Zeitschrift: Swiss express : the Swiss Railways Society journal
Herausgeber: Swiss Railways Society
Band: 3 (1991-1993)
Heft: 12

Artikel: The end of the line for the regional train?
Autor: Hauser-Gubser, A.E.
DOI: https://doi.org/10.5169/seals-855263

RBe4/4 No.1445 at Basel Hauptbahnhof, September 1986 : *Photo Peter Over*

The End of the Line for the Regional Train?

by A.E.Hauser-Gubser

The Swiss Federal Railways' decision to cut the service in regional traffic will have far reaching consequences. Though the Federal Council decreed a cut in the subsidy to balance the full cost of regional traffic, they did by no means require a reduction of service. Indeed, observers agree that the SBB could easily have achieved the required savings by other means. Even the savings planned for 1995/6 amounting to SFr.100-150 million are possible to achieve by not replacing retiring members of staff or by rationalisation of the administration. In my personal opinion the financial cuts have merely provided an excuse for getting rid of the stepchild regional traffic by applying the findings of the *groupe de reflexion.* Therefore the SBB have proposed three options:

1. The SBB, the Cantons and the Communities should form a new organisation *Regional Traffic.* The SBB or regional organisations will be responsible for the operation, but only those trains deemed necessary will be run against payment of the full costs:
2. Regional transport organisations in which the so-called "private railways" and bus lines in the possession of Cantons and Communities will take over the regional traffic. They will be permitted to use the infrastructure of the SBB where this seems sensible. The Cantons and Communities are to bear any losses: or
3. The SBB will lease or sell regional lines to the above regional organisations. The operating responsibility and commercial organisation of the lines will lie entirely in the hands of these organisations and any losses will have to be borne by the owners.

The salient point is therefore that for each option the losses produced so far have to be borne by the Cantons and Communities which

Table 1

a: Net proceeds and proportional costs of regional traffic; 1991/2

District	Net proceeds*	Prop.cost*	Cost coverage,%	Rate of utilisation
Lausanne	68.46	102.130	67.03	12.75
Luzern	74.26	116.999	58.49	12.62
Zürich	182.824	222.601	82.13	15.80
Total	325.544	441.730	76.69	13.72

b: Net proceeds and proportional cost of IC traffic; 1991/2

District	Net proceeds*	Prop.cost*	Cost coverage,%	Rate of utilisation
Lausanne	329.906	140.474	234	29.07
Luzern	436.179	165.088	264	25.45
Zürich	288.540	102.887	280	27.16
Total	1054.625	408.722	258	27.22

* SFr. million

The **Proportional Cost** include those costs which can be attributed directly to the train, ie train staff, energy consumption, maintenance of rolling stock (excluding R3 and R4 overhauls), maintenance of infrastructure due to passenger traffic, the service by the station and marshalling staff on the train. This cost is calculated over the quantity, eg train km x cost rate.

As you will note, the cost coverage of regional traffic is below 100%. This means that not even the proportional cost is covered, let alone the standing costs which include depreciation, interest on invested capital, sales promotion and administration. The IC traffic covers the proportional cost and standing cost far better. However if the net receipts obtained by the 31%, or 85 million IC passengers originating from regional traffic is not counted, then even the IC traffic is producing a loss.

In conclusion, the question is not so much whether to abandon or cut the regional traffic, but to cut costs radically as a whole and to obtain higher net proceeds through a better and faster service. If, for instance, the average travelling speed in regional traffic could be raised from about 45 km/h to 70-80 km/h and far more direct connections could be introduced in combination with modern rolling stock and continuous train control, then the railway would be more attractive, thus producing higher net receipts, but the proportional cost could be dramatically reduced, with far less rolling stock than is needed today.

means that the subsidies from the Confederation would be substantially reduced. However the Cantons would have to meet the shortfall by raising local taxes, a prospect that is unlikely to appeal to the voters. Logically, the service would have to be still further reduced and the big winner will, of course, be the automobile traffic. (*Or will it? More cars will mean more congestion and there is not that much space left in Switzerland for major road projects - unless of course, one is prepared to ruin the countryside. Ed*)

In the timetable period 1991/2 the Confederation's (ie, the taxpayer's) payments to balance the full cost of regional traffic amounted to SFr.725 million (see Table 1). It is obvious that something has to be done, but adopting any of the foregoing "solutions", or the replacement of regional trains by buses is the worst answer. At least, at present each line gets equal treatment. Should any of the above proposals be adopted, we can forget all about the sequenced timetable, since each Canton would try to spend as little as possible on regional traffic, unless forced to do otherwise by the voters.

According to Herr Grosjean, Chairman of the Board of Administration, there is no possibility of improving the financial situation of regional traffic. In this respect a group of neutral traffic experts have adopted a radically different viewpoint. They point out that the SBB itself has proved the contrary by improving the ratio of cost cover from 74% in 1991/2 to 80% in 1992/3. For instance, on the Fribourg - Flammatt - Bern - Thun line a rise of 50% in

SBB RABDe8/16 *Chiquita* at Rapperswil : *Photo John Jesson*

passengers has been achieved since 1989. They also point out the spectacular success of the RBS lines, with a 20-40% rise in passengers since the introduction of the half-hourly interval timetable.

They also refer to the progress made during the last few years in applying modestly priced continuous train control systems on single track lines with a high traffic density. They draw attention to the successful introduction of tilted body technology trains in regional traffic around Nuremberg in Germany. The group suggests that a combination of these measures adapted to the specific needs of each route would bring substantially higher average speeds and thence a much shorter travelling time, making the train far more attractive to a larger number of passengers. As in Germany, the group proposes the use of 2- and 3-unit pendelzugs with tilting bodies and converter technology, with all axles powered, an axle load of 14-16 tonnes with a seating capacity of 128 and 200 respectively. The top speed would be 180 km/h, with powerful regenerative brakes to reduce energy consumption, automatic couplers with connections for all train systems (brakes, heating, control), giving the possibility of one man controlling up to five units, whilst providing, for the traveller, substantial improvements in comfort as well as convenience.

The group also proposes direct connections with adjoining regional routes and the introduction of semi-fast trains during the peak periods. A continuous train control system, such as the ZS1 90 system developed by Siemens-Signum provided the possibility of far higher operating speeds than those of today, because the safety margin incorporated in current timetables is not necessary with permanent train control. The system will continuously supervise the braking distance by calculating the speed and braking weight in conjunction with the distance to the next speed reduction or full stop. If deemed necessary, the system can be further developed into full line conductor control.

In its more modest configuration for local traffic, it will control the settings of both points and signals along the route. The feed-back data obtained by relay contacts is transmitted in very short cycles by digitally encoded signals over cable connections to the central control cabin. There a transmitter sends information to

Table 2: Main data on Schaffhausen - Kreuzlingen - Rorschach line

Kursbuch Table	820
Total length	80050 m
Ruling gradient	1.2%
Number of stations	29
Average distance between stations	2858 m
Connects with:	
Zürich at Schaffhausen	
Winterthur at Schaffhausen	
Winterthur at Stein am Rhein	
Konstanz at Kreuzlingen	
Weinfelden at Kreuzlingen	
Zürich at Romanshorn	
Zürich at Rorschach	
Number of passengers; 1991/2	1400000
Net receipts	SFr.5916000
Proportional cost	SFr.11363000
Rate of utilisation	15
Cost coverage	52%
Full cost	SFr.35000000
Train kilometers	1100000
Full cost per train kilometer	SFr.31.80
Proportional cost per train kilometer	SFr.10.03
Net receipts per passenger kilometer	SFr.0.11
Proportional cost per passenger kilometer	SFr.0.21
Full cost per passenger kilometer	SFr.0.65
Subsidy by the Confederation	SFr.29000000
Subsidy per passenger kilometer	SFr.0.54
Subsidy per train kilometer	SFr.26.35

Note: The line is a good example of the present situation in regional traffic. to balance the full cost, an increase to 318 passenger km, or 8.3 million passengers yearly, would be necessary. An improvement and therefore a substantial reduction of the subsidy is only possible by radical cost reduction, a higher average speed than the present 43.63 km/h, and an increase of at least 50% in the number of passengers. Staff costs are about 55%, or SFr.6250 million for maintenance for the proportional cost.

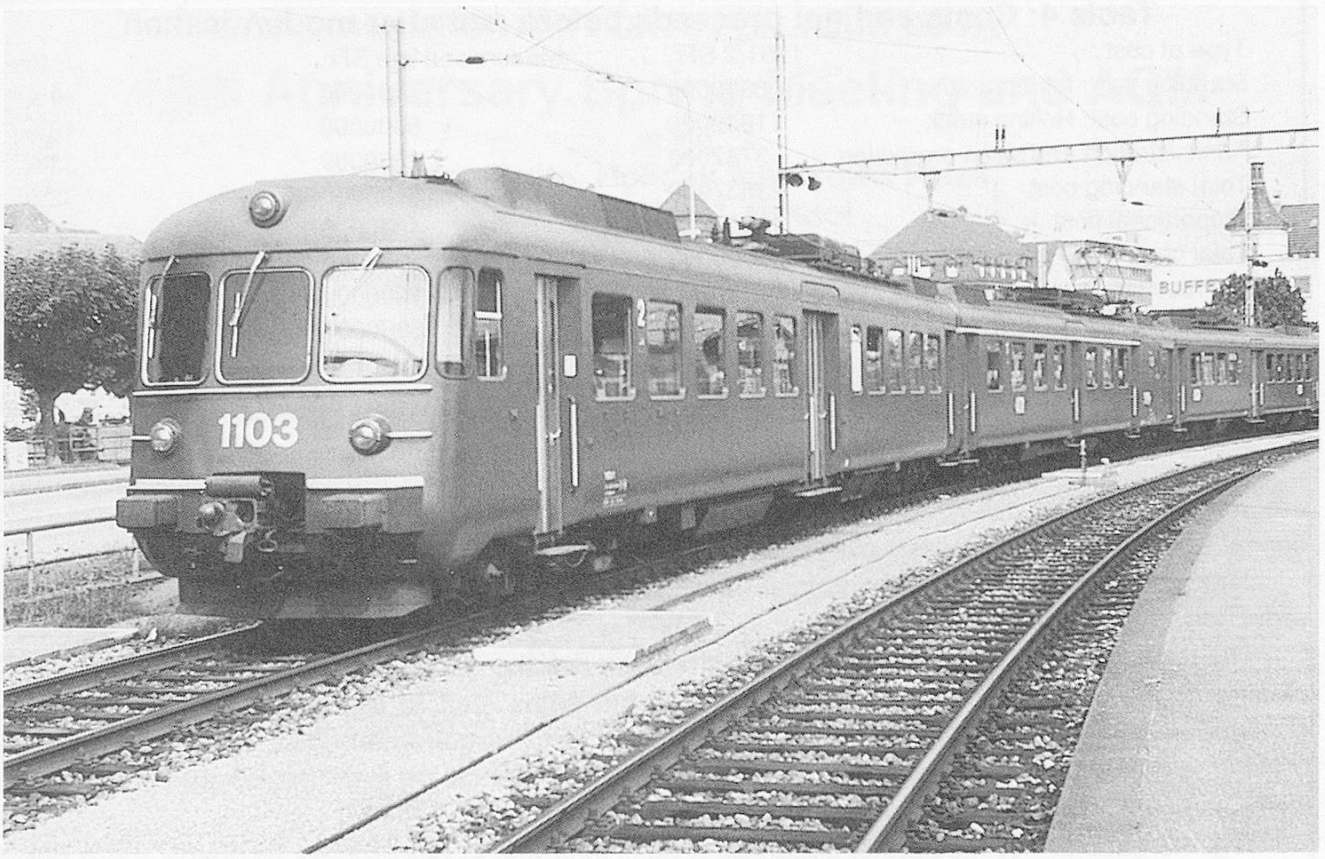
In Table 4 a possible improvement is shown.

the trains under way. Each train's receiver transfers this data to the onboard computer, which is equipped with a floppy disc containing the fundamental data relating to the route; train number, arrival and departure times, gradients, curvature and speed limits on both straight and curved track, calculated on the basis of the standard timetable. The actual distance covered is derived primarily from the revolutions of the wheels, moderated by magnets placed at varying distances along the line to provide fixed reference points. The data obtained from these magnets is analysed by the onboard computer and compared with the data obtained from the train. This can differ through tread wear, giving a false overall reading, or a degree of wheel slip too slight to trigger any anti-slip device that is fitted. These small discrepancies are immediately corrected.

Should a fixed signal be at red. the onboard computer immediately calculates the speed reduction needed to bring the train to a controlled stop. These new speed limits are supervised within small margins and any error on the part of the driver can be immediately corrected. Station tracks are provided with line conductors which enable additional orders, such as "proceed to track 3" or "meet Train No.xxx at Station zzzzz" to be transmitted to the train. It is also possible, through the line conductor, to prevent unauthorised departures. Point and signals are controlled from the central control cabin.

In addition, the traffic experts propose to transfer ticket sales to a member of staff on the train, who will be equipped with a machine capable of printing tickets for any destination in Switzerland. Most of the small local stations would be closed to reduce costs and the waiting times at places where only a few people board or alight would be reduced to 30 seconds. (*For over 50 years, the scheduled station stops on London Underground lines has been a mere 20 seconds. In practice as little as 10-15 seconds can suffice at lightly used stations, allowing longer for the major centres where a 30 second wait might be needed. ED.*) Special compartments would be reserved for regular commuters and holders of long time tickets.

The same experts have also proposed a detailed solution for the SBB Schaffhausen - Kreuzlingen - Romanshorn - Rorschach route, this is shown in Table 2. In Table 3 the investments needed for the improved service are given, whilst Table 4 shows the savings that could be achieved. Note that the line would still operate at a loss, but with a refined timetable, better connections and through



RABDe No.1103 at Rapperswil SOB, August 1987 : *Photo Paul Russenberger*

excursions to tourist centres or to places in Germany and Austria, both of which operate on the same 16 $^{2}/_{3}$ AC supply as Switzerland, the accounts might possibly be balanced. The valuable vacant sites at closed stations could be transferred to an SBB-owned real estate society which promotes building projects, either alone or in conjunction with interested private partners. Profits from this activity should be used either to reduce losses, or to fund line improvements.

The SBB ignore these solutions for two reasons; they want to concentrate on the two major projects, the revised Bahn 2000 and Alptransit and they are afraid of the scattering of finances should regional traffic be revitalised. This is despite the fact that 31% of all IC passengers originate from regional traffic!

The further use of Type I and II passenger coaches does pose some difficulties, but the staffing problem can be

Table 3: Necessary investment on the Schaffhausen - Rorschach line

a) Rolling stock:

3 trains with tilting body and converter technology as described, 200 places each	SFr 270000	SFr
2 trains with tilting body and converter technology as described, 128 places each	SFr 120000	39000000

b) Infrastructure

Installation of continuous train control at stations and on rolling stock	15000000
Improvements at stations; elevated platforms, ticket machines, waiting rooms on platforms, automatic railway barriers and/or underground passages, two way intercom systems	30000000
Total	84000000

These amounts are estimated, but on the safe side. According to the expert group it should be possible to stay slightly below this sum, especially if other lines should also be modernised, leading to lower supplier prices.

Table 4: Costs and net proceeds before and after modernisation

Type of cost	1991/2 SFr.	Modernised line SFr.	+/- %
Standing cost: Infrastructure	8000000	7600000	-4%
Standing cost: Rolling stock	11900000	6000000	-49%
Administration and sales promotion	3737000	2500000	-33%
Total standing cost	23637000	16100000	-32%
Proportional cost	11363000	4800000	-58%
Total cost	350000000	20900000	-40%
Net receipts	5916000	1200000	+102%
Confederation subsidy	29000000	8000000	-72%

The potential for economy on the infrastructure is low because of the large investment needed. On the other hand the standing cost for the station buildings (depreciation, interest payment, maintenance) will be carried by the real estate society.

The economies achieved on rolling stock can be explained by the fact that only 5 train units are needed against 10-13 of the conventional design. Both depreciation, interest on invested capital and much cheaper main overhauls bring in a substantial saving.

The savings achieved on administration and sales promotion are due to a radical staff reduction.

The reduction in proportional cost is produced by the reduction in staffing levels and the closing of most of the stations, with transfer of the sales staff to the trains, the introduction of continuous train control, the considerably lower energy requirement due to the recuperative braking and last, but not least, the lower cost of maintenance on train bogies and track due to lower axle weights and self-steering bogies.

The increase in net receipts is based on a 50% increase in passengers (probably more due to the shorter travelling time), longer distances per passenger and today's prices. Furthermore the expert group recommends that the service should be extended to St.Gallen to tap an additional population potential possible with a direct connection.

Considerable further savings would be possible when this method is extended to the Schaffhausen - Zürich, Winterthur - Schaffhausen, Romanshorn - Winterthur and St.Gallen - Zürich services, allowing a far more intensive use of the train units than today. 1200-1600 km per day, as in Germany, would become possible providing the train units are rationally employed.

met by well tried techniques, early retirement for staff at 60 and a block on new recruitment until displaced staff below the new retiring age have been absorbed elsewhere on the system. Old coaches, control trailers and motor cars would be gradually withdrawn from revenue service since the modernisation of regional trains would take at least 5-10 years.

Of course, not all regional lines would bring in similar savings. However, we should not wilfully destroy a system in which considerable investment, in electrification, station improvements etc, has already been made so long as we can achieve a substantial reduction in cost and an increase in passenger usage.

Once passenger levels begin to be substantially reduced, losses can easily get higher than they are today. It would be naïve to believe that IC traffic will not suffer some reduction of the 31% at present originating in regional traffic. In view of the present situation, in which the EC seems unwilling to keep to the clauses of the transit treaty concerning air traffic, and in view of the restricted financial resources suggests it might be advisable to postpone one of the Alptransit base tunnels and to use part of the finances so released for the modernisation of Regional Traffic.

RhB Freight Traffic Part 3

Due to pressure of space the final part of our President's series has had to be held over until the March 1994 issue.