

**URBAN PLANNING AND RAILWAY INTEGRATION IN MEDIUM-SIZED CITIES:  
COMPARATIVE ANALYSIS IN SANTANDER AND TORRELAVEGA**

**PLANIFICACIÓN URBANÍSTICA E INTEGRACIÓN FERROVIARIA EN CIUDADES  
MEDIAS: ANÁLISIS COMPARADO DE SANTANDER Y TORRELAVEGA**

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### **Abstract**

The railway station has historically played a key role in the morphological and functional configuration of cities since its arrival in the 19th century. These nodes, initially planned to serve sectoral needs, have become poles of urban development.

After half a century of decline, we are living a period of transformation of the railway mode, either due to the arrival of high-speed, to the policies for a required multi-modality, or due to the large amount of obsolete railway spaces for contemporary technical requirements remaining vacant. These vacant spaces awaiting transformation in the heart of cities become opportunities for urban renewal, incorporating variables that are no longer just from the railway's viewpoint, but are considered key pieces for urban regeneration from the spatial planning perspective.

The objective of the article focuses on analyzing this phenomenon in the Spanish medium-sized cities which, having specific socioeconomic characteristics, are in disadvantage relating to resources for carrying out large urban transformation operations in these sectors. Through a comparison between both Santander and Torrelavega planning proposals, relevant conclusions can be drawn on the role of Urban Planning in defining a local policy regarding integration in a holistic urban strategy.

**Keywords:** railway integration, urban planning, urban renewal, strategies, high-speed rail, medium-sized cities.

### **Resumen**

La estación ferroviaria desempeña históricamente un rol clave en la configuración morfológica y funcional de las ciudades desde el siglo XIX. Estos nodos, planificados inicialmente para dar servicio a las necesidades sectoriales, se han convertido en polos del desarrollo urbano de buena parte de nuestras ciudades.

Después de medio siglo de declive de los entornos asociados al tren, vivimos un momento de transformación del modo ferroviario, bien por la llegada de la alta velocidad, bien por las políticas de unificación y concentración para la requerida multi-modalidad, o bien por la gran cantidad de suelo ferroviario obsoleto para los requisitos técnicos contemporáneos que queda vacante. Estos espacios vacantes a la espera de transformación en el corazón de las ciudades se convierten en oportunidades de transformación urbana, incorporando variables que han dejado de ser sólo ferroviarias, y son consideradas en el planeamiento urbanístico local como piezas clave para la regeneración urbana. El objetivo del artículo se centra en analizar este fenómeno en las ciudades medias españolas que por sus características socioeconómicas se ven desfavorecidas en la recepción de recursos para realizar grandes operaciones de transformación urbana de estos entornos. Mediante un comparativa entre las propuestas de Santander y Torrelavega podemos extraer conclusiones extrapolables sobre la función del Planeamiento en la definición de una política local respecto a la integración de los espacios ferroviarios en la estrategia urbana.

**Palabras clave:** integración ferroviaria, planeamiento urbanístico, regeneración urbana, estrategias, alta velocidad ferroviaria, ciudades medias.

## 1. INTRODUCTION

The railway infrastructure has left its mark on urban morphology during last two centuries, and continues to be an important driver of change in contemporary cities. Although the railway was originally received as a symbol of progress with the possibility of generating new capital gains on the edge of the traditional city (Calvo, 1998), it became, in the last third of the 20th century, a physical barrier to the growth of cities (Santos y Ganges, 2011) that led to new ways of urban expansion with poor quality neighborhoods. However, an apparent new resurgence of railway stations has been taking place with the optimization of obsolete surfaces meant for infrastructure and the recovery of urban surroundings around transport centers (Van den Berg & Pol, 1998; Bertolini & Spit, 1998). In this sense, the arrival of new railway modes, such as high-speed services (HSR), or the improvement of commuter services, light rail and trams, allows the creation of new railway areas (Ribalaygua, 2004; Zemp, 2014; Loukaitou-Sideris et al, 2017) in line with the expectations of the urban renewal desired by society. This article focuses on analyzing the transformation phenomena of the disused railway spaces and in the surroundings of the stations in the Spanish medium-sized cities not linked to large metropolitan areas. The low strategic weight of medium-sized cities in terms of mobility has meant a low investment in improving their railway infrastructures and reorganizing station areas (Bellet & Santos, 2016). However, it is been noticed that, beyond the role as transportation nodes offered by the stations of the medium-sized cities,

there are a greater number of urban renewal projects focused on railway spaces conceived as places of opportunity and catalysts of new dynamics of transformation (Mohino et al., 2014; Ribalaygua & Pérez-del-Caño, 2019; Ribalaygua & García, 2010). Station areas have undergone through spatial transformations over time, in numerous situations far from the premises established in the urban plans of our cities. Sometimes the infrastructure has limited the capacity of renovating the urban fabric and, in others, they have induced urban renewal processes with the opening of large open spaces or with the re-densification under the idea of taking advantage of the accessibility they offer. In all cases the station area has remained as a representative place of the city (Bertolini, 2008), as rail transport plays a valuable role in the spatial structure of cities, especially when this system is connected to other modes of transport (Bertolini & le Clercq, 2003; Banister, 2008).

Within the European context, inspiring examples of strategies and practices are found in cases such as Łódź Fabryczna central station, in the Polish city of Łódź, which reorganizes its city core through an adequate distribution of open spaces (Giedryś & Raczyński, 2017). The same role is played by Bern station, generating a pole of tertiary activities, in line with the criteria of commercial enhancement of the stations and their areas of influence, known as the RailCity initiative (Peters & Novy, 2012). In both cases, rail depression is a strategic element in the urban project. However, all processes of urban transformation developed have the station as the *leitmotif* of the urban operation, node and place (Bertolini & Spit, 1998).

## **2. INTRAURBAN RAILWAY SPACE IN SPANISH MEDIUM-SIZED CITIES**

The Spanish railway network began in the mid-nineteenth century, developing more expansively at the end of the century, where all the provincial capitals already had rail services (Monclús & Oyón, 1996). After a decline in the railway mode and its urban surroundings in the second half of the 20th century, the network is still changing and there is currently a widespread process of renovation of infrastructures and stations.

On numerous occasions, railway environments have been doomed to spatial degradation and are far from their corresponding urban reference image. This is due, among other causes increased by the deep economic crisis in the real estate sector, to the fact that many of the rail depression projects in medium-sized cities are not within the reach of municipal governments, which must take advantage of national funds or railway entities to finance the initial investments (Zembri & Libourel, 2017; Martí-Henneberg, 2015). Some Spanish such as Barcelona (Sants or La Sagrera Station), Zaragoza (El Portillo Station) or Córdoba (Central Station) have managed to develop railway integration projects with the improvement of urban connectivity in surface, relying on large infrastructure projects such as high-speed lines. Even so, the reorganization of ob-

solete railway spaces remains a pending exercise for large cities such as Madrid, Seville or Valencia (Marquínez, 2017; Ribalaygua & Pérez-del-Caño, 2019). Only seven of the 46 Spanish medium-sized cities with a railway station have been able to generate urban transformation projects in their surroundings (Table 1). The high costs of these operations have limited their execution, except when the railway entity leads the initiative in exchange for modifications in municipal planning that favor land monetization. The need to promote the development of Spatial Plans around the station (Plan de Reforma Interior- for Interior Renewal Plans in English), sometimes with severe modifications to the municipal planning, has been one of the strategies followed for the success of urban renewal proposals. With few exceptions, a large part of the Spanish medium-sized cities with railway services have station surroundings in a process of degradation since the last quarter of the 20th century, with poorly urbanized sectors or with difficulties of access. From the 46 Spanish cities analyzed, 15 of them have stations on the urban fringe and two on the periphery<sup>1</sup>, where the improvement of their surroundings mainly benefits the railway entity (Table 1).

Table 1. Case studies according to its railways integration

	<b>Municipalities</b>	<b>Population 2018</b>
<b>Cities with depressed railway</b>	Gandía	73.829
	Orihuela	76.778
	Castellón de la Plana	170.888
<b>Partial railroad depression with barrier effect</b>	León	124.772
	Lleida	137.856
	Salamanca	143.978
	Logroño	151.113
<b>Cities with barrier effect by railroads</b>	Vila-real, Cuenca, Ávila, Mérida, Ponferrada, Ciudad Real, Torrelavega	Between 50.000 to 75.000
	Manresa, Palencia, Santiago de Compostela, Lorca	Between 75.000 to 100.000
	Girona, Reus, Algeciras, Tarragona, Ourense	Between 100.000 to 150.000
	Badajoz, Almería, Pamplona/Iruña, Cartagena, Santander, Vitoria-Gasteiz	Between 150.000 to 250.000

Source: Compiled by authors

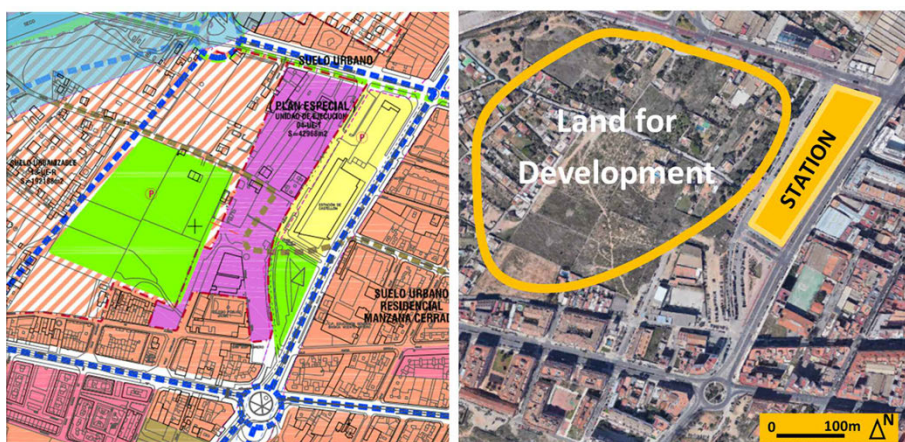
At central stations, railway integration projects have a greater capacity to generate economic capital gains and facilitate urban operation. Considering the 29 central stations found, only 7 cities have fully or partially materialized

1 The following medium-sized cities Huelva, Albacete, Toledo, Cáceres, Talavera de la Reina, Lugo, Elda, Alcoy/Alcoi, Zamora, Sagunto/Sagunt, Huesca, Aranjuez, Jaén, Ferrol and Guadalajara locate the railway stations in the urban fringe meanwhile, Burgos and Segovia have peripheral ones, in the outskirts.

the depression of the tracks through the appropriate modifications to municipal planning (Table 1).

However, the execution of depressed infrastructure does not guarantee subsequent urban development on the surface. In the case of Castellón de la Plana (Figure 1), despite completing the underground works 20 years ago, and incorporating the execution units (residential and tertiary) in the western sector of the station in the 2012 Master Plan, none of the urban actions planned have been developed. This lack of development in this area (called Crèmor) is partly due to the fact that landowners currently live there in traditional houses (*masets*) and do not want to assume the transformation of their neighborhood. Despite the fact that the new Plan has tried to encourage change by increasing the *Floor Area Ratio* to  $1.5 \text{ m}^2/\text{m}^2$ , residents resist and carry out an active legal and social mobilization that manages to paralyze the urban process.

Figure 1. Castellón Station Area proposed in the City Master Plan and at the present time



Source: Compiled by authors based on City Master Plan (PGOU, 2012) and Google Earth orthoimage (2018)

On the contrary, Logroño presents more favorable conditions for economic investment. Its Spatial Plan demonstrated the municipal vision of the rail depression and the urban reference value of the new station with the creation of a vast residential complex (Ribalaygua & García, 2010; Ribalaygua & Pérez-del-Caño, 2019). Planning is certainly a necessary condition, but not sufficient. The success of station area renewal requires an urban planning that favors the development of its surrounding.

In this line, five railway integration projects are currently in process in Spanish medium-sized cities (Table 2). The placing on market of spaces released in this kind of urban operations makes sense when the resulting surface allows a sufficiently profitable urban development for real estate investment. In these cases, the partial financing of the new railway infrastructures is obtained from the value generated.

Table 2. Railway integration projects in development phase

<b>Municipalities</b>	<b>Population 2018</b>	<b>Barrier Effect</b>	<b>Project for Railroad Depression</b>	<b>Station Area Renewal Plan</b>
Torrelavega	51.687	Yes	Informative Report for railroad depression	No
Lorca	93.079	Yes	Informative Report for urban integration project and railroad adaptation to HSR	No
Ourense	105.505	Yes	In phase of development	Informative Report for a new Intermodal Station
Santander	172.044	Yes	No	Informative Report for space reorganization around Station
Vitoria-Gasteiz	249.176	Yes	Informative Report for railroad urban integration	In phase of development

Source: Compiled by authors

In the case of Lorca, the strip of rail area released by the infrastructure depression could hardly accommodate a real estate development to generate economic returns. Only the fact of receiving a high-speed infrastructure such as the HSR Murcia-Almería line is sufficient reason for the railway manager to coordinate the modification of the urban planning with the municipality. Other projects continue their development along the lines of railway integration, such as those at the Ourense and Vitoria stations, which are in the process of overcoming conflicts arising from the surface railway. Among them, Santander and Torrelavega are also designing their station areas, and a more detailed analysis will be made in the next section.

### 3. METHODOLOGY

The study of urban renewal proposals in the station areas of medium-sized cities is initiated with the identification of a group of cities with similar conditions. The case selection was limited to a population range between 50,000 and 300,000 inhabitants, (following the criteria of the research project in which this contribution is integrated) ruling out those attached to a metropolitan area whose main city exceeded this limit. Selected the group of cities, a qualitative analysis of the station areas was carried out in each case in order

to identify: parameters of urban integration, accessibility to the station, existence or not of a physical barrier due to the layout of the routes that prevent relations between both sides of the city, planning in process and the existence of an urban renewal project.

Finally, two case studies were selected from the same Autonomous Community (so that they share a common legal framework) but with different urban planning strategies. With this criterion the case studies of Santander and Torrelavega are chosen. Case analysis is based on field work as well as literature review of the technical and legal documentation of each case. The objective of the analysis is to obtain extrapolated conclusions on Planning tools, identifying their capacity to generate an adequate integration of railway spaces in the urban structure.

## **4. ANALYSIS AND DISCUSSION**

### **4.1. TORRELAVEGA AND SANTANDER, TWO SIDES OF THE SAME COIN**

The metropolitan area of «Santander-Torrelavega», located in the central area of northern Spain, covers 256.8 km<sup>2</sup> and includes six more municipalities: El Astillero, Camargo, Miengo, Piélagos, Polanco and Santa Cruz de Bezana. With a density of 1249.5 inhabitants per km<sup>2</sup>, it is the third densest of the 55 urban areas of medium-sized cities identified by the Ministry of Development (Ministerio de Fomento, 2018a). Santander is located on the north side of a bay, providing shelter and easing marine communication. Its waters are fed by wide estuaries which flow into it from the south, favoring settlements since Roman times. Torrelavega, in the south west, belongs to the Besaya region and is located in a valley about eight kilometers from the Cantabrian coast where the Saja and Besaya rivers meet, favoring productive activities.

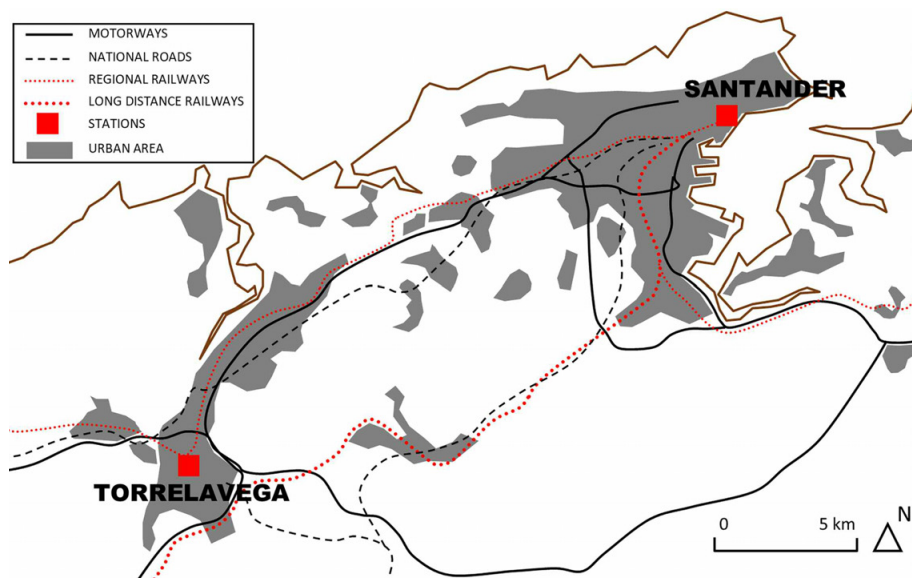
Both cities are linked by the regional main road, being 25 km distant from each other, and maintain strong functional links with a high degree of interdependence (Olazábal & Bellet, 2020; Delgado, 1999). On the one hand, Santander, capital of the autonomous community, is predominantly administrative and services, and tourism plays an important role in its economy. On the other, Torrelavega contributes to the area with the industrial fabric and is consolidated as a commercial nucleus. The urban distribution of the region is characterized by a scattered built between the two large cities, initially as a result of an explosive process of industrialization and later outsourcing of the offer to tourism, especially in the coastal strip (Delgado, 2011; De Meer & de Cos, 2013).

These cases are two medium-sized nuclei within the Spanish national context which polarize the activities of the secondary sector and the supply of tertiary and administrative services over a metropolitan region made up of a set of urban nuclei that oscillate between 10,000 and 25,000 inhabitants and



which concentrate two thirds of the population of the autonomous community of Cantabria (Figure 2). The image shows a territory with a strong anthropic charge in what some authors have identified as a process of *ruurbanization* (Delgado, 1999). As result of this, a vast transition space between the two main poles is developed, where the Santander - Torrelavega axis is positioned as the center and driving force of the regional economy.

Figure 2. Santander – Torrelavega Metropolitan Area



Source: Compiled by authors

The urban railway stations of Santander and Torrelavega are positioned as benchmarks within regional mobility. Nevertheless, in recent years deficiencies in the provision of narrow-gauge railway services (FEVE) and the improvement of the network of motorways between the two cities and other points in the region have reduced their global transportation capacity. In any case, demand for better accessibility through the railway remains between the two cities, which has generated a deep social debate on the need to improve service conditions and, therefore, the improvement of the railway station areas. The current process of urban regeneration of these stations is analyzed below.

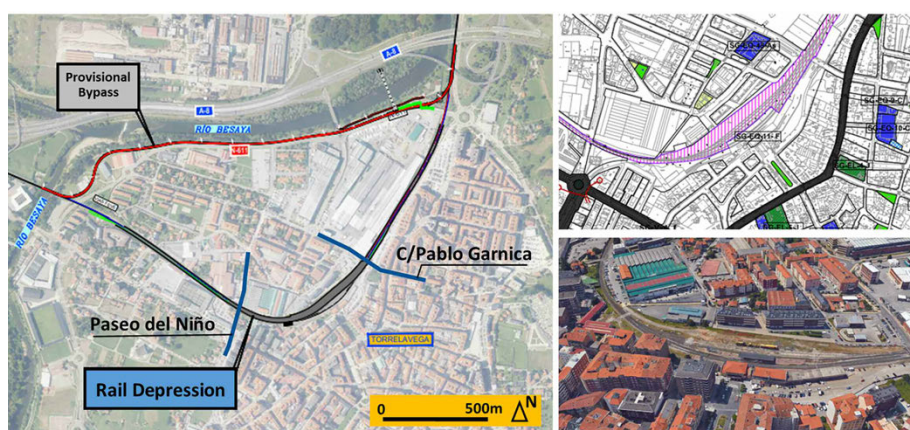


#### 4.1.1. THE RAILWAY DEPRESSION OPTION IN TORRELAVEGA

Torrelavega station is located very close to the city center, where the main commercial and administrative activities take place. The railway area crosses the surface and generates a barrier effect that interrupts the connections between the urban center and the Northern sector of the city to the Besaya river. In 2018, the agreement between the State; Regional Government and the Municipality is signed for the integration of the railway depression, as well as the urban transformation of the surroundings.

The action is proposed outside the municipal planning, which only establishes the area as railway facility (General System). However, the informative report establishes the need for the station surrounding to be considered in the future revision of the local Master Plan. Thus, criteria for the intervention is specified through inter-administrative agreement, understanding, the urban implications of the railway intervention from the very beginning of the process. For the execution of the works, a temporary railway variant is created with the condition of being eliminated once the station enters in service (in red in Figure 3). The scope of integration is limited between the streets *Paseo del Niño* and *Pablo Garnica* with a total of 532 meters of covered tracks (Ministerio de Fomento, 2018b). This will allow the adaptation of the surface and the recovery of connections between the two parts of the city, historically divided in two. However, the municipality must develop and approve a spatial plan *ex post* in order to reshape the released space, that is, a Special Plan for the railway area (Figure 3).

Figure 3. Railway Integration Project in Torrelavega, City Master Plan and aerial view



Source: Compiled by authors, adapted from Ministerio de Fomento-Ayuntamiento de Torrelavega and Google Earth, 2018

The current planning is the Master Plan (called PGOU in Spanish) approved in 1985. A new PGOU is currently being processed addressing the integrative nature of the operation and conceiving the area as a significant reference in the city. However, the limited area identified, limited to the space owned by the railway entity, delays the possibilities of extending the benefits of the operation beyond the station. In this sense, the future intervention should take center stage if the new PGOU assigns an adequate intermodal role and seeks the expansion of the project to other plots that respond to the deficiencies in services and facilities in the nearby neighborhoods.

#### **4.1.2. THE HISTORICAL OPPORTUNITY OF SANTANDER RAILWAY STATION AREA**

The current Santander station is located at the end of the railway line, penetrating the urban network and hindering possible connections between the North and South sectors. Towards the North and parallel to the railway, a mountainous slope of about 25 meters serves as a natural limit where the *Parque del Agua* is located, a linear green open space. To the South, the populous Castilla-Hermida neighborhood, with its own urban expansion structure, plunges towards the maritime edge of the port area. In the middle, an enormous surface of railway space was identified at the current Master Plan (PGOU, 1997) as a sector ready for urban renewal.

According to the Spanish legal system, this sector defined as Specific Area 9 (PGOU of 1997) needs to be developed by a Special Plan. The Station Area Special Plan will coordinate the railway uses, facilities, tertiary, commercial, hotel or residential activities and, in particular, will facilitate the connections between the two parts of the city that are currently separate. Also, in this case, it is observed that the organization of the space released by the railway is subject to the guidelines established by the *ex post* planning.

In this local urban context, the Ministry of Development makes a proposal in 2018 (Figure 4) that overlaps with the management capacity of the Special Plan (Ministerio de Fomento, 2018c). In this proposal, which is currently under negotiation and modification with the City Council, the railway problem is solved with a technical solution concerned with the resolution of the sectoral problems of the train, alien to the detected urban problems.

The operation is limited to defining the shrink of the railway space in order to release a large surface area identified graphically as open space (Figure 4). The station is designed as a large 3-hectares *meccano* that, apparently, allows the connection of the Parque del Agua with the Castilla-Hermida neighborhood through the roof. The proposal incorporates the recovery of the old station, including a significant decontextualized parking area close to the new station.

Figure 4. Urban Renewal Project with transversal section and aerial view of Santander Rail Station



Source: Compiled by authors and adapted from Ministerio de Fomento and Google Earth, 2018

The proposal of the Ministry of Development is not accompanied by an urban renewal project and is inconsistent with what is determined in the Santander Master Plan. This municipal planning calls for a holistic plan of the total area of 30 hectares, and not just the specific space of the station (5 hectares), considering the effects of the different alternatives (the document asks for including three options, considering the total or partial depression of the tracks). In this controversy, there is a citizen movement and the City Council itself demanding a global project by the Ministry within a new Master Plan (PGOU) that determines the characteristics of infrastructure integration. This same conflict has previously occurred repeatedly in the process of many other Spa-

nish stations (Segovia, Guadalajara, Lleida among others), given that the municipal management capacity of these areas is limited by the imposition of railway needs (and property), not very often concerned with the strategic role that the railway area can play in the city.

#### 4.2. URBAN PLANNING VERSUS SECTORIAL DEVELOPMENTS

In the cases presented, we can verify the difficulties in managing railway integration and the relative weight of municipal planning in these strategic decisions. Although, in the case of Torrelavega, the station area allows a functional arrangement of the exterior space, it is subject to the subsequent definition of the planning. Santander, on the other hand, generates a new station project intended to solve the technical deficiencies of the railway infrastructure, but not helpful for the numerous problems of urban connection between the North and South sides of the city, as well as to solve the deficits of services around the station area. In both cases, the railway action releases public space that must be reorganized in a subsequent operation of the municipal planning.

The following lessons are extracted from the comparative analysis of the railway area plans both at Santander and Torrelavega:

First, understanding that the station project is a city project, planning actions should be aimed not only at resolving the conflicts of functional integration of the railway but as a resource to improve the city center. This resource has a double function: on the one hand, from a functional point of view, to facilitate the lack of open spaces or facilities in surrounding neighborhoods; but also, on the other hand, to offer demonstrative urban quality solutions, so they can later be upscaled to the rest of the city. Therefore, it is necessary that the urban planning documents, in coordination with the railway entity, identify an area large enough to develop the urban renewal project responding to its potential strategic role within the city. Under this premise, direct benefits will be obtained on accessibility and mobility management.

Secondly, in order to guarantee the success of the intervention, the role played by the station as an urban and inter-urban modal node must be taken into account, generating a transit-oriented development. In this sense, on the one hand, a higher-scale Plan is required to guarantee coordinated and sustainable mobility; and on the other hand, an adequate arrangement of the area. For the latter, the instrument of the Special Plan for Internal Renewal avoids isolated and decontextualized arrangements within the strict railway area. Through an adequate study of the urban conditioning factors, the railway integration project will extend its benefits beyond the functional space of the station.

Finally, in both interventions the planning of an identity space with the configuration of the *station plaza* is pending, the result of which will determine

the success of the proposal. Station areas must become urban benchmarks and, therefore, the terminal renovation project must assume the referential role that the railway infrastructure has always had since its creation.

## **5. CONCLUSIONS**

The study has verified that most of the Spanish medium-sized cities with a railway station maintain the original nineteenth-century line with obstacles which limit the continuity of the urban fabric. However, urban renewal projects are being developed intending the recovery of the railway areas by depressing the line.

Municipal planning, a key tool in these transformations, is subject to the functional determinations established by the railway needs. Thus, it has been possible to verify in the cases of Torrelavega and Santander, where urban planning must order *ex post* railway actions. To take advantage of these opportunities, greater inter-administrative coordination must take place, integrating the urban value of the area as a priority in the decision-making of the Ministry of Development. In addition, the station plans must take into account the capacity of the tool of the Special Plan to guarantee the insertion of this space in the urban fabric and solve city broad problems, beyond the railway.

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