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Federal Office of Transport

New routes through Europe

Swiss transport policy from A to Z

Approach routes

Switzerland has concluded agreements with its neighbours Germany and Italy to ensure the expansion of the approach routes to the base tunnels, which will allow them to handle the growing volume of traffic. The progress of the work is regularly monitored by joint committees. In addition, the corridor between Rotterdam, Zeebrugge and Genoa, which is one of Europe's most important rail freight routes, is being expanded and equipped with the ETCS train protection system. Organisational measures are also being implemented to allow the trains to travel faster. As there have been some delays on the German side, Switzerland and Germany have agreed operational measures to increase capacity with a view to opening the entire Gotthard axis.

Base tunnels

The construction of the Lötschberg, Gotthard and Ceneri railway base tunnels means that trains no longer have to climb steep inclines on their route through the Alps. With the opening of the Gotthard and Ceneri base tunnels, the highest point on the Gotthard route is 550 metres above sea level. Trains now face a maximum gradient of 1.2 per cent. This means transport capacity can be increased, and the north-south link through the Alps is shorter and the journey times faster.

Ceneri base tunnel

The Ceneri base tunnel, which is 15.4 km in length, runs under Monte Ceneri in the canton of Ticino. It connects the northern part of Ticino (Sopraceneri) with the southern part of the canton (Sottoceneri) and completes the level route through the Alps on the Gotthard axis branch to Milan via Chiasso. In addition to the benefits for freight and long distance passenger traffic, the tunnel brings huge improvements to the regional transport system in the canton of Ticino.

Data	
Opening of the Simplon tunnel	19 May 1906
Opening of the Lötschberg summit tunnel	15 July 1913
Start of scheduled operation in the Lötschberg base tunnel	9 December 2007
Opening of the Gotthard summit tunnel	1 June 1882
Breakthrough in the Gotthard base tunnel	15 October 2010
Start of scheduled operation in the Gotthard base tunnel	11 December 2016
Start of scheduled operation in the Ceneri base tunnel	13 December 2020

ETCS

The European Train Control System (ETCS) is one of the key features of rail interoperability throughout Europe. Depending on the configuration, this train protection system requires no external signals at all: information is displayed on a screen in the driver's cab. This allows trains to travel more quickly and more frequently. The ETCS is intended to replace the wide variety of different European train protection systems. It has been in use on the high-speed routes from Rome to Naples and Milan to Turin since 2006. In Switzerland it was first introduced on the new line between Olten and Bern (Mattstetten–Rothrist) in 2004 and in the Lötschberg base tunnel in 2007. ETCS Level 1 LS or ETCS Level 2 have been operating on the entire standard gauge network in Switzerland since 2017.

ETCS L2 provides locomotive drivers with information on a screen.

Finances

The NRLA is costing around 22.8 billion Swiss francs (around 22 billion euros; current prices, including interest and VAT), which corresponds to 3.5 per cent of annual Swiss gross domestic product (GDP).

The costs of the NRLA can be broken down as follows:

- Gotthard base tunnel: 12.2 billion Swiss francs (around 11.5 billion euros)
- Lötschberg base tunnel: 5.3 billion Swiss francs (around 5 billion euros)
- Ceneri base tunnel: 3.6 billion Swiss francs (around 3.3 billion euros)
- Improvements to the approach routes: 1.7 billion Swiss francs (around 1.5 billion euros)

Financing and Expansion of Rail Infrastructure (FABI)

In February 2014, Swiss voters approved a proposal on the Financing and Expansion of Rail Infrastructure (FABI) in a popular vote. This proposal will safeguard the financing of rail infrastructure, including maintenance and expansion, in the long term. At the same time, a decision was also made as part of the Strategic Development Programme for Rail Infrastructure (STEP) on the basic aspects of future railway expansion. In the first two stages of this programme, STEP 2025 and STEP 2035, almost 20 billion francs (approx. 18 billion euros) will be spent on eliminating bottlenecks throughout the network and boosting capacity in and around stations in large Swiss cities. These projects, which will take 20 years to complete, are to be funded from the Rail Infrastructure Fund (RIF).

Four-metre corridor

Whereas it is possible to transfer semi-trailers with a four-metre corner height onto trains on the Lötschberg route and in the Gotthard and Ceneri base tunnels, on the approach routes to the Gotthard tunnel a number of tunnels, platform roofs and catenaries have required modification in order to allow trucks of this height to be transported. Once this work is completed, the entire length of the Swiss north-south axis will be open to four-metre-high semi-trailers. This move is particularly important because the combined transport of these semi-trailers is a rapidly growing segment. Switzerland is also financing measures to increase the clearance on the Italian Luino line to enable semi-trailers of this kind to reach the major intermodal terminals in northern Italy. The overall cost amounts to almost 1 billion Swiss francs (around 950 million euros).

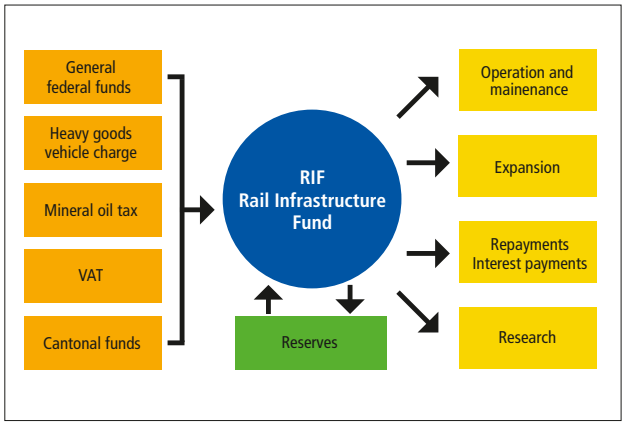
Semi-trailers with a 4-metre corner height can be transported through the Gotthard base tunnel.

Funding/Rail Infrastructure Fund

In 2014, Swiss voters approved the creation of an open-ended, earmarked Rail Infrastructure Fund (RIF) for the ongoing modernisation of the Swiss rail network.

The RIF is fed from a number of sources:

- Heavy Goods Vehicle Charge (HGVC, two thirds of the revenue)
- Part of the revenue from mineral oil tax
- Part of the revenue from VAT (0.1%)
- Cantonal contributions
- General federal funds



The Rail Infrastructure Fund (RIF) will make additional expansion projects possible.

Gotthard base tunnel

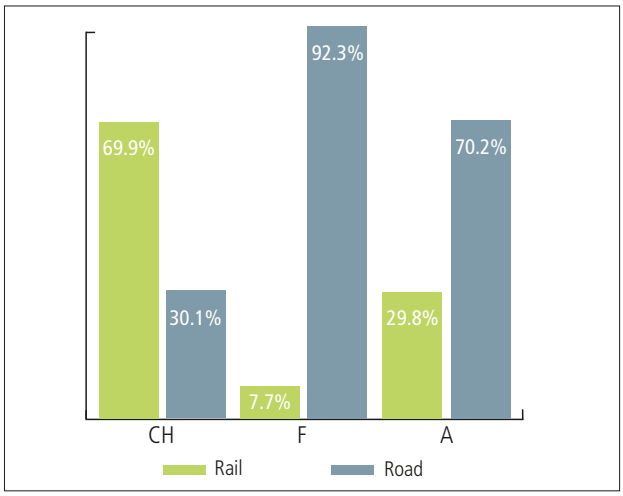
The Gotthard base tunnel, which is 57 km in length, connects Erstfeld in the canton of Uri and Bodio in the canton of Ticino. Construction began in 1999, the breakthrough was made in October 2010, and the tunnel was opened and came into scheduled operation in 2016. It increases freight transport capacity and shortens journey times, and passenger trains can also travel more quickly between northern and southern Switzerland. The Gotthard base tunnel is now the longest rail tunnel in the world, having displaced the previous record holder, the Seikan Tunnel in Japan (53.9 km).

Growth in traffic

The increase in the volume of transalpine traffic through Switzerland shows that the measures to shift road transport to rail have been effective.

The railways in Switzerland transport 70 per cent of transalpine freight traffic, while 30 per cent travels by road (2019). In the neighbouring countries of France and Austria, the proportions are reversed.

Despite the overall growth in traffic, the number of transalpine truck journeys fell from 1.4 million in 2000 to around 898,000 in 2019. Experts have calculated that around 800,000 additional trucks would be crossing the Swiss Alps every year if the road-to-rail measures had not been implemented.



Breakdown of transalpine freight traffic between France, Austria and Switzerland (2013).

Although the policy has been successful, the target specified in the Goods Traffic Transfer Act (GTTA) will not be reached.

Under the GTTA, the maximum number of trucks permitted to cross the Swiss Alps two years after the opening of the Gotthard base tunnel, i.e. in 2018, should have been 650,000. This target was missed. However, when the entire NRLA Gotthard route is opened, allowing more freight to be transported by rail, it should be possible to stabilise the number of trucks at the current level. The creation of a four-metre corridor along the entire Gotthard axis plus auxiliary measures should give a further boost to the shift from road to rail.

The Federal Council intends to continue its existing instruments and accompanying measures to encourage the transfer of freight traffic from road to rail in the form of lower train path prices and the granting of operating subsidies until 2030.

HGVC

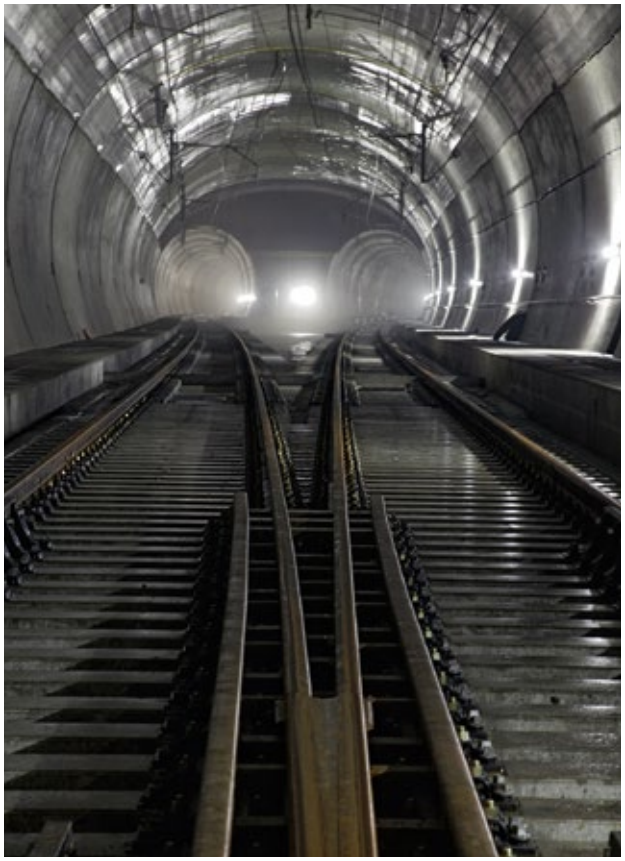
The Heavy Goods Vehicle Charge (HGVC), a toll for trucks, was introduced in Switzerland on 1 January 2001. The amount of the charge depends on the overall weight of the vehicle and its trailer, its level of pollutant emissions and the distance travelled. The monies raised help to cover the external costs of heavy goods transport, operating on the polluter pays principle. A total of 70 per cent of HGVC revenue comes from Swiss trucks. The maximum amount of the HGVC has been laid down in law in the Land Transport Agreement between Switzerland and the European Union.

HSR connection

Switzerland needs an improved connection to the European high-speed rail network (HSR). In 2005, the Swiss Parliament adopted a package of measures to bring this about, including co-financing projects in France and Germany and expanding the Swiss rail infrastructure. Investments will also be made to improve the system of hubs within Switzerland. The project, costing 1.1 billion Swiss francs (over 1 billion euros), will soon be completed and will lead to shorter journey times to cities such as Paris and Munich.

Lötschberg base tunnel

The 34.6-km-long Lötschberg base tunnel runs between Frutigen in the Bernese Oberland and Raron in the canton of Valais. Construction work began in 1999 and the tunnel became operational on 9 December 2007. The highest point on this north-south route is the tunnel's apex, 828.2 metres above sea level. The route continues through the Simplon tunnel to Italy (Domodossola). The Lötschberg base tunnel has massively increased rail freight capacity and shortened the journey time for passengers travelling between Basel and Milan by about an hour.



The Lötschberg base tunnel shortens the journey times between Switzerland and Italy.

NRLA

In order to shift as much transalpine freight traffic as possible from road to rail, rail infrastructure must be modernised and expanded. The creation of the New Rail Link through the Alps (NRLA) involves the construction of the new Lötschberg, Gotthard and Ceneri base tunnels. The expansion measures on the approach routes to the tunnels will lead to shorter, faster and more efficient north-south links for passenger and freight traffic. The Gotthard and Lötschberg base tunnels will significantly increase freight transport capacity.

Rhine-Alpine rail freight corridor

The rail route between Rotterdam/Zeebrugge and Genoa is one of the most important European rail freight corridors. It is known as the Rhine-Alpine Corridor and runs north-south through Switzerland. The volume of freight transported each year along the corridor is higher than along any other route through Europe, and forecasts suggest that it will continue to rise considerably. The plan is to introduce ETCS as the standard train protection system on the corridor over the next few years.

Rail noise reduction

In 2000, around 260,000 people in Switzerland were exposed to excessive noise from railways. A comprehensive noise reduction programme was introduced to protect them, which was financed by the FinPTO Fund. This included making modifications to rolling stock, building noise barriers and fitting soundproof windows. The package of noise reduction measures was completed at the end of 2015. As part of a follow-up programme an effective ban was placed on goods wagons not modified to reduce noise levels. This has been in place since 2020. In addition, noise reduction measures on the rails will be introduced and the foundations will be laid for promoting innovation and research into reducing railway noise.

Rail 2000, the Future Development of Rail Infrastructure (FDRIA)

In 1987 the Rail 2000 project was launched to improve the quality of the Swiss rail network. It includes measures to increase the speed and the number of trains on existing connections and to modernise the rolling stock. The first phase of Rail 2000, which was completed in 2004, consisted of 130 construction projects costing 5.9 billion Swiss

The Rotterdam–Genoa corridor is very important to the EU.

The FDRIA provides rail passengers with an improved service.

francs (around 5.6 billion euros). The second phase of Rail 2000 has been named the 'Future Development of Rail Infrastructure (FDRIA)'. This programme includes expansion measures costing 5.4 billion Swiss francs (around 5.1 billion euros). One of its main elements is improvements to the approach routes to the new base tunnels, including new signalling systems that will increase train frequency.

The Swiss Parliament revisits the issue of funding the expansion of the Swiss railway network every four years. It has already decided on programmes for 2025 and 2035, worth a total of around 20 billion francs (18 billion euros). The next programme, and the direction railway expansion is to take, will be decided as part of the Strategic Development Programme for Rail Infrastructure.

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Further information

- On Swiss transport policy: www.bav.admin.ch
- On rail-to-road policy: www.bav.admin.ch → Topics A–Z → Transalpine freight traffic
- www.alptransit.ch