



Annual Report 1998



Jernbaneverket
Biblioteket

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Årsrapport for

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Annual Report of the Board of Directors

1998 brought major changes and a great deal of media focus on the Norwegian railway. Jernbaneverket used major resources in eastern Norway in connection with Gardermobanen, which links central Oslo to the new airport at Gardermoen. This railway line, which opened in October, is the first major new line in almost 20 years.

During the final months of 1998, many years of extensive construction and improved maintenance began to yield results, including a markedly improved public opinion of the railway as a means of transport. During 1998, Jernbaneverket (the Norwegian National Rail Administration) also continued to adjust to its new role as an independent, public agency managing the railway infrastructure. In what must be described as an economically difficult year, the budgetary lag was eliminated by year-end.

1998 was Jernbaneverket's second year as an independent infrastructure manager. The agency was established when NSB, the Norwegian State Railways, was split into two companies on 1 December, 1996. Budgets were very tight; the resources required to conclude the improvements in local-traffic around Oslo, and other measures in preparation for the Gardermobanen airport shuttle service, entailed cuts in maintenance on other parts of the railway network, aggravating the already existing maintenance lag. Track quality and extensive work on the railway network in the Oslo region forced some trains to operate at reduced speed, resulting in poor punctuality statistics during the first nine months of 1998. Punctuality did improve during the last three months of the year; even so, one of the most important challenges in the years to come will be to improve maintenance and technical standards on key railway sections.

Jernbaneverket's net result, according to the cash principle, was within budget.



On 1 January, 1998, Jernbaneverket assumed responsibility for traffic control, and information to travellers at train stations. Better information to customers and the public at large has been a high priority in 1998 and will continue to be in the future.

1998 was the first year covered by the Norwegian Railway Plan: 1998-2007 (Norsk Jernbaneplan 1998-2007). The budgetary prerequisites were only partly fulfilled, as the Norwegian Parliament allocated less than it had previously indicated for investment related to tilting trains. The Parliamentary resolution of June 1997 stipulated that NOK 1.6 billion were required for such investments during the present four year period. The initial budgetary allocation for 1998 was only NOK 75.3 million, although this was eventually increased to NOK 243.4 million during the revision of Norway's national budget. Since the budget for 1999 is NOK 310 million, approx. NOK 1.1 billion (adjusted for inflation) of the infrastructure investments must be allocated

in the last two years of this four year period. The Board of Directors assumes that Parliament's allocations in 2000 and 2001 will be sufficient to fulfil the stipulated investment parameters, so that the railway lines in question can be upgraded and will enable NSB BA to achieve the planned economic effects of its tilting train investments.

In the coming planning period Parliament has resolved that the plans for the four transport sectors will be replaced by a single joint National Transport Plan (NTP). Furthermore, the formulation of the NTP is to be expedited; major planning resources were used during 1998 in order to comply with the Parliamentary resolution requesting the NTP in the spring of the year 2000. On both national and regional levels, there has been excellent cooperation between the Norwegian National Rail Administration (Jernbaneverket), the Directorate of Public Roads (Statens Vegvesen), the Civil Aviation Administration (Luftfartsverket), and the Coastal Administration (Kystverket).



The lists of Future Challenges sorted by county were presented on 15 December. The National List of Future Challenges was presented by the directors of the four transport agencies at a joint press conference on 15 February 1999.

During 1998, Skøyen Railway Station, the western entrance to the National Theatre Station, both in Oslo, and the new Stururdi section of the Bergen Railway were officially opened. All three of these projects were completed within budget and on time. Construction continues at the National Theatre Station, on the Vestfold and Østfold lines, and the new Gråskallen section on the Bergen Railway. Maintenance efforts have been concentrated primarily on the sections between Eidsvoll, Oslo and Asker.

At the end of 1998, Jernbaneverket concluded the process of separating the regional organisations' production and administrative divisions. This process has been lengthy and arduous, but the Board is now satisfied that the new organisational structure has been established and is functioning as intended. This year, the Board of Directors also approved changes in the external, governmental conditions under which the business units Bane-service and Bane Tele operate. Jernbaneverket's management and the Ministry of Transport are conducting a dialogue on the possibility of dividing these two units into separate companies.

Despite the maintenance lag on the railway network, there was a marked reduction of punctuality disturbances during 1998. The Board of Directors is, however, concerned that the level of absence due to illness increased from 5.0% in 1997 to 6.1% in 1998. An extensive effort is being made to identify the reasons for this increase, to ensure that effective measures can be taken to reduce these levels in 1999.

Regrettably, there were two major accidents in 1998. On the night of 19 September, five teenagers were killed when the car they were driving collided with a passenger car at the level crossing near Gol Station. On the afternoon of 17 December, eight people were seriously injured when a passenger train on Nordlandsbanen derailed just south of Mosjøen.

There were no fatal accidents involving railway passengers or employees of Jernbaneverket in 1998.

The Board of Directors

In accordance with the Royal Decree of 29 November 1996, Jernbaneverket's Board of Directors is an advisory body which reports to the Ministry of Transport and Communications. The current Chairman is Arent M. Henriksen. In 1998, the Board also consisted of Bjørg Simonsen (Vice Chairman), Tor Espedal, Bjørn Sund, Kristin Bjella, Ove Dalsheim and Roar Aasen. On 17 April 1998, Ove Dalsheim and Roar Åsen were replaced by Kjell Atle Brunborg and Oddvar Slettemark, while Tor Espedal was replaced by Ove Fløtaker on 29 June 1998. The Board of Directors held 11 meetings in 1998.

Throughout 1998, the Board has been continually updated on the Jernbaneverket's situation and challenges by means of monthly reports and briefings

on operations. The Board has discussed a number of important issues, including: preparation of the National Transport Plan for 2002-2011, budgets for 1999, the upgrading of Ofotbanen to accommodate an axle load of 30 tonnes, an agreement with the mining company LKAB, the take-over of the northern section of Gardermobanen, the annual report, and special briefings on plans, maintenance and infrastructure development.

Areas of Responsibility

Jernbaneverket is responsible for the operation, maintenance and upgrading of Norway's existing railway network, as well as building new railway lines and installations. Jernbaneverket is also responsible for train-path allocation and traffic control. In addition, Jernbaneverket administers the standards for the Norwegian railway, including technical regulations and regulations for traffic safety.

The Board has focused on following up the criteria for success that have been defined for the management of Jernbaneverket:

- Reliability – by focusing on increased awareness, instilling proper attitudes, and identifying causes of faults.
- Safety – through quality assurance and publication of new traffic-safety regulations.
- Environmental considerations – by preparing a general environmental plan and focusing on environmental considerations in planning and development.
- Control and monitoring – through reporting and following up the control system.
- Cooperation and involvement – through special focus on employee involvement.
- Development – through organisational development, research and development, and by preparing and following up the basis for the Norwegian Railway Plan: 1998-2007 (NRP).

The success of Jernbaneverket is contingent upon satisfying the needs of the train operating companies and the travelling public, both in daily operations and in the long-term development of the railway infrastructure.

The Board has also been concerned with clarifying Jernbaneverket's role in modern society and raising public awareness on this issue. The general public and interested parties have been encouraged to participate in the public debate on infrastructure development, through seminars and conferences, etc. The Board has particularly focused on following up financial management, because of the budgetary lags and efforts to balance the budget during the year. Since Jernbaneverket's take-over of traffic control on 1 January, 1998, the Board has focused particularly on its responsibility for the quality of information to the public, and the additional responsibility for train punctuality. The Board has pointed out that close cooperation between Jernbaneverket and the traffic companies is needed in order to improve punctuality.

Management and Organisation

The Managing Director and CEO of Jernbaneverket is Osmund Ueland. Magne Paulsen, the Railway Director, is responsible for day-to-day management. In December 1998, during the work on the National Budget for 1999, the Norwegian Parliament resolved to completely separate Jernbaneverket from NSB BA, effective as of 1 July, 1999. This entails that the current arrangement of partially overlapping memberships on the respective Boards of Directors, and a joint Managing Director, ceases. From

this date, Jernbaneverket will no longer have a Board of Directors. The Ministry of Transport and Communications is now preparing to appoint a Director of Jernbaneverket from 1 July, 1999.

On 1 November, 1998, Jernbaneverket signed standard agreements giving track access to NSB BA, NSB Gardermobanen AS, Malmtrafikk AS, and the GM Group. These agreements regulate the conditions under which the respective traffic companies operate on the public railway network.

As an administrative body, Jernbaneverket is based on a model of four regions, a central body in charge of infrastructure development, and several internal service providers. Organisationally, the Norwegian Railway Museum (Norsk Jernbanemuseum) operates under the auspices of Jernbaneverket, but has its own Board of Directors, as do the above-mentioned service providers.

At the end of 1998, Jernbaneverket had 3650 employees. During the first half of 1999, a thorough analysis will be made of the manpower and expertise needed in the coming years.



The Board considers the 1998 results to be satisfactory. Jernbaneverket reduced its operating costs by 2% compared to 1997. There is minimal discrepancy between the accounts and budget.

Norwegian Railway Plan: 1998-2007

The new Norwegian Railway Plan: 1998-2007 (NRP) was approved by the Norwegian Parliament on 13 June, 1997 (Report no.39 1996-97). The Board registers that Jernbaneverket is still behind schedule with respect to implementing measures in high priority areas, particularly since there is a need for funds to finance investments.

Priority areas include:

- The local-traffic area around Oslo, followed by Stavanger, Bergen and Trondheim
- Intercity sections of Østfoldbanen, Vestfoldbanen, and the section of the railway to Lillehammer
- The three long-distance lines Sørlandsbanen, Bergensbanen and Dovrebanen
- The freight yards in Trondheim and Sandnes (Ganddal)

The Board has followed up the Plan of Action for Infrastructure: 1998-2001, which was adopted in 1997 on the basis of the NRP 1998-2007. This Plan of Action is the basis for annual Operations Plans and budget proposals, as well as other reports, plans and analyses. In June 1997, the Norwegian Parliament increased the

investment framework for the tilting train programme for the 1998-2001 period from NOK 1.0 billion to NOK 1.6 billion.

Operation and Maintenance

Comprehensive analyses on the condition of the railway network have been made. Parts of the railway network are old and worn down. Jernbaneverket has prepared 10-year Maintenance Plans, but in 1998 the Board noted that the maintenance funds that were allocated were insufficient to follow up these plans.

In 1998, extensive maintenance activity was concentrated on local-traffic sections in the Oslo area, particularly preparations for the new shuttle system to Oslo Airport Gardermoen. Since the Romeriksporten tunnel could not be opened as planned in October, all express trains to the new airport have had to use the existing main track (Hovedbanen) between Oslo Central Station and Lillestrøm. Since this is in addition to normal train traffic, the result has been an increased strain on the railway network in eastern Norway. In the period prior to the opening of the new airport, extensive maintenance was carried out on the Asker-Eidsvoll section. This entailed speed restrictions for a disproportionate number of trains and disturbances in the railway traffic in the months prior to the opening.

The redirection of maintenance funds to eastern Norway also entailed reduced maintenance efforts on other parts of the railway network; this has resulted in a large number of regular speed restrictions, especially on Nordlandsbanen, Gjøvikbanen and Bergensbanen. The Board has therefore prioritised redistributing the 1999 maintenance budget to those parts of the railway network on which maintenance has had to be postponed in recent years.

In April 1997, ESA, the supervisory body of EFTA, ordered the termination of the agreement requiring Jernbaneverket and Telenor to cooperate on administering the excess capacity of the fibre-optic telephone network. As a result, in January 1998 the Ministry of Transport requested that Jernbaneverket itself initiate efforts aimed at profitable use of this excess capacity. Through an agreement of co-operation between Telia Norge AS and

Budgets and Accounting

Jernbaneverket's accounting is carried out according to the cash principle. The total cash basis accounts for 1998 show a reduction in consumption of NOK 39.3 million, or 1.2% of the total budget of NOK 3,353.8 million.

The table below shows Jernbaneverket's budget and accounts for 1998, according to state accounts.

When calculating the degree of consumption as compared to the budget, infrastructure charges (kjørevegsavgift) are not taken into account. The reduced consumption for 1998 is derived as follows:

Section 1350 – Approved budget	5 419.4
Section 4350 – Incomes item 02-17	436.5
Sum	5 855.9
Accounts	5 816.0
Net result	39.9

Section 1350 Jernbaneverket

Item	Designation	Budget 1998	Changes	Appr. budget	Accounts
23	Operating and maintenance costs	2 096.0	9.4	2 105.4	2 540.2
30	Investments	1 257.8	168.1	1 425.9	1 387.8
31	Impact assessment of tunnel through Gamlebyen		0.1	0.1	
32	Payments to Gardermobanen AS		1 680.0	1 680.0	1 680.0
70	Reimbursements to Telenor AS		208.0	208.0	208.0
Total, section 1350		3 353.8	2 065.6	5 419.4	5 816.0

Section 4350 Jernbaneverket

Item	Designation	Budget 1998	Changes	Appr. budget	Accounts
01	Track access fees	55.3	0.0	55.3	47.0
02	Sale of properties etc.	0.0	0.0	0.0	12.0
03	Work for external customers	0.0	0.0	0.0	248.6
04	Rental income	0.0	27.0	27.0	0.0
05	Sale to NSB Gardermobanen AS	0.0	0.0	0.0	43.3
06	Sale of energy for train operation	0.0	0.0	0.0	123.4
	Reimbursement of labour market measures	0.0	0.0	0.0	9.2
Sum kap 4350		55.3	27.0	82.3	483.5

ElTele AS, the network was expanded and upgraded into a nationwide SDH-network during 1998. This network was officially opened on 1 February, 1999, and sale of excess capacity commenced on the same date.

The contractual obligations between Jernbaneverket and Telenor AS have now been settled; in December 1998, Parliament allocated NOK 10 million to cover the expenses incurred by Telenor AS. Jernbaneverket shall pay back this amount to the state with income generated in the coming years by sale of excess capacity in the above-mentioned network.

Development of Infrastructure

No new infrastructure construction projects were started in 1998. Skøyen Station, the western entrance to the National Theatre Station, both in Oslo, and the Stururdi section of Bergensbanen were officially opened. The work on upgrading the National Theatre Station to four tracks has continued at full speed. As part of this project, Studenterlunden park was partially restored by 17 May, according to schedule, after completion of the tunnel work, and the rest of the work continues as planned. The 7.Juni-plassen plaza will be re-established by 1 July, 1999. The new National Theatre Station is expected to open in December, 1999.

The rate of progress on Vestoldbanen (Åshaugen - Sande - Holm), and Østfoldbanen (Såstad - Haug) has been less than optimal due to the limited allocations to these projects.

Work on the connecting lines between Hovedbanen and Gardermobanen was completed as planned in 1998, before the opening of Gardermobanen.

The last phase of construction on the high altitude section of Bergensbanen proceeded according to plan in 1998. This section has already resulted in an improved punctuality record and reduced snow-clearing costs. The Gråskallen tunnel and crossing track will be put into use in late 1999. The official opening is planned for 27 November, as part of the 90th anniversary celebration of Bergensbanen.



tilting train traffic between Oslo and Stockholm, which will reduce travelling time to 4.5 hours.

In 1998, we witnessed considerable public interest in cities other than Oslo during the planning of a coordinated transport plan.

Planning

Preparation of the National Transport Plan is a comprehensive process, which has required active involvement from Jernbaneverket's central management and regions. The NTP, which is a new form of planning, is based on close cooperation between the infrastructure managers in charge of the various sectors. The NTP has required considerable resources, but it also places railway transport within the context of a total transport policy. The work on the NTP will be concluded in late 1999.

A number of major planning projects continued in 1998, building on previous work. The areas with highest priority are the preparations for the tilting train programme, further planning in connection with the double tracks in Oslo, Grenlandsbanen and Ringeriksbanen. The so-called Oslo Package 2 has been revised into a proposition which was submitted to the Ministry of Transport in February 1999.

Jernbaneverket has played an active role in the working group established by the Ministry of Transport in the autumn of 1998, whose goal is to strengthen the railway links between the Scandinavian countries. This work continues in 1999. One of the objectives is to prepare for

Research and Development

Jernbaneverket carried out several development projects in 1998, partly under its own auspices and partly in the form of government R&D contracts with the Norwegian Industrial and Regional Development Fund (SND). In 1997, a three-year letter of intent was signed with the SND on product and supplier development; the Board believes there is a further potential for R&D contracts. Internationally, Jernbaneverket is participating in a Nordic cooperation among infrastructure managers, as well as working through the International Railway Union (UIC) and the Community of European Railways (CER). Jernbaneverket has also entered a research collaboration agreement with the Foundation for Scientific and Industrial Research at the Norwegian Institute of Technology (SINTEF) and the Norwegian University of Science and Technology (NTNU).

These development contracts have given Jernbaneverket additional expertise and opened up possibilities for more cost-effective solutions. High priority areas in Jernbaneverket's R&D programme are: planning and analysis, technical development, information technology, and the environment.

Safety, Health and Environment

The Board has noted an alarming rise in absence due to illness, which rose to 6.1% in 1998, compared with 5% in 1997. Even though this coincides with a general rise for Norwegian companies, the Board has ordered a thorough study of possible causes of the increase, so that effective measures can be taken to reduce these levels in 1999.

The positive trend of fewer injury cases, however, continued in 1998. During the last five years, the H-value (no. of injury-related absences per million work hours) has been lowered from 21.4 in 1994 to 11 in 1998.

Environmental considerations are an important part of Jernbaneverket's objectives. Consideration for Norwegian law and company regulations should be a natural part of the operation, renewal and development of the railway network. In 1998, Jernbaneverket prepared an Environmental Plan and an Environmental Monitoring System which are in accordance with ISO 14001. These form the superstructure for more detailed plans and systems which will be established for all of Jernbaneverket's main units in 1999.

The Board of Directors wishes to thank all employees of Jernbaneverket for their efforts in 1998.

Oslo, 21 April, 1999

Arent M. Henriksen
Chairman of the Board

Bjørn Simonsen
Vice Chairman

Bjørn Sund

Ove Flotaker

Kristin Bjella

Oddvar Slettemark

Kjell Atle Brunborg

Osmund Ueland
Managing Director

This is Jernbaneverket

Jernbaneverket manages the railway infrastructure on behalf of the Norwegian state and reports to the Ministry of Transport and Communications. Jernbaneverket is responsible for allocating track access to qualified traffic companies in a non-discriminatory manner.

Jernbaneverket's primary functions

Jernbaneverket shall:

- Be the Norwegian state's competent body for the railway
- Operate, maintain and develop the public railway network
- Be responsible for traffic control
- Assign access to the national railway network
- Be the track access authority for the public railway network
- Administer the national standards for the Norwegian railway, including technical and traffic safety regulations
- Safeguard national interests in the railway

Jernbaneverket's products are:

- A railway network which satisfies national and customer needs with regard to safety, accessibility, speed, axle load, train frequency, loading limit gauges, information to travellers at train stations, comfort and travelling experience, and environmental considerations
- Railway stations and terminals, including public areas, entrances, parking lots and other facilities deemed necessary to users of train services
- Schedules and individual routes, by allocating train-paths and routes on the railway network
- Traffic control – operational supervision of the train traffic on the railway network
- National standards which must be satisfied by owners of the railway network and trains, with regard to:
 - technical specifications for the railway network and rolling stock
 - traffic control and safety
 - competency of key personnel
- Government reports, assessments and plans for the railway sector, including the railway's role in the development of Norwegian society, also seen in the context of other transportation sectors

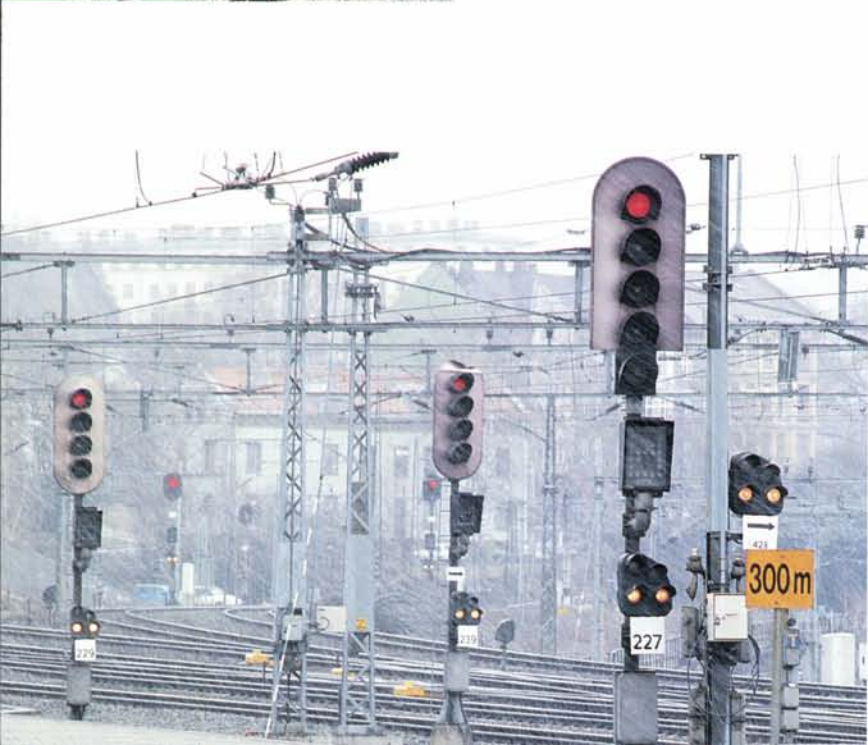
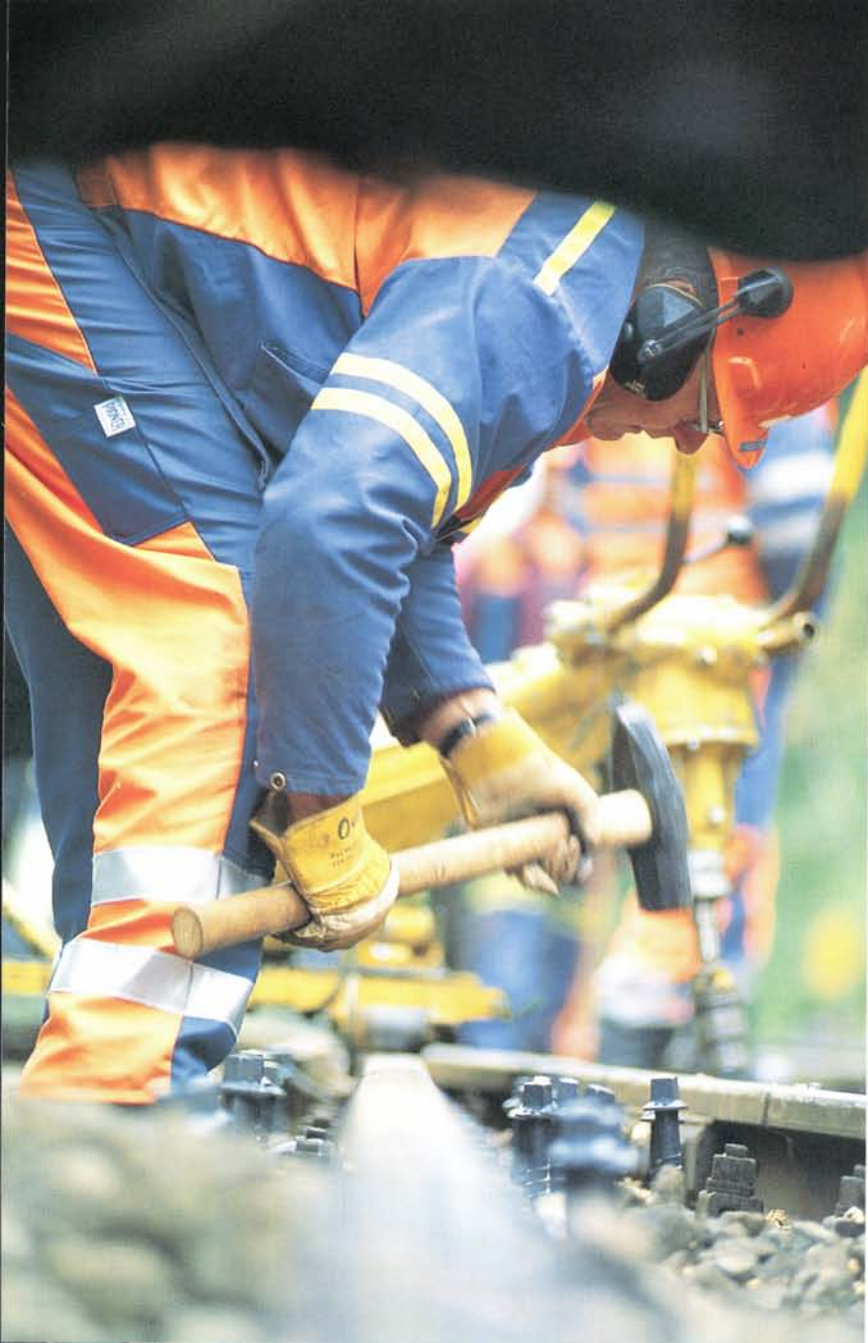
Parties with interests in Jernbaneverket

- The Norwegian state, which is the owner, represented by the Parliament (Stortinget), the Government and the Ministry of Transport and Communications
- Users of the railway network (train operating companies)
- Public opinion, including both customers and potential passengers of the train operating companies
- The authorities, including regulatory and supervisory agencies
- Employees of Jernbaneverket

The following criteria for success have been laid down on behalf of those who hold an interest in Jernbaneverket:

- Reliability
- Safety
- Environmental considerations
- Control and monitoring
- Cooperation and involvement
- Development





Jernbaneverket's Organisation and Management

Jernbaneverket's Board of Directors is an advisory body which reports to the Ministry of Transport and Communications. The Board shall follow up operations and ensure that the daily management carries out its duties in accordance with instructions and guidelines defined by the Ministry of Transport.

The Managing Director is the CEO in charge of managing Jernbaneverket.

The Railway Director is responsible for the ongoing, daily management of Jernbaneverket, on behalf of the Managing Director.

The Head Office, which consists of a section for certification and authorisation and a support section, has superior responsibility for coordinating Jernbaneverket's total operations. It is responsible for all regulations regarding the Norwegian railway network, as well as traffic and activities associated with this network.

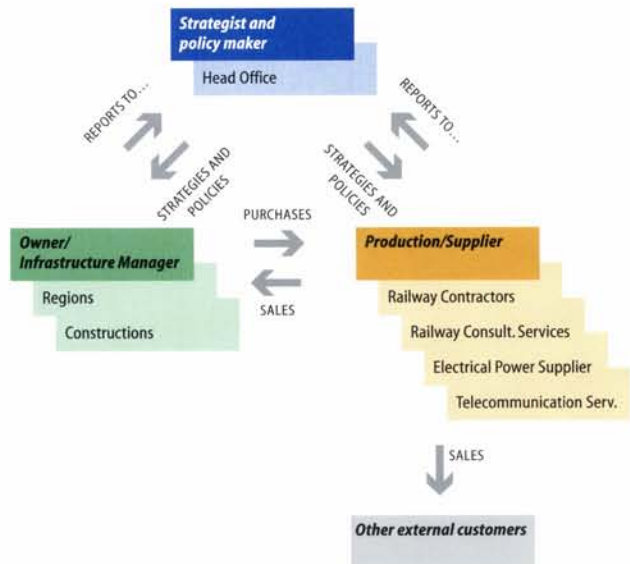
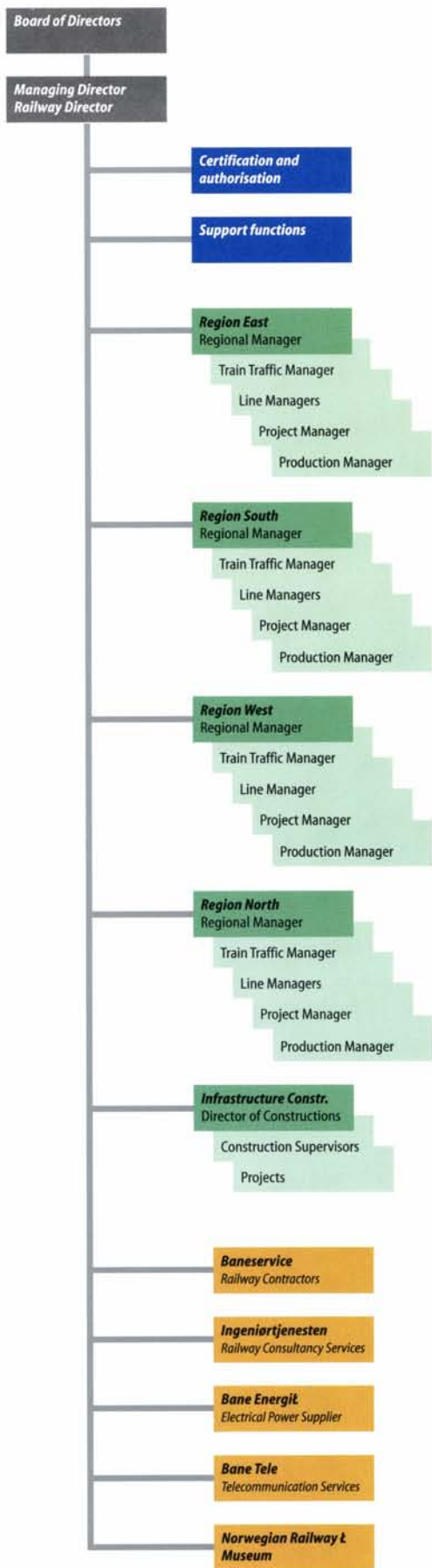
The four regions act on behalf of the owner when managing the public railway network.

Infrastructure Construction is in charge of constructions of new infrastructure, from detailed planning to completed facilities.

Jernbaneverket's internal service providers, who also supply products and services to external parties, are:

- Baneservice – Jernbaneverket's railway contractors
- Ingeniørtjenesten – Jernbaneverket's railway consultancy services
- Bane Energi – Jernbaneverket's electrical power supplier
- Bane Tele – Jernbaneverket's telecommunication services

The Norwegian Railway Museum (Norsk Jernbanemuseum) is the caretaker of historical documentation and presentation of Norway's railway history.



The interplay between Jernbaneverkets various units.



Society and the Railway Infrastructure

The public railway network is a crucial part of the national transportation and communications infrastructure. The public railway is important to society as a whole. Its management and development must be seen in the context of other national infrastructures.

Further development of the railway must be prioritised in areas where it is deemed important for society as a whole; conversely, the railway should not be extended into areas where other means of transportation are more effective. Together with other infrastructure, the new railway infrastructure influences where and how our society develops.

Political decision makers need an objective and well-founded basis in order to make their decisions. With this in mind, the social-economic value must be calculated for all measures being considered for the railway network. Comparison of the social-economic value with costs is essential to enable decision makers to compare and consider the various national sectors.

In order to ensure that optimal utilitarian value is obtained from funds spent on the railway, Jernbaneverket acts according to the following order of priorities:

- Management of existing facilities
- Maintenance/renewal of existing facilities
- Completion of ongoing investment projects
- Investments to improve operations of existing facilities
- Initiation of new investment projects

Jernbaneverket strives to complete individual projects at an optimal tempo. Any irregularity, especially interruptions of the projects, increases costs considerably. It is therefore crucial to maintain the optimal tempo and to complete ongoing projects before starting new ones.





Norway's Railway Network

The Norwegian railway is a first generation railway network.

Most of the lines were established 100-150 years ago. There are only a few sections where modern rolling stock can operate at its speed potential.

In many places, the railway network has too little capacity to offer the optimal railway services according to market demand. Except for the bottleneck in the Oslo area, however, there is still available capacity that can be utilised for new or transferred traffic.

The railway network is classified into five priority groups, which are based on:

- present use of the railway network
- expected traffic developments
- national importance





Bergensbanen



Dovrebanen



Nordlandsbanen



Sørlandsbanen



Raumabanen



Ofotbanen

Key Figures for the Railway Network

	No. of km track	Km track >100 km/h	Km track >150 km/h	Km double track	X-track > 600m	No. of tunnels	No. of bridges
■ Nordlandsbanen	729	203	0	0	24	156	361
■ Sørlandsbanen (Drammen-Stavanger)	545	131	13	0	16	190	495
■ Dovrebanen (Eidsvoll-Trondheim)	485	186	0	21	36	39	384
■ Rørosbanen (Hamar-Støren)	383	113	0	0	7	6	291
■ Bergensbanen (Hønefoss-Bergen)	372	96	9	0	16	154	187
■ Østfoldbanen left track	170	91	22	57	9	16	190
■ Vestfoldbanen	149	40	4	0	0	16	117
■ Gjøvikbanen	124	0	0	3	2	7	102
■ Kongsvingerbanen	115	74	0	0	7	0	49
■ Raumabanen	114	56	0	0	1	6	100
■ Solørbanen	94	0	0	0	0	0	14
■ Østfoldbanen eastern track	80	0	0	0	1	2	42
■ Bratsbergbanen (ex./Nordag.-Hjuksebø)	74	4	0	0	0	29	69
■ Randsfjordbanen (Hokksund-Hønefoss)	54	19	0	0	0	0	27
■ Meråkerbanen (Hell-Storlien)	71	0	0	0	0	1	61
■ Hovedbanen (Oslo S-Eidsvoll)	68	44	0	21	6	2	49
■ Namsoslinjen	51	0	0	0	0	5	6
■ Valdresbanen (Eina-Dokka)	47	0	0	0	0	0	1
■ Numedalsbanen (Kongsberg-Rollag)	46	0	0	0	0	4	1
■ Drammenbanen (Oslo S-Drammen)	42	30	0	41	–	11	58
■ Ofotbanen	42	0	0	0	1	20	6
■ Arendalsbanen	37	0	0	0	0	3	16
■ Roa - Hønefosslinjen	32	0	0	0	0	3	3
■ Flåmsbanen	20	0	0	0	0	21	2
■ Gardermobanen (Gardermoen-Eidsvoll)	17	17	16	13	–	2	16
■ Spikkestadlinjen	14	4	0	0	0	0	12
■ Gardermobanen (Lillestrøm-G.moen) (owned by NSB Gardermobanen AS)	31	31	31	31	–	0	1
Total public railway network	4006	1139	95	187	126	693	2660

■ Electric railway network

■ Non-electric railway network

How the Railway Functions

The operation of trains involves a complex interplay between rolling stock and the railway network. The key elements of the railway network are:

- substructure
- superstructure
- power supply facilities
- signalling and safety installations
- telecommunication facilities

Construction costs are generally distributed as follows:

- substructure 50%
- superstructure 25%
- power supply 10%
- signalling and safety installations 10%
- telecommunications 5%.

The substructure is the foundation on which the track rests, consisting of embankments and cuttings, bridges or tunnels. On many of the old lines or sections, the embankments are too narrow to satisfy modern requirements.

The superstructure consists of ballast/crushed rock, sleepers, tracks and track switches. The ballast is cleaned regularly, track placement is adjusted continually, and track grinding is carried out regularly. In Norway, standard track width is 1435 mm.

Stations are considered part of the railway network. In general, single-track sections have crossing tracks at the stations.

Electrical power is transmitted from the electrical companies' high voltage lines to the railway's own power supply stations and then distributed to the overhead contact lines. The amount of railway traffic on any particular section determines the size and number of power stations needed. The electrical power is converted into 16,000 Volt alternating current of 16 2/3 Hz at the power supply stations. The overhead contact lines must be kept at a constant height and run zig-zag above the tracks so that pantographs on locomotives are evenly worn. The reverse current is led back to the power supply stations through the railway track or through separate conducting wires.

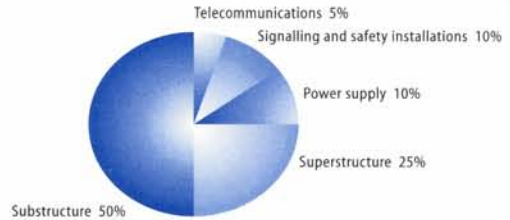
Signal facilities ensure safe train traffic and the optimal use of railway line capacity, so that trains reach their destinations as quickly and punctually as possible. Traffic controllers use remote control to monitor and regulate train traffic. Signal facilities monitor the direction and track on which a train is moving. Most railway sections in Norway are equipped with automatic train

stopping mechanisms; a train is automatically braked if it passes a key signal that shows "stop". In addition, on some sections of line, a train is automatically braked if it reaches too high a speed.

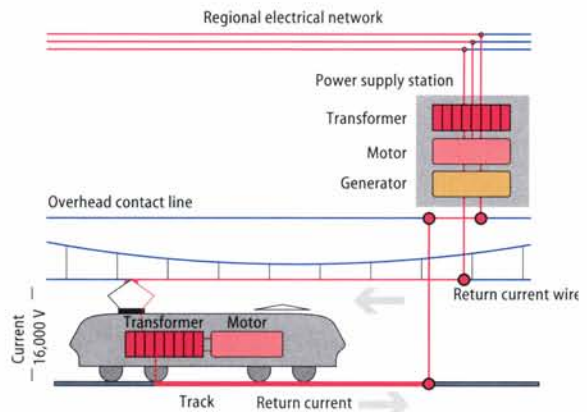
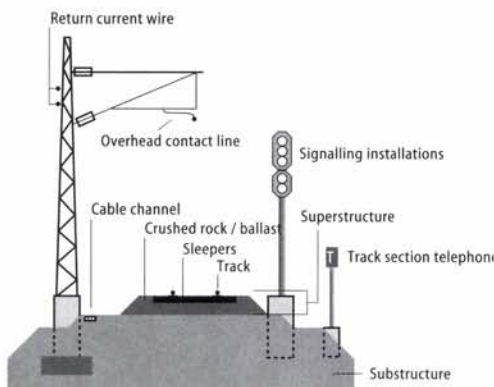
The railway's telecommunications include facilities which handle:

- communications for traffic control
- public information systems for travellers
- internal telecommunication for voice and data transmission

Jernbaneverket owns a nationwide fibre-optic transmission network.



Division of construction costs



Objectives and Results



Safety

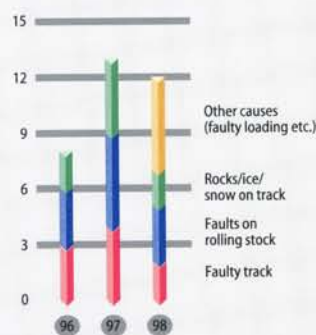
Jernbaneverket has a clear objective to manage the railway infrastructure in a way that avoids casualties, accidents resulting in injuries, and major damage to equipment.

Derailments and collisions

In 1998, there were 12 derailments, compared to 13 in 1997. The derailments were due to faulty tracks, technical faults in rolling stock, or they were caused by snow and ice obstructing the track. The major derailments caused by faulty infrastructure are discussed below.

- On 3 April, freight train no. 4550 derailed with two freight cars upon entering Loenga station. The cause was faulty track geometry.
- On 8 May, freight train no. 5803 derailed when entering track 3 at Varhaug station on Sørlandsbanen. Derailment was caused by the poor condition of the sleepers and rail fastening.

Derailments



- On 17 December, passenger train no. 472 derailed between Kvalfors and Trofors on Nordlandsbanen. Eight passengers were seriously injured and 35 passengers slightly injured. There was major damage to the rolling stock and railway track. The derailment was caused by settlement of the substructure when heavy rainfall led to damming up of water beyond the embankment. The draining capacity of the culvert at its base was insufficient for the large quantity of water.





There were two collisions in 1998, the same number as in 1997. In one instance, a train collided with a tree that had fallen onto the overhead contact line. In the other, a local train collided with a cover that fell from the airport express train. No passengers were injured in these collisions.

In 1998, six derailments and one collision occurred during track switching. This is two more than in 1997.

Level crossings

There were 12 accidents at level crossings, three more than in 1997. Regrettably, a total of six people died in two of these accidents. On 13 June, an accident at the Gjermshus level crossing between Kongsvinger and Åbøgen resulted in one fatality. In the other accident, at Gol station on 19 September, five people were killed.

The accidents occurred:

- One at a level crossing secured with a barrier
- Two at level crossings secured with half-barrier
- One at a level crossing secured by a road signal
- Eight at level crossings secured by a gate

Jernbaneverket will eliminate or install additional safeguards at vulnerable level crossings to improve safety and to prepare for tilting trains operating at higher speeds on Dovrebanen, Bergensbanen and Sørlandsbanen. In 1998, 93 level crossings were eliminated; the goal is to remove another 89 level crossings during 1999.

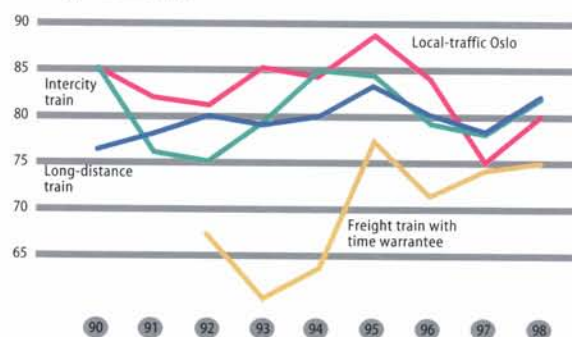
Regulations

The current traffic safety regulations of the JD300-series came into effect on 1 September, 1997. They have now been in use for a year and a half. Efforts have been made to amend the regulations in areas that have not been sufficiently covered.

Certification of rolling stock

The track access agreements with traffic companies specify that Jernbaneverket is to certify rolling stock. Jernbaneverket evaluates this equipment's safety, environmental impact, compatibility with infrastructure, and its interoperability with other rolling stock. In 1998, the certification of the new airport express train and NSB BA's new express and local-traffic trains required extensive work.

Punctuality of Train Traffic



% of trains reaching destination within 0-3 min. of schedule (local-traffic) or 0-5 min. (other trains).



1997, which is 15% better than the target. It is a long-term objective to reduce faults and disturbances even more. Resources are being used to reduce faults as much as possible on high priority sections.

Punctuality

Punctuality statistics are given as the percentage of trains that reach their destination on time. For Intercity and local trains, a three minute margin is allowed, while for other trains five minutes is allowed. Punctuality improved for all types of trains and on almost all railway lines, compared with 1997. The negative tendency witnessed in 1996 and 1997 has been reversed. Punctuality will be an area of priority in 1999. For Jernbaneverket, the main causes of punctuality disturbances are faults in the infrastructure.

Faults that cause punctuality disturbances

Jernbaneverket registers the number of instances when faulty contact lines or signal faults cause punctuality disturbances. In 1998, the number of such faults was reduced by 21.5% compared with

Speed reductions

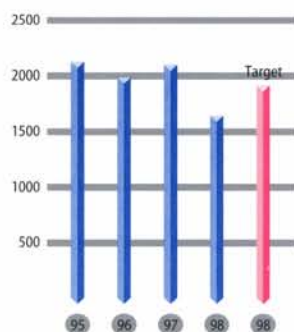
Speed reductions are sometimes made necessary by the quality of the railway network or by planned work on the line. Planned speed reductions are incorporated into train scheduling, and hence do not influence train punctuality. Delays do, however, occur as a result of unplanned speed reductions. These may be caused by track buckling, track breakage, poor track quality, avalanches or slides, etc. In 1998 there were 198 unplanned speed reductions, an increase of 12% compared to 1997. The target for 1999 is to keep the number of unplanned speed reductions below 130, by carrying out preventive maintenance on railway sections that are vulnerable to problems. Compared with 1997, the incidences of track buckling and slides/avalanches has been reduced, while the number of track breakages remained the same. Except for slides and avalanches, the 1998 figures were lower than target figures.

Productivity

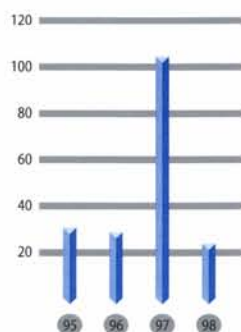
Jernbaneverket is, in cooperation with the Ministry of Transport, working to define suitable monitoring parameters and efficiency targets that can be used to improve productivity.

Jernbaneverket owns a great deal of machinery, primarily rail-bound equipment used for work on the railway network. Cost-effective operation and maintenance of this machinery is a priority. Other key productivity measures are an open competition for maintenance jobs, and the training of Jernbaneverket's personnel to carry out certain types of maintenance.

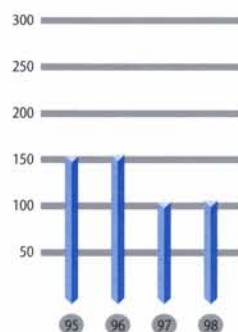
Punctuality disturbances



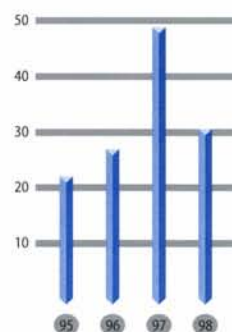
Track buckling



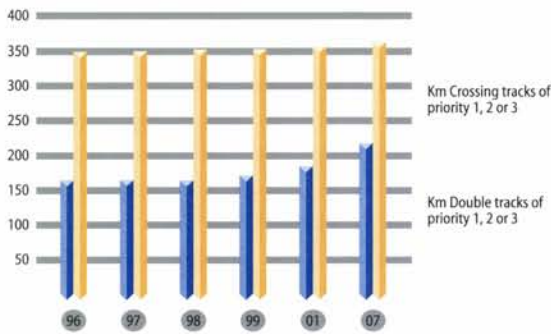
Track breakage



Slides and avalanches



Km Double tracks and crossing tracks of priority 1, 2 or 3



Capacity

Potential train frequency

The railway network's potential train frequency is closely related to the number of crossing tracks, lengths of double tracks, and power supply. This potential was relatively unchanged from 1997 to 1998. Potential train frequency through the Oslo tunnel increased when Skøyen station was completed with four tracks on 17 September 1998, and will improve further when the new National Theatre station with its four tracks is completed in November 1999. The constructions at Asker station, Lillestrøm station, and the connecting tracks between Hovedbanen and Gardermobanen will also make a positive contribution to the train frequency potential. In the next two years, a number of crossing tracks on the main railway lines will be extended as part of the tilting train programme. This will contribute to improved punctuality as well as increasing potential train frequency.

Loading limit gauges

The loading limit gauge refers to the maximum allowable height and width of fully loaded rolling stock. Jernbaneverket is removing some of the profile limitations in order to meet the needs of freight shippers.

The figure below shows from what year various profiles will be in force for freight transport on the major railway lines. NSB U is the old "expanded" profile for two-axle stock, which is approved on all major lines. JBV K is a temporary standard in preparation for UIC GC; the emphasis has been adapting to combined (intermodal) freight transport and increasing container heights. In the short run, Jernbaneverket will introduce the international loading limit gauge, UIF P407, which entails full compatibility with the largest allowable sizes for container transport on Norwegian roads, and, perhaps more significantly, compatibility with international semitrailers (piggyback). The possibility of loading semi-trailers onto freight trains is expected to make the railway considerably more attractive as a means of freight transport, especially as an extension of the Roll-on/Roll-off traffic across the Skagerak and the North Sea.

The increase in loading limit gauges also means improved conditions for future double-decker passenger trains, which will increase the railway's capacity without requiring an increase in train frequency.

Yield

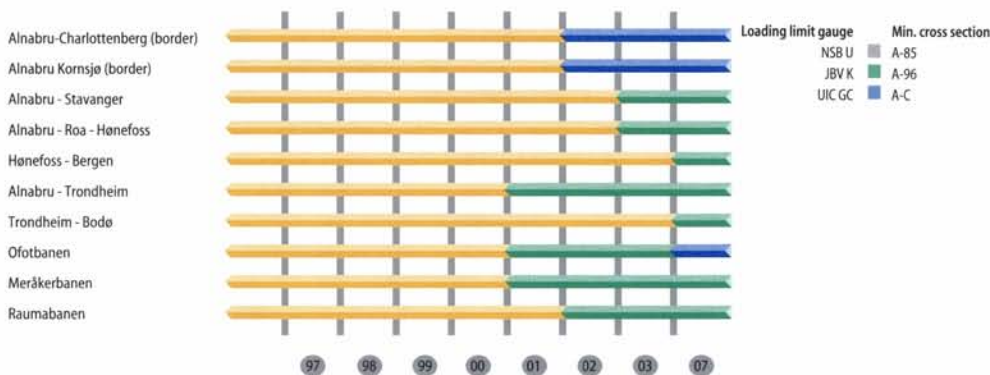
Speed and axle load

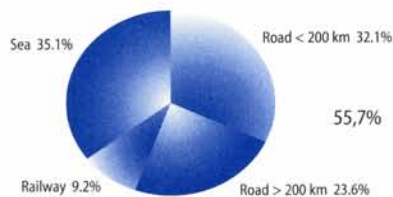
Effective 1998, the permissible axle load is 22.5 tonnes; this also applies for express container block trains running at 90 km/h. The result is increased maximum load per freight car and per container, which in turn makes the railway more competitive and practical for customers. For other trains on the main railway network, however, an axle load of 22.5 tonnes is allowed only for operating speeds under 80 km/h.

Depending on the rate of planned track upgrading and renewal, the next important steps will be:

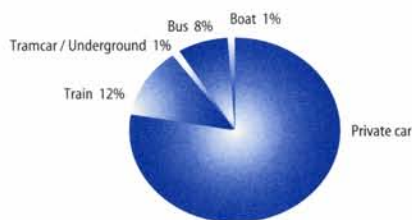
- 22.5 tonnes axle load at 90 km/h for conventional wagon loads and customer dedicated trains
- 22.5 tonnes axle load at 100 km/h for container block trains
- 25 tonnes axle load at 80 km/h on selected railway sections

Track Section





Domestic freight transport



Transport means across Oslo city limits

Statistics for Transportation on the Public Railway Network

In the 1990s, there has been an increase in railway transportation for both passenger traffic (measured in passenger-km) and freight traffic (measured in tonne-km). Part of this increase has been in the form of increased train frequency, and part in the form of a greater demand for the capacity on the individual train. For Jernbaneverket, this means greater demands on operations and maintenance, but track access for carrying out needed maintenance and renewal measures is reduced. As a result, Jernbaneverket is challenged to achieve more efficient operation and maintenance of the railway network.

Transportation on the Public Railway Network

Year	Passenger traffic	Freight traffic
	Sum, passenger-km in millions	Sum, tonne-km in millions
1992	2 256	2 161
1993	2 316	2 872
1994	2 398	2 678
1995	2 381	2 715
1996	2 449	2 834
1997	2 561	3 005
1998	2 540	3 010

There was a slight decrease in passenger traffic, measured in passenger-km. Since the average travel distance has become shorter there was nevertheless a significant increase in the number of passengers. This applies particularly to local-traffic trains and Intercity trains.

Jernbaneverket expects the introduction of tilting trains in the year 2000 to result in increased figures for long-distances travel as well. Another reason to expect a major increase in passenger transportation is the new traffic model, under which most local and Intercity trains in the Oslo area will use the new Romeriksporten tunnel.

There was little change in the statistics for freight transport from 1997 to 1998. There was, however, a slight increase in intermodal freight transport, while there was a decreased demand for conventional wagon loads and customer dedicated trains. A number of ongoing measures are expected to result in a transfer of some freight from roads to the railway. Additional measures will be necessary, however, if the use of system trains for medium-distance routes is to be continued (e.g. transport of timber).

The Railway and the Environment

Jernbaneverket's environmental policy

Environmental friendliness is one of the competitive advantages and criteria for the success of Jernbaneverket. This is an area of high priority, and Jernbaneverket continually strives to ensure that consideration for Norwegian law and company regulations is a natural part of the operation, renewal and development of the railway network.

In 1998, Jernbaneverket prepared an Environmental Plan of Action and an Environmental Monitoring System which are in accordance with ISO 14001. These form the superstructure for formulating more detailed plans and systems that will be established for all of Jernbaneverket's units in 1999.

Challenges and Measures

Inter-sectorial projects

The problems caused by increased road traffic cannot be solved simply by building more roads. In the years ahead, some of the traffic in private cars will have to be transferred to public transportation, not least to the railways. This was one of the main conclusions reached while preparing the National Transport Plan: 2002-2011.

For the first time, the four infrastructure managers in charge of public roads, railway, civil aviation and coastal transportation by sea have formulated a joint plan, the List of Challenges, which forms the basis of the National Transport Plan. The objective of this process is improved coordination of infrastructure planning and development for Norway as a whole.

Work on the NTP will be a central priority in 1999. The Government will present the proposed National Transport Plan: 2002-2011 to Parliament in the spring of 2000.

For Jernbaneverket, it is important to document the total environmental impact of the railways, especially in comparison with other means of transportation. Such documentation will provide Jernbaneverket and political decision-makers with a better basis for their resource priorities.

The Ministry of Transport and Communications and the Ministry of Defence presented their Environmental Action Plans to Parliament together with



the National Budget for 1999, and were the first Ministries to do so. The Environmental Action Plan for each of Norway's infrastructure sectors will be based on clear targets and cost-effectiveness, and will clarify the environmental responsibility of the infrastructure managers.

Jernbaneverket has prepared the plan for its sector in cooperation with the Directorate of Public Roads (Statens Vegvesen) and the Civil Aviation Administration (Luftfartsverket).

These three infrastructure managers have also been involved in the preparation of a national system of management in accordance with strategic documents such as these. The objective of this work, which was initiated by the Government, is to achieve a better follow-up of environmental conditions, impacts and measures. The annual publication of an Environmental State of the Nation is one result of this work. Again, the Ministry of Transport is the first to do this.

In 1998, the Government also initiated a pilot project called Green State, in which Jernbaneverket and nine other public agencies are participants. The objective of this project, which lasts until the end of 2000, is to integrate environmental considerations into public projects and work. Jernbaneverket will, among other things, focus on its energy consumption, use of building materials, and use of chemicals along railway tracks.

The environmental impact of the railway is minor compared with other means of transportation. Nevertheless, it is important that environmental considerations continually play a role in Jernbaneverket's operations. It is hoped and anticipated that project Green State will have a positive influence on the daily work of all employees and help reinforce responsible attitudes.

Noise

For people living along railway lines, noise is the greatest drawback. The most common problem is the interruption of conversations and e.g. listening to music, and the disturbance of sleep.

In 1998, Jernbaneverket concentrated on two measures.

1. Evaluation

Jernbaneverket started a comprehensive study of the noise level in homes and buildings along railway lines. The objective is to identify where noise-reduction measures should be taken. Such measures will be taken between now and 2005, in order to satisfy the new noise limits specified in the Pollution Act.

The study, which began in October 1998, will be completed in 1999. It will provide a basis for allocating funds for noise-reduction measures, as part of the National Transport Plan. In addition, this study will provide Jernbaneverket with a far more accurate survey of how many homes are exposed to noise problems.

2. Noise-reduction measures in Gamlebyen, Oslo

In 1998, Jernbaneverket carried out noise-reduction measures in Gamlebyen, the old central sections of Oslo.

Measures included noise shielding of outdoor areas, sound insulation of walls and windows, and installing balanced ventilation systems in flats. For a few flats, work is still going on and will be completed during the summer of 1999. After all of these measures have been completed, the average indoor noise level during a 24 hour period will be less than 35 dB(A).

For Jernbaneverket, the goal is that the noise level after these measures have been taken will be acceptable to the residents of Gamlebyen.

During 1998, Jernbaneverket also carried out an assessment of possible tunnels through Gamlebyen. Public hearings have been conducted and the report has been submitted to the Ministry of Transport. This project must be viewed primarily as an environmental measure for the residents in this area. Cost estimates of the various alternatives vary between NOK 3.3 and 5.2 billion.

Polluted soil

A clean-up of the known creosote pollution in Lillestrøm was completed in 1998. Pollutants were removed from the main source on shore. Almost 21,000 m³ of contaminated sediments (wood chips and soil) were dug up and removed from the Nitelva river, while an additional 6000 m³ of sediments were covered to avoid seepage. The chips were incinerated under controlled conditions, while the soil was washed, composted, or treated by other means, so as to minimise the amount of remaining pollutants. The residue from soil washing was delivered to an approved disposal site.

The visual environment

At train stations, a good visual environment should be the start of a successful journey. In 1998, Jernbaneverket assumed responsibility for making conditions at train stations more convenient for travellers. This included information to travellers in the form of fixed and dynamic signs, etc, and furnishing indoor public areas in the stations and outdoor areas on the platforms.

The ongoing work of developing an integrated programme for the visual environment at train stations and along railway tracks commenced in 1997. Guidelines for fixed and dynamic signs were ready in late 1998. By the end of the year, sketches for forming the various visual elements at train stations had been completed and included benches, rubbish bins, shelters, bicycle racks and platform lighting. These sketches will be used to develop new designs that should be ready in late 1999.

International Work and Obligations

Jernbaneverket participates in several international fora. In the Community of European Railways (CER) and European Infrastructure Managers (EIM), work in 1998 focused on contributing toward, and lobbying for, good alternative workings of the three EU directives dealing with infrastructures, which the European Commission plans to revise or replace. This work will continue in 1999.

The three expert groups established for Traffic, Technology and Strategy have drawn up guidelines for cooperation between the Nordic Infrastructure Managers (NIM) in these areas. For the most part, this cooperation takes the form of projects that have a Nordic angle and objective, but there is also a focus on the European Union, particularly with regard to the political and technical parameters for the transportation sector.

Jernbaneverket has a long tradition of supporting and participating in research and development in international railway organisations, both at the Nordic and European levels. In recent years, efforts to establish European standards for railway-related systems have been greatly intensified as a result of increasing focus on the railway as a means of transport between countries.

Most of Jernbaneverket's technical work is carried out in association with the International Railway Union, UIC, and the European Rail Research Institute, ERRI.

Most of Jernbaneverket's work within the UIC is in connection with its Infrastructure Commission. This commission carries out infrastructure projects in cooperation with its members or by hiring expertise from ERRI, other European research institutions or consultancy firms.

To an increasing degree, the European standards organisations CEN, CENELEC and ETSI are also working within technical areas relevant to the railway. A number of work groups have been established to develop standards, in which railway industries and infrastructure managers such as Jernbaneverket participate.

Cultural monuments

Jernbaneverket is establishing a National Plan for the Preservation of Railway Monuments, in cooperation with the Directorate of Historical Monuments (Riksantikvaren). The project encompasses registration and selection of railway sections, as well as environments and individual objects, that should be preserved because they are deemed representative of the railway's history. In cooperation with NSB BA, this preservation plan will be coordinated with the plan that already exists for the preservation of railway buildings. The deadline for the suggested plan has been extended to 31 December, 1999.

Training

During 1998, Jernbaneverket ran a series of courses called "Nature and the Railway". These courses are part of efforts to increase knowledge and awareness about relationships in nature, biological diversity, and the effects of the railway. The courses were developed in close cooperation with the Directorate for Nature Management and the Environmental Sections under some of Norway's County Commissioners (Fylkesmann).

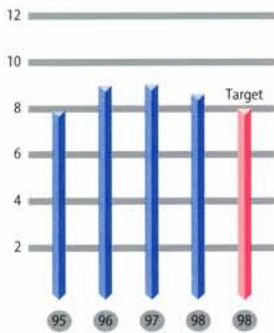
The 1998 Environmental Report describes Jernbaneverket's environmental policy and the status of various measures in detail.

The establishment of NIM, and especially NIM Technology, has revitalised Nordic cooperation on technical matters. The objective of this forum is to coordinate Nordic views and initiatives on questions of international relevance, to ensure that technical systems make it easier for railway traffic to operate between countries, and to contribute to the standardisation process. In addition, NIM plays an important role in forming networks for developing expertise and exchanging experience.

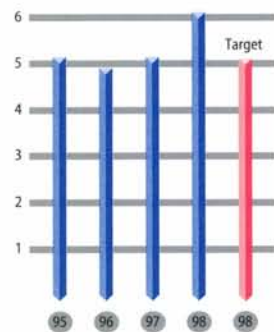
During 1998, Jernbaneverket, in cooperation with the Ministry of Transport, participated in the further development of the supranational convention which regulates laws and regulations on passenger and freight transportation (COTIF). These rules are expected to be adopted in 1999.



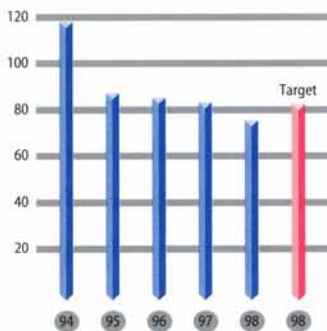
Overtime



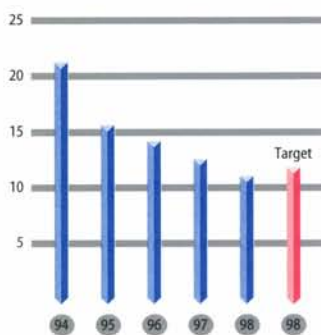
Absence due to illness



Injuries resulting in absence



H-value



Working Environment

Overtime

In 1998, paid overtime amounted to 8.7% of regular salary. This is almost identical with 1998, but still somewhat higher than the target figure of 8%. The target remains unchanged for 1999.

Illness

The level of absence due to illness was 6.1%, compared with 5% in 1997. This increase is serious, even though it is not high compared with other comparable organisations. Long-time illness accounts for most of this increase. There are, however, major differences among Jernbaneverket's divisions, both in terms of levels and increase. A positive development is that Region West has achieved annual reductions of absence due to illness every year since 1996. Measures are needed to reverse the negative trend elsewhere as well, and all supervisors have a key role to play. The 1999 target is 5.0%. Both general and specific measures are being planned in order to achieve lower sickness levels in 1999.

Injuries

The positive trend continued in 1998, with a reduction to 76 injury-related absences. This gives an H-value (injuries resulting in absence, per million work hours) of 11.0, a reduction of more than 10% compared with 1997. There were no fatal injuries in 1998. Jernbaneverket's objective is to reduce the number of absences due to injury continually. The target for 1999 is to bring the H-value below 10.

Injuries can be reduced further by identifying, charting and evaluating injury risks. Analyses of earlier injuries, unwanted incidents and near mishaps will be an important part of this process. In addition, it is crucial that HSE (Health, Safety and Environment) planning be integrated in all project phases and there must be an even stronger focus on the use of personal safety equipment.



Projects and Activities

Operation and maintenance

Operation and maintenance of the railway infrastructure is essential to ensure stable train traffic. As infrastructure manager, Jernbaneverket's key tasks include traffic control, visual track inspection, preparedness, trouble-shooting, snow clearance, monitoring and auditing.

When Jernbaneverket and NSB BA were established as separate companies, the costs associated with public station areas and freight terminals, as well as responsibility for dispatching trains, were transferred to Jernbaneverket. On 1 January, 1998, Jernbaneverket was also made responsible for traffic control, including train monitoring. These changes result in additional operating costs.

In 1998, Jernbaneverket's total operating costs were NOK 1.4 billion. Most of these expenses are associated with staff costs or the purchase of goods and services.

Jernbaneverket spent NOK 640 million on maintenance of the railway, to ensure safe and reliable train operations. Measures taken to deal with wear and tear caused by traffic and climate included replacing tracks and sleepers, cleaning ballast, maintaining bridges, preventive measures against slides and avalanches, and new safeguards. In the short term, maintenance is based on conditions reported during controls, and in the long term it is evaluated on the basis of expected life cycle of the equipment or infrastructure in question. A certain level of maintenance and renewal is required to ensure the safety and function of the railway.

Jernbaneverket's numerous maintenance projects vary greatly in priority, extent and cost. A common factor is that they are crucial for maintaining the current technical standard and enhancing safety. Some of the major projects are described below.

Replacing the track in Gudbrandsdalen

Due to metal fatigue, the track between Fåberg and Otta in Gudbrandsdalen is being replaced, whereas track grinding has been carried out between Otta and Dombås to delay the need for replacing this section of the track. The total cost estimates for the project, which will be completed in 1999, is approx. NOK 177 million.

Gardermobanen circuit boards

Jernbaneverket has entered into a co-operation agreement with NSB Gardermobanen AS. As part of this agreement, circuit boards have been developed for signalling and safety installations, point operating machines, telematics and contact lines. Total project costs are estimated at NOK 342 million.

Renewal of Drammenbanen

Measures were taken to upgrade the Skøyen-Asker section for the airport express train. These consisted primarily of work on the contact line. Most of the facility is complete, but some supplementary work will be carried out in 1999.

Development of the railway network

Jernbaneverket ensures the development of the railway network by planning and investing in the existing network, as well as by carrying out new construction projects. All of these projects and measures have one or more strategic objectives in relation to Jernbaneverket's product.

Norwegian Railway Plan: 1998-2007

In the spring of 1997, the Government presented the Norwegian Railway Plan: 1998-2007 (Parliamentary Report no. 39, 1996-1997). With only minor changes, Parliament approved the objectives and priorities delineated by the NRP.

Jernbaneverket has formulated a Plan of Action for 1998-2001, based on the NRP and Parliamentary resolutions, which has been incorporated into its management system. The budget suggestions and proposed annual infrastructure measures which Jernbaneverket submits to the Ministry of Transport are based on this Plan of Action.

In 1998, the main objective was to provide a basis for planning projects that are to be commenced, continued or completed in the period 1998-2001. It is especially urgent to complete and approve the plan for the new double track between Skøyen and Asker. Several alternatives are still being evaluated for the Skøyen-Lysaker section, including whether one or both tracks will pass through Fornebu. This decision of principle is expected to be made in the spring of 1999. The Municipality of Oslo is to make its final decision no later than the summer of 1999.

National Transport Plan: 2002 - 2011

In 1998, Parliament decided that a National Transport Plan (NTP) was to be formulated. This work is being carried out in working groups which include representatives of the various infrastructure managers, so that transport needs and solutions may be evaluated more comprehensively. In the past, the four infrastructure managers have formulated their own plans separately. In 1998, work on the NTP required considerable planning resources from Jernbaneverket. Implementation of this strategic plan for the period 2002-2011 is now being prepared. This encompasses all aspects of Jernbaneverket's operations and required considerable planning resources in 1998.

Important documents to be completed in 1999 are:

- National List of Challenges, 1 February
- General Corridor Assessment, 15 April
- Draft text for a National Transport Plan, 1 October

The main priorities of the Norwegian Railway Plan: 1998-2007 are:

- Local-traffic network in the areas of Oslo, Stavanger, Bergen and Trondheim
- Intercity network between Oslo, Halden, Skien and Lillehammer
- The Sørlandsbanen, Bergensbanen and Dovrebanen long-distance lines
- Track and terminal capacity for freight transport
- Transport standard on the existing railway network

Jernbaneverket has noted that the Norwegian Parliament, when approving the Norwegian Railway Plan, approved the objectives and priorities suggested by NSB BA. There are, however, major discrepancies when it comes to timing; the NRP is based on a considerably lower investment tempo than Jernbaneverket and NSB BA believe necessary if the railway is to maintain or improve its competitive position relative to other means of transportation. In this respect, it is a positive development that total allocations for tilting train measures on Sørlandsbanen, Bergensbanen and Dovrebanen were increased by NOK 600 million. In principle, increased allocations have also been approved for operations and maintenance, although the totals are lower than those recommended by Jernbaneverket.

According to the plan, construction tempo may be increased if:

- Decision on implementing the Skøyen-Asker section is expedited and the Oslo Package 2 is approved in early 1999.
- Ringeriksbanen can be commenced in 2001 after approval of plans. This requires extraordinary allocations beyond those described in NRP.
- A significant amount of traffic is moved from roads to the railway, in accordance with the intentions signalled in Parliamentary Proposition no. 36, 1996-97.

Major assessments and planning projects

During 1998, Jernbaneverket focused on a number of major assessments, reports and plans:

Tilting train measures on Sørlandsbanen, Bergensbanen and Dovrebanen

Detailed plans have been drawn up of measures to increase speed and capacity, and to improve punctuality and potential train frequency in preparation of tilting train traffic on Sørlandsbanen, Bergensbanen and Dovrebanen. Key measures include eliminating level crossings, adjusting signalling facilities to higher train speeds, upgrading contact lines, building crossing tracks, and various measures aimed at making the railway more accessible at stations and hubs. A number of measures were taken during 1998, and the work continues in 1999.

The most important consequence of the tilting train programme will be reduced travel time between cities and towns at which these trains call. In addition, train frequency will increase. Increased capacity on the railway network will result in better conditions for freight transport. In other words, the tilting train programme will lead to significantly improved service for both freight and passenger transportation on these railway lines.

New double track Skøyen-Asker

During 1998, Jernbaneverket worked to complete the master plan for a new double track railway between Skøyen and Asker, including an impact assessment and an evaluation of various alternatives for including a station at Fornebu, the former Oslo airport. Late 1998, an alternative for leading the new double track to Fornebu was proposed. This delayed the planning process. However, the master plan allows start-up of some sections of the new railway prior to a decision on the Lysaker-Fornebu alignment. The first stage of the impact assessment regarding Fornebu is almost complete and will be presented in February, 1999. A decision will then be made as to which alternatives are to receive further consideration.

Decision on the Land Use Plan for the area affected by the proposed Skøyen-Lysaker section will not be completed before the summer of 1999. Implementation of the master plan entails construction during 2000-2005, in accordance with the Oslo Package 2.

Oslo S-Hauketo-Bryn (Gamlebyen) and Hauketo-Ski

During 1998, Jernbaneverket completed a major planning project for a possible railway tunnel through Gamlebyen in Oslo. The impact assessment was submitted to public hearings in late 1998. In the spring of 1999, Parliament will consider the impact report and decide whether to continue the project. A body of experts will evaluate property ownership and other conditions that might affect construction of a railway section between Folloporten and the proposed tunnel through Gamlebyen. This work will be concluded in March, 1999.

Oslo Package 2

In late 1996, Parliament requested plans for swifter development of the public transportation system in the counties of Oslo and Akershus. The proposed Oslo Package was presented in November, 1997. During late 1998, Jernbaneverket and the Directorate of Public Roads formulated a Parliamentary proposition for the Oslo Package 2. The final draught of the text was ready in February 1999, and will be debated by Parliament in the course of 1999. Central elements of the package are double tracks for the new railway sections Skøyen-Asker (proposed completion 2005) and Oslo S-Ski (proposed completion 2010).

Sections of Vestfoldbanen and Østfoldbanen

Jernbaneverket has also worked on master plans for several sections of Vestfoldbanen and Østfoldbanen. In the spring of 1999, it is expected that the master plans for the Barkåker-Tønsberg and Farriseidet-Porsgrunn sections of Vestfoldbanen, and the Haug-Seut section of Østfoldbanen, will be completed and approved.



Freight terminals in Ganddal and Trondheim

A Parliamentary proposition prepared in early 1998 suggests that an infrastructure plan of action for northern Jæren be partly financed by road fees. Parliament will consider this plan in the spring of 1999. A priority for Jernbaneverket is to construct a freight terminal at Ganddal, in accordance with NRP: 1998-2001. This requires that the Municipality of Sandnes continues its planning process as soon as Parliament has considered the proposition.

The proposed freight terminal at Heimdal in Trondheim is a new alternative which will be added to the master plan. This alternative has delayed the process. Preliminary work is to be commenced in late 2000.

Ringeriksbanen

During 1998, the master plan and impact assessment for phase 2 was revised and is to be submitted to public hearings in the spring of 1999. The plan describes two different alignment corridors, which will be evaluated and compared by Parliament in late 1999.

Grenlandsbanen

Grenlandsbanen is the railway line proposed to connect Vestfoldbanen and Sørlandsbanen. A project report, including an impact study, is being prepared. It will conclude whether or not Grenlandsbanen should be built, and if so recommend an alignment. The assessment will be completed in the spring of 1999.

Major investment projects specified in Parliamentary Report No. 1, 1997-98

The table shows total cost estimates, 1998 allocations and accounts for the investment projects specified in Parliamentary proposition no. 1, 1997-98.

Property purchases required for Gardermobanen

The property purchases required to build Gardermobanen are to be covered by Jernbaneverket's budget. This process is to be completed in 2000.

Project	Cost estimate NOK 1998 *	Allocations 1998	Accounts 1998
Project specified			
Gardermobanen, Property purchases	181.9	32.8	8.9
Hovedbanen, Connecting track Hovedbanen-Gardermobanen	441.7	42.8	7.8
Gardermobanen, Construction of fuel transport line	32.4	32.4	0.0
New National Theatre station	905.8	249.4	292.6
National Theatre station, Western entrance	103.9	11.0	39.5
Operations centre, Oslo S.	75.9	25.6	10.5
Drammenbanen, Skøyen station	290.0	154.8	72.3
Vestfoldbanen, Åshaugen-Sande-Holm	478.0	84.4	120.2
Vestfoldbanen, Skoger-Åshaugen	459.9	108.9	44.0
Bergensbanen, Gråskallen	275.4	91.3	41.9
Bergensbanen, Tunga-Finse	187.4	54.1	22.2
Østfoldbanen, Sæstad-Haug	526.3	100.0	96.4
Østfoldbanen, Moss converter	121.3	8.4	10.5
Noise-reduction measures in Gamlebyen, Oslo	123.1	45.6	53.9
Vestfoldbanen/Bratsbergbanen, New servicing yard in Skien	106.3	10.6	20.0
Sørlandsbanen, Ganddal freight terminal	265.2	3.2	3.7
Tilting train measures on Sørlandsbanen, Bergensbanen and Dovrebanen	1 631.3	129.0	226.1
Sørlandsbanen, Kjelland converter	65.8	18.3	15.7
Sum, projects specified	6 271.6	1 202.6	1 086.1
Investments in existing infrastructure		127.2	147.6
Sum, Item 30		1 329.8	1 233.7

The table shows actual costs in 1998, while state accounts shows actual allocations for the year.

* In addition to the 1998 allocations of NOK 129 million, NOK 96.1 million was transferred from 1997, so that Jernbaneverket had a total of NOK 225.1 million available for tilting train measures in 1998 (excl. the Kjelland converter).

Connecting track between

Gardermobanen and Hovedbanen

Gardermobanen, the new airport express railway, is also an advantage for ordinary train services in the area. The connecting track between Hovedbanen and Gardermobanen allows NSB BA to offer its customers renewed and more effective schedules. Total capacity will be increased and the facilities as a whole can be used in a more flexible manner. The project was completed in April, 1998.

Track for transporting aeroplane fuel to Gardermoen

The project consists of a railway track for transporting aeroplane fuel to Oslo Airport Gardermoen. NSB Gardermobanen AS is in charge of construction which is being financed through Jernbaneverket's investment budget.

New station at the National Theatre

The facilities at the existing station are being expanded to four tracks which will run in a new tunnel, as well as new facilities for the public. It is necessary to upgrade the station in order to satisfy the

increased train traffic expected in the Oslo area in the coming years. As a result of this renewal of the National Theatre station, the capacity in the Oslo Tunnel will be increased from 16 trains per hour to almost 30. The project is to be completed in December, 1999.

Western entrance to the National Theatre Station

The new western entrance to the National Theatre station was constructed in order to make the station more accessible to the public, and it is a key element of the new station. This entrance, which opened on 20 March, 1998, was constructed while the station itself was being upgraded.

Operations Centre at Oslo central station (Oslo S)

The construction project at Oslo's central station includes Jernbaneverket's portion of the new operations centre. The operations centre covers these railway sections:

- Oslo-Roa-Hønefoss
- Oslo-Lillestrøm-Gardermoen-Eidsvoll
- Lillestrøm-Charlottenberg (Swedish border)
- Oslo-Ski-Sarpsborg-Kornsjo
- Oslo-Asker

The Oslo S operations centre integrates the technology of the existing railway network with the new technology used on Gardermobanen. There will be a phased implementation of these railway sections between 1998 and 2000.

Drammenbanen. Skøyen station

The Skøyen station was upgraded from three tracks to four, the platform capacity increased significantly, and new bridges were built to allow for a new public terminal. These improvements will make it easier to develop Skøyen station and the nearby area at a later date into an efficient hub for trains, bus, tramcars and taxis. Together with the expansion of the new National Theatre station, the changes at Skøyen have virtually doubled the traffic capacity through the Oslo Tunnel. The work was completed on schedule in 1998.

Vestfoldbanen. Åshaugen-Sande-Holm

Vestfoldbanen is to be upgraded with a 7 km long high-speed double track section. This construction project, which is to be completed in October 2000, will increase traffic capacity significantly and contribute to better punctuality on Norway's most heavily trafficked Intercity line.

Vestfoldbanen. Skoger-Åshaugen

This double track section will increase capacity and improve the punctuality of Intercity trains on Vestfoldbanen. The project must be seen in conjunction with the Åshaugen-Sande-Holm double track and it, too, is to be completed in October, 2000.

Bergensbanen. Gråskallen

Today, the 27 km long Haugastøl-Finse railway section is the longest stretch on Bergensbanen without a crossing track. Part of this is to be redirected onto a new 5.2 km track, of which 2.5 km will be in a tunnel where there will be a new cross-

ing track. These investments will improve punctuality and reduce winter operating and maintenance costs. The project is to be completed in October, 1999.

Bergensbanen. Tunga-Finse

The railway between Tunga and Finse is the highest altitude section of Bergensbanen, and the section which gets the most snow. A new project involves straightening and elevating the track, so that it will accommodate train speeds of 170 km/h. The project will improve punctuality, particularly in the winter, and reduce the operational problems that have been associated with the Tunga-Finse section. 6 km of the planned 8 km of new track are already in use.

Østfoldbanen. Såstad-Haug

This project is part of the ongoing modernisation of Østfoldbanen. Jernbaneverket has, for the time being, chosen to redefine the project from a double track to an extended crossing section. The result is a less costly solution, which will still make it possible to upgrade the section to double track at a later date, with relatively few changes. The construction project, which is to be completed in 2000, will allow more crossing trains and help improve punctuality on Østfoldbanen.

Moss converter

The new converter at Moss will strengthen the power supply to Østfoldbanen. This measure is important in terms of improving punctuality and making higher train speeds possible.

Noise-reduction measures for Gamlebyen in Oslo

Noise-reduction measures are being taken and ventilation systems being installed in residences in Gamlebyen, Oslo, to satisfy demands made by the County Commissioner for Oslo and Akershus counties, in connection with the Land Use Plan for Gardermobanen. Measures will satisfy requirements to

reduce average indoor noise levels over a 24 hour period to 35 dBA, and the outdoor noise level to 60 dBA. The project will be completed in April, 1999.

Vestfoldbanen / Bratsbergbanen. New servicing yard at Skien

New infrastructure measures are being undertaken as a result of NSB BA moving its primary service yard for Intercity trains (BM 70) to Skien. Measures include new track layout, platforms, changes in track area, new power supplies, signalling and safety installations, and new train cleaning facilities. The actual servicing facility is being financed by NSB BA. The project is to be completed in June, 1999.

Sørlandsbanen. Ganddal freight terminal

A new freight terminal at Ganddal has been planned to replace the present terminals in Stavanger and Sandnes town centres. The Ganddal terminal will allow more efficient operations for train freight and provide a more cost-effective solution. Investments will make it possible for a train to run from Oslo to Ganddal, unload its freight, re-load, and return to Oslo with its new freight, all in less than 24 hours. The terminal includes four long terminal tracks and a building for servicing lorries from NSB BA and other road freight carriers. This project is given high priority in NRP: 1998-2007 and must be seen in conjunction with the new trunk road construction, Rv 44. The freight terminal project is somewhat behind schedule, since the municipality has not yet adopted a Land Use Plan for the area. Planned completion is June, 2002.

Sørlandsbanen. Kjelland converter

The new converter at Kjelland near Egersund will provide electricity for the Kristiansand-Stavanger railway section. The converter, which has been completed, is required in order to operate new tilting trains.



Research and development

Jernbaneverket's efforts within research and development take the form of government R&D contracts, general agreements with research institutions, cooperation within the transport sector, and various forms of cooperation on an international level. Jernbaneverket has signed a four-year letter of intent with the Norwegian Industrial and Regional Development Fund (SND) on product and supplier development. SND, Jernbaneverket and the supplier will each cover one third of development costs. Jernbaneverket has also entered into a research collaboration agreement with the Foundation for Scientific and Industrial Research at the Norwegian Institute of Technology (SINTEF), the Norwegian University of Science and Technology (NTNU), and the Institute for Transport Economics (Transportøkonomisk institutt). A primary objective of the International Railway Union (UIC) and the European Rail Research Institute (ERRI) is to standardise rules and regulations for European railway infrastructure managers. Experts from Jernbaneverket participate in UIC's research activities within many fields.

When the 5th European Union Framework Programme for Research and Development commences in 1999, considerable resources will be used on projects related to transportation. Norway has the same access to these funds as the EU countries. Jernbaneverket strives to ensure that the Norwegian railway can benefit as much as possible from international R&D. In the next planning period, Jernbaneverket will focus on clearer management and objectives, improved coordination of efforts, and making even better use of Jernbaneverket's own expertise and external expertise. Jernbaneverket will give high priority to areas where there are special problems related to the railway infrastructure and train traffic.

In 1998, the most important R&D projects were related to railway construction on soft ground (a joint Nordic project), traffic control systems and quieter track switches, as well as sealing tunnels, 100 Hz shielding and safeguards, and the environment. A preliminary project focuses on environmentally safe and serviceable tunnels.





Tilting trains – new technology for Norway's railway of the future

Demand for better and faster transportation is growing. As a result, the railway must improve its product to be competitive. It is not feasible to build a completely new infrastructure for high-speed trains in Norway. Norwegian geography and topography make the costs of such a solution prohibitive. Hence the most cost-effective strategy is to modernise and further develop existing railway infrastructure.

The adaptation of the infrastructure to tilting train technology will be a central measure in Jernbaneverket's ongoing efforts to ensure a modern, competitive Norwegian railway. Tilting train technology allows trains to operate at higher speeds on curved track with no reduction in passenger comfort. Today, express trains operate at a maximum speed of 130 km per hour. Introduction of tilting trains will increase the top speed to 160 km/h and will also enable trains to run at higher speeds over greater distances. On some new railway sections, such as Gardermobanen and certain sections of Østfoldbanen, the maximum speed will be as high as 210 km/h. Such increases in speed will substantially reduce travel time on long-distance trains.

A number of measures on the railway network must be taken to exploit the speed potential of tilting trains, while maintaining passenger comfort and safety. Higher speeds entail more stringent demands for maintaining a flawless track. Jernbaneverket's objective is to increase network capacity as well as speed. The tilting train investment programme includes:

- Generally improving the standard by adjusting tracks
- Cleaning ballast (crushed rock and other materials used as foundations)
- Grinding of rails
- Removing/safeguarding level crossings
- Moving signals
- Replacing bridges that lack ballast
- Building new crossing tracks and extending existing ones
- Upgrading the power supply and replacing overhead contact lines

As a result of its debate on the Norwegian Railway Plan: 1998-2007, the Norwegian Parliament adopted a tilting train programme with an investment framework of NOK 1.6 billion over the four-year period 1998-2001. This was seen in the context of NSB BA's order for new tilting trains and the desire to fully utilise their potential. The first investments, totalling NOK 234.4 million, were made in 1998. The 1999 budget includes investment allocations of NOK 310 million; further investments are stipulated for 2000 and 2001. According to NSB BA's plans, the first tilting trains will be put into commercial operation on Sørlandsbanen, between Oslo and Kristiansand, in late 1999. In 2000, tilting trains will also be operating between Kristiansand and Stavanger, and on Bergensbanen and Dovrebanen. The plan is to introduce diesel-operated tilting trains on Rørosbanen, Nordlandsbanen and Raumabanen in 2000 and 2001.

Together with new infrastructure constructions, the adaptation to tilting train technology is part of Jernbaneverket's timely investments in a modern, Norwegian railway. These priorities are a response to the desire of political decision makers to prioritise the railway as a means of transportation. In addition, these measures reflect international developments in recent years with focus on strengthening the railway. Good examples of this are the upgrading of the continental European railway, the Channel Tunnel to Great Britain, and the new railway link from Scandinavia to the continent.

Norway's tilting train programme also reflects an economic sobriety that is appropriate when considering Norway's geography, topography, and the distribution of the country's population. The objective of the programme is to ensure the optimal utilisation and further development of the investments that have already been made in the Norwegian railway network throughout the last 150 years.

Developing the Organisation and Workforce

Personnel

Jernbaneverket had 3,650 employees at the end of 1998. The staff was reduced by 78 employees during the year. Reductions were greatest amongst track personnel, but there were also increased reductions amongst other groups. This trend will continue in the next few years; Jernbaneverket is currently overstaffed when it comes to track personnel, which will be reduced by natural and voluntary departures, and staff reduction measures. Track personnel will be given the opportunity to gain additional expertise in the fields of traffic control, freight and electrical work, in order to be able to qualify for other jobs and tasks within Jernbaneverket.

Regional production and management

On 1 January, 1997, Jernbaneverket separated the functions of production and management, organisationally as well as in principle. As supervisory personnel, line managers are responsible for providing train operating companies with a safe and accessible railway network. Production units, which include most regional employees, are responsible for providing operations and maintenance services to line managers.

During 1998 this new organisational structure was established in all regions. About 200 foremen and supervisors in the old organisation became redundant. Reductions included area managers and railway section managers. At the same time, vacancies in newly created management and specialist jobs were filled. In this way, a large number of supervisors and other employees received new roles and tasks. 1999 will be the first budget year during which the new organisation structure is fully operational in all regions. In the years ahead, regional production units will face an increasing degree of competition from external suppliers.

Special agreements

In 1998, Jernbaneverket made extensive efforts to reduce the number of special agreements on wages and working conditions. At the end of the year, nine agreements were still pending, 20 fewer than in 1997. Evaluations and follow-up of pending agreements will continue in 1999.

Operating parameters for Baneservice and Bane Tele

There has been increased use of competitive tenders in parts of Jernbaneverket's operations. As a result, an assessment has been made of the operating parameters for Baneservice and Bane Tele, in dialogue with employee representatives. There is agreement that both sides are well-served by changing these parameters. Joint efforts on these issues will continue in 1999, in dialogue with the Ministry of Transport.

Head Office

In the course of 1998, the Head Office was given its intended organisational structure. The functions that Jernbaneverket requires in order to carry out its role as infrastructure manager for the railway were established:

- The Information Department was established in 1998 with a staff of five. This department is responsible for information, public relations, internal information within the company, and design.
- Other departments that have been established are Track Access Authority and Property Management. Jernbaneverket also hired a head medical officer in 1998.
- Management control has been enhanced by establishing a new unit for Corporate Audits.
- A central department has been established to strengthen and coordinate measures aimed at developing the technical skills and knowledge of Jernbaneverket's workforce, including safety

Information technology

Information technology is an essential strategic tool for Jernbaneverket. The most important measures commenced or continued in 1998 were:

- Establishing preparations and preparedness for the year 2000. The so-called Y2K problem requires a complete survey of all microprocessor-based systems and entails measures necessary to secure operations in the rollover to the new millennium.
- Introduction of new systems for financial management, wages and personnel. Comprehensive specifications were formulated and a round of competitive tenders and subsequent negotiations was carried out before the present systems from Agresso were selected. Implementation started in 1998 and will continue throughout 1999.
- Upgrading the administrative IT infrastructure to ensure better utilisation of modern computer hardware and software. This affects more than 1400 users of Jernbaneverket's computer network.
- Establishing a preliminary project for renovating the database for Jernbaneverket's infrastructure elements.

1998 State Accounts

The following accounts were initially set to zero in 1998: Sale of properties, Work for external customers, Sales to NSB Gardermobanen AS, Sales of electricity, and Reimbursements. Parliament authorised Jernbaneverket (resolution no.1, 1997-98) to exceed 1998 allocations for Operating and maintenance costs (section 1350, item 23), and Investments (item 30), by amounts corresponding to income from Sale of properties etc (section 4350, item 02), and Work for external customers (item 03), by up to 6% of the total allocations in section 1350.

Under Operating and maintenance costs, Parliament also authorised Jernbaneverket to exceed allocations for Investments (section 1350, item 30) by sums corresponding to Sales to NSB Gardermobanen AS (section 4350, item 05). A similar authorisation was given regarding income from Sale of electricity to train operating companies (section 4350, item 06).

The Track access fee (item 01) has not been taken into account when calculating the reduction or increase in consumption relative to budget. Jernbaneverket does not have authority to exceed the budget on this item.

Section 1350, item 23.

Operating and maintenance costs

Parliament allocated NOK 2,096 million to Jernbaneverket's Operating and maintenance costs in 1998 (section 1350, item 23). In addition, an extra NOK 9 million was allocated to cover Increased staffing

Section 1350 Jernbaneverket

Item	Designation	Budget 1998	Changes	Appr. budget	Accounts
23	Operating and maintenance costs	2 096.0	9.4	2 105.4	2 540.2
30	Investments	1 257.8	168.1	1 425.9	1 387.8
31	Impact assessment of tunnel through Gamlebyen		0.1	0.1	
32	Payments to Gardermobanen AS		1 680.0	1 680.0	1 680.0
70	Reimbursements to Telenor AS		208.0	208.0	208.0
Total, section 1350		3 353.8	2 065.6	5 419.4	5 816.0

Section 4350 Jernbaneverket

Item	Designation	Budget 1998	Changes	Appr. budget	Accounts
01	Track access fees	55.3	0.0	55.3	47.0
02	Sale of properties etc.	0.0	0.0	0.0	12.0
03	Work for external customers	0.0	0.0	0.0	248.6
04	Rental income	0.0	27.0	27.0	0.0
05	Sale to NSB Gardermobanen AS	0.0	0.0	0.0	43.3
06	Sale of energy for train operation	0.0	0.0	0.0	123.4
15	Reimbursement of labour market measures	0.0	0.0	0.0	0.1
16-1	Reimbursement of wages	0.0	0.0	0.0	5.7
16-2	Reimbursement of payroll tax	0.0	0.0	0.0	0.8
17	Reimbursement for trainees	0.0	0.0	0.0	2.6
Total, section 4350		55.3	27.0	82.3	483.5

Section 1350- Approved budget

5 419.4

Section 4350- Incomes item 02-17

436.5

Sum

5 855.9

Accounts

5 816.0

Net result

39.9

and preparedness at seven stations on Hovedbanen between Oslo S and Lillestrøm, during a three-month period.

In January 1998, Jernbaneverket requested funds for Measures to strengthen state financial management (section 1630); it applied for NOK 2 million to cover consultancy fees related to the introduction of new systems for financial management, wages and personnel. In March 1998, Jernbaneverket was allocated NOK 400,000 for section 1350, item 23.

Section 1350, item 30. Investments

Jernbaneverket received allocations of NOK 1,257.8 million for Investments (section 1350, item 30). In addition, NOK 96.1 million was transferred from 1997, equal to that year's decreased consumption.

Parliament allocated an extra allocation of NOK 72 million to Jernbaneverket's tilting train measures on Sørlandsbanen, Bergensbanen and Dovrebanen (resolution no. 64, 1997-98). Together with ordinary allocations, Jernbaneverket had a total of NOK 243.4 million to spend on tilting train measures in 1998.



Section 1350, item 31. Impact assessment of tunnel through Gamlebyen, Oslo

Jernbaneverket received no allocations for this item, but NOK 121,000 was transferred from 1997.

Section 1350, item 32. Payment to NSB Gardermobanen AS

Jernbaneverket received an allocation of NOK 1.68 billion to be used in its entirety as payment to NSB Gardermobanen AS for purchase of the Gardermoen-Eidsvoll railway section.

Section 1350, item 70 (new). Reimbursements to Telenor

Parliament passed a resolution granting additional allocations of NOK 208 million for Reimbursements to Telenor (section 1350, item 70 – new), and Rental incomes of NOK 27 million (section 4350, item 04) (resolution no. 27, 1998-99). These allocations are related to the financial settlement reached between Jernbaneverket and Telenor AS with regard to Jernbaneverket's fibre-optic network. Jernbaneverket reimbursed Telenor AS the sum of NOK 208 million in December, 1998.

In 1998, Jernbaneverket entered into an agreement with Telia Norge AS which essentially authorises Telia Norge AS to link some of its own fibre-optic installations to Jernbaneverkets fibre-optic network, without Jernbaneverket assuming any economic risk. In 1998, it was estimated that Jernbaneverket would receive an income of NOK 27 million for the transmission capacity used by Telia Norge AS, and that this sum was to be used toward reimbursements to Telenor AS of NOK 208 million.

Section 4350, item 01. Track access fees

Jernbaneverket received income allocations of NOK 55.3 million in the form of Track access fees (section 4350, item 01).

Section 4350, item 04. Rental income

See above. Reimbursements to Telenor AS (section 1350, item 70).

Section 4350, other items

The other income items in section 4350 were initially set to zero in 1998.



Increasing Jernbaneverket's Expertise

Planning and Analysis

Jernbaneverket is responsible for carrying out socio-economic analysis of investment projects, including traffic prognoses and economic analyses of their management. More stringent demands for precise calculations and the results of recent R&D work require a revision of certain elements of Jernbaneverket's Cost/Effectiveness Handbook. With the assistance of external expertise, the following projects will be carried out in 1999: 1) Development of new methods of planning public transportation. 2) Methodology for cost-effectiveness analyses.

Buildings and Electrical Facilities

Projects in 1999 include: 1) Environmentally safe and serviceable tunnels (preliminary project). 2) Railway construction on soft ground (a joint Nordic project). 3) Measures to avoid trains colliding with wildlife. 4) Track evaluation/testing relative to comfort and train sickness (a UIC project). 5) Quieter track switches. 6) Increasing the stability of the power supplies – cyclic variation circuits. 7) Grounding and return circuit on NSB Gardermobanen. 8) Simulation of dynamic performance of existing contact lines.

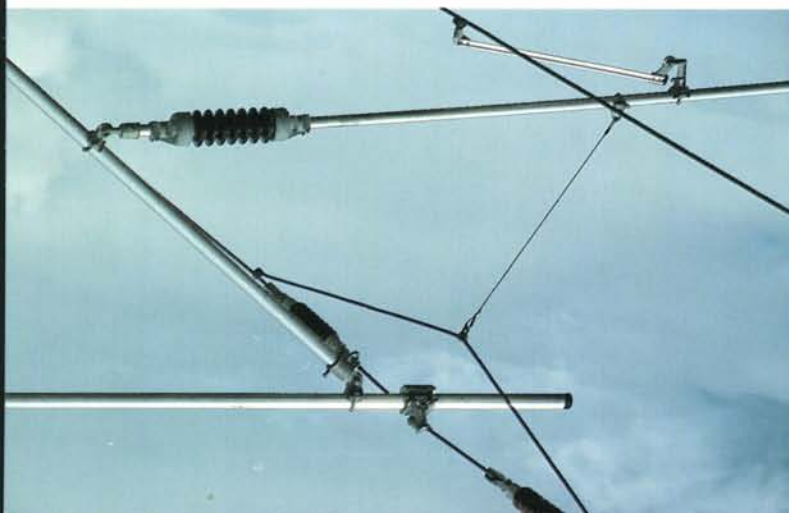
Signalling and

Telecommunication Facilities

Projects in 1999 include: 1) Fibre-optic line blocks. 2) 100 Hz safeguards (in progress). 3) ATC - European Rail Traffic Management System (ERTMS), report. 4) Fibre-optic transmission net, prototype. 5) Implementing GSM-R in Jernbaneverket. 6) Developing a new track section telephone system.

The Environment

Some R&D projects that will be carried out in 1999 include developing less noisy track switches, noise reduction measures at steel bridges, and a trial project aimed at reducing track noise. Projects aimed at controlling vegetation along the railway have also been initiated. In 1999, a study of various means of transportation will be initiated to investigate which ones have the greatest environmental impact between different destinations and in different regions. Another project will analyse the degree of air pollution travellers are exposed to when they use car, bus or train.



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