

**Zeitschrift:** Swiss express : the Swiss Railways Society journal  
**Herausgeber:** Swiss Railways Society  
**Band:** 5 (1997-1999)  
**Heft:** 6

**Artikel:** AlpTransit update. Part 1  
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**DOI:** <https://doi.org/10.5169/seals-854526>

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**AlpTransit Update; 1** *The June 1997 issue of Swiss Express contained a brief overview of the AlpTransit project. Peter Marriott now supplies further developments on this exciting project.*

Because of its geographical position Switzerland forms one of the major rail and road transportation hubs of Central Europe. Its rail lines form an important Alpine crossing point of the Trans European Rail Network (TEN) for both passenger and freight services. Transit road traffic between north and south Europe (mainly Germany and Italy) causes environmental and infrastructure damage to Switzerland. The Swiss do not like passing road traffic and have to date resisted HGV's in excess of 28 tonnes. One of the primary aims of transport policy in Switzerland is to transfer much of the road traffic (passenger and freight) onto the railways.

Neighbouring countries are rather unhappy with Switzerland's cavalier stance on passing HGV traffic and are pressing for better transit facilities for lorry traffic. The Swiss Government has refused to expand any of the cross-Alpine road passes and directly or indirectly is attempting to force more road hauliers to use rail services. In

1992 the Swiss population passed an overwhelming vote for the New Alpine Railway Routes (NEAT), also known as AlpTransit, as their contribution to the improved rail European network with the additional aim of accommodating HGV traffic on rails rather than road. Whilst about 65% of all trans-Alpine traffic already uses rail (which is considerably more than in Italy or Austria) the Swiss wish to see a dramatic increase in that figure. Piggy-back trains currently accommodate 42 tonne lorries.

The intention of Alptransit may be best summarised in the words of President Ogi; "We are building for the good of the environment, for Europe that is growing together, and for our own good. A piece of the future is energetically tackled today."

The AlpTransit project has four main elements; the new Gotthard base tunnel, the new Lötschberg base tunnel, upgrading the Simplon line between Brig and Geneva, and the

improvements of the rail network in Eastern Switzerland. The current Gotthard and Lötschberg railway routes are inadequate in several aspects; their loading gauge is now too small, gradients are too steep (a familiar Swiss problem!), the radius of many curves is sharp, maximum speed and capacity of the lines is limited. Whilst short term remedies are being sought which include the partial rebuilding of some of the Lötschberg route to accommodate piggyback trains over the long term the AlpTransit project on the Gotthard and Lötschberg routes provide the favoured solution. The new tunnels are intended to have a sufficiently large cross-section to accommodate unaccompanied intermodal traffic and HGVs on piggy-back wagons. Large radius curves, straight lines and easy gradients will facilitate quicker transit times and reduce consumption of power. The post AlpTransit railways will have the capacity for about 1000 trains a day using the two routes.

The AlpTransit project originally consisted of twin bore tunnels - a new 57km base tunnel on the Gotthard route (between Erstfeld and Biasca) together with a 17km Ceneri base tunnel (between Bellinzona and Lugano) and a 42 km base tunnel between Frutigen and Brig on the Lötschberg line. The total anticipated cost has been put at Sfr 15 billion to be repaid over 60 years. Federal budgets have become tighter and rather than wholesale building project a progressive building programme is now being pursued. The AlpTransit project is now envisaged to cost 13.38 billion by making various modifications to the original plans. On the Gotthard route just the main tunnels will be built rather than a major rebuild of the 125km Arth Goldau to Lugano line. On the Lötschberg line the base tunnel will be reduced to 35km with only the southern part being bored and fitted for double track operation - whilst the other bores to the central and northern parts of the base tunnel will be driven the installation of a second track and infrastructure will be postponed.

Anticipated maximum line speeds are 200 kph for passenger services and 140 kph for freight. The overburden on top of the tunnels will be

2300 metres in places. The twin tunnels will utilise cross passages but no service tunnel. The internal diameter will be 8.4 m for the Gotthard bores and 8.6 m in the Lötschberg tunnels to enable the Autoverlad (Car Shuttle) service to continue. The AlpTransit tunnels will not accommodate the passage of very high speed trains for two reasons; the mixed nature of the traffic, i.e. freight and passenger, means that the speed differential leads to a loss in capacity: air resistance in tunnels has physical limits. It would be necessary to increase the tunnel bore if speeds approaching 250 km/h were envisaged which would be very costly.

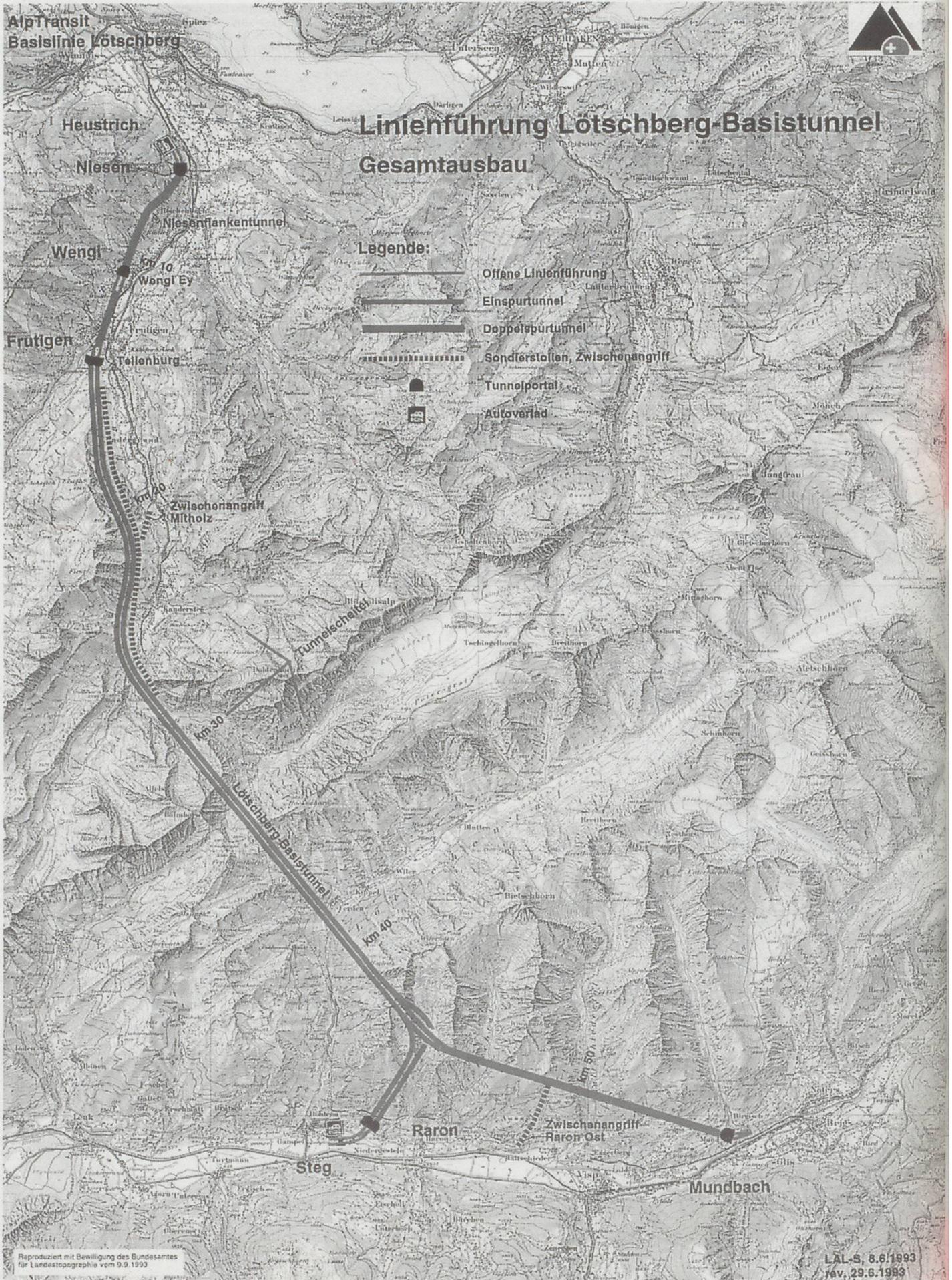
There will be various "attack" adits (a horizontal entrance or passage to the main tunnel) utilised during construction in addition to the boring operations from each end of the tunnels. Huge quantities of spoil will be taken from both tunnelling projects. These are estimated to be around 15 million sq. metres in respect of the Gotthard line and 13 million sq metres for the Lötschberg.

The anticipated year of opening was 2007 for the tunnels but this may be delayed to 2010 by the financial limitations and revised construction programme.

My thanks go to Nicholas Brunner of BLS AlpTransit SA and Hansueli Kunz of BLS for some of the information used in this article.

*In the next issue of Swiss Express we shall look at the Lötschberg AlpTransit project in more detail.*





Above: The proposed Lötschberg Basis tunnel for the Alptransit project. Details about Alptransit on page 32 in this issue.