

# Infrastructure

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## Innovation Thrust to Brave the Future.

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The network extension for the 1<sup>st</sup> phase of Rail 2000, the start of in-cab signalling, the good punctuality values achieved in Expo train operation, and the modernisation of numerous regional stations stood out as the main activities in the field of infrastructure. The goal is to increase network capacity by 30 percent until 2012.

### Higher performance, lower profit.

With operating revenues of CHF 3,105 million, the account of SBB Infrastructure closes with a profit of CHF 107 million, (previous year 130 million). The receipts from the sale of train paths amounted to CHF 541 million (previous year 616 million). The business field Real Estate achieved an income from rents totalling CHF 325 million (+5.5 percent). The payments from the federal government for the operation of the track infrastructure and for maintaining its value were CHF 1,291 million (previous year 1,217 million).

95 percent of the trains reached their destination on time or within a margin of maximally 4 minutes. This value is by 0.5 percent better than in the previous year. The number of train-km covered on the SBB's normal-gauge network rose by 2 percent to reach 135.5 million. The infrastructure projects that currently are under construction have a total contract value of CHF 5,284 million.

### Milestones in Operation, Construction and Maintenance.

#### Expo was a big challenge for handling of operations.

The dense timetable of the Expo was the most outstanding feature of the year for the infrastructure and made the highest demands on the operations management and the maintenance of the installations. Gradational timetables made it possible to adapt the offer of train services to the Artepige stations to demand. Certain lines and stations were taxed to the limits of their capacity. At the federal gymnastics festival taking place in June, parallel to the Expo, more than 300 special trains travelled to and from Liestal, and this almost punctual to the minute.

Bigger disturbances and tempests strongly affected train traffic: One week's total line closure in Chiasso after the collision of an Italian freight train with a shunting locomotive, two interruptions of the line to Luino, each for several weeks, following landslides on the Italian side, and the closure of the tunnel Monte Olimpino II near Chiasso as from end of November.

#### Two percent more train-kilometres.

The train-km covered on the SBB's normal-gauge network were 2 percent up on the previous year to reach 135.5 million. The SBB passenger trains showed a growth of 2.6 percent, while the freight train-km of SBB Cargo decreased by 4.6 percent. The volume of train-km produced by third parties in network access increased by 15.3 percent in passenger traffic, and by 68.5 percent in freight traffic. Mainly the trains of the rolling road between Freiburg im Breisgau and Novara have contributed to the increase with third-party operators.



### With new stopping points nearer to the customers.

Around 4,700 SBB projects are currently in the planning phase or under construction. Their variety extends from the signalbox renewal to the CHF 1.5 billion project of the cross-city line in Zurich. The following works were terminated: Modernisation of the stations of Brig, Delémont, Wolhusen, Weinfelden and Neuhausen. With the four new stopping points Lancy-Pont-Rouge, Längenbold, Emmenbrücke Gersag and Klingnau, the SBB moved yet closer to its customers. The following station trackyards are currently being modernised: Zug, Schaffhausen, Wil, Uznach, Rorschach and Romanshorn. In June, the SBB started with the preparation work for the cross-city line in Zurich.

The SBB also approved credits for the 3<sup>rd</sup> partial completion of the S-Bahn of Zurich and the renewal of the station of Visp. In Brig, a new station entry of the line of the Furka-Oberalp-Bahn will shorten the travel times towards the Goms valley. With the Canton of Geneva, the financing for the construction of a new S-Bahn line was agreed, connecting the stations of Genève Cornavin and Annemasse (16.1 km, of which around 8 km as new line).

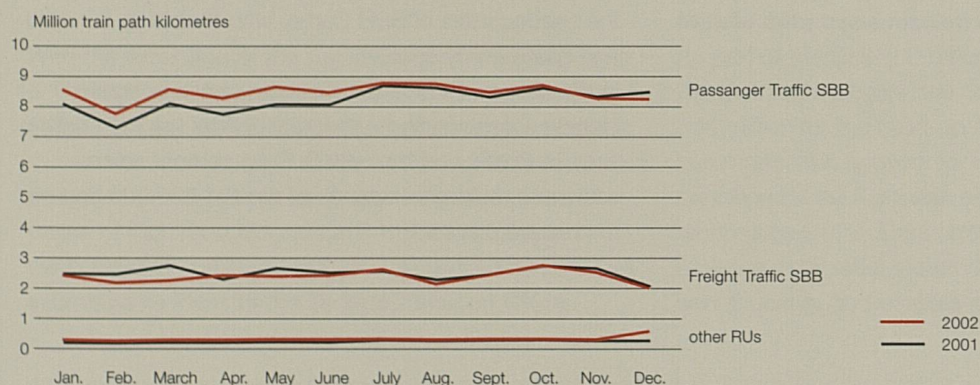
### Modern regional train for the Seetal.

On the date of the timetable change that for the first time took place in December, operation resumed on the Seetal line from Lucerne to Lenzburg, completely renewed

### Always more third parties are using SBB train paths.

Passenger Traffic and SBB Cargo are the biggest clients of the Infrastructure Division, now as before. However, the train path kilometres covered by third parties on SBB tracks continue to go up, in passenger traffic by 15.3 percent, in freight traffic by 68.5 percent even.

Development of train path kilometres





for CHF 200 million. The fixed installations were harmonised with the modern regional trains. The transformed stations received platforms with a height of 35 cm, allowing for level boarding thanks to the low floors of the cars. The SBB made a big step forward as regards safety technology. On the line, remote-controlled from Lucerne, numerous level crossings were eliminated, and ten were newly equipped with warning devices.

#### **Less failures thanks to good maintenance of the railway installations.**

In time for the start of the Expo, the construction and maintenance services on the west-east axis via Biel have adapted the safety installations in order that the tilting trains can run without restrictions. The number of installation failures and the train delays caused by them could be slightly lowered, despite a higher traffic load. The SBB has spent around CHF 490 million for maintenance works and track renewals in the whole of Switzerland.

#### **New supply contracts with private railways.**

In the first year after the disposal of the interests in plants not producing 16.7 Hz railway current, the energy sector consolidated itself. The new process-oriented organisation was stabilised and the costs could be lowered further. For the employees concerned, acceptable solutions were found without imposing hardship. The supply contracts with the private railways could be renewed. Newly, SBB Energy also attends to the clients buying electricity in the stations. Supplies to the railways amounted to a total of 2,069 Gigawatt-hours in 2002.

### **Real Estate is newly an independent business field of SBB.**

In 2002, the business field Real Estate achieved total revenues of CHF 434 million (+5.9 percent). On the Swiss real estate market, the SBB with its 5,200 buildings and 27,000 tenancy agreements counts among the most important players. With the aim to play the real estate trumps even better, the SBB has reviewed the real estate strategy. Per 1 January 2003, the business field Real Estate was taken out of the Infrastructure Division and was established as an independent business unit in the SBB concern, with own responsibility for results. The seven biggest stations – Zurich, Bern, Basel, Lausanne, Geneva, Winterthur and Lucerne – with a broad shopping and services offer, will in the future be grouped together under the trade name «RailCity».

#### **Highlights 2002 in the field of real estate.**

- For CHF 16 million, around 2,900 further parking spaces Park & Rail were constructed or renovated (overall number: 20,300).
- In Altstätten, Gelterkinden, Muttenz, Emmenbrücke and Näfels, five new «avec.» convenience shops with integrated ticket sale were opened. The gross turnover of all the 14 «avec.» shops amounts to CHF 50 million.
- New Aperto shops were opened in Neuchâtel, Olten and Vevey. All the 25 Aperto shops of Switzerland made a gross turnover of about CHF 105 million.

#### **The major projects of the real estate sector currently under construction.**

- From 2003, the Passerelle Basel shall connect the Centralbahnplatz with the «Gundeldinger Quartier», while featuring a shopping space of 6,300 square metres. At its southern end, a 70 m high building is planned as a closure structure built in urban construction style.
- As a modern, five-storey complex, the Elsässertor is situated at a central location right beside the station of Basel SBB. As from the end of 2004, it will become the headquarters of SBB Cargo, with shopping, services and gastronomy spaces.
- In the scope of the S-Bahn constructions between Genève Cornavin and Annemasse, near the marshalling yard La Praille and the new S-Bahn station, office, sales and residential spaces of around 220,000 square metres are planned.



## Infrastructure Strategy: Basis for Key Projects.

### 30 percent more train paths within ten years.

The SBB divisions Cargo and Passenger Traffic have preannounced an additional requirement of around 20 percent more train paths for the coming years. To meet this need, Infrastructure has set itself the goal of increasing the track capacity of the SBB network by 30 percent until 2012. SBB Infrastructure concentrates its efforts on the following three key projects:

1. Network of the future: 1<sup>st</sup> phase of Rail 2000, S-Bahn systems, «facelifting» of stations, capacity north-south in freight traffic, AlpTransit, connections to high-speed lines, 2<sup>nd</sup> phase of Rail 2000.
2. New technologies: Automation of signalboxes, a performing radio network for data and voice transmission (Global System for Mobile Communications-Railways – GSM-R), train protection system and in-cab signalling (European Rail Traffic Management System – ERTMS\*).
3. New processes: Centralization of operations management (Rail Control Center), process-oriented organisation.

In May 2002, the SBB approved credits totalling CHF 2.9 billion for the new technologies. The following shows the state of progress of some key projects.

### 1<sup>st</sup> Phase of Rail 2000: Start for the final spurt.

The infrastructure works for the 1<sup>st</sup> phase of Rail 2000 scheme are proceeding according to plan. In June, the wing station Zurich Sihlpost was opened to traffic. In the Valais, the through-cut of the Varen tunnel near Leuk means that the doubling of the last single-track section comes nearer. At present, the following five major projects are still under construction: The third track Geneva–Coppet, three double-track «island» sections in the Emmental, the tunnel between Zurich and Thalwil, capacity extension of Zurich's main station, and the new line construction Mattstetten–Rothrist.

With the extension of the trackyard on the western side of Bern station, the last of the around 130 part projects of the 1<sup>st</sup> phase of Rail 2000 will change from the planning to the execution stage in 2003. According to today's cost evaluation, the SBB will terminate the works of the 1<sup>st</sup> phase of Rail 2000 around CHF 1.5 billion below the budgeted end costs of CHF 7.4 billion. The SBB has submitted its ideas to the Federal Transport Office

concerning the train offer for the 2<sup>nd</sup> phase of Rail 2000, and the infrastructure extension concept going along with it.

### European signalling- and train protection system has teething troubles.

The start of pilot operation with in-cab signalling of the European Train Control System was not trouble-free. In an upgraded version, it will enable operation on the «Neubaustrecke» of Rail 2000 with train speeds of 200 km/h and two-minute headways. The contract for equipping the line was awarded to the company Alstom.

Because of the tight schedules until the start of revenue operation, the SBB could not rely solely on the first experiences gained with the pilot operation on the line Zofingen–Sempach-Neuenkirch, commissioned in 1998. Pilot operation started by end of April 2002 with a delay of two years. Together with the manufacturer Bombardier, the SBB as the first European railway succeeded in using the new European Rail Traffic Management System (ERTMS) in regular train operation. In the first six months, the system did not function reliably enough. A software developed further, and intensive efforts on the process level reduced the number of irregularities by over 90 percent until today, compared with the start phase.

In the face of the mixed experiences with pilot operation, the SBB decided in December 2002 to additionally install a fallback system in the form of conventional safety technology. This allows for a top speed of 160 km/h. Since it cannot be predicted which of the two signalling and train protection systems shall be in use by December 2004, the timetable planning is based on a top speed of 160 km/h. During a one-year transition period, this will entail slight modifications in the timetable.

### Mobile data transmission network for the railways.

As part of the CHF 2.9 billion investment package for the new technologies, the SBB approved a credit of CHF 375 million for the build-up of a new, uniform mobile communication network for the railway. GSM-R is the precondition for the European signalling and train protection technology ETCS. Concurrently, the mobile railway radio replaces older radio systems for train service, construction and shunting, and enables communication from the train

\* With ERTMS, the train protection data collected on the basis of the European Train Control System (ETCS) are directly transmitted by radio into the driver's cabin of the locomotives by way of the standardized data transmission GSM-R (railway).



control centres directly to the passenger compartments. Until 2005, the lines Bern–Zurich and Lucerne–Basel, and the S-Bahn Zurich shall be equipped with GSM-R. Until 2009, 1,400 antennas shall guarantee coverage of the 3,000 km of the SBB network. The SBB tries to use many of the existing locations of the three other network operators.

#### High-performance network thanks to modern train control.

In 2002, the SBB took 15 new signalboxes into service. 35 stations can newly be remote-controlled. Modern interlocking technology increases safety and quality in the run of operations, reduces the costs and improves the financial result of Infrastructure. Additionally, the SBB wants to pass binding agreements with the supplier

industry concerning contract volumes. This allows the industry to deploy the respective supply capacities, which will have a positive impact on costs. The implementation of the remote control of stations, terminated by around 2010, creates the technical basis for the future operations management concept «Rail Control Center» currently being planned.

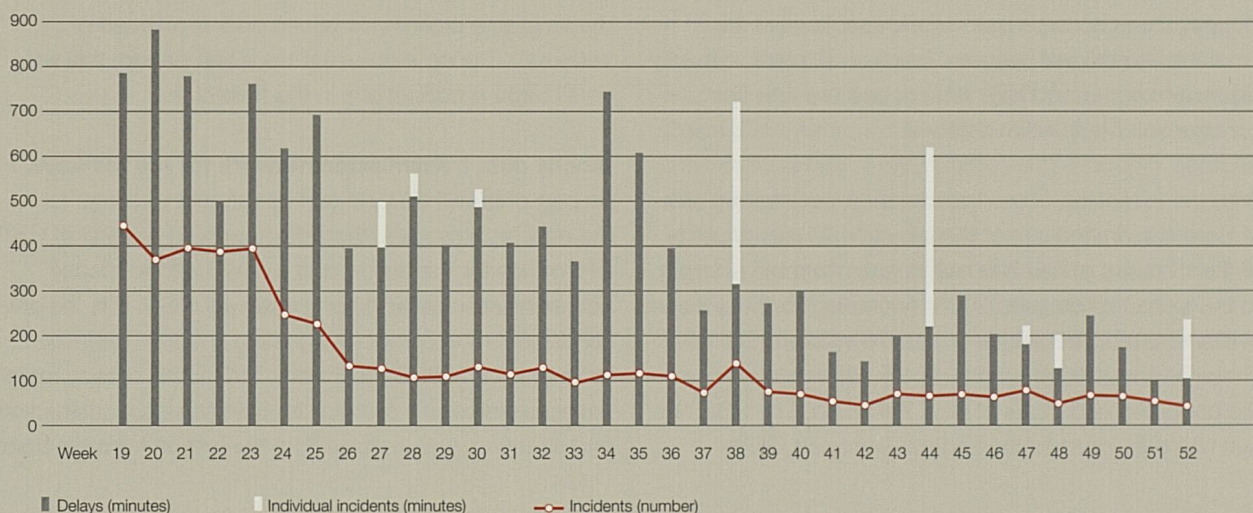
#### Regional stations: The small ones begin to flourish.

The new regional stations are an important element of the new railway age. The SBB responds to the demands of modern mobility with a completely new concept. Bright, friendly, clean and safe, these likeable stations in the agglomerations enable a better customer service and an enhanced tying-in of the regions into the Swiss public transport network. In early June, the refurbished

#### Clear progress with the new signalling and train protection system.

Battle with the intricacies of technology: At the beginning of the pilot operation with the new European Rail Traffic Management System ERTMS and its European Train Control System ETCS on the line Zofingen–Sempach–Neuenkirch, the system did not function reliably enough. This was evidenced by numerous minutes of delay and incidents. Thanks to a targetted further development of the software and big efforts on the process level, the malfunctions could be reduced by over 90 percent until the end of the year.

Delays on the pilot sector Zofingen–Sempach–Neuenkirch (May to December 2002).





stopping point of Muntelier-Löwenberg was the first to be reopened. Another 65 regional stations were refurbished in the course of the year under review. 553 additional stations shall also get a new, uniform architectural design in the coming years, the schedule depending on the financial possibilities of the SBB.

#### **New process-oriented organisation.**

Infrastructure has improved the processes in accordance with the goal, and has adapted the structures. Internally, SBB Infrastructure is now broken up into the following three business fields:

- Sales and Capacity Management
- Asset Management
- Construction Projects Management.

#### **Challenging Outlook.**

##### **The federal government reduces its payments.**

The figures of the financial means needed for the maintenance and development of the railway network have been integrated into the Performance Agreement 2003–2006. In the past year, the Federal Council and the Parliament have passed the new Performance Agreement with a credit line of CHF 6.025 billion. With the «debts brake» and the linear reduction of contributions, the government payments for operation and for the maintenance of the value of the SBB infrastructure will be reduced to CHF 5.958 billion. It is to be feared that further reductions in the scope of the deficit-cutting programme of the federal government will take place. It will be a big challenge, with less means to realise the strategically important projects optimally in regard to schedule and extent.