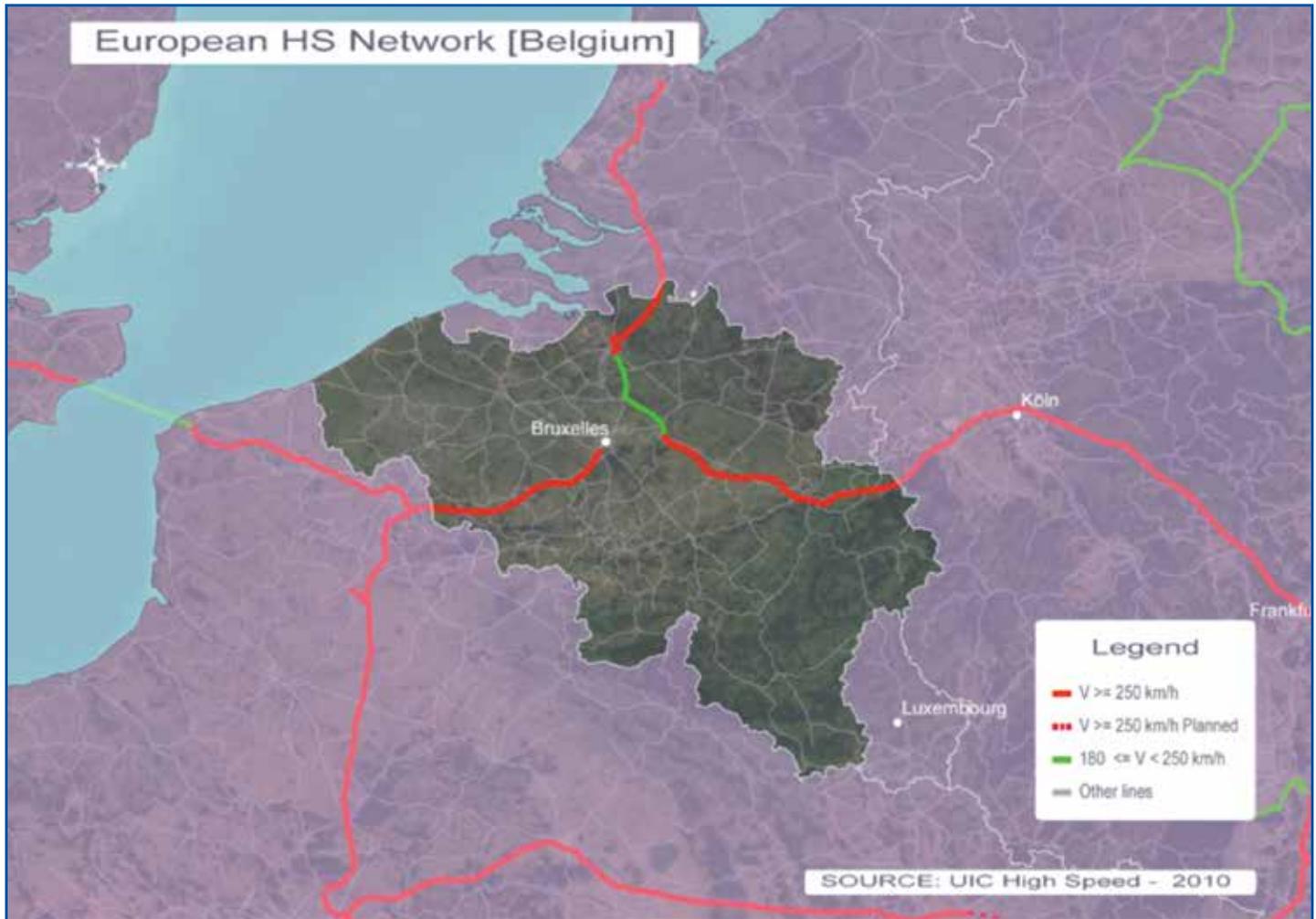




International System Summary: BELGIUM



UIC Map of Belgium's High-Speed Rail Lines

Belgium is a relatively small country located in Western Europe, bordering France, Germany, Luxembourg, and The Netherlands. Its population ranks 82nd in the world with over 10.4 million people, with 97 percent of that population listed as urban. The capital of Brussels is the major population center with almost 1.9 million people and Antwerp is second with over 961,000 residents. The country's GDP of \$412 billion ranks 32nd in the world; and its GDP

per capita of \$37,600 ranks 30th in the world. Brussels is the seat of both the European Union and NATO, largely a reflection of Belgium's location as the crossroads of Western Europe. Belgium currently has 130 miles of high-speed rail in operation, much of it connecting with neighboring countries. Above is a map of the Belgian high-speed rail lines.



HSL 2 high speed rail line near Berloz, Belgium

SYSTEM DESCRIPTION AND HISTORY

Three of the four listed high-speed passenger rail lines in the table below connect with systems in bordering countries. The first line opened in 1997 between Brussels and the French border and operates at 300 km/h (185 mph). The only Belgian-internal high-speed line travels between Leuven and Liege with an operational speed of 300 km/h (185 mph). The last two segments began operations in 2009: one between Liege and the German border (operational speed of 260 km/h [170 mph]) and one between Antwerp and the Dutch border (operational speed of 300 km/h [185 mph]). The table below by the International Union of Railways (UIC) contains the Belgian line segment speeds, opening year, and length.

UIC Table of Belgium's High-Speed Rail Lines

Stage	Speed		Year Opened	Length	
	km/h	mph		km	miles
In Operation:					
Brussels – French Border (L1)	300	185	1997	72	45
Leuven – Liège (L2)	300	185	2002	65	40
Liège – German Border (L3)	260	160	2009	36	22
Antwerp – Dutch border (L4)	300	185	2009	36	22
GRAND TOTAL				209	130

The Thalys service between Paris and Brussels reduced the travel time from 2 hours to 90 minutes. Service levels include 28 trains in each direction each day, or one every half hour on weekdays.

The high-speed rail service reduced the travel time from 2 hours to 90 minutes.

The 100 percent double-tracked high-speed rail network crosses several different terrains throughout the country. The following table describes the variety in the types of structures on each line segment. Segments L1 and L2 both are almost all earthwork, which signifies generally flat, level terrain. Line segment L3, which connects with the German high-speed rail system is largely made up of bridges, viaducts, or tunnels signifying more mountainous conditions.

Belgium's High-Speed Network Structure Types by Individual Line

Structure Type	Brussels – French Border (L1)	Leuven – Liège (L2)	Liège – German Border (L3)	Antwerp – Dutch border (L4)
Bridges & Viaducts	6%	3%	85%	16%
Tunnels	1%	1%	15%	7%
Earthwork	93%	96%	0%	77%

The UIC reports the Belgian high-speed rail system transported 9.561 million passengers in 2009, as shown in the table below. Of those, 2.078 million are designated as traveling by way of first class service.

2009 Passenger Volume and Performance of the Belgium High-Speed System

Passengers (thousand)		
1st Class	2nd Class	Total
2,078	7,483	9,561

Sources: *High-Speed Lines in the World; Maintenance of High Speed Lines; High-Speed Traffic; "Thalys."*



A Thalys train bound for Paris-Nord shares the platform with a TGV train bound for Nice via the CDG Airport and Lyon at Brussels South station.

ECONOMICS AND FINANCE

The European directives to separate rail infrastructure ownership and operations resulted in Belgium to create two distinct companies to own and operate its high-speed system. Infrabel manages the infrastructure, and the National Railway Company of Belgium (SNCB) manages most of the rail operations. Both entities are wholly government owned. As the infrastructure manager, Infrabel issues access charges, which differ by type of train. Thompson and Tanaka 2010 report that the access charges recover approximately 20 percent of the full financial cost of the infrastructure, with the rest coming from the government. Because of the connections with the neighboring countries, SNCB is a financial partner with international operating companies on several of the lines. These include:

- Eurostar – jointly owned by the French National Railway (SNCF), SNCB, and London and Continental Railways (LCR).
 - o Runs from London via Lille to Brussels or to Paris, and is buying trains to extend service to Amsterdam and Frankfurt.

- Thalys – jointly owned by SNCF (62 percent), SNCB (28 percent), and DB (10 percent).
 - o Provides service among Paris, Brussels, Amsterdam, and Cologne.
- Fyra – joint venture between Dutch National Railways (NS) and SNCB.
 - o Provides service between Brussels, Rotterdam, and Amsterdam.
- DB – joint venture between SNCB and DB.
 - o DB operates ICE trains from Brussels to various German destinations and has announced plans to operate from Germany through Brussels and Lille to London.

Sources: High Speed Rail Passenger Services: World Experience and U.S. Applications.



Antwerp Central Station

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