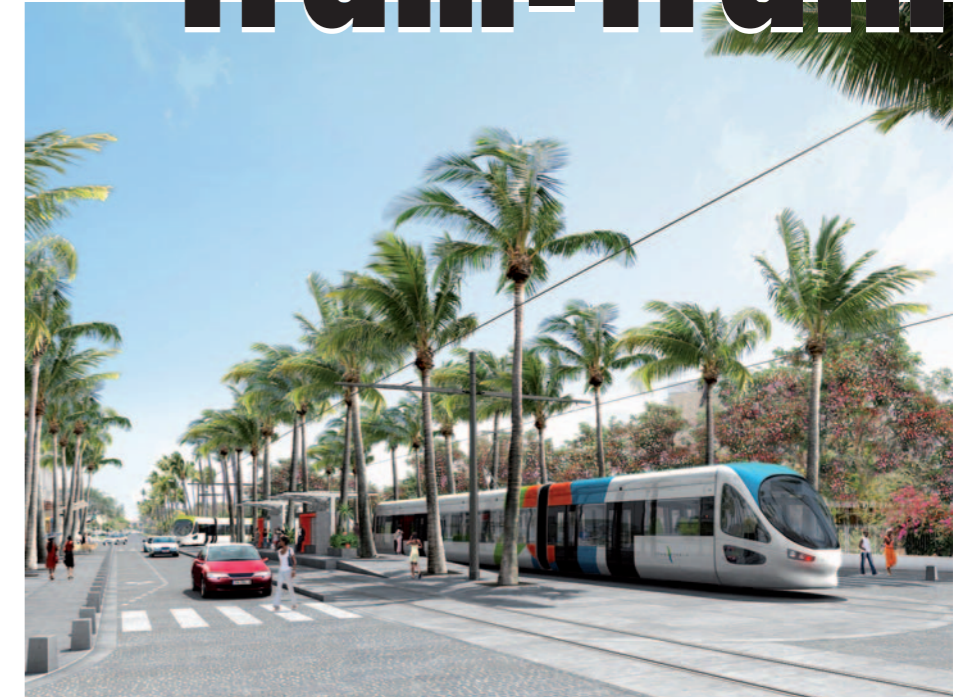


Tram-Train



study of the access strategy to the railway network in the Huveaune valley (Marseilles-Aubagne). This included, among other aspects, providing effective solutions to improve transfer from all modes to existing stations, or planned connections (park-and-ride, public transport interchange points). These proposals encompassed technical aspects (design, services, etc.) as well as institutional issues (scheme promotion, financing, pricing, etc.), all of which are important in such ventures.

Nice-Côte d'Azur

- Comprehensive study to define an investment strategy for the coastal railway line in the Alpes Maritimes, designed to provide the best railway services in the long term and to schedule the resultant investment costs.
- Appraisal of the feasibility in terms of demand and economic and financial viability of the development of three lines: a coastal line between Cannes and Nice, reopening of the line between Cannes and Grasse and modernisation of the Nice-Breil line.
- Technical and economic study of the tram-train interconnection with the Nice-Drap and Cannes-Grasse railway lines.

Nimes

In 2001, SYSTRA completed a study of the possibility of recovering train paths on the Nimes railway system to set up an urban / peri-urban railway network. The work was undertaken on behalf of the public works services of the Gard département⁹, in the context of construction of the future Nimes-Montpellier TGV ring line.

Montpellier

Technical study of the feasibility of using railway infrastructures for peri-urban services (1998).

Western France

Bordeaux

Study of a transport system in the west of Bordeaux urban area, using the existing railway tracks of the Ring line and the Médoc line, with a view to the commissioning of the second phase of the tramway (2003-2004).

Basque region

Feasibility study of a tram-train along the Basque coast between Bayonne-Anglet-Biarritz - Hendaye with a possible extension to San Sebastian, Spain (1999).

La Rochelle - Rochefort

Completion of a multi-modal study to define and compare various public transport solutions as an alternative to the planned motorway section between Fontenay Le Comte-Rochefort (A 831 motorway). After assessing the existing situation, the survey defined several supply scenarios integrating different options for inter-modal transport and local and peri-urban services.

Nantes

- Study on behalf of the Nantes Metropolitan Authority into the feasibility of connecting lines 1 and 2 of the Nantes tramway across the river Erdre by making use of the existing Jone-lière rail bridge. Functional analysis of different scenarios aimed at combining investment from several different projects which were likely to use the bridge and which involved various different owners (connecting tramway lines 1 and 2, re-opening the Nantes-Châteaubriant railway line as a tram-train service, providing a rail link to the proposed Notre Dame

des Landes airport and maintaining the existing freight service) (2005).

- Technical assistance to the owner, the Pays de la Loire Regional Authority, to manage the Nantes-Châteaubriant tram-train project until its progressive reopening from 2010 to 2012.

Rouen

- Study into the creation of a tram-train network linking Yvetot, Rouen and Elbeuf, carried out on behalf of the Joint Syndicate for Territorial Planning and the Regional Council for Upper Normandy. The study was part of an overall review aimed at enhancing the rail network and included an analysis of the construction of a new suburban station (2004).
- Feasibility study and application for formal State planning approval for the extension of the metrobus to Grand-Couronne (1996/97).
- Preliminary study on behalf of SIVOM, on the requirements for the extension of the metrobus onto the railway line to Grand-Couronne, and, later, Elbeuf (1995/96).

⁹ Direction Départementale de l'Équipement - DDE

International projects

Portugal

Coimbra

SYSTRA completed a feasibility study on transforming the Coimbra-Serpins secondary peri-urban railway line into a light metro line (1999/2000).

The scheme comprises a T-shaped network with a main section between Coimbra B-Serpins (urban and peri-urban line over 30 km) and a purely urban section between Bota Abaixo-Hospital over 3.5 km.

The study served to investigate thoroughly the problems arising from the track gauge, vis-a-vis Iberian gauge or standard gauge. The lower cost of the standard gauge and the greater choice in regard to future rolling stock replacement weighed in favour of the standard gauge. The existing track, to be used solely by the tram-train, will be completely renewed and rebuilt to the standard gauge.

Italy

Livorno-Pisa-Lucca

In the context of projects completed through SYSTRA-SpA on behalf of the town councils of Livorno, Pisa and Lucca, SYSTRA investigated the possibility of creating interconnecting tramway lines between the three town centres.



Study of migrations within Coimbra urban area ⁶



Conception et réalisation: SYSTRA

June 2008

The tram-train concept is based on the use of existing railway lines by urban tramways, in order to connect suburban centres to town centres, with no transfer.

Since 1995, SYSTRA has been at the forefront of research work into the tram-train concept in France.

For our company, it has proved a perfect application for its skills in transport planning and engineering in both urban and rail transport. Our in-depth research resulted in the publication in 1997, under the aegis of GART, of the text book «Quand le tramway sort de la ville»¹.

SYSTRA was thus at the root of many peri-urban projects, for example, in Nantes, Lyons and Mulhouse, where the service along the Thur valley is currently one of the most advanced tram-train projects in France.

Overseas, SYSTRA is placing great hope on this efficient and relatively inexpensive concept, both in developed and in emerging countries.

¹ «When the tramway leaves town»

² «Guide for the development of intersections between railway tracks and roads in the context of tram-train projects»

Reference studies

• **Development of the peri-urban tramway (2005-2006):** Assistance to the owner, the Public Transport Division of SNCF, appointed by the French Association of Public Transport Authorities (GART) to create partnerships between peri-urban rail projects and invite tenders for a new standard of rolling stock, the first order being for the Nantes-Châteaubriant and West Lyons Area projects.

• **RFF reference documentation on the tram-train infrastructures (2003-2004):** the objective was to work out, gather and validate a number of design standards and maintenance principles to be used on the future tram-train lines of the RFF network, to be commissioned from 2006 onwards.

• **Guide d'aménagement des intersections voies ferrées / voies routières dans le cadre des projets tram-train² (2001/02):** This guidebook, which was produced jointly with the organisations involved (Direction des Transports Terrestres, GART, RFF, SNCF, CERTU) makes available to designers a method of defining development solutions tailored to the sites' specific characteristics. It provides a vital tool for dialogue between managers of road and rail infrastructures.

• **CROSSRAIL (2001):** European Commission project designed to integrate local and regional rail, including cross border issues. The main aim was to define the potential market for European tram-train stock.

Tram-train project - Reunion Island ⁶

