

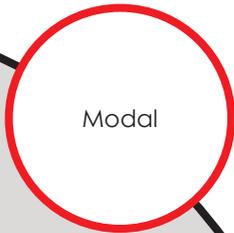


Caltrans Division of Research,  
Innovation and System Information

# Research



# Results



Modal

MARCH 2017

**Project Title:**

A Comparative Analysis of High-Speed Rail Station Development into Destination and/or Multi-use Facilities: San Jose Diridon

**Task Number:** 2969

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## A Comparative Analysis of High Speed Rail Station Development into Destination and/or Multi-use Facilities A Comparative Analysis of High Speed Rail Station Development into Destination and/or Multi-use Facilities

Identified best practices from selected case studies of European railway stations in order to inform the development of proposed California High Speed Rail facilities

### WHAT WAS THE NEED?

As both scholarly literature and experience on the ground indicate, good station-area planning is a very important prerequisite for the eventual successful operation of a high-speed rail (HSR) station; it can also trigger opportunities for economic development in the station area and the station-city. What is less clear, however, is what constitutes good station-area planning. Examples from European HSR stations have shown that planning is instrumental in coordinating land uses around them, often through densification and the location of major "traffic attractors" such as important public buildings and distinctive station architecture. At the same time, the best European examples are distinguished by a seamless integration of the HSR station with its surroundings and a strong intermodal connectivity that links the high-speed services to other transportation modes and services.

In July 2014, the City of San Jose adopted the Diridon Station Area Plan ("Plan" setting out a 30-year vision for Diridon station-area planning. Diridon is likely to undergo significant transformations in the next decades due to the planned arrival of HSR and Bay Area Rapid Transit (BART) services, and the electrification of Caltrain-the region's commuter-rail system. Together, with many additional planning documents released by the City of San Jose, the California High Speed Rail Authority (CHSRA), Caltrain and other State and Federal planning agencies, the Plan documents a significant planning effort creating a unique multi-modal



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facility, surrounded by new, state-of-the-art development. Nevertheless, given the uncertainty of future infrastructure and policy development, the Plan needs to be flexible and open to multiple adjustments.

## WHAT WAS OUR GOAL?

The principle goal of this study was to review existing literature and data on international multi modal HSR stations, drawing lessons and best practices from selected case studies of European railway stations and interviews with European and United States experts, in order to inform the development of proposed California HSR stations, and in particular, Diridon Station in San Jose. The study seeks to answer some key questions related to both the transport node and the place functions of a future Diridon Station, integrating not only HSR, BART, and Caltrain services, but also non-vehicular transportation modes, such as walking and bicycling. Research for this study centered on the following questions:

1. What and how can San Jose Diridon Station learn from key European rail stations built adjacent to major commercial, office, and residential uses? What types of uses are the most compatible with HSR service?
2. What and how can San Jose Diridon Station learn from key European rail station-area planning and operations processes dating back fifteen to twenty years?

## WHAT DID WE DO?

This study began with a literature review on the planning and design of successful intermodal transit facilities. From this review, the researchers determined three types of elements important to good station-area planning: 1) elements relating to station and station-area design and land uses; 2) elements relating to the operation of transportation services; and 3) planning and policy actions

relating to station-area planning. Additionally, the researchers undertook an evaluation of the Diridon station-area plans, and other related planning documents and reports, detailing the evolution of goals, vision, and challenges for station-area development. This textual review was complemented by visits to San Jose Diridon and interviews with San Jose planners and urban designers involved in the Diridon station-area planning. To better understand and extract lessons from the European experience of station-area development, the researchers initially developed twenty profiles of stations in Germany, Austria, Spain, France, Belgium, Italy, and the Netherlands, and with the help of the studies advisory board, selected from them five case studies for detailed exploration. For the case studies, the researchers reviewed relevant plans and other documents, and interviewed project managers.

## WHAT WAS THE OUTCOME?

The multiple information sources reviewed by the researchers resulted in the following attributes characterizing successful HSR station-area planning:

- Strong spatial connectivity, which the researchers define as “seamless integration of the station with its surroundings
- Strong intermodal connectivity, defined as “the seamless integration of different transportation modes at the station, and a convenient access and transition from one mode to the other”.
- Strong operational connectivity, defined as “good project governance, and coordination and collaboration among different public sector agencies and between the public and private sectors”.

The researchers provide a series of recommendations for Diridon's station-area development for each of the three above findings, which can be found in detail in the final report.

## WHAT IS THE BENEFIT?

The CHSRA is currently undertaking environmental review for the San Francisco-San Jose corridor, required by the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), with the intent of issuing a final environmental document by the end of 2017.

As part of this review process, the alignment and vertical profile for HSR through the Diridon Station Plan Area continues to be refined. Major design questions, such as the decision of whether the approach to and/or the station itself would be aerial, surface, or tunnel, have not been resolved. This study thus provides timely recommendations for the successful planning of the San Jose Diridon station, as well as other stations along the California HSR corridor.

## LEARN MORE

The final report can be accessed at:  
<http://transweb.sjsu.edu/project/1502.html>

The recording of the project webinar can be viewed at:  
<http://transweb.sjsu.edu/MTiportal/events/past-event-photos.html>

## IMAGE



Image 1: It is important to have a clear and realistic vision both for the intermodal node (the station [in red]), AND the (new) mix of uses to (eventually) be placed around it (the station district(s) [in blue]). Example: Berlin Central Station.