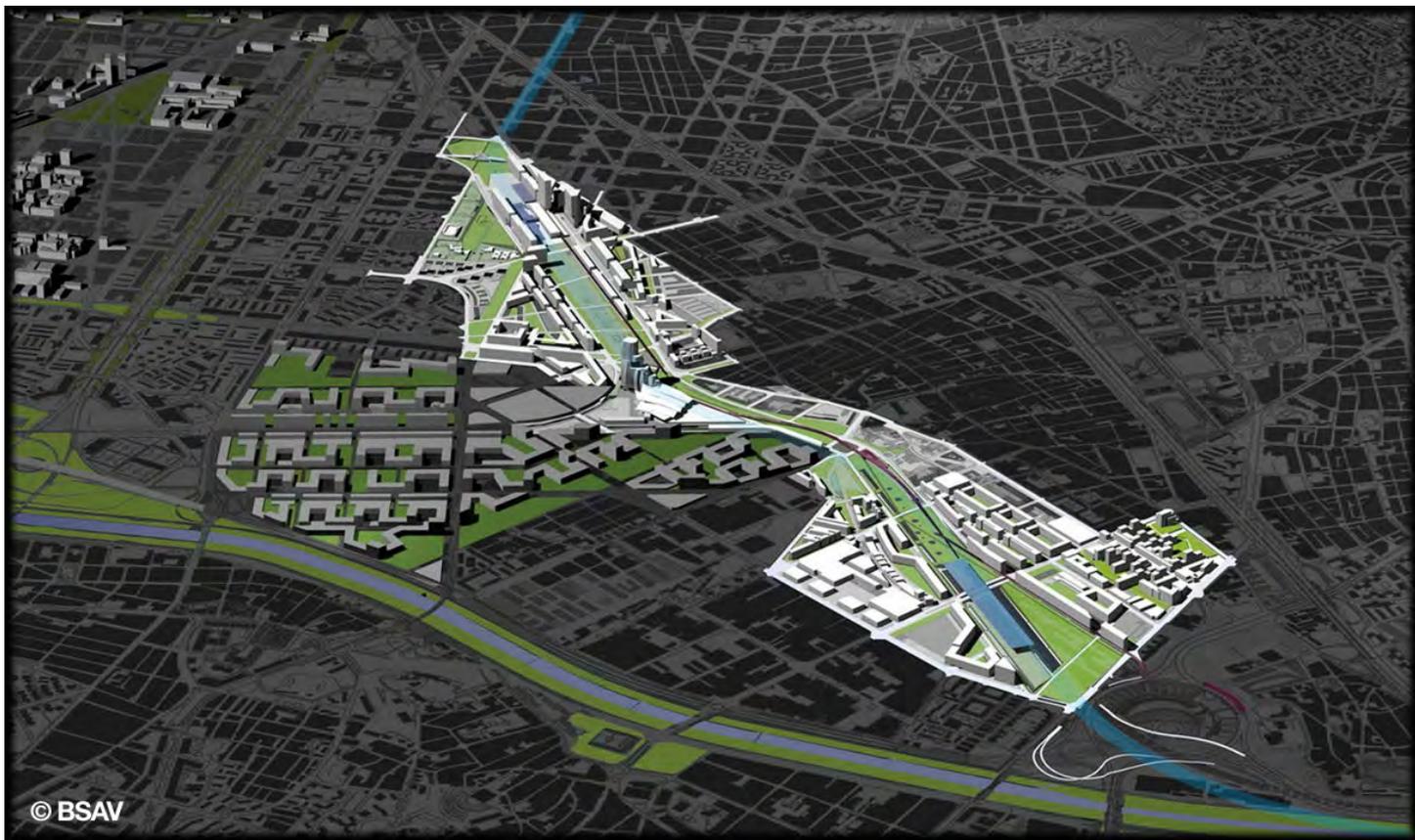
A very complex intervention, founded in development rights that bought 22 years ago Dutch SA (created in 1993, 73% BBVA, 23% San Jose group...) related with 61% of the land (rail and other public lands)



Castellana Enlargement Master Plan, approved in 2009



Castellana 'enlargement' plan, 2011 version



**Barcelona.** BSAV (Barcelona Sagrera Alta Velocitat), public capital enterprise, created in 2003 after the agreement between the Ministry of Fomento, the Catalan Government and the Barcelona Municipality.

Source: <http://www.barcelonasagrera.com>



From Sants rail station to La Sagrera rail station: **the AVE urban underground layout in Barcelona.**

**The railways in –or close to- the park system of the city**



Area: 1.638.134 m<sup>2</sup>  
 Green areas (30%): 489.212 m<sup>2</sup>  
 Urban facilities (13%): 209.812 m<sup>2</sup>  
 Movility network (27%): 437.558 m<sup>2</sup>  
 Build: 1.657.416 m<sup>2</sup> (72% new)  
 Housing: 12.887 units (47% new)

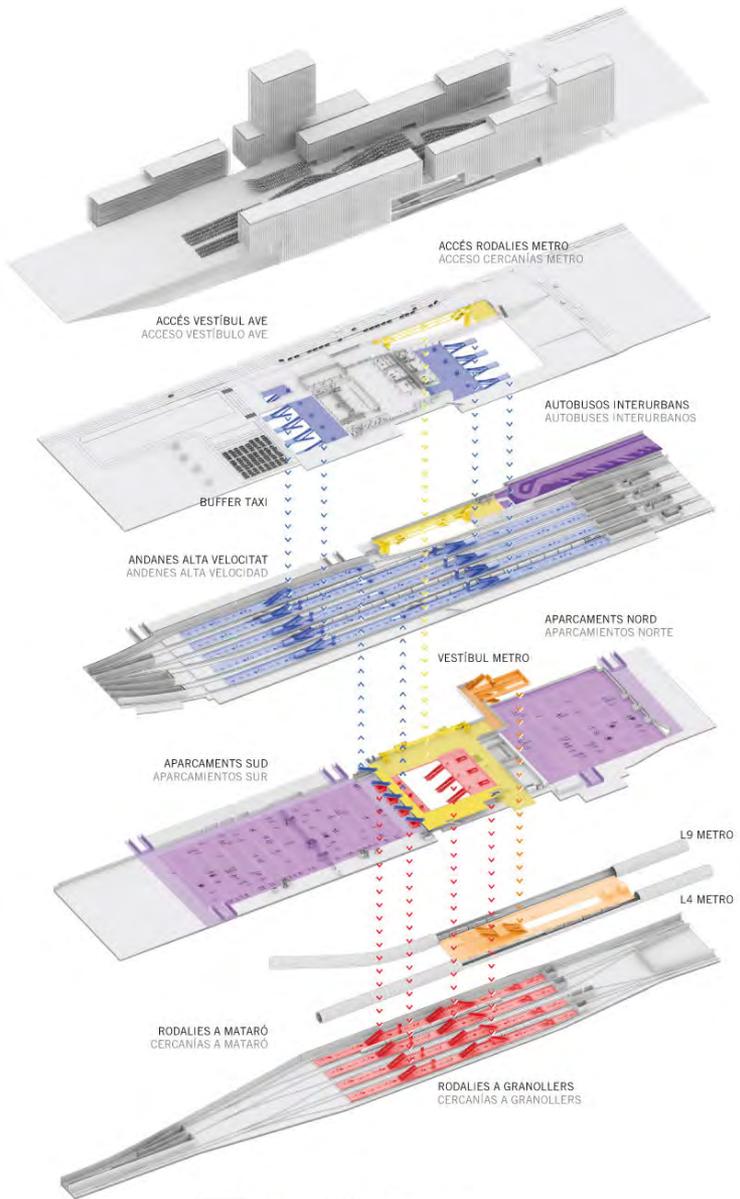




La Sagrera:

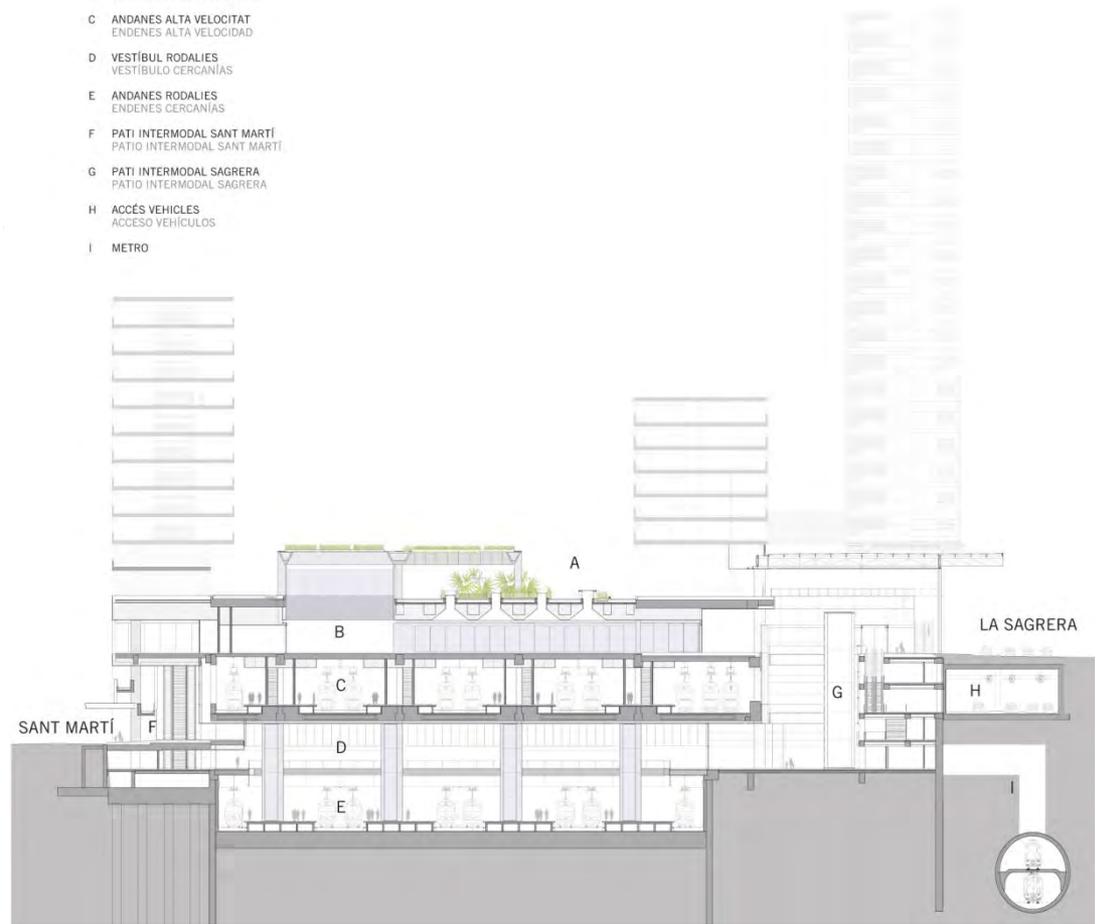
The crucial relevance of the railway project (b); new layout, new rail infrastructure... and the new needed rail station like a pole of urban change.





- ALTA VELOCITAT ALTA VELOCIDAD
- RODALIES CERCANIAS
- METRO
- APARCAMENTS APARCAMIENTOS
- INTERCANVIADOR INTERCAMBIADOR
- AUTOBUSOS INTERURBANS AUTOBUSES INTERURBANOS

- A COBERTA DE L'ESTACIÓ  
CUBIERTA DE LA ESTACIÓN
- B VESTÍBUL ALTA VELOCITAT  
VESTIBULO ALTA VELOCIDAD
- C ANDANES ALTA VELOCITAT  
ENDENES ALTA VELOCIDAD
- D VESTÍBUL RODALIES  
VESTIBULO CERCANIAS
- E ANDANES RODALIES  
ENDENES CERCANIAS
- F PATI INTERMODAL SANT MARTÍ  
PATIO INTERMODAL SANT MARTÍ
- G PATI INTERMODAL SAGRERA  
PATIO INTERMODAL SAGRERA
- H ACCÉS VEHICLES  
ACCESO VEHICULOS
- I METRO





### 3 Valladolid; Burgos; Vitoria... Ave in medium-sized cities

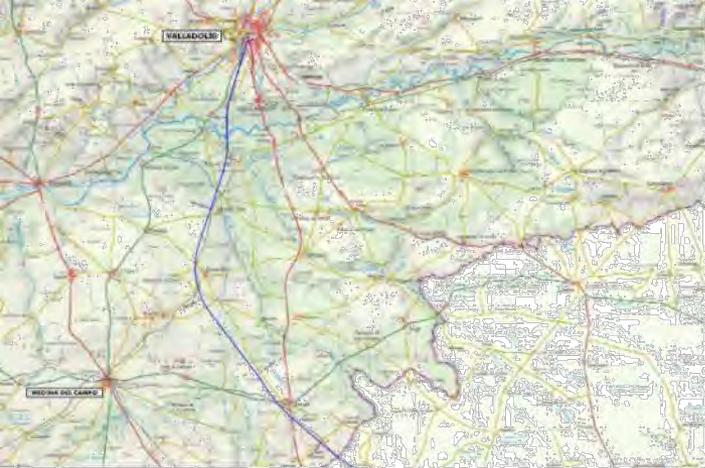
Three different cases in the line Madrid-Irún, North-East network, the way to France.



## Valladolid

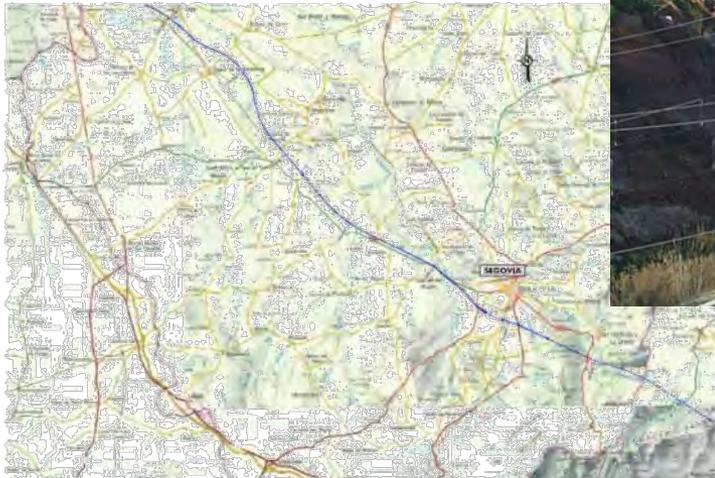
4,9 km of **railway undergrounding (1)** (900 millions Euro), moving the rail installations (300 millions Euro), must be paid with the development of 6.000 houses...

Image: The existing Rail Station and Renfe workshops in Valladolid, 2014



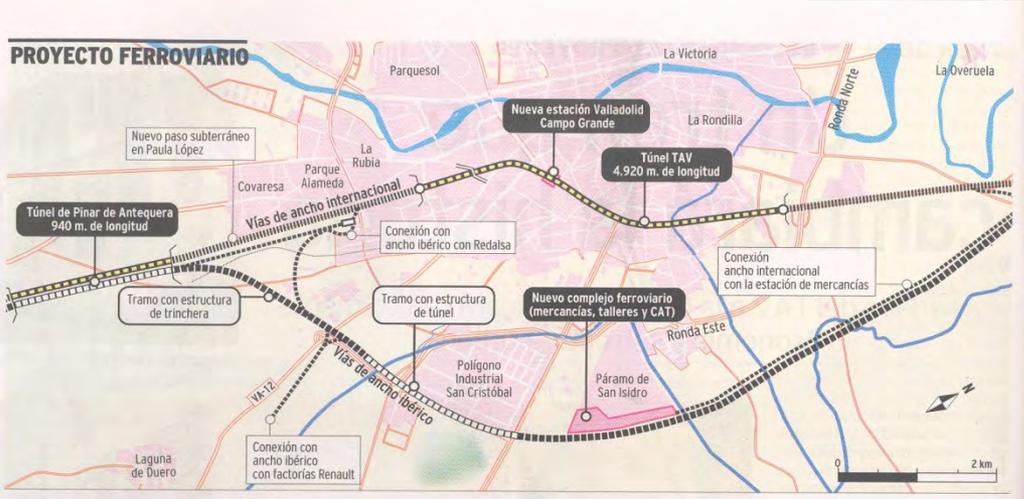
Valladolid

Ave 2007  
High Speed Train  
Madrid-Valladolid: 1 hour



420.000 inhab. in the  
Valladolid urban area  
In the inner city, 310.000  
people, in the outskirts,  
110.000...

Madrid



The big project as urban solution

**Plan Rogers** (*Modificación del Plan General de Ordenación Urbana de la Red Ferroviaria Central de Valladolid*)  
Richard Rogers and Partners, 2010



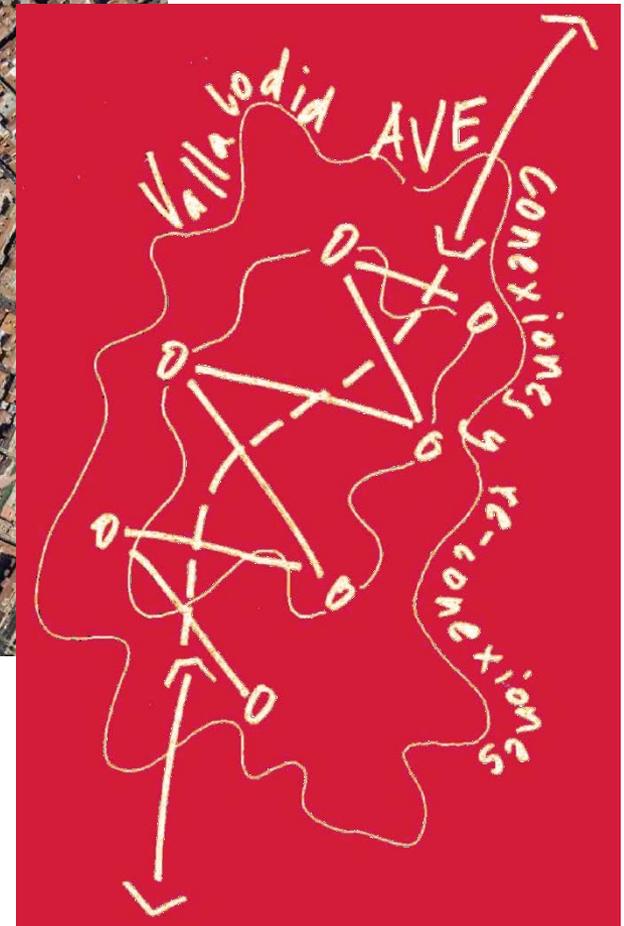
Rail Station Avenue concept.  
The new Rail Workshops built in  
city outskirts (image 2014)

# The myth of urban barriers

Is it the undergrounding of railway the unique solution of urban connectivity?



The Rogers team particular vision of the city, without the river.





## Burgos

The **railway deviation (2)**, with a new rail station in the city boundaries, creates a new neighborhood and a inner green boulevard (over the old rail layout).

Image: Master Plan and Bulevar of Burgos, Herzog & De Meuron 2004-2006



CONSTRUYE:

CONSORCIO para la Gestión de la Variante Ferroviaria de Burgos

grupo arranz acinas

CONTRATAS Y MAQUINARIA

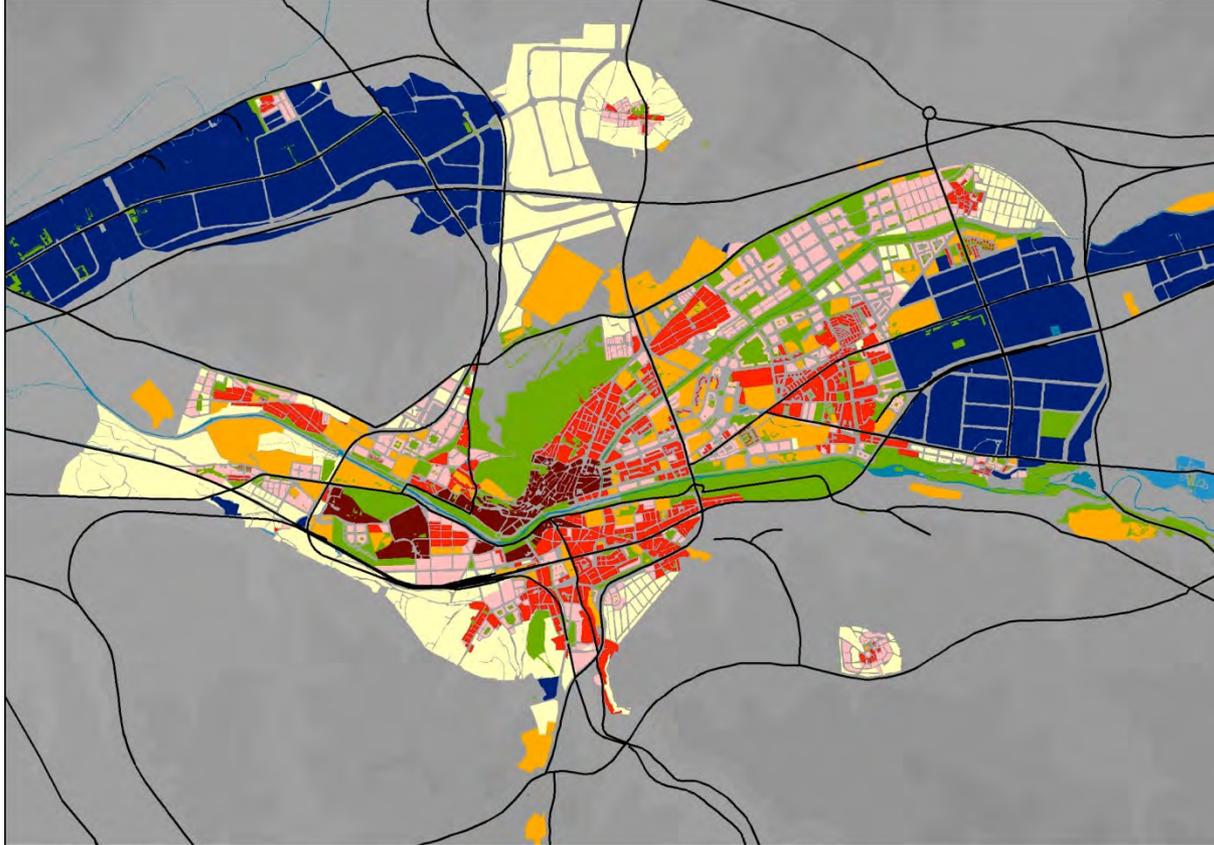
JOPISA CONSTRUCCIONES





New rail station, in the city limits

The position of new rail station in the city limits is the result of the railway deviation, but not only, the new station is the catalyst of urban growth in the north of the city: the urban development must to pay a part of infrastructure costs.





Burgos Bulevar  
Herzog & De Meuron 2007-2012



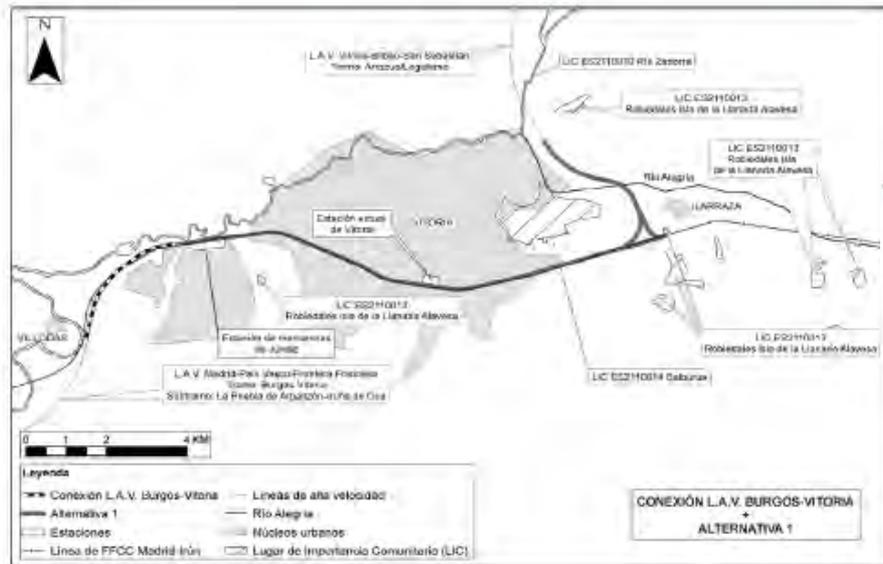
Burgos Bulevar today



## Vitoria

The railway crosses the city. The project of **rail deviation and undergrounding (3)**, with a new rail station, is today in stand by.

Image: Vitoria, Google 2010

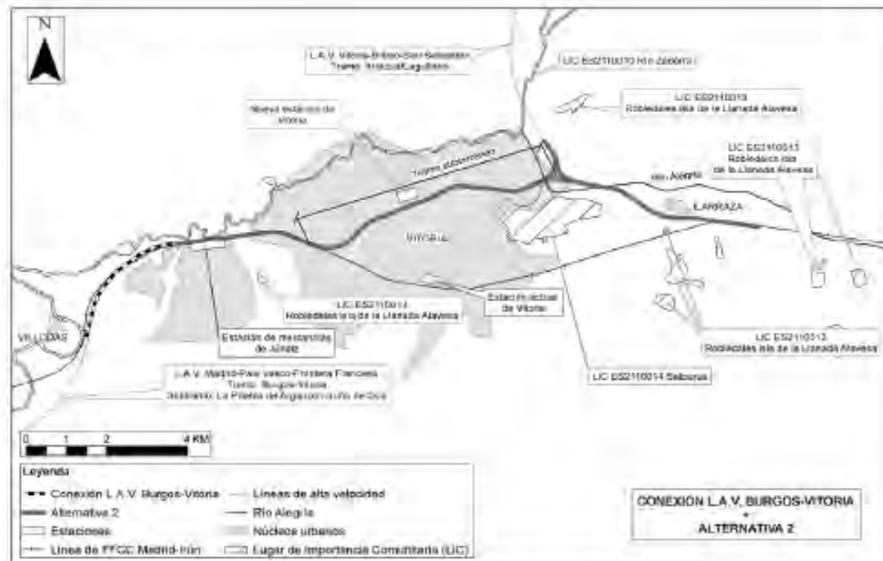


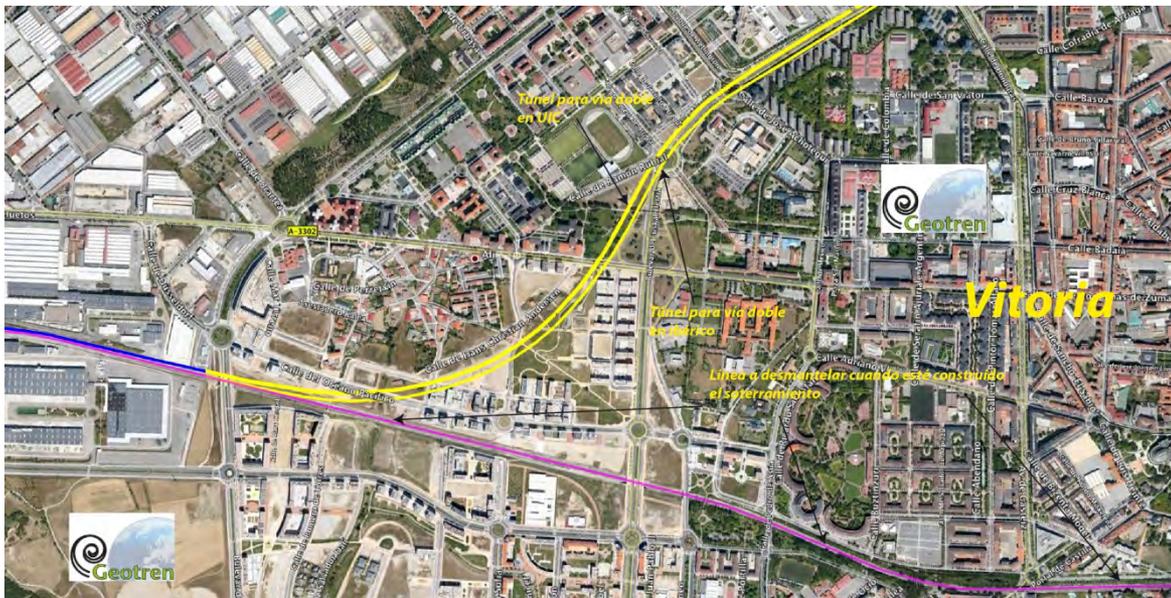
1997

## MINISTERIO DE MEDIO AMBIENTE, Y MEDIO RURAL Y MARINO

*Resolución de 12 de diciembre de 2011, de la Secretaría de Estado de Cambio Climático, por la que se formula declaración de impacto ambiental del proyecto Integración del ferrocarril en Vitoria-Gasteiz.*

The EIA official declaration (2011), favorable to the rail underground deviation in Vitoria as solution to **‘the rail integration in the city’**





Proposal of rail underground deviation and new rail station position



Vitoria, in the gate of rail system to Basque Country, is developing a singular plan of urban mobility (new tram, 2008; environmental concept off public spaces...)

Images: The re-design of the Gasteiz Avenue, the new bus station.

winner 2014



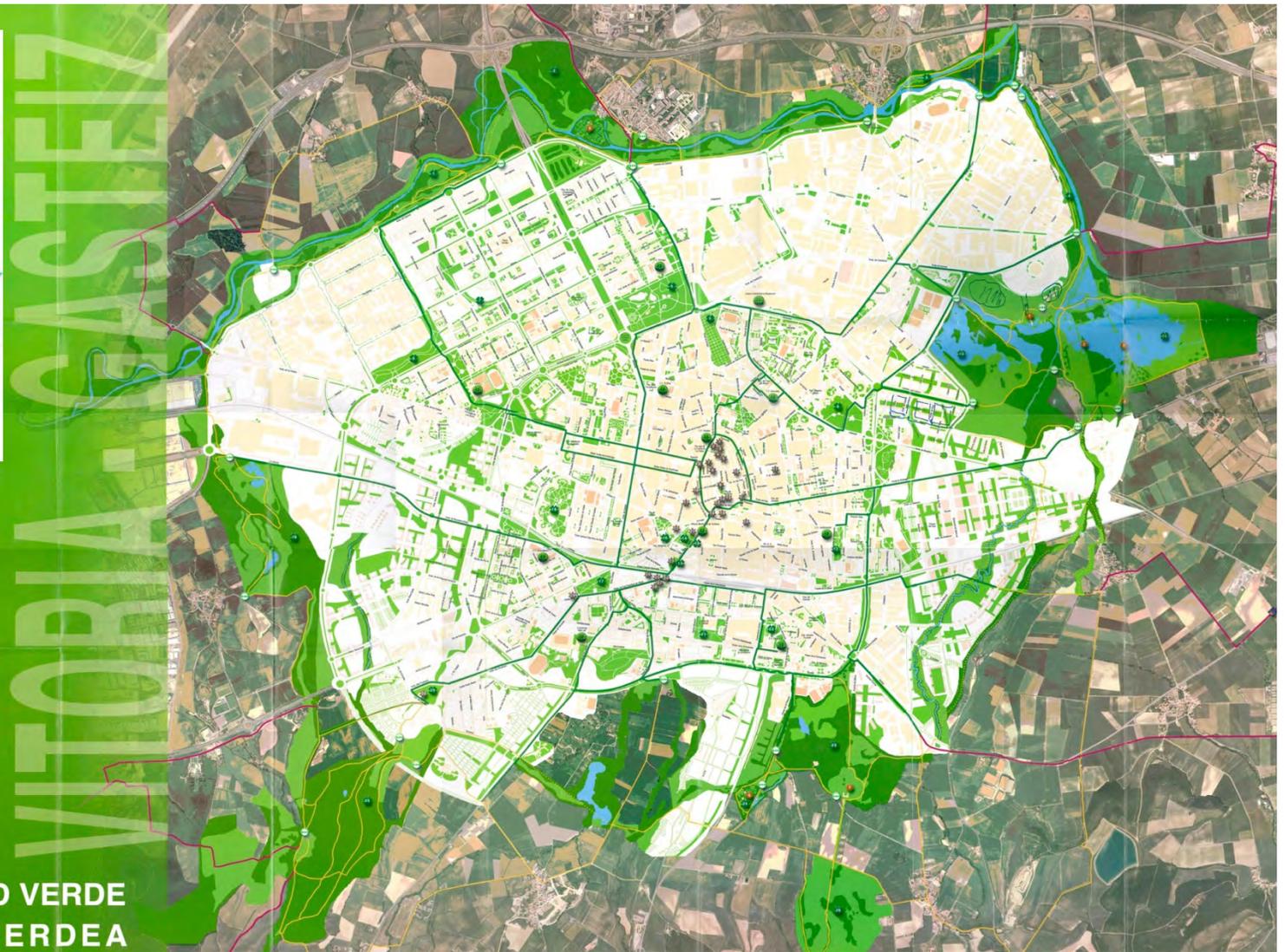
EUROPEAN  
GREEN CAPITAL

An initiative of the  
European Commission



VITORIA -

CIUDAD VERDE  
IRI BERDEA



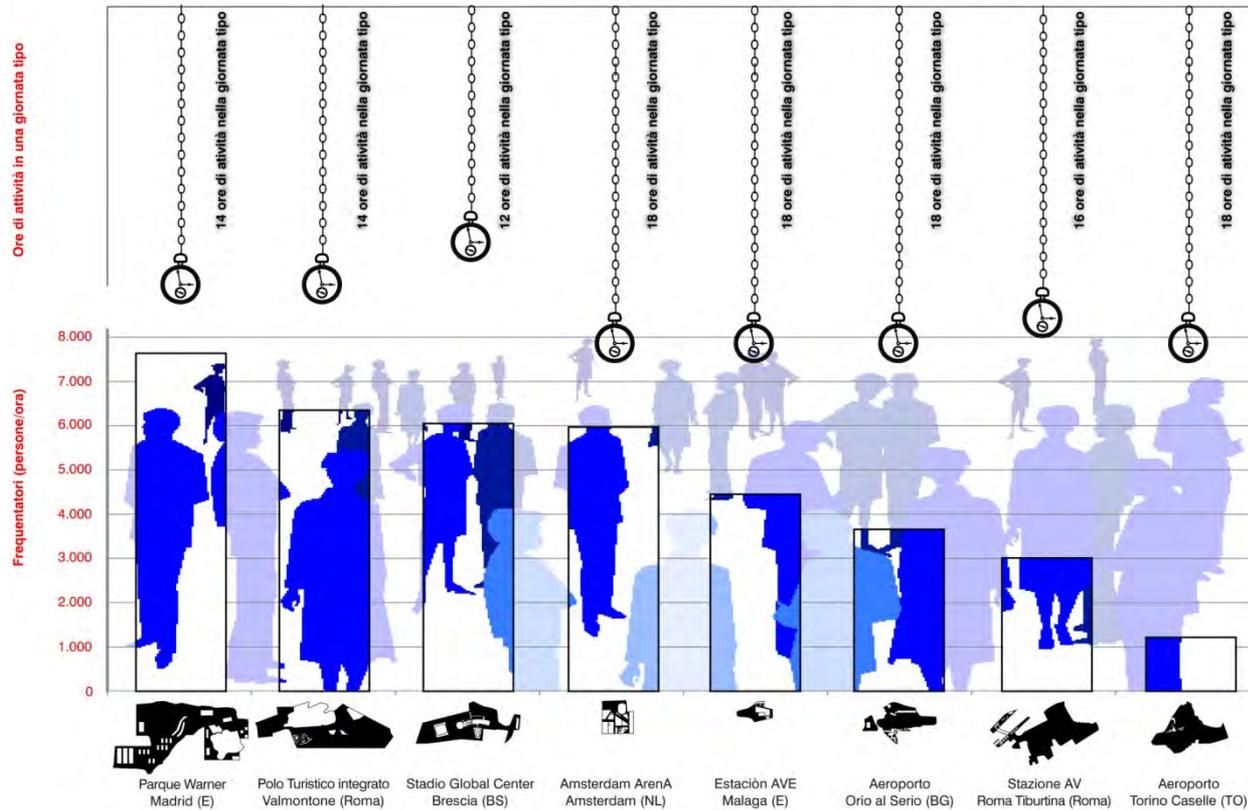
**Vitoria European Green Capital 2014.** Perhaps Vitoria does not need the railway undergrounding, because the city has another kind of 'city project'

Image: City park system, Vitoria Municipality 2013

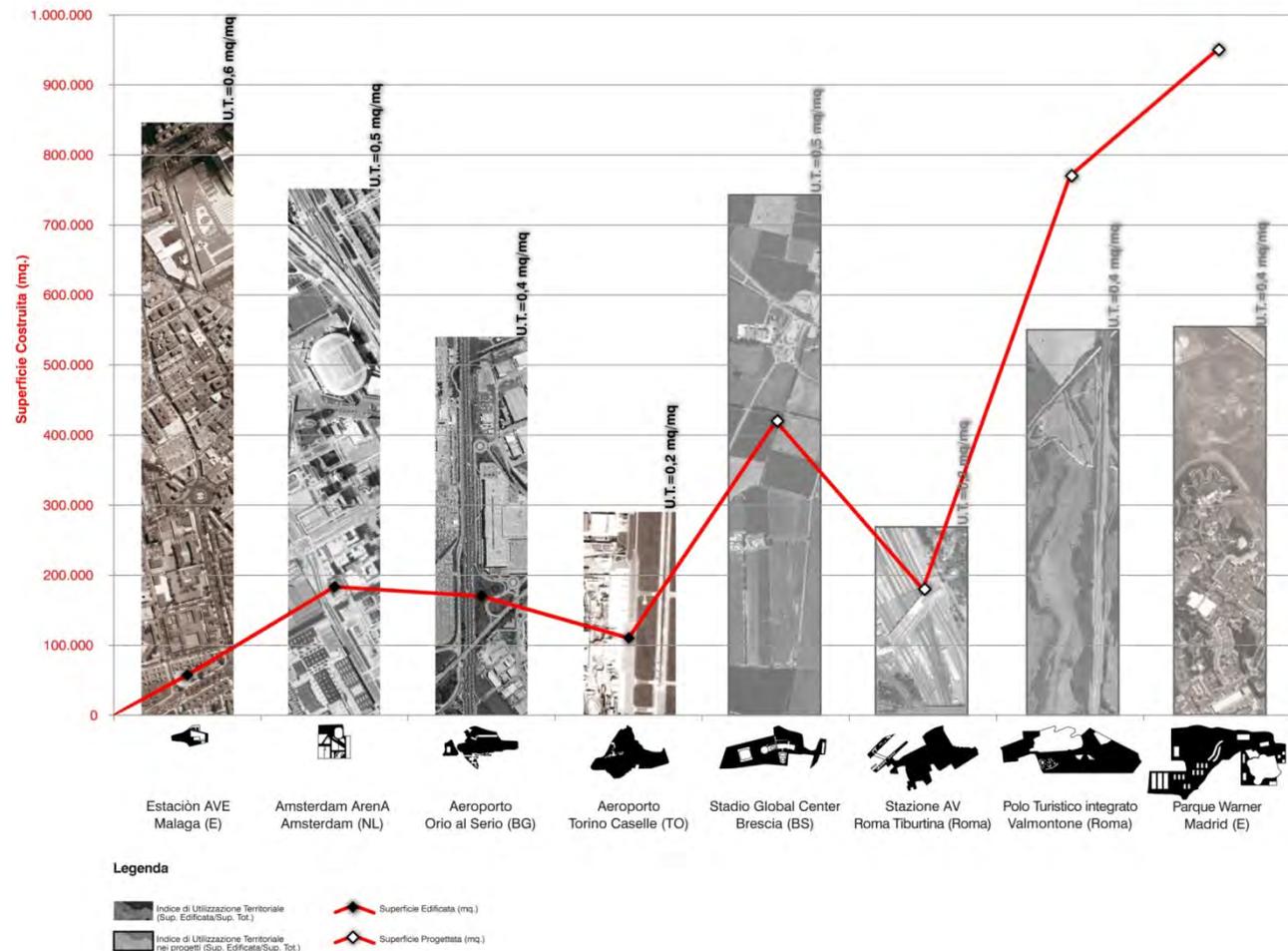
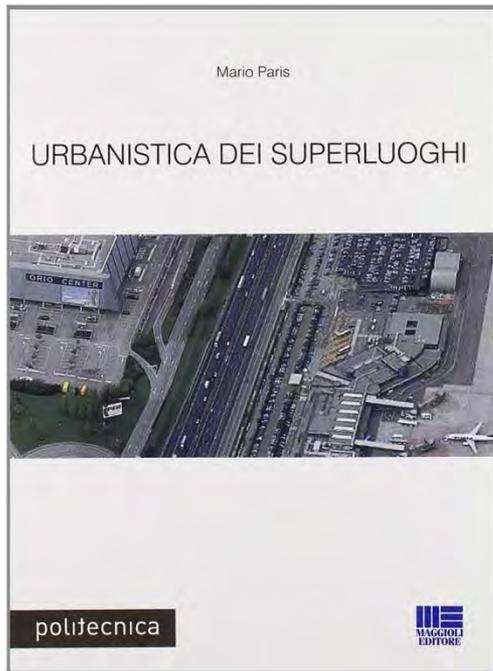
# Rilevanza dei superluoghi nell'interpretazione dell'urbano: i casi di Bergamo e Valladolid

Mario Paris

Director:  
Dr. Juan Luis de las Rivas Sanz



4 Three final and open reflections



## 1. Inner-stations

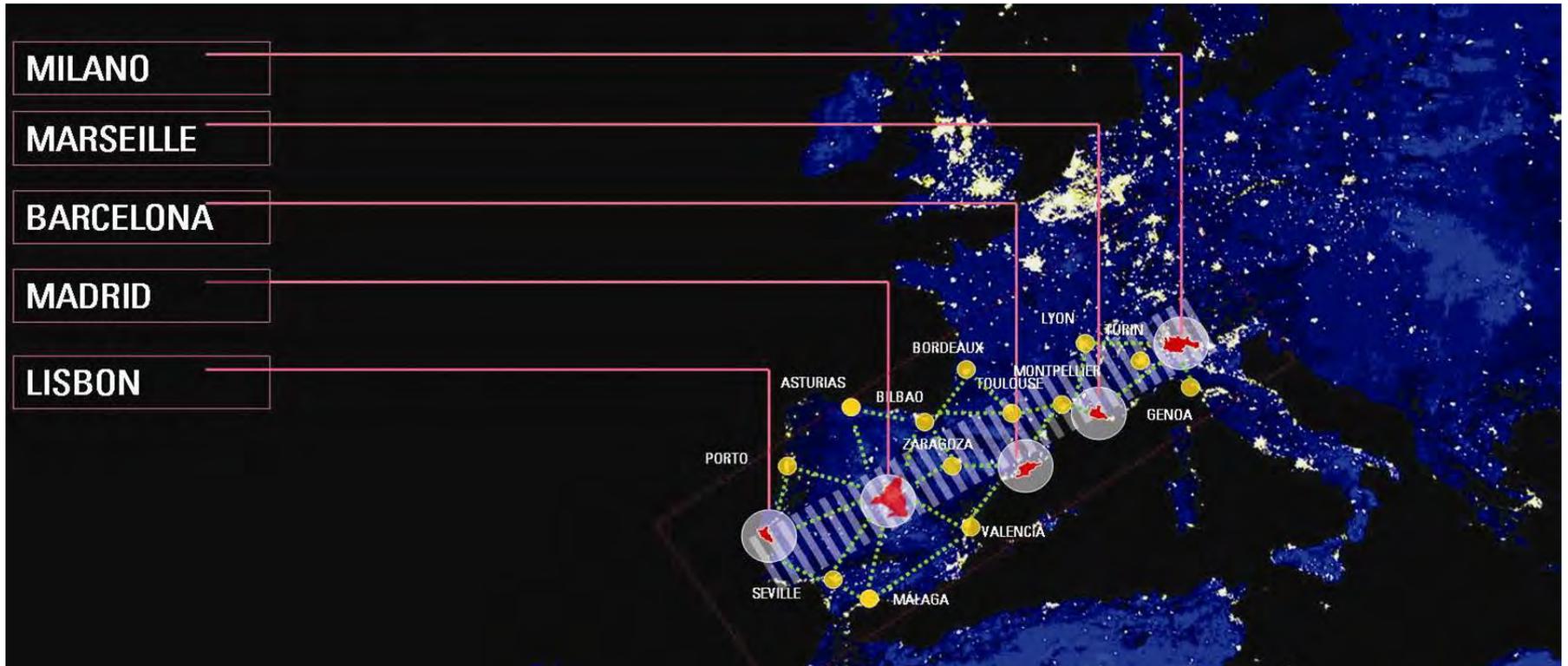
The rail stations can become 'poles' of urban change if they conserve the centrality. The location is the main value, even with no so bigger new investments.

Image: Comparing Málaga new rail-station with other 'super-places' (Source Mario Paris, 2009)



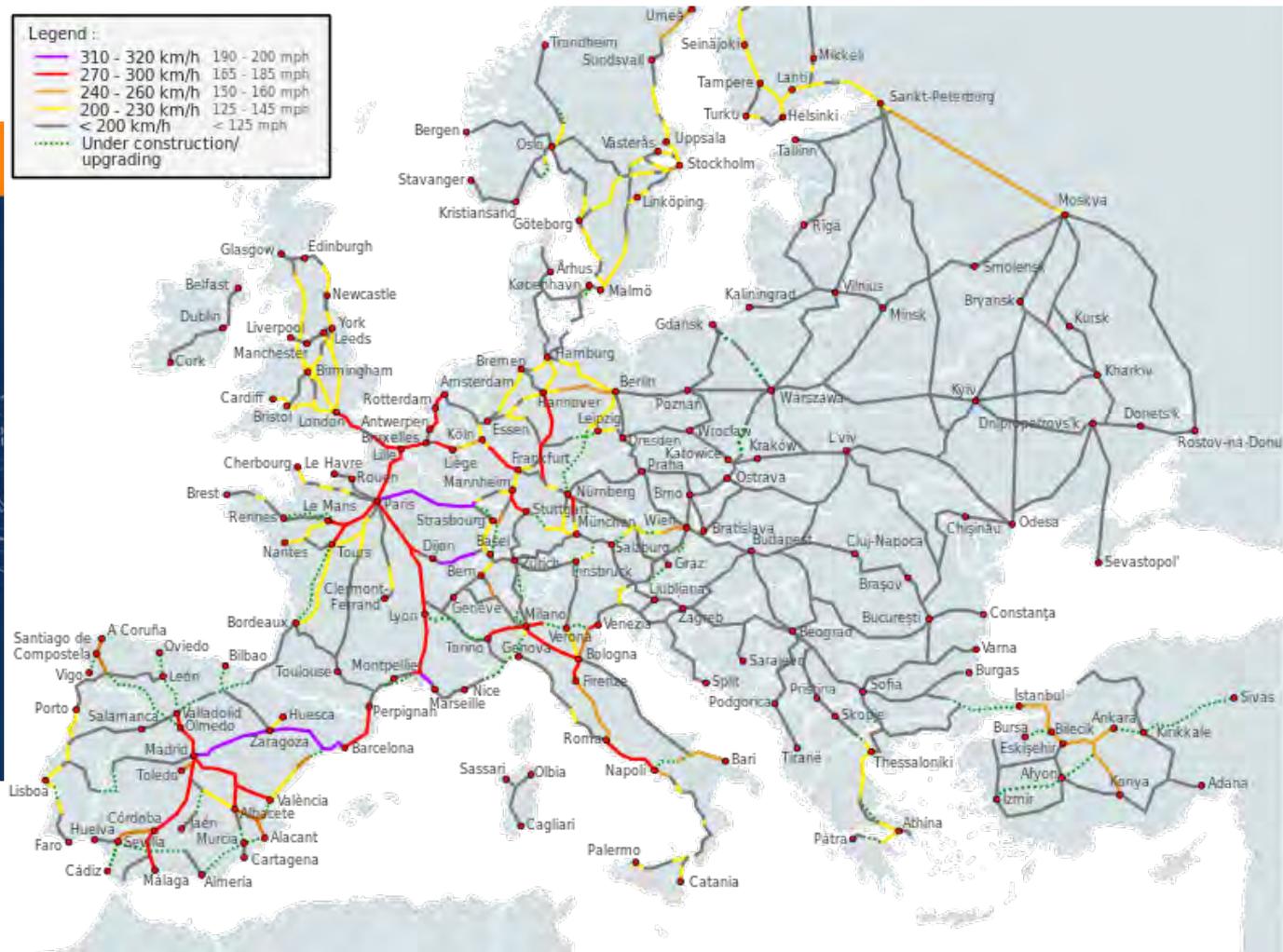
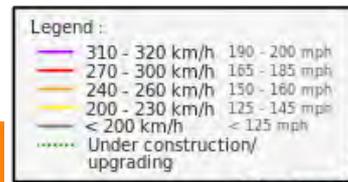
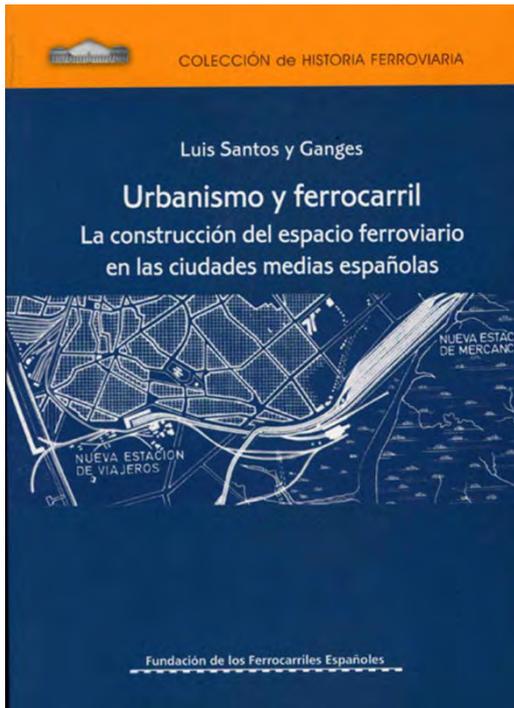
A deeper relationship between the city and the rail-station?

Vigo new rail-station project, Thom Mayne 2011.  
Now abandoned because the Spanish Ministry demands  
'no pharaonic projects' (or a future reclaim of private  
sector).



2. The High Speed Train is an instrument to enhance inter regional relationships

Image: European Diagonal. Fundación Metropoli research



However, Which one could be the role of medium-sized cities in these new inter regional relationships?

Images: European rail network and Doctoral Thesis about contemporary history of medium cities in Spain (director: Juan Luis de las Rivas)



### 3. How much money we need?

The main source of contradictions in the development of Spanish AVE is the rail gauge, but not only. The local and regional interests are always influencing the debate around public investments and running costs.

Image: The 'Y' AVE concept in the Basque Country, a inner network.

# El AVE en España

Líneas de alta velocidad



Rational decisions making?

Local and Regional authorities thinking: It is not a question of costs, it is politics... we (our city, our region) cannot renounce to the public works that **'create the backbone of the territory'**.

Image: the AVE network, existing and in construction.



**Thank You**