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NEAT

(*Neu Eisenbahn Alpen Transversale*)
by John Jesson

This year Swiss Parliamentary discussions are due to begin about the *New Railway Across The Alps*. The likely cost of this project, which involves basis tunnels for both the Gotthard and Lotschberg routes is likely to be up to 6 billion Ecu. The benefits would include improved piggyback transport and shorter journey times. However, the limit of capacity of the Gotthard has already almost been reached and, as an interim measure, the Government is providing 810 million Ecu for work aimed at nearly quadrupling international intermodal traffic by the end of 1993. The project must now be approved by National and Cantonal councils and may be put to a referendum.

NEAT is part of the Federal Parliament's strategy for transit traffic and its goals can be summarised as follows:

1. To link the high speed lines being developed in central Europe and Italy.
2. The connection of important Swiss standard gauge lines to the European high speed network.
3. To promote environmentally-friendly traffic operation.
4. To carry intermodal transit traffic.
5. To improve railway productivity
6. To gain economic advantages for areas opened up by NEAT.

There are two routes involved, both connecting Basel with Milan. The first, the Gotthard, involves a new line about 130 km long, including a 49 km long Gotthard basis tunnel and a 13 km long tunnel underneath Monte Ceneri. It will run from Arth-Goldau to Lugano and will, in conjunction with the existing route via Goschenen, provide a 4-track route through the central Alpine region. Traffic will be attracted from the border crossings at Schaffhausen and eastward.

The second route would effectively quadruple the Lotschberg line of the BLS by means of a 38 km basis tunnel. Plans for a road tunnel through the Lotschberg have been abandoned and so the new tunnel will cater for accompanied motor vehicles as well as attracting business from Western Switzerland via the borders at Geneva and Vallorbe.

Because of the high cost of NEAT, the Gotthard route would be built first, as this shows the best financial return and productivity gain as well as other benefits on which a cost could not be placed. Productivity gains come from shortening the Lotschberg route by 7 km and the Gotthard by no less than 45 km, reducing energy consumption because of the more favourable gradient profiles, and improved train performance.

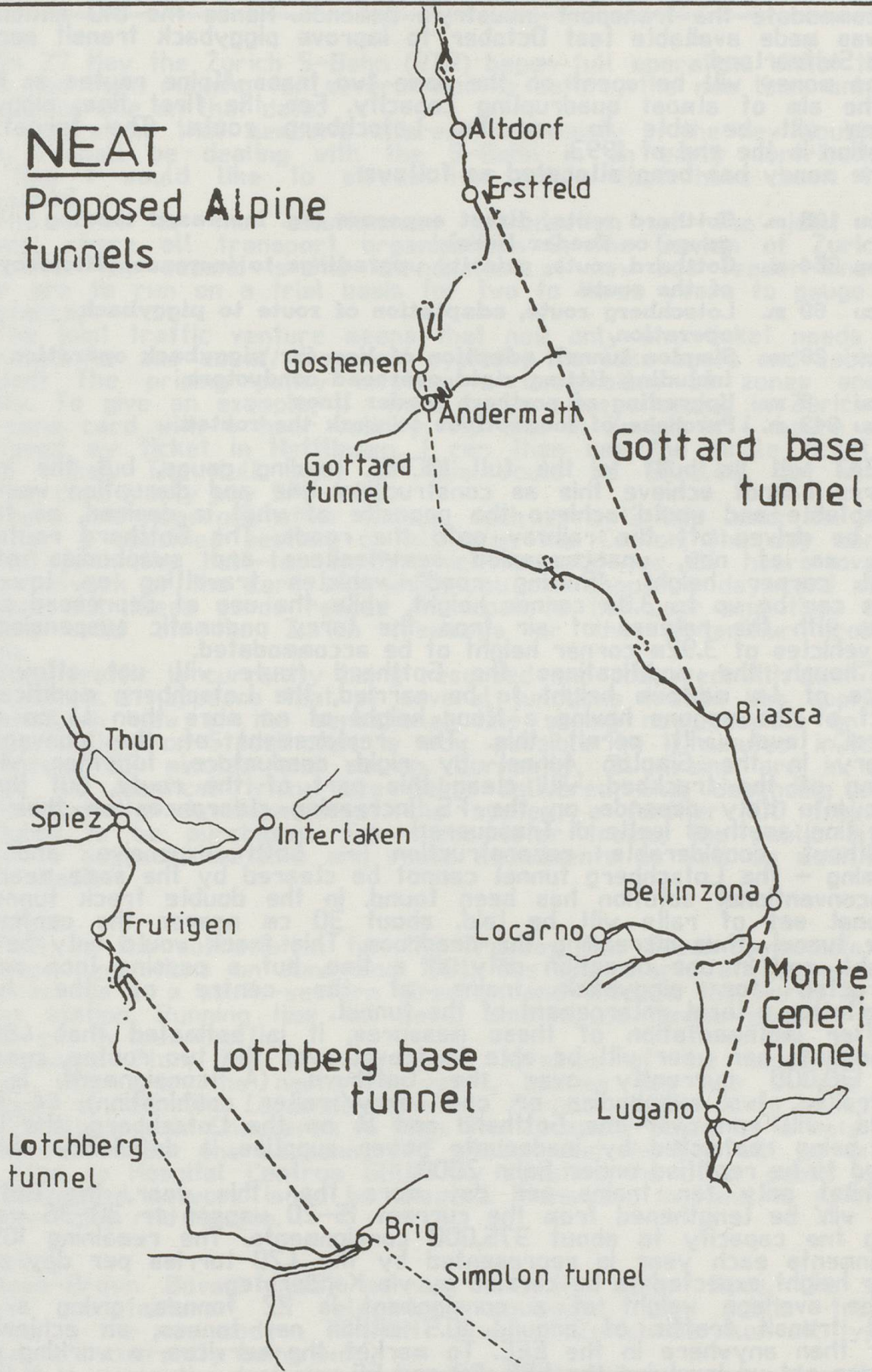
Although the project leadership for construction and financing of NEAT has yet to be decided, a provisional organisation has been set up under the leadership of the Ministry of Transport, Communications and Energy to begin work on the preliminary project. In this the SBB, BLS and private engineering companies are assisting.

An important aim of the NEAT plan is to provide a piggyback corridor through Switzerland which will be able to carry all forms, present and future of intermodal traffic. Of particular importance is accompanied piggyback (rolling road) traffic because of its environmental impact, pressure on the Brenner Pass route, and pressure from the EEC to provide such a transit route for 40-tonne lorries, bearing in mind the coming Single European Market.

However, even if the NEAT project is approved and implemented as quickly as possible, neither of the basis tunnels could be ready until 7 to 10 years after construction has started. As the Gotthard route is already near capacity, something has to be done on a shorter timescale

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Proposed Alpine tunnels



GTF

to accommodate the transport industry's demands. Hence the 810 million Ecu that was made available last October to improve piggyback transit services across Switzerland.

The money will be spent on the same two trans-Alpine routes as NEAT, with the aim of almost quadrupling capacity. For the first time, piggyback services will be able to use the Lotschberg route. The target for completion is the end of 1993.

The money has been allocated as follows:

- Ecu 108 m. Gotthard route, direct expenses (eg. increased loading gauge on feeder lines)
- Ecu 254 m. Gotthard route, priority upgradings to increase efficiency of the route.
- Ecu 69 m. Lotschberg route, adaptation of route to piggyback operation.
- Ecu 28 m. Simplon tunnel, adaption of line for piggyback operation including fitting rigid overhead conductors.
- Ecu 8 m. Upgrading of northern feeder lines
- Ecu 343 m. Purchase of locomotives to work the routes.

NEAT will be built to the full UIC-GC loading gauge, but the interim measures cannot achieve this as construction time and disruption would be unacceptable and would achieve the opposite of what is desired, as traffic would be driven off the railway onto the roads. The Gotthard route will permit, as of now, unaccompanied semi-trailers and swapbodies of 4m overall corner height. "Rolling road" vehicles travelling on low-floor wagons can be up to 3.8m corner height, while the use of depressed centre wagons with the release of air from the lorry pneumatic suspension will allow vehicles of 3.92m corner height to be accommodated.

Although the modifications the Gotthard route will not allow road vehicles of 4m maximum height to be carried, the Lotschberg modifications, subject of the wagons having a floor height of no more than 41 cm above the rail level, will permit this. The replacement of the conventional catenary in the Simplon tunnel by rigid conductors, together with a lowering of the trackbed, will clear this part of the route, but through traffic into Italy depends on the FS increasing clearances on their part of the line, south of Iselle di Trasquera.

Without considerable reconstruction - both expensive and time consuming - the Lotschberg tunnel cannot be cleared by the same means, so an unconventional solution has been found. In the double track tunnel an additional set of rails will be laid, about 30 cm nearer the centre-line of the tunnel, thus increasing the headroom. This track would only be used at night, and in one direction only at a time, but a passing loop may be constructed for piggyback trains at the centre of the tunnel, necessitating a local enlargement of the tunnel.

After implementation of these measures, it is estimated that 480,000 consignments per year will be able to travel over the two routes, compared with 130,000 currently over the Gotthard. (A consignment is one semi-trailer, two swapbodies or one lorry/trailer combination) 44 trains per day will run over the Gotthard and 14 on the Lotschberg, the latter route being restricted by inadequate power supplies, a deficiency which is planned to be rectified under Bahn 2000.

Whilst only ten trains per day more than this year, the Gotthard trains will be lengthened from the current 15-20 wagons to 30-36 wagons, raising the capacity to about 375,000 consignments. The remaining 105,000 consignments each year is represented by the 420 lorries per day of 4m corner height expected to be carried by via Kandersteg.

The average weight of a consignment is 22 tonnes, giving a total annual transit traffic of around 10.5 million net tonnes, an achievement better than anywhere in the EEC. To market the services, a working party has been set up involving the SBB, DB and FS.