

## **GOTTHARD BASE TUNNEL – Questions & Answers**

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Facts & Figures on the Gotthard Base Tunnel can be found in the document "Facts & Figures"

### **Why and how was the decision taken to construct the Gotthard Base Tunnel?**

The mobility requirements of Switzerland's growing population have increased greatly over the past 100 years. Current forecasts indicate that the country's transport sector will continue to expand. In addition, Switzerland's strategic location at the crossroads of the continent makes it a highly important hub for European goods traffic. Swiss government policy is to ensure sustained mobility by increasing the public transport share of overall traffic and providing reliable basic services nationwide. Within this long-term programme, protection of the environment and the population has been accorded high priority. The NRLA (New Railway Link through the Alps) is one of four ambitious projects undertaken by the government, of which the Gotthard Base Tunnel is the flagship focal point. As a level transalpine railway link with few gradients, the new Gotthard Base Tunnel complements Switzerland's existing mountain rail routes. It will also enable higher travelling speeds and permit the use of heavy goods trains.

### **How has construction of the Gotthard Base Tunnel been financed?**

In a nationwide vote in 1998, the Swiss electorate approved funding for the construction of the "New Rail Link through the Alps" (NRLA). Voters backed the "FinöV" programme for the long term funding of public transport (through revenues generated by Value Added Tax (VAT), a performance-linked levy on heavy traffic, and a mineral oil tax).

### **Who has worked on construction of the Gotthard Base Tunnel?**

Constructor of the Gotthard axis of the "New Rail Link through the Alps" (with base tunnels through the Gotthard and Ceneri) was Alp Transit Gotthard, a wholly owned subsidiary of Swiss Federal Railways (SBB). A railway systems general contractor was tasked with installing the railway systems of the Gotthard Base Tunnel and the above-ground sections. The Transtec Gotthard Consortium – comprising the four companies Alpiq, Alcatel-Lucent/Thales, Renaissance and Balfour Beatty Rail – was responsible for installation planning, installation and commissioning of the railway systems. The construction work and installation of the railway infrastructure were completed at the end of May 2016. Alp Transit Gotthard then handed over the tunnel to the government; and as such to the future operator Swiss Federal Railways (SBB) for final test runs by December 11, 2016 – the inaugural date of scheduled operations.

### **How long did it take to construct the Gotthard Base Tunnel?**

The first examination of the geological fault zone in the Gotthard Massif was carried out in 1993 with the construction of an exploratory tunnel. The second NRLA construction site was opened three years later. The first drill-and-blast operation was undertaken in 1999. The first breakthrough in one of the tunnels was in October 2010, and 2011 saw excavation completed. Work on the infrastructure (including track, catenary, electricity supply, telecommunications and safety systems) ended with the handover to Swiss Federal Railways (SBB) on 1 June 2016 for the operational testing phase.

### **Has the environment been affected by construction of the Gotthard Base Tunnel?**

With the construction of the new Gotthard Base Tunnel, Switzerland implemented one of Europe's most ambitious environmental protection projects. From concept to completion, construction was carried out as environmentally compatible as possible. Wide-ranging measures were taken to reduce the impact on people, wildlife, water and air.

Alp Transit Gotthard was in constant dialogue with environmental authorities in finding workable solutions. Measures included environmentally compatible material transport to ensure clean air, strict guidelines concerning waste water, dust and noise protection, protection of flora and fauna as well as sustainable use of the stone extracted from the mountain.

### **How can safety be guaranteed in such a long tunnel?**

The Gotthard Base Tunnel's top priority is passenger safety, necessitating implementation of a modern safety concept. The tunnel system consists of two directionally separated single-track tubes. These tubes are connected by cross passages located every 325 metres. In an emergency these would serve as rapidly accessible evacuation routes into the other tube. At the one-third-way points of the tunnel at Faido and Sedrun, emergency-stop stations in both tubes are connected to the parallel tube through six connection tunnels. The way to these tunnels is indicated by signs, emergency lights, and handrails. In the event of evacuation, trained railway personnel will provide assistance. Overpressure ensures that the air remains smoke free. Fans provide fresh air in the emergency stop stations; hot fumes are sucked out through extraction openings. Travellers can then be collected in the opposite tube by an evacuation train.

### **What will the effect be on travel times on the Gotthard route?**

With the entering into service of the Gotthard Base Tunnel, travel times are being reduced by about 30 minutes. Cross-border travel times from Milan to Zurich, for example, are reduced from 4 hours and 3 minutes to 3 hours and 33 minutes. Find the detailed changes in traveling times here: [www.fahrplanrechner.mythos-gotthard.ch](http://www.fahrplanrechner.mythos-gotthard.ch)

Travelling through the 57-kilometre Gotthard Base Tunnel takes only 17 minutes.

### **What will happen to the existing panoramic railway connection over the Gotthard?**

This existing Alpine railway link with its countless bridges, loop tunnels and summit tunnel (built in 1882) will continue to be served. Passengers will be able to travel via either the old railway route – or the new Gotthard Base Tunnel. Starting in December 2016 (with the opening of the Gotthard Base Tunnel) the old panoramic railway route will be served hourly

by a RegioExpress connected to inter-city trains in Erstfeld, Bellinzona and Lugano. Additionally, as of 14 April 2017, the Gotthard Panorama Express – a combination of steamship and train travel over the Gotthard panoramic route – will offer special attractions and experiences.

### **How can the Gotthard Base Tunnel be compared with the Lötschberg Base Tunnel?**

The Lötschberg Base Tunnel is part of the NRLA (New Railway Link through the Alps) together with the construction of the Gotthard Base Tunnel. The Lötschberg Base Tunnel became operational in December 2007 and represents a technical and civil engineering masterpiece. Today, some 50 passenger trains and up to 60 freight trains operate through the tunnel every day. By comparison, figures for the new Gotthard Base Tunnel are up to 160 cargo trains and 50 passenger trains daily.

Source: BLS, <http://www.bls.ch/e/infrastruktur/neat.php>

### **Milestones in the development of the Gotthard Base Tunnel**

1882: Opening of the first Gotthard Base Tunnel (15 km.), connecting Göschenen and Airolo by train

1980: Opening of the Gotthard Road Tunnel (16.9 km.)

1992: Swiss voters approve government proposals for the construction of the New Railway Link through the Alps (NRLA), including the Gotthard Base Tunnel

1998: Approval of the FinöV financing concept

1999: Start of the first drill and blast cycle

2010: Gotthard Base Tunnel breakthrough

2016: Entering into service of the Gotthard Base Tunnel (linking Erstfeld and Bodio)

2020 Entering into service of the Ceneri Base Tunnel

#### **Sources:**

- Alp Transit Gotthard, [https://www.alptransit.ch/fileadmin/dateien/media/publikationen/atg\\_broschuere\\_e\\_2012\\_lq.pdf](https://www.alptransit.ch/fileadmin/dateien/media/publikationen/atg_broschuere_e_2012_lq.pdf)
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