



International System Summary: SWITZERLAND



ICN InterCity tilting train - two units coupled together © SBB photo

Switzerland is located in Central Europe, bordering France, Italy, Austria, Liechtenstein, and Germany. The Alps Mountains traverse the middle and southern parts of the country, while the northern and western parts are located within the Swiss Plateau, where a large portion of the population is concentrated. The country's population is 7.65 million people, with Zurich (1.14 million) and Bern, the capital, (346,000) being the largest cities. The GDP of \$340.5 billion ranks as the 38th largest economy and the GDP per capita of \$43,400 ranks 15th.

Sources: *The World Factbook*

SYSTEM DESCRIPTION AND HISTORY

Switzerland has a long history of providing passenger rail service and currently maintains 3,138 km (1,950 miles) of rail infrastructure, which includes both international and narrow gauge. The Swiss Federal Railways (SBB) reports that 1,718 km (1,068 miles) of the system is double or more-tracked, while the remaining 1,420 km (882 miles)

is only single-tracked. All of the system is electrified. In 2011, SBB reports transporting 347.1 million passengers by rail, up from 347.1 million in 2010. They also report that the 2002 ridership numbers were 245.3 million passengers, which shows a 45 percent increase between 2002 and 2011.

The International Union of Railways (UIC) lists 107 km (66 miles) of high-speed line in Switzerland either in operation or under construction, as seen in the table on the following page. All three segments listed are primarily rail tunnel projects undertaken by Switzerland to improve rail travel, both freight and passenger, through the Alps and in order to reduce the number of cargo trucks and vehicles on Swiss roadways. As indicated in the table and discussed in sources, tilting trains operate at 250 km/h (155 mph) on segments between Italy and Switzerland through the Lötschberg Base Tunnel. Other geometry improvements in the country along with use of the tilting trains have upgraded other segments to 200 km/h (125 mph) maximum speeds.



ETR 610 Near Gorgier © SBB photo

UIC Table of Switzerland’s High-Speed Rail Lines

Stage	Speed		Year Opened	Length	
	km/h	mph		km	miles
In Operation:					
Frutigen - Visp Lötschberg base tunnel	250	155	2007	35	22
Under Construction:					
Erstfeld - Biasca (Gotthard base tunnel)	250	155	2017	57	35
Giubiasco - Lugano (Ceneri base tunnel)	250	155	2019	15	9
TOTAL				72	44
GRAND TOTAL				107	66

These major tunnel projects are intended to greatly improve rail service through the Alps and will allow for higher speed operations. However, in general, with the extreme topology of the country and close proximity of the cities inside the small country, in Switzerland it is not

economical to attempt to implement longer-distance inter-city high-speed rail operations with characteristics and top speeds like those in neighboring Germany, France, and Italy. SBB indicates that the high-speed standard for Switzerland lies between 160 and 200 km/h (100–125 mph). The Swiss rail network does connect to the neighboring high-speed networks in France, Germany, and Italy. The SBB website also documents efforts to upgrade the connections into neighboring countries. In doing so, SBB states that these improved connections will greatly reduce travel times from Switzerland to Munich, Ulm, Stuttgart, Paris, and Lyon. The tunnel projects will specifically improve the connections with Italy.

Sources: High-Speed Rail Lines in the World; “Lötschberg Base Tunnel, Switzerland”; SBB Facts and Figures 2011; Railway Statistics Synopsis; “Bahn 2000, Switzerland”; HSR-C – Connection to High-Speed Rail Traffic



Gotthard Base Tunnel Project near Ersfeld ©Gotthard

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