Infrastructure projects.

Pioneering railway engineers with a vision for the future.

Pioneering spirit.
Due to its central location within Europe, Switzerland has always attracted high passenger and freight volumes, as both a destination and transit country. The growth in population and traffic demands even more frequent services and, consequently, the continuous expansion of its rail infrastructure. However, this task is complicated by the country's topography and high development density. The Alps, in particular, have repeatedly posed stiff challenges for railway engineers. In Switzerland, these have been and will continue to be overcome by a pioneering spirit and the courage to tackle large-scale projects. Like the old Gotthard tunnel over a century ago, it is now the turn of the 57 km Gotthard Base Tunnel, currently the world's longest rail tunnel, to set new benchmarks. SBB boasts the in-depth know-how necessary for handling projects of any magnitude.

Major challenge posed by mountains.
Infrastructure projects in Switzerland are highly demanding for a wide variety of reasons: marked climatic variations across the four seasons, with temperatures ranging between -40°C and +40°C, violent summer storms and abundant winter snowfall. Particular difficulties are encountered in the Alps, which combine a highly adverse terrain for construction projects with constant risks from natural events, such as rockfalls, landslides, mudslides and avalanches. Extreme differences in altitude, from 193 m to 4634 m above sea level, necessitate the construction of tunnels, bridges and avalanche shelters, the use of natural hazard alarm systems and, not least, an intensive maintenance regime for the rail network. These natural challenges are compounded by the social requirements placed on the rail system – traffic noise control, for example, being a key issue in this regard.

Infrastructure projects: from inception to review.
SBB Infrastructure carries out expansion projects on behalf of the federal and cantonal agencies. Asset maintenance projects are commissioned by the internal facility owners.
The specific project development phases are as follows:

1. The initial phase focuses on the efficient coordination of services (timetable), rolling stock and infrastructure. A study is prepared to identify potential solutions and provide a rough assessment of their feasibility, cost and utility.

2. In the project definition phase, these solutions are optimised in consultation with the agencies that constitute the client team. The various measures are subsequently translated into individual projects. The associated design brief is formulated and the design process initiated.

3. The design mandate is then analysed for quality and completeness, the estimates of cost and effort checked, all necessary clarifications undertaken in respect of resources and deadlines, and any optimisation potential determined.

4. In the outline proposals phase, the results of the study are concretised, and the best option identified and elaborated.

5. During the detailed proposals phase, the project is developed up to the ready-to-build stage. At the same time, the proposals for public display are drawn up and documents prepared for the statutory planning procedure. The Swiss Federal Office of Transport (FOT) supervises this process and, after settling any objections, grants planning permission, which may be subject to various conditions.

6. SBB Infrastructure is bound by public procurement regulations. All projects exceeding the specified threshold value are therefore publicly advertised.

7. Following contract signature, the project is implemented by private contractors, industrial companies and/or SBB Infrastructure’s own specialist units. Rail operations often need to be maintained during the construction period, which may complicate on-site working conditions or entail disruptions to services.

8. The finished facilities are checked for quality and safety. Where the relevant criteria are met, the operating permit is granted and the facility put into service.

9. Once the start-up has been successfully completed, the final accounts are settled and the project archived. A follow-up review process allows SBB to make continuous improvements to its processes and increase the viability of its projects.

Our experts will be happy to advise you!

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